WATER, SEWER & RECLAIMED WATER FACILITIES

WATER FACILITIES

The El Paso Water Utilities (EPWU) is responsible for providing potable water to all developed areas within the city limits. Although the Westside Land Study Area is presently undeveloped, it is located within the El Paso City Limits. EPWU's existing water system is either adjacent to the sites and/or there are planned system improvements which will provide water to the sites when they are developed.

This section of the land study describes the existing water system that serves Northwest El Paso, summarizes planned system improvements that will serve future development in the study area, and discusses long-term water supply for the west side of El Paso.

EXISTING WATER SYSTEM

The water system that serves Northwest El Paso is shown in Figure 6.1. The system is primarily supplied with groundwater that is pumped from wells located in the Canutillo Well Field. Water pumped from the wells is stored in large reservoirs located along the Rio Grande River and I-10. From these reservoirs the water is pumped through large transmission pipelines to other reservoirs at higher elevations through a series of pump stations.

In pumping water from the Canutillo Well Field to customers at the higher elevations near the Franklin Mountain Park, water is transferred through five (5) distinct pressure zones. Each pressure zone is established by the level of water stored in the reservoirs. These pressure zones are identified as the Valley Pressure Zone, the Coronado Country Club No. 1 (CCC1) Pressure Zone, the Coronado Country Club No 2 (CCC2) Pressure Zone, the Coronado Country Club No. 3 (CCC3) Pressure Zone, and the Coronado Country Club No. 4 (CCC4) Pressure Zone. Water service provided within each of these pressure zones during normal demands should have a minimum pressure of 50 psi when the reservoir is at mid-level. By providing 50 psi, pressure losses as high as 15 psi, through backflow preventers, can be tolerated and still provide the customer 35 psi.

The existing firm pump capacity for each of the pressure zones is shown in Table 6.1 below.

Table 6.1 Existing Westside Pump Station Capacity

Pressure Zone (PZ)	Firm Pump Station Capacity (MGD)
Valley PZ	61.1
CCC1 PZ	61.3
CCC2 PZ	15.0
CCC3 PZ	11.0
CCC4 PZ	2.7

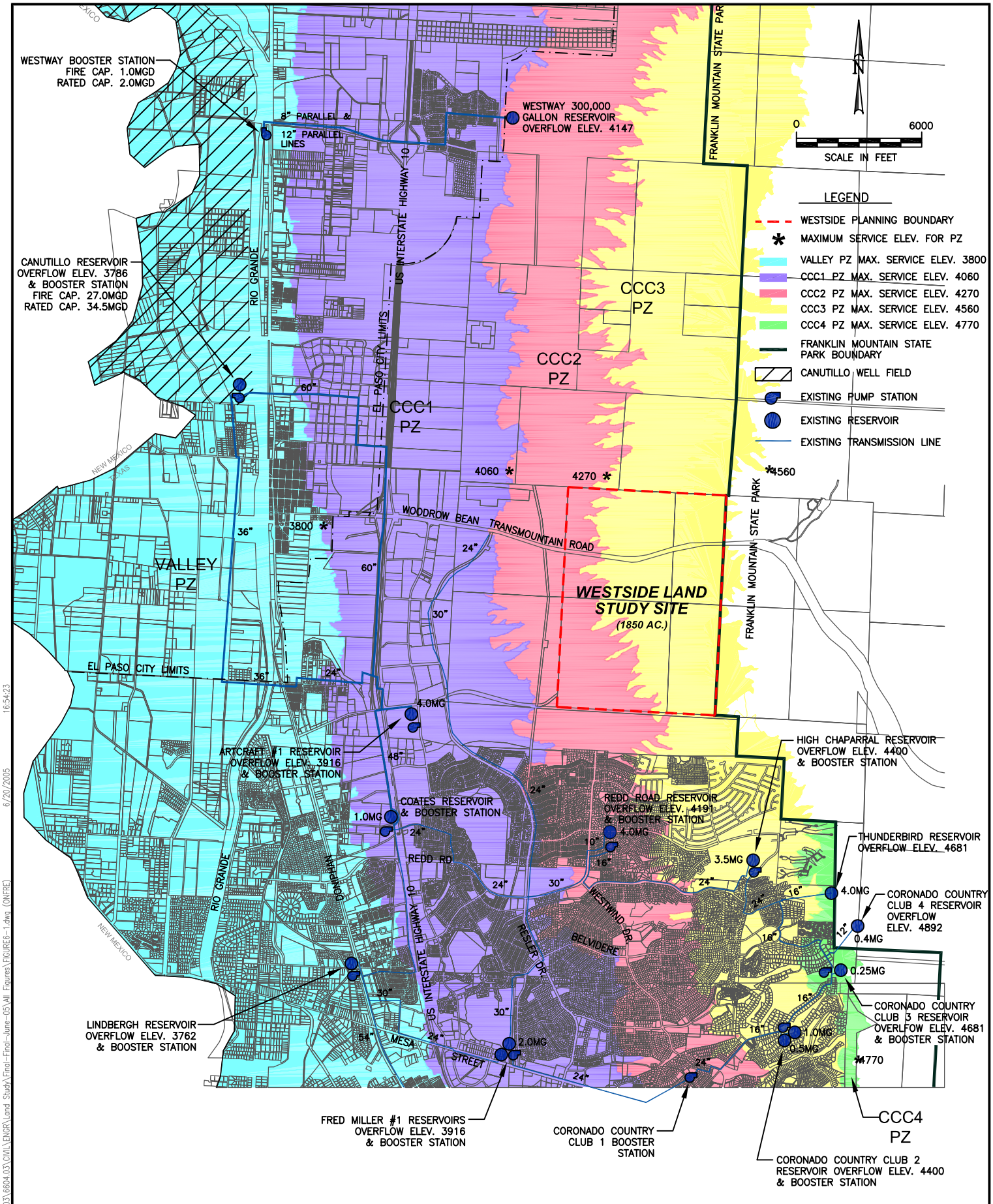


FIGURE 6.1

EXISTING WATER SYSTEM

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL\ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-1.dwg (ONFRE) 6/20/2005 16:54:23

The existing storage capacity for each of the pressure zones is shown in Table 6.2 below.

Table 6.2 Existing Westside Reservoir Storage Capacity

Pressure Zone (PZ)	Reservoir Storage Capacity (MG)
Valley PZ	9.0
CCC1 PZ	14.3
CCC2 PZ	6.0
CCC3 PZ	3.75
CCC4 PZ	0.4

The current summer peak day demand for the Northwest service area is estimated at 27.39 MGD for a total population of 98,598. This population includes the communities of Canutillo and Westway which, even though they are outside the El Paso City Limits, are provided water by the El Paso Water Utilities. This population does not include the Village of Vinton or the Town of Anthony, Texas. The Village of Vinton is currently trying to obtain water supply from the El Paso Water Utilities. Anthony, Texas has its own water supply. The current composite average demand estimated for Northwest El Paso is approximately 163 gal/cap/day.

PLANNED WATER SYSTEM FACILITIES

Westside Land Study Area

As shown on Figure 6.1, water service for the study area falls within the CCC2 and CCC3 pressure zones. Note that the eastern boundary of the CCC3 pressure zone extends into the Franklin Mountain Park. To extend the eastern boundary of the CCC3 pressure zone as shown would require that a reservoir be constructed east of the study area within the Franklin Mountain Park at the same overflow elevation as the existing CCC2 reservoir. In lieu of building a new reservoir within the state park, EPWU has proposed the Artcraft No. 4 Reservoir with an overflow elevation of 4,562 ft. – 162 ft. higher than the CCC2 zone and 119 ft. lower than the CCC3 zone. Refer to Figure 6.2.

Locating Artcraft No. 4 Reservoir where shown results in approximately 750 acres without service, as indicated in Figure 6.2. Possible alternatives for providing service to the entire study area could include installation of elevated reservoirs on the study area property, locating a reservoir at a higher elevation east of the study area within the Park, or a hydro pneumatic system.

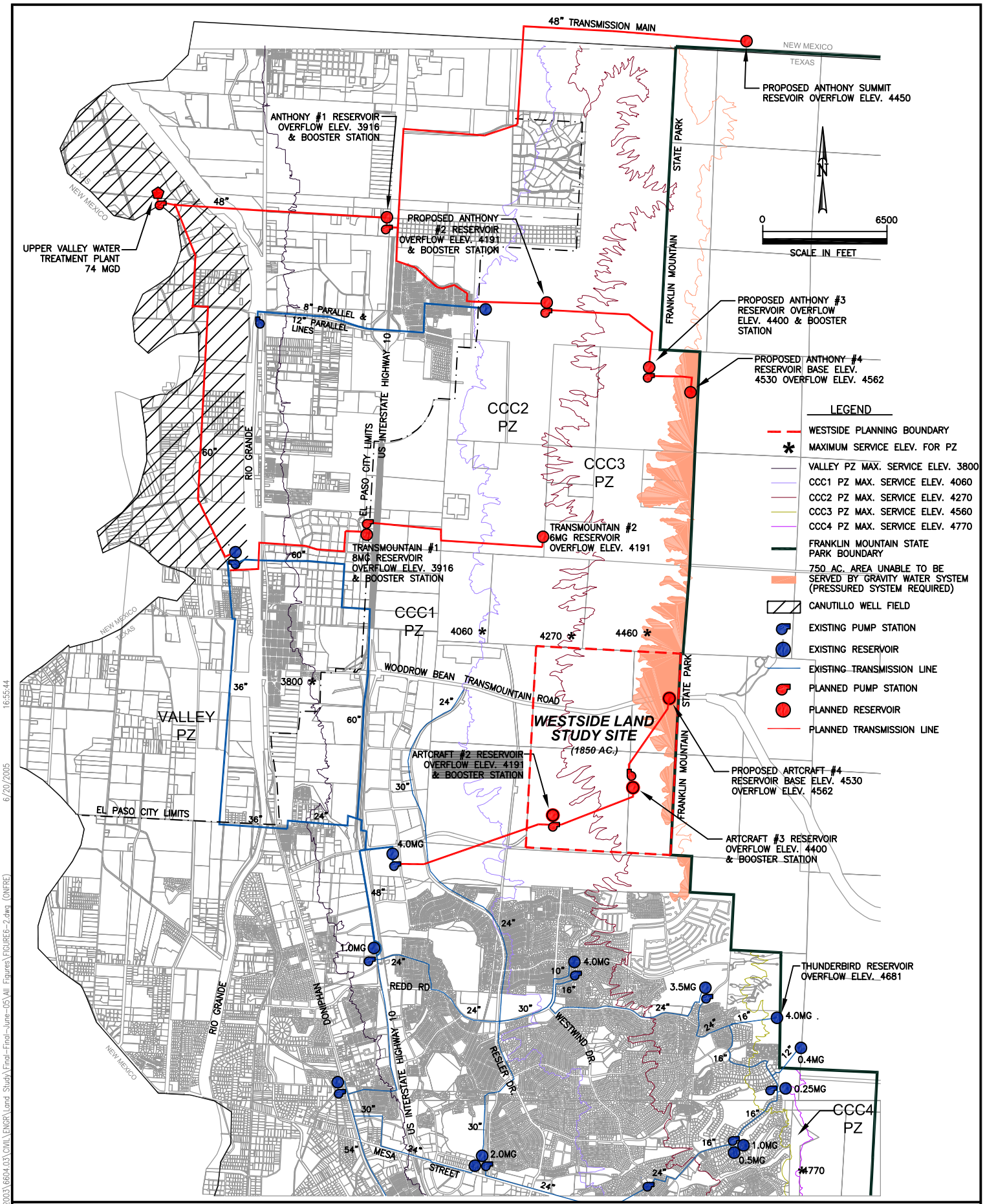


FIGURE 6.2

PLANNED WATER FACILITIES

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL\ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-2.dwg (ONFRE) 6/20/2005 16:55:44

50 YEAR WATER SUPPLY PLAN

The Boyle Water Facilities Master Plan (WFMP) addresses water facility improvements through the year 2015. All improvements in the Boyle WFMP were sized for demands calculated using population projections and an average composite demand of 160 gal/capita/day. In recent years, the EPWU's water conservation program has resulted in decreased water demands, prompting the EPWU to review the average demands used in the Boyle WFMP. Because of this trend of decreased water demands, EPWU has identified 140 gal/cap/day as the average composite demand to be used in evaluating new facilities. This in effect means that the water system improvements identified by the Boyle WFMP should have more than adequate capacity, extending the planning year past 2015.

In addition to the Boyle WFMP, EPWU has completed several studies and reports addressing long term water supply for the west side of El Paso. This includes Parson's El Paso Anthony Gap Treated Water Transmission System (TWTS) Report, EPWU's Future Reservoir Sites for El Paso's Northwest and Northeast Areas Report, and CH2M Hill's Westside Water Resources Development Plan. Improvements addressed by the first two reports are illustrated on Figure 6.2. These improvements are located in the area between Transmountain Road and the Texas/New Mexico State Line, and are currently not expected to be implemented until after 2020.

The CH2M Hill Westside Water Resources Development Plan addresses water supply for the entire west side of El Paso through the year 2050. The purpose of this plan was to develop a 50-year reliable and sustainable supply that is able to withstand drought conditions. The resulting plan is dynamic and multi-faceted, relying on a combination of increased surface water use, treatment of brackish groundwater, and water-banking during wet-periods. This 50 year water plan will ultimately produce 75,000 acre-feet per year, which will be more than adequate for meeting the 45,000 acre-feet per year of water demand projected to occur by 2050 on the Westside of El Paso.

In response to the Westside Water Resources Development Plan, the EPWU has increased surface water treatment and will supplement the existing system with additional wells on the Westside of El Paso.

SEWER FACILITIES

Figure 6.3 provides a graphical overview of the wastewater system that currently serves west El Paso. Generally, service area flows are routed through the Doniphan interceptor system and Frontera Lift Station to the Northwest Wastewater Treatment Plant (WWTP). The Northwest WWTP is currently the only EPWU WWTP serving the west side. It has a capacity to treat up to 17.5 MGD of raw sewage. Average daily flow to the plant in 2002 was 8.2 MGD. An average of 3 MGD of raw sewage was bypassed to the Haskell Street WWTP.

As El Paso's west side continues to grow, a future wastewater treatment plant is planned for the northern portion of the west side. This plant is referred to as the North WWTP. Future service area boundaries for the two plants are indicted on Figure 6.3

The Westside Land Study Area is located in the Northwest WWTP service area.

EXISTING SEWER INFRASTRUCTURE

Existing facilities serving areas adjacent to the study area are shown in Figure 6.4

Westside Land Study Area

Flows from the developed area west of the study area and east of I-10 drain to the Artcraft, Westport, and El Paso West lift stations located along North Desert Boulevard. These lift stations are located at low points in the terrain and pump in succession to move flows out of the area to the gravity system located in the residential area north of Redd Road and east of North Desert Boulevard. The gravity system flows south and west, crosses under I-10 at Thorn, and eventually connects to the Doniphan Interceptor system.

The Westport, Artcraft and El Paso West lift stations, and the Thorn sewer are at or near capacity as well as some of the associated sewers along the frontage road.

PLANNED SEWER INFRASTRUCTURE

Westside Land Study Area – South of Transmountain Road

Existing and proposed wastewater facilities that will be serving the overall area that the study area is located in are shown in Figure 6.5. The facilities shown are based on the Northwest Wastewater Facility Plan Amendment and subsequent design related studies for the Artcraft/Westport/El Paso West Interceptor Relief System recently completed. The proposed system eliminates the Artcraft, Westport, and El Paso West lift stations. The station locations become outlet or crossing points for the relief system that replaces the stations. Drainage or service areas for these crossing points are shown on Figure 6.5. Flows from the Artcraft and Westport drainage areas will be transported by gravity to the proposed Strahan lift station. El Paso West lift station flows will be diverted to the Coates lift station via a new gravity sewer located on Edgar Road. Crossing points and downstream relief lines have been sized based on flow estimates for the three upstream drainage areas.

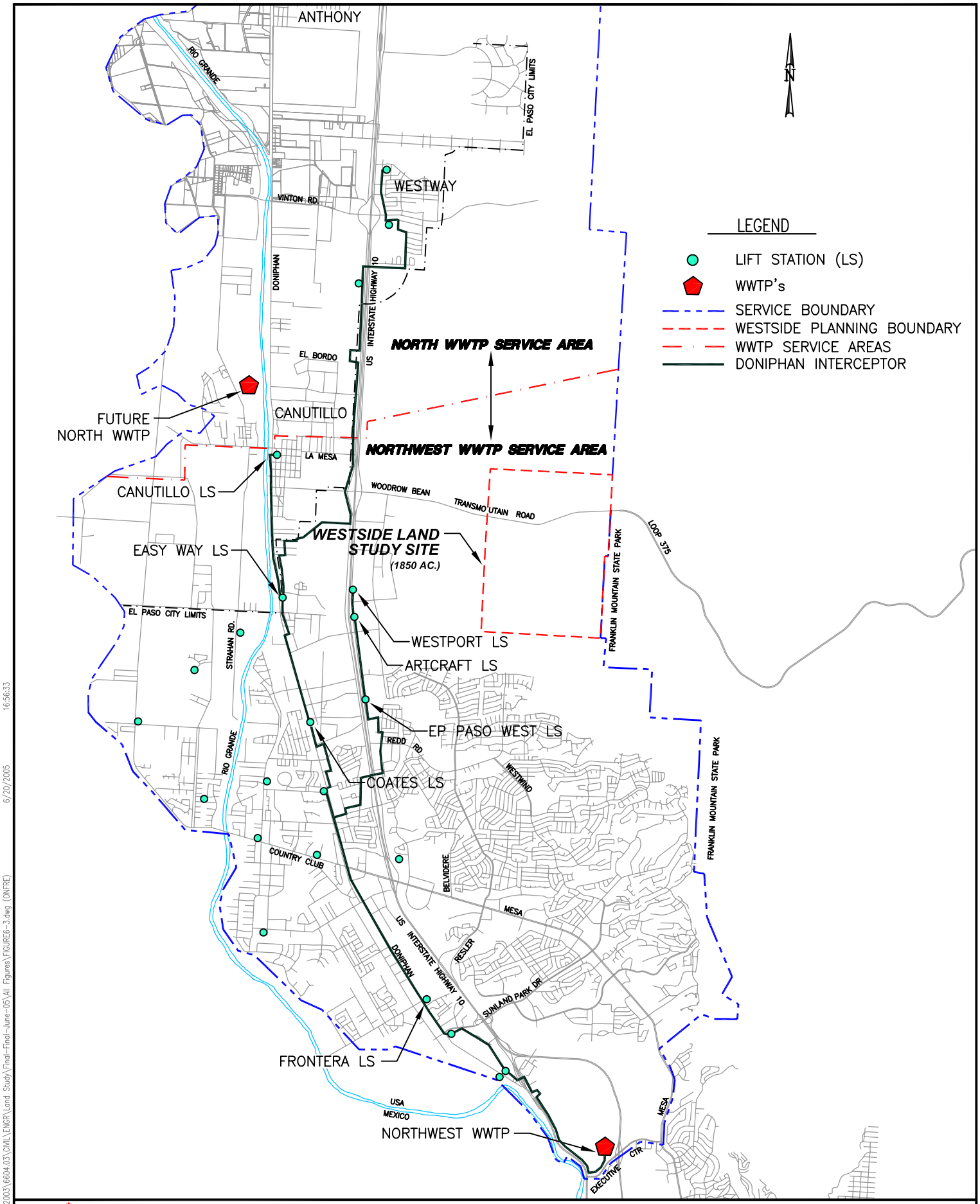


FIGURE 6.3 **OVERVIEW EXISTING SEWER FACILITIES**

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL\ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-3.dwg (ONFRE) 6/20/2005 16:56:33

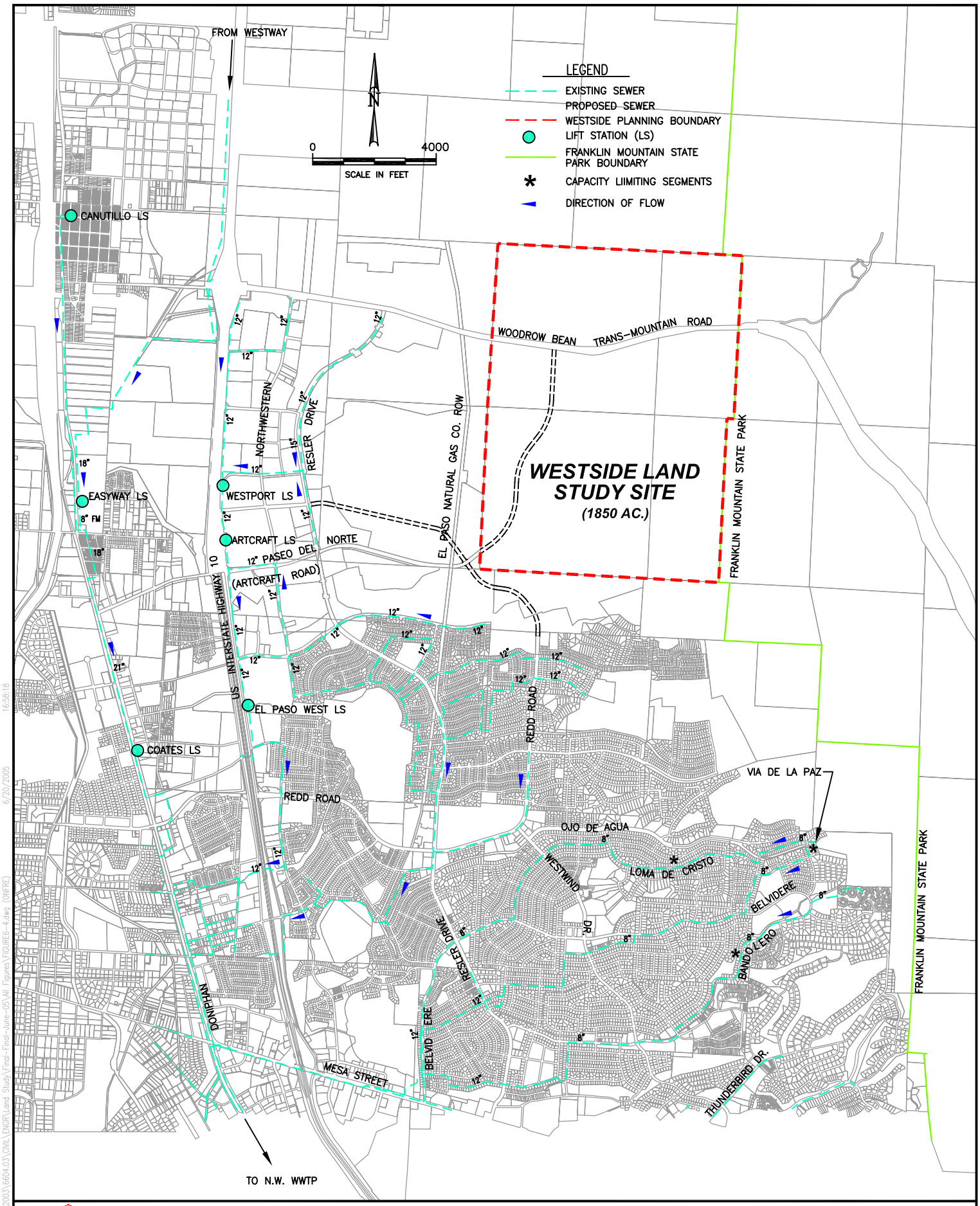


FIGURE 6.4 EXISTING SEWER FACILITIES

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL\ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-4.dwg (ONFRE) 6/20/2005 16:58:18

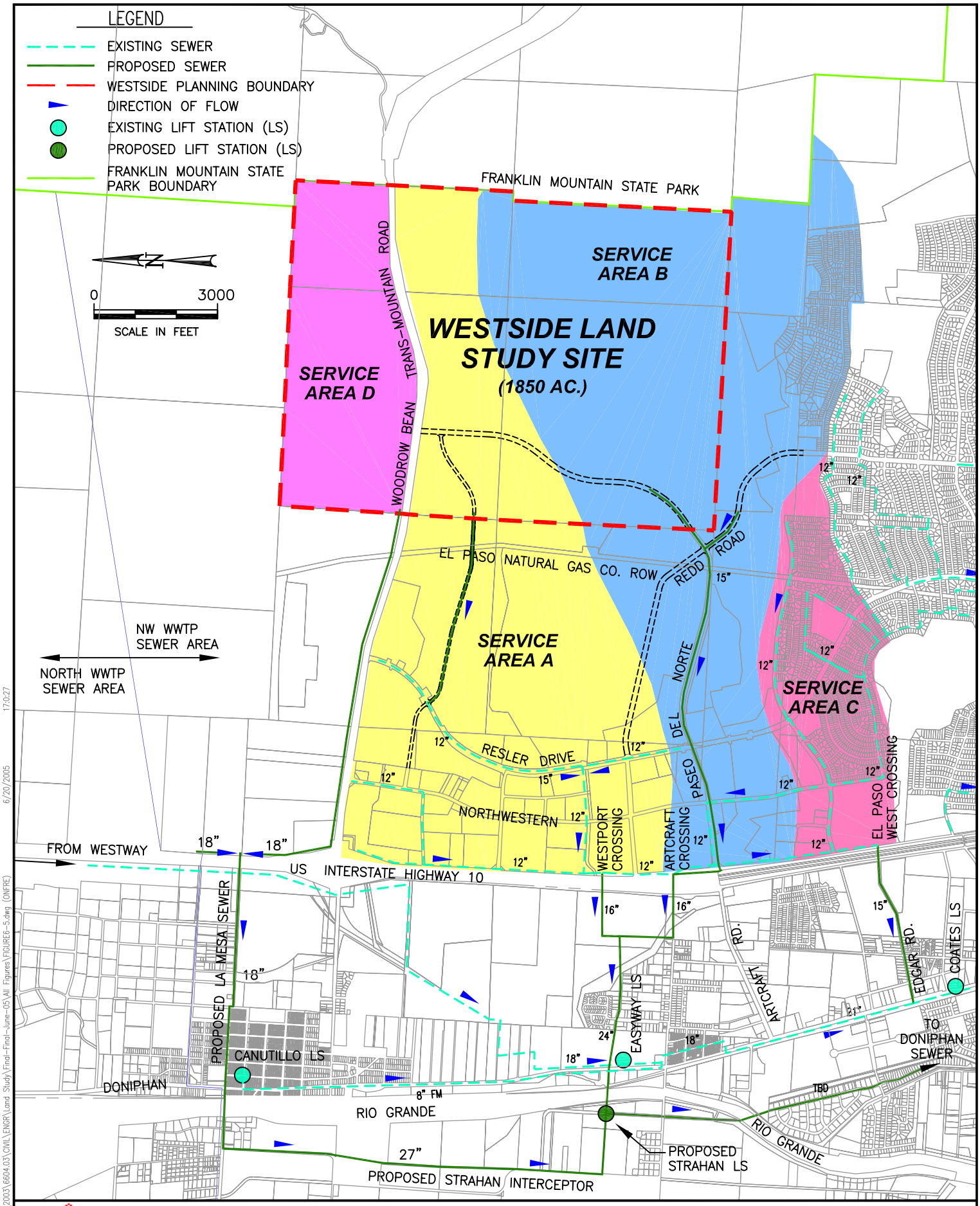


FIGURE 6.5 **PROPOSED SEWER FACILITIES**

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL\ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-5.dwg (ONFRE) 6/20/2005 17:0:27

The Artcraft/Westport/El Paso West Preliminary Engineering Design Report (PEDR) estimated that by 2005 or shortly thereafter, the south west corner of the study area could begin to develop. During the following 10-15 years, the area would grow and would be substantially developed by 2015-2020. The PEDR also estimated that the study area would be predominately residential. PSC assumed a density of 14-people per acre with a projected flow of 70-gallons per capita day. At build out the study area would produce approximately 1.8 MGD. The line work described in the PEDR was calculated to convey this flow.

The topography of the study area generally slopes from east to west within the service areas shown on Figure 6.5. Existing topography will dictate gravity sewer considerations. The Westport, Artcraft, and El Paso West crossings were sized for the following average (ADF) and peak (PDF) flows, based on their respective drainage areas at build out.

- Westport Crossing – ADF = 1.8 MGD, PDF = 4.1 MGD
- Artcraft Crossing – ADF = 2.1 MGD, PDF = 4.7 MGD
- El Paso West Crossing – ADF = 0.5 MGD, PDF = 1.2 MGD

Westside Land Study Area – North of Transmountain Road

Wastewater flows from the portion of the study area located north of Transmountain Road are identified in the Northwest Wastewater Facility Plan Amendment to be routed north along the I-10 frontage road to a future 18-inch sewer in La Mesa Road, to a future 27-inch interceptor sewer on Strahan Road and to the proposed Strahan Lift Station, as shown in Figure 6.5.

The Strahan Lift Station and Strahan Road Interceptor are identified for construction between 2005-2010. The La Mesa Road and I-10 sewers are identified for construction some time between 2011 and 2020.

EXISTING RECLAIMED WATER SYSTEM

The existing northwest area reclaimed system consists of 5 ground storage reservoirs and 5 booster pumps stations (BPS) as shown in Figure 6.6. These facilities serve 4 different pressure plains in the Coronado area. The reclaimed water BPS at the Northwest WWTP has a firm capacity of 9.21 MGD which pumps to the Fred Miller reservoir. EPWU staff reports the current average flow through the plant BPS is 0.75 MGD. Current peak demand is on the order of 2.0 MGD. The Fred Miller BPS has a firm capacity of 1.8 MGD and pumps to the Coronado #1 reservoir and BPS. The Coronado #1 BPS has a firm capacity of 1.44 MGD and pumps to the Coronado #2 reservoir and BPS. The Coronado #2 BPS has a firm capacity of 1.33 MGD and pumps to the Coronado #3 reservoir site.

The static pressure contours shown in Figure 6.6 show the maximum elevation the existing system can serve with a minimum pressure of 45 psi with the reuse reservoirs at their lowest level. The contours are labeled with the reservoir they are served by, e.g. Coronado #1 Pressure Zone, etc.

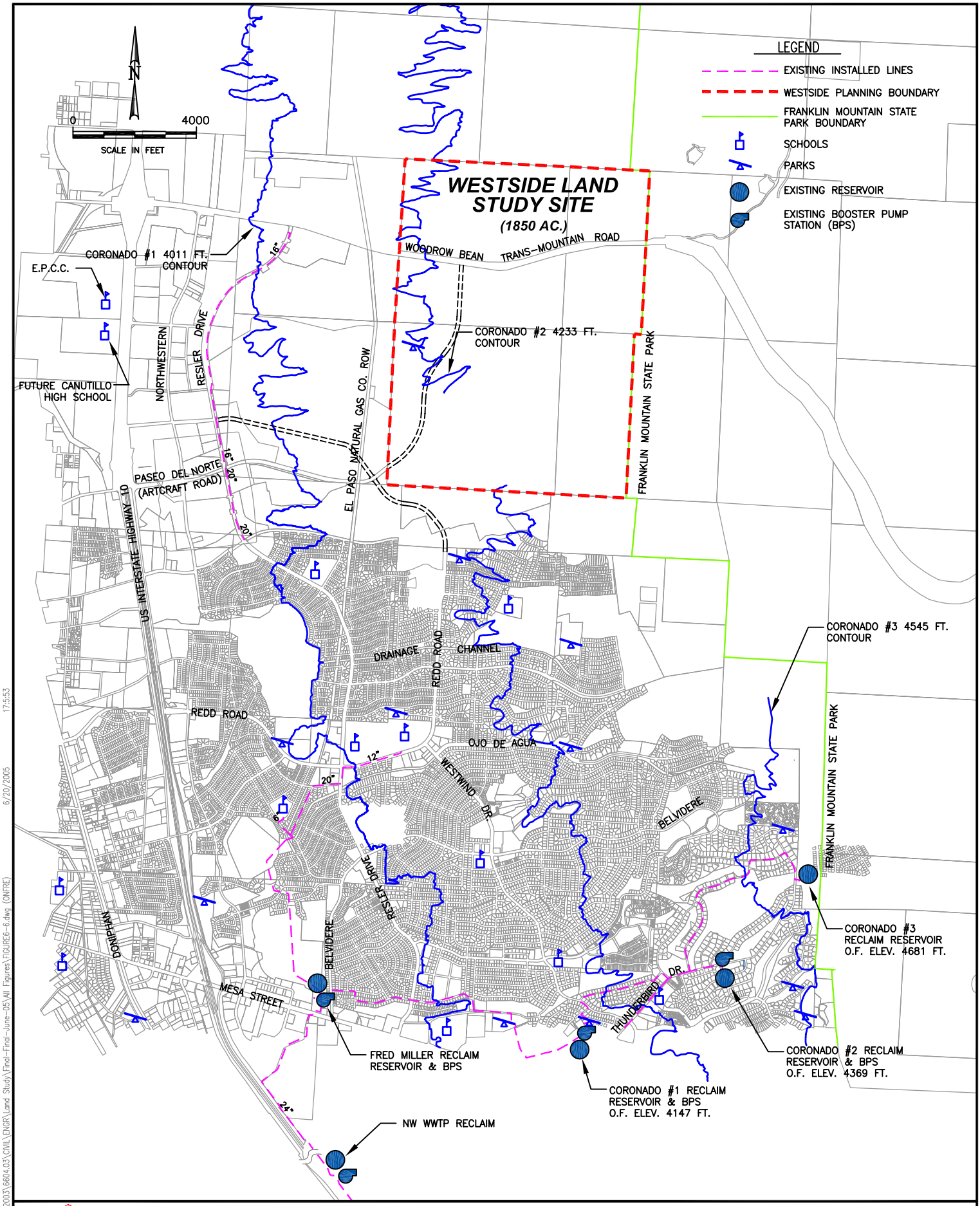


FIGURE 6.6

EXISTING RECLAIMED FACILITIES

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-6.dwg (ONFRE) 6/20/2005 17:5:53

PLANNED FACILITIES

Two new reclaimed water facilities have been proposed within the PSB study area boundary; the Artcraft #2 reservoir and BPS and Artcraft #3 reservoir. Both of these facilities were designed to provide future reclaimed water service for residential and commercial development in the upper northwest area of El Paso. Figure 6.7 shows the location of these proposed reclaimed facilities and associated pipelines, as well as the boundaries of the Westside Master Planning Areas.

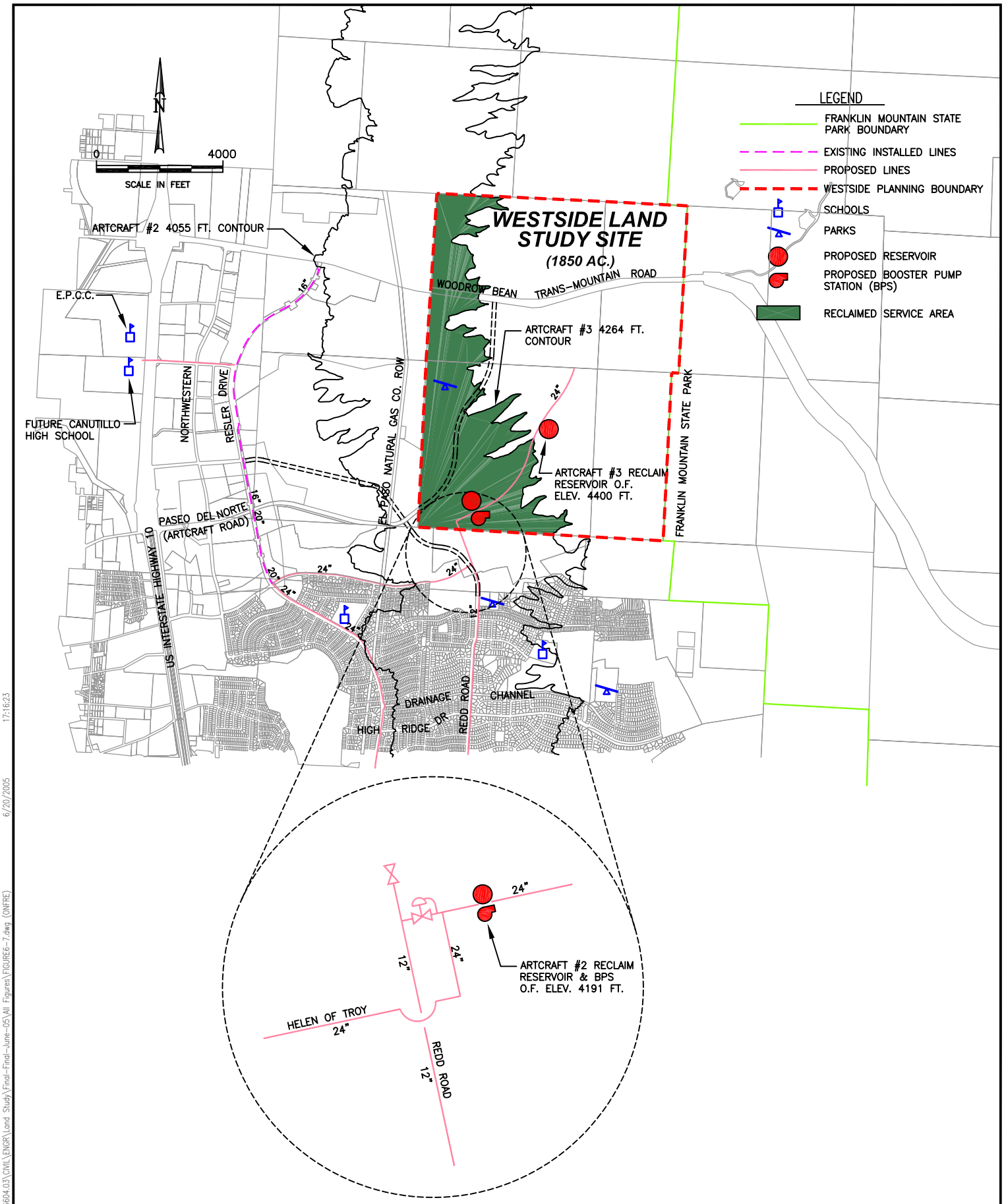
The pressure contours shown on Figure 6.7 show the upper limits of the Artcraft #2, Artcraft #3 and Coronado #3 pressure plains, assuming a minimum of 45 psi with the reservoirs at their lowest level. Note that only 20-25 percent of the study area can be served with reclaimed water by the proposed Artcraft #3 facility. The "Northwest Reuse Planning Update Final Report", prepared by CH2M Hill, in September, 2002 points out that the upper half of the study area could possibly be served by a hydro-pneumatic tank and pump station.

According to the CH2M Hill report, the projected reclaimed water demand for residential development in the study area is 466 MG/yr. This demand was calculated using a recommended landscape irrigation pattern that allows customers to water three days a week for two hours a day. The days of the week a customer can water would be dictated by the type of customer (parks, golf courses, schools, commercial and residential).

Expansion of the reclaim system in the northwest area of El Paso is already under way. Pipelines are currently being installed on Resler Drive south of the study area. Expansions of the system also include line work to the new Westside Sportsplex near the Canutillo High School located along I-10, west of the study area site.

AREAS THAT CAN BENEFIT FROM RECLAIM USAGE

Some of these potential users are schools, parks, and commercial areas with large areas of landscaping that will be part of the proposed development.



PROPOSED

EL PASO WATER UTILITIES PUBLIC SERVICE BOARD

WESTSIDE MASTER PLAN

Drawing File: R:\Projects\2003\6604.03\CIVIL\ENGR\Land Study\Final-Final-June-05\All Figures\FIGURE6-7.dwg (ONFRE) 6/20/2005 17:16:23