

TF:amt  
12/21/87

AN ORDINANCE **66329**

APPROVING FOUR AMENDMENTS TO THE UNIFIED DEVELOPMENT CODE CONCERNING INFORMATION TO BE PROVIDED FOR PLATS INVOLVING SANITARY LANDFILL SITES, PROCEDURES FOR SUBDIVIDING DUPLEX LOTS, INCREASING WIDTH REQUIREMENTS FOR CERTAIN STREETS, AND CLARIFYING PROVISIONS OF THE FLOOD PLAIN ORDINANCE, AND AMENDING THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION BY ADOPTING NEW CONSTRUCTION REQUIREMENTS FOR SANITARY SEWERS OVER THE EDWARDS AQUIFER RECHARGE ZONE.

\* \* \* \* \*

WHEREAS, the City staff, the Planning Commission, the City Council Committee on the Aquifer, and others have been studying certain proposed amendments to the subdivision regulations and the public works construction criteria for a long while; and

WHEREAS, the development code revisions concern requirements for submitting additional information for plats involving sanitary landfill sites, establishing procedures for subdividing duplex lots, increasing width requirements for certain streets, and clarifying provisions of the flood plain ordinance; and

WHEREAS, after notice and a public hearing, the Planning Commission has recommended approval of these changes; and

WHEREAS, after notice and a public hearing, and after consideration of the issues involved, the City Council believes that these revisions would be in the best interests of the citizens of the City of San Antonio; and

WHEREAS, by Ordinance No. 55430 of June 10, 1982, the City Council adopted standard specifications for public works construction, these specifications comprising the Public Works Construction Design Manual; and

WHEREAS, an amendment has been prepared to specifically address sanitary sewers over the aquifer recharge zone, said amendment being recommended by the City Council Committee on the Aquifer and having been endorsed in the Committee report, The Edwards Aquifer: Perspectives for Local and Regional Action; and

WHEREAS, the Council wishes to amend the construction manual to include these provisions for sanitary sewer construction over the Edwards Aquifer Recharge Zone to afford additional protection for the City's water supply; **NOW THEREFORE:**

**BE IT ORDAINED BY THE CITY COUNCIL OF THE CITY OF SAN ANTONIO:**

SECTION 1. That the amendments to the Unified Development Code (Chapter 35) of the City Code set out in Attachments I through IV, attached hereto and incorporated herein, are hereby approved and adopted.

That Ordinance No. 55430 and the standard specifications for Public Works Construction which were adopted thereby are amended by adding the Edwards Aquifer Recharge Zone Sanitary Sewer Specification attached hereto and incorporated herein as Attachment V. Said document will govern construction of sanitary sewers over the Edwards Recharge Zone.

SECTION 2. This ordinance and the amendments contained herein shall be effective on and after the 11th day from date of passage hereof.

SECTION 3. Violation of any of the provisions adopted in Section 1 hereof shall subject the actor to penalties as set forth elsewhere in the City Code for violation of subdivision regulations and for non compliance with construction standards.

SECTION 4. If any provision, section, subsection, sentence, clause or phrase of this ordinance, or the application of same to any person or set of circumstances is for any reason held to be unconstitutional, void or invalid, the validity of the remaining portions of this ordinance shall not be affected thereby, it being the intent of the City Council in adopting this ordinance that no portion thereof or provisions, or regulation contained herein, shall become inoperative or fail by reason of any unconstitutionality of any other portion hereof and all provisions of this ordinance are declared to be severable for that purpose.

PASSED AND APPROVED this 23rd day of December, 1987.

*Henry Cisneros*  
M A Y O R

ATTEST: *Norma S. Rodriguez*  
City Clerk

APPROVED AS TO FORM: *Tom Fulley*  
City Attorney

87-60

3PM - V.A. + ORD.  
 AMENDING  
 UNIFIED  
 DEVELOPMENT  
 CODE  
 MEETING OF THE CITY COUNCIL

ITEM NO. 5  
 DATE: DEC 23 1987

AVIATION	
BUDGET & RESEARCH	
BUILDING INSPECTIONS	
BUILDING INSPECTIONS-HOUSE NUMBER	
CITY WATER BOARD	
CITY ATTORNEY (LUIS GARCIA)	1
COMMERCIAL RECORDER	
CONVENTION & VISITORS BUREAU	
CONVENTION FACILITIES	
ECONOMIC & EMPLOYMENT DEVELOPMENT	
EQUAL EMPLOYMENT OPPORTUNITY	
FINANCE DIRECTOR	
ASSESSOR	
CONTROLLER	
TREASURY DIVISION	
GRANTS	
INTERNAL AUDIT	
RISK MANAGEMENT	
FIRE DEPARTMENT	
HUMAN RESOURCES & SERVICES	
INFORMATION RESOURCES	
LIBRARY	
MARKET SQUARE	
METROPOLITAN HEALTH DISTRICT	
MUNICIPAL COURTS	1
PARKS & RECREATION	
PERSONNEL	
PLANNING	1
POLICE DEPARTMENT	
PUBLIC UTILITIES	
PUBLIC WORKS	1
ENGINEERING	
CENTRAL MAPPING	
REAL ESTATE	
TRAFFIC ENGINEERING	
PURCHASING & GENERAL SERVICES	
WASTEWATER MANAGEMENT	
ZONING ADMINISTRATION	
SPECIAL PROJECTS - CITY MANAGER	

MOTION BY: Thompson SECONDED BY: Vera  
 ORD. NO. 66329 ZONING CASE \_\_\_\_\_  
 RESOL. \_\_\_\_\_ PETITION \_\_\_\_\_

	ROLLCALL	AYES	NAYS
MARIA BERRIOZABAL PLACE 1		/	
JOE WEBB PLACE 2		/	
HELEN DUTMER PLACE 3		/	
FRANK D. WING PLACE 4		/	
WALTER MARTINEZ PLACE 5		/	
BOB THOMPSON PLACE 6		/	
YOLANDA VERA PLACE 7		/	
NELSON WOLFF PLACE 8		/	
WEIR LABATT PLACE 9		/	
JAMES C. HASSLOCHER PLACE 10		/	
HENRY G. CISNEROS PLACE 11 (MAYOR)		/	

AMENDS CHAP. 35 OF CITY CODE!

PUBLISH!

87-60

FILE MUN. CODE CORP. MAP 1  
 "CHAPTER 35"

(5)

The following amendment to Chapter 35 (Unified Development Code) requires additional data for plats which are located over a landfill site.

REVISE SECTION 35-4213(c) TO READ AS FOLLOWS:

Sec. 35-4213. Data required for letters of certification.

(c) To the director of environmental management:

(1) Sanitary sewer systems.

- a. Two (2) copies of the proposed plat of subdivision showing two-foot contours on sites where the average grade does not exceed five (5) percent, and five-foot contours on sites where the average grade exceeds five (5) percent, and the proposed location of all sewer lines.
- b. Two (2) copies of plans and profiles of the proposed sewer lines showing depths and grades of the lines in accordance with Exhibit A, and overall layout map, construction details, and other data as required by section 30-92.
- c. When a separate sewer system is proposed or when connection of a separate system is proposed to a sewer system other than the system of the city, two (2) copies of plans and specifications bearing approval certification of the state department of health accompanied with a written approval by that state agency.
- d. When a separate sewage treatment facility is proposed other than a facility of the city or a modification of a treatment facility other than the city is required by agencies having jurisdiction, a copy of the discharge permit from each agency authorized to require and issue such permit.
- e. When a separate sewer system is proposed or when service is to be provided by a system other than the system of the city, a written statement from the owner and operator of the system certifying the owner's operational status, approving the proposed system or service, and certifying that operations and maintenance of the system will be in compliance with requirements of all regulatory agencies having jurisdiction.
- f. When a sewer system is proposed within the recharge zone of the Edwards Aquifer, written approval or approvals as required by the appropriate state agency having review and enforcement authority jurisdiction regarding the state water quality board orders regulating such systems.
- g. When sewer service for the proposed plat is to be so provided by septic tanks, written approval by appropriate public agency having installation permit and operation control jurisdiction. Such written approval shall state that approval for septic tank systems for each proposed property is granted and installation permits will be issued for same upon request after plat recordation.

(2) Landfills. If the proposed plat is located over a landfill site, the following additional information shall be submitted.

- a. Two (2) copies of the proposed plat showing two-foot contours in areas where the slope does not exceed five (5) percent and five-foot contours in areas where the slope exceeds five (5) percent, and delineating the limits of the landfill.
- b. A narrative report prepared by a registered professional engineer which includes the following items:
  1. The name, address, and phone number of the property owner.
  2. Description of the nature and size of the proposed development, including projected population.
  3. The percent of impervious cover after development and certification site will have a positive surface drainage.
  4. History and age of the landfill.
  5. Site geology, including estimates of past and future ground settlement.
  6. Description and depth of refuse fill.
  7. Description of planned excavations, penetration of any landfill liner, and ultimate disposal site for excavated refuse.
  8. Depth and movement of shallow ground water.
- c. A soil gas survey for methane.
- d. A slope stability analysis for all landfill embankments.

The following amendment to Chapter 35 (Unified Development Code) specifies conditions for subdividing duplex lots.

ADD NEW SECTION 35-4066 TO READ AS FOLLOWS:

Sec. 35-4066. Subdivision of two-family dwelling (duplex) lots.

A lot upon which there is located two attached dwelling units may be subdivided or resubdivided through the common wall into separate fee simple lots for each dwelling unit subject to the following requirements.

- (a) The two-family dwelling or duplex lot shall be vacated and replatted.
- (b) Each single-family lot resulting from the subdivision shall have a minimum lot area of four thousand (4,000) square feet and shall be at least forty (40) wide except in the case of a planned unit development or planned residential development.
- (c) Separate utility meters shall be provided to each newly created single-family lot.
- (d) Separate water and wastewater service lines shall be provided to each newly created lot and shall not traverse any other lot.
- (e) Where common gas and electrical lines are provided to two single-family lots, easements approved by City Public Service shall be provided.
- (f) Walls and floors separating dwelling units in the same building shall not be less than one-hour resistive construction.

The following amendment to Chapter 35 (Unified Development Code) increases the width requirement for private nonresidential streets.

REVISE SECTION 35-4120(b) TO READ AS FOLLOWS:

Sec. 35-4120. Private streets.

(b) The design standards and construction specifications of private streets shall be the same as those provided for marginal access streets with the exceptions noted below. Typical sections of marginal access streets are included in Exhibit A.

- (1) The right-of-way of forty (40) feet including a parkway of thirteen and one-half (13.5) feet shall not be required.
- (2) The total paved movement area, exclusive of curb exposures, shall be a minimum of twenty-two (22) feet wide for private residential streets and thirty (30) feet for private nonresidential streets.
- (3) Curbs shall be optional provided provision is made for adequate drainage by means other than the traditional curb and gutter.
- (4) A reversed crown may be used to provide drainage down the center of the streets.

The following revisions to Chapter 35 (Unified Development Code) incorporate changes required by the Federal Emergency Management Agency.

1. REVISE THE DEFINITION FOR "DEVELOPMENT" TO ADD THE TERM "MANUFACTURED HOME":

Sec. 35-1041. Definitions.

Development - any man-made change to improved or unimproved real estate, including but not limited to, erecting buildings or other structures, mining, dredging, cutting, and/or filling, grading, paving, excavation or drilling operations, platting or replatting of subdivisions, creation or expansion of a mobile home/manufactured home or setting up a mobile home/ manufactured home or any change in use of a structure from non-residential to residential use.

2. REVISE SECTION 35-4306 TO INCLUDE TWO NEW DEFINITIONS:

Sec. 35-4306. Special flood plain definitions.

The following definitions apply only to this division:

Elevated building - means a nonbasement building (i) built, in the case of a building in Zones A1-30, AE, A, A99, AO, AH, B, C, X, and D, to have the top of the elevated floor, or in the case of a building in Zones V1-30, VE, or V, to have the bottom of the lowest horizontal structure member of the elevated floor elevated above the ground level by means of pilings, columns (posts and piers), or shear walls parallel to the floor of the water and (ii) adequately anchored so as not to impair the structural integrity of the building during a flood of up to the magnitude of the base flood. In the case of Zones A1-30, AE, A, A99, AO, AH, B, C, X, D, "elevated building" also includes a building elevated by means of fill or solid foundation perimeter walls with openings sufficient to facilitate the unimpeded movement of flood waters. In the case of Zones V1-30, VE, or V, "elevated building" also includes a building otherwise meeting the definition of "elevated building", even though the lower area is enclosed by means of breakaway walls if the breakaway walls meet the standards of Section 60.3(e)(5) of the National Flood Insurance Program regulations.

Existing construction - means for the purposes of determining rates, structures for which the "start of construction" commenced before the effective date of the FIRM or before January 1, 1975, for FIRMs effective before the date. "Existing construction" may also be referred to as "existing structures."

Start of construction - means for all new construction and substantial improvements, the date the building permit was issued, provided the actual start of construction, repair, reconstruction, placement, or other improvement was within 180 days of the permit date. The actual start means either the first placement of permanent construction of a structure on a site, such as the pouring of slab or footings, the installation of piles, the construction of columns, or any work beyond the stage of excavation; or the placement of manufactured home on a foundation. Permanent construction does not include land preparation, such as clearing, grading and filling; nor does it include the installation of streets an/or walkways; nor does it include excavation for a basement, footings, piers, or foundations or the erection of temporary forms; nor does it include the

installation on the property of accessory buildings, such as garages or sheds not occupied as dwelling units or not part of the main structure. The start of construction period is valid for 180 days. Any delay beyond this period would require resubmission of added data and the permit application.

3. REVISE SECTION 35-4322(e) TO READ:

Sec. 35-4322. Duties and responsibilities of flood plain administrator.

(e) Notify adjacent communities and the Texas Water Commission prior to any alteration or relocation of a watercourse, and submit evidence of such notification to the Federal Emergency Management Agency.

4. REVISE SECTION 35-4332(a) TO SUBSTITUTE THE TERM "MANUFACTURED HOME" FOR "MOBILE HOME."

Sec. 35-4332. Application.

(a) Application for a flood plain development permit shall be presented to the director of public works, on a form furnished by him, prior to any proposed cut and/or fill, building or establishment of a manufactured home site. Application for a flood plain development permit for a proposed subdivision may be presented prior to or in conjunction with other data required for the platting process. For platting purposes, a flood plain development permit shall serve only as an approval of the flood plain ordinance requirements. No cut/or fill, building, or other site alterations shall proceed until the permit is approved. The permit application shall be accompanied by supporting hydrology and hydraulic data prepared by a registered professional civil engineer in accordance with Exhibit D included at the end of this chapter. It may also include, but not be limited to, plans in duplicate drawn to scale showing the locations, dimensions, and elevations of proposed structures, and the location of the foregoing in relation to areas of special flood hazard.

5. REVISE SECTION 35-4341(a) TO READ AS FOLLOWS:

Sec. 35-4341. General standards.

In all areas of special flood hazards the following provisions are required;

(a) All new construction or substantial improvements shall be anchored to prevent flotation, collapse or lateral movement of the structure resulting from hydrodynamic and hydrostatic loads including the effects of buoyancy (see U.S. Corps of Engineers Flood Proofing Regulations, Chapter 6, Section 610).

6. REVISED SECTION 35-4342(d)(3) TO SUBSTITUTE THE TERM "MANUFACTURED HOME" FOR "MOBILE HOME":

Sec. 35-4342. Specific standards.

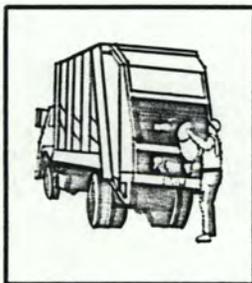
- (3) The placement of any manufactured home is prohibited except in an existing manufactured home park or subdivision.

# CITY OF SAN ANTONIO

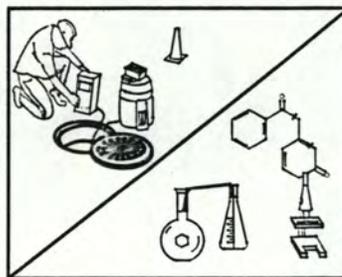
## DEPARTMENT OF ENVIRONMENTAL MANAGEMENT



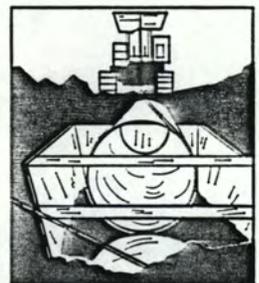
### EDWARDS AQUIFER RECHARGE ZONE PROPOSED SANITARY SEWER SPECIFICATION NOVEMBER 1987



SOLID WASTE



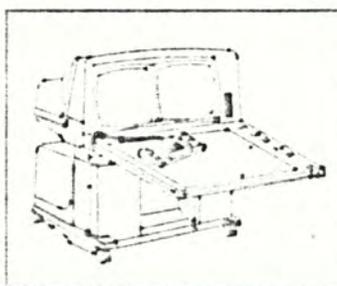
MONITORING &  
TESTING



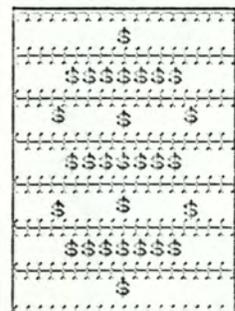
SEWER MAINTENANCE  
AND CONSTRUCTION



WASTEWATER  
TREATMENT



TECHNICAL SERVICES



FISCAL PROGRAMS

PART IV

STORM AND SANITARY SEWERS

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ITEM NO. 400ERZD

EXCAVATION, TRENCHING AND BACKFILLING

400ERZD.1 DESCRIPTION: This section shall govern the excavation, trenching and backfilling for storm drainage pipe, sanitary sewers and pipe culverts, unless otherwise noted on the plan details and the specifications. The work shall include all necessary pumping or bailing, sheeting, drainage and the construction and removal of any required cofferdams. All existing utilities shall be protected from damage during the excavation and backfilling of trenches, and if damaged, shall be replaced by the Contractor at his expense. Unless otherwise shown on the plans and bid proposal all excavation shall be unclassified, and shall include all materials encountered regardless of their nature or the manner in which they are removed.

400ERZD.2 EXCAVATION: The Contractor shall perform all excavation of every description and of whatever substances encountered, to the lines and grades shown on the plans or determined by the Engineer. During excavation, material suitable for backfilling shall be stockpiled in an orderly manner a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or cave ins. All excavated materials not required or suitable for backfill shall be removed and wasted as indicated on the drawings or as directed by the Engineer. Such grading shall be done as may be necessary to prevent surface water from flowing into trenches or other excavations, and any water accumulating therein shall be removed by pumping or by other approved methods. Sheeting and shoring shall be done as may be necessary for the protection of the work, adjoining property, and for the safety of the personnel. Unless otherwise indicated, excavation shall be by open cut except that short sections of a trench may be tunneled, if in the opinion of the Engineer, the pipe or structure can be safely and properly installed or constructed, and backfill can be properly tamped in such tunnel sections.

400ERZD.3 TRENCHING:

1. Trench walls shall be vertical and the practice of undercutting at the bottom or flaring at the top will not be permitted unless at the Engineer's direction. In special cases where trench flaring is permitted and directed by the Engineer, the trench walls shall remain vertical to a depth of at least one foot (1') above the top of the pipe. The bottom of the trench shall be square or slightly curved to the shape of the trenching machine cutters. The bottom of the trenches shall be accurately graded to provide uniform bearing and support for each

section of pipe on the undisturbed soil at every point along its entire length, except for the portions of pipe sections where it is necessary to excavate for bells and for the proper sealing of pipe joints. Bell holes and depressions for joints shall be dug after the trench bottom has been graded in order that the pipe rest upon the prepared bottom for as nearly its full length as practicable. Whenever over-excavation occurs, the under-cut trench shall be restored to grade, to the satisfaction of the Inspector, by replacement of excavated material compacted to the same density as the surrounding natural ground. Whenever wet or otherwise unstable soil that is incapable of properly supporting the structure or pipe, as determined by the Engineer, is encountered in the bottom of the trench, such soil shall be removed to the depth shown on the plans or determined by the Engineer and the trench backfilled to the proper grade with a subgrade filler as specified in Item No. 410, "Gravel Subgrade Filler". Trench bottoms for sanitary sewers shall conform to Paragraph 2, "Sanitary Sewer Backfilling" of Section 400ERZD.4, "Backfilling".

The depth of cut indicated on cut sheets, as furnished by the Engineer, is from the off-set or cut hub elevation to the invert of the pipe. The width of the trench shall be at least the outside diameter of the pipe plus six inches (6") on each side of the pipe for pipe sizes under forty-two inches (42") in diameter.

The maximum working room for pipe forty-two inches (42") in diameter and under shall be twelve inches (12") from each side of the pipe to the face of the trench walls. Where sheathing and bracing are used, a maximum twelve inch (12") working space, measured from the pipe to the face of the sheathing, will be allowed. For pipe over forty-two inches (42") in diameter the maximum width of the trench shall be such that the working space from the pipe to the trench wall, or sheathing as the case may be, will be a minimum of twelve inches (12"), and a maximum of twenty-four inches (24"). If allowable trench widths are exceeded through over-shooting of rock, caving of earth trenches or over excavation, the Contractor shall employ corrective measures or alternative designs as determined by the Engineer.

It shall be understood that the depth of cut as indicated on the cut sheet may be more or less than the actual excavated depth due to ground conditions existing at the site. For this reason the Engineer shall determine the depth for pay purposes based on the surface elevation prior to the Contractor's operation and the invert of the sewer line. The Engineer's decision shall be final.

2. Where water, silt, mud, trash, debris or rock in ledge, boulder or coarse gravel (particle size larger than 1 3/4 inch) is encountered at the bearing level, the Contractor shall, as directed by the Inspector, under-excavate and remove

such materials to a depth not less than four inches (4") below the bottom of the pipe and replace with a material conforming to the requirements of Item No. 401, "Gravel Subgrade Filler". Trench bottoms for sanitary sewers shall conform to Item 400ERZD.4, 2, "Sanitary Sewer Backfilling".

#### 400ERZD.4 BACKFILLING:

1. General: Excavation shall not be backfilled until the construction structures or appurtenances as installed conform to the requirements specified. The excavation shall be carefully backfilled with the excavated materials approved for backfilling, consisting of earth, loam, sandy clay, sand and gravel, soft shale or other approved materials, free from large clods of earth or stones. Where pipe is specially coated for protection against corrosion, care shall be taken to to damage the coating. Any excavation improperly backfilled, or where settlement occurs, shall be re-opened to the depth required for proper compaction, then refilled and compacted with the surface restored to the required grade and compaction. The use of sand backfill shall not be allowed, except for sanitary sewers as noted herein.

All compaction shall be such that the apparent dry density of each layer shall not less than ninety percent (90%) of the maximum dry density as determined by tests on samples as outlined in Texas Highway Department Testing Method Tex 113-E, unless otherwise shown on the plans.

2. Sanitary Sewer Backfilling: Backfill for sanitary sewers is divided into three (3) separate zones: (a) bedding, the material in trench bottom in direct contact with the bottom of the pipe; (b) initial backfill, the backfill zone extending from the surface of the bedding to a point one foot (1') above the top of the pipe; and (c) secondary backfill, the backfill zone extending from the initial backfill surface to the top of the trench. Materials and placement for each of the zones shall be as described herein.

##### (a). Bedding:

- (1). Existing stable materials and laying conditions encountered at the pipe bearing level which are acceptable for bedding purposes are:

Trench bottom at bearing level free of water, muck, debris and rock in boulder, ledge or coarse gravel (particle size larger than 1 3/4 inch) formations.

Coarse sands and gravels with maximum particle size of 1 3/4 inch, various graded sands and gravels containing small percentages of fines,

generally granular and non-cohesive, either wet or dry, fine sands and clayey gravels, fine sand, sand-clay mixtures and gravel-clay mixtures.

- (2). Existing unstable materials and laying conditions encountered at the pipe bearing level which are not acceptable for bedding purposes are:

Water, silt, muck, trash or debris at trench bottom at bearing level or rock, in ledge or boulder, or coarse gravel (particle size larger than 1 3/4 inch) formations.

- (3). Subgrade Filler: Where unacceptable materials as defined in Item 2, (a) (2) above, exist at the bearing level they shall be removed, as directed by the Inspector, and replaced to a minimum depth of four inches (4") or one-eighth (1/8) of the outside diameter of the pipe, whichever is greater, as directed by the Inspector, with subgrade filler material. The subgrade filler material shall extend up the sides of the pipe sufficient to embed the lower quadrant of the pipe. Subgrade filler material shall conform to the requirements of Item No. 410, "Gravel Subgrade Filler". Rock saw cutting are acceptable if criteria of Item No. 410 can be met.

- (b). Initial Backfill: Initial backfill is defined as backfill having a thickness in its compacted state from the surface of the bedding to a point one foot (1') above the top of the pipe. Initial backfill shall be constructed in accordance with details shown on the plans and these specifications.

- (1). Select Initial Backfill: Select Initial Backfill material shall conform to the requirements of Item No. 410, "Gravel Subgrade Filler". Rock saw cutting are acceptable if criteria of Item No. 410 can be met.

For sewer lines less than twenty-four inches (24") in diameter select initial backfill material shall be placed in two (2) lifts. The first lift shall be spread uniformly and simultaneously on each side and under the shoulders of the pipe to the mid-point or spring line of the pipe. The first lift of select initial backfill shall be inspected and approved prior to placement of the second lift. The second lift of select initial backfill material

shall extend from the spring line of the pipe to a depth sufficient to produce a compacted depth of material a minimum of one foot (1') above the top of the pipe. The second lift shall be evenly spread in a similar manner as the first lift.

For sewer line twenty-four inches (24") in diameter and larger select initial backfill material shall be evenly and simultaneously spread alongside, under the shoulders or haunches of the pipe and over the pipe in twelve-inch (12") lifts of a point sufficient to produce a compacted depth of material a minimum of one foot (1') above the top of the pipe.

No mechanical or hand compaction will be required on an approved select initial backfill material.

(c). Secondary Backfill:

Secondary backfill is defined as backfill from one foot (1') above the top of the pipe to the top of the trench. Secondary backfill shall be constructed in accordance with details shown on the plans and these specifications.

Secondary backfill shall generally consist of materials removed from the trench and shall be free of brush, debris and junk. No rock or stones having any dimension larger than one-half the trench width, or twenty-four (24") inches at the largest dimension, whichever is less, shall be used in the secondary backfilling zone. In special cases where excessive width and/or depth of the trench permit, and only with approval of the Inspector, larger rocks may be incorporated into the backfill provided that the surrounding compactable soil may be properly and adequately compacted. Such oversized rocks shall be used only where the pipe has at least five feet (5') of cover over the top of the pipe, and where the top of the rocks are at least two feet (2') below the street or ground surface. These large stones may be placed in the secondary backfill provided they are well separated and arranged so that no interference with backfill settlement or the initial backfill zone will result. Secondary backfill material shall be composed of primarily compactable soil materials.

Water jetting shall be delivered under sufficient volume and pressure through an approved jetting hose and pipe nozzle. The jetting hose shall have a minimum inside dimension of two inches (2"). The jetting hose

shall be connected to an approved minimum two-inch (2") water pump capable of delivering water at the volume and pressure as required by the Engineer. The pipe nozzle shall be of sufficient length to introduce the water at a depth of not less than one foot (1') above the preceding lift. Points of trench jetting shall be staggered along the length of the trench and spaced at not more than three feet (3') on centers. Each five foot (5') lift of secondary backfill shall be jetted initially at a depth of not more than one foot (1') above the preceding lift. Sufficient water shall be introduced into the secondary backfill to cause complete subsidence of the backfill and develop, free standing water at the surface of each lift, except in rock construction where free standing water is not required.

After the final lift has been jetted as approved, twelve (12) hours shall be allowed for the reduction of the materials moisture content. When the backfill moisture content is acceptable for mechanical or pneumatic compaction, the surface shall be compacted to the satisfaction of the Inspector. The surface of the final lift of trenches subject to traffic shall be compacted by ditch tamping equipment.

Ditch tamping equipment shall be mechanical tamping machines having a minimum of 500-pound, twelve inch (12") square tamper, capable of developing 4000 foot-pounds at full stroke. All of the secondary backfill shall be completed to the density specified in Paragraph 1, Section 400ERZD.4, "Backfilling".

400ERZD.5 DISPOSAL OF EXCAVATED MATERIALS: The excess excavated material, not utilized after all fill requirements have been met, shall become the property of the Contractor and he shall dispose of it by hauling and wasting outside the limits of the right-of-way of this project and of public thoroughfares and water courses, in conformity with pertinent City ordinance and in a manner meeting the approval of the Engineer.

400ERZD.6 MEASUREMENT: Excavation, Trenching and Backfill will not be measured for payment.

400ERZD.7 PAYMENT: No direct payment shall be made for excavation, trenching and backfilling for pipe sanitary sewers, and all costs in connection therewith shall be included in the applicable contract price for the item to which the work pertains.

Subgrade filler will be measured and paid for at the contract unit price as provided for in Item No. 410, "Gravel Subgrade Filler."

ITEM NO. 402ERZD

SANITARY SEWERS

402ERZD.1 DESCRIPTION: This item shall govern the furnishing, installation and jointing of sanitary sewer pipe of the size and type specified by the project plans and specifications.

All sanitary sewer mains shall be constructed in accordance with the specifications herein outlined and in conformity with the required lines, grades and details shown on the plans and as directed by the Engineer. Successful passage of the air test as described under Item No. 518 shall be required for the acceptance of the mains.

402ERZD.2 MATERIALS FOR SANITARY SEWER PIPE: Materials for sanitary sewer pipe may be either rigid or flexible.

1. Rigid Pipe: For diameter up to twelve inches (12"): ductile iron, for diameters greater than twelve inches (12"): concrete, ductile iron, cast iron and prestressed cylinder pipe, shall be, for the purpose of this specification, known as rigid pipe.
2. Flexible Pipe: For diameter up to twelve inches (12"): PVC SDR 26, for diameters greater than twelve inches (12"): PVC SDR 35 or PVC with a minimum stiffness factor of 46 or Reinforced Plastic Mortar Pipe.
  - a. When flexible pipe is used, selected initial backfill in accordance with Item No. 400ERZD, "Excavation, Trenching and Backfilling", shall be mandatory.
  - b. Any flexible conduit having a deflection of the inside diameter greater than ASTM D-3034, seven and one-half percent (7-1/2%) after installation will not be accepted. A GO, NO-GO Deflection Testing Mandrell built in accordance with the detail drawing as shown on the standard detail sheet, shall be furnished at the Contractor's expense and shall be used in testing pipe deflection for acceptance, unless directed otherwise by the Engineer.
  - c. Working room: The working room for flexible pipe shall be a minimum of six inches (6") and a maximum of twelve inches (12") from each side of the pipe to the face of the trench walls. The maximum twelve-inch requirement will be waived when the pipe is provided a concrete cover as shown on the standard detail sheet of the plans.

3. Concrete Pipe:

- a. Concrete pipe and fittings less than eighteen inches (18") in diameter shall conform to ASTM Designation C-14.
- b. Concrete pipe and fittings, eighteen inches (18") and larger in diameter shall conform to ASTM Designation C-76, Class III or C-655 in accordance with paragraph 401.2.1.a of these specifications.
- c. When the depth of cover over the top of the pipe is over fourteen feet (14'), concrete pipe less than eighteen inches (18") in diameter shall be extra strength and shall conform to ASTM Designation C-14, Class III.
- d. When the depth of cover over the top of the pipe is over fourteen feet (14'), concrete pipe eighteen inches (18") and larger in diameter shall conform to ASTM Designation C-76, Class IV or C-655 in accordance with paragraph 401.2.1.a of these specifications.
- e. All joints and joint material for concrete pipe and fittings shall conform to ASTM Designation C-443.

4. Reinforced Plastic Mortar Pipe, Non-Pressure Type: Reinforced plastic mortar pipe, non-pressure type, shall be a factory-formed conduit of polyester resin, continuous roving glass fibers and silica sand built up in laminates to meet the requirements of ASTM D-3262 including the appendix and subsequent specifications.

Joints: Joints for pipe and fittings shall be confined compression rubber gasket bell and spigot type joints conforming to the material and performance requirements of ASTM C-443.

Fittings: Fittings shall conform to the joint and strength requirements as specified herein for pipe of similar size. Lateral openings of 4-inch and 6-inch sizes shall be made using A.B.S. sewer saddles conforming to ASTM D-2661. The ends will be bell and spigot.

5. Poly (Vinyl Chloride) (PVC) Sewer Pipe: Pipe fittings and joints shall conform to ASTM Designation D-3034, F-679 and D-3212 with the exception that Solvent Cement Joints shall not be used.

6. Force Mains: PVC force mains, fittings and joints shall meet or exceed the requirements of ASTM Designation D-2441 with the exception that Solvent Cement Joints shall not be used. The pressure rating and size shall be as shown on the plans.
7. Water Main Crossings: Where gravity or force main sewers are constructed in the vicinity of water mains, the requirements of the "Rules and Regulations for Public Water Systems" of the Texas Department of Health, WATER Hygiene Division, adopted 1978, shall be met.
8. Cast Iron Pipe and Fittings: Cast iron pipe shall conform to the requirements of the latest revision of ASA Specification A21.6 or A21.8 thickness Class 22 except pipe fourteen (14") inches or larger shall be Class 23 if the laying depth is over eight (8') feet.

Fittings for cast iron pipe shall have not less than the thickness, class and pressure rating for the cast iron pipe specified. Fittings shall be furnished with the type of joint or any end combination thereof as specified. Mechanical joint fittings shall be furnished complete with glands, gaskets and bolts. Bolts shall be "Cor-Ten" or approved equal.

Flanged fittings shall be faced and drilled in accordance with ASA Specifications B 16.1.

Joints shall be as provided by the manufacturer.

9. Ductile Iron Pipe and Fittings: Ductile Iron Pipe shall conform to the requirements of the latest revision of A.N.S.I. Standard A21.51 (A.W.W.A. Standard C151), "Ductile Iron Pipe, Centrifugally Cast in Metal Molds or Sand-lined Molds, for Water or Other Liquids". Thickness or Class shall be that required for Laying Condition Type 4 or 5, in accordance with actual conditions at the site. In addition, Ductile Iron Pipe may be "thickness designed" in accordance with the requirements of the latest revision of A.N.S.I. Standard A21.50 (A.W.W.A. C150), "Thickness Design of Ductile Iron Pipe". Thickness design shall be based on standard laying condition 4 or 5 in accordance with conditions at the site. Fittings for ductile iron pipe shall have not less than the thickness, class or pressure rating specified for ductile iron pipe. Fittings shall be furnished with all necessary glands, gaskets, bolts, etc., as may be required to complete the joints.

Rubber-gasket joints for mechanical joints or "push on" type joints shall conform to the requirements of A.N.S.I. Standard A21.11 (A.W.W.A. Standard C111), "Rubber-Gasket Joints for Ductile Iron Pressure Pipe and Fittings", latest revision.

10. Prestressed Concrete Cylinder Pipe: Prestressed concrete pipe and fittings shall conform to AWWA Specification C-301.
11. Lateral line will be ductile iron or PVC SDR 26 or equal and extend five feet (5') beyond the curb, or water main, whichever is farther from the main. All connections of the lateral line to the main will be by an approved saddle, or manufactured tee or wye. Breaking of a main to tie in a lateral or use of cement or other grout material in making of joints or connections is prohibited. Two feet (2') of the lateral will be concrete capped, commencing one foot (1') from end of pipe and ending three feet (3') from end of pipe. The location of the lateral pipe end will be marked up two (2) #4 rebars tied together and embedded vertically in the concrete cap and extending vertically to within twelve inches (12") of top of curb. Backfill requirements are the same as other 402ER2D, Sanitary Sewers.
12. All sanitary sewer pipe and fittings produced within the jurisdiction of the City of San Antonio shall be tested and stamped by the City of San Antonio Materials Testing Laboratory at the source of supply. All shipments of pipe not so tested and stamped shall be accompanied by a certificate of compliance to these specifications prepared by an independent testing laboratory and signed by a registered professional engineer.

#### 402ER2D.3 CONSTRUCTION METHODS

1. Pipe twenty-four inches (24") and smaller shall rest on an undisturbed earth foundation, continuously, throughout its length, true to line and grade. When bell and spigot pipe is used, the position of the pipe bells shall be determined by measurement, and cross excavation just adequate to admit the pipe bells without bearing shall be cut. It is specifically provided, however, that if rock occurs in boulder, ledge or coarse gravel formations at the bearing level it shall be removed to a depth of not less than four inches (4") below the lowest bearing level

of the pipe and replaced with approved select bedding material in conformance with Item 400ERZD.4, 2, (a), "Bedding", after which fine grade and excavation for bells shall be done in the manner described above.

2. Where the pipe to be laid is larger than twenty-four inches (24") in diameter, the trench bottom shall be shaped by fine grading to firmly embed the lower quadrant of the pipe. At the direction of the Engineer, the Contractor shall provide a template for shaping purposes. Conditions of rock and undercutting shall be as specified for pipe sizes, less than twenty-four inches (24") in diameter.

An alternate to the above, the bottom of the trench may be undercut and the lower quadrant of the pipe embedded in approved select bedding material in conformance with Item 400ERZD.4, 2, (a), "Bedding", in accordance with lines and thickness as shown on the plan details.

3. Subgrade Filler: When laying pipe in unstable materials as defined by Item 400ERZD.4, 2, (a) (2), "Bedding", the contractor shall, when directed by the Inspector, underexcavate and remove existing unstable materials or rock, as directed by the Inspector and replace with subgrade filler material as directed and defined by Item 400ERZD.4, 2, (a) (3), "Subgrade Filler".
4. Pipe Laying: The owner will inspect all pipe before it is placed in the trench and will reject any sections found to be damaged or defective to a degree that would affect the function of the pipe. Rejected pipe shall be immediately removed from the site of the work. The Contractor shall be required to commence construction and laying of pipe at the downstream end of the sanitary sewer outfall line and proceed non-stop in a forward upstream direction.

No pipe shall be laid within ten feet (10') of any point where excavation is in progress. Pipe laying shall proceed upgrade with the tongue or spigot pointing in the direction of flow. Pipe shall be lowered into the trench without disturbing the prepared foundation or the trench sides. The drilling of lifting holes in the field will not be permitted. Pipe shall be installed by means of a concentric pressure being applied to the pipe with "come-alongs". Pulling or pushing a joint of pipe in place by using a crane, bulldozer, or backhoe will not be

permitted. Pipe shall be pulled home in a straight line with all parts of the pipe on line and grade at all times. No side movement or up and down movement of the pipe will be permitted during or after the pulling operation. Should coupled joints of pipe be out of line or off grade, they shall be removed one joint at a time and brought to the proper line and grade. The lifting or moving of several joints of coupled pipe at one time to close a partially open joint or to fine grade under laid joints of pipe will not be permitted.

No pipe shall be installed in tunnels except as provided on the plans, or with the permission of the Engineer. If the Contractor finds it necessary to install pipe in tunnels not provided on the plans, he shall submit to the Engineer, prior to commencement of work, a detailed outline of procedures, methods, and use of materials depending on existing soil conditions.

No horizontal or vertical curves shall be permitted, except as authorized by the City. The minimum radius for the type sewer pipe used shall be as recommended by the manufacturer or greater and approved by the City.

Before leaving the work unattended, the upper ends of all pipelines shall be securely closed with a tight fitting plug or closure. The interior of laid pipe shall be kept free from dirt, silt, gravel or foreign material at all times. All pipe in place must be approved before backfilling.

#### 402ERZD.4 MEASUREMENT:

1. All sewer pipe will be measured from center of manhole to center of manhole or end of main. Measurement will be continuous through any fittings in the main, even though the fittings are pay items of the contract.
2. Pipe fittings, including wyes, tees and bends will be measured as the total number of units installed, regardless of material.

#### 402ERZD.5 PAYMENT:

1. Sewer pipe will be paid for at the contract bid price per linear foot complete in place for the types, size and depth constructed. Said price shall be full compensation

for furnishing all materials, including pipe, trenching, pumping, shoring and bracing, sand cushion, concrete plugs, laying and jointing, backfilling, tamping, water, labor, tools, equipment and other incidentals necessary to complete the work. Subgrade filler will be paid for under Item No. 410, "Subgrade Filler".

2. Sewer pipe fittings shall be paid for at the contract bid price per each.
3. Pay cuts will be measured from the top of ground prior to the Contractor's operation, and along the centerline of the pipe to the invert of the pipe.

Payment will be made under:

PAY ITEM NO. 402ERZDA:	Sanitary Sewers	- per linear foot.
PAY ITEM NO. 402ERZDB:	Wyes	- per each.
PAY ITEM NO. 402ERZDC:	Tees	- per each.
PAY ITEM NO. 402ERZDD:	Bends	- per each.

3:00 (5)

DO NOT TYPE IN THIS SPACE		<b>CITY OF SAN ANTONIO</b>  <b>Request For Ordinance/Resolution</b>	For CMO use only	
<b>Approval</b>			Date Considered	
Finance	Budget		Consent <input type="checkbox"/> Individual <input type="checkbox"/>	
Legal	Coordinator		Item No. Ord. No.	

Date: December 11, 1987	Department: Planning	Contact Person/Phone # Roland A. Lozano- Ext. 7870
Date Council Consideration Requested: December 23, 1987	Deadline for Action: December 23, 1987	Dept. Head Signature: <i>Roland A. Lozano</i>

**SUMMARY OF ORDINANCE**

This is a public hearing and consideration of four amendments to Chapter 35 of the City Code (Unified Development Code) and an amendment to the Standard Specifications for Public Works Construction. The proposed amendments to the Unified Development Code would (1) require the submission of additional data for plats involving sanitary landfill sites, (2) establish procedures for subdividing duplex lots, (3) increase the width requirements for private nonresidential streets, and (4) make clarifying revisions to the Flood Plain Ordinance as requested by the Federal Emergency Management Agency. The amendment to the Standard Specifications for Public Works Construction revises standards for excavation, trenching, and backfilling and sanitary sewers over the Edwards Aquifer recharge zone.

Staff and the Planning Commission recommend approval of the amendments.

Council Memorandum Must Be Attached To Original

Other Depts., Boards, Committees Involved (please specify):  
Planning Commission

Contract signed by other party  
Yes  No

FISCAL DATA (If Applicable)		Budgetary Implications	
Fund No. _____	Amt. Expended _____	Funds/Staffing Budgeted	Yes <input type="checkbox"/> No <input type="checkbox"/>
Activity No. _____	SID No. _____	Positions Currently Authorized	
Index Code _____	Project No. _____	Impact on future O & M _____	
Object Code _____		If positions added, specify class and no.	
Comments:		_____	
		_____	
		_____	
		_____	

Coordinator — White  
 Legal — Green  
 Budget — Canary  
 Finance — Pink  
 Originator — Gold

CITY OF SAN ANTONIO

50-01-01

Interdepartment Correspondence Sheet

AGENDA ITEM NO. 5

**PUBLIC HEARING**

TO: City Council

FROM: Roland A. Lozano, Director of Planning  
Rebecca Q. Cedillo, Assistant Director; Frank Kiolbassa, Director of  
Wastewater Management; David Steitle; Director of Public Works; File

COPIES TO: AMENDMENTS TO THE UNIFIED DEVELOPMENT CODE AND STANDARD SPECIFICATIONS FOR  
PUBLIC WORKS CONSTRUCTION

SUBJECT: PUBLIC WORKS CONSTRUCTION

Date December 11, 1987

SUMMARY AND RECOMMENDATION

This is a public hearing and consideration of four amendments to Chapter 35 of the City Code (Unified Development Code) and an amendment to the Standard Specifications for Public Works Construction. The proposed amendments to the Unified Development Code would (1) require the submission of additional data for plats involving sanitary landfill sites, (2) establish procedures for subdividing duplex lots, (3) increase the width requirements for private nonresidential streets, and (4) make clarifying revisions to the Flood Plain Ordinance as requested by the Federal Emergency Management Agency. The amendment to the Standard Specifications for Public Works Construction revises standards for excavation, trenching, and backfilling and sanitary sewers over the Edwards Aquifer recharge zone.

Staff and the Planning Commission recommend approval of the amendments.

POLICY ANALYSIS

The proposed amendments to the Unified Development Code do not reflect a change in policy by the City.

The amendment to the Standard Specifications for Public Works Construction was recommended by the City Council Committee on the Aquifer and endorsed by the City Council through its adoption of the Committee's report, The Edwards Aquifer: Perspectives for Local and Regional Action.

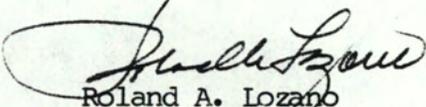
FINANCIAL IMPACT

The proposed amendments will have no financial impact on the City.

SUPPLEMENTARY COMMENTS

The Standard Specifications for Public Works Construction were adopted by the City Council on June 10, 1982 by Ordinance #055430. The Unified Development Code specifies that all subdivision construction meet the standards set forth in the public works construction document.

The Planning Commission held public hearings and considered these amendments on November 25 and December 9, 1987.

  
Roland A. Lozano  
Director of Planning

APPROVED:  
  
Louis J. Fox  
City Manager

RAL/MCO/hdlv

Attachment





# CITY OF SAN ANTONIO

P. O. BOX 9066

SAN ANTONIO, TEXAS 78285

December 29, 1987

Mr. Robert L. Laslie  
Municipal Code Corporation  
Post Office Box 2235  
Tallahassee, Florida 32304

Dear Mr. Laslie:

Attached are copies of Ordinance Numbers 66193 and 66329, which were passed by the City Council at their December 3, 1987, and December 23, 1987 meeting.

Please include these Ordinances in your next supplement.

Sincerely,

A handwritten signature in black ink, appearing to read "Norma S. Rodriguez".

NORMA S. RODRIGUEZ  
City Clerk

NSR:caf

Attachment