

EXHIBIT C

PERTINENT DATA FOR OTHER
RESERVOIRS AFFECTING LOS ANGELES RIVER

EXHIBIT C

DAM DATA SHEET

Name Chatsworth, Embankment Nos. 2 and 3 Completed 1918
Location West end of the San Fernando Valley, City of Los Angeles, 25 miles northwest of the Los Angeles Civic Center.

GENERAL DATA

Purpose Domestic Water Storage Current max. storage 0* A.F.
Max. height 48' Crest length Embankment No. 2: 1700', Embankment No. 3: 750' Crest width 21'
Crest elev. 900' USGS Datum Spillway lip elev. 889' USGS Datum
Drainage area 5.4 square miles
Drainage type Hydraulic fill; in 1931 the upstream face and crest were removed and replaced with compacted fill
Cutoff type and dimensions Cutoff wall 2' wide by 3' to 23' deep at the upstream toe of the dam
U.S. slope, angle and protection 2-1/2h:1v, 6" concrete slab
D.S. slope, angle and protection 3h:1v above berm, native brush
Designers LADWP
Constructed by LADWP
Consultants Information not available

FOUNDATION AND ABUTMENTS

Material Sandstone bedrock at abutments, alluvium foundation
Treatment Removed top soil
Drainage Embankment #2: Rock drain at the downstream toe of the dam
Embankment #3: Subdrain at the downstream toe of the dam

SPILLWAY AND OUTLET

Spillway type, location, foundation Open channel on the right abutment of Embankment No. 3, sandstone bedrock
Outlet type, location, foundation Vertical tower w/72" tunnel northeast of Embankment No. 3, sandstone bedrock
Remarks: * Chatsworth Reservoir has been out of service and empty since 1969.

WEDD May 1978

DAM DATA SHEET

Name Encino Completed Original 1921;
Existing 1962
Location San Fernando Valley on the north slope of the
Santa Monica Mountains

GENERAL DATA

Purpose Domestic Water Storage Current max. storage 10,300 A.F.
Max. height 168' Crest length 1,850' Crest width 30'
Crest elev. 1,088' USGS Datum Spillway lip elev. 1,075' USGS Datum
Drainage area 1.4 square miles
Dam type Approximately 80% is sheepsfoot roller compacted soil on bedrock;
downstream remainder is old fill on alluvium.
Cutoff type and dimensions None, upstream two-thirds of the dam is on
bedrock.
U.S. slope, angle & protection 3h:1v; 3" asphaltic concrete
D.S. slope, angle & protection 2h:1v above berm, 2h:1v below berm; berm 100'
wide at elev. 1020'; native brush & grasses
Designers LADWP
Constructed by Contract
Consultants No outside consultants for major alterations in 1962.

FOUNDATION AND ABUTMENTS

Material Sandstone, siltstone, and shale
Treatment Upstream two-thirds of foundation was stripped to bedrock
Drainage Abutment and toe tile subdrain systems

SPILLWAY AND OUTLET

Spillway type, location, foundation Operating spillway pipe located at left
abutment. Auxiliary spillway open trapezoidal channel at same location.
Outlet type, location, foundation Vertical tower with 72" tunnel; west or
left abutment; sandstone and shale bedrock

Remarks: _____

WEDD May 1978

LOS ANGELES DAM AND RESERVOIR DATA

DESIGN:

Embankment	Compacted earth
Crest Dam Elevation	1187 feet, USGS
Crest Length	3072 feet
Crest Width	30 feet
Maximum Height	155 feet
Slope Upstream, Main Dam	3-1/2:1
Slope Downstream	2-1/2:1 & 3:1
Compacted Fill, Dam Only	5,352,764 cubic yards*
Compacted Fill, North Dike	1,349,051 cubic yards (including rock)
Compacted Fill, Total Project	8,155,457 cubic yards
Reservoir Capacity	10,170 acre-feet**
Maximum Depth @ HW	75 feet
Area @ HW	176.2 acres
Spillway Lip Elevation	1,175 feet
Spillway Capacity	7,049 cfs*** (PMP storm)
Reservoir Inlet	90" WSP, 900 cfs capacity
Reservoir Outlet	120" WSP, 1,100 cfs capacity
Reservoir West Outlet	84" WSP, 600 cfs capacity
Emergency Blowoff	2--48" outlets, 1,250 cfs capacity
Storm Water Bypass East Side	850 cfs (50-year storm)

DRAINAGE AREA: 8,374 acres

RESERVOIR CONSTRUCTED: 1974-1977

PROJECT COST: Contracts 8860 & 9245 only,
\$33,251,601

*Includes 405,512 cubic yards of clay and 506,887 cubic yards rock and gravel.

**The reservoir level can be lowered 10 feet in nine hours, and the total storage reduced by one-half in 30 hours.

***Probable maximum precipitation (PMP) storm, as determined by the U.S. Weather Bureau, is greater than the 1,000-year storm.

LOPEZ DAM AND RESERVOIR
LOS ANGELES COUNTY, CALIFORNIA

PERTINENT DATA
JULY 1985

Stream system.....	Pacoima Wash
Drainage area.....sq. miles..	34
Reservoir:	
Elevation	
Streambed at Dam.....ft., m.s.l..	1,253.72
Flood control pool (spillway crest).....ft., m.s.l..	1,272.92
Spillway design surcharge level.....ft., m.s.l..	1,293.48
Top of dam.....ft., m.s.l..	1,298.92
Area	
Spillway crest.....acres..	41.3
Spillway design surcharge level.....acres..	70.7
Top of dam.....acres..	80.1
Capacity, gross	
Spillway crest.....acre-feet..	441 (0.24*)
Spillway design surcharge level.....acre-feet..	1,613.3 (0.89*)
Top of dam.....acre-feet..	2,021.4 (1.12*)
Allowance for sediment (50-year).....acre-feet..	794 (0.44*)
Dam: - type.....	Earthfill
Height above original streambed.....ft..	50
Top length.....ft..	1,330
Top width.....ft..	20
Freeboard.....ft..	6.1
Spillway: - type.....	Broad-crested
Crest length.....ft..	110
Design surcharge.....ft..	19.9
Design discharge.....c.f.s..	31,000
Outlets:	
Number and size-diameter.....ft..	1-5' diameter
Length.....ft..	428
Entrance invert elevation.....ft., m.s.l..	1,253.92
Standard project flood:	
Duration (inflow).....days..	3
Total volume.....acre-feet..	14,000 (7.78*)
Inflow peak.....c.f.s..	11,200
Probable maximum flood	
Duration (inflow).....days..	1
Total volume.....acre-feet..	19,900 (10.97*)
Inflow peak.....c.f.s..	30,400
Historic maximums:	
Maximum release.....c.f.s..	3,900
Date.....	3-1-83
Maximum water surface elevation.....ft., m.s.l..	1,277.7
Date.....	3-1-83

*inches of runoff

HANSEN DAM
LOS ANGELES COUNTY, CALIFORNIA

PERTINENT DATA
SEPTEMBER 1988

Completion date.....	September 1940
Stream system.....	Tujunga Wash
Drainage area.....mi ² ..	151.9
Reservoir:	
Elevation	
Debris pool.....ft., NGVD..	1,010.5
Flood control pool (spillway crest).....ft., NGVD..	1,060
Spillway design surcharge level.....ft., NGVD..	1,081.22
Top of dam.....ft., NGVD..	1,087
Area	
Debris pool.....acre..	142.4
Spillway crest.....acre..	781.4
Spillway design surcharge level.....acre..	1,061.5
Top of dam.....acre..	1,136.0
Capacity, gross	
Debris pool.....acre-feet..	1,329 (0.17*)
Spillway crest.....acre-feet..	25,446.1 (3.24*)
Spillway design surcharge level.....acre-feet..	44,990 (5.72*)
Top of dam.....acre-feet..	51,360 (6.53*)
Allowance for sediment (50-year).....acre-feet..	10,500 (1.34*)
Allowance for sediment (100-year).....acre-feet..	21,000 (2.67*)
Dam:	
Type.....	Earthfill
Height above original streambed.....ft..	97
Top length.....ft..	10,475
Top width.....ft..	30
Freeboard (Revised).....ft..	5.8
Spillway:	
Type.....	Ungated ogee
Crest length.....ft..	284
Design surcharge (Revised June 1978).....ft..	21.2
Design discharge (Original).....ft..	21.8
Design discharge (Revised June 1978).....c.f.s..	99,700
Design discharge (Original).....c.f.s..	101,000
Outlets:	
Uncontrolled	
Number and size.....	2 - 8'W x 6'H
Entrance invert elevation.....ft., NGVD..	1,011
Controlled	
Gates - Type.....	Vertical lift
Number and size.....	8 - 5'W x 8'H
Entrance invert elevation.....ft., NGVD..	990
Conduits	
Number and size.....ft..	2 - 8'W x 6'H
Length.....ft..	265
Maximum capacity at spillway crest.....c.f.s..	22,000
Regulated capacity at spillway crest.....c.f.s..	22,800
Reservoir Design Flood (Original)	
Total volume (4-day).....acre-feet..	70,700
Inflow peak (4-day).....c.f.s..	64,800
Standard Project Flood (Current)	
Total volume (4-day).....acre-feet..	57,200
Inflow peak (4-day).....c.f.s..	53,000
Spillway Design Flood (Original)	
Total volume (1-day).....acre-feet..	76,800
Inflow peak (1-day).....c.f.s..	129,600
Probable Maximum Flood (Current)	
Total volume (5-day).....acre-feet..	246,000
Inflow peak (5-day).....c.f.s..	105,000
Historic maximums:	
Maximum release.....c.f.s..	12,371
Date.....	3-3-83
Maximum water storage elevation.....ft., NGVD..	1,039.70
Maximum storage.....acre-feet..	
Date.....	3-2-83
Maximum inflow peak (1 hour).....c.f.s..	27,800
Date.....	3-2-83

*inches of runoff

SANTA FE DAM AND RESERVOIR
LOS ANGELES COUNTY, CALIFORNIA

PERTINENT DATA
MAY 1983

Stream System.....	San Gabriel River	
Drainage area.....sq. miles..	236	
Reservoir:		
Elevation		
Debris pool.....ft., m.s.l..	456	
Water supply pool.....ft., m.s.l..	466	
Flood control pool (spillway crest).....ft., m.s.l..	496	
Spillway design surcharge level.....ft., m.s.l..	508.4	
Top of dam.....ft., m.s.l..	513	
Area		
Debris pool.....acres..	331.2	
Water supply pool.....acres..	473.9	
Spillway crest.....acres..	1,084	
Spillway design surcharge level.....acres..	1,258	
Top of dam.....acres..	1,298	
Capacity, gross		
Debris pool.....acre-feet..	4,351.1 (0.35*)	
Water supply pool.....acre-feet..	8,291.4 (0.66*)	
Spillway crest.....acre-feet..	32,109 (2.55*)	
Spillway design surcharge level.....acre-feet..	46,712 (3.71*)	
Top of dam.....acre-feet..	53,088 (4.22*)	
June 1978		
Allowance for sediment (50-year).....acre-feet..	8,000 (0.64*)	
June 1978		
Allowance for sediment (100-year).....acre-feet..	16,000 (1.27*)	
1969 Reduction in storage due to sediment.....acre-feet..	4222	
Dam: - Type.....	Earthfill	
Height above original streambed.....ft..	92	
Top length.....ft..	23,800	
Top width.....ft..	30	
Freeboard.....ft..	4.6	
Spillway: - type.....	Ungated overflow concrete ogee	
Crest length.....ft..	1,200	
Design surcharge.....ft..	221,800	
Design Discharge.....c.f.s..	13.21	
Outlets:		
Gates - Type.....	Vertical lift	
Number and size.....ft..	16 - 6'W x 9'H	
Gate sill elevation.....ft., m.s.l..	421	
Conduits		
Number and size.....	76 - 7.33'W x 7.33'H	
Length.....ft..	515	
Maximum capacity at spillway crest.....c.f.s..	41,000	
Regulated discharge at spillway crest.....c.f.s..	41,000	
Standard project flood:		
Duration (inflow).....days..	3.5	
Total volume.....acre-feet..	171,400 (13.62*)	
Inflow peak.....c.f.s..	96,000	
Probable maximum flood:		
Duration (inflow).....days..	4	
Total volume.....acre-feet..	556,000 (44.17*)	
Inflow peak.....c.f.s..	222,000	
Historic maximums:		
Maximum discharge on record.....c.f.s..	30,900	
Date.....	1-26-69	
Maximum water surface elevation.....ft., m.s.l..	473.97	
Date.....	12-19-66	

*inches of runoff

WHITTIER NARROW DAM AND RESERVOIR
LOS ANGELES COUNTY, CALIFORNIA

PERTINENT DATA
JUNE 1987

Stream System.....	Rio Hondo and San Gabriel Rivers	
Drainage area.....	sq. miles..	554
Reservoir:		
Elevation		
Water supply pool (Rio Hondo).....	ft., m.s.l..	201.6
Water supply pool (San Gabriel).....	ft., m.s.l..	213.5
Flood control pool.....	ft., m.s.l..	228.5
Top of gates (gates closed).....	ft., m.s.l..	229
Spillway design surcharge level.....	ft., m.s.l..	238.9
Top of Dam.....	ft., m.s.l..	239
Area		
Water supply (Rio Hondo).....	acres..	252.0
Water supply (San Gabriel).....	acres..	89
Flood Control.....	acres..	2,411
Top of gates (gates closed).....	acres..	2,470
Spillway design surcharge level.....	acres..	3,622.8
Top of dam.....	acres..	3,630
Capacity, gross		
Water supply (Rio Hondo).....	acre-feet..	2,498 (0.09*)
Water supply (San Gabriel).....	acre-feet..	532 (0.02*)
Flood control pool.....	acre-feet..	34,947 (1.18*)
Top of gates (gates closed).....	acre-feet..	36,160 (1.22*)
Spillway design surcharge level.....	acre-feet..	66,702 (2.26*)
Top of dam.....	acre-feet..	67,060 (2.27*)
Allowance for sediment.....	acre-feet..	0
Dam: - Type..... Earthfill		
Height above original streambed.....	ft..	56.0
Top length.....	ft..	16,960
Top width.....	ft..	16
Freeboard.....	ft..	0.1
Outlets: (Rio Hondo)		
Type of gates.....		Tainter
Number and size of gates.....		4 - 30'W x 20'H
Size of outlets.....		30'W x 19'H
Gate sill elevation.....	ft., m.s.l..	184.0
Regulated outflow.....	c.f.s..	40,000
Maximum capacity (el. 229.0).....	c.f.s..	74,700
Spillway: (San Gabriel)		
Type of gates.....		Tainter
Number and size of gates.....		9 - 50' x 29'
Gate sill elevation.....	ft., m.s.l..	200.0
Top of gates (gates closed) elevation.....	ft., m.s.l..	229
Discharge at design surcharge (el. 234.0).....	c.f.s..	251,000
Maximum discharge capacity (el. 239.0).....	c.f.s..	307,900
Standard project flood:		
Duration (inflow).....	days..	4
Total volume.....	acre-feet..	198,000 (6.70*)
Inflow peak.....	c.f.s..	40,000
Probable maximum flood:		
Duration (inflow).....	days..	4
Total volume.....	acre-feet..	910,000 (3.80*)
Inflow peak.....	c.f.s..	365,000
Historic maximums:		
San Gabriel:		
Maximum release.....	c.f.s..	11,500
Date.....		1-25-69
Maximum water surface elevation.....	ft. m.s.l..	216.5
Date.....		1-25-69
Rio Hondo:		
Maximum release.....	c.f.s..	38,800
Date.....		2-17-82
Maximum water surface elevation.....	ft. m.s.l..	213.5
Date.....		1-25-69

*inches of runoff

CHARACTERISTICS OF MAJOR STORAGE PROJECTS
LOS ANGELES COUNTY

PROJECT		DAM						SPILLWAY			RESERVOIR							
NAME OF DAM	STREAM	DRAINAGE AREA (sq. mi.)	TYPE	HEIGHT (ft.)	CREST ELEVATION (ft. msl)	OUTLET SILL (ft. msl)	LENGTH (ft.)	TYPE	CREST ELEVATION (ft. msl)	DESIGN CAPACITY (cfs)	PRIMARY PURPOSE(S)	ELEVATION		STORAGE		DAM CREST ELEVATION (ac-ft)	MAX. SCHEDULE RELEASES (cfs)	MAX. RELEASES INCLUDING SPILLWAY (cfs)*
												MAX. NORMAL POOL (ft. msl)	MAX. DESIGN POOL (ft. msl)*	MAX. NORMAL POOL (ac-ft)	DESIGN SURCHARGE (ac-ft)*			
Big Dalton	Big Dalton Creek	4.49	C,A,G	146.0	1711.0	1613.0**	480.0	U	1706.0	5310.0	FC, WS	1706.0	1711.0	915.0	119.2	1037.0	888.0	6198.0
Big Tujunga	Big Tujunga Creek	82.30	C,A	200.0	2304.0	2160.0**	505.0	U	2290.0	24,250.0	FC, WS	2290.0	2304.0	5750.0	1186.0	6906.0	2900.0	27,150.0
Cogswell	San Gabriel River-West Fork	39.20	R	265.0	2405.0	2148.0	585.0	U	2385.0	29,500.0	FC, WS	2385.0	2398.0	8853.0	2031.0	N/A	8725.0	38,225.0
Devil's Gate	Arroyo Seco	31.90	C,A,G	100.0	1070.0	¹ 958.8** ² 985.5	310.0	U	1054.0 1065.5	14,800.0 1000.0	FC, WS	1054.0 1065.5	1072.0	2869.0 4787.0	OT OT	2820 5683.0	5637.0	20,937.0
Eaton Wash	Eaton Creek	12.42	E	62.0	902.0	841.0	1525.0	U	887.5	33,500.0	FC, WS	887.5	897.5	721.0	457.0	N/A	5040.0	38,540.0
Live Oak	Live Oak Creek	2.28	C,A,G	70.0	1500.1	1429.8**	303.0	U	1496.4 1497.0	2400.0 (COMB.)	FC, WS	1496.4 1497.0	1500.0	239.0 245.0	6.5 N/A	282.3	368.0	2768.0
Morris	San Gabriel River	217.0	C,G	245.0	1175.0	960.0	800.0	G	1152.0 1170.0	34,200.0 100,000	FC, WS	1175.0 (GR)	1175.0	22,758.0 N/A	N/A N/A	N/A	5280.0	100,000
Pacoima	Pacoima Creek	28.20	C,A,G	365.0	2015.0	1700.0**	640.0	U	1950.0 1989.95	10,780.0	FC, WS	1950.0 1989.0	2025.0	3115.0 6589.0	5204.0 N/A	8981.0	1048.0	11,828.0
Puddingstone	Puddingstone Creek	33.10	E,C	147.0	982.0	882.1	2698.0 (Combined)	U	970.0	6900.0	FC, WS	970.0	975.0	16,468.0	2504.0	N/A	850.0	7,750.0
Puddingstone Div.	San Dimas Creek	20.0	E,C	33.5	1163.8	1145.5	825.0	U	1152.5	10,600.0	FC, DIVERSION WS	1152.5	1158.5	191.0	116.0	N/A	2180.0	14,100.0
San Dimas	San Dimas Creek	16.20	C,A,G	117.0	1470.26	¹ 1358.0 ² 1369	340.0 (LS)	U	1462.0	27,455.0	FC, WS	1462.0	1470.0	1306.0	315.0	1630.0	2060.0	28,600.0
San Gabriel	San Gabriel River	202.70	E,R,C	310.0	1481.0	1205.8**	1500.0	U	1453.0	92,000.0	FC, WS	1453.0	1466.0	44,226.0	7412.0	N/A	13,470.0	110,870.0
Santa Anita	Big Santa Anita Creek	10.82	C,A,G	224.8	1324.8	1161.2**	612.0	U	1316.0 1324.8	2900.0	FC, WS	1316.0 1324.8	1324.8	776.5 905.7	129.2 N/A	905.7	647.0	3533.0
Sawpit	Sawpit Creek	3.24	C,A	147.0	1375.18	1235.7**	527.0	U	1360.0 1375.18	1450.0 610	FC, WS	1360.0 1375.18	1375.18	354.0 506.6	152.6 N/A	506.6	457.0	2584.0
Thompson Cr.	Thompson Creek	3.51	C,GL	66.0	1648.0	1579.4	1500.0	U	1634.1	4520.0	FC, WS	1634.1	1645.0	543.0	369.7	N/A	320.0	4985.0

Dam Types
Material Structure
E - Earthfill A - Arch
R - Rockfill G - Gravity
C - Concrete GL - Gravel
M - Masonry

Outlet Types
1. Slide Gates
2. Valves

Spillway Types
U - Ungated
G - Gated

Project Purposes
FC - Flood Control
P - Power
WS - Water Supply

OT - Overtop the Dam
GR - Gated in Raised Position
LS - Less Spillway

* Assumed at H.W.L.
** Center Line of Outlet Sill