

Date: May 11, 2005

INTEROFFICE MEMORANDUM

To: File

From: William Carson, Senior Associate Engineer

Subject: Chemical Drains and Sanitary Sewer at Lot 1 of Campus Bay , Richmond, California

This memorandum documents a conversation with Mr. Bill Collins of Simeon Commercial Properties on May 11, 2005 regarding the transition from the Chemical sewers to the Sanitary sewers on Lot 1 of the subject property. Bill Collins indicated that changes recommended in the Enviro-Sciences Inc. report dated February 5, 2001 were implemented on Lot 1 as shown on Figure 4. However, changes to the drainage system for the Site shown on Figure 3 and 5 were not implemented. This is my understanding of this project also.



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February 5, 2001

Jane Anderson
de maximus, Inc.
c/o Zeneca, Inc.
1391 South 49th Street
Richmond, CA 94840

**Re: Tenant Sewer Discharge Systems
Transitions from Chemical Sewer System to Sanitary Sewer System
Elimination of Zeneca Chemical Sewer System
Zeneca, Inc., Richmond, CA**

Dear Ms. Anderson:

Enviro-Sciences, Inc. (ESI) has prepared this letter report to summarize the work performed evaluating the chemical and sanitary sewer systems at various leased buildings on the Zeneca, Inc. (Zeneca) property in Richmond, California. The evaluation consisted of determining alternatives for transitioning building discharges from the chemical sewer system to the sanitary sewer system, evaluating the alternatives based on field conditions, and preparing budget cost estimates associated with the alternatives. In addition, budget estimates were also prepared for a new storm sewer between the upper and lower lagoons, and transitions from the chemical sewer to storm sewer at the end of 48th Street. This work has been performed to present Zeneca with options and recommendations for making the sewer system transitions, and to provide budgetary costs to perform the design, permitting, and construction aspects of the project.

Should Zeneca elect to proceed with sewer transition plans, tenants will be notified that individual permits will be required for discharge to the sanitary sewer system. Sampling locations have been recommended in the alternatives for system modifications. Prior to implementing any sewer system reconfigurations, confirmation will be made that individual permits for each tenant have been obtained, and tenants can stay in compliance with the permit requirements. Prior to performing any sewer transition projects, water capacity issues will need to be addressed. ESI developed greatest case scenarios to provide Zeneca with an estimate of the range of costs that could be encountered if new sewer lines were required.

The alternatives and recommendations for sewer transitions were compiled into brief scopes of work for each building so that budgetary cost estimates to perform the work could be completed. A more detailed description of the budgetary cost estimates is included later in this report.

Based on discussions with you and Zeneca personnel prior to beginning the investigation, the buildings and areas which were to be evaluated included Buildings 80, 81, 90, 91, 94, 96, 162, 196, and 396. After initial investigation, Building 94 was removed from the evaluation because it did not have a chemical sewer, and Building 162 (pilot-plant) was removed from the evaluation because it will most likely be demolished due to the special nature of the building. Added to the evaluation was the storm sewer between the upper lagoon and the lower lagoon and a potential transition from the chemical sewer system to the storm sewer system at the end of 48th Street. Building 80 was also not evaluated due to the anticipated high cost to eliminate the various chemical sewer lines. Building 80 is also the oldest of the remaining site buildings and will likely be demolished in the future.

Provided below are a general discussion of preliminary activities that have been performed at the site, more detailed discussions regarding the evaluation and options for each individual building, recommendations for each building, and budgetary cost information to implement the recommendations.

Preliminary Activities

Preliminary activities that ESI performed included initial investigations of the chemical and sanitary sewer system configurations for each of the buildings that sewer transitions are required. This included Buildings 81, 90, 91, 96, 196, and 396. Investigations included review of building drawings provided by Zeneca and several site visits to observe sewer cleanout and manhole locations. In addition, two site visits with a utility locating subcontractor, one visit with a land surveyor, and one visit with a construction contractor were completed. The site visits with the utility locating subcontractor were performed to verify utility locations shown on drawings, obtain routing of various sewers, determine where tie-ins were made, and get approximate depths of sewers. This information was used to determine if, and where, direct gravity transitions to the sanitary sewers could be made from the chemical sewers. The site visit with the land surveyor was used to get exact sewer depths in relation to each other to verify what was determined during the utility locating work. All of this information was compiled to develop alternatives for sewer transitions for each building. The information gathered during the work described above was used to update the sewer location figure provided to ESI by Zeneca in the areas of the buildings of interest. The attached Figure 1 is the updated figure as of January 2001. This figure will continue to be updated as additional information is determined during the project. Figures 2 through 5 depict magnified areas of the site which show the various buildings of interest and details regarding sewer transition recommendations.

In addition to the physical sewer transitions, ESI obtained the necessary permit applications and limitations for industrial water discharge to the City of Richmond sanitary sewer system. This information will be used to contact the individual building tenants and provide them with the requirements for discharge to the sanitary sewer system. As part of this work, initial contact was made with the tenant of the building of most immediate concern to Zeneca, Building 91. The tenant, Covance, was interviewed, and a tour of the building was completed. Subsequent to the initial visits, the city permit

requirements were forwarded and reviewed with Covance personnel to inform them of the requirements and potential transition plans.

As part of the initial evaluation, water usage quantities were obtained from Zeneca personnel to determine potential additional discharge quantities to the sanitary sewer. These quantities will be used to contact the City of Richmond Public Works Department and determine adequate sanitary sewer pipe capacities. In the unlikely event that the existing sewer capacities are inadequate, costs were determined for scenarios which include the replacement of sewer lines.

The work performed and sewer transition recommendations for each of the individual buildings are provided below:

Buildings 90 and 91

As discussed above, Building 91 was of most concern to Zeneca, due to the biological loading of Covance's waste water. Evaluations in this area included utility locating and utility camera work to determine exact routing of chemical and sanitary sewer systems, field verification of tie-in points, elevation checks of clean-outs, determination of other utilities that would interfere with tie-ins, and plan and profile preparation for the sanitary sewer down 47th Street.

Originally, the concept for these buildings was to transition the chemical sewers into the sanitary sewer system along 47th Street. After performing the field work, however, it was determined that the chemical sewer exiting Building 91 was physically lower than the sanitary sewer, and the sanitary sewer within 47th Street is installed at a very shallow grade. Building 90 could be tied into the sanitary sewer in 47th Street, but Building 91 would require either a lift station or a new sanitary sewer line down 47th Street (Figure 2).

Based on the field investigations, it was determined that Building 90 and Building 91 each have two chemical sewer discharges. Each has a chemical sewer exiting the front of the building and one from later additions from the back of the building. The tie-in point for the chemical sewer from the Building 90 addition ties into the chemical sewer system directly in front of Building 91.

Because of the large costs associated with installing a new sewer line in 47th Street, a tie-in point from the chemical sewer to the sanitary sewer downstream was investigated. During preliminary work for buildings 96 and 196, a tie-in point was found that would incorporate the flows from Buildings 90, 91, 96, and 196. The tie-in point is described in the Building 196 section below.

Due to the grade issues and complicated alignment of the existing chemical sewer lines from these two buildings, ESI recommends installing four new two-way cleanouts for water quality sampling from the two buildings. Figure 2 depicts the locations of the cleanouts. These cleanouts can be installed prior to the transition of the sewer systems near Building 196. Once they are installed, samples can be obtained during normal

operating conditions to determine if the discharge requirements are being met and to quantify maximum discharge flow rates. This information will be used to obtain the permits to discharge to the sanitary sewer and the transition work can commence.

Building 81

Building 81 was determined to be much more straightforward with respect to flow except for the exact modifications made during some seismic retrofit work performed in the early 1990s. Initial investigations determined that the sanitary sewer discharge from the building exits to the north into the sewer line running in East Montgomery Street. The chemical sewer discharges exit the building on the east side through three lines. Figure 3 depicts the sewer layout based on the field investigation. When the building was installed, two of these lines combined and were routed to a 50,000-gallon underground flow-through tank and one of the lines was routed to the chemical sewer system.

When the seismic retrofit work was performed, the chemical sewer lines were combined with each other and all of the flow was routed to the chemical sewer system. The discharge line runs east and ties in with the main north-south running chemical sewer line north of Building 162. Also installed or upgraded during the seismic retrofit work was a sanitary sewer line from 48th Street to the west between Buildings 162 and 165.

Elevations were checked along the chemical sewer line as well as the sanitary sewer lines in East Montgomery, 48th Street, and from 48th Street to the west. Based on the elevation differences and the slopes required for the transitions, a recommended transition plan was developed. ESI recommends three tasks for this area: 1) Installation of a two way cleanout for water quality sampling will be required to verify discharges meet sanitary sewer requirements; 2) An approximate 60 foot section of new sewer line will be required to tie in the chemical sewer line to the sanitary line between Buildings 162 and 165; and 3) As a precaution, ESI recommends performing some confirmatory potholing near the seismic retrofit area to verify the tie-ins were performed as depicted on the drawings. The utility survey determined that the line goes to the chemical system, but was unable to determine if all three sewer lines were tied together upstream of that point. Figure 2 shows where the potholing is recommended.

As an option, the transition line could also be routed to the main sanitary sewer line in 48th Street if necessary. An additional 60 feet of new sewer line would be required to accomplish this. It is also likely that laterals from numerous chemical sewer tie-ins from other existing and abandoned buildings are in this area and that they were not all identified. For this reason, we have elected not to include in this report recommendations for abandonment of laterals from abandoned buildings or buildings that will be demolished.

Building 96

Building 96 was determined to only have two chemical sewer lines based on the drawings, only one of which was located upon field investigation. The cleanouts for this

building are at one of the lowest points around the building and a direct tie-in to the sanitary sewer near the building was not possible. Through further investigation, it was determined that the tie-in point near Building 196 will capture the flows from Building 96. See figure 4 for the layouts of the sewer systems in the vicinity.

As with Building 81, ESI recommends installing a two-way cleanout for water quality sampling and allowing the transition of flows to occur adjacent to Building 196.

Building 196

Building 196 was found to be unique because it has a series of chemical sewer drains discharging from the north-east side of the building as well as a chemical sewer tie-in on the south side of the building. In addition, the vicinity of Building 196 is the ideal location to transition the chemical sewer discharges into the sanitary sewer system. Because of these configurations, two separate sample locations will be required and two chemical sewer to sanitary sewer transitions are recommended. See figure 4 for the sewer system configuration in the area.

ESI recommends a two way cleanout and sewer transition at the east side of the building where two manholes are present, one chemical sewer manhole and one sanitary sewer manhole. Additionally, ESI recommends a sample location on the south side of the building for water quality sampling. The last recommendation for Building 196 is for a sewer transition to be performed near the southeast corner of the building. This area is a large utility corridor and based on all available information, would be the ideal place to transition the flows from Buildings 90, 91, 96, and part of the flows from Building 196 from the chemical sewer to the sanitary sewer.

Building 396

During the evaluation phase for Building 396, it was determined that a lift station is present west of the building to transfer chemical sewer discharges to the chemical sewer system (figure 4). Because of the necessity for this lift station, gravity transition to the sanitary sewer is not possible, but is also of no concern. The lift station can simply be used to convey the water to the sanitary sewer system instead of the chemical sewer system.

ESI recommends installing a sampling device on the discharge line from the lift station for water quality sampling and installing a new 75 foot sewer line from the lift station to the sanitary sewer line to the west of the current chemical sewer line it discharges to. Figure 4 illustrates the recommended location for transition piping.

The above recommendations for water quality sample locations at the individual buildings and four tie-in points for transition from chemical sewer systems to sanitary sewer systems should isolate the chemical sewer system from the north side of the Zeneca property.

Tie-In from Chemical Sewer to Storm Sewer at the End of 48th Street

As one of the last transitions to eliminate the chemical sewer system discharges completely, ESI was requested to provide a budgetary estimate to tie-in the chemical sewer lines near the end of 48th Street to the storm sewer that is routed between the upper and lower lagoons. See figure 5 for the approximate location of these tie-ins.

During the site visit, it was determined that the physical connections would not require that much effort, but the effects of performing such a tie-in will require additional drainage studies. ESI has provided costs for the transition piping and tie-ins, but recommends a more comprehensive drainage study prior to performing this work. The work involving the buildings on the north side of the property can be handled by working with the flows from the buildings and pipe capacities. The work on the south side of the property will need further evaluation because of the drastic changes that have been made to the site and how the surface water runoff has been affected by the changes. Prior to making transitions on the southern side of the property, the effects of those changes need to be determined.

Storm Sewer Line Between Upper and Lower Lagoons

As part of the budgetary cost estimating, Zeneca requested ESI prepare an estimate to install a new storm sewer line between the upper and lower lagoons. Figure 5 details the approximate routing of the line. During the site visit with the construction subcontractor, the project was discussed and the route was briefly investigated. Some of the routing is through heavily overgrown areas, so the route was not walked.

While a budgetary cost estimate is provided below, it was difficult to get good estimates because of the depth and location of the line. Subcontractors requested soils reports and more information for the purpose of further estimating costs. Assumptions that were made were that shoring and dewatering would be required, and that a 24-inch diameter line would be installed rather than the existing 18-inch diameter line. Further information regarding the budgetary cost estimate is provided below.

Budgetary Cost Estimates

Budgetary cost estimates have been calculated, as requested, to perform the necessary sewer transitions. Ranges of costs have been provided to account for the uncertainty regarding the necessity for permits and other City of Richmond involvement. Provided below are the costs by building for the various transition aspects of the sewer project as well as a new storm drain line between the upper and lower lagoons and tie-in from chemical sewer to storm sewer at the end of 48th Street.

Buildings 90 and 91

Recommended option:

Install 4 new two way cleanouts for water quality sampling \$12,000-\$14,000

Building 81

Recommended Option:

Confirmation pot holing to verify tie-ins	\$1,650-\$1,930
Install 1 new two way cleanout for water quality sampling	\$5,250-\$6,100
Install 60 feet of 6-inch sewer line to tie into existing SS line	\$6,750-\$7,900

Potential additional work:

Additional 60 feet of 6-inch sewer line into 48 th Street SS line	\$5,400-\$6,300
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Building 96

Recommended option:

Install 1 new two way cleanout for water quality sampling	\$5,250-\$6,100
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Building 196

Recommended option:

Install 1 new two way cleanout for water quality sampling	\$5,250-\$6,100
Install tie-in from chemical sewer to sanitary sewer	\$18,800-\$21,975

Building 396

Recommended option:

Install sample port at lift station for water quality sampling	\$480-\$560
Install tie-in from lift station piping to sanitary sewer	\$9,000-\$10,450

Should a new sewer line be required in 48th Street to handle the added flows from the buildings discussed above, cost estimates were prepared for the installation of a new line from the tie-in point adjacent to Building 196 to the lift station and from the intersection of East Montgomery and 48th Street to the lift station. These estimates are provided below.

New Sewer Down 48th Street (if capacity of existing is not sufficient)

From tie-in adjacent to Building 196 to lift station	\$98,700-\$115,100
From intersection of E. Montgomery and 48 th St. to lift station	\$76,250-\$88,950

The total for the recommended options (exclusive of potential additional work), if no capacity issues are encountered, ranges from \$64,430-\$75,115.

Additional cost estimates were prepared for a new storm sewer line between the upper and lower lagoons and tie-ins from the chemical sewer to the storm sewer at the end of 48th Street. During the site visit by the construction contractor, these two scopes of work were not well defined and Mr. Dale Perkins of Zeneca stated that the two projects may take a more detailed study prior to their implementation. Budgetary estimates, were however prepared for the following:

New Storm Sewer Between Upper and Lower Lagoons

Install 1,200 linear feet of 24-inch diameter storm sewer at 10-12 feet deep, shoring required, dewatering required	\$173,900-\$202,900
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Tie-Ins from Chemical Sewer to Storm Sewer at the end of 48th Street

Install tie-ins from 2-inch above ground lines, 8-inch under ground line, and 12-inch under ground line to SD manhole \$10,350-\$12,100

The following assumptions were made by the construction contractor:

- All excavated soil will be hauled off site as non-hazardous material, with exception of cinder contaminated soils and cinders.
- All new piping will be bedded with imported material.
- Surface features will be returned to existing conditions prior to construction.
- Water generated from dewatering activities can be discharged to existing storage tanks.
- Trench plates will not be required. Trenches will be delineated with barricades and caution tape.
- Below-ground hindrances were not included in costs.

The costs presented above do not take into account any need for treatment of discharges from the individual buildings. An initial evaluation of the current tenants' waste streams indicates that pre-treatment may not be necessary; however, analytical data is required for the final determination. Should the tenants have discharges that require treatment prior to discharge to the sanitary sewer system, it has been assumed that the necessary treatment will be the responsibility of the individual tenants prior to discharge. Since sample locations will be installed at discharge points for each building, it will be possible for the individual building discharge water quality to be analyzed. Prior to any sewer transition construction, the sample locations should be installed to collect samples from operating facilities to aid in obtaining discharge permits. Once upgrades are complete, it will be the tenants' responsibility to verify and maintain that their facility discharges are in compliance with their individual facility's industrial wastewater discharge permit.

Should you have any question or require further information, please do not hesitate to contact me at (925) 945-6394 or e-mail me at msutton@enviro-sciences.com.

Sincerely,
Enviro-Sciences, Inc.



Matthew C. Sutton, P.E.
Senior Engineer

Attachments

cc: Mr. Dale Perkins, AstraZeneca, Inc.
Mr. Bill Collins, AstraZeneca, Inc.
Mr. Rick Green, ESI

LEGEND

- Chemical Sewer System
- Storm Sewer System
- x— Sanitary Sewer System
- Industrial Sewer System

SANITARY SEWER
ABANDONED
IN PLACE

FOR DETAIL
SEE FIGURE 2

FOR DETAIL
SEE FIGURE 3

FOR DETAIL
SEE FIGURE 4

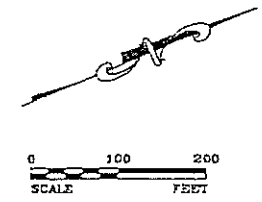
FOR DETAIL
SEE FIGURE 5

CITY OWNED &
OPERATED LIFT
STATION

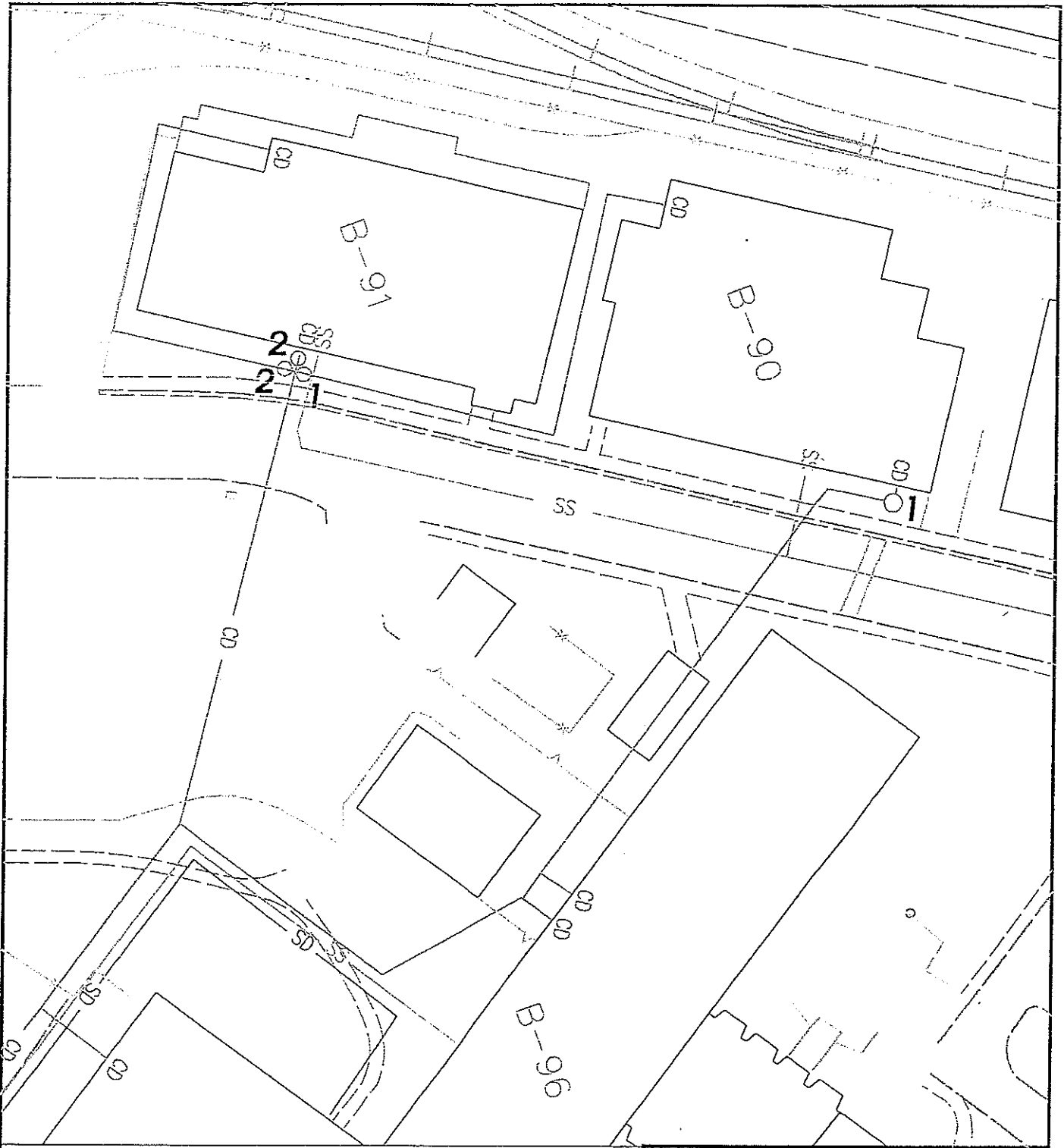
GREEN HOUSE

GREEN HOUSE

GREEN HOUSE

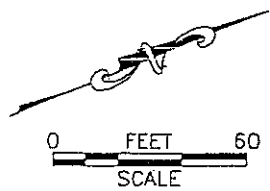


SITE PLAN & SEWER SYSTEMS			
ZENECA INC. 1391 SOUTH 49th STREET RICHMOND, CA 94804-4610			
PROJECT MANAGER	UES	PROJECT NO.	DEMAR RICHMOND
FIGURE 1			
DRAWN BY/DATE	APPROVED/DATE	DRAWING NUMBER	
ML / 1/14/01		ZAP-001	



LEGEND

- 1 O Building 90 Sample Locations
- 2 O Building 91 Sample Locations



**BUILDINGS 90 & 91
SAMPLE LOCATIONS**

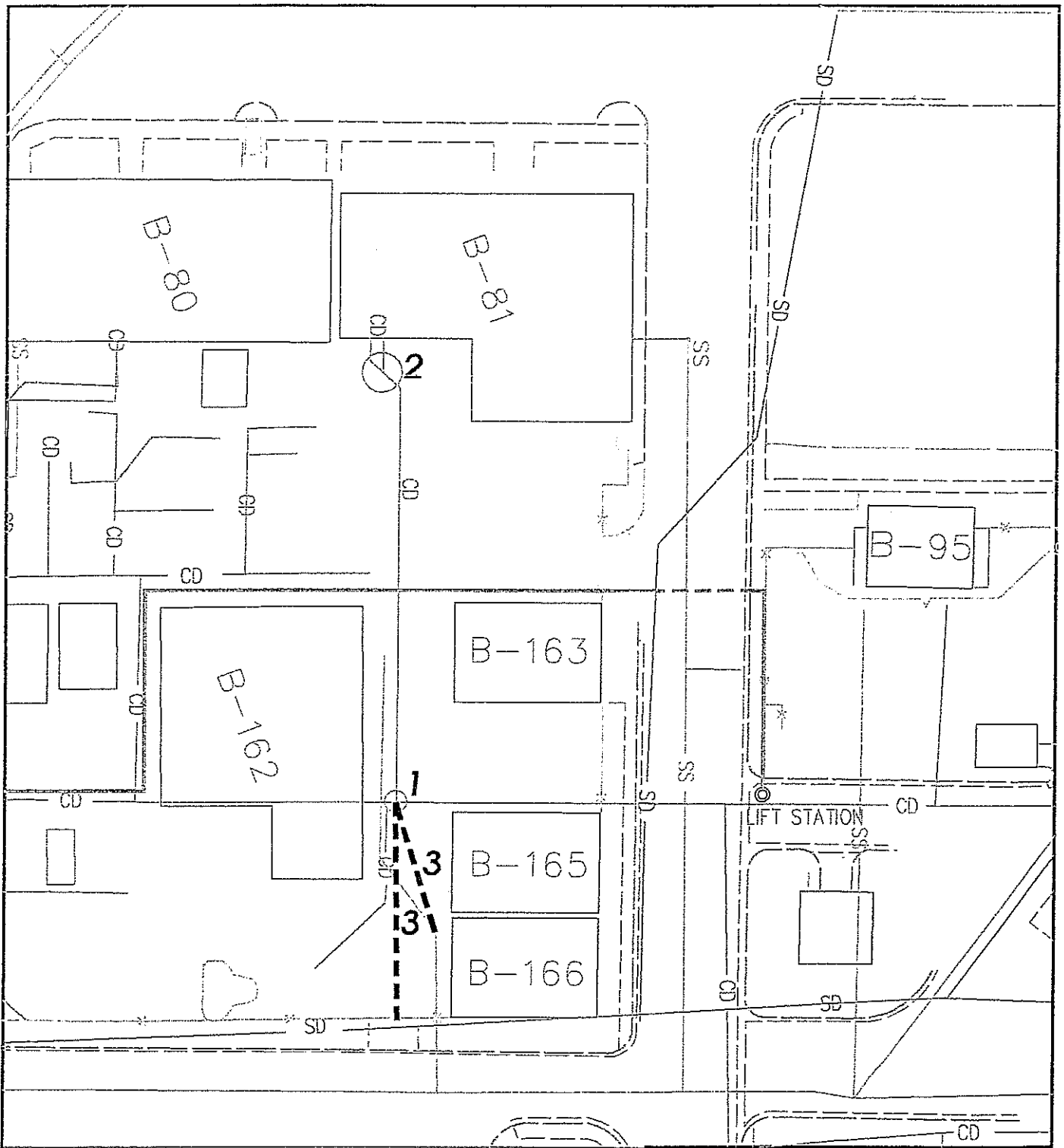
ZENECA INC.
1391 SOUTH 49th STREET
RICHMOND, CA 94804-4610

PROJECT MANAGER	MCS	PROJECT NO.	DEMAMI RICHMOND
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FIGURE 2

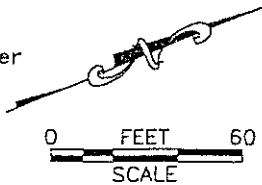
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ML / 1/14/01		ZAP-002

NO.	DATE	BY	REVISION



LEGEND

- 1 ○ Building 81 Sample Locations
- 2 ○ Potholing Location to Verify Sewer Tie-ins
- 3 ○ Potential Transition Lines from Chemical Sewer to Sanitary Sewer



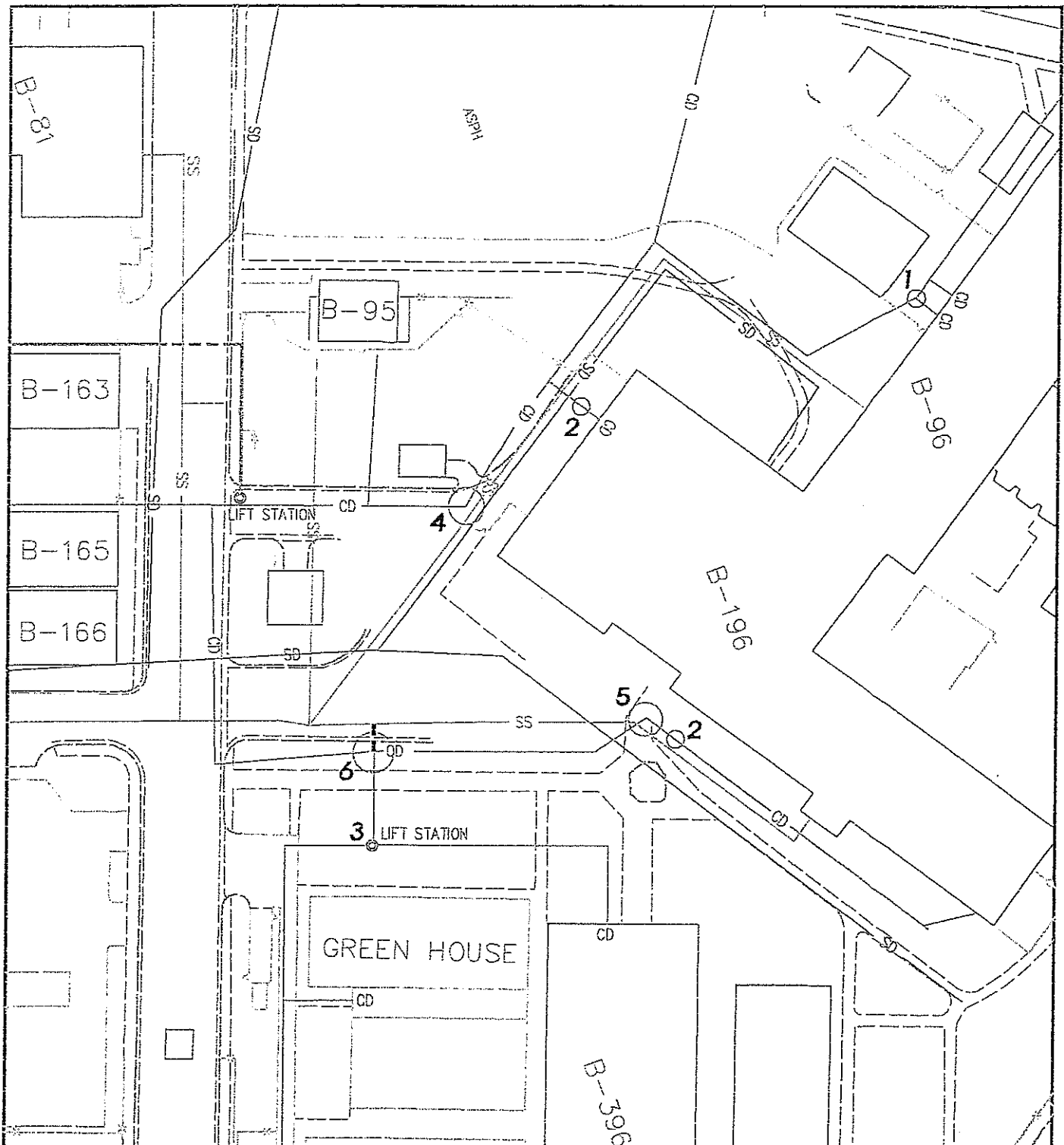
BUILDING 81 SAMPLE LOCATION & SEWER TIE-IN OPTIONS

ZENECA INC.
 1391 SOUTH 49th STREET
 RICHMOND, CA 94804-4610

PROJECT MANAGER | MCS | PROJECT NO. | DEMAXI RICHMOND

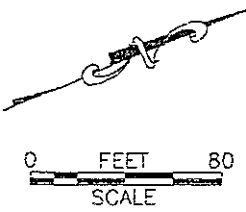
FIGURE 3

DRAWN BY/DATE | APPROVED/DATE | DRAWING NUMBER
 ML / 1/14/01 | | ZAP-003



LEGEND

- 1○ Building 96 Sample Location
- 2○ Building 196 Sample Locations
- 3○ Building 396 Sample Location
- 4○ Transition from Chemical Sewer to Sanitary Sewer
- 5○ Transition from Chemical Sewer to Sanitary Sewer
- 6○ Transition Piping from Chemical Sewer to Sanitary Sewer



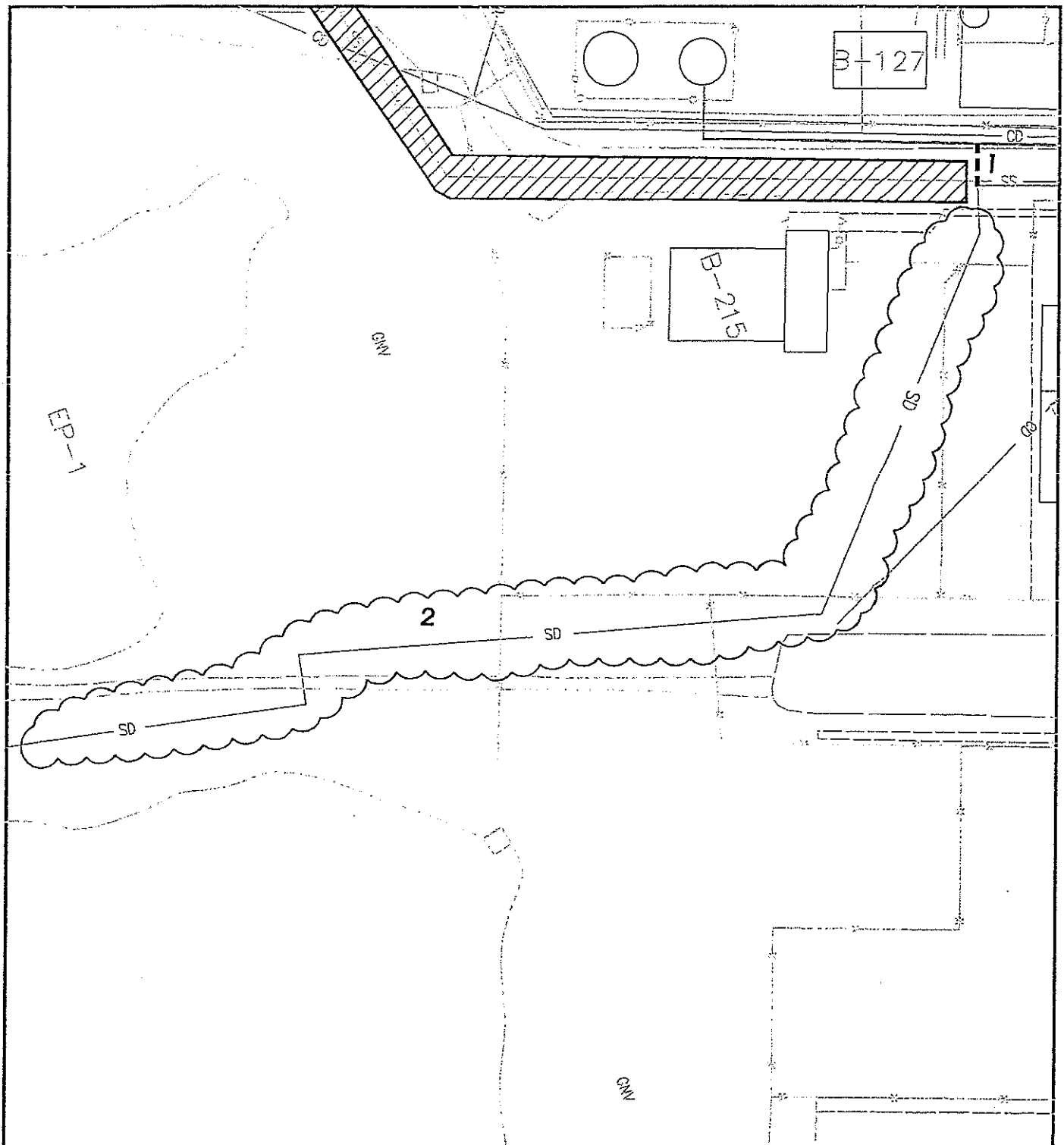
BUILDINGS 96, 196 & 396 SAMPLE LOCATIONS & SEWER TIE-IN OPTIONS

ZENECA INC.
1391 SOUTH 49th STREET
RICHMOND, CA 94804-4610

PROJECT MANAGER	NCS	PROJECT NO.	DEMAXI RICHMOND
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FIGURE 4

DRAWN BY/DATE	APPROVED/DATE	DRAWING NUMBER
ML / 1/14/01		ZAP-004



LEGEND

- 1 Potential Future Tie-in from Chemical Sewer to Storm Sewer
- 2 Potential New 24-inch Diameter Storm Sewer Line



0 FEET 80
SCALE

STORM SEWER UPGRADES

ZENECA INC.
1391 SOUTH 49th STREET
RICHMOND, CA 94804-4610

PROJECT MANAGER: WCS PROJECT NO.: DEMAXI RICHMOND

FIGURE 5

DRAWN BY/DATE: ML / 1/14/01 APPROVED/DATE: DRAWING NUMBER: ZAP-003