Appendix L
Sewer System Analysis

DEXTER WILSON ENGINEERING, INC.

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CONSULTING ENGINEERS

SEWER SYSTEM ANALYSIS FOR THE OCEAN CREEK PROJECT IN THE CITY OF OCEANSIDE

August 30, 2021

2234 FARADAY AVENUE • CARLSBAD, CA • (760) 438-4422

SEWER SYSTEM ANALYSIS
FOR THE OCEAN CREEK PROJECT
IN THE CITY OF OCEANSIDE

August 30, 2021

8-30-2021

Prepared by:
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Job No. 556-016

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August 30, 2021 556-016

Fuscoe Engineering, Inc.
6390 Greenwich Drive, Suite 170
San Diego, CA 92122

Attention: Bryan D. Smith, P.E., Senior Project Manager

Subject: Sewer System Analysis for the Ocean Creek Project in the City of Oceanside

Introduction

The Ocean Creek project is located in the City of Oceanside south of South Oceanside Boulevard and west of Crouch Street. Access to the project is from South Oceanside Boulevard. Sewer service for the Ocean Creek project will be provided by the City of Oceanside.

The proposed Ocean Creek project is a mixed-use development on an approximately 12.9-acre parcel (APN 151-270-56-00) within an approximately 18.9-acre project site, located at the southwest corner of the intersection of Crouch Street and future S. Oceanside Boulevard/Skylark Drive, in the City of Oceanside. It is situated across from the existing North County Transit District (NCTD) Crouch Street Sprinter Station, a major transit station. The proposed project would develop 295 residential apartment units and 3,000 square feet of commercial/retail within an approximately 12.87-acre graded area of the project site. Finished floor elevations within the project range from a low of 36 feet to a high of 44 feet in elevation.

The purpose of this letter report is to analyze the existing and proposed public sewer system for the Ocean Creek project and determine if there are any sewer system deficiencies created by the proposed development of this property. A Vicinity Map for the project is shown on Figure 1 and a preliminary site plan for the project is included in Appendix A.

Sewer System Design Criteria

The design criteria used for the evaluation of the offsite sewerage system impacts by the Ocean Creek project are based on the City of Oceanside Water Utilities Department, Water, Sewer, and Reclaimed Water Design & Construction Manual, August 2017, Section 3, Sewer Systems Design Guidelines (Design & Construction Manual) unless otherwise indicated. A copy of the pertinent sections in the City's Manual where the design criteria is located is attached as Appendix B.

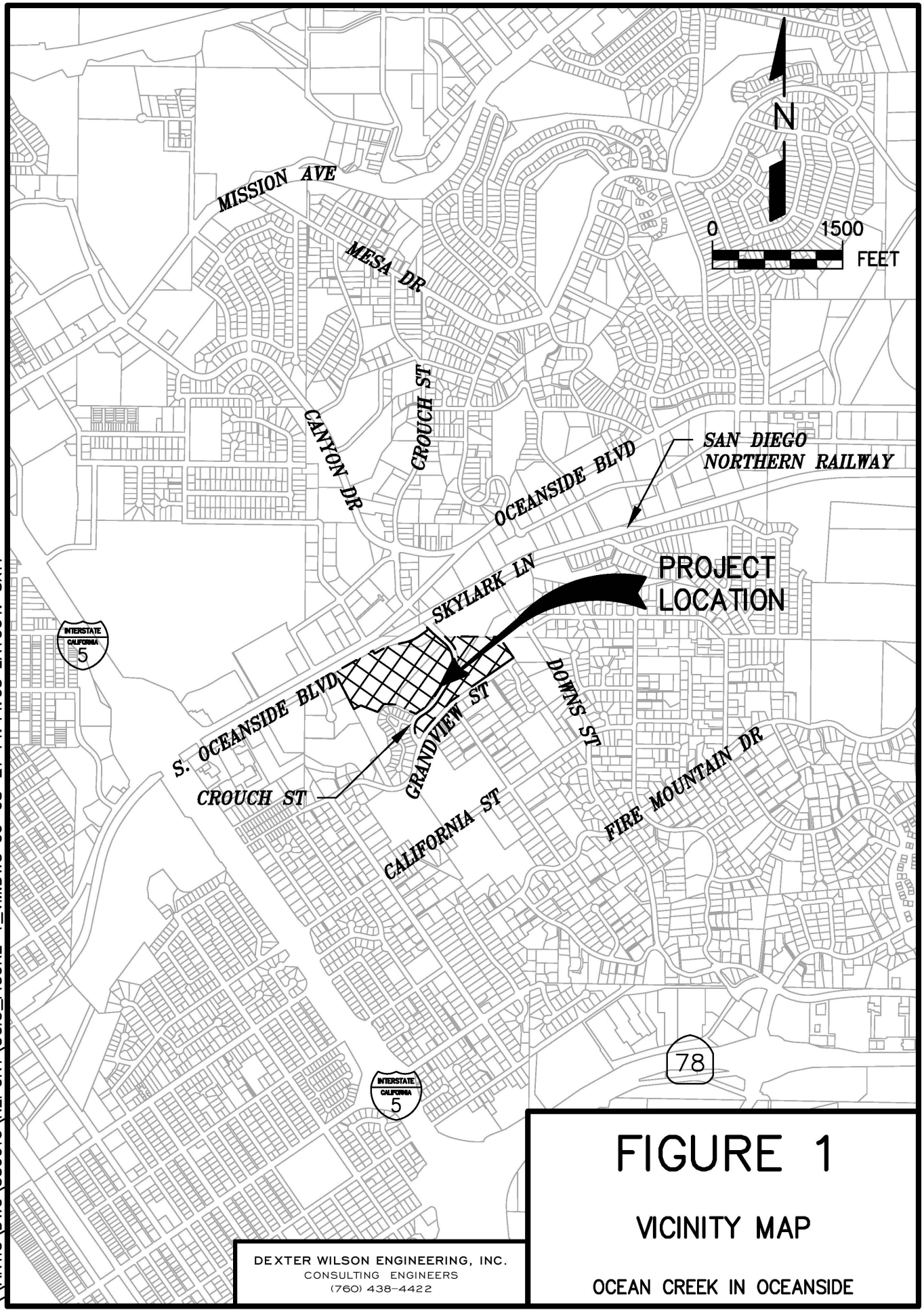
Sewer Generation Rates. The sewer generation rates for the project and surrounding area are presented as Table 1 below.

TABLE 1
CITY OF OCEANSIDE SEWER GENERATION RATES

Land Use	Generation Rate
Low-Density (Single-Family) Residential	170 gpd/DU
Mid-Density (Multi-Family) Residential	140 gpd/DU
Industrial & Commercial	1,000 gpd/ac
Hotels	100 gpd/room

Peaking Factors

The peaking factor for residential development is identified in the City of Oceanside Design & Construction Manual. To convert average dry weather flows to peak wet weather flows, the peaking factors in Table 2 were used.



\\ARTIC\DWG\556016\REPORT\OCIO_FIGURE-1_VM.DWG 06-08-21 14:44:05 LAYOUT: 8X11

FIGURE 1

VICINITY MAP

OCEAN CREEK IN OCEANSIDE

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

TABLE 2 CITY OF OCEANSIDE PEAKING FACTORS	
Population	**Peak Factor**
< 500	3.5
500-1000	2.75
1000-5000	2.50
> 5000	2.00

The peaking factor for non-residential flow (i.e. industrial, commercial, hotels, etc.) is given as a formula in the Manual. The formula is stated: $Q_p = 1.84 \times Q_a^{0.92}$, where Q_p equals peak flow in cubic feet per second (cfs) and Q_a equals average flow in cfs.

Manning's "n"

The gravity sewer analyses are made using a computer spreadsheet calculation which uses the Manning Equation for all of its calculations. The Manning's "n" used by the computer spreadsheet calculation is held as a constant for all depths in a circular conduit. The value of Manning's "n" used for this study is 0.013 per the City's design manual and master plan.

Depth and Velocity of Flow in Gravity Sewers

Gravity sewer lines are designed to convey peak wet weather flow. Pipes that are 10-inches in diameter and smaller are designed to convey this flow with a maximum depth-to-diameter (d/D) ratio of 0.50. Pipes that are 12-inches and larger in diameter are designed for a maximum d/D ratio of 0.67. Gravity sewer lines are designed to maintain a minimum velocity of 2.0 feet per second at peak flow to prevent the deposition of solids.

Existing Sewer System

There are two existing gravity sewer lines that are adjacent to the project site, of which, only one will be utilized to serve the project. The first adjacent sewer line is a 10-inch diameter VCP line that extends northward underneath Loma Alta Creek and railroad right-of-way up to a 15-inch diameter trunk sewer line in Oceanside Boulevard. This 10-inch diameter sewer line will not be utilized by the project.

The second adjacent sewer line is a 10-inch diameter line in South Oceanside Boulevard at the northwestern boundary of the project. This sewer line will be utilized by the project and conveys flow westerly and ultimately connects to the 15-inch diameter trunk sewer line in Oceanside Boulevard just east of Commerce Street. Appendix B provides the City's 11 x 17 sewer base map for this area as well as the As-Built Drawings.

Existing Sewer Flows. The sewer system analysis for the Ocean Creek project will need to take into account sewage flows from existing development that is downstream of the project. The Ocean Creek project will be the most upstream development along this particular stretch of gravity sewer along South Oceanside Boulevard. Table 3 summarizes the projected sewage flows from existing development.

TABLE 3
EXISTING SEWER FLOWS ALONG SOUTH OCEANSIDE BOULEVARD

Description	Quantity	Unit Flow Factor	Total Avg. Flow
Single-Family Residential (St. Malo Heights)	34 DUs	170 gpd/DU	5,780
Single-Family Residential (1902 Grandview)	25 DUs	170 gpd/DU	4,250
Commercial	24.4 Ac	1,000 gpd/ac	24,400
Total			**34,430**

Proposed Sewer Facilities

The projected sewer flow from the Ocean Creek project is based on 295 condominium units and an average generation rate of 140 gpd per multi-family unit. Table 4 provides the summary of projected sewage flows for the project.

TABLE 4
OCEAN CREEK PROJECTED SEWAGE FLOWS

Description	Quantity, Units	Generation Factor	Average Sewage Flow, gpd
Multi-Family Residential	295	140 gpd/unit	41,300
Commercial	3,000 SF	1,000 gpd/ac	69
Total			**41,369**

The project will extend the public gravity sewer line in South Oceanside Boulevard within the street's overall extension from Union Plaza Court eastward to Crouch Street. The onsite sewer system within the Ocean Creek project is proposed to consist of a private gravity system.

The existing 10-inch diameter VCP sewer line that extends northward underneath Loma Alta Creek and railroad right-of-way is proposed to be left in place and no project sewer will be connected to it.

The existing and proposed sewer facilities for the Ocean Creek project are presented on Figure 2 and Exhibit A.

LEGEND

PROJECT BOUNDARY

EXISTING PUBLIC SEWER LINE

PROPOSED PUBLIC SEWER LINE

PROPOSED PRIVATE SEWER LINE

N

0 150 FEET

OCEANSIDE BLVD.

SAN DIEGO NORTHERN RAILWAY

SKYLARK DR.

SOUTH OCEANSIDE BLVD.

UNION PLAZA CT.

CROUCH ST.

GRANDVIEW ST.

BLDG A

BLDG B

BLDG C

BLDG C

BLDG D

EX.6"

EX.8"

EX.10"

EX.36"

EX.15"

EX.24"

8"

\\ARTIC\DWG\556016\REPORT\OCIO_SWR_FIGURE-2_PROSWR.DWG 08-27-21 15:14:14 LAYOUT: 11X17

FIGURE 2

EXISTING AND PROPOSED SEWER FACILITIES

OCEAN CREEK IN OCEANSIDE

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

Sewer System Analysis

To analyze the impact of the Ocean Creek project on the existing sewer system, a hydraulic analysis was conducted. Appendix C provides the hydraulic analysis output and Exhibit A provides the corresponding Sewer Manhole Diagram. To perform this analysis, we obtained As-Built Drawings of the existing sewer system so that the pipe sizes and slopes could be inputted to the spreadsheet. A key component of the hydraulic analysis is to estimate existing flows within the sewer lines that will be utilized to serve the Ocean Creek project. Table 3 provided the summary of existing flows from existing offsite downstream development.

The existing 8-inch diameter and 10-inch diameter gravity sewer line that will be extended eastward by the project was analyzed to the point where it connects to the 15-inch diameter trunk sewer line in Oceanside Boulevard. Initial comments from the City's Water Utilities Department (Comment W17) indicated that the analysis be completed up to this connection to the 15-inch diameter trunk sewer line in Oceanside Boulevard. These comments are included within Appendix B.

Sewer System Analysis Results

Appendix C presents the results of the hydraulic analysis for the Ocean Creek project. The results indicate that the existing system has adequate capacity to serve the project. With the additional sewer flow from the Ocean Creek project, all sections of the line will flow less than half full during peak flow conditions.

Velocities in all proposed gravity sewer sections are greater than 2.0 feet per second. There are four existing downstream 10-inch diameter sewer segments at 0.30 percent where velocities remain below 2.0 feet per second. Maximum velocities in these four segments with the proposed project's sewer flow are approximately 1.7 feet per second. For reference, maximum velocity in these four segments without the proposed project's sewer flow is approximately 1.3 feet per second.

A summary of the impacts to the existing downstream gravity sewer in South Oceanside Boulevard due to the proposed Ocean Creek project is shown below in Table 5.

TABLE 5
OCEAN CREEK PROJECT EXISTING DOWNSTREAM SEWER IMPACTS

Existing Downstream Sewer Section	Maximum d/D Ratio		Minimum Velocity, fps	
	Existing Flow	Existing plus Project Flow	Existing Flow	Existing plus Project Flow
8-inch Diameter	0.26	0.42	1.5	2.0
10-inch Diameter	0.23	0.35	1.3	1.7

Conclusions and Recommendations

The following conclusions have been made related to providing sewer service to the Ocean Creek project.

1. The Ocean Creek project can receive sewer service by extending a public 8-inch diameter gravity sewer line in South Oceanside Boulevard and connecting to the existing system. The project will also construct a private sewer collection system onsite.

2. Figure 2 provides the project layout including the location of existing and proposed sewer facilities.

3. A sewer system analysis was conducted (see Appendix C) and indicates that all existing and proposed sewer lines have adequate capacity to convey peak flows from existing development plus the Ocean Creek project while maintaining depth-to-diameter ratios of less than 0.50.

Thank you for the opportunity to assist you with the sewer system planning for the Ocean Creek project. If you have any questions regarding the information and conclusions presented in this report, please do not hesitate to call.

Dexter Wilson Engineering, Inc.

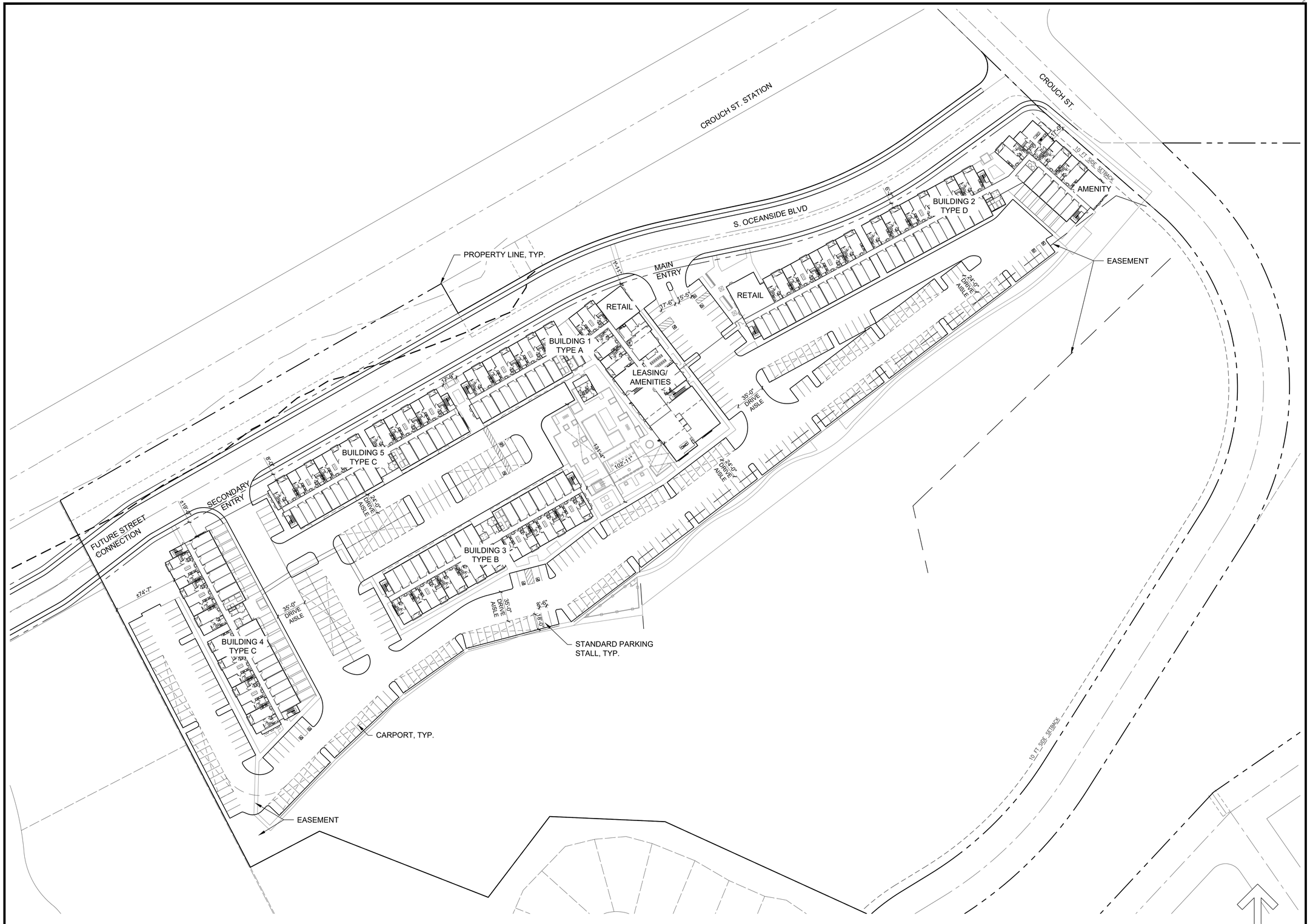
Andrew M. Oven, P.E.

Attachments

AO:SH:ah

APPENDIX A

PRELIMINARY SITE PLAN



SITE PLAN 1

adc
architecture design collaborative
23231 South Pointe Dr
Laguna Hills, CA 92653
www.adcollaborative.com
949.267.1660

ADC Project No: 190147

Project Contact: Chris Weimholt
Email: cweimholt@adcollaborative.com
Principal: Chris Weimholt
Project Manager:

Client

JPI

Company: JPI Development Company
Address: 12250 El Camino Real, Suite 380
San Diego, CA 92130
Phone No. (858) 369-5670

JEFFERSON OCEANSIDE

OCEANSIDE, CA

Issue Date

SUBMITTAL MM/DD/YYYY

SITE PLAN

A1.0

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APPENDIX B

CITY OF OCEANSIDE DESIGN CRITERIA, BASE MAPS, AS-BUILT DRAWINGS, AND PLAN CHECK COMMENTS

SECTION 3 - SEWER SYSTEMS DESIGN GUIDELINES

3.1 GENERAL

A. All sewer system construction shall conform to the most recent edition of the City of Oceanside's Water, Sewer, and Reclaimed Water Design & Construction Manual.

B. If a conflict arises between the requirements in this manual, the order of precedence shall take place:

1. Sections 1-4, Required Notes, & Appendix
2. Standard Drawings
3. Standard Specifications

C. If the standard that is sought does not appear in this Manual, then the following standards shall be utilized in the order listed:

1. State of California Department of Health Services
2. American Water Works Association (AWWA) Standards
3. San Diego County Regional Standard Drawings
4. Standard Specifications for Public Works Construction (SSPWC or "Greenbook"), latest Edition.

Exceptions to this and all other guidelines appearing in this manual may be allowed only upon the approval of the Water Utilities Director.

B. The sewer facilities listed below will require telemetry and control equipment to be incorporated into the design of the facility. The Water Utilities Department will provide specific design requirements when improvement plans are submitted for Plan Check.

1. Treatment Facilities
2. Sewer Lift Stations and force mains
3. Metering Stations

3.2 MAINS

A. Minimum size shall be 8 inches.

B. All mains not meeting the minimum main diameter and material shall be replaced to meet current design requirements. This is applicable for all new commercial, industrial, institutional, and residential developments of four (4) units or more. Where the full replacement length(s) from manhole to manhole along the property frontage length impacts more than one main and significantly exceeds the developed

property(ies) or is deemed in excess of the overall project cost, the developer may pay an in-lieu fee upon the approval of the Water Utilities Director.

C. Slip-lining or replacement of sewer mains 8-inch or larger may be required if the main is determined to be in poor condition per CCTV report.

D. For diameters 10 inches and smaller, maximum depth of flow shall not exceed ½ the diameter. For diameters 12 inches and larger, depth of flow shall not exceed 2/3 the diameter.

E. No vertical or horizontal curves shall be permitted, unless otherwise approved by the Water Utilities Director.

F. The maximum slope of sewer line shall be 14% unless otherwise approved by the Water Utilities Director.

G. If the main and/or lateral is at a depth of 20 feet or more than the type of pipe material must be approved by the Water Utilities Department. Calculations must be provided to the Water Utilities Department to verify that the pipe material will accommodate the design depths.

H. Locations:

1. Alley: Mains shall be offset a minimum of 3 feet from the centerline to clear alley gutter. Separation from waterlines shall be per Oceanside Standard Drawing S-1 and S-1a.

2. Street: Sewer main locations shall be located in center of the street. A minimum 10-foot separation outside of pipe to outside of pipe from waterlines shall be maintained.

3. Streets with 84 feet of right-of-way or more may require special location as approved by the Water Utilities Director.

4. Minimum cover for sewer mains shall be 6 feet below the finished grade, unless otherwise approved by the Water Utilities Director.

I. Minimum Slopes:

A minimum velocity of 2 FPS shall be maintained at peak flow. Where 2 FPS is not attainable, a minimum slope of 1.6% shall be used. When velocities are 2.0 FPS or greater the following design criteria will govern:

Pipe Diameter	Minimum Slope
8 Inch	0.50%
10 Inch and larger	0.40%

J. Demands:

1. Average daily sewer generation rates shall be:

LAND USE	LAND USE CATEGORY	UNITS

Low Density Residential	EA-R, EB-R, SDF-R	170 gpd/EDU
Mid Density Residential	MDA-R, MDB-R, MDC-R, HD-R, UHD-R	140 gpd/EDU
Industrial	LI	1,000 gpd/acre
Commercial	CC, NC, GC, SC, PC, GI, RP-I, CI, PI	1,000 gpd/acre
Hotels		100 gpd/room

Peak daily flows for residential developments, shall be based on a ratio of peak to average flow as shown below:

Population	Ratio of Peak to Average Flow
Less than 500	3.5
500 to 1,000	2.75
1,000 to 5,000	2.50
Greater than 5,000	2.00

3. Peak daily flows for all other uses shall be based on the following formula:

$$Qp = 1.84\ Qa^{.92}$$

Where Qp = Peak Flow in CFS
Qa = Average Flow in CFS

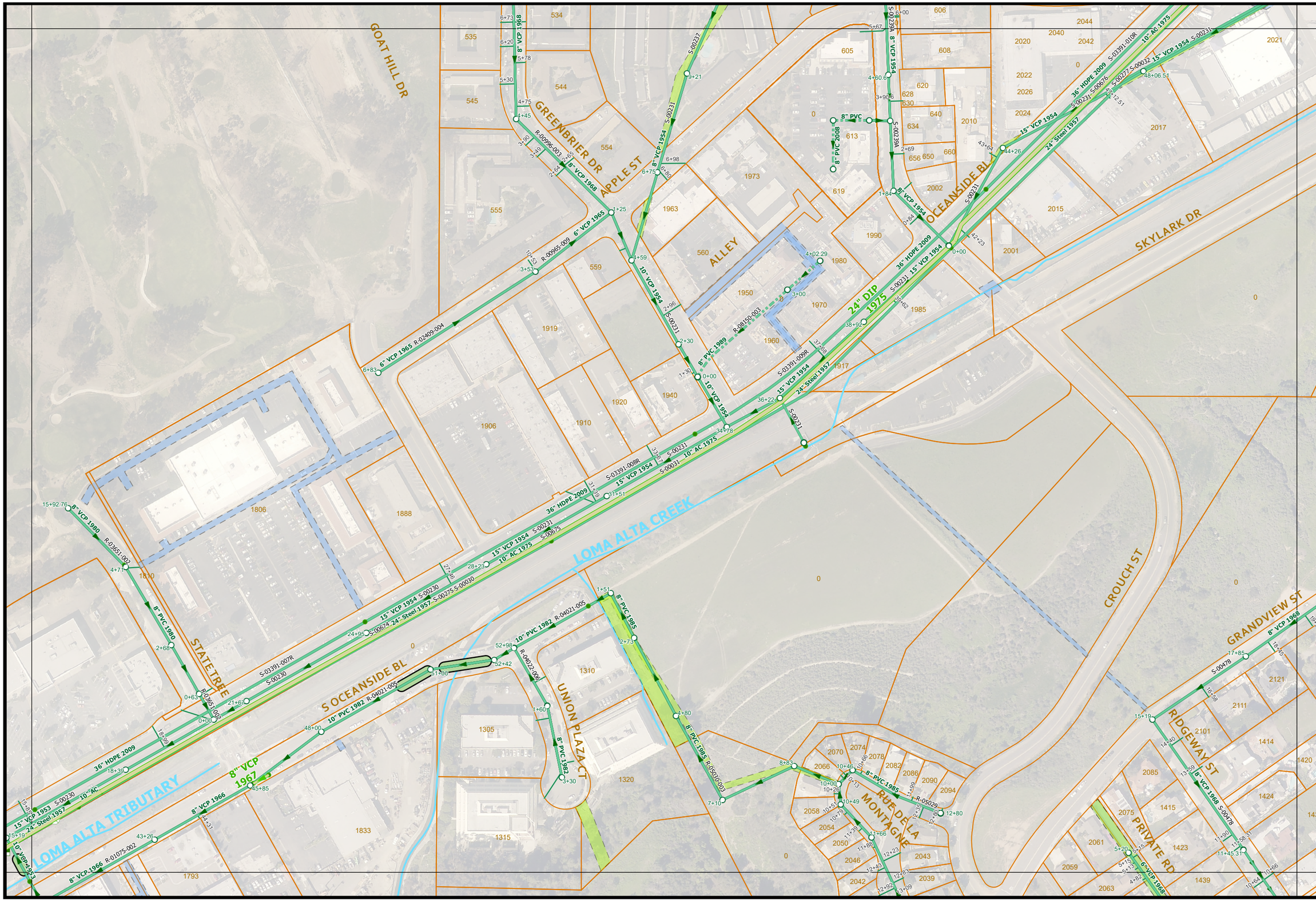
I. Residential area easements shall be constructed by the developer. They shall be fenced on both sides parallel to the easement with a gate at the entrance and the exit. Easements shall be dedicated to the City and maintained by Property Owner with a lock feature.

J. All sewer mains not located within the public right-of-way shall be provided with a minimum 20-foot wide sewer easement. In some special cases, a wider easement may be required; the Water Utilities Director shall determine size. All easements shall be easily accessible to City maintenance equipment with all weather roadways. An access road will be built for trucks and as approved by the Water Utilities Department.

K. All utility easements that contain sewer mains, which will be publicly maintained, shall demonstrate that the largest vehicle within the Sewer Collections Fleet can transverse the streets without damage to both public and private property. The turning radius of this vehicle will be made available upon request.

L. Where water and sewer mains are located within the same easement, the minimum easement size shall be 30 feet wide. All easements shall be easily accessible to the City's maintenance equipment with all-weather access roadways. No trees or structures or building overhang are allowed within the City easements. When easements are located on private properties, the property owner shall keep the easement free and clear of weeds and debris.

M. 3-inch minimum width color coded detector tape marked "SEWER" in 1-½ inch black letters shall be placed on the compacted and graded bedding material one foot above and centered over the sewer main prior to backfilling the trench.



1/8/2021

- THIS MAP PREPARED SOLELY FOR ILLUSTRATION PURPOSE & IS NOT TO BE RELIED UPON FOR ENGINEERING DRAWINGS.
- SOME INFORMATION MAY NOT BE ACCURATE.

Sewer Atlas Map No. G23

PAGE INDEX

F22	G22	H22
F23	G23	H23
F24	G24	H24

N

1" = 200'

G23

DRAWING NUMBER R-1075

DRAWING NUMBER R-1075

DRAWING NUMBER R-1075

DRAWING NUMBER R-1075

"B" ST. 1.0% "A" ST. 0.3%
N.E.
OCEAN-SIDE BLVD 0.24% EXIST. A.C. BERM "B" ST. 3.0%
S.W.
OCEAN-SIDE BLVD 0.24% EXIST. C/G "B" ST. 8.0%
S.E.
CURB RETURNS
SCALE: VERT 1"=20 HOR. 1"=40

20 N'LY.
20 S'LY.
20 ℄
GUTTER LINE
℄ GRADE
GROUND @ N'LY C.B.
TOP N'LY C.B.
GROUND 10' N'LY OF N'LY C.B.
GROUND @ ℄
GROUND @ S'LY C.B.
TOP S'LY C.B.
0.30%
0.40%
0.70%
0.80% GRADE AS BUILT
0.4% 300' 8" V.C.
0.4% 262' 8" V.C.
0.4% 248.56' 8" V.C.
50.50' 8" V.C.
FL 14.75
FL 12.80
10.42
NHH FL 13.80
NHH FL 13.95 #3+28.84
DOWNS STREET
PROFILES
SCALE VERT 1"=4' HOR. 1"=40'

BENCH MARK
TOP BOLT IN S.E. COR of LIGHT STANDARD @ N.W. COR. of "B" ST. & OCEANSIDE BLVD EL 25.66 CITY DATUM.

20 N'LY.
20 E'LY.
℄ GRADE
EXIST. CBL. 3/#14 ECA
DOES NOT EXIST AT THIS CORN
20 ℄
12" STEEL CASING PIPE MIN. 0.188" WALL THICKNESS
GUY LINE
COMMERCE STREET
19A.92'
212.59' TOTAL Δ/10 CUL DE SAC.
Δ 44.85' Δ/4 CB RT.
TOP 21.87 BOT 19.87 #3+39.34
TOP 23.56 BOT 21.56 #3+44.84
TOP 23.04 BOT 21.04
TOP 23.13 BOT 21.13
TOP 23.63 BOT 21.63 #3+57.84
TOP 23.31 BOT 21.31
TOP 23.35 BOT 21.35
TOP 23.60 BOT 21.60
TOP 23.44 BOT 21.44
TOP 23.49 BOT 21.49
TOP 23.58 BOT 21.58
TOP 23.66 BOT 21.66
TOP 23.75 BOT 21.75
TOP 23.82 BOT 21.82
TOP 23.92 BOT 21.92
TOP 23.96 BOT 21.96
TOP 23.91 BOT 21.91
TOP 23.81 BOT 21.81
TOP 23.72 BOT 21.72
TOP 23.52 BOT 21.52 #3+94.84
DOES NOT EXIST AT THIS CORN
20 ℄
EXIST. 10" V.C.
EXIST. MH #3+72.2
15'
20
10.4
10

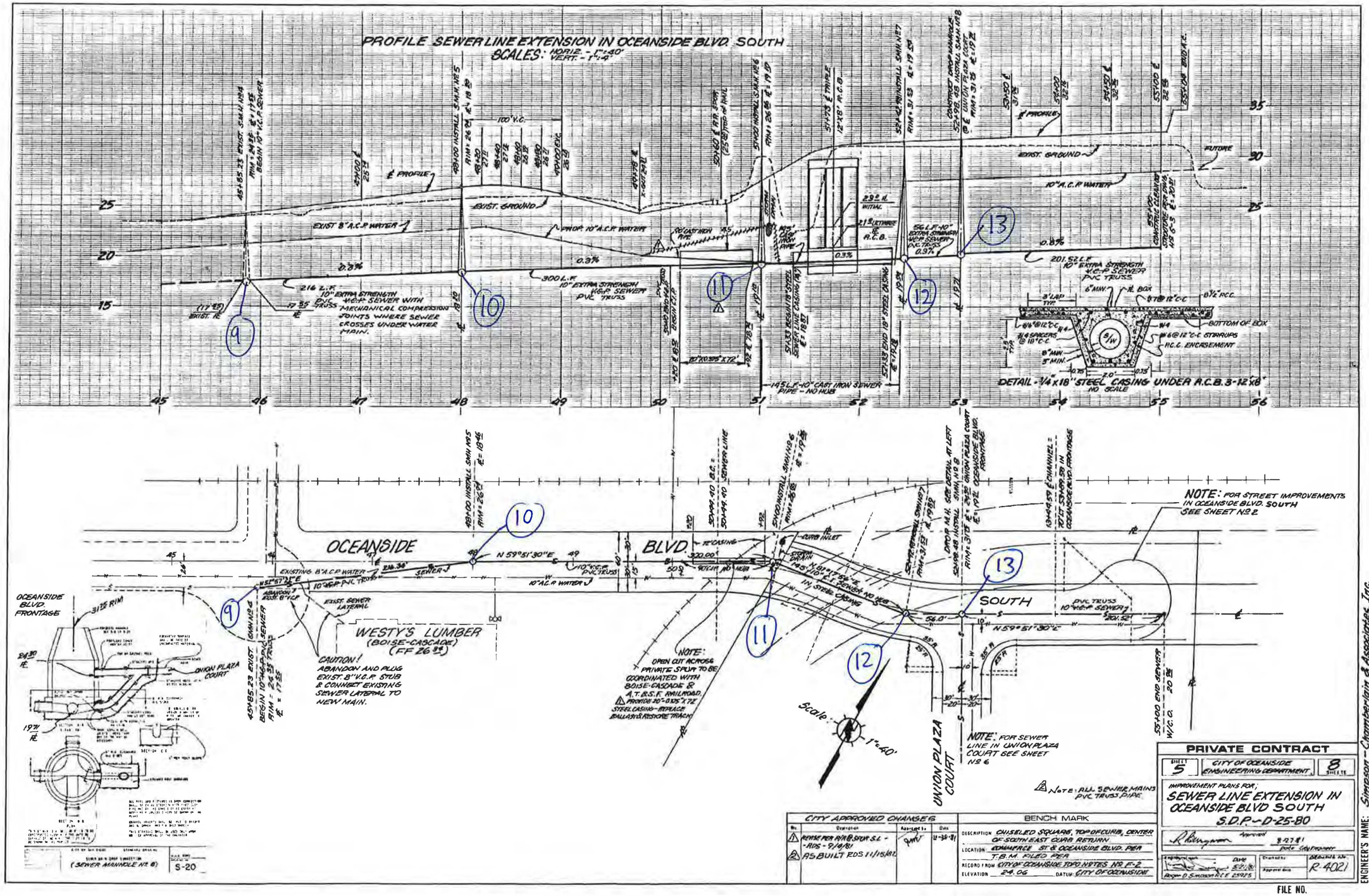
(6) (7) (8) (9)

W.L. TIE TO BE MADE BY CITY WATER DEPT. AT CONTRACTORS EXPENSE.
OCEANSIDE BOULEVARD
REMOVE EXIST. A.C. DIKE
REMOVE EXIST. C/G.
CONST. C/AC. DIKE TO MEET EXIST. AC. DIKE
MEET EXIST C/G
EXIST. 14" A.C.P.
A.C. DIKE R=30' Δ=82° L=43.03'
6" AC DIKE
EXIST. C/G
EXIST. SEWER
CB R=30' Δ=92°09'02" L=48.21
MAKE UNDER RR TRACKS FOR 8" HEATER LINE INSIDE 24" EL. PIPE CASING
EXIST. 8" A.C.P.
EXIST. BOX CULVERT 10'-0" x 5'-6" REINF. CONC.
"AS BUILT" FL 13.98 INLET FL 10.38 OUTLET
CB R=30' Δ=87°59'49" L=46.03
EXIST. PP & GUY WIRE
3'CB OPENING
EXIST. MH
EXIST. 18" V.C. SEWER
40+75.84 E.C.
TYPE A CB R=30 Δ=2°33'10" L=232.63
TYPE A CB R=30 Δ=3°02'24" L=299.52
TYPE A CB R=5620.15 Δ=3°30'48" L=344.37
TYPE A CB #81.38'
CB R=40 Δ=63°36'46" L=44.41
CB R=10' Δ=90° L=15.71
CB R=10' Δ=47°57'35" L=11.77
GUTTER R=50 Δ=22°32.25" L=19.67
4" BLOWOFF
TOTAL CUL DE SAC R=50 Δ=243°36'46" L=212.59'
30' DENENNY
30' DRIVEWAY
6" CONC. DRIVEWAY APRON
EXIST. PP
EXIST. SOT
COMMERCE ROAD
DOWNS STREET
N89°55'35"E 512.00'
362.38' @ A.C.
262' 8" V.C.
300' 8" V.C.
50.50' 8" V.C.
R-6
AT SF RR
40'+15.84 E.C.
40'+28.84 E.C.
55' A.T.&S.F. R/W
CONNECT TO EX. VERIFY EXISTING SEWER MAIN
AT JOIN BY HANDLEVEL EL. 9.30 = 3.0± L.F.
10" SEWER
AS BUILT NOTE:
PLACED 2 #8 HENSERBARS, 3.0' PAST RAILROAD TRACKS 3 FEET OF HEADER BARS DRAIN INLET FROM ST. TO RIGHT. DITCH OVERFLOWS N'LY. TO N'LY CURB & GUTTER. SCALE 1"=30'
MAKE DRAIN DITCH SMOOTH — PLENTY OF FALL AWAY TO SOUTH.
Note: Opening in berm to drain
C1 CAP & THRUST BLOCK
4" of 8" V.C. & PLUG
30' DENENNY
PRIVATE CONTRACT AS BUILT DEC 7-28-67

ENGINEER:
Robert A. Bailey DATE NOV 16 1966
ROBERT A. BAILEY R.C.E. 10662

CITY OF OCEANSIDE
ENGINEERING DEPARTMENT
SHEET 2 OF 2 SHEETS
W.O. NO.
PLAN REVISION
CHANGE | BY | DATE | APPROVAL
CONSTRUCTION RECORD
DATE STARTED | DATE COMPLETED
CONTR. | INSP.
FIELD BOOK
Alton E. Ruben 12-20-1966
CITY ENGINEER | DATE
APPROVALS FOR
WATER DEPT. | SEWERAGE
PLANNING DEPT. | DRAINAGE
ELECTRICAL | HIGHWAY
STRUCTURAL | GRADES
TRAFFIC | CONTROL
ASST CITY ENGINEER AND OFFICE ENGINEER
SURVEYED
CHECKED
DESIGNED
D

R-1075


PROFILE SEWER LINE EXTENSION IN OCEANSIDE BLVD. SOUTH
SCALES: HORIZ. - 1"=40' VERT. - 1"=4'
DETAIL - 1/4"x18" STEEL CASING UNDER R.C.B. 3-12"x8"
NO SCALE
OCEANSIDE BLVD. SOUTH
WESTY'S LUMBER (BOISE-CASCADE) (FF 26.84)
CAUTION! ABANDON AND PLUG EXIST. 8" V.C.P. STUB & CONNECT EXISTING SEWER LATERAL TO NEW MAIN.
NOTE: OPEN CUT ACROSS PRIVATE SPUR TO BE COORDINATED WITH BOISE-CASCADE & A.T.&S.F. RAILROAD. PROVIDE 20"-0.375"x72' STEEL CASING - REPLACE BALLAST & RESTORE TRACK
NOTE: FOR STREET IMPROVEMENTS IN OCEANSIDE BLVD. SOUTH SEE SHEET No 2
NOTE: FOR SEWER LINE IN UNION PLAZA COURT SEE SHEET No 6
UNION PLAZA COURT
Scale 1"=40'
NOTE: ALL SEWER MAINS PVC TRUSS PIPE
OCEANSIDE BLVD. FRONTAGE
(SEWER MANHOLE No 8)
S-20
CITY APPROVED CHANGES
BENCH MARK
DESCRIPTION CHISELED SQUARE, TOP OF CURB, CENTER OF SOUTH EAST CURB RETURN
LOCATION COMMERCE ST & OCEANSIDE BLVD. PIER
T.B.M. FILED PER
RECORD FROM CITY OF OCEANSIDE TOPO NOTES No E-2
ELEVATION 24.06 DATUM: CITY OF OCEANSIDE
PRIVATE CONTRACT
SHEET 5
CITY OF OCEANSIDE ENGINEERING DEPARTMENT
8 SHEETS
IMPROVEMENT PLANS FOR;
SEWER LINE EXTENSION IN OCEANSIDE BLVD SOUTH
S.D.P.-D-25-80
R-4021
FILE NO.
ENGINEER'S NAME: Simpson-Chamberlain & Associates, Inc.
PHONE NO. 9345 Wintergardens Blvd.

77-273

Developer's Conference - Water Utilities Project Comments

Date: October 16th, 2019

Reviewer: Bryan Kallenbaugh, Mabel Uyeda

Project: Jefferson Oceanside – 290 MFR Units & 3,000 sqft Retail (APN 151-270-56)

INITIAL REVIEW COMMENTS. SUBJECT TO CHANGE DURING SUBMITTAL PROCESS.

W01. For developments requiring new water service to a property, the landowner must enter into an agreement with the City providing for landowner's assignment of any rights to divert or extract local groundwater supplies for the benefit of the property to receive new or increased water service, in return for water service from the City, upon such terms as may be provided by the Water Utilities Director.

W02. All existing active and non-active groundwater wells must be shown on conceptual, grading, and improvement plans.

W03. The developer will be responsible for developing all water and sewer utilities necessary to develop the property. Any relocation of water and/or sewer utilities is the responsibility of the developer and shall be done by an approved licensed contractor at the developer's expense.

W04. All Water and Wastewater construction shall conform to the most recent edition of the *Water, Sewer, and Recycled Water Design and Construction Manual* or as approved by the Water Utilities Director.

W05. The property owner shall maintain private water and wastewater utilities located on private property.

W06. Water services and sewer laterals constructed in existing right-of-way locations are to be constructed by an approved and licensed contractor at developer's expense.

W07. All **public** water and/or sewer facilities **not** located within the public right-of-way shall be provided with easements sized according to the *Water, Sewer, and Recycled Water Design and Construction Manual.* Water main easement shall be a minimum of 20 ft. wide.

W08. For new buildings with multiple residential dwelling units; the City has accepted a public master meter for **each** building provided there is a private sub-meter for each individual dwelling unit.

W09. Based on the current site plan each residential building would have a separate master meter, the leasing office and pool would be on a separate commercial meter, and each retail space would have its own commercial water meter.

W10. Water meter sizing shall be per the latest adopted California Plumbing Code, Appendix A, Table 103.1.

W11. Buildings requiring an NFPA 13 or NFPA 13R automatic sprinkler system for fire protection shall have a dedicated fire service connection to a public water main with a double check detector backflow assembly.

W12. An existing 12" water main currently runs through the property. The water main shall be relocated within Crouch St., north to Skylark Dr., and west in new entry road and reconnect to the existing 12" main. Relocation length is approximately 1,400 LF.

W13. A public water main shall be extended within the new entry road from the existing 12" water main west to S. Oceanside Blvd. Length of new main is approximately 750 LF.

W14. The City prefers that on-site fire hydrants be connected to the proposed public water main in the new entry road, with dead end laterals into the site. An alternative would be a private on-site fire line loop with two connections to the public water main.

W15. A separate irrigation water meter will be required for common area landscaping.

W16. No building foundations will be allowed within 10 feet of the outside edge of a City easement. No trees, structures or building overhang shall be located within any water or wastewater utility easement.

W17. A water study and sewer study must be prepared by the developer at the developer's expense and approved by the Water Utilities Department. The sewer study shall analyze two potential connection points for the development. One at S. Oceanside Blvd. and a second just west of the Sprinter parking lot. The analysis may include sewer flow monitoring to confirm existing sewer capacity. The sewer study analysis area shall extend from the development, downstream/west to a connection point/manhole in Oceanside Blvd., just east of Commerce St. Off-site improvements may be required as a result of the studies and flow monitoring.

W18. Proposed retention basin shall not be located above sewer main, or within sewer easement.

W19. All existing and proposed sewer manholes on site shall be accessible to City vactor truck. Access road or pavement must have a minimum turning radius of 46-feet (outer wheel) for curb clearance and a wall clearance of 46'-11". Truck length is 41'-6". Manholes shall be located in the drive aisle if possible, and not located in parking spaces.

W20. Subterranean parking structures shall be designed with a drainage system that conveys runoff to the City's Storm Drain System and shall comply with the California Regional Water Quality Control Board Order No. 2013-0001.

W21. Per City of Oceanside Ordinance No. 14-OR0565-1, the developer shall pay a recycled water impact fee since the proposed project is not within 75 feet of a recycled water main. The impact fee is based on 75% of the design and construction cost to construct a recycled water line fronting the property. Rough estimate for the fee is $200 per LF of frontage.

W22. Water and Wastewater Buy-in fees and the San Diego County Water Authority Fees are to be paid to the City at the time of Building Permit issuance per City Code Section 32B.7.

APPENDIX C

SEWER ANALYSIS RESULTS

The following conditions were modeled for the Ocean Creek Project:

1. Existing Flows

2. Existing Plus Project Flows

DATE: 8/30/2021

SEWER STUDY SUMMARY

FOR: Ocean Creek in the City of Oceanside - Existing Flows

SHT 1 OF 2

JOB NUMBER: 556-016

BY: Dexter Wilson Engineering, Inc.

REFER TO PLAN SHEET: Exhibit A

FROM	TO	IN-LINE LOW DEN RES. EDUs	IN-LINE MID DEN RES. EDUs	AVG. RES DRY WEATHER FLOW (gpd)	PEAKING FACTOR RES.	PEAK FLOW RES. (gpd)	IN-LINE COM/IND ACRES	TOTAL COM/IND ACRES	AVG. COM/IND DRY WEATHER FLOW (gpd)	PEAKING FACTOR COM/IND	PEAK FLOW COM/IND (gpd)	COMBINED PEAK FLOW (DESIGN FLOW)		LINE SIZE (inches)	AS-BUILT SLOPE (%)	DEPTH K' (1)	dn (feet)	dn/D(2)	C_a for Velocity(3)	VELOCITY (f.p.s.)	COMMENTS
												M.G.D.	C.F.S.								
14	13	34	0	5,780	3.50	20,230	5.9	5.9	5,900	2.68	15,806	0.036	0.056	10	0.90	0.012425	0.09167	0.11	0.0470	1.71	Existing Sewer (St. Malo Heights)
13	12	25	0	10,030	3.50	35,105	0.0	5.9	5,900	2.68	15,806	0.051	0.079	10	0.30	0.030404	0.14167	0.17	0.0885	1.28	Existing Sewer (1902 Grandview)
12	11	0	0	10,030	3.50	35,105	0.0	5.9	5,900	2.68	15,806	0.051	0.079	10	0.30	0.030404	0.14167	0.17	0.0885	1.28	Existing Sewer
11	10	0	0	10,030	3.50	35,105	0.0	5.9	5,900	2.68	15,806	0.051	0.079	10	0.30	0.030404	0.14167	0.17	0.0885	1.28	Existing Sewer
10	9	0	0	10,030	3.50	35,105	0.0	5.9	5,900	2.68	15,806	0.051	0.079	10	0.80	0.018619	0.11667	0.14	0.0668	1.70	Existing Sewer
9	8	0	0	10,030	3.50	35,105	4.5	10.4	10,400	2.56	26,627	0.062	0.096	8	0.40	0.057888	0.16000	0.24	0.1449	1.48	Existing Sewer
8	7	0	0	10,030	3.50	35,105	4.9	15.3	15,300	2.48	37,981	0.073	0.113	8	0.40	0.068535	0.17333	0.26	0.1623	1.57	Existing Sewer
7	6	0	0	10,030	3.50	35,105	9.1	24.4	24,400	2.39	58,351	0.093	0.145	10	0.30	0.055812	0.19167	0.23	0.1365	1.53	Existing Sewer

Total Res. Units
59

Total Com/Ind
24.4

Min Slope
0.30

Max Slope
0.90

Min dn/D
0.11

Max dn/D
0.26

Min Vel
1.28

Max Vel
1.71

RES. = Resdidential
COM. = Commercial
IND. = Industrial
Note: 1 Low Density Res. = 170 gpd
1 Mid Density Res. = 140 gpd
1 Commercial/Industrial Acre = 1,000 gpd

1 K' based on n = 0.013
2 dn/D using K' in Brater King Table 7-14
3 From Brater King Table 7-4 based on dn/D

DATE: 8/30/2021

SEWER STUDY SUMMARY

FOR: Ocean Creek in the City of Oceanside - Existing plus Proposed Project Flows

SHT 2 OF 2

JOB NUMBER: 556-016

BY: Dexter Wilson Engineering, Inc.

REFER TO PLAN SHEET: Exhibit A

FROM	TO	IN-LINE LOW DEN RES. EDUs	IN-LINE MID DEN RES. EDUs	AVG. RES DRY WEATHER FLOW (gpd)	PEAKING FACTOR RES.	PEAK FLOW RES. (gpd)	IN-LINE COM/IND ACRES	TOTAL COM/IND ACRES	AVG. COM/IND DRY WEATHER FLOW (gpd)	PEAKING FACTOR COM/IND	PEAK FLOW COM/IND (gpd)	COMBINED PEAK FLOW (DESIGN FLOW)		LINE SIZE (inches)	DESIGN/ AS-BUILT SLOPE (%)	DEPTH K' (1)	dn (feet)	dn/D (2)	C_a for Velocity (3)	VELOCITY (f.p.s.)	COMMENTS
												M.G.D.	C.F.S.								
110	107	0	89	12,460	3.50	43,610	0.0	0.0	0	1.00	0	0.044	0.067	8	1.20	0.023610	0.10000	0.15	0.0739	2.05	Proposed Sewer
107	104	0	64.49	21,489	3.50	75,210	0.0	0.0	0	1.00	0	0.075	0.116	8	1.20	0.040718	0.13333	0.20	0.1118	2.34	Proposed Sewer
104	102	0	46	27,929	3.50	97,750	0.0	0.0	0	1.00	0	0.098	0.151	8	3.40	0.031440	0.12000	0.18	0.0961	3.54	Proposed Sewer
102	101	0	96	41,369	2.75	113,764	0.0	0.0	0	1.00	0	0.114	0.176	8	3.40	0.036591	0.12667	0.19	0.1039	3.81	Proposed Sewer
101	14	0	0	41,369	2.75	113,764	0.0	0.0	0	1.00	0	0.114	0.176	8	0.90	0.071119	0.17333	0.26	0.1623	2.44	Proposed Sewer
14	13	34	0	47,149	2.75	129,659	5.9	5.9	5,900	2.68	15,806	0.145	0.225	10	0.90	0.050155	0.18333	0.22	0.1281	2.53	Existing Sewer (St. Malo Heights)
13	12	25	0	51,399	2.75	141,346	0.0	5.9	5,900	2.68	15,806	0.157	0.243	10	0.30	0.093851	0.25833	0.31	0.2074	1.69	Existing Sewer (1902 Grandview)
12	11	0	0	51,399	2.75	141,346	0.0	5.9	5,900	2.68	15,806	0.157	0.243	10	0.30	0.093851	0.25833	0.31	0.2074	1.69	Existing Sewer
11	10	0	0	51,399	2.75	141,346	0.0	5.9	5,900	2.68	15,806	0.157	0.243	10	0.30	0.093851	0.25833	0.31	0.2074	1.69	Existing Sewer
10	9	0	0	51,399	2.75	141,346	0.0	5.9	5,900	2.68	15,806	0.157	0.243	10	0.80	0.057472	0.20000	0.24	0.1449	2.42	Existing Sewer
9	8	0	0	51,399	2.75	141,346	4.5	10.4	10,400	2.56	26,627	0.168	0.260	8	0.40	0.157512	0.26667	0.40	0.2934	1.99	Existing Sewer
8	7	0	0	51,399	2.75	141,346	4.9	15.3	15,300	2.48	37,981	0.179	0.277	8	0.40	0.168159	0.28000	0.42	0.3130	1.99	Existing Sewer
7	6	0	0	51,399	2.75	141,346	9.1	24.4	24,400	2.39	58,351	0.200	0.309	10	0.30	0.119259	0.29167	0.35	0.2450	1.82	Existing Sewer

Total Res. Units
354

Total Com/Ind
24.4

Min Slope
0.30

Max Slope
3.40

Min dn/D
0.15

Max dn/D
0.42

Min Vel
1.69

Max Vel
3.81

RES. = Resdidential
COM. = Commercial
IND. = Industrial
Note: 1 Low Density Res. = 170 gpd
1 Mid Density Res. = 140 gpd
1 Commercial/Industrial Acre = 1,000 gpd

1 K' based on n = 0.013
2 dn/D using K' in Brater King Table 7-14
3 From Brater King Table 7-4 based on dn/D

LEGEND

PROJECT BOUNDARY

EXISTING PUBLIC SEWER LINE

PROPOSED PUBLIC SEWER LINE

PROPOSED PRIVATE SEWER LINE

ANALYZED SEWER SUB BASIN AREA

(1) COMPUTER MODEL MH NUMBER

EX.8"
EX.15"
EX.24"
EX.6"
EX.10"
EX.36"
SAN DIEGO NORTHERN RAILWAY
SKYLARK LN.
110
107
104
102
101
8"
BLDG D
BLDG A
BLDG C
BLDG B
OCEANSIDE BLVD.
11
13
14
12
CROUCH ST.
S. OCEANSIDE BLVD.
6
10
9
8
7
GRANDVIEW ST.
N
0
300
FEET
INTERSTATE CALIFORNIA 5
TO OCEANSIDE BLVD. LIFT STATION

DEXTER WILSON ENGINEERING, INC.
CONSULTING ENGINEERS
(760) 438-4422

EXHIBIT A

SEWER MANHOLE DIAGRAM

OCEAN CREEK IN OCEANSIDE

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