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SEWER CAPACITY STUDY

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

SC.MI

DATE: January 26, 2012

TO: Christopher Cannon, Director
Environmental Management
Port of Los Angeles

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Environmental Management
Port of Los Angeles

FROM: Ali Poosti, Division Manager
Wastewater Engineering Services Division
Bureau of Sanitation



SUBJECT: **CITY DOCK NO. 1 MARINE RESEARCH CENTER SEWER CAPACITY STUDY**

The Wastewater Engineering Services Division (WESD) has conducted a sewer capacity analysis for the proposed City Dock No. 1 Marine Research Center Development located at the Port of Los Angeles. Enclosed is a memorandum detailing the results of our analysis.

If you have any questions regarding this report or this request, please contact Kwasi Berko at (323)342-1562 or Fernando Gonzalez at (323) 342-6267.

Thank you for your cooperation.

Cc w/encl: Carmelo Martinez
Fernando Gonzalez

Enc: Technical Memorandum No. 2012-001 (SC.MI)

CITY OF LOS ANGELES
INTER-DEPARTMENTAL CORRESPONDENCE

SC.MI

TECHNICAL MEMORANDUM NO. 2012-001

SUBJECT: City Dock No. 1 Marine Research Center Sewer
Capacity Study

PREPARED BY: Rowena Lau, P.E.
Kwasi Berko, P.E.

DATE: January 26, 2012

INTRODUCTION

Overview

The purpose of the City Dock No. 1 Marine Research Center Sewer Capacity Study is to determine if there is available capacity within the sewers to accommodate a proposed redevelopment project by the Port of Los Angeles (POLA). The project developer has received comments on March 4, 2011 regarding the impacts on the sewer system determined statically. A dynamic capacity study is required to determine the overall effects on the local collection system upon discharge from the proposed project.

City Dock No.1 Marine Research Center Project

The City Dock No.1 Marine Research Center Project site is located within the San Pedro Waterfront Plan area, which encompasses approximately 400 acres along the western boundary of the Port, adjacent to the community of San Pedro. The project activity is focused on City Dock No. 1, which encompasses approximately 28 acres and is bounded by the Main Channel on the east, the East Channel on the west, East 22nd Street to the north, and Los Angeles Harbor to the south. The project site as shown in Figure 1 contains Berth 56; Berth 57; Berth 58 through 60; a water taxi service located beyond Berth 60 at the end of City Dock No. 1; and Berths 70 through 71 (the Westway Terminal site).

Figure 1: Project Site Map



The four (4) areas of proposed development which are designated as Berths 56 and 57, Berths 58–60, Berths 59–60, and Berths 70–71 are served by two existing 8-inch lines on Signal St and Signal St RW. The sewage from both 8-inch lines feed into the Signal Pumping Plant on Signal St. The sewage then continues north into the 22nd & Signal Pumping Plant on Signal St before discharging into a 33-inch sewer line on Beacon St. Ultimately, this sewage flow will be conveyed to the Terminal Island Treatment Plant (TITP).

The anticipated flows of the proposed development are derived from the Bureau of Sanitation Sewer Facility Charges (SFC) Rate Tables. Based on the project description and the SFC Rate Tables, the estimated project flows are as follows:

Type Description	Average Daily Flow per Type Description (GPD/UNIT)	Proposed No. of Units	Average Daily Flow (GPD)
BERTHS 56 AND 57			
<i>Proposed</i>			
SCMI Research Facility	100 GPD/1000 SQ.FT	50,100 SQ.FT	5,010
Faculty Office Space	150 GPD/1000 SQ.FT	758 SQ.FT	114
Teaching Laboratories	100 GPD/1000 SQ.FT	3,600 SQ.FT	360
Research Laboratories	100 GPD/1000 SQ.FT	13,849 SQ.FT	1,385
Lab Support Space	100 GPD/1000 SQ.FT	2,300 SQ.FT	230
Administrative Suite	150 GPD/1000 SQ.FT	3,381 SQ.FT	507
Staff Support Facilities	250 GPD/1000 SQ.FT	1,964 SQ.FT	491
Building Support Facilities	20 GPD/1000 SQ.FT	6,870 SQ.FT	137
Outdoor Teaching/Outreach Classroom	200 GPD/1000 SQ.FT	1,997 SQ.FT	399
Outside Storage Space	20 GPD/1000 SQ.FT	6,150 SQ.FT	123
Hallways, Walkways	80 GPD/1000 SQ.FT	5,634 SQ.FT	451
Learning Center	200 GPD/1000 SQ.FT	11,500 SQ.FT	2,300
Facilities Tank			219,178
Berths 56 and 57 Total			230,685
BERTHS 58—60			
<i>Proposed</i>			
SCMI and Partners Research Facility	100 GPD/1000 SQ.FT	60,000 SQ.FT	6,000
Marine Science Business Park/Incubator Space	100 GPD/1000 SQ.FT	70,000 SQ.FT	7,000
NOAA Space	100 GPD/1000 SQ.FT	50,000 SQ.FT	5,000
Berths 58—60 Total			18,000
BERTHS 59-60			
<i>Proposed</i>			
Waterfront Café	300 GPD/1000 SQ.FT	280 SQ.FT	84
Public Plaza/Viewing Platform	80 GPD/1000 SQ.FT	4,000 SQ.FT	320
Berths 59-60 Total			404
BERTHS 70-71			
<i>Proposed</i>			
NOAA Admin and Research Facility	100 GPD/1000 SQ.FT	50,000 SQ.FT	5,000
Berths 70-71 Total			5,000

Type Description	Average Daily Flow per Type Description (GPD/UNIT)	Proposed No. of Units	Average Daily Flow (GPD)
SUMMARY FLOWS FOR PROJECT			
Total Proposed Flow			254,089

PUMP STATIONS

There are two pump stations located within the vicinity of the project location: Signal Pump Station and the 22nd and Signal Pump Station. The specifications of each pump station are detailed below:

Pump Station	Capacity (GPM)	Peak Flow (GPM)	Average Flow (GPM)
Signal	200	35	3
22 nd and Signal	100	100	70

According to the specifications of 22nd and Signal Pump Station, during peak flows the maximum capacity of this pump is reached. This situation can be prolonged leading to operational challenges should more discharges come on line in this area in addition to this proposed project.

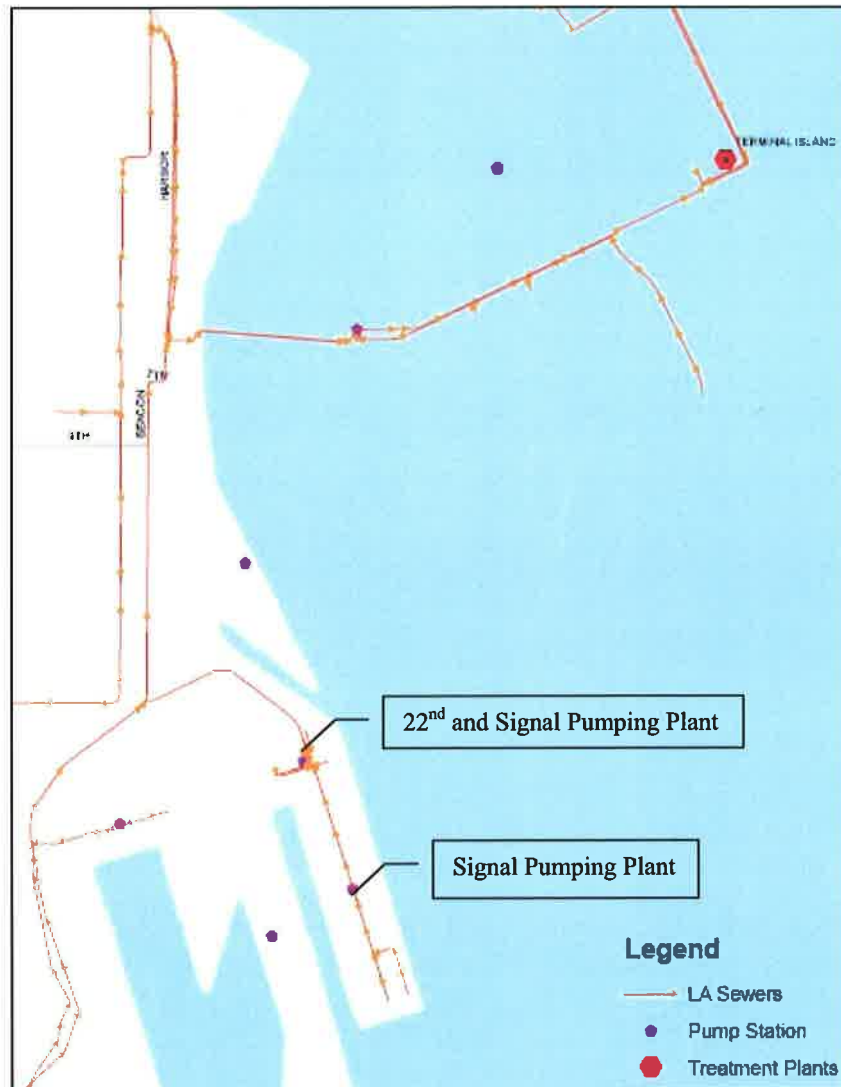
MODELING APPROACH

MIKE URBAN hydrodynamic modeling was used to analyze following:

1. Verify the current flow conditions in the local sewer system.
2. Determine the hydraulic conveyance adequacy of the collection system using the anticipated project discharges.

A calibrated MIKE URBAN hydrodynamic model of the project area was generated to determine the existing flow conditions and the hydraulic conveyance impact of the project discharge to the existing condition and Year 2050.

Figure 2: Modeling Area



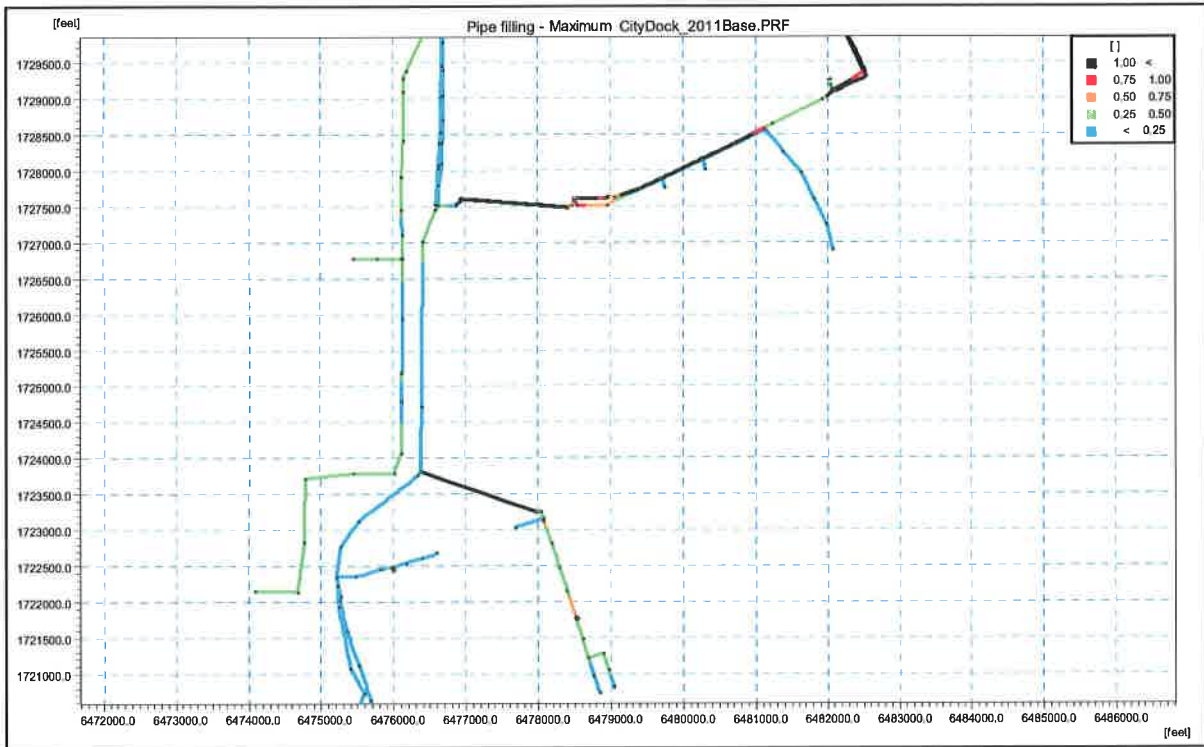
MODELING SCENARIOS AND RESULTS

2011 Current Configuration

The 2011 Current Configuration model run is used to verify the local sewer response to existing flow conditions. A comparison between MIKE URBAN and recent pump station data shows acceptable agreement.

Figure 3 illustrates the current flow conditions within the collection system. The five (5) black/red areas are either siphons or force mains. Since siphons and force mains flow under pressure, the pipe filling (d/D) shows as full.

Figure 3: 2011 Flows with Current Configuration

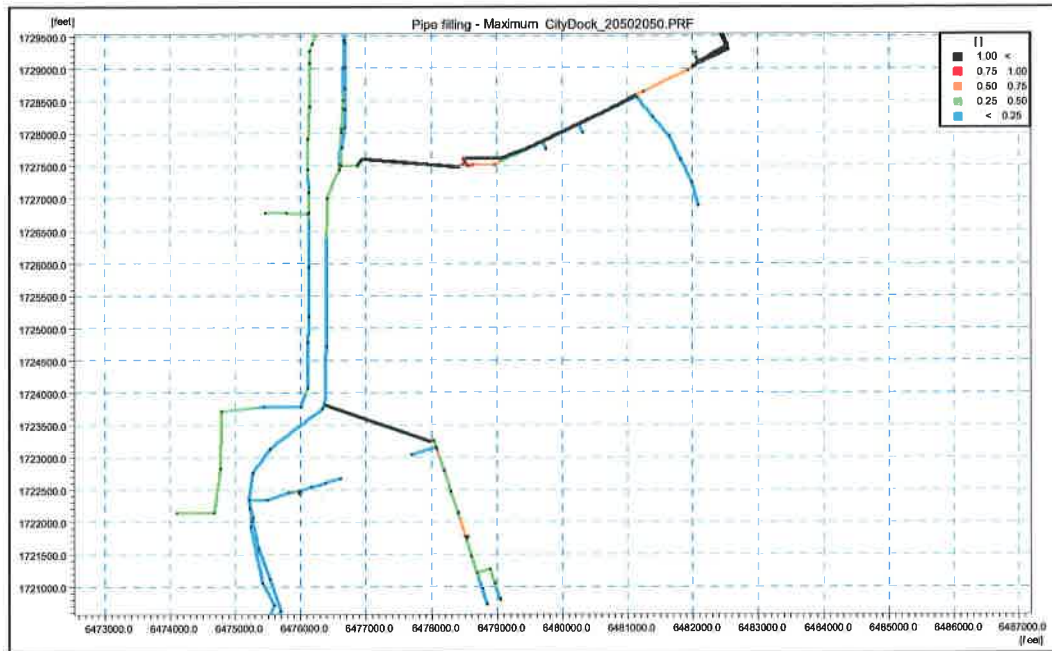


2011 Current Configuration with Proposed Project

This model run scenario uses the current (2011) configuration with the anticipated project flows to determine the impact of the project on the local sewer system.

Based on results from this scenario, the proposed project will cause no significant impact to the hydraulic conveyance adequacy of the local sewer system, as shown in Figure 4. The depth of flow is projected to be as high as 72% with peak discharge of 1.34 cubic feet per second (cfs).

Figure 4: 2011 Flows with Proposed Project

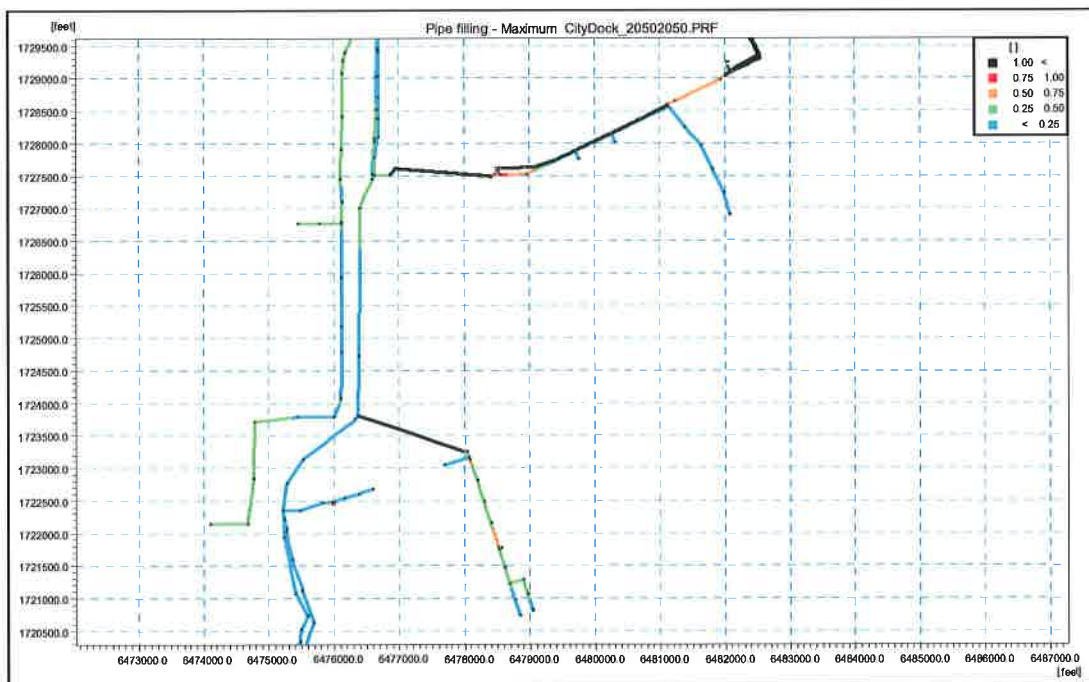


2050 Configuration with Proposed Project

This model run scenario uses the future (2050) configuration with the anticipated project flows to determine the impact of the project on the local sewer system.

Based on results from this scenario, the proposed project will cause no significant impact to the hydraulic conveyance adequacy of the local sewer system, as shown in Figure 5. The depth of flow is projected to be as high as 72% with peak discharge of 1.34 cubic feet per second (cfs).

Figure 4: 2050 Flows with Proposed Project



CONCLUSION

Based on the MIKE URBAN modeling results, WESD staff determined that the City Dock No.1 Marine Research Center project will not have no major impact on the local collection system provided no significant dischargers connect ahead of the project.

According to the specifications of 22nd and Signal Pump Station, during peak flows the maximum capacity of the pumps is reached. If the project discharge flows prolong the peak hours of the pump station, the developer may be required to upgrade the pump capacity or regulate the discharge rate so as not to strain the operation of the sewer system. A final approval for sewer capacity and connection permit will be made during the permit process phase.

