APPROVED
BY THE CITY COUNCIL
JAN 12 1999
OFFICE OF THE
CITY CLERK

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DEPARTMENT OF
UTILITIES

ENGINEERING SERVICES

CITY OF SACRAMENTO
CALIFORNIA

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SACRAMENTO, CA
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January 7, 1999

City Council
Sacramento, California

Honorable Members in Session:

SUBJECT: SUMP 2 IMPROVEMENT PROJECT (PN: XM24) - APPROVAL OF CHANGE ORDER 5 FOR $1,381,245 AND RESTORATION OF CITY MANAGER AUTHORITY

LOCATION AND COUNCIL DISTRICT:

The project is located at Sump 2, 3500 Riverside Boulevard, in District 4 (see attached map).

RECOMMENDATION:

Staff recommends the City Council approve the attached resolution authorizing the City Manager to execute a change order in the amount of $1,381,245 with Kiewit Pacific Company for the Sump 2 project, and restoring the City Manager's change order approval authority for future changes.

CONTACT PERSON: Gary Reents, Engineering Services Manager, 264-1433

FOR COUNCIL MEETING OF: January 12, 1999

SUMMARY

The proposed change order totaling $1,381,245 to Kiewit Pacific will compensate for unforseen soil and groundwater conditions, a change in the method of future pile placement, and indemnify the City from future change orders for groundwater or soil conditions.

COMMITTEE/COMMISSION ACTION

None.

BACKGROUND INFORMATION

- Kiewit Pacific Company was awarded the construction contract for the Sump 2 Improvements Project on March 17, 1998 for $31,918,000. The Sump 2 Improvements consist of construction of a new 210 million gallon per day pumping station, emergency standby diesel generators, and complete rehabilitation of the existing 530 mgd pumping station.

- On December 11, 1998, Kiewit submitted a request for additional compensation regarding two areas: 1) installation of cast-in-place piles, and 2) groundwater at the microtunnel jacking and receiving pits. The request totaled $1,834,081 and asked for 26 additional schedule days. City and Montgomery Watson staff have verified the accuracy of the submitted costs.

- The installation of cast-in-place piles was specified for the foundation support of the new electrical switchgear building and standby diesel generator building. The cast-in-place piles are installed to a depth of 80 feet below grade to reach competent soils. Alternative pile placement methods using impact or vibration driving were precluded to minimize the disruption to the neighboring temple, school, and residences. Auger-cast piles were selected by Kiewit to comply with the cast-in-place pile specification and accepted by the City.

- Over a period of ten working days, 46 production cast-in-place piles were installed for the electrical switchgear building, but no auger-cast piles were successfully installed after this period. The general rate of pile placement decreased at the end of this period as the location of the piles moved from the southwest portion towards the northeast portion of the pile foundation area. The anticipated rate of pile placement was not achieved because oftentimes the installation of the center rebar dowel and/or reinforcement cage into the grout could not be achieved on the first attempt. Consequently, many of the borings required one or more re-drilling and re-grouting efforts until the reinforcement could be successfully installed. In addition, the quantity of grout required to fill each boring exceeded the estimated quantity.

- The difficulties encountered included the following occurrences:
  - loss of one hollow-stem auger
  - re-drilling and re-grouting of pile borings
  - actual quantities of grout to fill the pile borings exceeded bid estimates
  - installation of the last segment of auger-cast piles was unsuccessful
  - and installation of modified auger-cast method (with steel H-Beam reinforcement) was unsuccessful

- The microtunneling operation was a requirement for the installation of two parallel 66-inch diameter pipelines to traverse a portion of the site that was not suitable for traditional open-cut trench construction. Open-cut construction was not feasible because of the pipeline depth (approximately 35 feet below grade), groundwater depth (approximately 12 feet below grade), proximity to existing structures, and existing underground interferences. The new 66-inch diameter pipelines had to be installed beneath existing underground interferences which include a 60-inch diameter trunk sewer, a 60-inch diameter drain pipeline, 30-inch diameter foul air duct, a 84-inch diameter outfall, a 90-inch diameter outfall, a 72-inch diameter force main, high voltage electrical ductbanks, loading dock, and numerous small utilities.

- Kiewit had to undertake additional activities as a result of the difficulties with groundwater. The additional activities are summarized as follows:

  Microtunnel Jacking Area:
  - Extra dewatering and cleanup of water and soil intrusion into the jacking area
  - Pressure grouting to stabilize the soil and fill voids created by soil migration and subsidence adjacent to the jacking area
  - Installation of one additional dewatering well
  - Modification of shoring to correct deflection of steel plates caused by grout pressure and to accommodate the launch ring for the microtunneling equipment
  - Repeat of launching the microtunneling machine because gravel and concrete were encountered in the initial launch that necessitated the removal, cleaning, and relaunching of the machine.

  Microtunnel Receiving Area:
  - Extra dewatering and cleanup of water and soil intrusion into the receiving area
  - Pressure grouting to stabilize the soil and fill voids created by soil migration and subsidence adjacent to the receiving area
  - Pressure grouting and plugging at the face of the shoring to stop the intrusion of water into the receiving area
  - Grouting to stabilize the soil beneath and around the 60" Santa Buena trunk sewer
  - Installation of two additional dewatering wells
  - Modification of shoring to correct deflection of shoring caused by the microtunnel machine and to accommodate the exit of the microtunneling machine into the receiving area
  - Cleanup of sand and silt accumulation that stopped forward progress of the second exit of the microtunneling machine
  - Cleanup caused by flooding of Sump 2A Pump Station excavation by groundwater and wastewater from the 60-inch diameter Santa Buena trunk sewer.

Santa Buena Sewer Repair:

- Excavation, repair, and backfill of a segment of the sewer that settled and failed from soil subsidence
- Installation of plugs, bulkheads, and bypass pumping.

Pile Repair:

- Replacement of four piles damaged by lateral soil movement caused by the soil migration and subsidence adjacent to the microtunnel receiving area
- Relief of lateral soil pressure against piles created by lateral soil movement caused by the soil migration and subsidence adjacent to the microtunnel receiving area.

- The basis for the change order is that the underground conditions encountered at the project site were different than could be anticipated before construction. The soils encountered at the project site are consistent with the soil classifications presented in the contract documents and the geotechnical report. However, the difficulties encountered are not a result of the type of soils being different, but that the behavior of the soils is different.

- After negotiations, City staff and Kiewit agreed to compensation of $1,198,894: $391,894 for the cast-in-place piles, and $807,000 for groundwater difficulties at the jacking and receiving pits. The additional schedule days were also reduced from 26 to 14.

- In addition, another 88 piles for the Engine-Generator Room of the Standby Power Building and the CWTP Vault must still be placed. Instead of auger-cast piles, driven H-piles will be used. The use of driven H-piles will increase the original contract amount by $82,351.

- Finally, $100,000 has been included for agreement that Kiewit will indemnify the City from any future requests for change orders based on groundwater or soil conditions for the remaining excavation, shoring, dewatering, and pile placement for the junction structure, interconnecting channel, inlet channel extension, existing pump station sump, and valve vault to be constructed.

Incorporating all of the above, the total change order is $1,381,245. Staff recommends that the City Council approve the change order and restore the City Manager's approval authority to approve change orders on this contract.

ENVIRONMENTAL CONSIDERATIONS

California Environmental Quality Act requirements have been completed and the Council certified an Environmental Impact Report (EIR) for the Sump 2 project on March 11, 1997.

FINANCIAL CONSIDERATIONS

There are sufficient unobligated funds in the Sump 2 Improvement Project to pay for the change order. As of December 29, 1998, XM24 had an unobligated balance of $16,868,549.

POLICY CONSIDERATION

This action is consistent with Chapter 58, Article IV, Section 58.602 of the City Code concerning change orders.

MBE/WBE

Kiewit Pacific submitted an approved good faith effort in addition to some MBE and WBE participation as part of its original bid.

Respectfully submitted,

G A Reents

Gary A. Reents
Engineering Services Manager

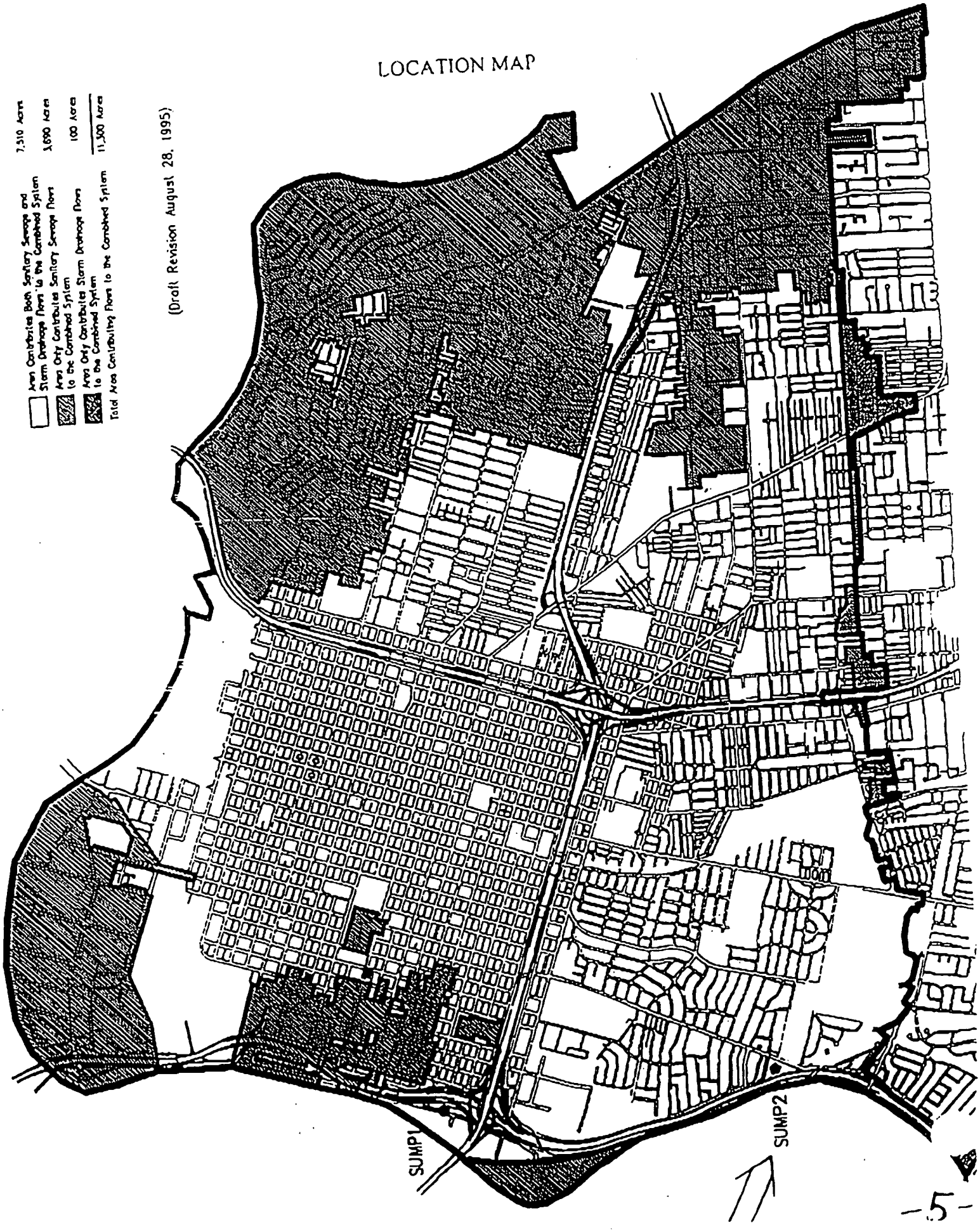
RECOMMENDATION APPROVED:

WILLIAM H. EDGAR
City Manager

APPROVED:

G A Reents

for JAMES G. SEQUEIRA
Director


LOCATION MAP
(Draft Revision August 28, 1995)
Area Contributes Both Sanitary Sewage and Storm Drainage Flows to the Combined System 7,310 Acres
Area Only Contributes Sanitary Sewage Flows to the Combined System 3,890 Acres
Area Only Contributes Storm Drainage Flows to the Combined System 100 Acres
Total Area Contributing Flows to the Combined System 11,300 Acres
SUMP1
SUMP2

-5-

APPROVED
BY THE CITY COUNCIL

JAN 12 1999

OFFICE OF THE
CITY CLERK

RESOLUTION NO. 99-016

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF _____

RESOLUTION AUTHORING THE CITY MANAGER AND CITY CLERK TO APPROVE CHANGE ORDER NO. 5 AND RESTORING CITY MANAGER AUTHORITY FOR THE SUMP 2 IMPROVEMENT PROJECT (PN: XM24)

BE IT RESOLVED BY THE SACRAMENTO CITY COUNCIL:

1. The City Manager and City Clerk are authorized to sign and execute Contract Change Order 5 with Kiewit Pacific Company, for $1,381,245 for the Sump 2 Improvement Project (PN: XM24).

2. The City Manager's authority to issue change orders on this contract is restored.

_____
MAYOR

ATTEST:

_____
CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO. _____

DATE ADOPTED: _____

RESOLUTION NO.

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF _____

RESOLUTION AUTHORING THE CITY MANAGER AND CITY CLERK TO APPROVE CHANGE ORDER NO. 1, AND RESTORING CITY MANAGER AUTHORITY FOR THE SUMP 2 IMPROVEMENT PROJECT (PN: XM24)

BE IT RESOLVED BY THE SACRAMENTO CITY COUNCIL:

1. The City Manager and City Clerk are authorized to sign and execute Contract Change Order 1 with Kiewit Pacific Company, for $1,358,894 for the Sump 2 Improvement Project (PN: XM24).

2. The City Manager's authority to issue change orders on this contract is restored.

_____
MAYOR

ATTEST:

_____
CITY CLERK

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RESOLUTION NO. _____

DATE ADOPTED: _____

RESOLUTION NO.

ADOPTED BY THE SACRAMENTO CITY COUNCIL

ON DATE OF _____

RESOLUTION AUTHORING THE CITY MANAGER AND CITY CLERK TO APPROVE CHANGE ORDER NO. 1, AND RESTORING CITY MANAGER AUTHORITY FOR THE SUMP 2 IMPROVEMENT PROJECT (PN: XM24)

BE IT RESOLVED BY THE SACRAMENTO CITY COUNCIL:

1. The City Manager and City Clerk are authorized to sign and execute Contract Change Order 1 with Kiewit Pacific Company, for $1,358,894 for the Sump 2 Improvement Project (PN: XM24).

2. The City Manager's authority to issue change orders on this contract is restored.

_____
MAYOR

ATTEST:

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CITY CLERK

FOR CITY CLERK USE ONLY

RESOLUTION NO. _____

DATE ADOPTED: _____

Utilities
3370