

TO: James L. App, City Manager
FROM: Meg Williamson, Assistant to the City Manager
SUBJECT: 21st Street Tank Site Property Development Plan
DATE: March 1, 2005

NEEDS: For the City Council to consider a “master plan” for the development of the 21st Street Water Tank site and adjacent surplus property.

- FACTS:**
1. The 21st Street Reservoir was built in 1925.
 2. In 2003, the City retained Boyle Engineering to prepare an evaluation of tank repair and expansion options.
 3. In March 2004, the City Council determined that the 21st Street Reservoir had reached the end of its useful life.
 4. In May 2004, Boyle Engineering was engaged to design a replacement reservoir.
 5. Boyle’s preliminary design indicates:
 - It is possible to construct two partially buried, pre-stressed concrete tanks of 3-million gallons each to replace the existing 4-million gallon reservoir (see attached project narrative).
 - The tanks can be constructed within the footprint of the existing reservoir, but to do so, it will be necessary to demolish the existing reservoir (temporarily diminishing the City’s existing water storage by 4-million gallons).
 - To assure adequate storage supply during construction of the replacement reservoirs, it will be necessary to first develop new tank storage capacity at the Ladera site (southwest end of the City).
 - It will be necessary to construct a new access road (connecting from the 19th Street side of the 21st Street Reservoir site) to accommodate construction and maintenance activities.
 - The total site is 18 acres; only 2 acres would be developed for reservoir purposes. Approximately 4 to 5 acres located south and east of the hilltop area has been identified as surplus property. Approximately 11 acres would remain as a hillside buffer to the reservoir.
 6. Based on the preliminary design work done to date, a master plan for the replacement of the 21st Street Reservoir and dispensation of surplus property may be appropriate.

**ANALYSIS
AND**

CONCLUSION: The preliminary design report for the replacement of the tank concludes that the existing tank will have to be demolished, and then subsequently two 3-million gallon tanks would be constructed. The City cannot accommodate a reduction in water storage. Therefore, new

tanks at Ladera must be constructed before 21st Street is demolished. Once the Ladera tanks are in operation, the tank at 21st Street will be removed and work can begin on its replacement.

The construction of a new construction/maintenance access road will provide an opportunity to better access (surplus) land at the base of the reservoir site for other uses. This lower area is surrounded by single family lots that front on Olive Street and 19th Street. A preliminary analysis for utilizing this “surplus” land indicates the potential for six new residential lots of compatible size and character.

The current master plan approach for this city owned reservoir site is to:

- Continue with the design of the 21st Street Reservoir expansion and new Access Road from 19th Street per the current contract with Boyle Engineering
- Conduct Environmental Review of the tank expansion and road access in readiness for tank construction
- Proceed with surplus area residential tentative map subdivision design
- Declaration of surplus property, General Plan / Rezone Application and Tentative Map to be processed after tank design is complete
- Construction of the 21st Street replacement tank(s) once Ladera tanks are complete
- Recordation of subdivision map and sale of surplus property once 21st Street tanks are complete.

Completion of these tasks will unfold over the next 2-5 years with individual “milestones” returning to Council for consideration and/or action.

POLICY

REFERENCE: Adopted Capital Improvement Program

FISCAL

IMPACT: Costs to design the replacement for the existing tank is funded from the budget adopted for this project. Costs associated with the tentative map design for the surplus property are not currently budgeted and estimated at \$70,000 (to be recovered from the future sale of surplus property).

OPTIONS:

- a. Endorse the 21st Street Reservoir Master Plan to:
 - (1) Construct the replacement of the existing [21st Street] tank at such time as the Ladera Tanks are complete, and
 - (2) Proceed with surplus property subdivision map design to create individual lots (for sale) once the replacement tanks have been constructed.
- b. Amend, modify, or reject the above option.

Attachments (2)

- 1) Project Narrative of 21st Street Reservoir Expansion and Access Road
- 2) Preliminary subdivision concept layout

MEMORANDUM

TO: Ditas Esperanza

FROM: Jon Hanlon

SUBJECT: Project Narrative
21st Street Reservoir Replacement Project
City of El Paso de Robles

February 1, 2005

This narrative addresses the design of two partially buried, pre-stressed concrete tanks (3-million gallons or MG each) to replace the existing 21st Street Reservoir (4-MG). The tanks will generally be constructed within the footprint of the existing reservoir, with the bottom of the tanks being approximately 20 feet below grade, and 12 feet of tank wall visible above grade. Each tank will be approximately 135 feet in diameter, and 30 feet apart at the closest point. The tank roof elevation will closely match the elevation of the existing reservoir roof.

Additionally, the City owns property on the east-facing and south-facing hillside adjacent to the reservoir site. A new access road will be constructed from 19th Street across these slopes to access the reservoir. The new access road will be designed to City standards, and will require a combination of high fill sections (over 10-12 feet) and retaining walls. Walls will be masonry block construction, and may be tiered to reduce height and visual impact. The road design is intended to retain almost all existing oak trees. Retaining walls may be required to protect specific trees in close proximity to the road alignment.

Concerns with catastrophic failure are mitigated by following seismic design standards. The structural design of the reservoirs will be based upon current engineering standards including the American Water Works Association (AWWA) D110-95 ("Wire and strand wound, circular, prestressed concrete water tanks"), the current Uniform Building Code, the American Concrete Institute (ACI) 318, geotechnical criteria, and site-specific seismic data. The seismic design criteria will be based upon the project site located in seismic Zone 4. The data developed by the geotechnical engineer establishes site ground accelerations based upon native subgrade formations. This project-specific seismic data will also be used for the estimate of hydrodynamic forces on the reservoir perimeter wall associated with seismic ground motions.

Because the 21st Street is the only storage facility for the west side of the City, it is anticipated that construction would not occur until supplemental storage is developed on the east side of the City.

We anticipate that the 21st Reservoir Replacement Project will include the following work items:

- Replacement of the existing 4-MG covered (in-ground) reservoir, with 2 partially buried, pre-stressed concrete tanks (3-MG each). Construction will likely occur in stages:
 - Stage 1: Demolition of existing reservoir (Site Preparation) / Access road construction
 - Stage 2: Construction of Tank 1

February 1, 2005

- Stage 3: Construction of Tank 2

Site Preparation: Reservoir construction will be coordinated with the construction of the access road. Ideally, the earthwork requirements for the access road and the reservoir construction would “balance.” At this time, earthwork requirements for the proposed access road are undetermined. The amount of excavation required for simultaneous construction of the two reservoirs is approximately 30,000 cubic yards. There will not be adequate onsite area for temporarily stockpiling the entire amount. For this reason, tank construction will proceed one at a time. After the first tank is complete, the excavated material for tank 2 can be temporarily stored on or around tank 1. By phasing the construction in this manner, offsite transportation of excavated material will be minimized.

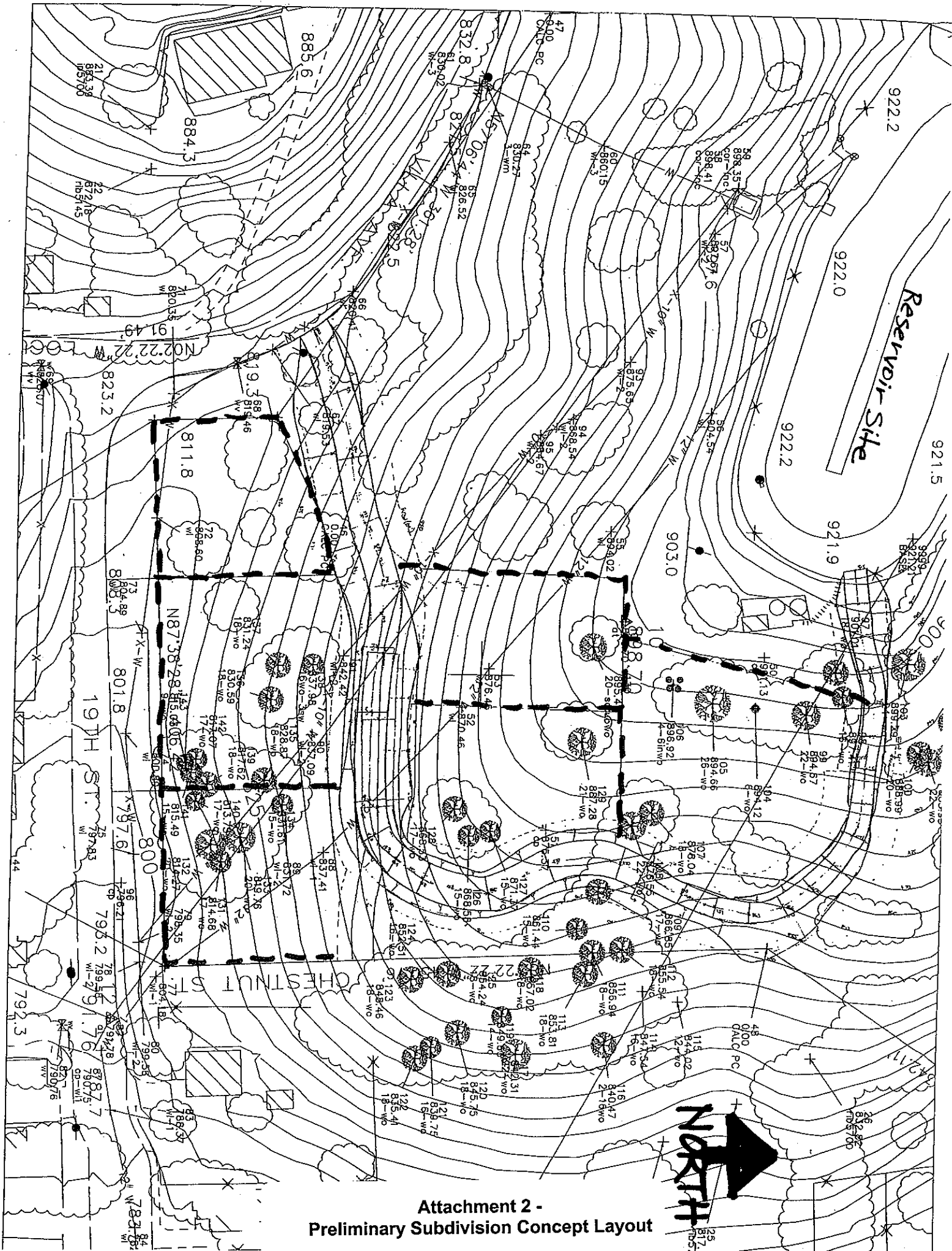
Tank Erection: It is estimated that each tank will require a total of 150 concrete truck deliveries, scheduled over a period of 10 weeks. The number of concrete deliveries per day is dependent on construction scheduling, but it is assumed that there will be no more than 10-15 concrete truck deliveries on any given day. A concrete pumping truck with crane will likely be placed onsite and will be used for placement of the delivered concrete.

Tank features will include the following. These items will be fabricated from steel and will be coated to match the tank:

- Safety ladders to the tank roofs. The ladders will be placed on the western side of the tank to minimize visual impact;
 - Roof manways with safety handrails. Two manways (one for each tank) will be placed on the western side of the tank with handrails in the immediate vicinity of the manway. This position will minimize visual impact. Handrails will not extend around the entire roof;
 - Emergency overflow, drain/fill piping and valves. Preliminary sizes of 16” are anticipated. Pipes and valves will be installed below ground, or in below-ground vaults. The drain and emergency overflow will be conveyed through a below-ground drain line. This drain line will either discharge to the storm drain system along the proposed access road, or to 19th Street. The conveyance system will be adequately sized to handle flows associated with emergency overflows and draining of tanks for maintenance;
 - Level sensors will be installed in the tanks to control existing supply wells at the Thunderbird wellfield. High level alarm switches will also be installed to reduce opportunities for emergency tank overflows; and
 - Screened roof vents (one for each tank).
- Replacement of the chain link fence around the tank site for security;

February 1, 2005

- Vegetative screening will be provided. To the extent possible, the City will begin plantings in advance of construction to maximize growth time;
- Lighting for nighttime operation and security. Exterior lights will be controlled with motion detectors to minimize visual impacts;
- Masonry control building (approximately 30 square feet) for protection of tank controls. An antenna may be required on the roof of the tank; and
- The existing reservoir piping connects to the distribution system at approximately 19th Street and Chestnut. The piping generally runs up the southern hillside to the tank site. This piping will be abandoned, or removed if necessary. The new pipeline and utilities will follow the alignment of the new access road.



Attachment 2 -
Preliminary Subdivision Concept Layout