2.1.4 Utilities and Service Systems

This section addresses the potential impacts to public utilities and service systems within the project area as a result of project implementation. Public utilities include electricity, natural gas, water and sewer facilities, storm drains, telephone, oil pipelines and wells, and solid waste disposal. For each of the utilities and service systems discussed, existing infrastructure, levels of service, and capacity are described.

2.1.4.1 Affected Environment

Electricity

SCE currently supplies electricity to the Gerald Desmond Bridge. The need for electrical power is solely associated with lighting on the bridge. In addition to supplying electricity to the bridge, SCE owns several overhead transmission and distribution lines in the project area, including the lines that cross the Cerritos Channel from the LBGS (220-kV, 66-kV, and 12.5-kV). NRG Energy, Inc., owns the LBGS.

Natural Gas

Long Beach Gas and Oil, a division of the City of Long Beach, supplies natural gas in the project area. Several gas distribution pipelines are within the project limits ranging from 3 to 20 in. (76 to 508 millimeters [mm]) in diameter.

Water

The City of Long Beach provides the water supply in the project area. Several water lines run under the bridge and through the project area that measure from 4 to 35.5 in. (101 to 901 mm) in diameter.

Sewer

The City of Long Beach provides sewers and sewer services for the project area. Several existing sewer pipes run under the bridge and within the project limits. These sewer pipes range in diameter from 8 to 24 in. (203 to 609 mm).

Stormwater

Drainage of stormwater is currently accommodated through eight drainage networks that pass through the project area and discharge into various channels.

Telephone

Verizon owns and operates the telephone facilities located within the project area. These facilities run both above and below the ground.

Oil Lines and Wells

Terminal Island has been used as an oil field since the 1930s. Due to its history, numerous active and abandoned oil lines and wells are within the project area. Approximately 125 large and small oil pipelines traverse the project site. Owners and/or operators of these lines include Tidelands, Pacific Energy Resources, British Petroleum (BP) Pipelines North America (formerly Arco), AERA Energy, LLC, THUMS, Chemoil, Oil Operators, Cardinal/Equilon, and Conoco Philips.

Solid Waste

Regional planning for solid waste facilities in the project area is under the jurisdiction of Los Angeles County, which is the local enforcement agency under integrated waste management laws. The County and cities are encouraging source reduction and recycling objectives that meet or exceed the requirements of State Assembly Bill (AB) 939. AB 939 mandates a 50 percent reduction in waste volumes from 1990 levels by the year 2010. In addition, hazardous waste can be land filled or recycled at several facilities throughout the state. Any hazardous waste generated within the study area is managed in accordance with federal and state requirements. The closest municipal solid waste landfill to the project is Chandler's Landfill, located at 26311 Palos Verdes Drive East, Rolling Hills Estates, California.

2.1.4.2 Environmental Consequences

Evaluation Criteria

The utility issues of concern in this evaluation are disruption of utility supply during construction, increased demand for utility capacity, and comparable increases in capacity from implementing the proposed project. In analyzing the project impacts, the proposed project may result in substantial impacts if it would:

- Require or result in construction of new storm drainage facilities or expansion of existing facilities, the construction of which could cause substantial environmental effects
- Be served by a landfill with insufficient permitted capacity to accommodate the solid waste disposal needs of the project (primarily for demolition of the existing bridge)
- Fail to comply with federal, state, and local statutes and regulations related to solid waste
- Result in determination by the energy providers, which serve or may serve the

project, that there is inadequate capacity to serve the projected demand of the project in addition to the existing commitments of the provider

No Action Alternative

Under the No Action Alternative, there would be no impacts to the existing utilities and service systems because of the existing bridge operation.

Construction Impacts

North-side Alignment Alternative

Impacts associated with construction activities are temporary, lasting only as long as the construction phase. Project construction would include two major activities, including construction of the new bridge and demolition of the existing bridge once the new bridge is completed and placed in service. Possible impacts to the existing utilities systems would result from required utilities system relocation, increase in utility demand, and increase in solid waste volume. Each of these impacts is discussed below:

Utilities Relocation

Electricity. The Gerald Desmond Bridge Replacement project would replace the existing bridge with a 200-ft (61-m) vertical clearance (above MHWL) bridge. This requires the need to address the existing transmission lines that currently cross the Cerritos Channel, located approximately 300-ft (91.4-m) north of the bridge, with an approximate vertical clearance of 153-ft (46.6-m) above the MHWL. The transmission lines would be the only vertical navigation constraint if the new, higher bridge is constructed. For this reason, the proposed project also includes relocating the SCE high-voltage transmission towers and the lines that cross the Cerritos Channel between Piers S and A (see Section 1.6.1.4 [Proposed Demolition and Phasing]).

NRG Energy, Inc., submitted their application for a Harbor Development Permit in November 2006 for the refurbishment of four of the seven gas turbine generators at the existing LBGS. LBGS was taken out of service in January 2005 for lack of a power sales contract. It was later determined that there was a need for a peaking plant to support the extra energy needed during the summer months. In compliance with California Public Utilities Commission (CPUC) General Order 131-D, an analysis was undertaken to explore the different relocation options for the SCE transmission lines that cross the Cerritos Channel between Piers A and S. Option 3 from the Draft Transmission Towers and Lines Relocation Options at the Port of Long Beach (see Appendix I), as discussed below, is the recommended relocation option and will be developed for additional study and coordination with SCE.

Option 3 would construct new towers adjacent to the existing towers on Piers S and A to accommodate a 200-ft (61-m) clearance over the Back Channel. Subsequent to construction of the new towers, all SCE lines (12.5-, 66-, and 220-kV lines) would be relocated to the new towers. The existing towers would be left in place (see Exhibit 2.1.4-1).

Relocating the lines to the new towers at a higher elevation would enable taller ships to traverse the Cerritos Channel. Reducing navigational hazards along the Cerritos Channel would prevent service interruption to ships utilizing the Back Channel. Building the new towers adjacent to the existing towers would not require additional coordination with the SHPO. The SHPO has concurred that by leaving the existing towers in place, the project would not have an adverse effect on the eligible National Register of Historic Places (NRHP) resource (the former Edison Power Plant No. 3 and transmission towers were determined eligible for the NRHP, see Section 2.1.8 [Cultural Resources] for more information); therefore, it would not affect the project schedule.

Construction of the new towers on Piers A and S would require coordination with the tenants at these respective piers. Depending if there are parallel construction activities by these tenants, this may affect the schedule for construction of the new towers.

CPUC General Order 131-D

Since the project potentially involves relocating high voltage transmission lines that are greater than 50-kV, it would be subject to CPUC General Order No. 131-D. This Rule and subsequent sections (Section X [EMF] and XI [Notice]) are applied to the planning and construction of electric generation, transmission/power/distribution line facilities, and substations located in California.

Final determination of the design scenario for relocation of the power lines will require further coordination with SCE and Port tenants of Piers A and S regarding timing for the new tower construction. Through the respective coordination, the relocation of power lines would not result in an adverse effect on the Port Area, its tenants, or the community of Long Beach.

Effects on Port Facilities: NRG Energy, Inc., would be impacted by the bridge construction at

the southeast corner of their facility. The crane tower used for construction of the bridge column would require the removal or relocation of NRG utilities at the southeast corner of the NRG facility. Relocation of the affected utilities is not expected to have a substantial effect on the operation of the NRG facility.

Effects on Natural Gas. Several gas lines would be impacted by the footings of the proposed structures. The largest impact would be to a 16-in. (41-cm) high-pressure gas main. Impacted gas lines and mains would need to be relocated.

Effects on Water and Sewer. Several water and sewer pipelines would be affected by the proposed new bridge construction and would need to be relocated before commencement of construction and demolition activities.

Effects on Storm Drain. Several footings of the proposed structures would impact sections of the 42-in (106-cm) supply pipe and 42-in (106-cm) pressure discharge pipe of the Ocean Boulevard Pump Station. In addition, many smaller collection pipes and catch basins would also be impacted. All impacted structures would need to be replaced or modified to accommodate the proposed project. No additional facilities would need to be constructed.

Effects on Telephone. Telephone facilities would be affected by the proposed project and would require relocation.

Effects on Oil Lines and Wells. Active and abandoned oil lines within the construction footprint would be affected by the proposed project. Active lines would be avoided where possible. Abandoned lines would be removed as required. However, during the final design phase of the project, the owners of the pipelines would perform detailed studies and recommend provisions for the relocation or protection of these facilities from construction; studies and relocation/protection would be compensated by the Port.

Short-term service interruptions could occur during the relocation activities. The impact would be temporary, and with close coordination with the utilities service providers, interruption duration and severity would be minimized.

Active and abandoned oil wells within the construction footprint would also be affected by the proposed project (see Exhibits 2.1.4-2 and 2.1.4-3). There are approximately 147 abandoned wells located within the construction footprint that may be affected. The abandoned wells affected by the project would be tested and, as required, they would be re-abandoned to meet California Department of Conservation, Division of Oil, Gas, and Geothermal Resources (DOGGR) requirements and performance standards as specified in *California Laws for Conservation of Petroleum and Gas*, January 2001. Prior to construction, an oil well abandonment plan, as applicable, would be coordinated with the DOGGR Construction Review Engineer.

Approximately 23 active or idle wells within the construction footprint may be affected by the proposed project. These wells could be abandoned and redrilled (replaced) in a new location, undergo a buy-out and be taken out of service, or temporarily shut down during construction and placed back in service following completion of construction within the well area. (personal communication, Sean Gamette, 2002); however, the City of Long Beach Department of Gas and Oil would make the final decision as to which oil wells are redrilled or bought out.

Utilities Demand

Construction activities would utilize machinery and tools that require the consumption of more electrical power than is currently used for the bridge. This increase in electrical usage would be temporary, and the contractor would be able to tap into the existing power grid of the Port. In addition, a recently installed 12,000-volt substation on the north side of the bridge would accommodate the temporary increase in electricity demand during construction activities (personal communication, Jim Matthei, 2002).

There are 245 operational power plants located in the counties of Los Angeles, Orange, Riverside, and San Bernardino that produce at least 100 kilowatt (kW) (0.1-megawatt [MW]) of electricity each (CEC, 1999b). These facilities have a total online generating capacity of 16,922 MW. Electric energy in the region is provided primarily through SCE and the Los Angeles Department of Water and Power (LADWP) distribution networks, along with three municipalities having their own power plants located in the region (Glendale, Burbank, and Pasadena), and with the Imperial Irrigation District and San Diego Gas & Electric providing service to the extreme southern areas of Riverside and Orange counties, respectively. Because of the restructuring of the electric energy industry throughout California, many of the facilities owned by investor-owned utilities have been divested.

Option 3

Exhibit 2.1.4-1
New Towers

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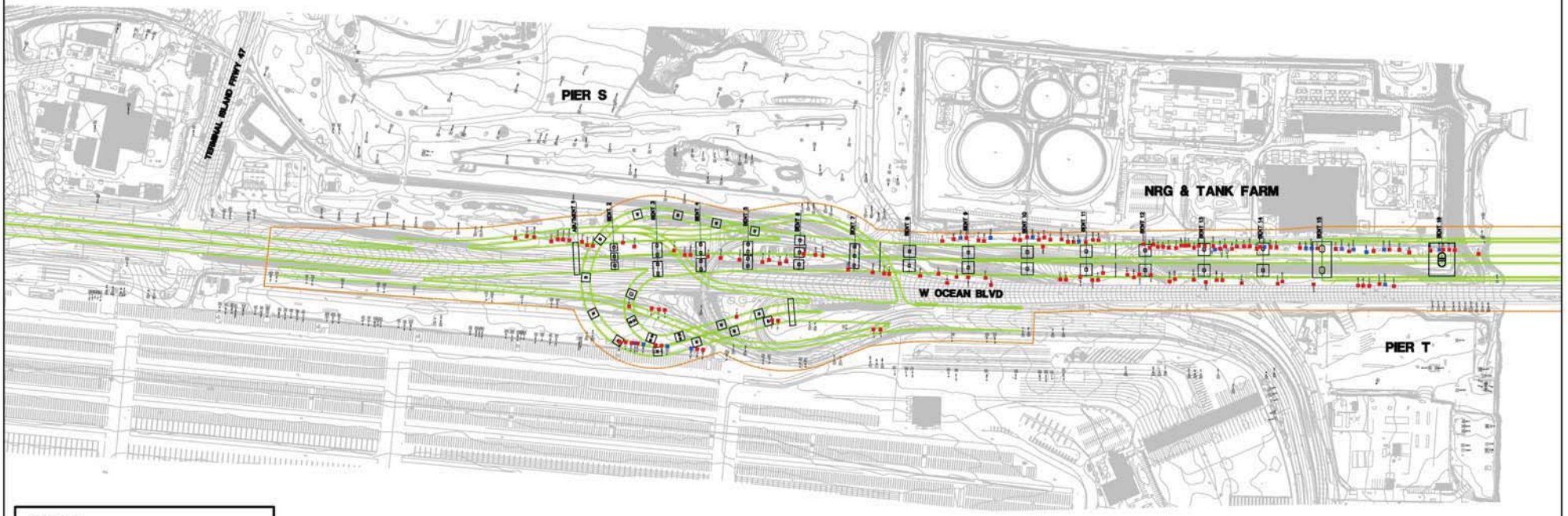

LEGEND:

- ABANDONED WELL AFFECTED BY PROJECT
- ACTIVE WELL AFFECTED BY PROJECT
- ABANDONED WELL NOT AFFECTED BY PROJECT
- ACTIVE WELL NOT AFFECTED BY PROJECT
- OVERALL PROJECT AREA

1"=200' 200' 0' 200' 400'

North-Side Alignment Alternative
Active and Abandoned Oil Well Locations

EXHIBIT 2.1.4-2

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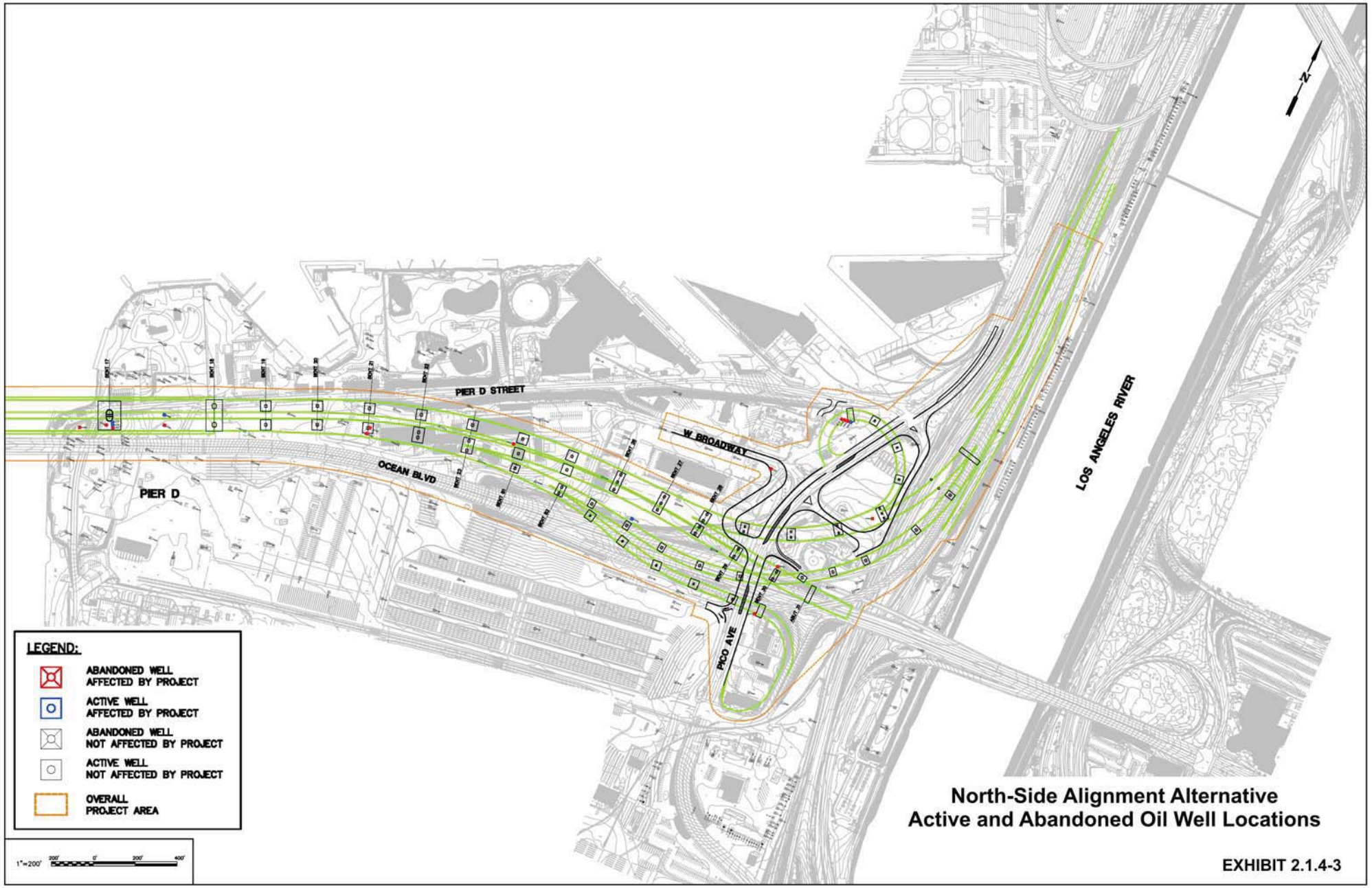

North-Side Alignment Alternative
Active and Abandoned Oil Well Locations

EXHIBIT 2.1.4-3

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Most of the electric energy used in southern California is imported to the region from coal-fired and hydroelectric generating facilities located elsewhere in California and out of state. Utilities in southern California participate in power-sharing arrangements with many other entities throughout the western United States.

Construction of the proposed project would not cause a substantial increase in the demand on existing electrical sources or require the development of new sources; therefore, the project would not result in a change to local or regional energy supplies, or change the efficiency of energy use.

Solid Waste Generation

Construction and demolition activities associated with the proposed project would generate a large amount of solid waste. Most of this waste would be a product of demolition. Construction and demolition materials would be recycled to the extent feasible in accordance with the City of Long Beach Construction and Demolition Program. Recycling programs would be used to reduce the amount of waste to be disposed of in the local landfill. The quantity of waste is unknown at this early stage of engineering, but it is not assumed to be substantial. Various recycling stations are located throughout Los Angeles County, and any waste produced by construction activities could be disposed of or recycled at these facilities or others throughout the state. Solid waste that remains after recycling would be disposed of at an appropriate municipal landfill within the region.

South-side Alignment Alternative

Impacts associated with construction activities for the South-side Alignment Alternative would be temporary, lasting only as long as the construction phase. Project construction would include two major activities, including construction of the new bridge and demolition of the existing bridge once the new bridge is completed and placed in service. Possible impacts to the existing utilities systems would result from utility relocations, increase in utility demand, and increase in solid waste volume. Each of these impacts is discussed below:

Utilities Relocation

Electricity. Impacts to the existing transmission lines that currently cross the Cerritos Channel, approximately 300-ft (91.4-m) north of the bridge, with an approximate vertical clearance of 153-ft (46.6-m) above the MHWL, are the same as the North-side Alignment Alternative. The scenarios and conclusions/recommendations are also the same for the South-side Alignment Alternative.

Several SCE overhead and underground lines within Pier T and Pier D would need to be relocated. Tidelands electrical infrastructure for existing facilities would also be affected by the proposed bridge within the South-side Alignment Alternative.

Effects on Natural Gas. Several gas lines would be impacted by the footings of proposed structures. The largest impact would be to a 16-in. (41-cm) high-pressure gas main located in Piers T and D. Several gas mains in Piers T and D with various pipe sizes would be impacted and would need to be relocated.

Effects on Water and Sewer. Several water and sewer pipelines would be affected by the proposed new bridge construction and would need to be relocated before commencement of construction and demolition activities. The largest impact would be to 24-in. (61-cm) and 20-in. (51-cm) water mains located in Piers T and D.

Effects on Storm Drain. Several footings of the proposed structures would impact the existing storm drain system. There is an existing 48-in. (122-cm) storm drain in Pier D that drains to a pump station that would need to be relocated. In addition, many smaller collection pipes and catch basins would also be impacted. All impacted structures would need to be replaced or modified to accommodate the proposed project. No additional facilities would need to be constructed.

Effects on Telephone. Aboveground and belowground telephone facilities would be affected by the proposed project and would require relocation.

Effects on Oil Lines and Wells. Active and abandoned oil lines within the construction footprint would be affected by the proposed project. Active lines would be avoided where possible. Abandoned lines would be removed as required. However, during the final design phase of the project, the owners of the pipelines would perform detailed studies and recommend provisions for relocation or protection of these facilities from construction; studies and relocation/protection would be compensated by the Port.

Short-term service interruptions could occur during the relocation activities. The impact would be temporary, and with close coordination with the utilities service providers, interruption duration and severity would be minimized.

Active and abandoned oil wells within the construction footprint would also be affected by the proposed project (see Exhibits 2.1.4-4 and 2.1.4-5). Approximately 138 abandoned wells located within the construction footprint may be affected. The abandoned wells affected by the project would be tested and, as required, they would be re-abandoned to meet DOGGR requirements and performance standards as specified in *California Laws for Conservation of Petroleum and Gas*, January 2001. Prior to construction, an oil well abandonment plan, as applicable, would be coordinated with the DOGGR Construction Review Engineer.

Approximately 30 active or idle wells within the construction footprint may be affected by the proposed project. These wells could be abandoned and redrilled (replaced) in a new location, undergo a buy-out and be taken out of service, or temporarily shut down during construction and placed back in service following completion of construction within the well area. (personal communication, Sean Gamette, 2002); however, the City of Long Beach Department of Gas and Oil would make the final decision as to which oil wells are redrilled or bought out.

Utilities Demand

The demand for electrical power for this alternative would be similar to the North-side Alignment Alternative.

Solid Waste Generation

Solid waste disposal and recycling for this alternative would be similar to the North-side Alignment Alternative.

Rehabilitation Alternative

Impacts associated with construction activities for the Rehabilitation Alternative would be temporary, lasting only as long as the construction phase. Project construction would include rehabilitation of the existing bridge deck, existing columns, and existing bridge footings. Possible impacts to the existing utilities systems would result from utility relocations in the surrounding area of the existing footings, increase in utility demand, and increase in solid waste volume. Each of these impacts is discussed below:

Utilities Relocation

Electricity. There would be no impacts to the existing SCE transmission lines that cross the Cerritos Channel. The vertical clearance of the existing bridge would remain the same.

Several overhead light poles on the bridge would need to be relocated for this alternative. Other impacts include SCE overhead electrical lines in Piers T and D and underground electrical lines in Pier D.

Effects on Natural Gas. The gas lines in the immediate vicinity of the existing bridge footings would be affected by this alternative.

Effects on Water and Sewer. Water pipelines in the immediate vicinity of the existing bridge footings would be affected by the proposed rehabilitation of the bridge footings and would need to be relocated before commencement of construction and demolition activities. This includes a 20-in. (51-cm) pipeline in Pier D and abandoned 24-in. (61-cm) and 10-in. (25-cm) waterlines in Pier D. There are no sewer line impacts with this alternative.

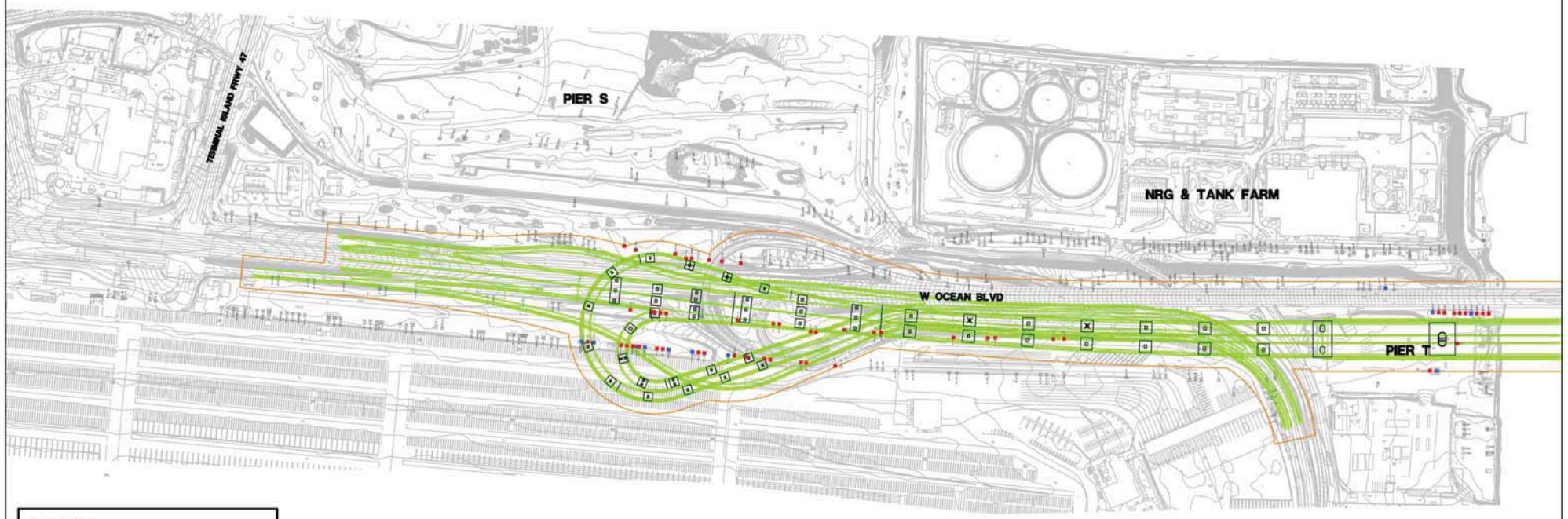
Effects on Storm Drain. An existing storm drain that crosses underneath the bridge adjacent to the footings would require relocation. The storm drain would be relocated to an adjacent area, away from the footing location.

Effects on Telephone. The existing underground telecommunication lines near the existing footings at Piers T and D would require relocation. The lines would be relocated to an adjacent area, away from the footing locations.

Effects on Oil Lines and Wells. Active and abandoned oil lines within the construction footprint would be affected by the proposed project. Active lines would be avoided where possible. Abandoned lines would be removed as required. However, during the final design phase of the project, the owners of the pipelines would perform detailed studies and recommend provisions for the relocation or protection of these facilities from construction; studies and relocation/protection would be compensated by the Port.

Short-term service interruptions could occur during the relocation activities. The impact would be temporary, and with close coordination with the utilities service providers, interruption duration and severity would be minimized.

Active and abandoned oil wells within the construction footprint would also be affected by the proposed project Approximately 52 abandoned wells located within the construction footprint may be affected. The abandoned wells affected by the project would be tested and, as required, they would be re-abandoned to meet DOGGR requirements and performance



LEGEND:

- ABANDONED WELL AFFECTED BY PROJECT
- ACTIVE WELL AFFECTED BY PROJECT
- ABANDONED WELL NOT AFFECTED BY PROJECT
- ACTIVE WELL NOT AFFECTED BY PROJECT
- OVERALL PROJECT AREA

1"=200' 200' 0' 200' 400'

South-Side Alignment Alternative
Active and Abandoned Oil Well Location

EXHIBIT 2.1.4-4

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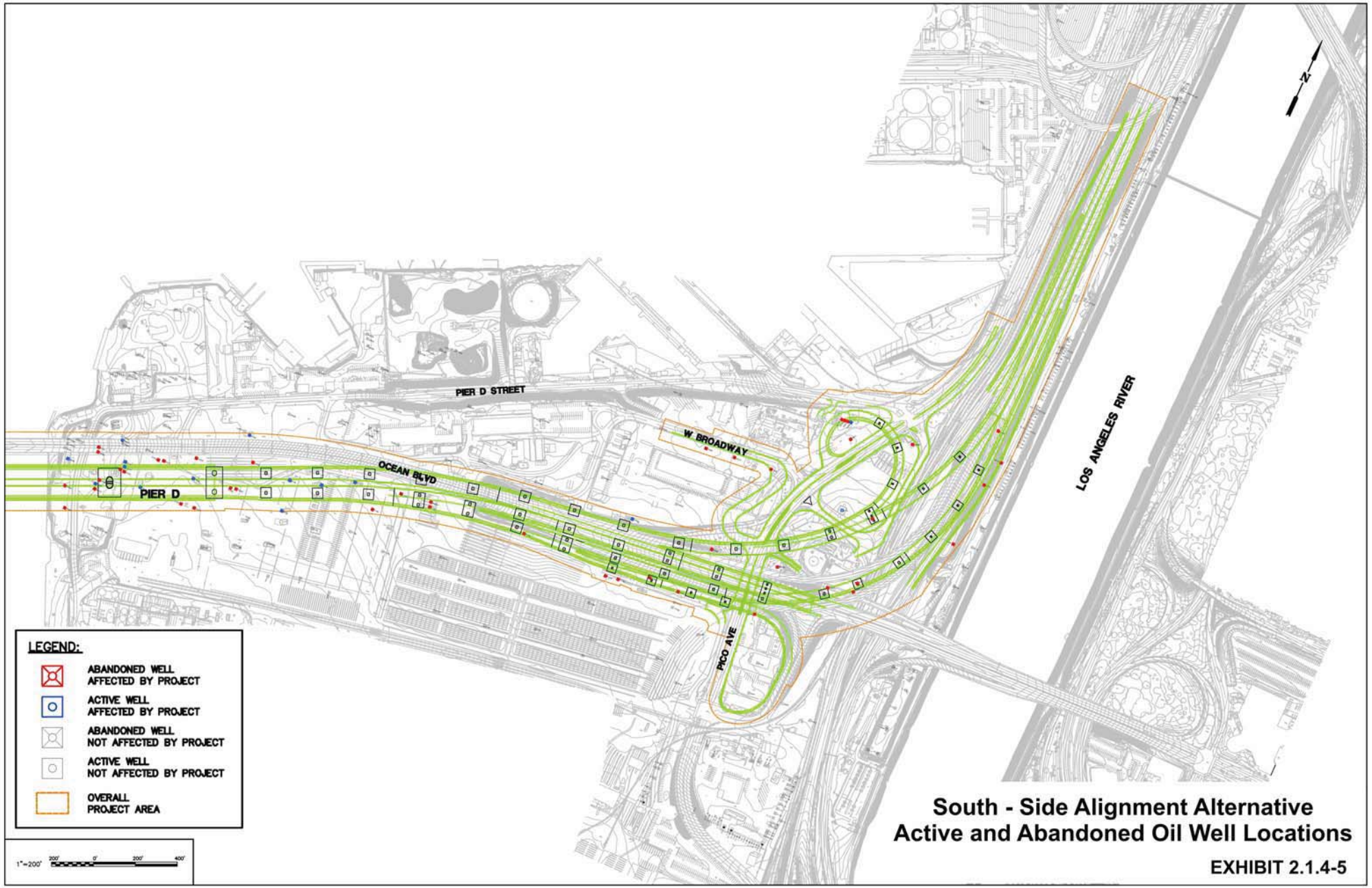

South - Side Alignment Alternative
Active and Abandoned Oil Well Locations

EXHIBIT 2.1.4-5

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standards as specified in *California Laws for Conservation of Petroleum and Gas*, January 2001. Prior to construction, an oil well abandonment plan, as applicable, would be coordinated with the DOGGR Construction Review Engineer.

Approximately six active or idle wells may be affected by the proposed project. These wells could be abandoned and redrilled (replaced) in a new location, undergo a buy-out and be taken out of service, or temporarily shut down during construction and placed back in service following completion of construction within the well area. (personal communication, Sean Gamette, 2002); however, the City of Long Beach Department of Gas and Oil would make the final decision as to which oil wells are redrilled or bought out.

Utilities Demand

The demand for electrical power for constructing this alternative would be less than the North-side and South-side Alignment Alternatives.

Solid Waste Generation

Construction and demolition activities associated with the Rehabilitation Alternative would generate solid waste from the removal of the existing bridge deck. Recycling programs would be used to reduce the amount of waste to be disposed of in the local landfill. The quantity of waste is unknown at this early stage of engineering, but it is not assumed to be substantial. Solid waste that remains after recycling would be disposed of at an appropriate municipal landfill within the region.

Operational Impacts

North-side Alignment Alternative

Electrical usage during operation of the proposed project would be limited to the lighting of the roadway and aesthetic lighting of the bridge. Additional lighting would be required to illuminate the proposed six lanes with standard shoulders versus the existing five lanes and no shoulders; however, the additional electricity required to illuminate one additional lane and safety shoulders would not represent a substantial demand on local supplies when compared to the regional capacity provided by SCE (personal communication, Jim Matthei, 2002). The aesthetic lighting would not require a substantial amount of energy. The existing power grid has sufficient capacity to relieve any increase in electrical demand; therefore, the proposed project would not result in a change to local or regional energy supplies, and it would not change the efficiency of energy use.

The new bridge would include an additional through-lane on the EB and WB sides of the bridge. The increased surface area of the bridge would result in an increase in stormwater runoff being directed from the bridge to the existing storm drains. This increase may require construction of new storm drainage facilities or the expansion of existing facilities at the Port; however, since the project area generally consists of paved impervious surfaces, the net effect of the bridge project would not substantially change the volume of storm drain runoff in the vicinity.

South-Side Alignment Alternative

Operational impacts for the South-side Alignment Alternative would be similar to the North-side Alignment Alternative.

Rehabilitation Alternative

Operational impacts for the Rehabilitation Alternative would be less than the North-side and South-side Alignment Alternatives.

2.1.4.3 Avoidance, Minimization and/or Mitigation Measures

No measures are required.