# SEWER STUDY REPORT

**FOR THE**

# KAISER PERMANENTE
# RIVERSIDE MEDICAL CENTER

July 12, 2021

***Prepared by:***

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Scott Davis, PE


_____ _____
Signature Date

MBI JN 174808*KAISER PERMANENTE SAN DIEGO CENTRAL HOSPITAL*

***Submittal to:***
City of Riverside

## Table of Contents



## Figure Index



## Table Index




## Appendices Index

# A. Objective

This report provides background data, hydraulic analysis, and a summary of results as part of a sewer study for the proposed Kaiser Permanente Riverside Medical Center Expansion Project (Project). The purpose of this study is to determine the potential impact of the proposed project on the existing downstream sewer system and to verify design of the proposed onsite sanitary sewer infrastructure. This study considers both the initial Early Project and future Ultimate Project, focusing on changes in sewage flow caused by proposed changes to the Diagnosis and Treatment (D&T) building and bed tower building.

# B. Project Description

## B.1 Project Location:

The Kaiser Permanente Riverside Medical Center site is located at 10800 Magnolia Avenue, Riverside CA 92505. The redevelopment area of disturbance is about 16 acres of the project site. The project is adding a Cooling Tower, Diagnostic & Testing, Rotunda, multi-story parking structure buildings along with redesign of parking lots. It is bounded by Magnolia Avenue to NW, Polk Street to the NE, Park Sierra Drive to the SW and the Castle Park amusement park to the SE with Diana Ave further SE. The entire project site was previously graded and is currently developed. The project site is shown in **Figure 1** and **Figure 2**. This report focuses on Magnolia Avenue and the NW edge of the hospital complex.

**Figure 1: Project Site (Google Maps)**

**Figure 2: Project Site**

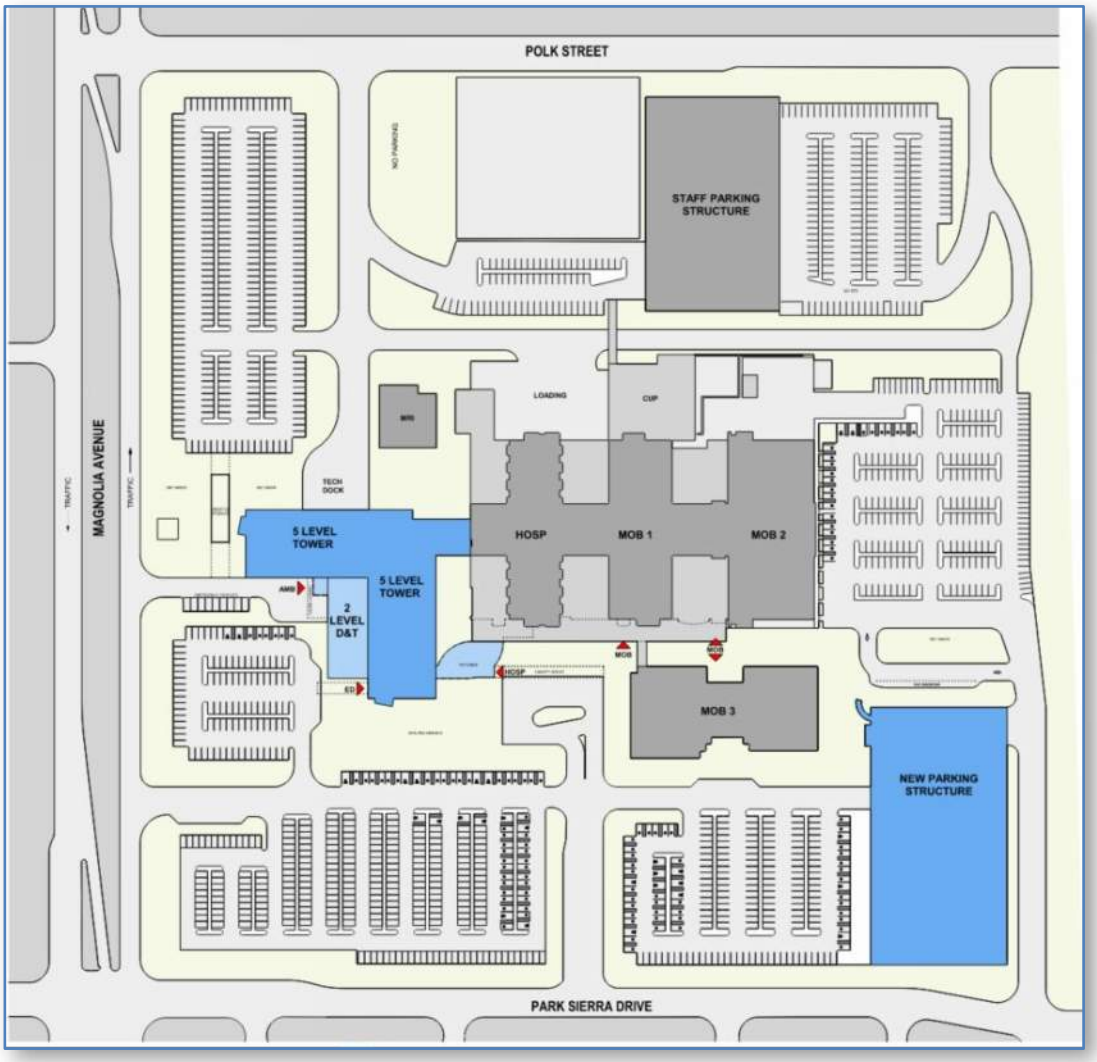
## B.2 Existing Conditions:

A map excerpt, taken from Volume 3 of the City of Riverside's Sewer Master Plan, has been annotated to show the location of the hospital and some key streets; it is included in **Appendix F**. The notable streets are Golden Ave, Magnolia Ave, Riverwalk Pkwy, and Pierce Street, all of which are downstream to the west of the project site. The map, titled "Future Wastewater Collection System Capacity Analysis," highlights sewer infrastructure in Riverside which is planned to have deficiencies. The map shows that none of the sewers within these streets have planned deficiencies. While the Pierce Street lift station is shown as having a planned deficiency, Section 7.2.3 of the same master plan volume states that the lift station will be only 0.08 MGD over capacity at buildout conditions, and that such a deficiency does not warrant a capacity upgrade. The master plan also recommended that flow monitoring data be used to confirm the performance and capacity of the Pierce lift station. Therefor it is expected that the project will not have a significant impact on downstream wastewater infrastructure, and the receiving pipes will not exceed the maximum permissible 0.75 d/D ratio. A table taken from the same master plan which shows the remaining capacity of the Pierce Street lift station has been included in **Appendix G**.

## B.3 Proposed Project:

The proposed Project at 10800 Magnolia Avenue will be an expansion to the existing medical campus. **Figure 3** depicts the schematic site layout for the Ultimate Project including the location of the patient bed towers, D&T, Emergency Department, CUP, medical office buildings, and parking structures within the Project area. Existing features are already accounted for in the existing sewage demand estimate and modeling provided by Riverside. See **Appendix A** for a vicinity map.

**Figure 3: Proposed Site Layout**




## B.4 Prior Site Planning

The Kaiser Permanente Riverside Hospital currently consists of two buildings, hospital and medical office building, and provides patient care services. This project currently designates the aging infrastructure as a facility requiring upgrades and renovations to meet current California Office of Statewide Health Planning Development (OSHPD) requirements. The site is adding multi-story towers, D&T building, and a parking structure, but this report will only cover the D&T building and added beds to the hospital building. The project will be constructed in phases beginning with new parking structure slated for construction first and hospital towers later. Site will be demolished and restored in segments, along with demolition to existing on-site parking, to accommodate the proposed Project. Patient parking, fire access, patient and ambulance circulations is planned accordingly to minimize impacts to the hospital operations.

### B.5 Study Area

The subject study area is bounded by Magnolia Avenue to north, Polk Street to the east, Park Sierra Drive to the west and Castle Park to the south. This report focuses on the area bounded by Mercer Ave to the NW, Burge St to the SW, Magnolia Ave to the SE, and Jones Ave to the NE. In accordance with the city requirements, this preliminary sewer study is to ensure existing sanitary sewer services have available capacity for the proposed expansion and sufficiently size the proposed on-site sewer mains and laterals.

The on-site sewer system is comprised primarily of private 8-inch sewer mains. On-site generated wastewater is transported west, away from the Project. The wastewater is then transported west to an 8-inch PVC gravity sewer. The flow continues southwest to a 21-inch VCP and then to a 24-inch VCP. The flow is eventually directed north to the Riverside WWTP near Jurupa Ave. Refer to **Appendix B** for the Preliminary Utility Plan locating the proposed wastewater mains within the project area.

## C. Analysis Criteria

Preliminary sewer generation rates for the proposed development are based on wastewater flow factors found in Volume 2 of Riverside's Update of the Integrated Master Plan for the Wastewater Collection and Treatment Facilities. Average dry weather flow (ADWF) and peak wet weather flows (PWWF) were obtained for the Early Project and Ultimate Project, taken from Riverside's Wastewater Facilities Master Plan Volumes 2 and 3. **Table C.1** shows sewer design criteria.

**Table C.1**
**Design Criteria**

| | |
|---|---|
| Non-Residential Hospital | 250 gpd/bed |
| Non-Residential Commercial | 1,700 gpd/acre |
| Minimum Velocity | 2 ft/s |
| Maximum Velocity | 10 ft/s |
| Recommended Velocity | 3 ft/s |
| Manning's coefficient for all pipes | 0.015 |
| Peak Dry Weather Peaking Factors | Refer to Table 5.2 |
| Peak Wet Weather Peaking Factor | 1.2 |
| Pipes 8-inch to not exceed flow of 250,000 gpd | 0.25 MGD |
| Pipes 8 to 10-inch to not flow more than 50% full during PDWF | d/D = 0.5 |
| Pipes 12 to 18-inch to not flow more than 67% full during PDWF | d/D = 0.67 |
| Pipes 21 to 24-inch to not flow more than % full during PDWF | d/D = 0.75 |
| Pipes 10-inch and smaller to not flow more than 50% full during PWWF | d/D = 0.50 |
| Pipes 12-inch to 18-inch to not flow more than 67% full during PWWF | d/D = 0.67 |
| Pipes greater than 18-inch to not flow more than 75% full during PWWF | d/D = 0.75 |
| All pipes to not exceed 90% full during PWWF | d/D = 0.90 |

There are 152 new beds proposed with a sewer generation of 250 gpd per bed, for an increase of 38,000 gpd. The D&T building is planned at about 2.14 acres and 1,700 gpd/acre, for an increase of 3,638 gpd. This is a total of an additional 41,638 gpd. **Table C.2** shows the proposed sewage generation.

**Table C.2**

**New Sewage Demand Factors**

| | # of (Units) | Sewage generation per (Unit, gpd) | Sewage generation |
|---|---|---|---|
| Bed Tower Building | 152 (Beds) | 250 | 38,000 |
| D&T Building | 2.14 (Acres) | 1700 | 3,838 |
| **Total** | --- | --- | **41,638** |

# D. Sewer Analysis

## D.1 Model Methodology

The sewer analysis focuses on the hydraulic analysis of the existing sanitary sewer system with new flows from the Project and the results of the hydraulic analysis. Design standards used were derived from Volume 3 of Riverside's Update of the Integrated Master Plan for the Wastewater Collection and Treatment Facilities.

A hydraulic analysis of the existing sanitary sewer within the study area was conducted. Sanitary sewer infrastructure owned by Riverside will ultimately transport all wastewater flow generated onsite, with the exception of softeners, to a treatment facility. For this study, the hydraulic analysis concludes at the point of connection between the 12-inch sewer and 33-inch sewer main located approximately 1,270 feet west of Oliver Street and 2,680 feet north of Iris Avenue.

The Average Dry Weather Flow (ADWF) was calculated for each reach by the product of the cumulative bed count or facility square footage of 250 gpd/bed and 1,700 gpd/acre, respectively. Peak Dry Weather Flow (PDWF) was calculated for each reach by multiplying the ADWF by the calculated Peaking Factor for Dry Weather Flow (PFDW). The PFDW, which decreases as the cumulative ADWF increases, ranged between 2.77 and 2.8. Peak Wet Weather Flow (PWWF) was calculated for each reach by multiplying the PDWF by the calculated Peak Factor for Wet Weather Flow (PFWW). The PFWW was maintained at a safety factor of 1.2. The design full pipe capacity ($Q_{full}$) was calculated utilizing Manning's Equation and a Manning's "n" value of 0.015.

The ratio of actual depth to pipe diameter (d/D) was calculated by using an Excel algorithm to select the appropriate d/D (to the nearest 0.01 increment) based on the corresponding ratio of calculated ADWF, PDWF, and PWWF to full pipe flow ($Q/Q_{full}$).

The minimum velocity is 2.0 ft/s. In reaches of upstream sewers having very light sewer loads, this would result in very impractical and steep sewer slopes. Sewer Generation Rates

The average proposed dry weather flow (ADWF) was calculated based on the increase in the number of beds for the tower building and the acreage of the D&T building, as described previously in **Section C**. Flows from existing features were already accounted for in the modeling provided by Riverside and are therefore not included in **Table D.1**.

**Table D.1**
**Proposed Sewer Generation Rates**

| | | |
|---|---|---|
| **AVERAGE PROPOSED DRY WEATHER FLOW** | | **[250 (gal/bed) * 186 Beds] + [1,700 gpd/acre * 2.14 Acres]** |
| | = | **41,638 gpd** |
| **PEAK DRY WEATHER FLOW** | = | **ADWF * Peaking Factor** |
| | = | **41,638 gpd * 2.8** |
| | = | **116,586 gpd** |
| **PEAK WET WEATHER FLOW** | = | **PDWF * Peaking Factor** |
| | = | **116,586 gpd * 1.2** |
| | = | **139,903 gpd** |

These flow values do not meet or exceed the 250,000 gpd limit for 8-inch sewer pipes and are within the system's capacity. Tables containing modeling results for the existing, proposed average, and proposed peak conditions can be found in **Appendix C**, **Appendix D**, and **Appendix E.**

## D.2 Hydraulic Analysis Assumptions

Sewer design guidelines are included in the hydraulic analysis for this study. This study recognizes additional detailed information necessary to complete the hydraulic analysis and assumptions are considered for the sewer model and design of the project area.

Several pieces of wastewater infrastructure were identified at specific locations downstream of the project area. These include a 21" and a 24" pipe on Magnolia Ave, a 12" pipe on Golden St, a 20" and a 27" pipe on Riverwalk Pkwy, and the Pierce St pump station. it has been determined that the expansion

will not increase the d/D ratio of 0.75 for flows in the downstream infrastructure. The analysis of the downstream conditions based on the existing model from 2019 was done with the understanding that this project was not demanding additional capacity, and that all downstream infrastructure will continue to meet the required flow capacity.

New sewer lengths, sizes, invert elevations, and elevations for building points of connection were derived from a utility plan set provided by CO Architects for the Kaiser Permanente Riverside Medical Center, included in **Appendix B.** The Ultimate Project new sewer design assumes 6-inch laterals at 2% slope and 8-inch sewer mains at 0.4% slope.

Wastewater flow generated from the New Diagnostics & Treatment (D&T) facility in the Early Project is consistent with the D&T facility generated wastewater flow in the Ultimate Project. Although the D&T facility will be expanded in the Ultimate Project, the wastewater generated in the hospital and new patient towers due to the expanded bed count will account for additional wastewater in the D&T expansion.

The sanitary sewer system includes a sewer manhole located north of the project area. Per the model, this manhole includes a single connection. The southerly connection transports generated wastewater from the Project area via an 8-inch VCP sewer. The easterly connection transports wastewater developed from the Fresenius Medical Care – Moreno Valley Dialysis center via 10-inch sewer. A wastewater demand for Fresenius Medical Care, located east of the project, was calculated based on the facility size and using a non-residential commercial demand factor. The wastewater from this facility is estimated and does not reflect actual data.

Software used for hydraulic modeling is InfoSWMM Suite 14.7 (Update #1).

## D.3 Hydraulic Analysis Results

The Early Project and Ultimate Project models correspond with a sanitary sewer design layout displaying existing and proposed sewer mains, branches, and laterals both onsite and offsite which can be found in **Appendix B**. All images were taken from within the InfoSWMM Suite hydraulic modeling. The following exhibits show pipe profile for the immediately downstream pipe that receives the flows from the project site. The receiving manhole is named “PROP_1” and the immediately downstream pipe is “CDT-1061” in the InfoSWMM pictures. These profiles cover the existing condition, the average day dry weather proposed conditions, and the peak day dry weather conditions.

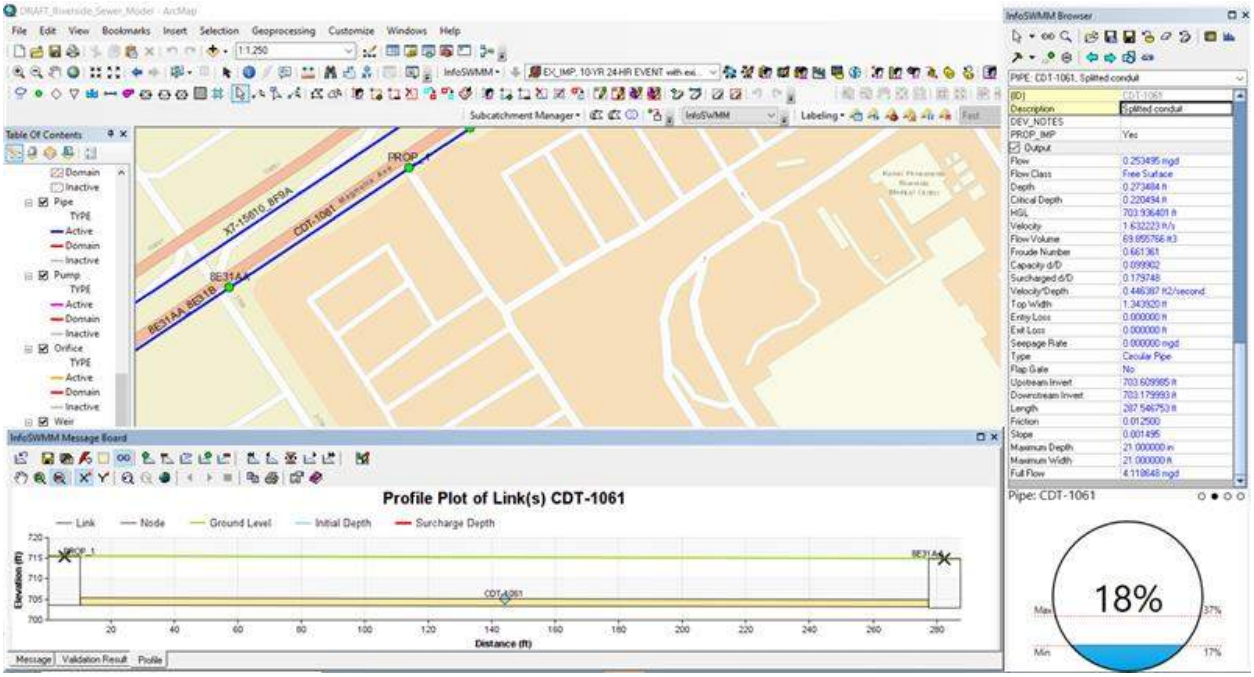



**Exhibit 1: Existing Dry Weather Conditions Pipe Profile**

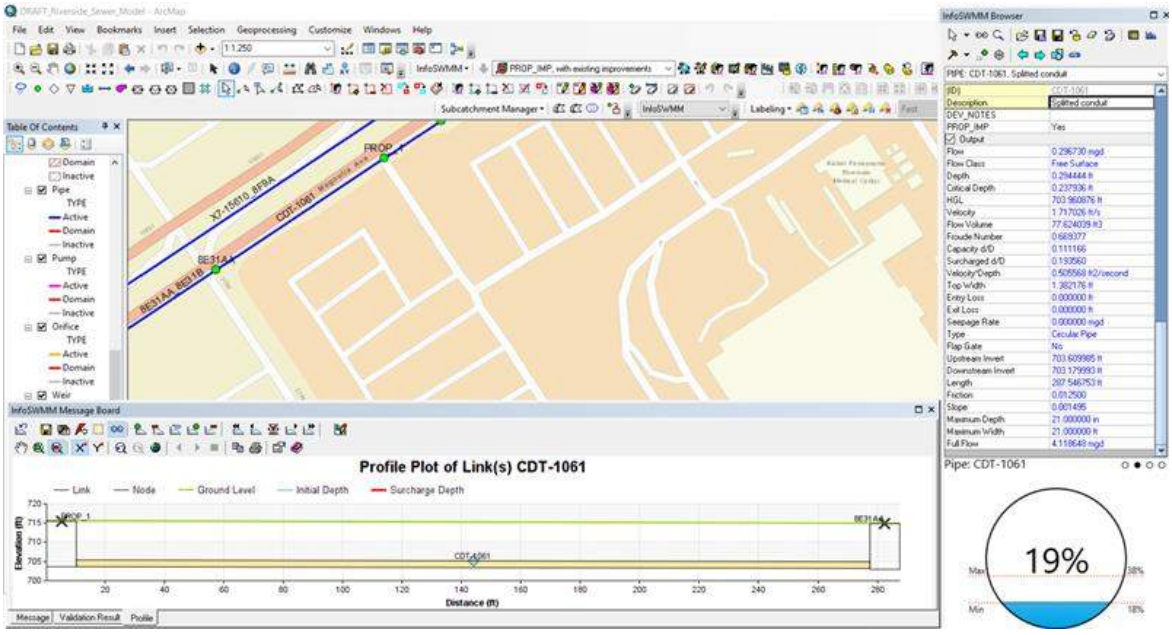



**Exhibit 2: Average Day Proposed Dry Weather Conditions Pipe Profile**

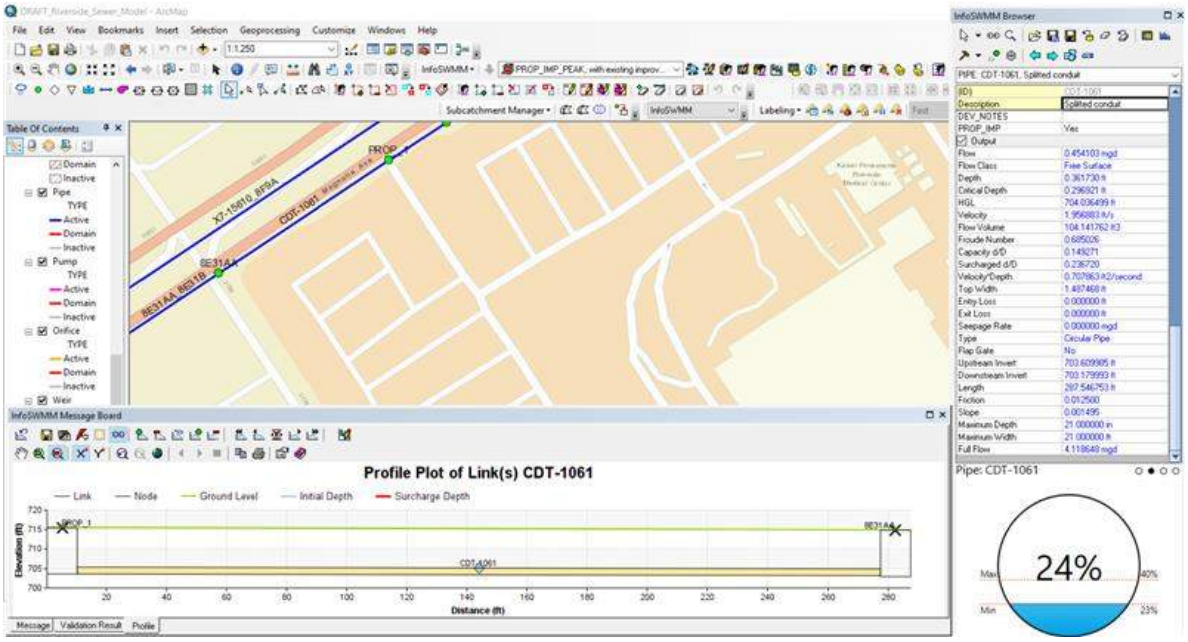



**Exhibit 3: Peak Day Proposed Dry Weather Conditions Pipe Profile**

## E. Conclusion

Based on the discussion provided in **Section C** and analysis results provided in **Section D** regarding the Project, the following recommendation is provided:

1. The d/D ratio at the pipe immediately downstream of the PROP_1 connecting manhole is 0.18 under current conditions. For the proposed condition, it is 0.19 during average day dry weather flows, and 0.24 during peak day dry weather flows. These values are all well within allowable limits.

2. The daily flows through the 8-inch connecting pipe from the project site will not exceed the maximum 250,000 gpd limit.

3. The pipe velocity under existing conditions is only 1.63 ft/s, and 1.96 ft/s under the proposed peak day dry weather conditions. It is typically preferrable to have a velocity of at least 2 ft/s.

## F. Summary

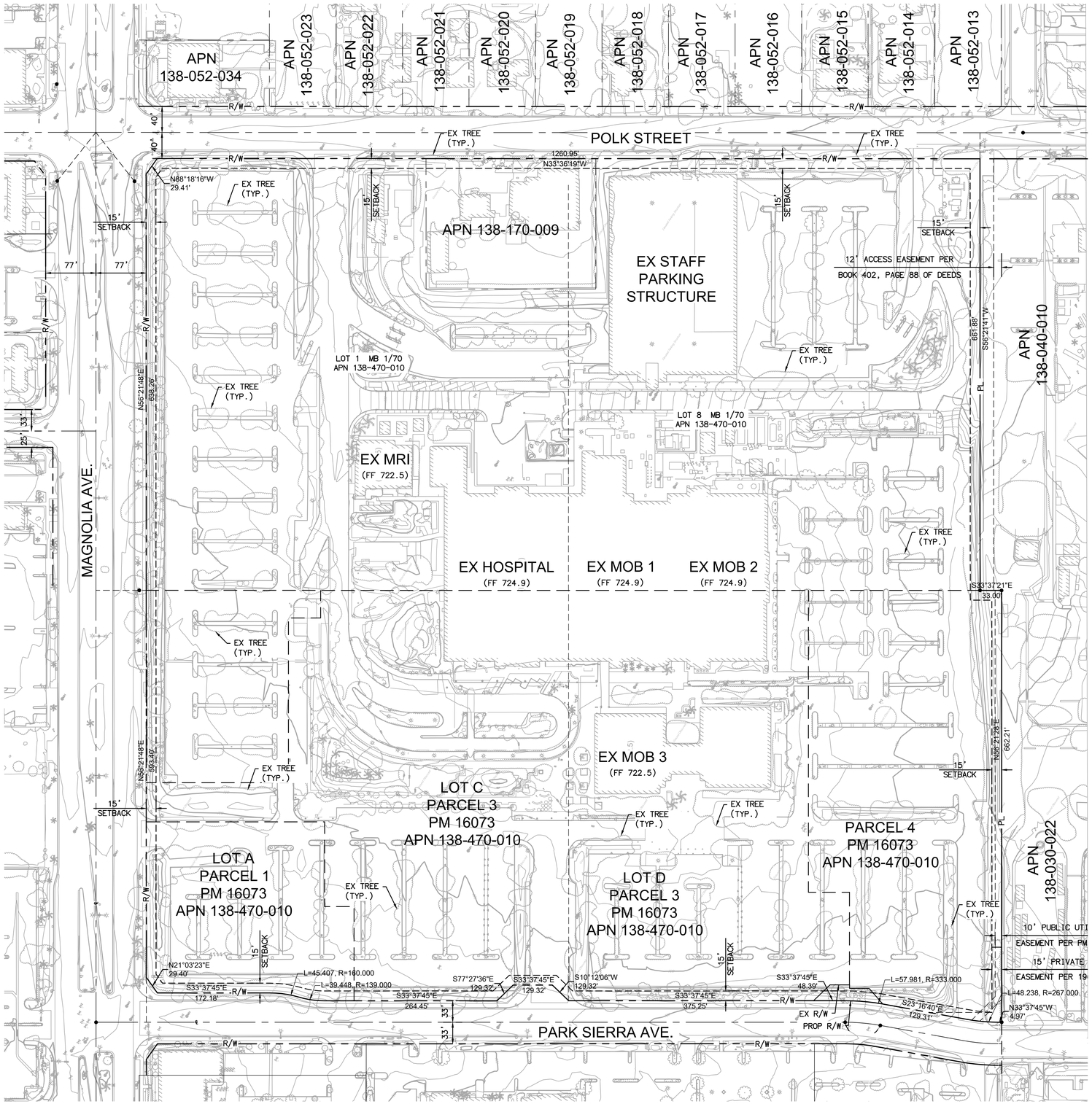
Modeling done in InfoSWMM showed that under existing and buildout conditions, the average d/D ratio of the receiving infrastructure downstream from the project area would not exceed permissible limits. Hydraulic modeling tables for pipes and manholes under proposed improvements under buildout conditions are included in **Appendix D** and **Appendix E**.

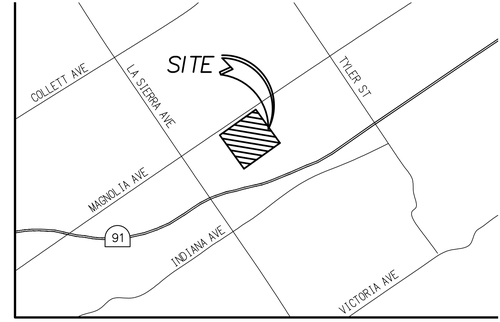
# Appendices

## Appendix A: Site Vicinity Map


SITE
NORTH
COLLETT AVE
LA SIERRA AVE
TYLER ST
MAGNOLIA AVE
91
INDIANA AVE
VICTORIA AVE

## Appendix B: Utility Plan Set




VICINITY MAP

## OWNER/ DEVELOPER

KAISER PERMANENTE
393 E. WALNUT STREET, 4TH FLOOR
PASADENA, CA 91188
CONTACT PERSON: SKYLER DENNISTON
PHONE NO. (626) 405-6333

## CIVIL ENGINEER

MICHAEL BAKER INTERNATIONAL
9755 CLAIREMONT MESA BOULEVARD, SUITE 100
SAN DIEGO, CA 92124
PHONE NO. (858) 614-5000

## ARCHITECT

CO ARCHITECTS
5055 WILSHIRE BOULEVARD, 9TH FLOOR
LOS ANGELES, CA 90036
PHONE NO. (323) 525-0500

## SITE ADDRESS

10800 MAGNOLIA AVE
RIVERSIDE, CA 92505

## TOPOGRAPHY SOURCE

AEROTECH MAPPING, INC.
29970 TECHNOLOGY DRIVE, SUITE 220-C
MURRIETA, CA 92563
PHONE NO. (619) 606-5020
TOPO SOURCE: AERIAL TOPO
TOPO SOURCE DATE: NOVEMBER, 11, 2019

## BENCHMARK

THE BASIS OF ELEVATIONS FOR THIS SURVEY IS THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88) BASED LOCALLY UPON THE FOLLOWING NGS BENCH MARKS:
NAME: B1307
ELEVATION: 833.80 FT

## FEMA ZONE

ZONE X

## BASIS OF COORDINATES & BEARINGS

THE COORDINATES AND BEARINGS SHOWN HEREON ARE BASED UPON THE CALIFORNIA COORDINATE SYSTEM OF 1983, CCS83, ZONE 6. SAID COORDINATES AND BEARINGS ARE BASED LOCALLY UPON THE FOLLOWING CONTINUOUSLY OPERATING REFERENCE STATIONS AS PUBLISHED BY THE CSRC:

| NAME | NORTHING (FT) | EASTING (FT) |
|---|---|---|
| MLFP | 2,279,468.79 | 6,237,667.54 |
| CNPP | 2,258,382.63 | 6,149,110.39 |
| NOCO | 2,280,817.72 | 6,161,338.65 |
| RTHS | 2,341,716.28 | 6,227,593.02 |
| EWPP | 2,347,787.35 | 6,175,506.69 |

ALL COORDINATES AND DISTANCES ARE IN TERMS OF THE U.S. SURVEY FOOT, 1 METER= 39.37/12 FEET

## LEGAL DESCRIPTION

PORTION OF LOTS 1 AND 8 IN BLOCK 39 OF THE LANDS OF THE RIVERSIDE LAND AND IRRIGATING COMPANY, AS SHOWN BY MAP ON FILE IN BOOK 1 OF MAPS AT PAGE 70 THEREOF, RECORDS OF SAN BERNARDINO COUNTY, CALIFORNIA, TOGETHER WITH PARCELS 1 THROUGH 4 INCLUSIVE OF PARCEL MAP NO. 16073, AS SHOWN BY PARCEL MAP ON FILE IN BOOK 116, AT PAGES 92 AND 93 THEREOF, RECORDS OF RIVERSIDE COUNTY, CALIFORNIA.

## LEGEND

| | |
|---|---|
| STREET CENTERLINE | ——— – ——— |
| RIGHT OF WAY / PROPERTY LINE | ——— – – ——— |
| PARCEL LINE | – – – – – – |
| EASEMENT LINE | – – – – – – – – |

## UTILITY COMPANIES

| | |
|---|---|
| AT&T | (951) 351-6990 |
| CHARTER | (866) 874-2389 |
| CROWN CASTLE | (877) 486-9377 |
| SOCAL GAS | (800) 427-2200 |
| SPRINT | (951) 335-4392 |

## EXISTING UTILITY NOTE

EXISTING UTILITIES HAVE BEEN SHOWN BASED ON THE BEST AVAILABLE INFORMATION. CONTRACTOR SHALL LOCATE AND MARK OUT ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION. CONTRACTOR SHALL CONTACT THE ENGINEER IF ANY UTILITIES ARE LOCATED THAT ARE NOT IDENTIFIED ON THESE PLANS.

## STORM WATER NOTE

A STORMWATER POLLUTION PREVENTION PLAN (SWPPP), WHICH INCLUDES BEST MANAGEMENT PRACTICES TO REDUCE POLLUTANTS REACHING DOWNSTREAM WATER BODIES, WILL BE PREPARED PRIOR TO ISSUANCE OF GRADING PERMIT AND A NOTICE OF INTENT SUBMITTED TO THE STATE REGIONAL WATER QUALITY CONTROL BOARD.

## EARTH WORK

| | |
|---|---|
| CUT: | 9,700 CY |
| FILL: | 18,500 CY |
| IMPORT: | 8,800 CY |

## LAND USE

EXISTING: HOSPITAL AND MEDICAL OFFICES
PROPOSED: HOSPITAL AND PARKING STRUCTURE

## DISTURBED AREA

GROSS DISTURBED AREA: 16.15 ACRES

SCALE 1"=80'

80 40 0 80 160 240

SCALE: 1"=80'

**DRAFT PRINT**

EXISTING CONDITIONS

MARCH 6, 2020

CO ARCHITECTS

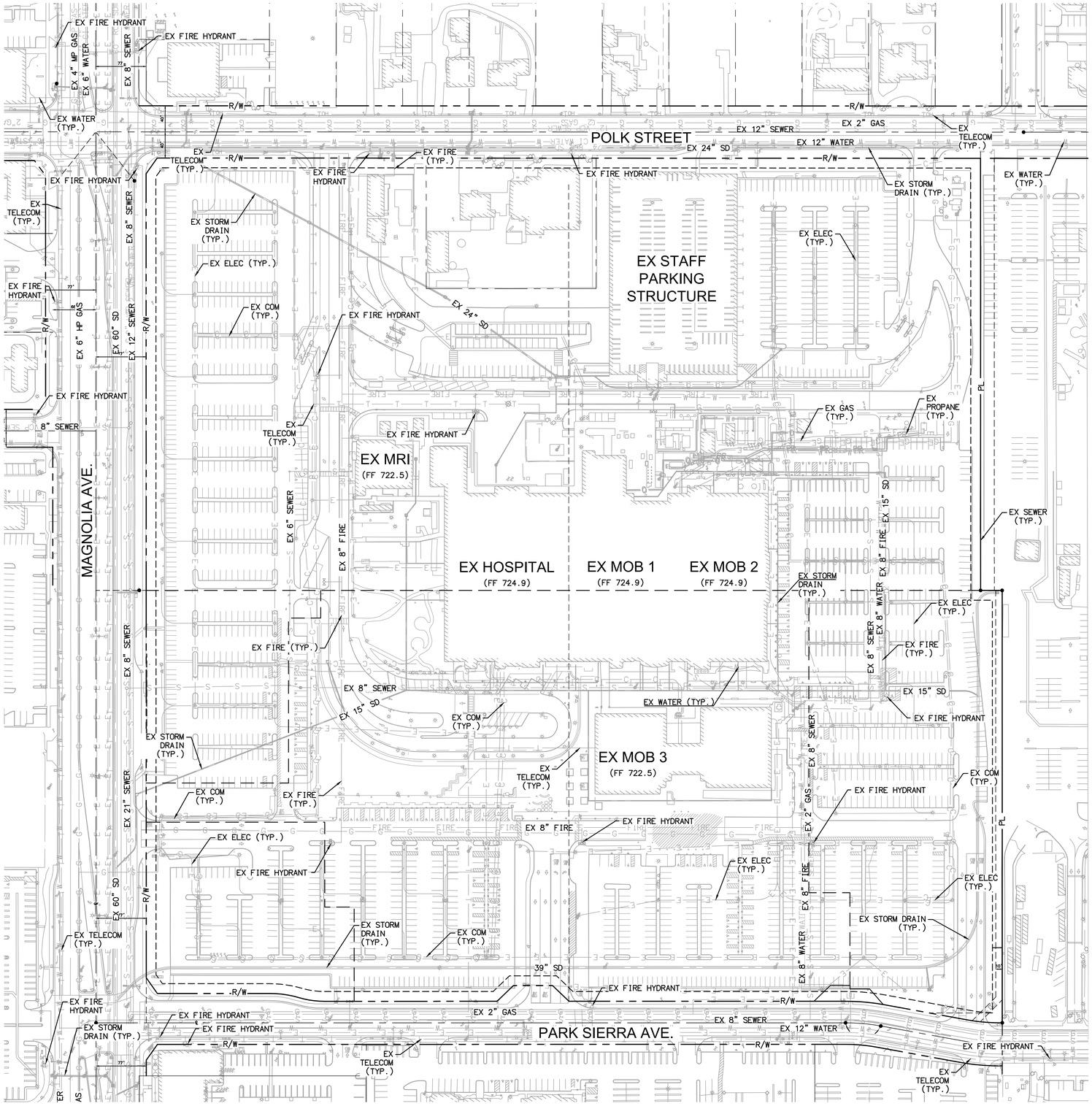
KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C1.00**

CITY OF RIVERSIDE

| | |
|---|---|
| Site Development Plan Number: | |
| OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099 | |
| ADDRESS: 393 E. Walnut Street Pasadena, CA 91188 | |
| ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac | PHONE: 323.525.0500 (Architect) |
| ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect) | LOCATION: 10800 Magnolia Ave. Riverside, CA 92505 |
| TYPE OF DEVELOPMENT: XXXXX | ACCESSOR'S PARCEL NUMBER: 138-470-010 |
| ZONE: XXXXX | |





## LEGEND

| | |
|---|---|
| EX ELEC | E E |
| EX SEWER | S S |
| EX WATER | W W |
| EX GAS | G G |
| EX FIRE | FIRE |
| EX TELECOM | T T |
| EX OVERHEAD TELECOM | TOH TOH |
| EX COMMUNICATION | C C |
| EX PROPANE | PR PR |
| EX STORM DRAIN | |

## EXISTING UTILITY NOTE

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SCALE 1"=80'

80 40 0 80 160 240

SCALE: 1"=80'

**DRAFT PRINT**

EXISTING UTILITIES

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C1.01**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect) PHONE: 323.525.0500 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010


VICINITY MAP

POLK ST.

MAGNOLIA AVE.

EX STAFF PARKING STRUCTURE

PROP PARKING LOT

PROP SCREEN WALL

LIMITS OF GRADING

PROP BIOFILTRATION BASIN

PROP DISASTER STORAGE

RIVERSIDE POWER YARD. METER/MAIN SERIVCE

PROP CHILLER YARD

PROP TECH DOCK

EX MRI (FF 722.5)

PROP TOWER

EX HOSPITAL (FF 724.9)

EX MOB 1 (FF 724.9)

EX MOB 2 (FF 724.9)

LOT 8

LOT 9

390' LINE OF SIGHT (SPEED LIMIT=40MPH)

## LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- CURB AND GUTTER
- AC PAVEMENT
- CONCRETE PAVEMENT
- PROPOSED BUILDING
- ROOF OVERHANG

MATCHLINE - SEE SHEET C2.01

SCALE 1"=60'

60 30 0 60 120 180

SCALE: 1"=60'

**DRAFT PRINT**

SITE PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: C2.00

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Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

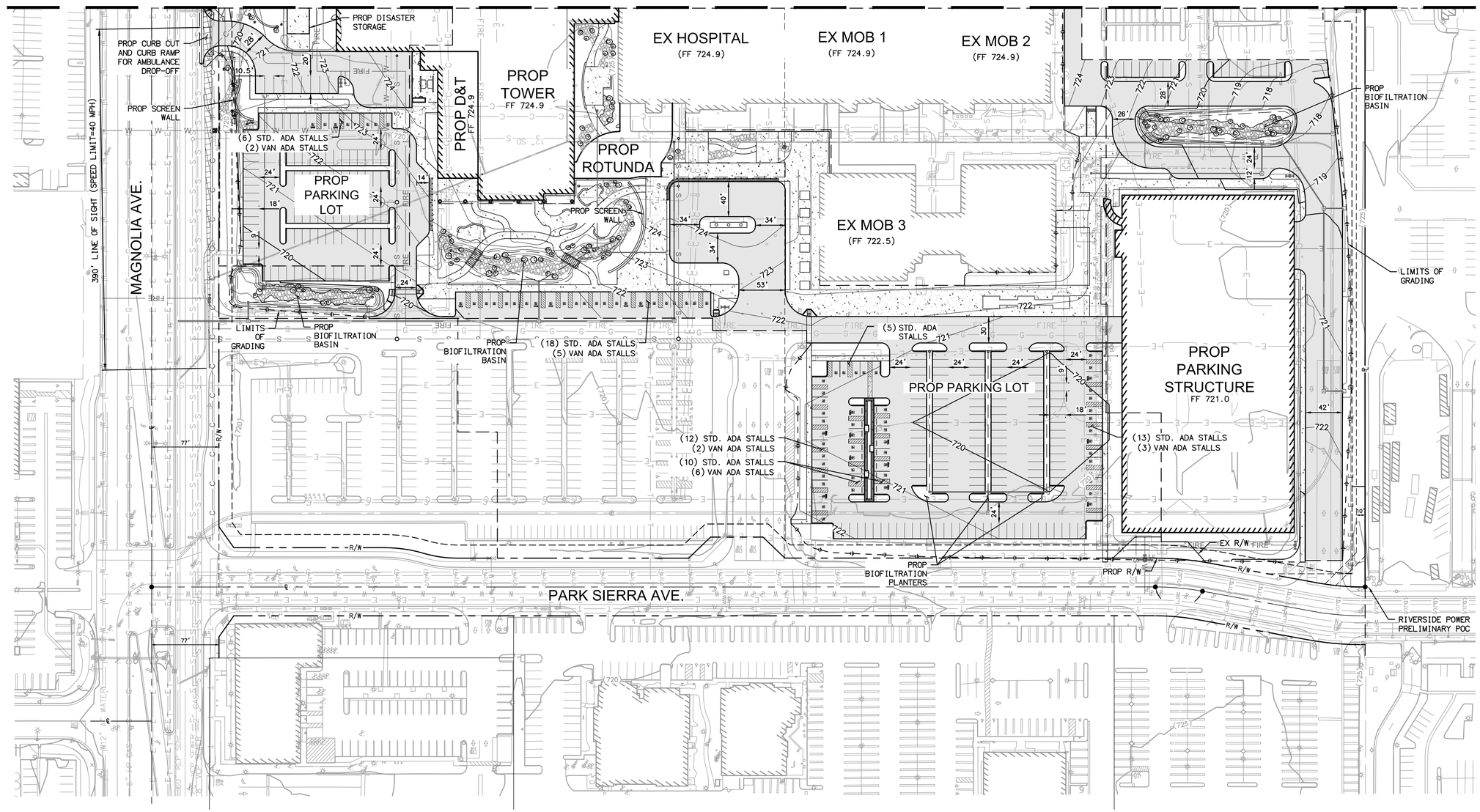
ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac PHONE: 323.525.0500 (Architect)

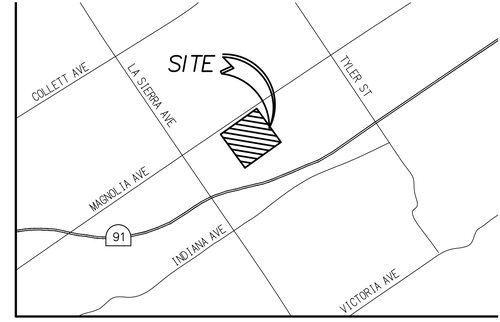
ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010

MATCHLINE - SEE SHEET C2.00




VICINITY MAP

## LEGEND

- RIGHT OF WAY
- PROPERTY LINE
- CURB AND GUTTER
- AC PAVEMENT
- CONCRETE PAVEMENT
- PROPOSED BUILDING
- ROOF OVERHANG

SCALE 1"=60'

60 30 0 60 120 180

SCALE: 1"=60'

**DRAFT PRINT**

SITE PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: C2.01

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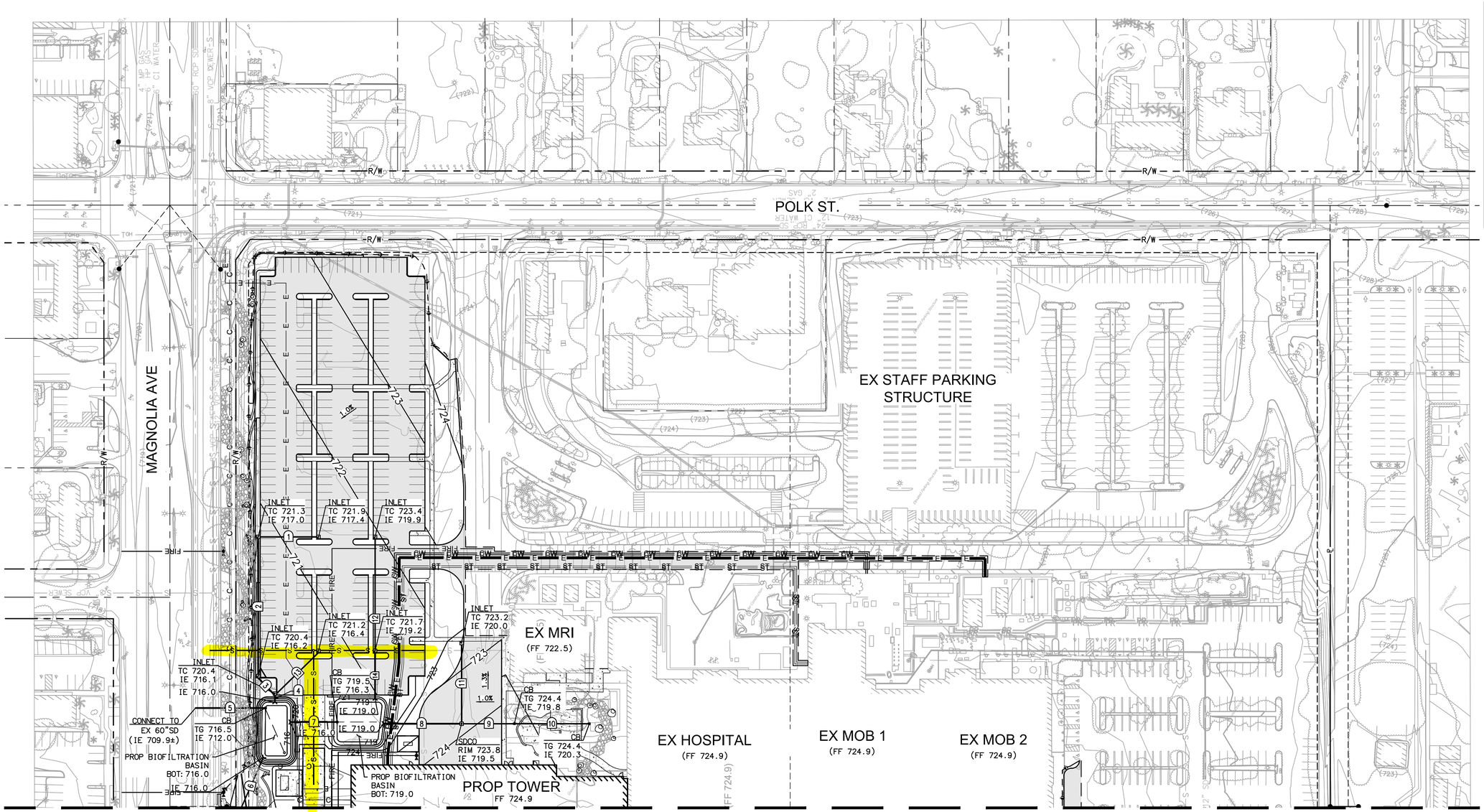




VICINITY MAP

## LEGEND

- DAYLIGHT LINE
- PROP CONTOUR 700
- EX CONTOUR 700
- PROP STORM DRAIN
- PROP PERFORATED STORM DRAIN
- PROP CURB INLET
- PROP STORM DRAIN CLEANOUT
- PROP CATCH BASIN
- PROP HEADWALL

### STORM DRAIN DATA TABLE

| NO | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 33°37'26" W | -- | 67' | 8" PVC (SDR-35) |
| 2 | N 56°22'34" E | -- | 159' | 12" HDPE |
| 3 | N 12°47'29" E | -- | 25' | 12" HDPE |
| 4 | N 56°22'34" E | -- | 8' | 12" HDPE |
| 5 | N 33°37'26" W | -- | 81' | 12" HDPE |
| 6 | N 66°11'41" W | -- | 64' | 6" PVC (SDR-35) |
| 7 | N 33°37'26" W | -- | 54' | 12" HDPE |
| 8 | N 33°37'26" W | -- | 89' | 12" HDPE |
| 9 | N 33°37'26" W | -- | 60' | 6" PVC (SDR-35) |
| 10 | N 33°37'26" W | -- | 88' | 6" PVC (SDR-35) |
| 11 | N 56°22'34" E | -- | 90' | 8" PVC (SDR-35) |
| 12 | N 56°22'34" E | -- | 133' | 8" PVC (SDR-35) |
| 13 | N 78°01'59" W | -- | 69' | 8" PVC (SDR-35) |
| 14 | N 56°22'34" E | -- | 54' | 8" PVC (SDR-35) |

MATCHLINE - SEE SHEET C3.01

## GRADING NOTES

1. ALL GRADING SHALL CONFORM TO THE RIVERSIDE MUNICIPAL CODE, TITLE 17 AND THE CURRENT CITY ADOPTED EDITION OF THE CALIFORNIA BUILDING CODE.

2. ALL PROVISIONS OF THE PRELIMINARY SOILS REPORT PREPARED BY_DATED _____ SHALL BE COMPLIED WITH DURING GRADING OPERATIONS. CITY BUSINESS TAX CERTIF. NO._, EXP. DATE___,

3. THIS PLAN IS FOR GRADING PURPOSES ONLY AND IS NOT TO BE USED FOR THE PURPOSE OF CONSTRUCTING ON-SITE OR OFF-SITE IMPROVEMENTS. ISSUANCE OF A PERMIT BASED ON THIS PLAN DOES NOT CONSTITUTE APPROVAL OF DRIVEWAY LOCATIONS OR SIZES, PARKING LOT STRUCTURAL SECTIONS OR LAYOUT, ADA-RELATED REQUIREMENTS, BUILDING LOCATIONS OR FOUNDATIONS, WALLS, CURBING, OFF-SITE DRAINAGE FACILITIES OR OTHER ITEMS NOT RELATED DIRECTLY TO THE BASIC GRADING OPERATION. ON-SITE IMPROVEMENTS SHALL BE CONSTRUCTED FROM APPROVED BUILDING PERMIT PLANS. OFF-SITE IMPROVEMENTS SHALL BE CONSTRUCTED FROM PLANS APPROVED FOR THIS PURPOSE BY THE PUBLIC WORKS DEPARTMENT.

4. CERTIFICATION FROM THE REGISTERED (CIVIL ENGINEER/ARCHITECT/LANDSCAPE ARCHITECT) STATING THAT THE GRADING HAS BEEN COMPLETED PER THE APPROVED PLAN, AND A COMPACTION REPORT FROM THE SOIL ENGINEER FOR FILL AREAS ARE REQUIRED PRIOR TO BUILDING PERMITS BEING ISSUED.

5. CONTRACTOR IS RESPONSIBLE FOR EROSION, DUST AND TEMPORARY DRAINAGE CONTROL DURING GRADING OPERATIONS.

A. ALL MANUFACTURED SLOPES IN EXCESS OF 5 FEET IN VERTICAL HEIGHT ARE TO BE PROTECTED FROM EROSION DURING ROUGH GRADING OPERATIONS AND, THEREAFTER, UNTIL INSTALLATION OF FINAL GROUNDCOVER. (SEE LANDSCAPE PLANS FOR FINAL GROUNDCOVER).

B. ALL SLOPE PROTECTION SWALES TO BE CONSTRUCTED AT THE SAME TIME AS BANKS ARE GRADED.

C. THE DEVELOPER AND HIS CONTRACTOR ARE RESPONSIBLE FOR IMPLEMENTATION AND MAINTENANCE OF THE EROSION CONTROL MEASURES SHOWN ON THIS PLAN AND SWPPP AND ALSO TO PROVIDE ANY ADDITIONAL EROSION CONTROL MEASURES (E.G., HYDROSEEDING, MULCHING OF STRAW, GRAVEL-BAGGING, DIVERSION DITCHES, RETENTION BASINS, ETC.) DICTATED BY FIELD CONDITIONS TO PREVENT EROSION AND/OR THE INTRODUCTION OF DIRT, MUD OR DEBRIS INTO EXISTING PUBLIC STREETS AND/OR ONTO ADJACENT PROPERTIES DURING ANY PHASE OF CONSTRUCTION OPERATIONS. SPECIAL ATTENTION SHALL BE GIVEN TO ADDITIONAL EROSION CONTROL MEASURES NOTED ABOVE DURING THE PERIOD OCTOBER 1 TO MAY 31.

D. AFTER A RAINSTORM, ALL SILT AND DEBRIS SHALL BE REMOVED FROM CHECK BERMS AND CHECK DAMS. SILT AND DEBRIS SHALL BE REMOVED FROM CITY OF RIVERSIDE STREETS. THIS REQUIREMENT SHALL REMAIN IN EFFECT UNTIL CITY ACCEPTANCE OF THIS PROJECT.

6. ANY ON-SITE RETAINING WALLS SHOWN ON THIS PLAN THAT ARE UNDER 3 FEET IN HEIGHT AND SUPPORT A SURCHARGE OR THAT ARE OVER 3 FEET IN HEIGHT REQUIRE SEPARATE REVIEW, APPROVAL AND A BUILDING PERMIT FROM THE BUILDING AND SAFETY DIVISION, COMMUNITY DEVELOPMENT DEPARTMENT. ANY NECESSARY RETAINING WALLS ON THE PERIMETER OF THIS SITE SHALL BE IN PLACE AND APPROVED BY THE BUILDING INSPECTOR PRIOR TO ISSUANCE OF THE GRADING PERMIT. APPROVED SEQUENCED GRADING WITH 1 1/2:1 MAXIMUM SLOPES TO WITHIN 2 FEET OF THE ADJACENT PROPERTY LINE MAY BE ACCEPTABLE TO ALLOW FOR ISSUANCE OF A GRADING PERMIT PRIOR TO COMPLETION OF ANY NECESSARY PERIMETER RETAINING WALLS. (IF NO RETAINING WALLS ARE SHOWN ON THE PLAN, DO NOT PUT THIS NOTE ON PLAN.)

7. ANY IMPROVEMENTS CONSTRUCTED IN THE PUBLIC RIGHT-OF-WAY WILL REQUIRE A SEPARATE CONSTRUCTION PERMIT AND INSPECTION FROM THE PUBLIC WORKS DEPARTMENT.

8. ANY WALLS, FENCES, STRUCTURES AND/OR APPURTENANCES ADJACENT TO THIS PROJECT ARE TO BE PROTECTED IN PLACE. IF GRADING OPERATIONS DAMAGE OR ADVERSELY AFFECT SAID ITEMS IN ANY WAY, THE CONTRACTOR AND/OR DEVELOPER IS RESPONSIBLE FOR WORKING OUT AN ACCEPTABLE SOLUTION TO THE SATISFACTION OF THE AFFECTED PROPERTY OWNER(S).

9. THE CONTRACTOR/DEVELOPER IS RESPONSIBLE FOR ENSURING THAT RETAINING WALLS DO NOT INTERFERE WITH PROVISION OF UTILITIES.

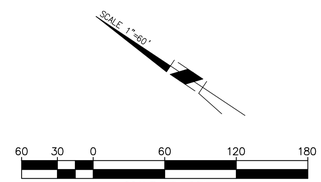
10. IT IS THE GRADING CONTRACTOR'S RESPONSIBILITY TO ENSURE THAT ADEQUATE COMPACTION HAS BEEN ATTAINED ON THE ENTIRE GRADING SITE, INCLUDING FILL AREAS OUTSIDE THE BUILDING PADS AND ON ALL FILL SLOPES.

11. IT IS THE SOIL ENGINEER'S RESPONSIBILITY TO OBSERVE AND PERFORM COMPACTION TESTS DURING THE GRADING TO EVALUATE THE PREPARATION OF THE NATURAL GROUND SURFACE TO RECEIVE THE FILL AND THE COMPACTION ATTAINED IN THE FILL, INCLUDING FILL AREAS OUTSIDE THE BUILDING PADS AND ON ALL FILL SLOPES.

12. EARTHWORK QUANTITIES ARE SHOWN FOR GRADING PERMIT PURPOSES ONLY, AND THE CITY OF RIVERSIDE IS NOT RESPONSIBLE FOR THEIR ACCURACY.

13. FOR GRADING OF AREAS OF 1 ACRE OR MORE, A STORM WATER POLLUTION PREVENTION PLAN (SWPPP) SHALL BE KEPT ON-SITE AND MADE AVAILABLE UPON REQUEST OF A REPRESENTATIVE OF THE REGIONAL WATER QUALITY CONTROL BOARD (RWQCB) - SANTA ANA REGION AND/OR THE CITY OF RIVERSIDE.

14. GRADING OPERATIONS SHALL BE LIMITED TO BETWEEN THE HOURS OF 7 A.M. AND 7 P.M. ON WEEKDAYS AND BETWEEN 8 A.M. AND 5 P.M. ON SATURDAYS. NO GRADING WILL BE PERMITTED ON SUNDAY OR FEDERAL HOLIDAYS. (RIVERSIDE MUNICIPAL CODE, 7.35.010, ORDINANCE NO. 6273)




**DRAFT PRINT**

GRADING PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C3.00**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

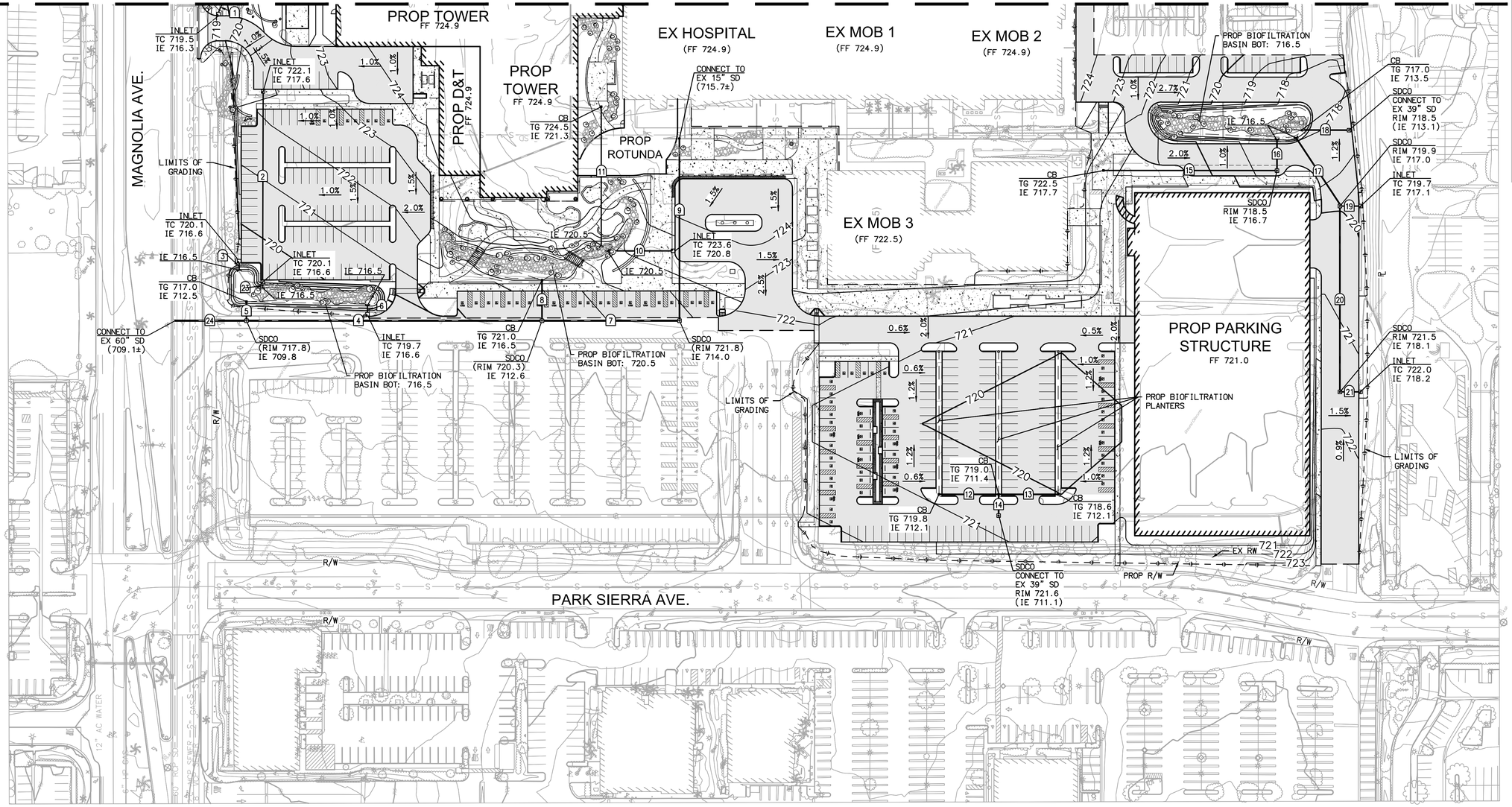
ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac PHONE: 323.525.0500 (Architect)

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010





VICINITY MAP

## LEGEND

- DAYLIGHT LINE
- PROP CONTOUR 700
- EX CONTOUR 700
- PROP STORM DRAIN
- PROP PERFORATED STORM DRAIN
- PROP CURB INLET
- PROP STORM DRAIN CLEANOUT
- PROP CATCH BASIN
- PROP HEADWALL

STORM DRAIN DATA TABLE

| NO | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 43°33'46" W | --- | 10' | 6" PVC (SDR-35) |
| 2 | N 56°31'31" E | --- | 211' | 6" PVC (SDR-35) |
| 3 | S 56°22'34" W | --- | 8' | 8" PVC (SDR-35) |
| 4 | N 33°37'26" W | --- | 335' | 18" HDPE |
| 5 | S 56°22'34" W | --- | 21' | 12" HDPE |
| 6 | N 56°22'34" E | --- | 7' | 6" PVC (SDR-35) |
| 7 | N 33°37'26" W | --- | 151' | 18" HDPE |
| 8 | S 56°22'34" W | --- | 43' | 12" HDPE |
| 9 | S 56°21'15" W | --- | 203' | 12" HDPE |
| 10 | N 33°37'26" W | --- | 71' | 8" PVC (SDR-35) |
| 11 | S 56°22'34" W | --- | 155' | 6" PVC (SDR-35) |
| 12 | S 33°37'26" E | --- | 67' | 12" HDPE |

STORM DRAIN DATA TABLE

| NO | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 13 | S 33°37'26" E | --- | 67' | 12" HDPE |
| 14 | S 56°20'08" W | --- | 24' | 12" HDPE |
| 16 | N 33°35'08" W | --- | 193' | 8" PVC (SDR-35) |
| 17 | N 56°22'34" E | --- | 33' | 12" HDPE |
| 18 | N 23°01'57" E | --- | 89' | 12" HDPE |
| 19 | S 33°21'24" E | --- | 53' | 12" HDPE |
| 20 | S 33°37'26" E | --- | 21' | 8" PVC (SDR-35) |
| 21 | N 56°22'34" E | --- | 207' | 12" HDPE |
| 22 | N 33°37'26" W | --- | 21' | 8" PVC (SDR-35) |
| 23 | S 56°22'33" W | --- | 4' | 12" HDPE |
| 24 | N 33°37'26" W | --- | 78' | 18" HDPE |

## GRADING NOTES

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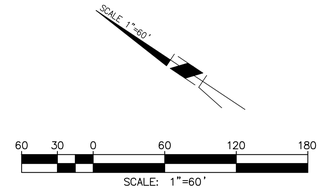



**DRAFT PRINT**

GRADING PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C3.01**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

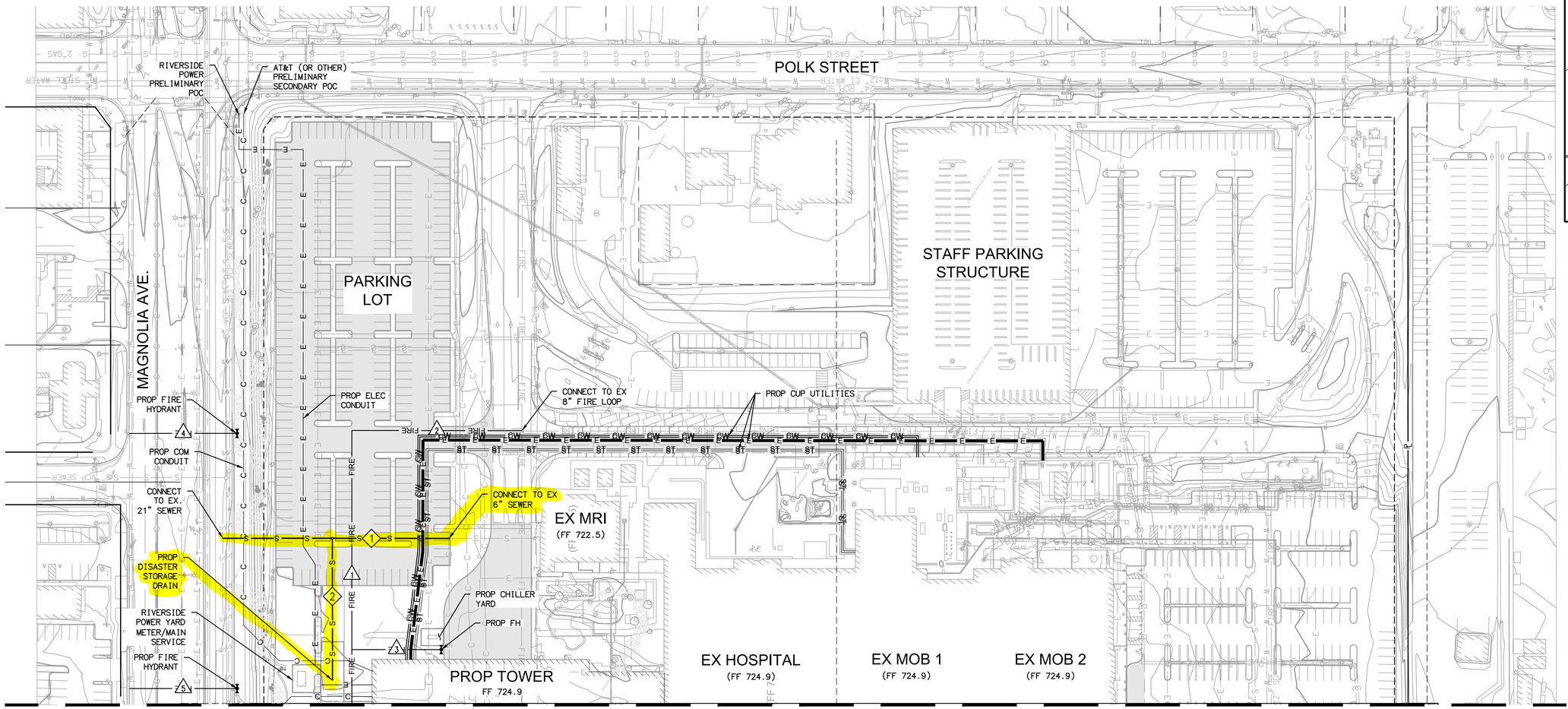
ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

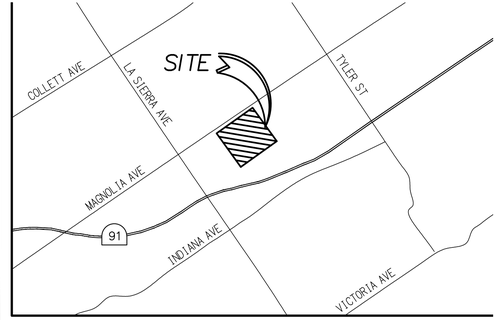
ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect) PHONE: 323.525.0500 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010




VICINITY MAP

## LEGEND

| | |
|---|---|
| PROP ELEC | E E |
| PROP SEWER | S S |
| PROP WATER | W W |
| PROP FIRE | FIRE |
| PROP CHILLED WATER | CW CW |
| PROP STEAM | ST ST |
| PROP COMMUNICATION | C C |
| PROP SEWER MANHOLE | ○ |
| PROP FIRE HYDRANT | ▶◀ |
| PROP PIV | ⊗ |
| PROP FDC | ◇ |
| PROP METER | M |
| PROP BACKFLOW PREVENTER | |

SEWER DATA TABLE

| NO. | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 33°35'38" W | --- | 250' | 6" PVC (SDR-35) |
| 2 | N 56°21'15" E | --- | 157' | 6" PVC (SDR-35) |

FIRE DATA TABLE

| NO. | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 56°22'31" E | -- | 303' | 10" PVC (DR-14) |
| 2 | N 33°32'55" W | -- | 188' | 10" PVC (DR-14) |
| 3 | N 33°37'26" W | -- | 99' | 10" PVC (DR-14) |
| 4 | N 33°38'45" W | -- | 119' | 10" PVC (DR-14) |
| 5 | N 33°38'45" W | -- | 119' | 6" PVC (DR-14) |

## UTILITY NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND IN CONFORMANCE WITH THE CITY OF RIVERSIDE PUBLIC UTILITIES DEPARTMENT, WATER DIVISION, STANDARD SPECIFICATION NO. 205 FOR WATER DISTRIBUTION SYSTEMS, LATEST REVISION; ALL APPLICABLE A.W.W.A. STANDARDS AND SPECIFICATIONS, EXCEPT AS NOTED; AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), LATEST ADOPTED EDITION AND AMENDMENTS.

2. ALL WATER MAINS 12 INCH AND UNDER SHALL BE CLASS 350 D.I.P. PER A.W.W.A. C-151. ALL PIPE JOINTS SHALL BE RESTRAINED WITH ROMAC INDUSTRIES, INC. "GRIP RING" GASKETS,

   A. PIPE AND FOUNDRY COMPANY "FIELD-LOK" GASKETS OR WATER DIVISION APPROVED EQUAL. ALL FITTINGS SHALL BE RESTRAINED MECHANICAL JOINT TYPE.

3. APPROVAL OF THIS PLAN BY THE WATER DIVISION DOES NOT RELIEVE THE PRIVATE ENGINEER OF THE DESIGN RESPONSIBILITY THEREOF. THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE WORK HEREON. IN THE EVENT OF DISCREPANCIES ARISING DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

4. THE DEVELOPER SHALL BE RESPONSIBLE FOR PRESERVING OR RE-ESTABLISHING AND REFERENCING SURVEY MONUMENTS DESTROYED, DISTURBED OR BURIED AS A RESULT OF THE CONSTRUCTION SHOWN HEREON.

5. WATER MAINS SHALL BE LAID TO THE LINE AND GRADE SHOWN ON THE PLAN AND PER CWD- 040.

   A. THE DEVELOPER'S ENGINEER SHALL PROVIDE A CONSTRUCTION OFF-SET LINE AND STATION ALL FITTINGS AND APPURTENANCES. CUT SHEETS SHALL BE PROVIDED FOR PIPELINES ON ALL STREETS.

   B. MINIMUM DEPTH OF COVER OVER WATER MAINS UNDER 12-INCHES IN DIAMETER SHALL BE 3.0 FEET, UNLESS OTHERWISE NOTED. ALL 12-INCH AND LARGER DIAMETER WATER MAINS SHALL HAVE 4.0 FEET OF COVER.

6. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS, CABLES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN, OR ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

7. PROPOSED ELECTRICAL UNDERGROUND AND STREET LIGHT FACILITIES ARE NOT SHOWN ON THE PLAN. THE CONTRACTOR SHALL COORDINATE INSTALLATION WITH THE DEVELOPER AND PUBLIC UTILITIES DEPARTMENT, ELECTRICAL DIVISION, 951-826-5489, FOR LOCATIONS OF THE PROPOSED ELECTRICAL AND STREET LIGHT FACILITIES.

8. PIPE SHALL BE HANDLED SO AS TO PROTECT PIPE AT ALL TIMES AND SHALL BE CAREFULLY BEDDED TO PROVIDE CONTINUOUS BEARING AND TO PREVENT UNEVEN SETTLEMENT. PIPE SHALL BE PROTECTED AGAINST FLOTATION AT ALL TIMES. OPEN ENDS SHALL BE SEALED AT ALL TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.

9. UNLESS OTHERWISE APPROVED, WATER MAINS AND SEWER MAINS SHALL NOT CROSS WITH LESS THAN 1.0 FOOT OF VERTICAL CLEARANCE. WATER SERVICE LINES AND SEWER LATERALS SHALL NOT BE IN THE SAME TRENCH. A MINIMUM, HORIZONTAL CLEARANCE OF 10 FEET IS REQUIRED. WATER MAINS SHALL CLEAR ALL HOUSE SEWER LATERALS BY A MINIMUM OF 1.0 FOOT VERTICAL CLEARANCE (PER CWD-015 AND CWD-023).

10. WATER METER BOXES AND FIRE HYDRANTS SHALL BE PLACED AT CURB SITE LOCATIONS. THE CONTRACTOR SHALL ADJUST THE METER BOXES TO SIDEWALK GRADE AFTER THE SIDEWALKS HAVE BEEN POURED. WATER METER BOXES SHALL NOT BE LOCATED IN DRIVEWAYS.

11. A MATERIAL LIST, PER WATER DIVISION SPECIFICATION NO. 205, APPENDIX I - APPROVED MATERIAL LIST AND MATERIAL CERTIFICATIONS MUST BE SUBMITTED FOR WATER DIVISION APPROVAL PRIOR TO INSTALLATION.

12. THE CONTRACTOR MAY BEGIN CONSTRUCTION ONLY AFTER A PRECONSTRUCTION MEETING IS HELD WITH THE WATER DIVISION ENGINEERING STAFF. CONTACT WATER CONTRACT ADMINISTRATION AT 951-826-5482, AT LEAST ONE WEEK PRIOR TO THE PLANNED START OF CONSTRUCTION OF THE WATERLINES TO ARRANGE THIS MEETING.

13. THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA), DIAL 811, TWO WORKING DAYS BEFORE DIGGING. NO STREET OPENING PERMIT WILL BE ISSUED BY THE PUBLIC WORKS DEPARTMENT INVOLVING EXCAVATION FOR UNDERGROUND FACILITIES UNLESS THE APPLICANT HAS BEEN PROVIDED AN INQUIRY IDENTIFICATION NUMBER BY USA. ALL NECESSARY PERMITS SHALL BE TAKEN OUT BY THE CONSTRUCTION CONTRACTOR. A STREET OPENING PERMIT, ISSUED BY THE PUBLIC WORKS DEPARTMENT, OR A RIVERSIDE COUNTY ENCROACHMENT PERMIT, DEPENDING UPON JURISDICTION, IS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

14. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES, PRIOR TO CONSTRUCTION, TO DETERMINE THE DEPTH OF COVER. THE WATER MAIN SHALL BE INSTALLED WITH THE REQUIRED VERTICAL CLEARANCE. IF INSUFFICIENT COVER EXISTS, THE CONTRACTOR SHALL CONTACT THE PRIVATE ENGINEER WHO SIGNED THE PLAN TO DETERMINE AN ACCEPTABLE SOLUTION.

15. THE CONTRACTOR SHALL REQUEST WATER DIVISION INSPECTION TWO WORKING DAYS PRIOR TO TRENCHING. PLANS AND SPECIFICATIONS SHALL BE ON-SITE AT ALL TIMES.

16. WATER MAINS SHALL BE SAND BEDDED IN ACCORDANCE WITH CWD-040 AND PER PART 3, SECTION 306-1.2.1 OF THE SPECIFICATION 205.

17. THE CONTRACTOR SHALL NOT BACKFILL ANY TRENCHES UNTIL CONTRACTOR HAS OBTAINED AS- BUILT STATIONING ON ALL FITTINGS AND APPURTENANCES. PRESSURE TESTING WILL NOT BE ALLOWED UNTIL "AS-BUILTS," SUBMITTED BY THE CONTRACTOR, HAVE BEEN APPROVED BY THE WATER DIVISION.

   A. THE CONTRACTOR SHALL BULKHEAD MAINS, PLACE AND COMPACT BACKFILL, TEST, STERILIZE AND PASS BACTERIOLOGICAL TESTING BEFORE ANY TIE-INS ARE MADE TO THE CITY SYSTEM. CITY FORCES WILL MAKE THE FINAL SYSTEM CONNECTIONS FROM THE EXISTING MAIN. NO CONNECTIONS WILL BE MADE UNTIL ALL TESTING IS COMPLETE AND WRITTEN PASSING BACTERIOLOGICAL TEST RESULTS HAVE BEEN SUBMITTED TO THE WATER DIVISION.

   B. PRESSURE TESTING SHALL BE CONDUCTED AFTER THE TRENCH BACKFILL HAS PASSED THE REQUIRED COMPACTION TESTS. HYDRO TEST PRESSURE SHALL BE 200 PSI FOR TWO HOURS. THE LEAKAGE LIMIT IS 15 GALLONS PER INCH DIAMETER PER MILE, PER 24 HOURS FOR DIP PIPE. NO LEAKAGE IS ALLOWED FOR WELDED STEEL PIPE.

   C. CHLORINATION SHALL BE PERFORMED PER PART 7, SECTION 700-5 OF SPECIFICATION 205. GAS CHLORINATION WILL NOT BE ALLOWED. AFTER THE MINIMUM CHLORINATION CONTACT TIME, THE CONTRACTOR SHALL DECHLORINATE THE TEST WATER IN ACCORDANCE WITH THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SANTA ANA REGION ORDER NO. 98-67 AND NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) NO. CAG998001.

19. A MINIMUM OF TWO BACTERIOLOGICAL TESTS ARE REQUIRED, PER DAY. APPROXIMATELY ONE SAMPLE SHALL BE TAKEN PER 500 FEET OF MAIN FOR TWO CONSECUTIVE DAYS.

20. REFER TO CITY OF RIVERSIDE PUBLIC WORKS DEPARTMENT DRAWINGS (LIST THE R-, S-, AND D- NUMBERS) FOR PROJECT COORDINATION.

21. BLUE HYDRANT REFLECTORS ARE REQUIRED FOR EACH HYDRANT.

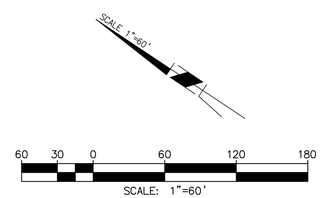
22. ALL CURBS, GUTTERS, SEWER LINES AND STORM DRAIN LINES MUST BE INSTALLED PRIOR TO BEGINNING ANY WATER LINE INSTALLATION.

23. ALL PAVING, INCLUDING CITY FORCES WORK, SHALL BE PER THE LATEST EDITION OF THE CITY OF RIVERSIDE PUBLIC WORKS STANDARD 453 AND SHALL BE COMPLETED BY THE DEVELOPER.

MATCHLINE - SEE SHEET C4.01

## UNDERGROUND UTILITY NOTE

THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES OR STRUCTURES SHOWN ON THESE PLANS WERE GENERATED FROM RECORDS AND/OR UTILITY PROVIDER RECORD MAPS. TO THE BEST OF OUR KNOWLEDGE THERE ARE NO OTHER EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN HEREON AND ANY OTHERS NOT OF RECORD OR NOT SHOWN ON THESE PLANS. ALL DAMAGES THERETO CAUSED BY THE CONTRACTOR SHALL BE REPAIRED TO THE APPROPRIATE SPECIFICATIONS AND STANDARDS AT THE EXPENSE OF THE CONTRACTOR.




**DRAFT PRINT**

UTILITY PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C4.00**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

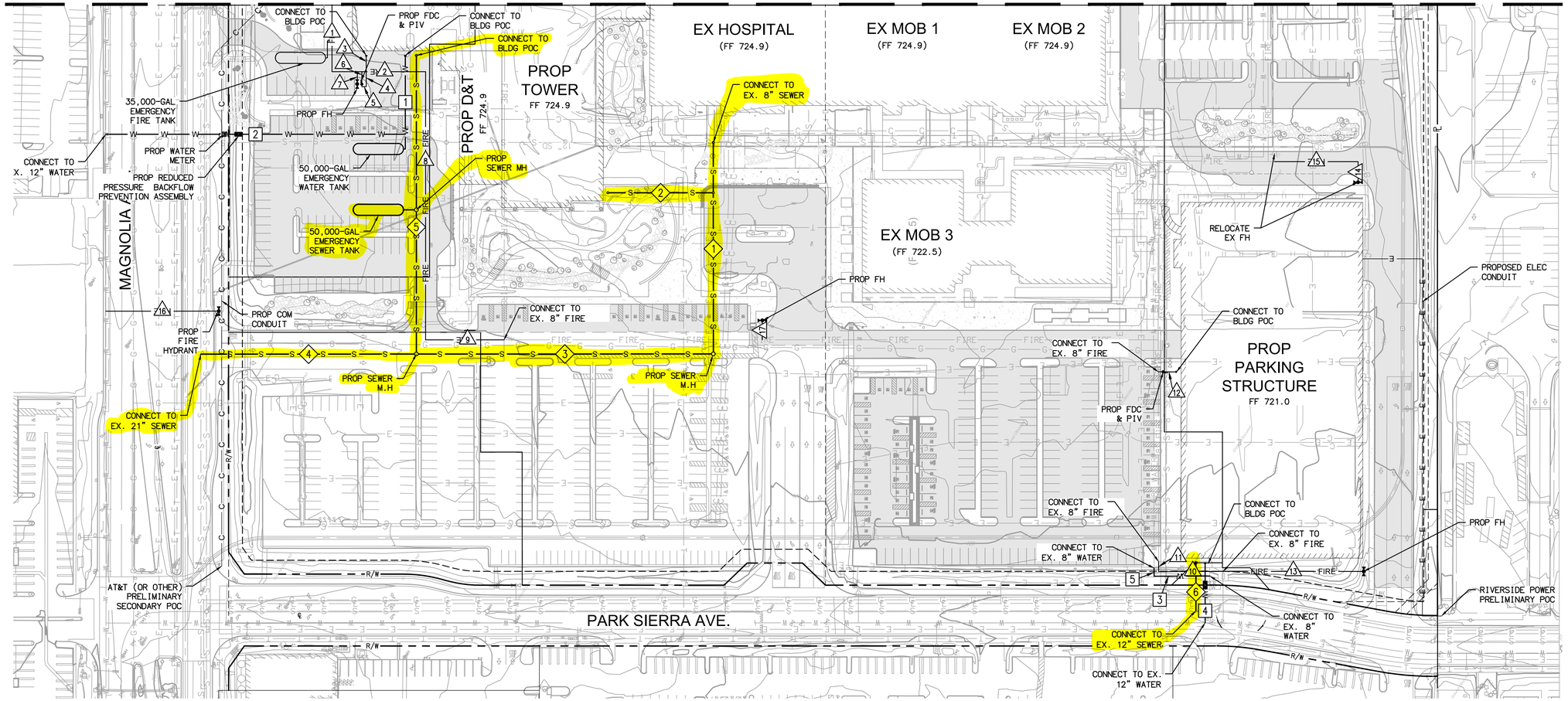
ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect) PHONE: 323.525.0500 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010





VICINITY MAP

## LEGEND

| | |
|---|---|
| PROP ELEC | E E |
| PROP SEWER | S S |
| PROP WATER | W W |
| PROP FIRE | FIRE |
| PROP CHILLED WATER | CW CW |
| PROP STEAM | ST ST |
| PROP COMMUNICATION | C C |
| PROP SEWER MANHOLE | ○ |
| PROP FIRE HYDRANT | ▶● |
| PROP PIV | ⊗ |
| PROP FDC | ◇ |
| PROP METER | M |
| PROP BACKFLOW PREVENTER | |

### FIRE DATA TABLE

| NO. | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 56°22'34" E | --- | 73' | 10" PVC (DR-14) |
| 2 | N 33°37'26" W | --- | 102' | 10" PVC (DR-14) |
| 3 | N 56°22'34" E | --- | 17' | 10" PVC (DR-14) |
| 4 | N 56°22'36" E | --- | 16' | 10" PVC (DR-14) |
| 5 | N 33°37'24" W | --- | 5' | 10" PVC (DR-14) |
| 6 | N 56°22'36" E | --- | 16' | 10" PVC (DR-14) |
| 7 | N 57°43'48" E | --- | 9' | 6" PVC (DR-14) |
| 8 | N 56°22'34" E | --- | 291' | 10" PVC (DR-14) |
| 9 | N 33°37'26" W | --- | 85' | 10" PVC (DR-14) |
| 10 | N 33°40'30" W | --- | 70' | 10" PVC (DR-14) |
| 11 | N 56°15'04" E | --- | 11' | 10" PVC (DR-14) |
| 12 | N 33°29'55" W | --- | 20' | 10" PVC (DR-14) |
| 13 | N 33°37'29" W | --- | 153' | 6" PVC (DR-14) |
| 14 | N 56°22'31" E | --- | 22' | 10" PVC (DR-14) |
| 15 | N 33°37'29" W | --- | 91' | 10" PVC (DR-14) |
| 16 | N 33°38'45" W | --- | 123' | 6" PVC (DR-14) |
| 17 | N 56°22'42" E | --- | 21' | 6" PVC (DR-14) |

### WATER DATA TABLE

| NO | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 56°22'34" E | --- | 102' | 4" PVC (DR-18) |
| 2 | N 33°37'26" W | --- | 325' | 4" PVC (DR-18) |
| 3 | N 33°44'56" W | --- | 60' | 4" PVC (DR-18) |
| 4 | N 56°20'57" E | --- | 65' | 4" PVC (DR-18) |
| 5 | N 56°15'04" E | --- | 9' | 4" PVC (DR-18) |

### SEWER DATA TABLE

| NO | BEARING/DELTA | RADIUS | LENGTH | SIZE/TYPE |
|---|---|---|---|---|
| 1 | N 56°21'15" E | --- | 229' | 8" PVC (SDR-35) |
| 2 | N 33°38'45" W | --- | 114' | 8" PVC (SDR-35) |
| 3 | N 33°38'45" W | --- | 322' | 8" PVC (SDR-35) |
| 4 | N 33°38'45" W | --- | 234' | 8" PVC (SDR-35) |
| 5 | N 56°21'56" E | --- | 324' | 8" PVC (SDR-35) |
| 6 | N 56°21'50" E | --- | 52' | 8" PVC (SDR-35) |

## UTILITY NOTES

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH THESE PLANS AND IN CONFORMANCE WITH THE CITY OF RIVERSIDE PUBLIC UTILITIES DEPARTMENT, WATER DIVISION, STANDARD SPECIFICATION NO. 205 FOR WATER DISTRIBUTION SYSTEMS, LATEST REVISION; ALL APPLICABLE A.W.W.A. STANDARDS AND SPECIFICATIONS, EXCEPT AS NOTED; AND THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION (GREENBOOK), LATEST ADOPTED EDITION AND AMENDMENTS.

2. ALL WATER MAINS 12 INCH AND UNDER SHALL BE CLASS 350 D.I.P. PER A.W.W.A. C-151. ALL PIPE JOINTS SHALL BE RESTRAINED WITH ROMAC INDUSTRIES, INC. "GRIP RING" GASKETS,

   A. PIPE AND FOUNDRY COMPANY "FIELD-LOK" GASKETS OR WATER DIVISION APPROVED EQUAL. ALL FITTINGS SHALL BE RESTRAINED MECHANICAL JOINT TYPE.

3. APPROVAL OF THIS PLAN BY THE WATER DIVISION DOES NOT RELIEVE THE PRIVATE ENGINEER OF THE DESIGN RESPONSIBILITY THEREOF. THE PRIVATE ENGINEER SIGNING THESE PLANS IS RESPONSIBLE FOR ASSURING THE ACCURACY AND ACCEPTABILITY OF THE WORK HEREON. IN THE EVENT OF DISCREPANCIES ARISING DURING CONSTRUCTION, THE PRIVATE ENGINEER SHALL BE RESPONSIBLE FOR DETERMINING AN ACCEPTABLE SOLUTION AND REVISING THE PLANS FOR APPROVAL BY THE CITY.

4. THE DEVELOPER SHALL BE RESPONSIBLE FOR PRESERVING OR RE-ESTABLISHING AND REFERENCING SURVEY MONUMENTS DESTROYED, DISTURBED OR BURIED AS A RESULT OF THE CONSTRUCTION SHOWN HEREON.

5. WATER MAINS SHALL BE LAID TO THE LINE AND GRADE SHOWN ON THE PLAN AND PER CWD- 040.

   A. THE DEVELOPER'S ENGINEER SHALL PROVIDE A CONSTRUCTION OFF-SET LINE AND STATION ALL FITTINGS AND APPURTENANCES. CUT SHEETS SHALL BE PROVIDED FOR PIPELINES ON ALL STREETS.

   B. MINIMUM DEPTH OF COVER OVER WATER MAINS UNDER 12-INCHES IN DIAMETER SHALL BE 3.0 FEET, UNLESS OTHERWISE NOTED. ALL 12-INCH AND LARGER DIAMETER WATER MAINS SHALL HAVE 4.0 FEET OF COVER.

6. THE EXISTENCE AND LOCATION OF ANY UNDERGROUND UTILITY PIPES, CONDUITS, CABLES OR STRUCTURES SHOWN ON THESE PLANS WERE OBTAINED BY A SEARCH OF AVAILABLE RECORDS. TO THE BEST OF OUR KNOWLEDGE, THERE ARE NO EXISTING UTILITIES EXCEPT AS SHOWN ON THESE PLANS. THE CONTRACTOR IS REQUIRED TO TAKE DUE PRECAUTIONARY MEASURES TO PROTECT THE UTILITY LINES SHOWN, OR ANY OTHER LINES NOT OF RECORD OR NOT SHOWN ON THESE PLANS.

7. PROPOSED ELECTRICAL UNDERGROUND AND STREET LIGHT FACILITIES ARE NOT SHOWN ON THE PLAN. THE CONTRACTOR SHALL COORDINATE INSTALLATION WITH THE DEVELOPER AND PUBLIC UTILITIES DEPARTMENT, ELECTRICAL DIVISION, 951-826-5489, FOR LOCATIONS OF THE PROPOSED ELECTRICAL AND STREET LIGHT FACILITIES.

8. PIPE SHALL BE HANDLED SO AS TO PROTECT PIPE AT ALL TIMES AND SHALL BE CAREFULLY BEDDED TO PROVIDE CONTINUOUS BEARING AND TO PREVENT UNEVEN SETTLEMENT. PIPE SHALL BE PROTECTED AGAINST FLOTATION AT ALL TIMES. OPEN ENDS SHALL BE SEALED AT ALL TIMES WHEN CONSTRUCTION IS NOT IN PROGRESS.

9. UNLESS OTHERWISE APPROVED, WATER MAINS AND SEWER MAINS SHALL NOT CROSS WITH LESS THAN 1.0 FOOT OF VERTICAL CLEARANCE. WATER SERVICE LINES AND SEWER LATERALS SHALL NOT BE IN THE SAME TRENCH, A MINIMUM, HORIZONTAL CLEARANCE OF 10 FEET IS REQUIRED. WATER MAINS SHALL CLEAR ALL HOUSE SEWER LATERALS BY A MINIMUM OF 1.0 FOOT VERTICAL CLEARANCE (PER CWD-015 AND CWD-023).

10. WATER METER BOXES AND FIRE HYDRANTS SHALL BE PLACED AT CURB SITE LOCATIONS. THE CONTRACTOR SHALL ADJUST THE METER BOXES TO SIDEWALK GRADE AFTER THE SIDEWALKS HAVE BEEN POURED. WATER METER BOXES SHALL NOT BE LOCATED IN DRIVEWAYS.

11. A MATERIAL LIST, PER WATER DIVISION SPECIFICATION NO. 205, APPENDIX I - APPROVED MATERIAL LIST AND MATERIAL CERTIFICATIONS MUST BE SUBMITTED FOR WATER DIVISION APPROVAL PRIOR TO INSTALLATION.

12. THE CONTRACTOR MAY BEGIN CONSTRUCTION ONLY AFTER A PRECONSTRUCTION MEETING IS HELD WITH THE WATER DIVISION ENGINEERING STAFF. CONTACT WATER CONTRACT ADMINISTRATION AT 951-826-5482, AT LEAST ONE WEEK PRIOR TO THE PLANNED START OF CONSTRUCTION OF THE WATERLINES TO ARRANGE THIS MEETING.

13. THE CONTRACTOR SHALL CALL IN A LOCATION REQUEST TO UNDERGROUND SERVICE ALERT (USA), DIAL 811, TWO WORKING DAYS BEFORE DIGGING. NO STREET OPENING PERMIT WILL BE ISSUED BY THE PUBLIC WORKS DEPARTMENT INVOLVING EXCAVATION FOR UNDERGROUND FACILITIES UNLESS THE APPLICANT HAS BEEN PROVIDED AN INQUIRY IDENTIFICATION NUMBER BY USA. ALL NECESSARY PERMITS SHALL BE TAKEN OUT BY THE CONSTRUCTION CONTRACTOR. A STREET OPENING PERMIT, ISSUED BY THE PUBLIC WORKS DEPARTMENT, OR A RIVERSIDE COUNTY ENCROACHMENT PERMIT, DEPENDING UPON JURISDICTION, IS REQUIRED PRIOR TO THE START OF CONSTRUCTION.

14. THE CONTRACTOR SHALL POTHOLE EXISTING UTILITIES, PRIOR TO CONSTRUCTION, TO DETERMINE THE DEPTH OF COVER. THE WATER MAIN SHALL BE INSTALLED WITH THE REQUIRED VERTICAL CLEARANCE. IF INSUFFICIENT COVER EXISTS, THE CONTRACTOR SHALL CONTACT THE PRIVATE ENGINEER WHO SIGNED THE PLAN TO DETERMINE AN ACCEPTABLE SOLUTION.

15. THE CONTRACTOR SHALL REQUEST WATER DIVISION INSPECTION TWO WORKING DAYS PRIOR TO TRENCHING. PLANS AND SPECIFICATIONS SHALL BE ON-SITE AT ALL TIMES.

16. WATER MAINS SHALL BE SAND BEDDED IN ACCORDANCE WITH CWD-040 AND PER PART 3, SECTION 306-1.2.1 OF THE SPECIFICATION 205.

17. THE CONTRACTOR SHALL NOT BACKFILL ANY TRENCHES UNTIL CONTRACTOR HAS OBTAINED AS- BUILT STATIONING ON ALL FITTINGS AND APPURTENANCES. PRESSURE TESTING WILL NOT BE ALLOWED UNTIL "AS-BUILTS," SUBMITTED BY THE CONTRACTOR, HAVE BEEN APPROVED BY THE WATER DIVISION.

   A. THE CONTRACTOR SHALL BULKHEAD MAINS, PLACE AND COMPACT BACKFILL, TEST, STERILIZE AND PASS BACTERIOLOGICAL TESTING BEFORE ANY TIE-INS ARE MADE TO THE CITY SYSTEM. CITY FORCES WILL MAKE THE FINAL SYSTEM CONNECTIONS FROM THE EXISTING MAIN. NO CONNECTIONS WILL BE MADE UNTIL ALL TESTING IS COMPLETE AND WRITTEN PASSING BACTERIOLOGICAL TEST RESULTS HAVE BEEN SUBMITTED TO THE WATER DIVISION.

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   C. CHLORINATION SHALL BE PERFORMED PER PART 7, SECTION 700-5 OF SPECIFICATION 205. GAS CHLORINATION WILL NOT BE ALLOWED. AFTER THE MINIMUM CHLORINATION CONTACT TIME, THE CONTRACTOR SHALL DECHLORINATE THE TEST WATER IN ACCORDANCE WITH THE CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD, SANTA ANA REGION ORDER NO. 98-67 AND NATIONAL POLLUTION DISCHARGE ELIMINATION SYSTEM (NPDES) NO. CAG998001.

19. A MINIMUM OF TWO BACTERIOLOGICAL TESTS ARE REQUIRED, PER DAY. APPROXIMATELY ONE SAMPLE SHALL BE TAKEN PER 500 FEET OF MAIN FOR TWO CONSECUTIVE DAYS.

20. REFER TO CITY OF RIVERSIDE PUBLIC WORKS DEPARTMENT DRAWINGS (LIST THE R-, S-, AND D- NUMBERS) FOR PROJECT COORDINATION.

21. BLUE HYDRANT REFLECTORS ARE REQUIRED FOR EACH HYDRANT.

22. ALL CURBS, GUTTERS, SEWER LINES AND STORM DRAIN LINES MUST BE INSTALLED PRIOR TO BEGINNING ANY WATER LINE INSTALLATION.

23. ALL PAVING, INCLUDING CITY FORCES WORK, SHALL BE PER THE LATEST EDITION OF THE CITY OF RIVERSIDE PUBLIC WORKS STANDARD 453 AND SHALL BE COMPLETED BY THE DEVELOPER.

## UNDERGROUND UTILITY NOTE

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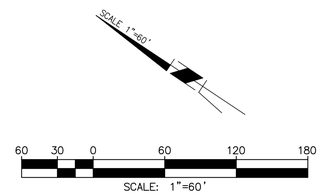



**DRAFT PRINT**

UTILITY PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C4.01**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

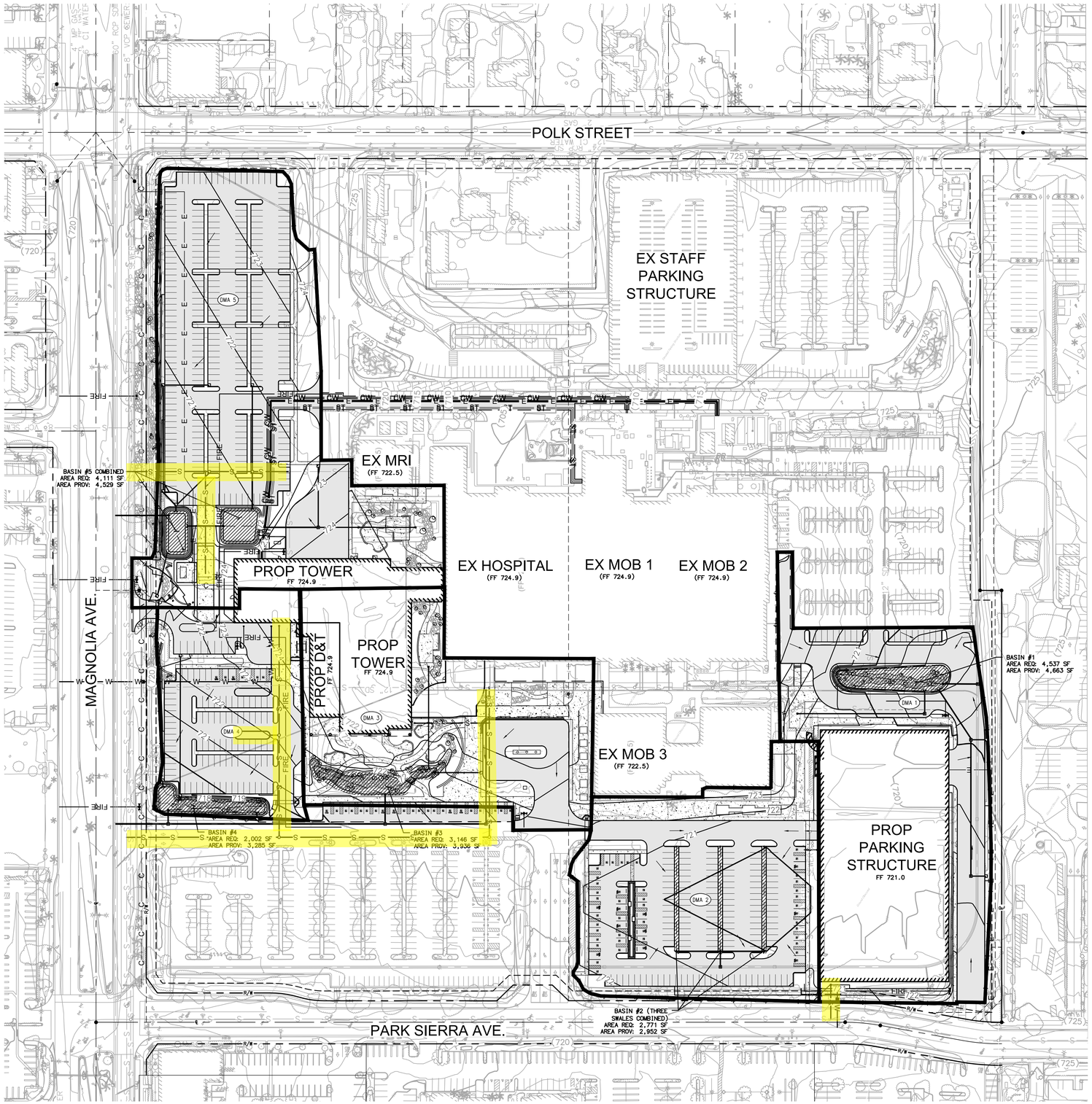
ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac PHONE: 323.525.0500 (Architect)

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010





VICINITY MAP

## LEGEND

- STORM WATER BASIN
- DRAINAGE BOUNDARY
- FLOW ARROW
- DMA ID

SCALE 1"=80'

80 40 0 80 160 240

SCALE: 1"=80'

**DRAFT PRINT**

BMP PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C5.00**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect) PHONE: 323.525.0500 (Architect)

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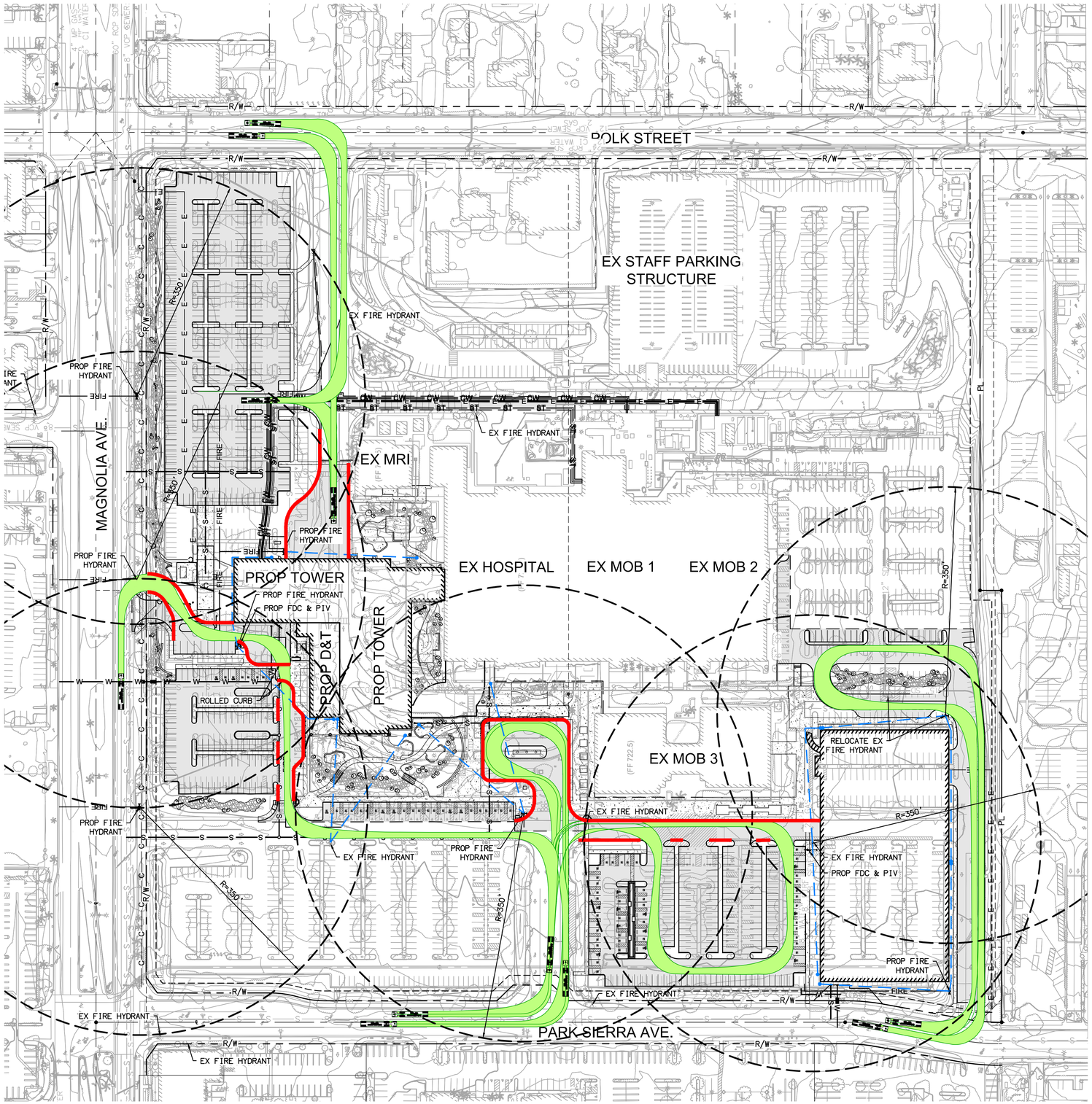
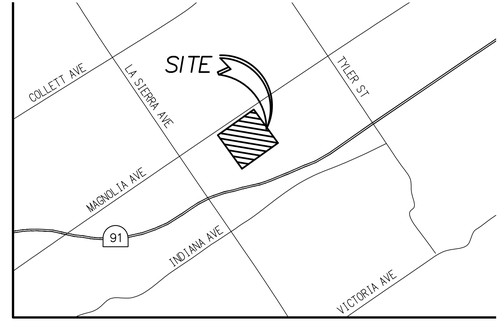



VICINITY MAP

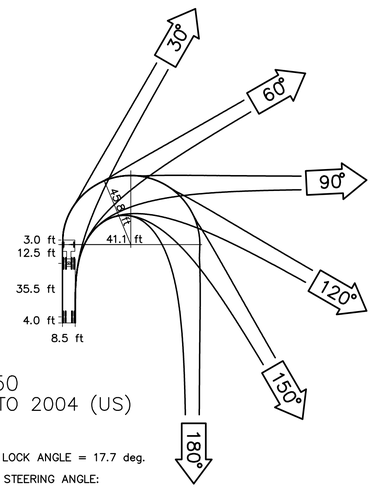
## FIRE PROTECTION LEGEND

- FIRE HYDRANT
- PIV
- FDC
- HOSE PULL (200' MAX)
- RED PAINTED CURB
- FIRE TRUCK TURNING MOVEMENT

## FIRE NOTES

1. FIRE APPARATUS ACCESS ROADS AND WATER SUPPLIES FOR FIRE PROTECTION, SHALL BE INSTALLED AND MADE SERVICEABLE PRIOR TO AND DURING TIME OF CONSTRUCTION. CFC 501.4
2. STREET OR ROAD SIGNS - TEMPORARY SIGNS SHALL BE INSTALLED AT EACH STREET INTERSECTION WHEN CONSTRUCTION OF NEW ROADWAYS ALLOWS PASSAGE BY VEHICLES. SINGS SHALL BE OF AN APPROVED SIZE, WEATHER RESISTANT AND BE MAINTAINED UNTIL REPLACED BY PERMANENT SIGNS. CFC 505.2
3. FIRE APPARATUS ACCESS ROADS SHALL BE DESIGNED AND MAINTAINED TO SUPPORT THE IMPOSED LOADS OF FIRE APPARATUS AND SHALL BE SURFACED SO AS TO PROVIDE ALL WEATHER DRIVING CAPABILITIES. CFC 503.2.3
4. POST INDICATOR VALVES, FIRE DEPARTMENT CONNECTIONS, AND ALARM BELL ARE TO BE LOCATED ON THE ADDRESS/ACCESS SIDE OF THE BUILDING.
5. CLEAR SPACE AROUND HYDRANTS - A THREE (3) FOOT CLEAR SPACE SHALL BE MAINTAINED AROUND THE CIRCUMFERENCE OF FIRE HYDRANTS, EXCEPT AS OTHERWISE REQUIRED OR APPROVED. CFC 507.5.5
6. PHYSICAL PROTECTION - WHERE FIRE HYDRANTS ARE SUBJECT TO IMPACT BY A MOTOR VEHICLE, GUARD POSTS OR OTHER APPROVED MEANS SHALL COMPLY WITH SECTION 312. CFC 507.5.6
7. DEAD ENDS - DEAD END FIRE APPARATUS ACCESS ROADS IN EXCESS OF 150 FEET IN LENGTH SHALL BE PROVIDED WITH AN APPROVED AREA FOR TURNING AROUND FIRE APPARATUS. CFC 503.2.5
8. SECURITY GATES - WHERE SECURITY ~~GATES ARE INSTALLED, THEY SHALL HAVE AN APPROVED~~ MEANS OF EMERGENCY OPERATION. THE SECURITY GATES AND EMERGENCY OPERATION SHALL BE MAINTAINED OPERATIONAL AT ALL TIMES. ELECTRIC GATE OPERATORS, WHERE PROVIDED, SHALL BE LISTED IN ACCORDANCE WITH UL 325. GATES INTENDED FOR AUTOMATIC OPERATION SHALL BE DESIGNED, CONSTRUCTED AND INSTALLED TO COMPLY WITH THE REQUIREMENTS OF ASTM G 2200.
11. VEGETATION SHALL BE SELECTED AND MAINTAINED IN SUCH A MANNER AS TO ALLOW IMMEDIATE ACCESS TO ALL HYDRANTS, VALVES, FIRE DEPARTMENT CONNECTIONS, PULL STATIONS, EXTINGUISHERS, SPRINKLER RISERS, ALARM CONTROL PANELS, RESCUE WINDOWS AND OTHER DEVICES OR AREAS USED FOR FIREFIGHTING PURPOSES. VEGETATION OF BUILDING FEATURES SHALL NO OBSTRUCT ADDRESS NUMBERS OR INHIBIT THE FUNCTIONING OF ALARM BELLS, HORNS OR STROBES.

APPROVED DOCUMENTS - CONSTRUCTION DOCUMENTS APPROVED BY THE FIRE CODE OFFICIAL ARE APPROVED WITH THE INTENT THAT SUCH CONSTRUCTION DOCUMENTS COMPLY IN ALL RESPECTS WITH THIS CODE. REVIEW AND APPROVAL BY THE FIRE CODE OFFICIAL SHALL NOT RELIEVE THE APPLICANT OF THE RESPONSIBILITY OF COMPLIANCE WITH THIS CODE. CFC 105.4.4

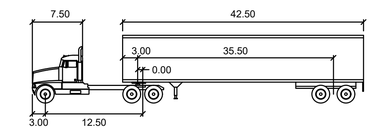



WB-50
AASHTO 2004 (US)
[ft]

STEERING LOCK ANGLE = 17.7 deg.

ACHIEVED STEERING ANGLE:

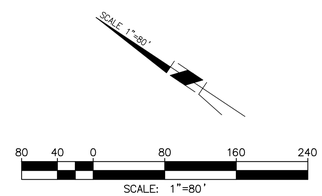
30 deg. SWEEP ANGLE: 14.4 deg.
60 deg. SWEEP ANGLE: 17.1 deg.
90 deg. SWEEP ANGLE: 17.6 deg.
120 deg. SWEEP ANGLE: 17.7 deg.
150 deg. SWEEP ANGLE: 17.7 deg.
180 deg. SWEEP ANGLE: 17.7 deg.




WB-50

feet

| | | | |
|---|---|---|---|
| Tractor Width | : 8.00 | Lock to Lock Time | : 6.0 |
| Trailer Width | : 8.50 | Steering Angle | : 17.7 |
| Tractor Track | : 8.00 | Articulating Angle | : 70.0 |
| Trailer Track | : 8.50 | | |




**DRAFT PRINT**

FIRE PROTECTION PLAN

MARCH 6, 2020

CO ARCHITECTS

KAISER PERMANENTE

# RIVERSIDE MEDICAL CENTER

Sheet: **C6.00**

CITY OF RIVERSIDE

Site Development Plan Number:

OWNER: Kaiser Foundation Hospitals PHONE: 626.405.5099

ADDRESS: 393 E. Walnut Street Pasadena, CA 91188

ARCHITECT, ENGINEER, DESIGNER: CO Architects, Michael Baker International, Ridge Landscape Architects, Glumac

ADDRESS: 5055 Wilshire Blvd. 9th Floor, Los Angeles CA 90036 (Architect) PHONE: 323.525.0500 (Architect)

TYPE OF DEVELOPMENT: XXXXX LOCATION: 10800 Magnolia Ave. Riverside, CA 92505

ZONE: XXXXX ACCESSOR'S PARCEL NUMBER: 138-470-010

## Appendix C: Existing Conditions Report

Michael Baker
INTERNATIONAL

**EXISTING JUNCTION REPORT**

| ID | Invert Elevation | Rim Elevation | Depth | Head | Head Class | Pressure | Volume | Lateral Inflow | Total Inflow | Flooding |
|---|---|---|---|---|---|---|---|---|---|---|
| 8E31C | 701.859985 | 713.079956 | 0.30862 | 702.16864 | Below Link Crown | 0.133725 | 0 | 0 | 0.260454 | 0 |
| 8E31B | 702.390015 | 712.575317 | 0.305507 | 702.695496 | Below Link Crown | 0.132376 | 0 | 0 | 0.255521 | 0 |
| 8E31AA | 702.919983 | 714.836121 | 0.302712 | 703.222717 | Below Link Crown | 0.131165 | 0 | 0 | 0.253495 | 0 |
| PROP_1 | 703.609985 | 715.5 | 0.326401 | 703.936401 | Below Link Crown | 0.141429 | 0 | 0 | 0.250175 | 0 |
| 8E31A | 703.752991 | 715.879272 | 0.294174 | 704.04718 | Below Link Crown | 0.127466 | 0 | 0.043762 | 0.248677 | 0 |
| 8.00E+31 | 703.840027 | 715.879272 | 0.269318 | 704.109314 | Below Link Crown | 0.116696 | 0 | 0 | 0.203576 | 0 |
| EXIST_1 | 704.359985 | 717.043579 | 0.2651 | 704.625122 | Below Link Crown | 0.114868 | 0 | 0 | 0.202752 | 0 |
| 8.00E+32 | 704.52002 | 717.043579 | 0.262788 | 704.782776 | Below Link Crown | 0.113866 | 0 | 0 | 0.20253 | 0 |

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**EXISTING PIPE REPORT**

| ID | From ID | To ID | Type | Length | Slope | Flow | Flow Class | Depth | HGL | Velocity | Flow Volun | Froude Nur | Capacity d/ | Surcharged | Velocity*Depth | Top Width | Entry Loss | Exit Loss | Seepage Rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8E31B_8E3 | 8E31B | 8E31C | Circular Pip | 462.0005 | 0.001147 | 0.260454 | Free Surfac | 0.307061 | 702.6955 | 1.317011 | 141.3631 | 0.503678 | 0.097397 | 0.153534 | 0.404403 | 1.441045 | 0 | 0 | 0 |
| 8E31AA_8E | 8E31AA | 8E31B | Circular Pip | 462.0003 | 0.001147 | 0.255521 | Free Surfac | 0.304109 | 703.2227 | 1.310184 | 139.4083 | 0.503554 | 0.09605 | 0.152053 | 0.398439 | 1.435255 | 0 | 0 | 0 |
| CDT-1061 | PROP_1 | 8E31AA | Circular Pip | 287.5468 | 0.001495 | 0.253495 | Free Surfac | 0.273484 | 703.9364 | 1.632223 | 69.85577 | 0.661361 | 0.099902 | 0.179748 | 0.446387 | 1.34392 | 0 | 0 | 0 |
| 8E31A_8E3 | 8E31A | PROP_1 | Circular Pip | 97.4669 | 0.001477 | 0.250175 | Free Surfac | 0.309787 | 704.0472 | 1.346433 | 28.05361 | 0.51142 | 0.119521 | 0.177309 | 0.417108 | 1.336406 | 0 | 0 | 0 |
| 8E31_8E31 | 8.00E+31 | 8E31A | Circular Pip | 58.00011 | 0.001483 | 0.204915 | Free Surfac | 0.281245 | 704.1093 | 1.267706 | 14.52288 | 0.506451 | 0.103978 | 0.160998 | 0.356536 | 1.286174 | 0 | 0 | 0 |
| CDT-1059 | EXIST_1 | 8.00E+31 | Circular Pip | 351.2318 | 0.001481 | 0.203576 | Free Surfac | 0.267207 | 704.6251 | 1.355204 | 81.63361 | 0.555628 | 0.096629 | 0.152696 | 0.36212 | 1.25803 | 0 | 0 | 0 |
| 8E32_8E31 | 8.00E+32 | EXIST_1 | Circular Pip | 105.0479 | 0.001523 | 0.202752 | Free Surfac | 0.263943 | 704.7828 | 1.373914 | 23.98528 | 0.566879 | 0.094927 | 0.150828 | 0.362635 | 1.25163 | 0 | 0 | 0 |

## Appendix D: Proposed Average Conditions Report

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**AVERAGE JUNCTION REPORT**

| ID | Invert Elevation | Rim Elevation | Depth | Head | Head Class | Pressure | Volume | Lateral Inflow | Total Inflow | Flooding |
|---|---|---|---|---|---|---|---|---|---|---|
| 8E31C | 701.859985 | 713.079956 | 0.331967 | 702.192 | Below Link Crown | 0.143841 | 0 | 0 | 0.303193 | 0 |
| 8E31B | 702.390015 | 712.575317 | 0.328967 | 702.719 | Below Link Crown | 0.142541 | 0 | 0 | 0.298595 | 0 |
| 8E31AA | 702.919983 | 714.836121 | 0.326559 | 703.2466 | Below Link Crown | 0.141498 | 0 | 0 | 0.29673 | 0 |
| PROP_1 | 703.609985 | 715.5 | 0.350879 | 703.9609 | Below Link Crown | 0.152036 | 0 | 0.043762 | 0.293734 | 0 |
| 8E31A | 703.752991 | 715.879272 | 0.29406 | 704.0471 | Below Link Crown | 0.127416 | 0 | 0.043762 | 0.248518 | 0 |
| 8.00E+31 | 703.840027 | 715.879272 | 0.269218 | 704.1092 | Below Link Crown | 0.116652 | 0 | 0 | 0.203473 | 0 |
| EXIST_1 | 704.359985 | 717.043579 | 0.265036 | 704.6251 | Below Link Crown | 0.11484 | 0 | 0 | 0.202692 | 0 |
| 8.00E+32 | 704.52002 | 717.043579 | 0.262751 | 704.7828 | Below Link Crown | 0.11385 | 0 | 0 | 0.202483 | 0 |

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**AVERAGE PIPE REPORT**

| ID | From ID | To ID | Type | Length | Slope | Flow | Flow Class | Depth | HGL | Velocity | Flow Volun | Froude Nur | Capacity d/ | Surcharged | Velocity*D | Top Width | Entry Loss | Exit Loss | Seepage Rate |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8E31B_8E3 | 8E31B | 8E31C | Circular Pip | 462.0005 | 0.001147 | 0.303193 | Free Surfac | 0.330464 | 702.719 | 1.37895 | 157.1684 | 0.507687 | 0.108286 | 0.165237 | 0.455694 | 1.484822 | 0 | 0 | 0 |
| 8E31AA_8E | 8E31AA | 8E31B | Circular Pip | 462.0003 | 0.001147 | 0.298595 | Free Surfac | 0.327762 | 703.2466 | 1.374378 | 155.2998 | 0.508222 | 0.106999 | 0.163894 | 0.450469 | 1.480063 | 0 | 0 | 0 |
| CDT-1061 | PROP_1 | 8E31AA | Circular Pip | 287.5468 | 0.001495 | 0.29673 | Free Surfac | 0.294444 | 703.9609 | 1.717026 | 77.62404 | 0.669377 | 0.111166 | 0.19356 | 0.505568 | 1.382176 | 0 | 0 | 0 |
| 8E31A_8E3 | 8E31A | PROP_1 | Circular Pip | 97.4669 | 0.001477 | 0.249973 | Free Surfac | 0.321969 | 704.0471 | 1.27283 | 29.68354 | 0.473793 | 0.126331 | 0.184267 | 0.409812 | 1.356502 | 0 | 0 | 0 |
| 8E31_8E31 | 8.00E+31 | 8E31A | Circular Pip | 58.00011 | 0.001483 | 0.204757 | Free Surfac | 0.281138 | 704.1092 | 1.267437 | 14.5149 | 0.506449 | 0.10392 | 0.160929 | 0.356325 | 1.285985 | 0 | 0 | 0 |
| CDT-1059 | EXIST_1 | 8.00E+31 | Circular Pip | 351.2318 | 0.001481 | 0.203473 | Free Surfac | 0.267125 | 704.6251 | 1.355117 | 81.59759 | 0.555679 | 0.096587 | 0.152644 | 0.361986 | 1.257869 | 0 | 0 | 0 |
| 8E32_8E31 | 8.00E+32 | EXIST_1 | Circular Pip | 105.0479 | 0.001523 | 0.202692 | Free Surfac | 0.263893 | 704.7828 | 1.373884 | 23.9787 | 0.566922 | 0.094901 | 0.150811 | 0.362558 | 1.251532 | 0 | 0 | 0 |

## Appendix E: Proposed Peak Conditions Report

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**PEAK JUNCTION REPORT**

| ID | Invert Elevation | Rim Elevation | Depth | Head | Head Class | Pressure | Volume | Lateral Inflow | Total Inflow | Flooding |
|---|---|---|---|---|---|---|---|---|---|---|
| 8E31C | 701.859985 | 713.079956 | 0.406385 | 702.266357 | Below Link Crown | 0.176087 | 0 | 0 | 0.459464 | 0 |
| 8E31B | 702.390015 | 712.575317 | 0.403651 | 702.79364 | Below Link Crown | 0.174902 | 0 | 0 | 0.455652 | 0 |
| 8E31AA | 702.919983 | 714.836121 | 0.402025 | 703.322021 | Below Link Crown | 0.174197 | 0 | 0 | 0.454103 | 0 |
| PROP_1 | 703.609985 | 715.5 | 0.426485 | 704.036499 | Below Link Crown | 0.184796 | 0 | 0.122532 | 0.451588 | 0 |
| 8E31A | 703.752991 | 715.879272 | 0.349188 | 704.102173 | Below Link Crown | 0.151303 | 0 | 0.122532 | 0.327537 | 0 |
| 8.00E+31 | 703.840027 | 715.879272 | 0.293624 | 704.133606 | Below Link Crown | 0.127227 | 0 | 0 | 0.203536 | 0 |
| EXIST_1 | 704.359985 | 717.043579 | 0.265076 | 704.625061 | Below Link Crown | 0.114857 | 0 | 0 | 0.202725 | 0 |
| 8.00E+32 | 704.52002 | 717.043579 | 0.262772 | 704.782776 | Below Link Crown | 0.113859 | 0 | 0 | 0.202508 | 0 |

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**PEAK PIPE REPORT**

| Page | ID | From ID | To ID | Type | Length | Slope | Flow | Flow Class | Depth | HGL | Velocity | Flow Volun | Froude Nur | Capacity d/ | Surcharged | Velocity*D | Top Width |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 03/08/201 | 8E31B_8E3 | 8E31B | 8E31C | Circular Pip | 462.0005 | 0.001147 | 0.459464 | Free Surfac | 0.405016 | 702.7936 | 1.561569 | 210.3223 | 0.517059 | 0.144908 | 0.202499 | 0.63246 | 1.607151 |
| 03/08/201 | 8E31AA_8E | 8E31AA | 8E31B | Circular Pip | 462.0003 | 0.001147 | 0.455652 | Free Surfac | 0.402838 | 703.322 | 1.560814 | 208.6782 | 0.518339 | 0.143776 | 0.201415 | 0.628754 | 1.604044 |
| 03/08/201 | CDT-1061 | PROP_1 | 8E31AA | Circular Pip | 287.5468 | 0.001495 | 0.454103 | Free Surfac | 0.36173 | 704.0365 | 1.956883 | 104.1418 | 0.685026 | 0.149271 | 0.23672 | 0.707863 | 1.487468 |
| 03/08/201 | 8E31A_8E3 | 8E31A | PROP_1 | Circular Pip | 97.4669 | 0.001477 | 0.329056 | Free Surfac | 0.387336 | 704.1022 | 1.286519 | 38.66669 | 0.43441 | 0.164528 | 0.221621 | 0.498315 | 1.45352 |
| 03/08/201 | 8E31_8E31 | 8.00E+31 | 8E31A | Circular Pip | 58.00011 | 0.001483 | 0.205005 | Free Surfac | 0.320904 | 704.1336 | 1.048899 | 17.57677 | 0.391136 | 0.125724 | 0.183651 | 0.336596 | 1.354821 |
| 03/08/201 | CDT-1059 | EXIST_1 | 8.00E+31 | Circular Pip | 351.2318 | 0.001481 | 0.203536 | Free Surfac | 0.279349 | 704.6251 | 1.271621 | 87.11524 | 0.509831 | 0.10296 | 0.159619 | 0.355226 | 1.281826 |
| 03/08/201 | 8E32_8E31 | 8.00E+32 | EXIST_1 | Circular Pip | 105.0479 | 0.001523 | 0.202725 | Free Surfac | 0.263923 | 704.7828 | 1.373879 | 23.98269 | 0.566887 | 0.094917 | 0.150811 | 0.362598 | 1.251591 |

## Appendix F: Future Wastewater Collection System Capacity Analysis Map

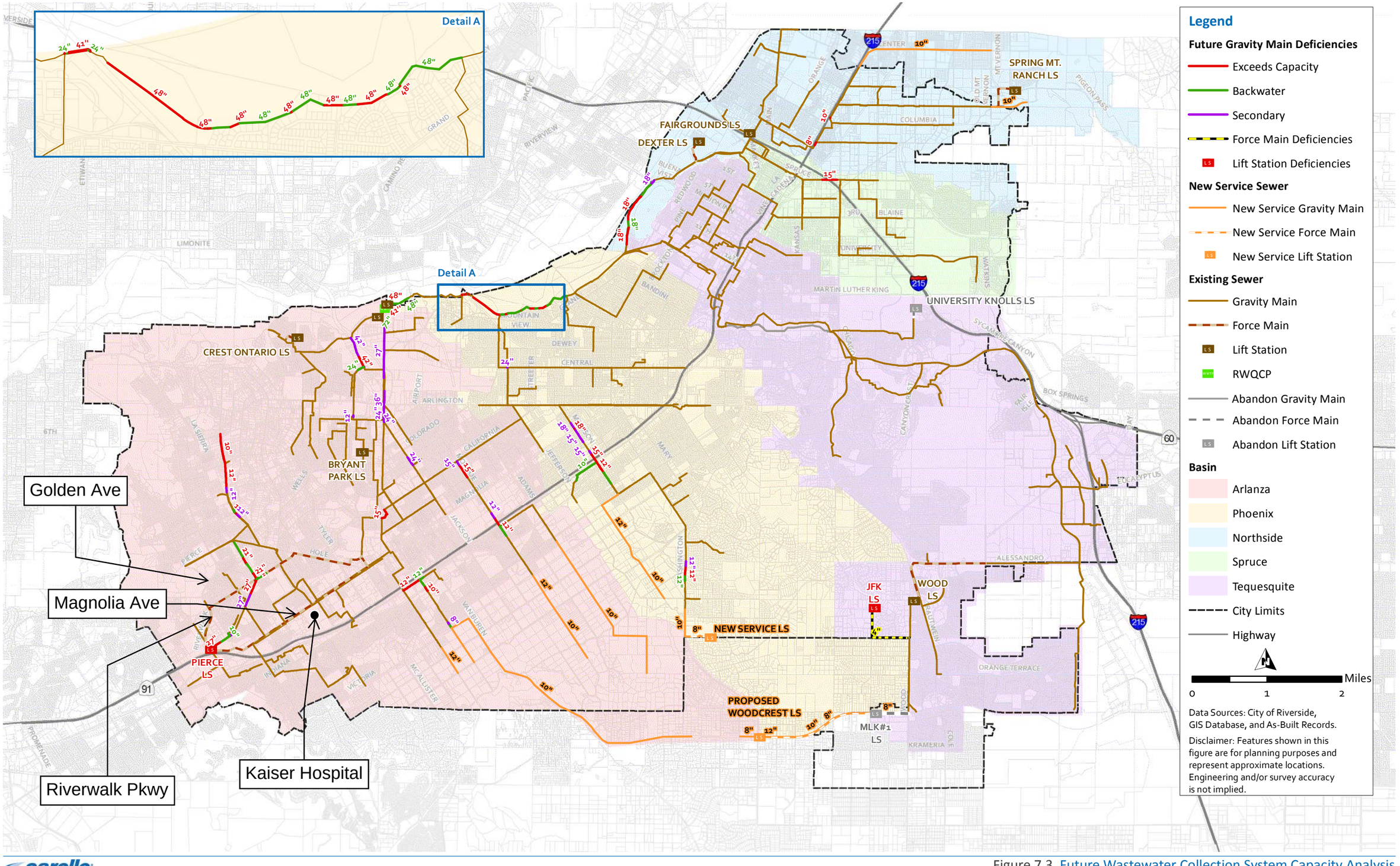




Figure 7.3 Future Wastewater Collection System Capacity Analysis

## Appendix G : Lift Station Capacity Analysis Table

Table 7.1 Lift Station Capacity Analysis

| Lift Station | No. of Pumps | Capacity per Pump[1] (mgd) | Existing Firm Capacity[2] (mgd) | Existing PWWF[3] (mgd) | Existing Balance (mgd) | Capacity Deficient? (Y/N) | Build Out PWWF[4] (mgd) | Build Out Capacity Balance (mgd) | Capacity Deficient? (Y/N) |
|---|---|---|---|---|---|---|---|---|---|
| Bryant Park | 2 | 0.29 | 0.29 | 0.22 | 0.07 | N | 0.23 | 0.07 | N |
| Crest & Ontario | 2 | 0.32 | 0.32 | 0.19 | 0.13 | N | 0.25 | 0.07 | N |
| Dexter | 2 | 0.24 | 0.24 | 0.01 | 0.23 | N | 0.05 | 0.19 | N |
| Fairground | 2 | unknown | unknown | 0.22 | N/A | N/A | 0.24 | N/A | N/A |
| JFK | 2 | 0.12 | 0.12 | 0.13 | -0.01 | N[6] | 0.51 | -0.39 | Y[5] |
| MLK No. 1 | 2 | 0.30 | 0.30 | 0.02 | 0.28 | N | 0.18 | 0.12 | N |
| Pierce Street | 2<br>2 | 7.34<br>4.32 | 15.98 | 13.05 | 2.93 | N | 16.06 | -0.08 | N |
| Spring Mtn. Ranch | 3 | 0.49 | 0.98 | 0.47 | 0.51 | N | 0.50 | 0.48 | N |
| University Knolls | 2 | 0.04 | 0.04 | 0.05 | -0.01 | N[6] | 0.05 | -0.01 | N[6] |
| Wood Road | 4 | 2.30 | 6.91 | 3.40 | 3.51 | N | 4.19 | 2.72 | N |

Notes:
(1) Source: City of Riverside Sewer Plans - https://wam.riversideca.gov/PWSurvey/sewer.asp & Regional Water Quality Control Plant Wastewater Lift Station Assessment January 2009.
(2) Firm capacity is defined as the lift station capacity with the largest pump not operational.
(3) Existing PWWF is based on the hydraulic model's maximum flow into the wet well during the 10-yr 24-hr design storm under existing conditions.
(4) Build out PWWF is based on the hydraulic models' maximum flow into the wet well during the 10-yr 24-hr design storm under build out conditions.
(5) MLK No. 1 Lift Station will be abandoned upon construction of the planned Woodcrest Sewer.
(6) These lift station exceed capacity, but not enough to warrant construction of a capacity upgrade under the specified flow conditions.