

Attachment 5
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Table 4-1 All Wastewater Treatment Facilities with 35 Miles of SONGS
(Based on NPDES Water Discharge Permits)

NPDES	Facility	Direct Distance [miles]	Discharge Flow [MGD]
CA0109347	MC CP SOUTHERN REGION TERTIARY TREATMENT PLANT	8.5	3.6¹
	HEADQUARTERS PLANT	17.1	0.3 ²
	SAN LUIS REY PLANT	17.1	0.3 ²
	CHAPPO PLANT	17.1	0.6 ²
	TWIN LAKES PLANT	17.1	1.5 ²
CA0107611	ALISO CREEK OCEAN OUTFALL	12.4	32.9¹
	AWMA JOINT REGIONAL PLANT	19.3	12.0 ³
	AWMA COASTAL TREATMENT PLANT	19.3	5.5 ³
	LOS ALISOS WATER RECLAMATION PLANT	19.3	4.0 ³
	EL TORO WATER RECYCLING PLANT	19.3	5.0 ³
CA0107417	SAN JUAN CREEK OCEAN OUTFALL	12.4	30.0¹
	SERRA JAY B. LATHAM REGIONAL TREATMENT PLANT	9.4	13.0 ³
	CITY OF SAN CLEMENTE WRF	9.4	6.0 ³
	SMWD CHIQUITA WRF	9.4	5.0 ³
	MNWD 3A RECLAMATION PLANT	9.4	6.0 ³
	SMWD OSO CREEK WRP	9.4	0.0 ³
CA0107433	OCEANSIDE OCEAN OUTFALL	16.8	22.9¹
CA0108031	FALLBROOK PUD WWTP 1	17.0	2.7¹
CA0107395	ENCINA OCEAN OUTFALL	22.5	38.0¹
	ENCINA WPCF	21.1	22.9 ⁴
	MEADOWLARK WATER RECLAMATION PLANT	21.1	2.0 ⁴
	SHADOWRIDGE WATER RECLAMATION PLANT	21.1	0.6 ⁴
	GAFNER WATER RECLAMATION PLANT	21.1	0.0 ⁴
	LAKE CALAVERA HILLS WATER RECLAMATION PLANT	21.1	0.0 ⁴
CA8000188	EASTERN MUNICIPAL WATER DISTRICT TEMESCAL CREEK DISCHARGE	24.9	58.0¹
	SAN JACINTO VALLEY RWRF	24.6	11.0 ⁵
	MORENO VALLEY RWRF	24.6	16.0 ⁵
	PERRIS VALLEY RWRF	24.6	11.0 ⁵
	SUN VALLEY RWRF	24.6	3.0 ⁵
	TEMECULA VALLEY RWRF	24.6	12.0 ⁵
CA8000027	ELSINORE VALLEY REGIONAL STP	25.0	8.0¹
	OUTFALL 001 (TEMESCAL CREEK)	13.1	4.7 ⁶
	OUTFALL 002 (LAKE ELSINORE)	25.0	1.1 ⁶
CA8000326	MITCHELSON WRP	26.4	18.0¹
CA8000100	LEE LAKE REGIONAL STP	27.2	1.6¹
	OUTFALL 001 (TEMESCAL CREEK)	31.8	
	OUTFALL 002 (BEDFORD GROUNDWATER MANAGEMENT ZONE)	42.0	
CA0107999	SAN ELIJO WPCF	29.6	5.3¹
	OUTFALL 001	28.9	2.5 ⁶

NPDES	Facility	Direct Distance [miles]	Discharge Flow [MGD]
CA0107981	HALE AVE WASTEWATER TRMT PLNT	31.3	18.0 ¹
	OUTFALL 001	31.1	18.0 ⁵
CA0108944	HARRF DISCH TO ESCONDIDO CREEK	31.3	9.0 ¹
		31.1	9.0 ⁵
CA0109215	ESCONDIDO BRINE COLLECTION	31.3	1.5 ¹
CA8000395	CORONA WWTP NO. 3	31.3	1.0 ¹
CA8000408	ORANGE COUNTY WATER DISTRICT GROUND WATER REPLENISHMENT SYSTEM ADVANCED WATER TREATMENT FACILITY	31.6	100.0 ¹
CA0110604	ORANGE COUNTY SANITATION DISTRICT RECLAMATION PLANT 1 & TREATMENT PLANT 2	33.1	232.0 ¹
	OUTFALL 001	29.9	480.0 ⁷
	OUTFALL 002	29.4	168.0 ⁷
	OUTFALL 003	29.5	130.0 ⁷

NPDES Permit Database: http://www.epa-echo.gov/echo/compliance_report_water_icp.html

Direct Distance from SONGS based on Facility Address or Outfall GPS coordinates

Discharge Flow Basis:

1. Average Design Flow
2. Actual 2003 Flow
3. Projected 2005 Flow
4. Actual 1998 Flow
5. Treatment Capacity Flow
6. Actual 2005 Flow
7. Outfall Capacity Flow

Table 5-2 Threatened and Endangered Species in San Diego and Orange Counties, California

SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FEDERAL STATUS	IDENTIFIED ON CAMP PENDLETON	IDENTIFIED IN SONGS 2 & 3 VICINITY
FISH					
<i>Orcorhynchus mykiss</i>	steelhead trout		FE	yes	yes
<i>Gila bicolor mohavensis</i>	Mohave tui chub	SE	FE	no	no
<i>Cyprinodon macularis</i>	desert pupfish	SE	FE	no	no
<i>Gasterosteus aculeatus williamsoni</i>	unarmored three-spine stickleback	SE	FE	no	no
<i>Eucyclogobius newberryi</i>	tidewater goby		FE	yes	yes
<i>Catostomus santaanae</i>	Santa Ana sucker		FT	no	no
<i>Acipenser medirostris</i>	green sturgeon		FT	no	no
AMPHIBIANS					
<i>Bufo californicus</i>	Arroyo toad		FE	yes	yes
<i>Rana aurora draytonii</i>	California red-legged frog		FT	no	no
<i>Rana muscosa</i>	mountain yellow-legged frog		FE	no	no
REPTILES					
<i>Chelonia mydas</i>	green sea turtle		FT	no	yes
<i>Caretta caretta</i>	loggerhead turtle		FT	no	yes
<i>Lepidochelys olivacea</i>	olive Ridley's turtle		FT	no	yes
<i>Dermochelys coriacea</i>	leatherback turtle		FE	no	yes
<i>Coleonyx switaki</i>	Barefoot banded gecko	ST		no	no
<i>Phrynosoma mcallii</i>	flat tailed horned lizard		FPT (withdrawn)	no	no
MAMMALS					
<i>Balaenoptera musculus</i>	blue whale		FE	no	yes
<i>B. physalus</i>	fin whale		FE	no	yes
<i>B. borealis</i>	sei whale		FE	no	yes
<i>Physeter macrocephalus</i>	sperm whale		FE	no	yes
<i>Megaptera novaeangliae</i>	humpback whale		FE	no	yes
<i>Arctocephalus townsendi</i>	Guadalupe fur seal		FT	no	no
<i>Eumetopias jubatus</i>	stellar sea lion		FT	no	no

SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FEDERAL STATUS	IDENTIFIED ON CAMP PENDLETON	IDENTIFIED IN SONGS 2 & 3 VICINITY
<i>Perognathus longimembris pacificus</i>	Pacific pocket mouse		FE	yes	yes
<i>Kipodomys stephensi</i>	Stephen's kangaroo rat	ST	FE	yes	yes
BIRDS					
<i>Haliaeetus leucocephalus</i>	Bald eagle	SE		yes	yes
<i>Pelecanus occidentalis californicus</i>	California brown pelican	delisting cand.	delisting cand.	yes	yes
<i>Laterallus jamaicensis coturniculus</i>	California black rail	ST		no	no
<i>Rallus longirostris levipes</i>	light footed clapper rail	SE	FE	yes	no
<i>Sterna antillarum browni</i>	California least tern	SE	FT	yes	no
<i>Synthliboramphus hypoleucus</i>	Xantu's murrelet	ST		no	no
<i>Falco peregrinus anatum</i>	American peregrine falcon	SCD	delisted	yes	no
<i>Falco peregrinus tundrius</i>	Arctic peregrine falcon		delisted	no	no
<i>Rallus longirostris obsoletus</i>	California clapper rail	SE	FE	no	no
<i>Charadrius alexandrinus nivosus</i>	Western snowy plover		FT	yes	yes
<i>Coccyzus americanus occidentalis</i>	Western yellow-billed cuckoo	SE	Candidate	yes	no
<i>Empidonax traillii extimus</i>	Southwestern willow flycatcher	SE	FE	yes	yes
<i>Riparia riparia</i>	Bank swallow	ST		yes	no
<i>Poliioptilacalifornica californica</i>	Coastal California gnatcatcher		FT	yes	yes
<i>Lanius ludovicianus mearnsi</i>	San Clemente loggerhead shrike		FE	no	no
<i>Vireo bellii pusillus</i>	Least Bell's vireo	SE	FE	yes	yes
<i>Amphispiza belli clementeae</i>	San Clemente sage sparrow		FT	no	no
<i>Passerculus sandwichensis beldingi</i>	Belding's savannah sparrow	SE		yes	no
INVERTEBRATES					
<i>Haliotis sorenseni</i>	white abalone		FE	no	no
<i>Branchinecta sandiegoensis</i>	San Diego fairy shrimp		FE	yes	yes
<i>Streptocephalus woottoni</i>	Riverside fairy shrimp		FE	yes	yes
<i>Pyrgus ruralis lagunae</i>	Laguna mountains skipper		FE	no	no
<i>Euphydras editha quino</i>	Quino checkerspot		FE	no	no
PLANTS					
<i>Acanthomintha ilicifolia</i>	San Diego thorn-mint	SE	FT	no	no
<i>Ambrosia pumila</i>	San Diego ambrosia		FE	no	no
<i>Arctostaphylos glandulosa crassifolia</i>	Del Mar manzanita		FE	no	no

SCIENTIFIC NAME	COMMON NAME	STATE STATUS	FEDERAL STATUS	IDENTIFIED ON CAMP PENDLETON	IDENTIFIED IN SONGS 2 & 3 VICINITY
<i>Astragalus magdalenae peirsonii</i>	Peirson's milk vetch	SE	FT	no	no
<i>Astragalus tener titi</i>	Coastal dunes milk vetch	SE	FE	no	no
<i>Baccharis vanessae</i>	Encinitas baccharis	SE	FT	no	no
<i>Brodiaea filifolia</i>	Thread-leafed brodiaea	SE	FT	yes	yes
<i>Calochortus dunnii</i>	Dunn's mariposa lily	SR		no	no
<i>Chorizanthe orcuttiana</i>	Orcutt's spineflower	SE	FE	no	no
<i>Cordylanthus maritimus maritimus</i>	salt marsh bird's beak	SE	FE	no	no
<i>Delphinium hesperium cuyamaca</i>	Cuyamaca larkspur	SR		no	no
<i>Downingia concolor brevior</i>	Cuyamaca Lake downingia	SE		no	no
<i>Dudleya brevifolia</i>	short leaved dudleya	SE		no	no
<i>Eryngium aristulatum</i>	San Diego button-celery		FE	yes	no
<i>Fremontodendron mexicanum</i>	Mexican flannelbush	SR	FE	no	no
<i>Galium angustifolium borregoense</i>	Borrego bedstraw	SR		no	no
<i>Hazardia orcuttii</i>	Orcutt's bristleweed	ST		no	no
<i>Limnanthes gracilis parishii</i>	Parish's meadowfoam	SE		no	no
<i>Monardella linoides viminea</i>	Willow monardella	SE	FE	no	no
<i>Navarretia fossalis</i>	spreading navarretia		FT	yes	no
<i>Orcuttia californica</i>	California Orcutt grass	SE	FE	no	no
<i>Ornithostaphylos oppositifolia</i>	Baja California birdbush	SE		no	no
<i>Packera ganderi</i>	Gander's ragwort	SR		no	no
<i>Phacelia stellaris</i>	Brand's phacelia		Candidate	yes	no
<i>Poa atropurpurea</i>	San Bernardino blue grass		FE	no	no
<i>Pogogyne abramsii</i>	San Diego mesa mint	SE	FE	no	no
<i>Rosa minutifolia</i>	small leaved rose	SE		no	no

FE = Federally Endangered FT = Federally Threatened SE = State Endangered ST = State Threatened SR = State Rare SCD = State Candidate for Delisting

Table 5-3 Estimated Project Costs Associated with Environmental Compliance, Permit Requirements and Licensing Documents

Agency	Media	Requirement	Significant Issues	Site Permit or Modification	Estimated Costs
San Diego Air Pollution Control District	Air Permits	CAAQS for the San Diego Region	If air emission credits not available or an exception could not be attained, then permitting the cooling towers would not be feasible	APCD/AQMD permits for compliance with CAA, and SDCAPC permits for construction and operations	\$ 25,000
San Diego Air Pollution Control District	Emission Credits	CAAQS for the San Diego Region	If air emission credits not available or an exception could not be attained, then permitting the cooling towers would not be feasible	Emission Credits to release between 827.8 and 837.2 tons/year of PM ₁₀	Cannot be determined without further input from the SDAPCD
California Coastal Commission	Land Use & Visual Impacts	Requirements under CCC Jurisdiction	Consult with CCC to determine permit modification requirements	Modification to Current CCC Permit	\$ 50,000
California Public Utilities Commission	Environmental Resources	CEQA Environmental Review	CPUC approval of rate increase	Development of PEA for Cooling Towers	\$ 50,000
California Fish & Game	Ecological Resources	Endangered Species Act	Potential mitigation due to impacts to ecological resources from cooling tower operations	Potential Section 2081 Incidental Take Permit	\$ 25,000
California State Lands Commission	Land Use & Visual Impacts	CEQA Requirements under CSLC Jurisdiction	Drift from the cooling towers	None	\$ 25,000
California Regional Water Quality Control Board – San Diego Region	NPDES Permit Modifications, Saline Issues	NPDES Permit Discharge Limits	Discharge modeling could be required to evaluate thermal and salinity compliance with regulatory requirements	NPDES Permit Modification	\$ 75,000

Agency	Media	Requirement	Significant Issues	Site Permit or Modification	Estimated Costs
California State Historic Preservation Office (SHPO)	Cultural Resources	Section 106 National Historic Preservation Act	SHPO could require a cultural resource investigation of the potential impacted areas	Potential Phase 1	\$ 100,000
California State Parks	Land Use & Visual Impacts	CEQA Requirements under CSP Jurisdiction	Significant public interest	None	\$ 25,000
MCBCP	Land Use	Environmental Review & INRMP modification	Without MCBCP approval, conversion to closed-loop cooling would not be feasible	NEPA Review submittals	\$ 25,000
United States Army Corp of Engineers	Dredging and Wetlands	CWA	No major issues if no dredging or modification intake and discharge structures	None based on current design requirements	\$ 0
U.S. Fish and Wildlife	E&T Species	Endangered Species Act	Potential ecological impact from drift from the cooling towers	Consultations for Biological Opinion consultations	\$ 10,000
NCTD Railroad	Tunneling	Easement restrictions	Seismic issues and top of tunnel depth	Permit application costs and fees	\$ 50,000
California Department of Transportation	Tunneling	Easement restrictions	Seismic issues and top of tunnel depth	Permit application costs and fees	Cannot be determined without further input from the CalTrans

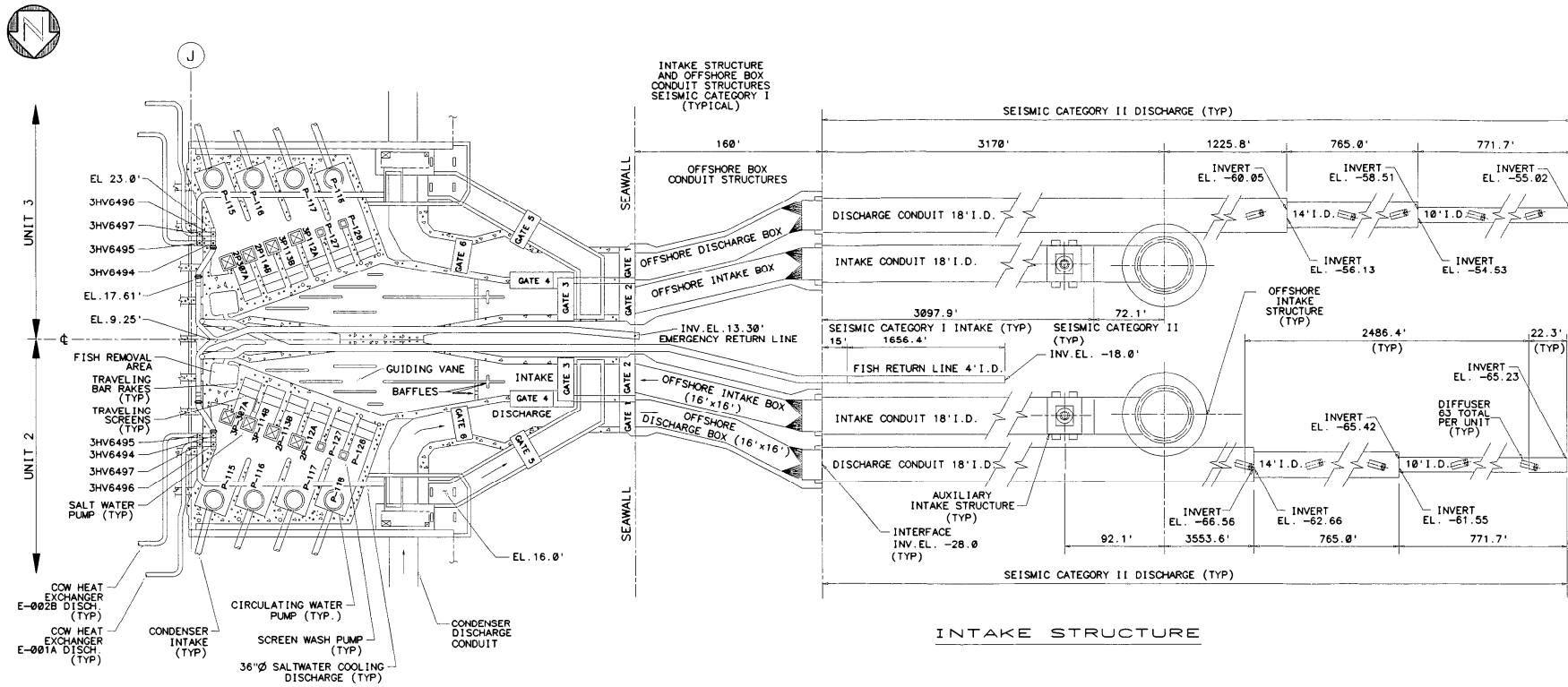


Figure 5-1 General Arrangement Intake Structure SONGS Units 2 & 3 (DBD-SO23-410)

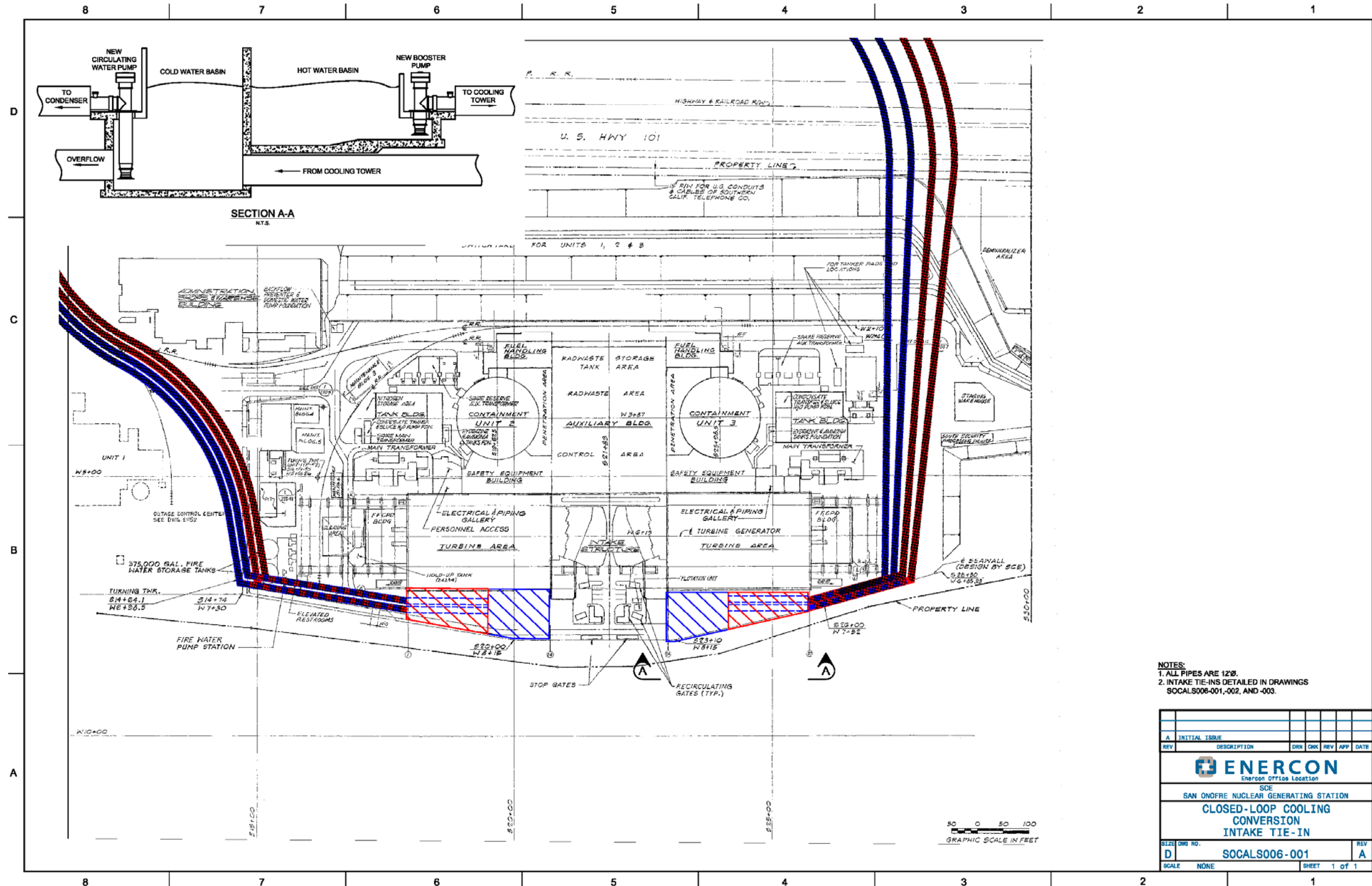


Figure 5-2 Intake Structure Tie-In Detail for Conversion to Closed-Loop Cooling at SONGS

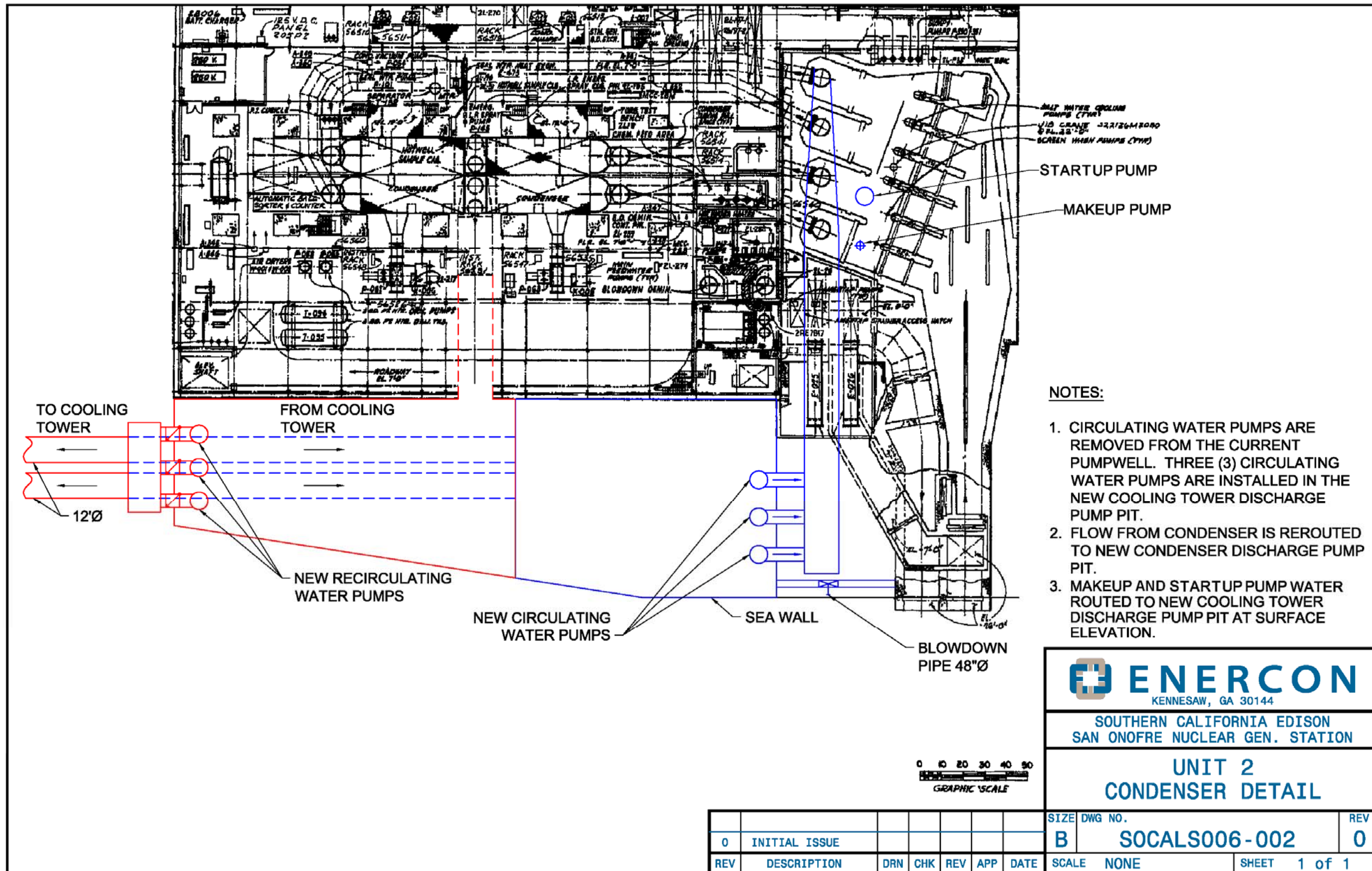


Figure 5-3 SONGS Unit 2 Condenser Tie-In Detail for Conversion to Closed-Loop Cooling

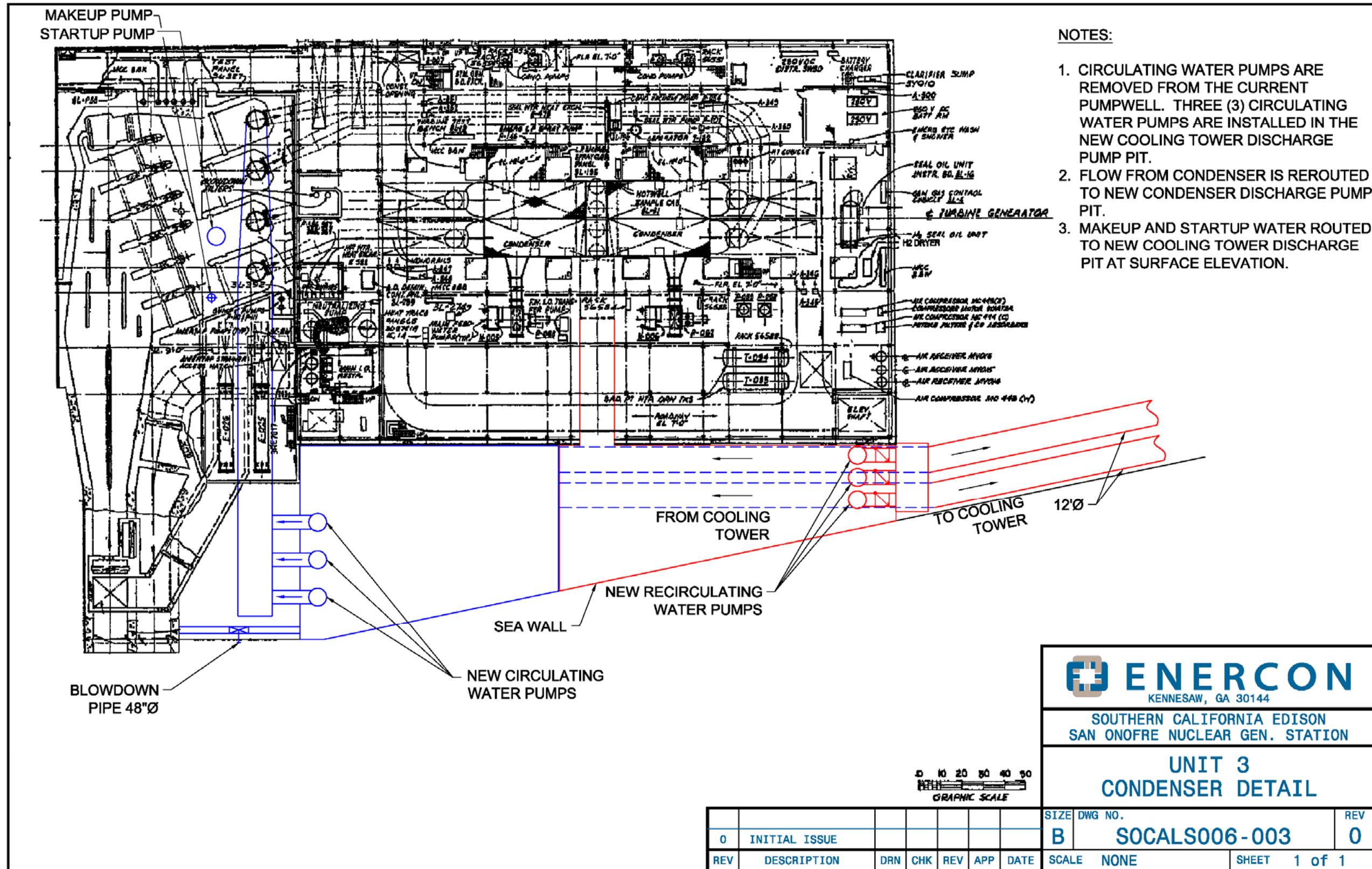


Figure 5-4 SONGS Unit 3 Condenser Tie-In Detail for Conversion to Closed-Loop Cooling

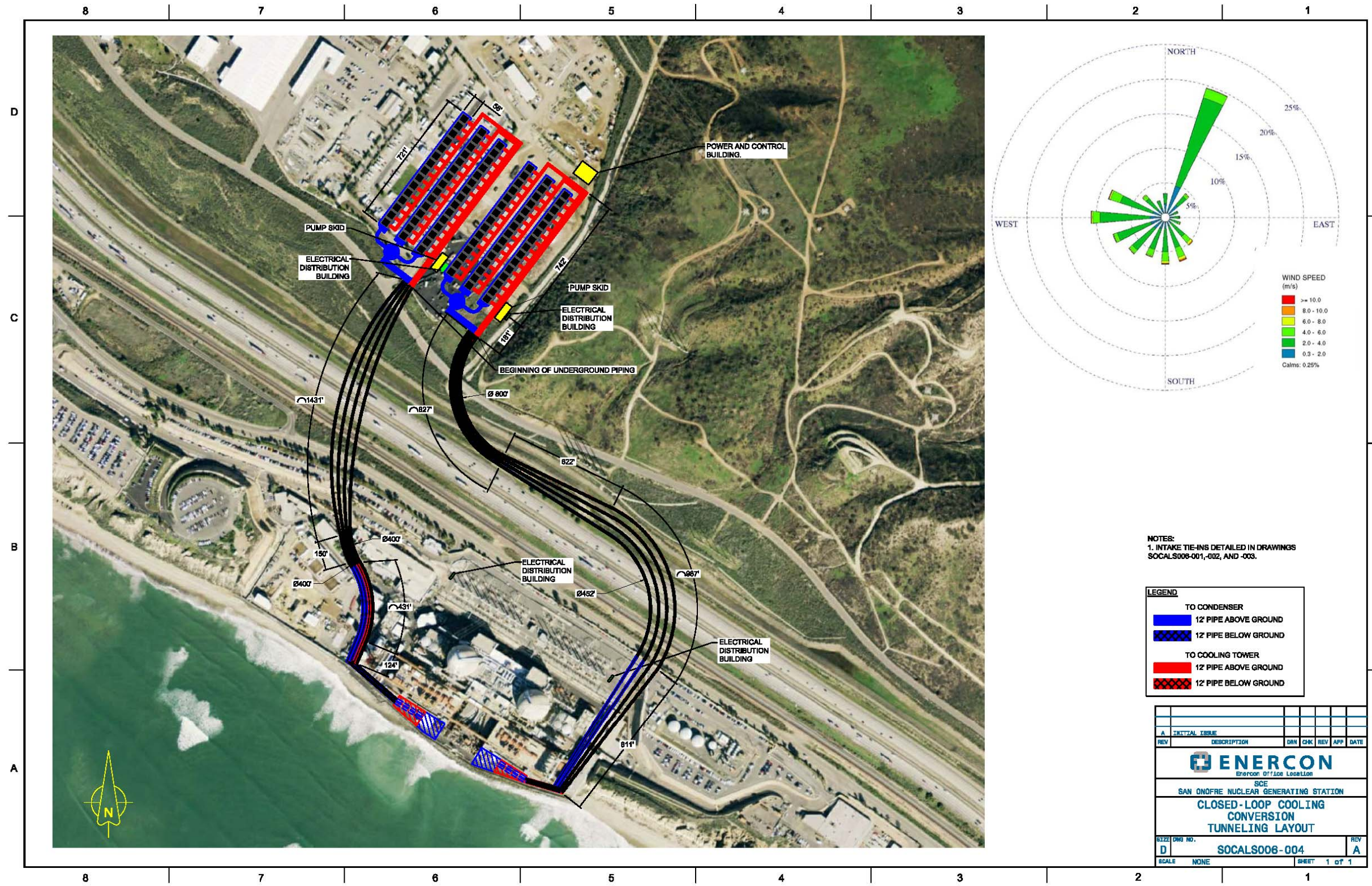


Figure 5-5 Cooling Tower and Tunneling Configuration for Closed-Loop Cooling Conversion at SONGS



Figure 5-6 Plume Emitted from Catawba Nuclear Station (Dry-Bulb: 65°F, Relative Humidity: 90%)



Figure 5-7 Bird's Eye View of Catawba's Non-Plume-Abated Mechanical Draft Cooling Towers (1 of 3)



Figure 5-8 Bird's Eye View of Catawba's Non-Plume-Abated Mechanical Draft Cooling Towers (2 of 3)



Figure 5-9 Bird's Eye View of Catawba's Non-Plume-Abated Mechanical Draft Cooling Towers (3 of 3)

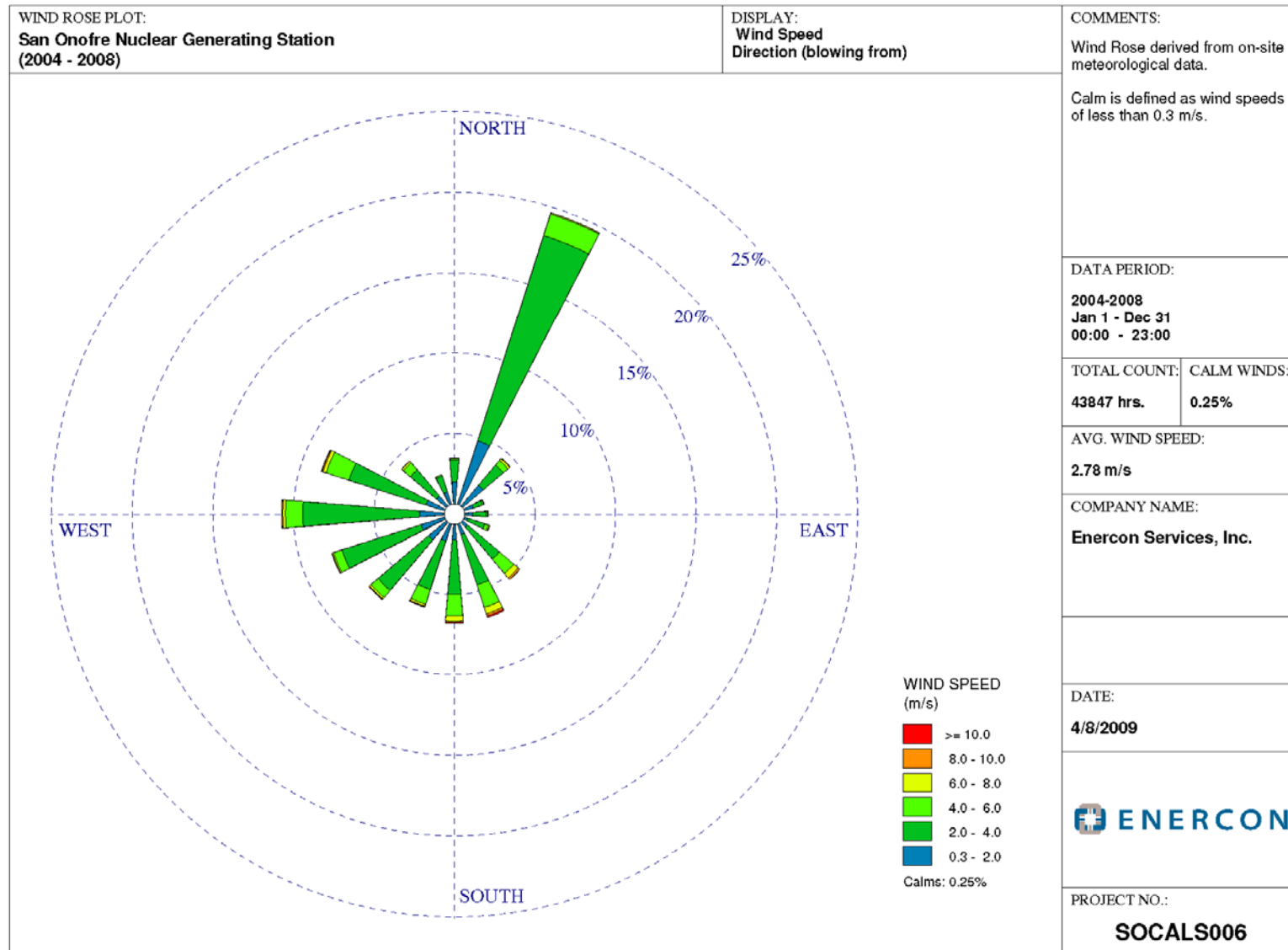


Figure 5-10 Wind Rose Derived from 2004-2008 SONGS Wind Speed Data

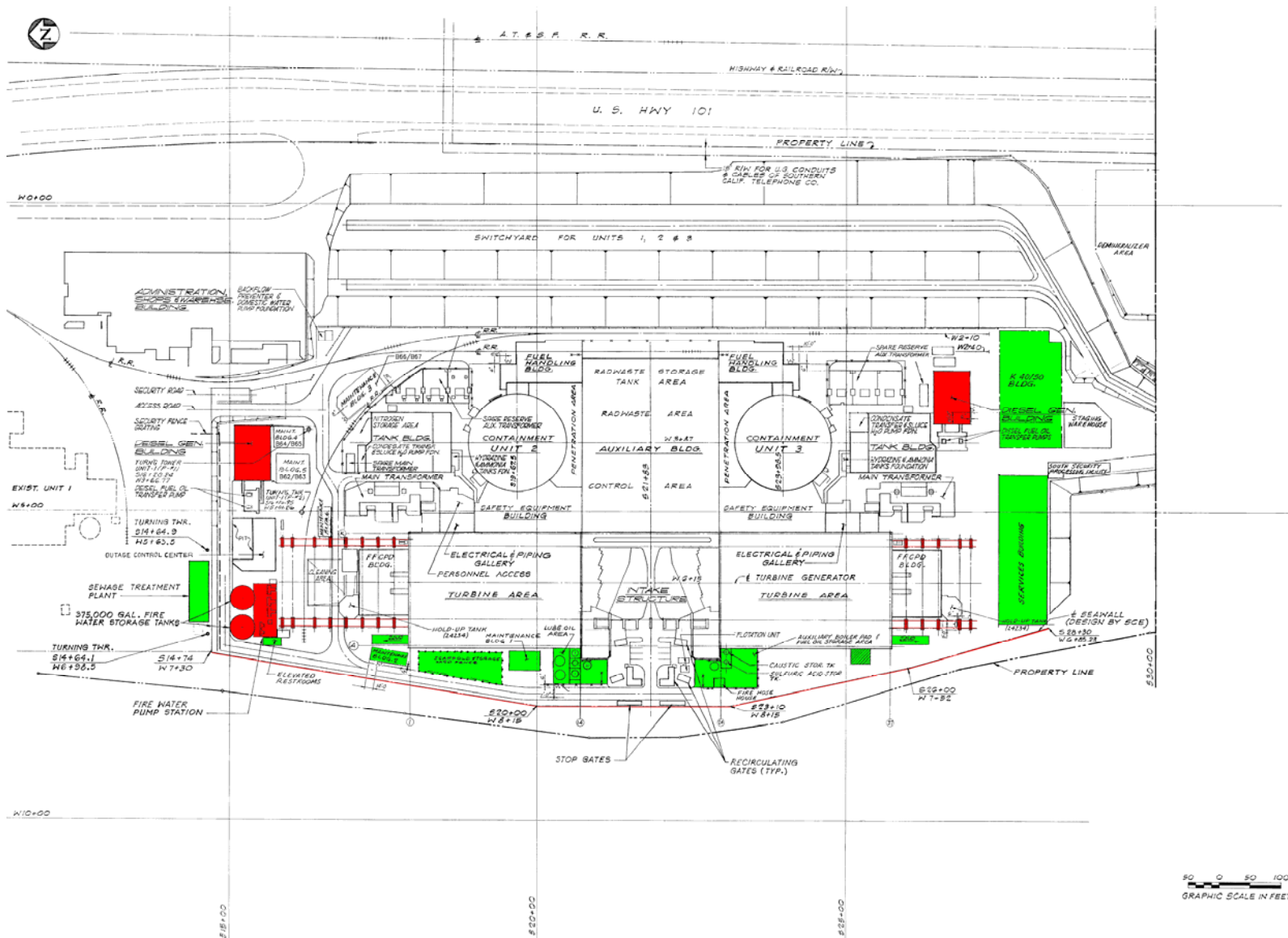


Figure 5-11 Aerial View of Critical (Red) and Impacted (Green) Structures for Tunneling

