



# CITY OF ONTARIO

## MEMORANDUM

**TO:** Richard Ayala, Planning Department

**FROM:** Reymundo Trejo, Utilities Department

**DATE:** April 30, 2007

**SUBJECT:** PDEV04-047 Ontario Wal-Mart Supercenter Environmental Impact Report

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Comments on the water and sewer utilities sections are listed in the following table. The Utilities Section should be revised and resubmitted for review before finalizing the draft EIR.

Reference/ Page No.	Comment
<b>Executive Summary</b>	
Page S-3	The total building size is approximately 191,000 sf. The commercial land use requirement for a water supply assessment report is 500,000 sf or more. Therefore, a water supply assessment report does not appear to be required for the Wal-Mart Supercenter as a stand alone project. The EIR Consultant should also review this project and related Mountain Village development and confirm that a water supply assessment report is not required.
<b>4.12 Utilities, Section 4.12.1 Water Services</b>	
Page 4.12-2	<p>Well 13 has been destroyed, so it is no longer a valid water supply source to the 1348 (13<sup>th</sup> St) Zone water system. New Well 46 will provide water supply to the 1348 Zone. Construction of Well 46 is scheduled to be completed in 2008.</p> <p>The MWD Upper Feeder pipeline runs through the City of Ontario; however it is no longer used as a source to the City's water supply.</p> <p>Construction of new potable and recycled water system distribution lines will be required as part of this project.</p>
Page 4.12-4	The EIR should note that the City water system has sufficient water supply, based on the water supply evaluation contained in the 2005

	<p>Urban Water Management Plan.</p> <p>Water service to the Wal-Mart Supercenter shall be provided from connections the 12-inch pipeline on Mountain Avenue. A separate fire flow service will be required to serve the Wal-Mart building.</p> <p>Based on the 2006 Water Master Plan, the City requires replacement of the existing 6-inch pipeline along the property frontage along 5<sup>th</sup> Street with an 8-inch pipeline to improve fire flow capacity of the existing water system. The 12-inch pipeline in Mountain Avenue was identified as an age replacement project in the 2006 Water Master Plan.</p> <p>Delete the reference to Well 13.</p>
Page 4.12-5	<p>Footnote references to Chino Basin Municipal Water District and CBMWD and note that CBMWD has change its name to Inland Empire Utilities Agency, since the Supplemental EIR for the Mountain Village Specific Plan was completed.</p> <p>Under “Previous Analysis,” review the 2005 Ontario Urban Water Management Plan and confirm that sufficient water supply is available.</p>
Page 4.12-6	<p>For Mitigation Measure 8, the project compliance column should state that pipeline improvements will be constructed to address fire flow deficiencies that are identify in the 2006 Water Mater Plan and the water system hydraulic analysis.</p>
<b>4.12 Utilities, Section 4.12.2 Wastewater and Sewer Services</b>	
Page 4.12-5-8	<p>It is noted that there are sewer deficiencies downstream of the proposed Wal-Mart Supercenter based on the 1995 Sewer Master Plan. Most of these sewer deficiencies will be eliminated by diversion of flow to a proposed sewer trunk line in Holt Boulevard. The schedule of this sewer diversion projects need to be compared to the schedule of the Wal-Mart Supercenter to verify that the sewer diversion project will be completed and sewer capacity will be available prior to occupancy of the Wal-Mart Supercenter. The development will ensure that all sewer deficiencies are eliminated prior to occupancy.</p> <p>A 10-foot wide sewer easements have been recorded for segments of the existing sewer that cross the parking lot. If used, these sewer easements must be amended to increase to the easement width to meet current City Standards. If the site elevation is lowered, existing on-site sewers may need to be relocated to meet City Standards.</p>



**Inland Empire**  
**UTILITIES AGENCY\***  
\* A Municipal Water District

6075 Kimball Avenue • Chino, CA 91710  
P.O. Box 9020 • Chino Hills, CA 91709  
TEL (909) 993-1600 • FAX (909) 597-8875  
[www.ieua.org](http://www.ieua.org)

RECEIVED

DEC 08 2006

DEA

December 6, 2006

Ms. Josephine Alido, Environmental Planner  
David Evans and Associates, Inc.  
800 North Haven Avenue, Suite 300  
Ontario, CA 91764

RE: Ontario Walmart Supercenter

Dear Ms. Alido:

This letter is in response to your request for information regarding the subject project. Inland Empire Utilities Agency (IEUA) has the following responses to your questions regarding any impacts that the project may have on sewer services:

1. *Which sewage treatment plant would serve the project site? Please provide address, capacity and current volume treated at the treatment plant?* Regional Plant No.1 (RP-1) serves this area of Ontario. It is located west of Archibald Ave. and south of State Highway 60. Its treatment capacity is 44 MGD. In 2005, the average annual flow was 37.3 MGD.
2. *What are the location and sizes of sewer trunk lines near the site, which may serve the proposed project? Is there available capacity in these trunks to handle additional sewage volume from the project?* There are no IEUA sewer trunk lines near the project site.
3. *What is the average sewage generation rate of commercial development?* This information should be obtained from the City of Ontario.
4. *Does the existing treatment plant serving the area have remaining sewer capacity to serve the proposed project? If not, how can additional capacity be obtained?* RP-1 serves a section of the city of Ontario. Additional flows can be bypassed to other IEUA treatment plants if needed.
5. *What kind of sewer system improvements (if any) are needed to serve the project?* The City of Ontario will determine this requirement since it is there sewer system that will serve the project site.
6. *Are there recycled water lines serving the site or near the site? If yes, in what way?* No
7. *Are any reclaimed water lines proposed near the site? Where will they be located?* There is a proposed 8" recycled water lateral in Fifth St. which will be built as part of the San Antonio Channel Pipeline (Segment B) project WR04445. The construction project began in September 2006 and should be tentatively completed by the end of 2007 or beginning of 2008.
8. *Is reclaimed water suitable for use on the project? If yes, in what way?* The recycled water can be used for landscape irrigation.
9. *Does IEUA have any concerns or expect any long term (10-year, 20-year, 30-year or longer) impacts associated with the provision of water and sewer services to future development within the City of Ontario? If so, please describe the nature of these impacts and how this project may contribute to those impacts.* IEUA will make improvements to its sewer trunk system, recycled water system and treatment plants to better serve the City of Ontario and other member agencies as part of its capital improvement program scheduled for the near future.

The IEUA website, [www.ieua.org](http://www.ieua.org), has previous and current annual reports available for review. Please find attached a copy of the design plan for the 8" recycled water lateral in Fifth St. for your information.

*Fifty-Five Years of Excellence in Water Resources & Quality Management*

John L. Anderson  
President

Wyatt Troxel  
Vice President

Gene Koopman  
Secretary/Treasurer

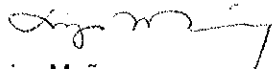
Angel Santiago  
Director

Terry Catlin  
Director

Richard W. Atwater  
Chief Executive Officer  
General Manager

If you have any questions regarding this matter, please feel free to call me at (909) 993-1522.

Sincerely,

A handwritten signature in black ink, appearing to read "Liza Muñoz", with a stylized flourish at the end.

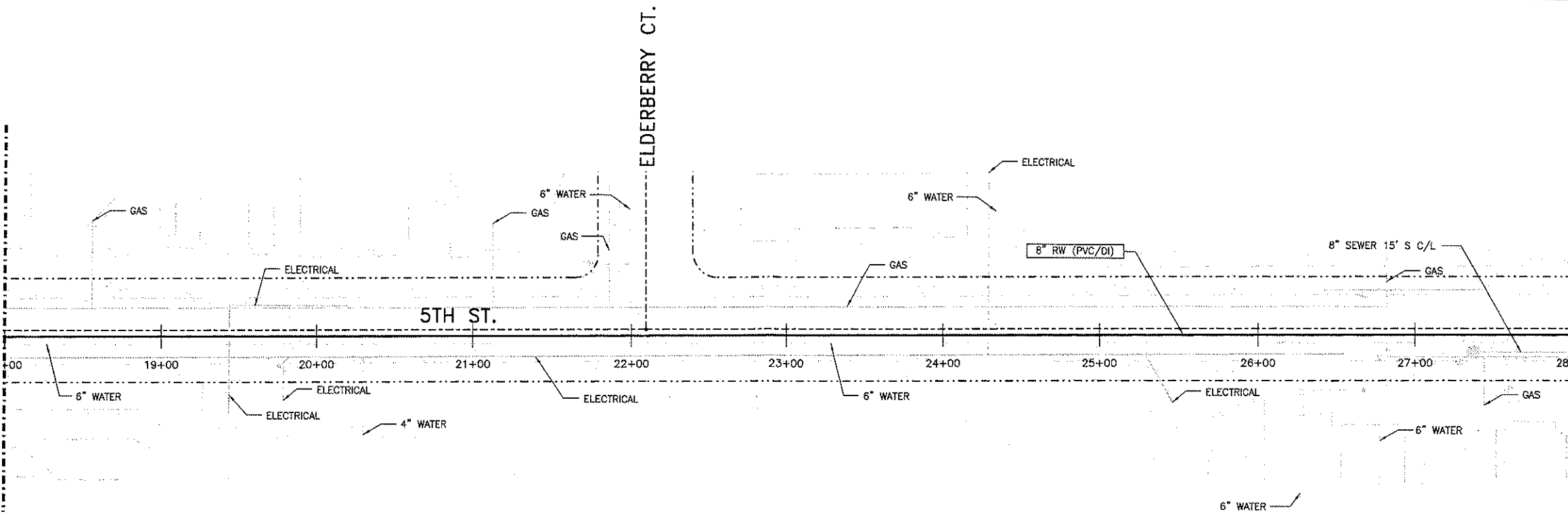
Liza Muñoz  
Office Engineer

c: Craig Parker, IEUA Deputy Manager of Engineering  
Eliza Jane Whitman, IEUA Manager of Planning and Water Resources  
File

\\Usden6501\Projects\New\2\_San\_Antonio\_B\CV\ASCP-B\_plan\_02.dwg

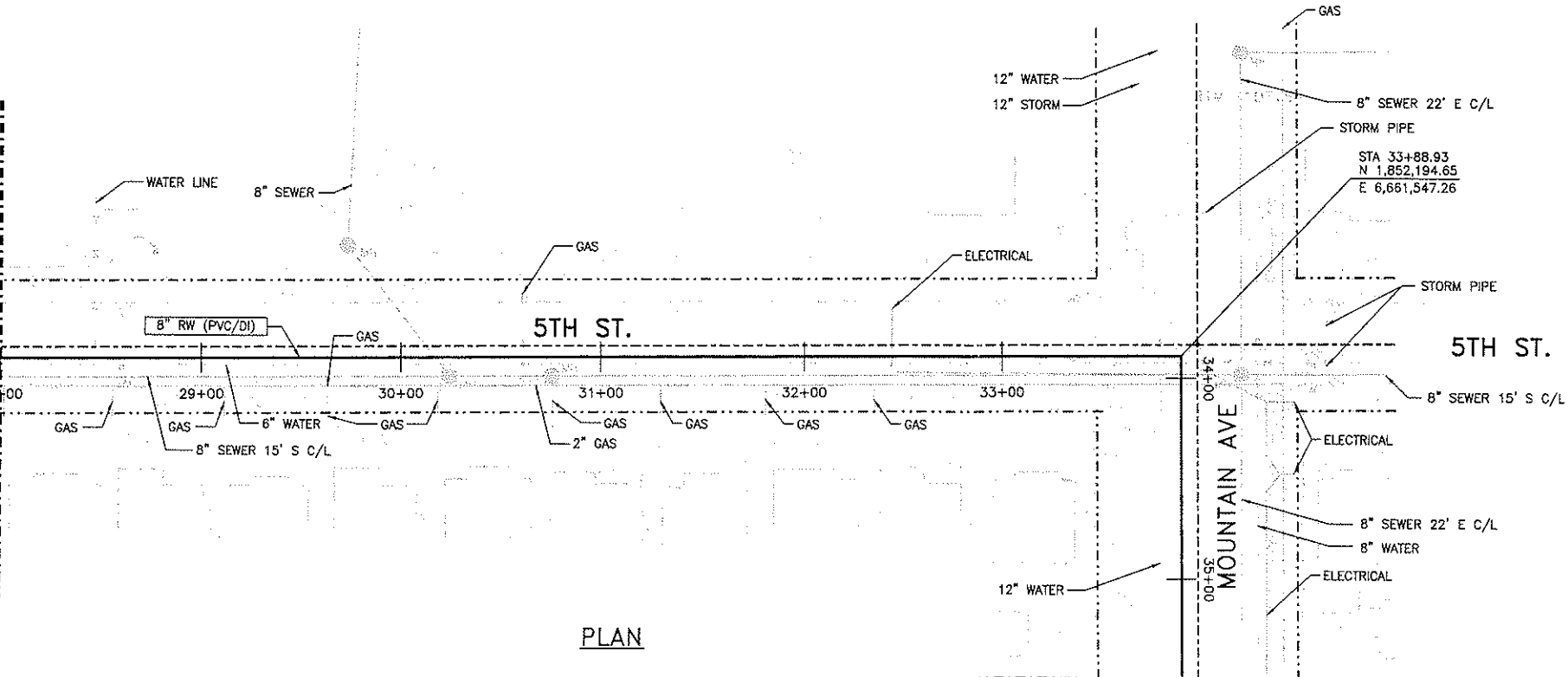
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STA. 18+00 MATCHLINE -  
SEE SHEET P-01 FOR CONTINUATION



PLAN

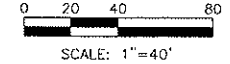
STA. 28+00 MATCHLINE -  
SEE SHEET P-02 FOR CONTINUATION



PLAN

NOTE:  
SEE SHEET P-01, ALL NOTES ARE APPLICABLE FOR THIS SHEET.

STA. 35+50 MATCHLINE -  
SEE SHEET P-03 FOR CONTINUATION



FOR BIDDING  
PURPOSES ONLY

	Designed	LF	7/06
	Drawn	GMW	7/06
	Checked	DB	7/06
			Date



REVIEWED BY: \_\_\_\_\_ Date \_\_\_\_\_  
Project Manager \_\_\_\_\_  
R.E. No. \_\_\_\_\_ Exp. Date \_\_\_\_\_

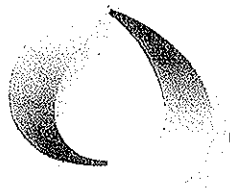
SCALE  
AS SHOWN  
Bar Scale shown below is one  
inch on original drawing. If  
NOT one inch on this sheet,  
adjust scales accordingly.  
0" 1"



INLAND EMPIRE UTILITIES AGENCY\*  
\*A Municipal Water District  
6075 Kimball Avenue  
Chino, California 91710  
Telephone (909) 993-1600  
Post Office Box 9020  
Chino Hills, California 91709

RECYCLED WATER DISTRIBUTION  
SYSTEM FACILITIES - PHASE II  
SAN ANTONIO CHANNEL PIPELINE-SEGMENT B  
PROJECT NO. WR04445  
8" RECYCLED WATER LATERAL  
PLAN  
STA. 18+00 TO 35+50

SHEET  
P-02  
36 OF 70 SH1S  
DWG. NUMBER  
D5048-72



## Inland Empire Utilities Agency

A MUNICIPAL WATER DISTRICT

6075 Kimball Avenue • Chino, CA 91710  
P.O. Box 9020 • Chino Hills, CA 91709  
TEL (909) 993-1600 • FAX (909) 597-8875  
www.ieua.org

October 23, 2006



Mr. Richard Ayala  
City of Ontario – Planning Department  
303 East B Street  
Ontario, CA 91764-4196

Subject: Ontario Wal-Mart Supercenter

Dear Mr. Ayala:

This letter is in response to your letter dated October 19, 2006 regarding the proposed Wal-Mart Supercenter west of Mountain Ave. and north of Fifth St. in the City of Ontario. Inland Empire Utilities Agency (IEUA) has the following facilities:

1. An existing 21" non-reclaimable wastewater pipeline in Fifth St.
2. An existing City of Upland 8" ion exchange brine lateral in Mountain Ave.

The as-built drawings are enclosed for your information. In addition, the Initial Study has been forwarded to IEUA's Planning section for review.

If you have any questions regarding this matter, please feel free to call me at (909) 993-1522.

Sincerely,

Liza Muñoz  
Office Engineer

c: Craig Parker, Deputy Manager of Engineering  
File

Enclosures

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President

Wyatt Troxel  
Vice President

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Secretary/Treasurer

Angel Santiago  
Director

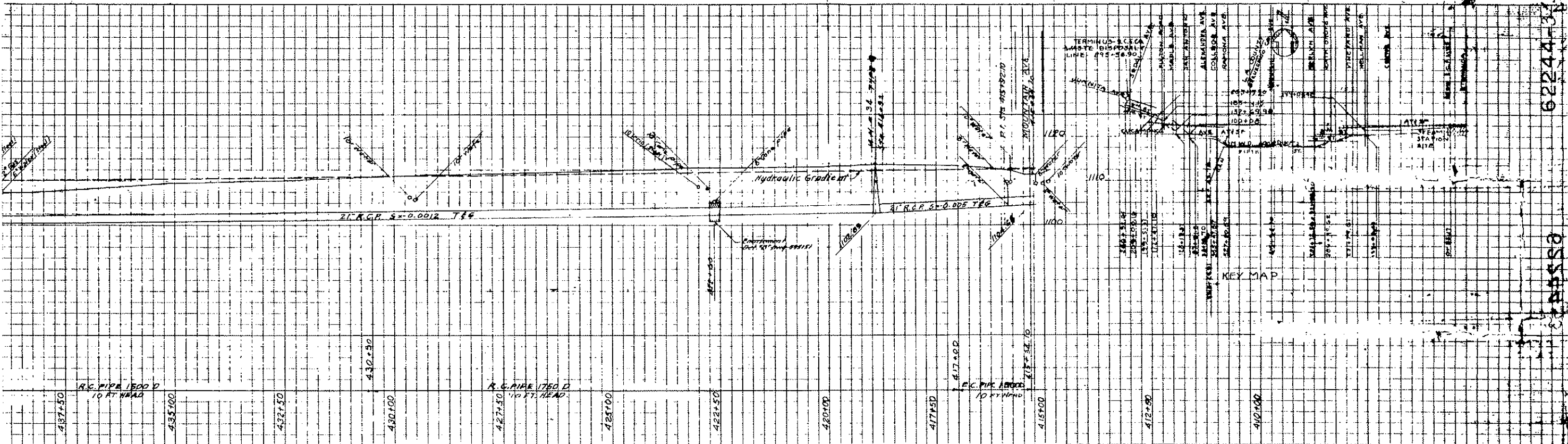
Terry Catlin  
Director

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Chief Executive Officer  
General Manager

MADE IN U.S.A.  
"CLAMPING" PAPER MADE IN U.S.A.

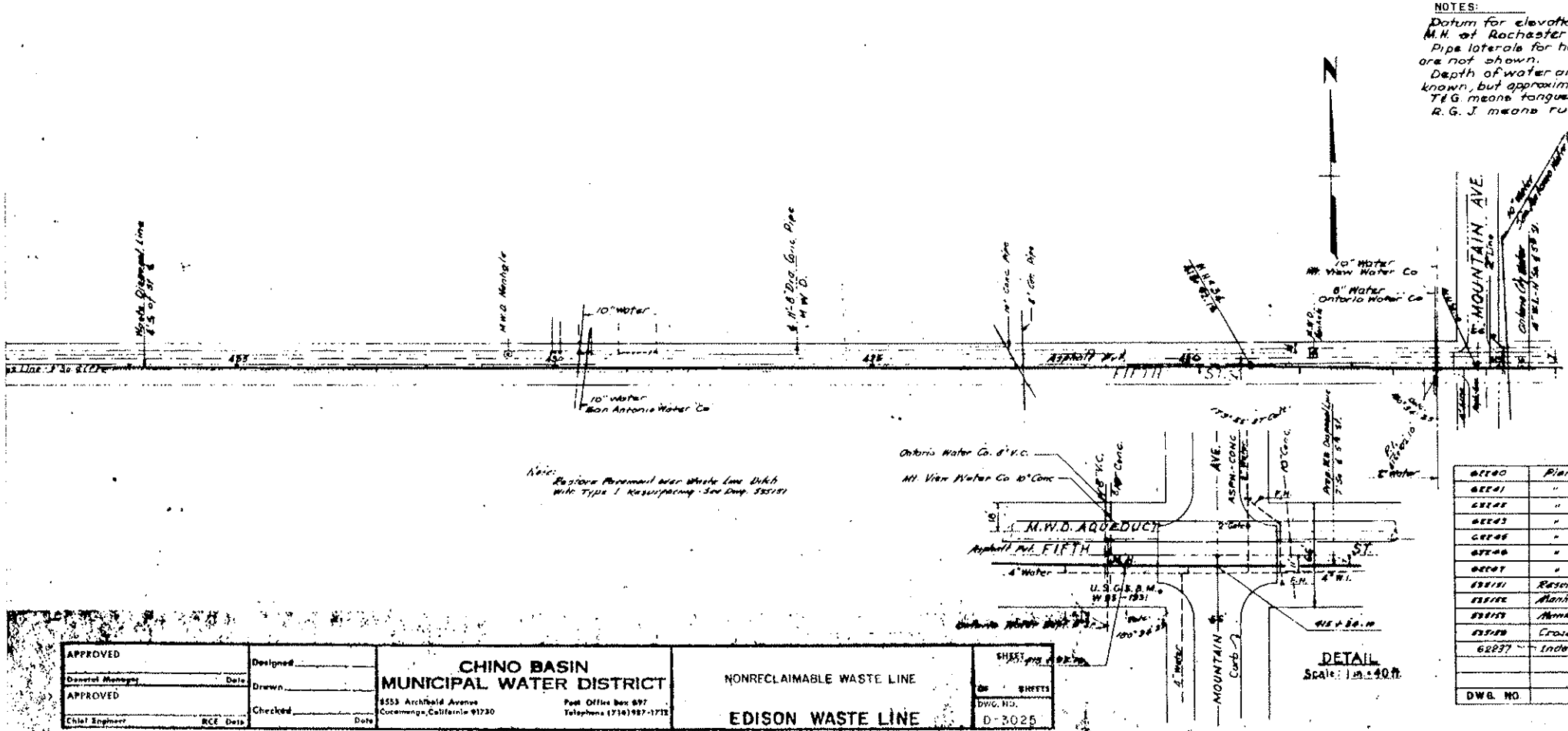
MADE IN U.S.A.  
"CLAMPING" PAPER MADE IN U.S.A.

MADE IN U.S.A.  
"CLAMPING" PAPER MADE IN U.S.A.



NOTES:  
Datum for elevations same as M.W.D. datum.  
M.H. at Rochester Ave. El. 1106.66  
Pipe laterals for house and hydrant connections are not shown.  
Depth of water and gas mains not accurately known, but approximately 3 ft. below grade.  
T&G means tongue and groove pipe joints.  
R.G.J. means rubber gasket pipe joints.

LINE SOLD TO  
CHINO BASIN  
MUNICIPAL WATER  
DISTRICT JAN 1,  
1965.



ORIGINAL SURVEY BY: J.O.M. 7-3-57  
PLOTTER BY: J.W.W. FIELD BOOK 4114, 45-90  
DATE: 12-20-61  
CHECKED BY: J.W.W.

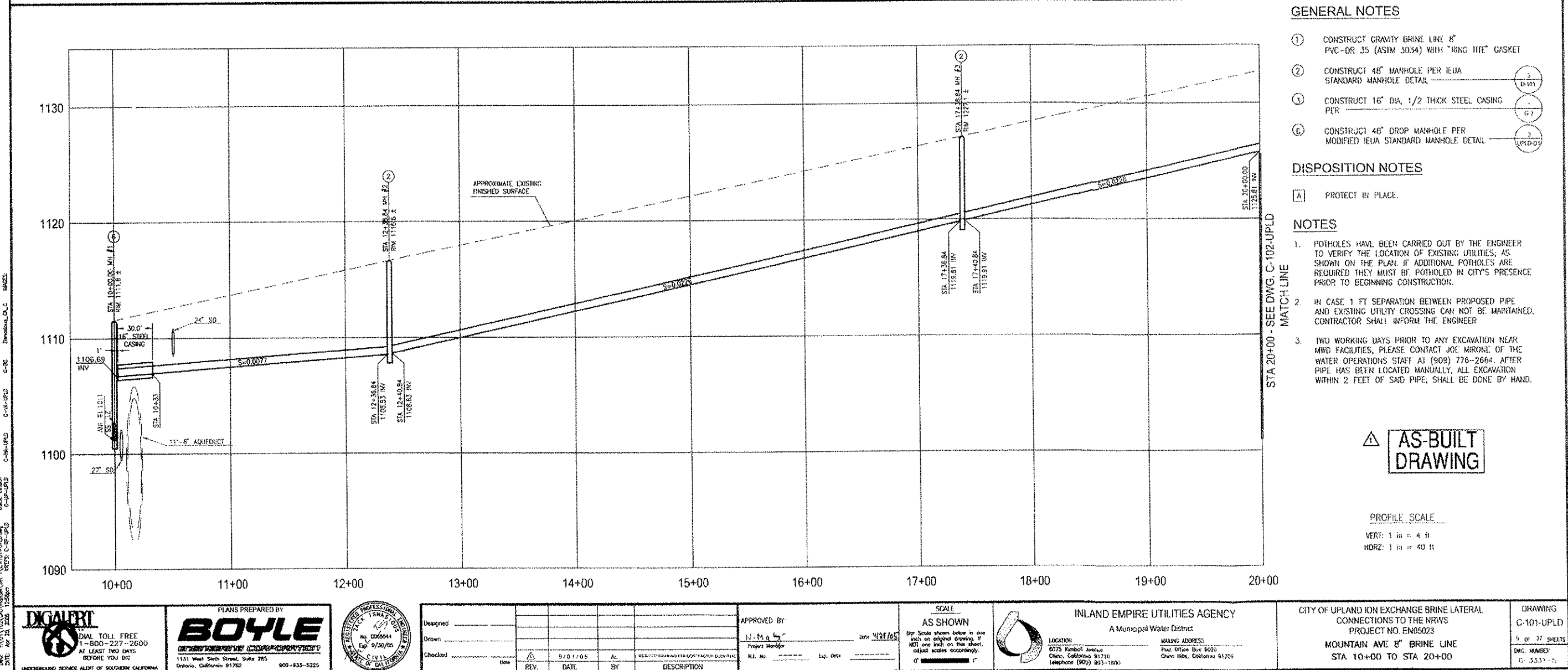
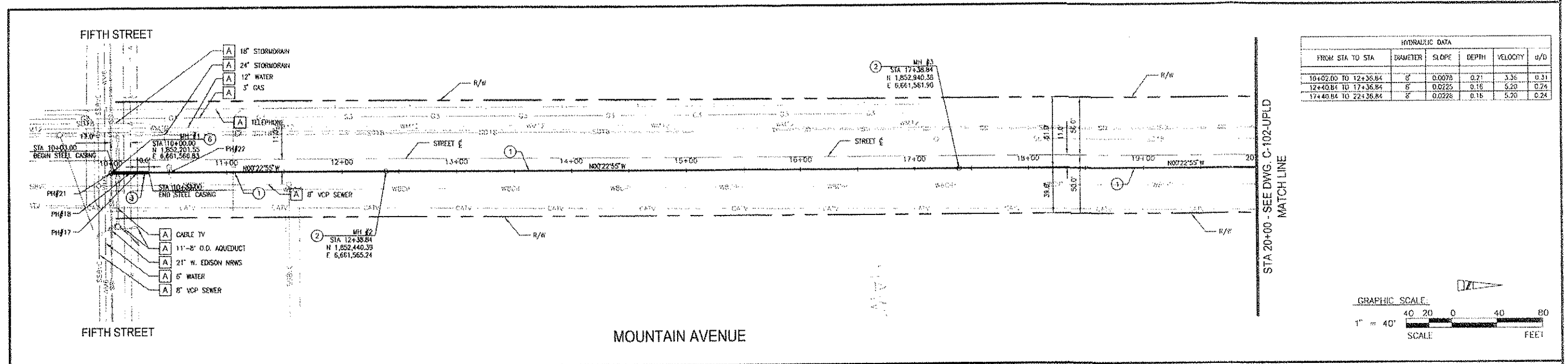
PREPARED IN OFFICE OF BECHTEL CORP.  
BY: W.R. Spriggs, Reg. E.C. Ent. No. 181  
DATE: 2-18-52

APPROVED	TITLE	DATE
APPROVED: [Signature]	TITLE	8/1/52
APPROVED: [Signature]	TITLE	DATE
APPROVED: [Signature]	TITLE	DATE

NO.	REVISION	DATE	OK	CHECKED	BY
3	Revised numbers added and City boundary changed				W.R.
2	Revised M.H. elevations				W.R.
1	Added Manhole "B" details				W.R.
0	Original				W.R.

62240	Plan & Profile	Sta. 0+00.00 to 10+00.00
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62245	"	" 50+00.00 to 60+00.00
62246	"	" 60+00.00 to 70+00.00
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62261	"	" 210+00.00 to 220+00.00
62262	"	" 220+00.00 to 230+00.00
62263	"	" 230+00.00 to 240+00.00
62264	"	" 240+00.00 to 250+00.00
62265	"	" 250+00.00 to 260+00.00
62266	"	" 260+00.00 to 270+00.00
62267	"	" 270+00.00 to 280+00.00
62268	"	" 280+00.00 to 290+00.00
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62299	"	" 590+00.00 to 600+00.00
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62366	"	" 1260+00.00 to 1270+00.00
62367	"	" 1270+00.00 to 1280+00.00
62368	"	" 1280+00.00 to 1290+00.00
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62375	"	" 1350+00.00 to 1360+00.00
62376	"	" 1360+00.00 to 1370+00.00
62377	"	" 1370+00.00 to 1380+00.00
62378	"	" 1380+00.00 to 1390+00.00
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62380	"	" 1400+00.00 to 1410+00.00
62381	"	" 1410+00.00 to 1420+00.00
62382	"	" 1420+00.00 to 1430+00.00
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62384	"	" 1440+00.00 to 1450+00.00
62385	"	" 1450+00.00 to 1460+00.00
62386	"	" 1460+00.00 to 1470+00.00
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62389	"	" 1490+00.00 to 1500+00.00
62390	"	" 1500+00.00 to 1510+00.00
62391	"	" 1510+00.00 to 1520+00.00
62392	"	" 1520+00.00 to 1530+00.00
62393	"	" 1530+00.00 to 1540+00.00
62394	"	" 1540+00.00 to 1550+00.00
62395	"	" 1550+00.00 to 1560+00.00
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62402	"	" 1620+00.00 to 1630+00.00
62403	"	" 1630+00.00 to 1640+00.00
62404	"	" 1640+00.00 to 1650+00.00
62405	"	" 1650+00.00 to 1660+00.00
62406	"	" 1660+00.00 to 1670+00.00
62407	"	" 1670+00.00 to 1680+00.00
62408	"	" 1680+00.00 to 1690+00.00
62409	"	" 1690+00.00 to 1700+00.00
62410	"	" 1700+00.00 to 1710+00.00
62411	"	" 1710+00.00 to 1720+00.00
62412	"	" 1720+00.00 to 1730+00.00
62413	"	" 1730+00.00 to 1740+00.00
62414	"	" 1740+00.00 to 1750+00.00
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62419	"	" 1790+00.00 to 1800+00.00
62420	"	" 1800+00.00 to 1810+00.00
62421	"	" 1810+00.00 to 1820+00.00
62422	"	" 1820+00.00 to 1830+00.00
62423	"	" 1830+00.00 to 1840+00.00
62424	"	" 1840+00.00 to 1850+00.00
62425	"	" 1850+00.00 to 1860+00.00
62426	"	" 1860+00.00 to 1870+00.00
62427	"	" 1870+00.00 to 1880+00.00
62428	"	" 1880+00.00 to 1890+00.00
62429	"	" 1890+00.00 to 1900+00.00
62430	"	" 1900+00.00 to 1910+00.00
62431	"	" 1910+00.00 to 1920+00.00
62432	"	" 1920+00.00 to 1930+00.00
62433	"	" 1930+00.00 to 1940+00.00
62434	"	" 1940+00.00 to 1950+00.00
62435	"	" 1950+00.00 to 1960+00.00
62436	"	" 1960+00.00 to 1970+00.00
62437	"	" 1970+00.00 to 1980+00.00
62438	"	" 1980+00.00 to 1990+00.00
62439	"	" 1990+00.00 to 2000+00.00
62440	"	" 2000+00.00 to 2010+00.00
62441	"	" 2010+00.00 to 2020+00.00
62442	"	" 2020+00.00 to 2030+00.00
62443	"	" 2030+00.00 to 2040+00.00
62444	"	" 2040+00.00 to 2050+00.00
62445	"	" 2050+00.00 to 2060+00.00
62446	"	" 2060+00.00 to 2070+00.00
62447	"	" 2070+00.00 to 2080+00.00
62448	"	" 2080+00.00 to 2090+00.00
62449	"	" 2090+00.00 to 2100+00.00
62450	"	" 2100+00.00 to 2110+00.00
62451	"	" 2110+00.00 to 2120+00.00
62452	"	" 2120+00.00 to 2130+00.00
62453	"	" 2130+00.00 to 2140+00.00
62454	"	" 2140+00.00 to 2150+00.00
62455	"	" 2150+00.00 to 2160+00.00
62456	"	" 2160+00.00 to 2170+00.00
62457	"	" 2170+00.00 to 2180+00.00
62458	"	" 2180+00.00 to 2190+00.00
62459	"	" 2190+00.00 to 2200+00.00
62460	"	" 2200+00.00 to 2210+00.00
62461	"	" 2210+00.00 to 2220+00.00
62462	"	" 2220+00.00 to 2230+00.00
62463	"	" 2230+00.00 to 2240+00.00
62464	"	" 2240+00.00 to 2250+00.00
62465	"	" 2250+00.00 to 2260+00.00
62466	"	" 2260+00.00 to 2270+00.00
62467	"	" 2270+00.00 to 2280+00.00
62468	"	" 2280+00.00 to 2290+00.00
62469	"	" 2290+00.00 to 2300+00.00
62470	"	" 2300+00.00 to 2310+00.00
62471	"	" 2310+00.00 to 2320+00.00
62472	"	" 2320+00.00 to 2330+00.00
62473	"	" 2330+00.00 to 2340+00.00
62474	"	" 2340+00.00 to 2350+00.00
62475	"	" 2350+00.00 to 2360+00.00
62476	"	" 2360+00.00 to 2370+00.00
62477	"	" 2370+00.00 to 2380+00.00
62478	"	" 2380+00.00 to 2390+00.00
62479	"	" 2390+00.00 to 2400+00.00
62480	"	" 2400+00.00 to 2410+00.00
62481	"	" 2410+00.00 to 2420+00.00
62482	"	" 2420+00.00 to 2430+00.00
62483	"	" 2430+00.00 to 2440+00.00
62484	"	" 2440+00.00 to 2450+00.00
62485	"	" 2450+00.00 to 2460+00.00
62486	"	" 2460+00.00 to 2470+00.00
62487	"	" 2470+00.00 to 2480+00.00
62488	"	" 2480+00.00 to 2490+00.00
62489	"	" 2490+00.00 to 2500+00.00
62490	"	" 2500+00.00 to 2510+00.00
62491	"	" 2510+00.00 to 2520+00.00
62492	"	" 2520+00.00 to 2530+00.00
62493	"	" 2530+00.00 to 2540+00.00
62494	"	" 2540+00.00 to 2550+00.00
62495	"	" 2550+00.00 to 2560+00.00
62496	"	" 2560+00.00 to 2570+00.00
62497	"	" 2570+00.00 to 2580+00.00
62498	"	" 2580+00.00 to 2590+00.00
62499	"	" 2590+00.00 to 2600+00.00
62500	"	" 2600+00.00 to 2610+00.00
62501	"	" 2610+00.00 to 2620+00.00
62502	"	" 2620+00.00 to 2630+00.00
62503	"	" 2630+00.00 to 2640+00.00
62504	"	" 2640+00.00 to 2650+00.00
62505	"	" 2650+00.00 to 2660+00.00
62506	"	" 2660+00.00 to 2670+00.00
62507	"	" 2670+00.00 to 2680+00.00









## **CITY OF ONTARIO**

**PUBLIC WORKS AGENCY  
1425 South Bon View Avenue  
Ontario, CA 91761  
Phone: ( 909 ) 395-2600**

### **SEWER SYSTEM DESIGN GUIDELINES FOR THE PREPARATION AND REVIEW OF SEWER ANALYSIS FOR NEW DEVELOPMENTS IN THE CITY OF ONTARIO UPDATED SEPTEMBER 1, 2006**

This document provides guidelines for the preparation and review of EIR and Specific Plan sewer analyses performed for developments within the City of Ontario. These Sewer System Design Guidelines are based upon information and design standards developed in the **New Model Colony Sewer Master Plan** dated January 2001 prepared for the City of Ontario by AKM Consulting Engineers. The Sewer System Design Guidelines include methodology for estimating wastewater design flows, and minimum design standards for the collection system. Wastewater flows are projected using future land use, unit flow factors, peaking factors, and infiltration / inflow allowances. Collection system design standards include minimum pipe size, minimum flow velocity, and depth of flow to pipe diameter ratio. The information contained herein is the best available to date. However, this data shall continue to be subject to revisions as necessary. All sewer plan analysis must be stamped and signed by a licensed CA Civil Engineer. The guidelines presented herein are divided into the following categories:

- Unit Flow Factors
- Peaking Factors
- Sewer Design Criteria
- Criteria for Specific Plans and Development Sub-areas

#### **Reference Exhibits**

The following exhibit is attached for reference:

- Draft NMC Updated Sewer Master Plan Exhibit

#### **Unit Flow Factors**

**Table 1** contains wastewater unit flow factors by land use category to estimate the future average dry weather flows that will be generated by the study area. The table also provides a unit flow factor 270 gpd/du for all residential land uses and the appropriate unit flow factor in gpd/TSF for all commercial and industrial uses.

Table 1  
Unit Flow Factors

Land Use Category		Unit Flow Factor		
Use	Description	gpd/DU	gpd/AC	gpd/TSF
<b>Residential</b>				
SF	Single Family	270	1242	-
MF	Multi-Family	270	3824	-
<b>Commercial</b>				
C1	Neighborhood	-	2200	253
C2	Community	-	2200	225
C3	Office (Town Center)	-	2200	144
C4	Regional	-	2200	189
C5	Retail (Town Center)	-	2200	174
C6	Retail (Business Park)	-	2200	253
<b>Industrial</b>				
IND	Light Manufacturing / Business Park	-	4700	308
<b>Public</b>				
P1	Community Facility	-	3500	250
P2	Government, Cultural	-	3500	250
P3	Schools	-	3500	-
P4	Parks	-	200	-
P5	Education Campus	-	3500	-
P6	Sports Complex	-	3500	-
<b>Amenities</b>				
A1	Lake	-	200	-
A2	Village Green	-	200	-
A3	Golf Course	-	200	-

Where specific plans propose more dense or different development than the uses covered in Table 1, average sewage flow shall be calculated based upon project specific information. Where the number of dwelling units are available, sewer flow calculations shall be based upon the per dwelling unit flow factor.

### **Peaking Factors**

Wastewater unit flow factors contained in the previous section are used to generate average dry weather flows (ADWF) entering the collection system. However, the sewage collection system facilities are sized for the peak flows. The peak wet weather flow (PWWF) has two components: peak dry weather flow (PDWF) and rainfall dependent inflow/infiltration (I/I). At any individual point in the system, peak dry weather flow is estimated by converting the total average flow upstream of the point in question to peak flow by an empirical peak-to-average relationship.

The peaking formula commonly used in estimating the peak dry weather flows in sewerage studies is:

$$Q_{PDWF} = a Q_{ADWF}^b \quad \text{where } Q_{PDWF} = \text{Peak Dry Weather Flow in MGD}$$

$$Q_{ADWF} = \text{Average Dry Weather Flow in MGD}$$

$$a, b = \text{Peaking Formula Coefficients}$$

The following formula shall be used for estimating peak dry weather flows:

$$Q_{PDWF} = 1.8 (Q_{ADWF})^{0.92}$$

A higher coefficient “a” may be required for small sewer-sheds or sewer-sheds of a single land use type.

### **Sewer Design Criteria**

Design criteria are established to ensure that the wastewater collection system can operate effectively under all flow conditions. Each pipe segment must be capable of carrying the peak wet weather flows in the hydraulically stable zone of the pipe. Low flows must be conveyed at a velocity that will prevent solids from settling and blocking the system.

The design capacity of a gravity pipeline is the calculated capacity of the pipeline based on the Manning formula:

$$Q = 1.486 R^{2/3} S^{1/2} / n$$

where, **Q** = flow in cubic feet per second

**R** = hydraulic radius in feet =  $A / P$

**A** = cross-sectional area of the pipe in square feet

**P** = wetted perimeter in feet

**S** = slope of pipe in feet of rise per foot of length

**n** = Manning’s friction factor

Sewer system capacity is established using a Manning’s friction factor of 0.013 for vitrified clay pipe.

The 1995 City Sewer System Master Plan established the hydraulic design criteria for sewer pipes by classifying ‘over capacity’ pipes as any with a depth to diameter (D/d) greater than 0.64. This D/d ratio was arrived at by taking 75 percent of a pipe’s maximum stable flow capacity, which is at a D/d of 0.82. The area above a D/d of 0.82 is considered hydraulically unstable. This provides capacity for 35 percent of peak dry weather flow for inflow and infiltration.

The extra pipeline capacity allows for the possibility that actual wastewater flows may be slightly higher than anticipated, especially during the hours when instantaneous or intermittent peaks may occur. These peaks are generally observed between the hours of 6:00 a.m. and 9:00 a.m. and 7:00 p.m. and 9:00 p.m. during weekdays and somewhat later in the morning hours during weekends. They may also be observed during rainfall events due to inflow and infiltration. Additionally, the area above the water surface helps to keep the sewage aerated, reducing the possibility of septic conditions and odors.

The design and analysis of gravity sewer pipes is typically based upon the depth to diameter ratio (D/d). The following depth to diameter ratio assumptions apply:

- Pipes **12-inches and smaller** in diameter shall be designed to flow at a maximum **D/d of 0.50** under peak dry weather flows
- Pipes **15-inches and greater** in diameter shall be designed to flow at a maximum **D/d of 0.64** under peak dry weather flows

- For either group, the depth of flow to diameter ratio shall not exceed 0.82 with peak wet weather flows

At a minimum, all pipes should be 8 inches or larger in diameter and the velocity of flow in the pipe should be greater than 2 feet per second at average dry weather flow (ADWF), and a peak velocity of less than 10 feet per second. This velocity will prevent deposition of solids in the sewer and help to resuspend any materials that may have already settled in the pipe. The minimum corresponding slopes for various pipe sizes are shown in **Table 2**.

**Table 2**  
**Minimum Sewer Slopes**

<b>Sewer Size</b>	<b>2 ft/s Velocity Slope</b>
8"	0.0057
10"	0.0042
12"	0.0033
15"	0.0019
18"	0.0014
21"	0.0011
24"	0.0008
27"	0.0008
30"	0.0007
33"	0.0006
36" & larger	0.0005

It is important to note that the slopes listed above assume the depth of flow in the pipe is 50 or 64 percent full. If there is insufficient flow to create this condition, greater slopes than those shown may be required.

A summary of sewer system design criteria is listed in **Table 3**.

**Table 3**  
**Sewer System Criteria**

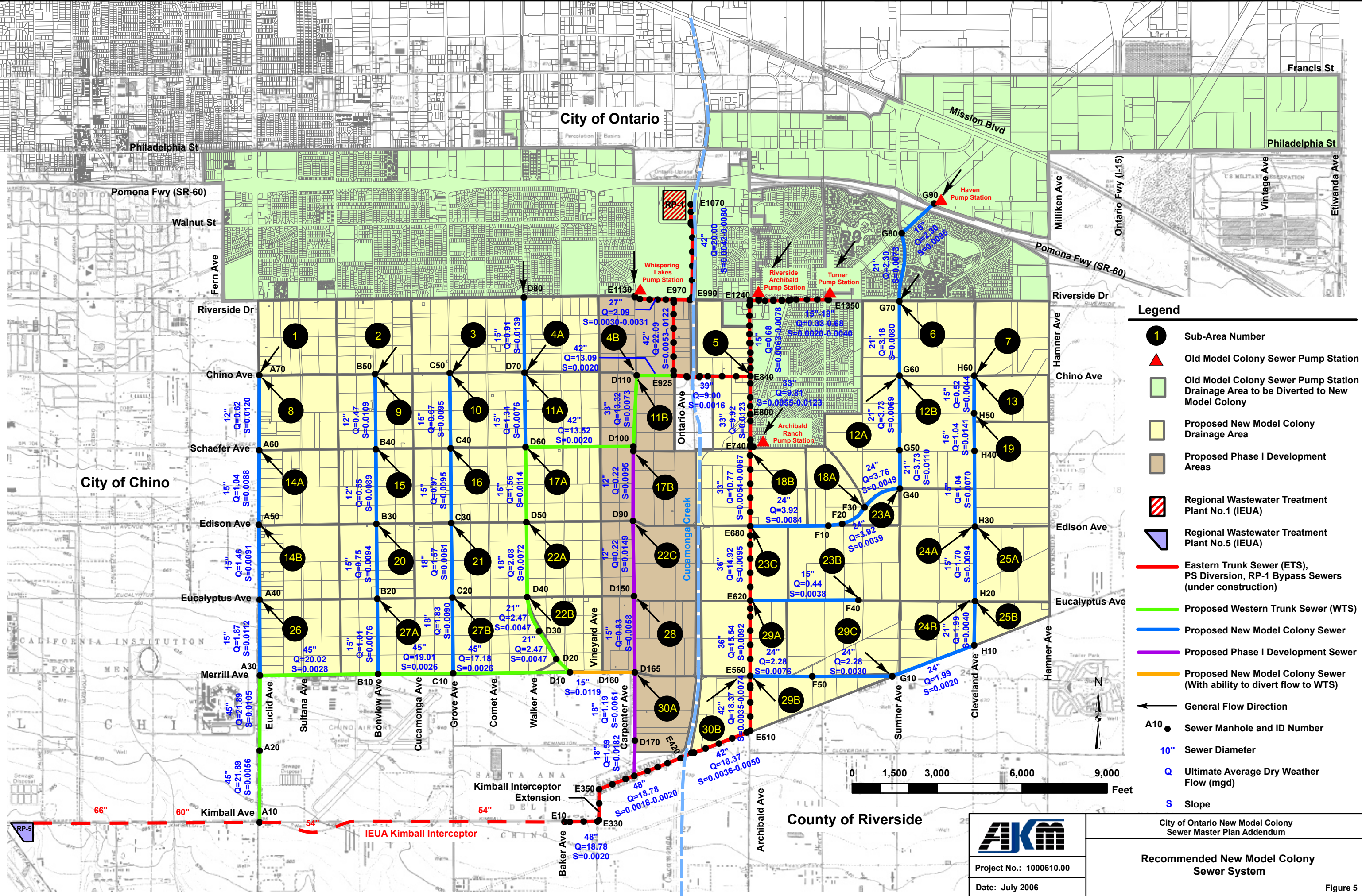
<b>Collection System</b>	
Minimum Pipe Size	8-inch
Minimum Velocity	2.0 ft/s at average dry weather flow
Maximum Pipe Depth to Diameter Ratio	0.50 for 12-inch and smaller
With Peak Dry Weather Flows	0.64 for 15-inch and greater
Maximum Pipe Depth to Diameter Ratio	0.82 for all sizes
With Peak Wet Weather Flows	

**Criteria for Specific Plans and Development Subareas**

Each party wishing to pursue development of a tract or area within the NMC shall develop a Sub-Area Master Plan (SAMP). The developer's plans for providing adequate sewer service to all users within the proposed development, how the local sewer system will connect to the backbone and regional system, and the impact of the proposed development to the downstream facilities (to the regional system) shall be fully described in the SAMP. The local sub-area sewers shall meet the sewer design criteria provided in this document and the City Standard Drawings for Sewer Construction. At a minimum, sewage flow calculations shall be based upon the unit flow factors contained in Table 1 or higher factors if specific conditions require it. A typical Sub-Area Sewer Master Plan Report shall include, but not be limited to the following:

- The document shall be prepared and stamped & signed by a Registered Civil Engineer.
- Map showing project boundaries and drainage areas
- Detailed land use description and map
- Average dry weather, peak dry weather, and peak wet weather flow calculations
- Exhibit showing all proposed sewer facilities and connections to the downstream regional system
- Phasing of development and wastewater flows
- Hydraulic calculations for phased and fully developed ultimate conditions, from the development to the regional system, meeting all sewer design criteria









# Ontario Walmart Superstore







## MEMORANDUM

**DATE:** November 2, 2006

**TO:** Reymundo Trejo, Principal Engineer

**FROM:** Dennis Mejia, Principal Engineer

**SUBJECT:** Walmart Supercenter - October 25, 2006 Letter

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The following are my draft response for your use for the subject letter received 10/25/06. The developer's engineer must provide the City with a Sewer Study per our guidelines. The City has an on-call consultant that can provide the sewer study with the respective costs passed onto the developer.

1. Please see the attached exhibit for sewer locations and sizes.
2. Please refer to the attached sewer study guidelines.
3. The Developer shall submit a Sewer Study to address this item.
4. The Developer shall submit a Sewer Study to address this item.
5. The Developer shall submit a Sewer Study to address this item.
6. The developer should use water efficient fixtures such as low-flush toilets.
7. Engineering will address this question.
8. The City is in the process of completing a Sewer Master Plan Update, expected to be completed in May 2007. The SMP Update will provide recommendations that will address the ultimate build-out conditions and a long-term Capital Improvement Plan.

Let me know if you need anything else to complete your response to this request.

Thanks,

Reymundo