



CITY OF ONTARIO

PUBLIC WORKS AGENCY
1425 South Bon View Avenue
Ontario, California 91761

(909) 395-2600

Letter of Transmittal

TO: David Evans and Associates, Inc.
4200 Concourses, Suite 200
Ontario, CA 91764

File:	
Date: <u>01/12/09</u>	Contract No.:

ATTENTION: Josephine Alido, AICP
Environmental Programs Manager

WE ARE SENDING: Attached Under separate cover via _____ the following items:
 Drawings Prints Plans Samples Specifications
 Copy of Letter Change Order Check Print(s) Studies Other _____

COPIES	DATE	NO.	DESCRIPTION
1			Guasti Plaza Specific Plan Amendment- Plan Check Corrections

PURPOSE:

- For your information/records
- For approval Approved as submitted
- For your use Approved as noted
- As requested Returned for corrections
- For review & comment Other _____
- FOR BIDS DUE _____, 2006

PLEASE:

- Submit original _____
- Resubmit _____ copies for approval
- Submit _____ copies for distribution
- Return _____ corrected prints
- Other _____
- PRINTS RETURNED AFTER LOAN TO US

REMARKS: The attached documents were faxed to you on 01/12/09.

COPY TO: _____

SIGNED: Nicole Flores Phone (909) 395-2670
TITLE: Administrative Assistant



**CITY OF ONTARIO
UTILITIES DEPARTMENT**
1425 S. Bon View
Ontario, California 91764



Phone: (909) 395-2678
Fax: (909) 395-2608

FACSIMILE TRANSMITTAL SHEET

TO:	Josephine Alido, AICP Environmental Programs Manager	FROM:	Sheldon Yu, P.E. Sr. Associate Engineer
COMPANY:	David Evans and Associates, Inc.	DATE:	1/12/2009
FAX NUMBER:	(909) 481-5757	TOTAL NO. OF PAGES INCLUDING COVER:	15
PHONE NUMBER:	(909) 481-5750	SENDER'S REFERENCE NUMBER:	
RE:	Guasti Plaza Specific Plan Amendment	YOUR REFERENCE NUMBER:	

URGENT FOR REVIEW PLEASE COMMENT PLEASE REPLY PLEASE RECYCLE

NOTES/COMMENTS:



CITY OF ONTARIO MEMORANDUM Plan Check Corrections

Date: January 12, 2009
To: Ms. Josephine Alido, AICP, Environmental Project Manager, David Evans and Associates Inc.
Cc: Dennis Mejia, Utilities
From: Sheldon Yu, Utilities
Subject: Guasti Plaza Specific Plan Amendment
Project No.:

Project	Project Location: SEC 10-Fwy & Archibald Avenue Project Description: Guasti Plaza Specific Plan Amendment Applicant:
Response to November 24, 2008 Letter from DEA	<ol style="list-style-type: none">1) What are the location and sizes of sewer lines serving the project site? – <i>The Engineering Department can provide atlas and as-built information.</i>2) Are these lines adequate to serve the area or have deficiencies been identified in these lines? – <i>Refer to the sewer master plan available at the Engineering Department as well as any required studies performed for the proposed project impact(s).</i>3) What sewer system improvements are proposed in the surrounding area? When are these improvements going to be constructed or implemented? – <i>Refer to the sewer master plan.</i>4) Does the City have sewer generation factor for multi-family residential and office commercial uses? If so, what are these factors? – <i>Refer to the sewer master plan.</i>5) What is the estimated sewer generation of the project? – <i>This is based upon what is being built on-site per the approved land-use by Planning Department (see attached sewer design guidelines showing generation factors).</i>6) Is on-site treatment necessary prior to disposal of wastewater from residential uses? – <i>Residential wastewater is treated at the IEUA wastewater treatment plant. Pre-treatment is required for all commercial/industrial buildings.</i>7) Are line upgrades needed to serve the sewer disposal needs of the proposed residential uses? Please discuss. – <i>Refer to the sewer master plan.</i>8) How will the proposed development affect the City's existing infrastructure and facilities (if any) which serve the project area? – <i>Refer to the sewer master plan (if land use is not consistent, the development will be required to prepare a separate sewer study analyzing the impacts and providing recommendations.)</i>9) What measures would your agency recommend to reduce sewage generation from the project? – <i>Reduction of potable water use on-site will reduce sewage generation (e.g. low-flow bathroom fixtures, reducing use times, etc.).</i>10) Are there fees that need to be paid for sewer connection and sewer services? – <i>Engineering Department can provide this information.</i>11) Does the City have any concerns or expect any long-term (10-year, 20-year, 30-year or longer) impacts associated with the provision of sewer services to future developments within the project area? If so, please describe the nature of these impacts and how this project may contribute to those impacts. – <i>Refer to the sewer master plan.</i>

Attachment: November 24, 2008 DEA Letter
Sewer Design Guidelines



DAVID EVANS
AND ASSOCIATES INC.

November 24, 2008

Mr. Reymundo Trejo
City of Ontario
Engineering Department
303 East "B" Street
Ontario, CA 91764

SUBJECT: Guasti Plaza Specific Plan Amendment

Dear Mr. Trejo:

David Evans and Associates, Inc. (DEA) is currently assisting the City of Ontario in the environmental review process for the Guasti Plaza Specific Plan Amendment. The Guasti Plaza Specific Plan regulates development on approximately 73.1 acres bounded by the San Bernardino (Interstate 10) Freeway to the north, Turner Avenue on the east, the Union Pacific Railroad right-of-way on the south and Archibald Avenue to the west. The proposed Amendment would allow residential development within the Specific Plan area, in place of planned office uses. A maximum of 500 dwelling units would be allowed in Planning Areas 2 and 3, which consists of approximately 13.18 acres at the eastern and southeastern section of the Specific Plan area (Parcels 6, 7, 8, 9, and 10 of Parcel Map No. 18799). The density will range from 45-60 units per acre. The majority of the housing units will include studio, one-bedroom and two-bedroom units ranging in size from 700 to 1,000 square feet. The residential structures will vary in height, from three (3) to five (5) stories.

Alternatively, 100 units of the 500 total units may be developed at the western section of the Specific Plan area (Parcels 1, 14, 15, 16 and 17 of Parcel Map No. 18799). At this location, the residential units would replace future office or commercial development. In any case, the total number of residential units within the Specific Plan area shall not exceed 500 units and the total floor area of development shall not exceed a floor area ratio of 1.0. The Amendment would affect approximately 13 acres along Turner Avenue, New Guasti Road, Biane Lane, and the Union Pacific Railroad tracks, as well as an approximate 9-acre area at the western section of the site, along Archibald Avenue. A vicinity map is enclosed for your reference.

In order to adequately assess the project's potential impacts on sewer services, we would like to request the following information from your office:

1. What are the location and sizes of sewer lines serving the project site?
2. Are these lines adequate to serve the area or have deficiencies been identified in these lines?
3. What sewer system improvements are proposed in the surrounding area? When are these improvements going to be constructed or implemented?
4. Does the City have sewer generation factors for multi-family residential and office commercial uses? If so, what are these factors?
5. What is the estimated sewer generation of the project?
6. Is on-site treatment necessary prior to disposal of wastewater from residential uses?
7. Are line upgrades needed to serve the sewer disposal needs of the proposed residential uses? Please discuss.
8. How will the proposed development affect the City's existing infrastructure and facilities (if any) which serve the project area?



9. What measures would your agency recommend to reduce sewage generation from the project?
10. Are there fees that need to be paid for sewer connection and sewer services?
11. Does the City have any concerns or expect any long-term (10-year, 20-year, 30-year or longer) impacts associated with the provision of sewer services to future developments within the project area? If so, please describe the nature of these impacts and how this project may contribute to those impacts.

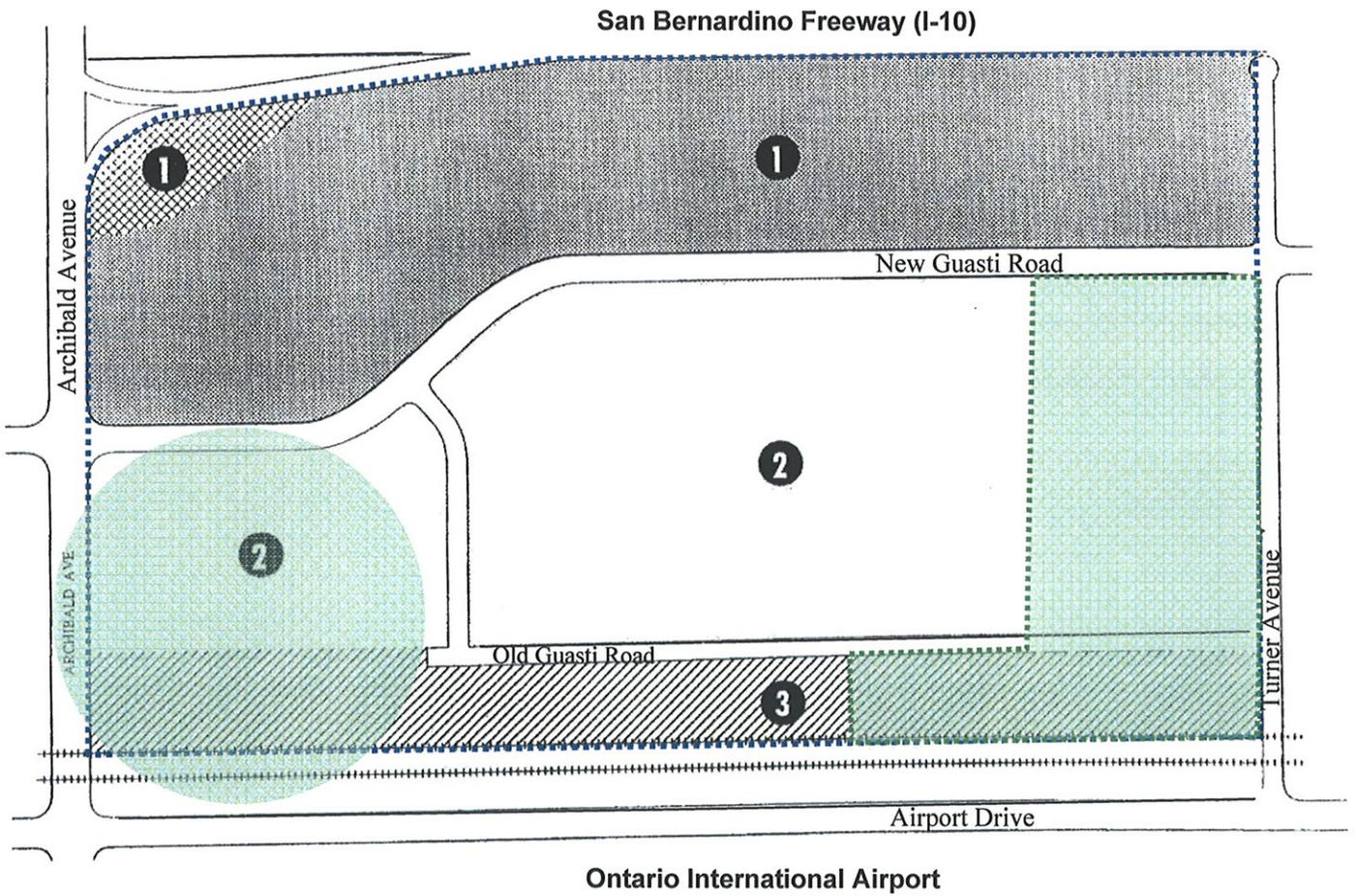
Please include any other information concerning your services and other issues which may be relevant to the environmental review process. We would appreciate receiving this information within the next three weeks. If you need additional information on the project, please call me at (909) 481-5750. Thank you for your assistance.

Sincerely,

DAVID EVANS AND ASSOCIATES, INC.

A handwritten signature in black ink, appearing to read 'Joe Alido'.

Joe Josephine Alido, AICP
Environmental Project Manager



-  Specific Plan Area boundaries
-  Planning Area
-  Area proposed for Residential Development



Vicinity Map
Guasti Plaza Specific Plan Amendment
City of Ontario



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SEWER SYSTEM DESIGN GUIDELINES FOR THE PREPARATION AND REVIEW OF SEWER ANALYSIS FOR NEW DEVELOPMENTS IN THE CITY OF ONTARIO UPDATED MARCH 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

Use	Land Use Category		Unit Flow Factor		
	Description		gpd/DU	gpd/AC	gpd/TSF
Residential					
SF	Single Family		270	1242	-
MF	Multi-Family		270	3824	-
Commercial					
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
Industrial					
IND	Light Manufacturing / Business Park		-	4700	308
Public					
P1	Community Facility		-	3500	250
P2	Government, Cultural		-	3500	250
P3	Schools		-	3500	-
P4	Parks		-	200	-
P5	Education Campus		-	3500	-
P6	Sports Complex		-	3500	-
Amenities					
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:

$$Q_{PDWF} = a Q_{ADWF}^b$$

where Q_{PDWF} = Peak Dry Weather Flow in MGD
 Q_{ADWF} = Average Dry Weather Flow in MGD
a, b = 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^o 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

Sewer Size	2 ft/s Velocity Slope
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

Collection System	
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

SEWER SYSTEM DESIGN CRITERIA

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SEWER SYSTEM DESIGN CRITERIA

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SEWER SYSTEM DESIGN CRITERIA

1. GENERAL

Sewer system improvements proposed for inclusion into the City's shall be designed in accordance with the criteria set forth herein, unless otherwise approved in writing by the City.

The design shall take into consideration physical conditions known to exist at the time and place of each installation and the probable operating requirements. Where such conditions render sections of these Specifications inapplicable, alternate methods of design may be submitted to the City, and upon approval thereof, may be incorporated in the Plan.

2. UNIT FLOW FACTORS

System design criteria and flow factors shall be in accordance with the City of Ontario Public Works Agency Report "**SEWER SYSTEM DESIGN GUIDELINES FOR THE PREPARATION AND REVIEW OF SEWER ANALYSIS FOR NEW DEVELOPMENTS IN THE CITY OF ONTARIO UPDATED DECEMBER 27, 2005**" as provided in appendices

3. LOCATIONS OF MAINS

In local residential and industrial streets, sewer mains are to be located six (6) feet from the centerline of the street in the center of the driving lane. In major, primary, and secondary highways, the sewer mains will be located in the center of the driving lane nearest to the center of the street, but will not be located in the median strip or parking lanes. On curved streets, sewer mains shall be parallel with the centerline of the street by use of horizontal curves for the alignment, unless approved by the City Engineer.

Horizontal curves are allowed on all pipe sizes 8" and larger, but are not encouraged except where necessary to maintain the required clearance from water pipelines. The minimum curve radius for sewers shall conform to the manufacturer's minimum recommendations. No reverse curves shall be allowed between manholes. No vertical curves shall be allowed.

Sewer main lines shall have a minimum cover over pipe which should be sufficient to service adjacent property by gravity, and cover shall not be less than 7.5' to finish grade of street, unless otherwise approved by City. In addition, sewer mains must be sufficiently deep in subdivisions to allow water lines to be set with 4' min. cover without interference from sewer laterals.

Sewer installation shall provide a minimum clearance of 50 feet from all potable, non-potable, and water quality monitoring wells.

4. PIPE SIZING

The standard sewer mainlines sizes allowed in the City shall be 8-inch, 10-inch, 12-inch, 15-inch, 18-inch, 21-inch, 24-inch, and 27-inch in diameter.

5. PIPE MATERIAL

Per the Sewer Pipeline Material Specification and Approved Material List.

6. MANHOLES

Manholes are required at the end of each line, change in grade or size, change in alignment or intersection of two or more sewer mains. Manholes shall be spaced at a maximum distance of 350-feet, unless otherwise approved by City.

Manholes shall be located at or near all BC's, EC's, PRC's and PCC's on curved sewers. Distance noted between manholes shall be measured to manhole centerlines.

Minimum 48-inch ID manhole shall be required for sewers with a diameter of 18-inch or less and/or at a depth of 12-feet or less. A 30-inch frame and cover shall be used on a 48-inch manhole. Minimum 60-inch ID manholes shall be required for sewers with a diameter of 20-inch or larger and/or deeper than 12-feet. A 36-inch frame and cover shall be used on a 60-inch manhole. Minimum 72-inch ID manhole shall be required for sewers with a diameter of 30-inches. A 36-inch frame and cover shall be used on a 72-inch manhole.

Manholes shall have 0.2-feet of elevation differential through the manhole on straight runs and at angles. Pipe flow line elevations at inlet and outlet of manhole as well as centerline manhole stationing shall be shown on plans. Unless otherwise approved by the City, junction manholes shall have the crowns (soffits) of the intersecting pipes at the same elevation where their projections intersect the manhole centerline.

Drop manholes may be utilized only upon prior approval by the City. Drops shall not be less than 3 feet ("Steep" slopes from the first manhole upstream are preferred to drop manholes). Manholes shall not be buried except where approved by City. Manholes shall be raised above ground level where necessary to maintain them in farmed areas and in waterways.

Manholes shall be required on laterals 8-inch or larger at the point of connection to the mainline and at the property line. A monitoring manhole can be used for the manhole at the property line.

Manholes located outside of the pave area shall be installed with the frame and cover .1-foot above finish grade with a 3-foot concrete collar. Manholes located in landscape area and in fields shall be installed 18-inches above finish grade.

7. CLEANOUTS

The use of cleanouts is not permitted except on laterals at the property line.

8. LATERALS

Minimum 4-inch lateral shall be required for single family residences. Minimum 6-inch lateral shall be required for multi-family dwellings, commercial and industrial use. Lateral shall be constructed of same material as main line.

House Connection Laterals at 2% slope, utilizing 45° connection at main.

9. BEDDING

Minimum requirements per City Standard Drawings No. 2104 and No. 2105

10. BACKFLOW VALVES

Backflow valves shall be required in accordance with the Uniform Plumbing Code, Latest Edition.

Backflow valves shall be installed at shallowest location allowing access for future inspection and maintenance. Where backflow valves are required, they shall be installed on private property by the property owner or tract developer and are to be maintained by property owner.

11. INDUSTRIAL WASTE PROVISIONS

The developers of all commercial/industrial projects shall provide the City with detailed information concerning the project's expected wastewater quality and quantity. The City will review this information and determine which of the following facilities are required.

1. Building sewer sampler.
2. Wastewater flow monitoring station.
3. Gravity separator.
4. Industrial waste clarifier.
5. Pretreatment facilities.