Alignment 2C

Alignment 2C is the preferred alternative. The new 36-inch force mains would follow the existing alignment along the existing utility road within the OCSD easement from the Bitter Point Pump Station for approximately 5,000 feet, to near the existing junction structure on the east bank of the SAR (entrance to the existing gravity siphons). The new force mains would then be installed under the SAR in a northwest direction to a junction structure within the plant on the west side of SAR located approximately 2,700 feet north of PCH. Similar to Alignment 2A, a new 60-inch gravity sewer would be constructed to connect the force mains with the District's 84-inch diameter Coast Trunk sewer within the treatment plant, approximately 700 feet from the west bank of the SAR (Figure 2-7).

Similar to Alignment 2A, the existing 8 and 10-inch waste oil gravity lines from the West Newport Oilfield (see Figure 1-3) would be abandoned in place. A new 12-inch pipeline would be connected from the oil field property to the Bitter Point Pump Station using open trench methods within the utility service road.

2.1.4 PROJECT CONSTRUCTION

CONSTRUCTION SCHEDULE

The preliminary construction schedule is estimated to last 11 months. This schedule assumes construction for the pipeline utilizes two headings simultaneously. That is to say, construction would be occurring simultaneously for the open trench construction and the tunneled sections. Additional headings can be stipulated in the construction contract that would further reduce the schedule. If fewer headings are utilized, the construction schedule would be lengthened. The schedule assumes a production rate of approximately 80 linear feet of pipe installed per day in the open trench segments. The segment of gravity sewer within the plant would occur at a slower 15 feet per day. Tunneled sections assume a tunnel progress rate of 20 linear feet per day. At the culmination of tunnel construction, a rate of 40 linear feet per day is assumed for pipe installation in the tunnel sections.

CONSTRUCTION ACTIVITIES

Alternative 1

The construction methods for each alignment option (1A, 1B, 1C, and 1D) would include tunneling from the Bitter Point Pump Station southwestward beneath PCH. Open trench construction would be used along PCH to the south side of the SAR for Alignments 1A, 1B, and 1C. Alignment 1D would be constructed entirely by trenchless methods (micro-tunneling or horizontal directional drilling) along this segment. The trenchless construction methods would require four entry pits and three receiving pits. Four of the pits would be located in parking lots

along Seashore Drive south of PCH. Either micro-tunneling or horizontal directional drilling would be employed to install the force mains beneath the SAR and Talbert Marsh outlet channel for each alignment. From the north end of the force mains, either micro-tunneling, directional drilling, or open trench construction would be employed to connect the gravity sewer with the Coast Trunk Sewer at Brookhurst Street. Just north of the SAR, Alignment 1C would be tunneled beneath PCH and Talbert Marsh. The segment of pipeline along the bikepath bordering the Talbert Marsh would be micro-tunneled or open trenched.

Installation of the 36-inch dual force mains and 60-inch gravity sewer would displace a considerable amount of soil during trench excavation (See **Table 2-1**). Some of this material would be used to backfill the trench. Excess excavated material would be hauled offsite during trenching operations for reuse or disposal. Asphalt materials removed from construction within PCH or the Huntington State Beach parking lot would be removed from the site and paving materials would be imported to the site for road resurfacing.

TABLE 2-1: ESTIMATES OF EARTH AND PIPE MATERIAL QUANTITIES ASSOCIATED WITH ALTERNATIVES 1 AND 2

Item	Unit	1A & 1B	1C	1D	2A	2B	2C
Removal of Open Trench Excavated Material	CY	35,170	36,770	NA	44,530	44,380	40,120
Removal of Tunneling Excavated Material	CY	4,990	3,290	9,370	3,550	3,550	4,390
Removal of Asphalt	CY	860	700	90	230	230	230
Import of Pipeline Backfill/Bedding	CY	23,950	24,670	NA	30,400	30,300	27,430
Import of Tunneling Sand	CY	2,650	1,750	1,880	1,880	1,880	2,330
Import of Asphalt Paving	CY	860	700	90	230	230	230
Import of Filter Fabric	SY	21,460	23,720	NA	23,540	23,460	21,280
Import of 60" Concrete Pipe	LF	1,080	1,760	1,080	515	515	515
Import of 36" DI Pipe	LF	10,940	9,780	10,940	13,640	13,600	13,050
Import of 10" Concrete Pipe	LF	3,650	3,650	3,650	NA	NA	NA

CY = cubic yard, LF = linear foot, SY = square yard

Source: IPMC (Integrated Project Management Consultants) dated August 31, 2003, and/or IMP, Addendum No. 1 to 5-58 Project Technical Memorandum, dated October 17, 2003.

Open trench construction within PCH (Alternatives 1A, 1B, and 1C) would likely require temporary closure of 1½ of the three southbound lanes of traffic. Two southbound lanes would be maintained. Lane closure would be necessary for the duration of the open trench construction, which would differ for each of the Alternative 1 alignments. Alignment 1A would require the longest lane closure duration (up to 11 months). Bike paths within the limits of construction would also be temporary rerouted. For Alternatives 1A, 1B, and 1C, the closure of traffic lanes and bike paths would be limited to a maximum length of 500 to 700 feet at any one time. Access

to businesses and parking on the inland side of PCH would be maintained at all times during construction.

Access to residential areas on the coastal side of PCH via Orange and Prospect Streets would be maintained at all times except during trenching activities across the intersections. One of the two streets will be open at all times to ensure access to residences on the coastal side of PCH. Trenching across the intersections would limit access for one week during day time hours. Trench plates would cover the trenches to maintain access during the night. Residential areas on the inland side of PCH would not be restricted.

The open trench within the Huntington State Beach parking lot (Alternative 1B only) would be similar in width to that on PCH. Approximately one third of the parking spaces in the parking lot, located east of Brookhurst Street, would be temporarily unavailable during construction.

Micro-tunneling would require entry and exit pits, approximately 30 feet in diameter, as well as a larger laydown area for materials. No jacking pits would be located in PCH. Jacking pits for each Alternative 1 alignment would be located at the cul-de-sac of Seashore Drive at the SAR. Alternatives 1A, 1B, and 1C would require placing a jacking pit north of the SAR near the beach. Alternative 1A would require a jacking pit between PCH and the Huntington State Beach parking area. Jacking pits would temporarily displace parking spaces in the Huntington State Beach parking lot for Alternatives 1B and 1D.

The jacking pit would be approximately 25 feet deep and would require shoring and likely dewatering wells and sumps. Additional staging areas of approximately 0.5 acres or less would be required around the jacking pit to accommodate equipment and materials. Figures 2-1 through 2-4 identify the proposed locations of jacking pits. Construction equipment would be stored offsite at the District's Treatment Plant No. 2. Tunnel spoils would be trucked offsite for reuse or disposal.

Additionally, with each alignment of Alternative 1, the gravity sewer that services the West Newport Oilfield (owned by West Newport Oil Company) would be reconnected to a new 12-inch gravity sewer. Currently, the District receives flow from one of the two (8- and 10-inch) waste lines at a point approximately 1,500 feet southeasterly of the junction box at the SAR as shown in Figures 1-3 and 2-1. The flow enters the District's 12-inch gravity sewer that parallels the existing force main alignment to the junction box. The District's service to the West Newport Oilfield would be maintained. However, a new connection would need to be made by constructing a 12-inch gravity sewer to parallel the existing force main alignment from the oil production facilities to the new Bitter Point Pump Station.

As part of this work, the District would abandon the existing force mains, from Bitter Point Pump Station to the junction box at the SAR, the existing 12-inch diameter gravity sewer, and the Newport Trunk (gravity siphons under the river and the junction structure and gravity sewer within Plant No. 2). The junction box structures and manholes on the pipelines would also be

removed to five feet below grade. The remaining structures, force mains, siphons, and gravity sewer would either be abandoned in place and filled with cement slurry or removed if they conflict with new pipelines. Construction of a new line for the West Newport Oilfield would be open trench for its full length, from the production oilfield to the new Bitter Point Pump Station. The trench would be limited to a maximum length of 500 to 700 feet at any one time and would have a slightly smaller trench width than the excavation required on PCH.

Alternative 2

Alternative 2C is the District's preferred alternative. Open trench construction would be used to install the force mains within the existing utility road bordering the SAR marsh (Alternatives 2A, 2B and 2C) and through the oil field (Alternative 2A). Either micro-tunneling or horizontal directional drilling would be employed to install the force mains beneath the SAR (Alternatives 2A, 2B and 2C) and the SAR Marsh (Alternatives 2A and 2B). Open trench construction would be employed to connect the 60-inch gravity sewer with the Coast Trunk Sewer inside the treatment plant.

The open trench construction within the utility road would be conducted within the existing easement and disturbed roadway. Staging areas would be located entirely within the 30-foot easement of the utility service road. Alternative 2A would require obtaining an easement through the oilfield from Armstrong Petroleum. The alignment would be installed using open trench methods through the oil field. A jacking pit would be installed within the oilfield to drill under the SAR marsh to avoid affecting the marsh habitat or placing fill within the marsh. Alternative 2B would require placing a jacking pit at the edge of the marsh. This alternative could result in removing some vegetation and placing some fill into the marsh to accommodate the jacking pit.

The preferred alternative, Alternative 2C, would utilize open trench methods within the utility road from the Bitter Point Pump Station to the SAR. A jacking pit would be installed within the seven-acre area within the City of Newport Beach city limits at the edge of the SAR. This area is disturbed and within the existing utility easement. No construction activities would occur outside the easement.

Installation of the 36-inch dual force mains and 60-inch gravity sewer would displace a considerable amount of soil during trench excavation. Some of this material would be used to backfill the trench. Excess excavated material would be hauled offsite during trenching operations for reuse or disposal in accordance with all regulatory requirements. The jacking pit would be approximately 25 feet deep and 25 feet long by 15 feet wide. The jacking pit would require shoring and likely dewatering wells and sumps. Additional staging areas of approximately 160 feet by 250 feet (40,000 square feet) would be required around the jacking pit to accommodate equipment and materials. A receiving pit would be located within Plant No. 2.

The new 12-inch force main would connect to the existing 8- and 10-inch West Newport Oil Company waste pipelines and would be installed using open trench construction within the utility road for its full length, from the production oilfield to the new Bitter Point Pump Station. The trench would be installed in segments of 500 to 700 feet at any one time.

As part of each alignment, the District would abandon the existing force main system from Bitter Point Pump Station to the junction box at the SAR, the existing 12-inch diameter gravity sewer (from the connection point of West Newport Oil Co. to the junction box), and the Newport Trunk (inverted gravity siphons under the river, and the junction structure and gravity sewer within Treatment Plant No. 2). The junction box structures and manholes on the pipelines would also be removed to five feet below grade. The remaining structures, force mains, siphons, gravity sewer would be either abandoned in place and filled with cement slurry or removed if they conflict with new pipelines.

Table 2-1 shows a preliminary estimate of removal of excavated material and import of backfill and paving material for each alignment of Alternatives 1 and 2. **Table 2-2** lists the estimate of the major equipment that would be used during construction of any of the alignments of Alternatives 1 and 2.

2.2 REQUIRED PERMITS AND APPROVALS

Agencies that are anticipated to use the EIR in their decision making or from which permits may be required for the project are identified below.

- USACE: approval of County Encroachment Permit
- USACE: Section 404 Permit (Alternatives 2A and 2B for impacts to wetland habitat)
- USFWS: incidental take permit pursuant to Section 7 of Endangered Species Act (Alternative 2 for impacts to wetland habitat) California Department of Fish and Game (CDFG): Streambed Alteration Agreement (Alternative 2A and 2B for modification of wetland area); incidental take permit pursuant to Section 2081 of California Endangered Species Act (Alternative 2A and 2B for impacts to wetland habitat)
- California Coastal Commission (CCC) (City of Newport Beach Local Coastal Program): Coastal Development Permit
- California Department of Transportation (Caltrans): Encroachment Permit
- California State Lands Commission: Encroachment permit (Alternative 1B)
- California State Parks: Encroachment permit (Alternative 1B)

TABLE 2-2: MAJOR CONSTRUCTION EQUIPMENT ASSOCIATED WITH PROJECT CONSTRUCTION

Major Construction Equipment Items	Power (hp)	Estimated Quantity	Maintenance	Clearing and Grubbing	Excavation	Pile Driving	Cutting Pavement	Dewatering	Ripping	Drilling	Hauling	Pipe Handling	Welding	Dust Control	Backfilling	Compaction	Pavement Restoration	Tunneling	Personal Transport	Power Generation
Open Trench Construction:																				
Crawler-tractor mounted bulldozer	370	1		X																
Crawler-mounted hydraulic backhoe, 3 CY bucket	150	1			X				X			X			X					
End dump truck, 14 CY capacity	400	4									X						X			
Plate Vibrator for pipe zone compaction	5	4														X				
Vibrating, towed-type Sheep's foot roller	30	1														X				
Vibrating, steel-drum roller	50	1														X				
Self-propelled pavement spreader	50	1															X			
Track-mounted drill with hydraulic boom	150	1								X										
Electric arc welder	20	2											X							
Air compressor, 200 cfm capacity	75	1								X										
Flatbed truck	120	6										X								
Crawler-mounted hydraulic crane, 16 ton capacity	100	1										X								
Water truck	200	1						X						X						
Hand-held circular saw	10	1					X													
Vibrating screen	50	1													X					
Crawler-tractor type front end loader	170	1													X					
Concrete transit mixer, 8 CY capacity	250	2													X					
Dewatering well pump	2	20						X												
Sump pump	2	4						X												
Diesel generator	40	2						X												X

TABLE 2-2 (CONT.): MAJOR CONSTRUCTION EQUIPMENT ASSOCIATED WITH PROJECT CONSTRUCTION

Major Construction Equipment Items	Power (hp)	Estimated Quantity	Maintenance	Clearing and Grubbing	Excavation	Pile Driving	Cutting Pavement	Dewatering	Ripping	Drilling and Blasting	Hauling	Pipe Handling	Welding	Dust Control	Backfilling	Compaction	Pavement Restoration	Tunneling	Personal Transport	Power Generation
Pick-up truck	150	3																	X	
Mechanics truck (oiler)	150	1	X																	
Microtunneling or HDD:																				
EPB or HDD machine and power pack	200	1																X		
Dewatering well pumps	2	1						X												
Crawler-mounted, cable-controlled crane, 40 ton.	200	1				X														
End dump truck, 14 CY capacity	400	1									X									
Diesel generator	40	1						X												X
Portable water treatment for dewatering	5	1						X												
Air compressor, 200 cfm capacity	75	1								X								X		
Electric arc welder	20	1											X							
Sump pump	2	1						X												
Settling Tanks for slurry	5	1						X												
Crawler-mounted hydraulic backhoe, 3 CY bucket	150	1			X				X			X								
Mechanics truck (oiler)	150	1	X																	
Ventilation equipment	40	1																X		
Muck cars	0	1																X		
Locomotives	50	1																X		
Front end loader	170	1		X	X							X								

Source: IPMC (Integrated Program Management Consultants), August 2003

- RWQCB: Clean Water Act (CWA), Section 401, (Alternative 2 for destruction of wetland habitat); construction storm water discharge permit; dewatering discharge permit
- Orange County Public Facilities and Resources Department (PFRD): Encroachment Permit
- California Occupational Safety and Health Administration (CAL OSHA): excavation permit
- City of Newport Beach, encroachment permit (Alternative 1A, 1B, 1C, 1D, 2C)