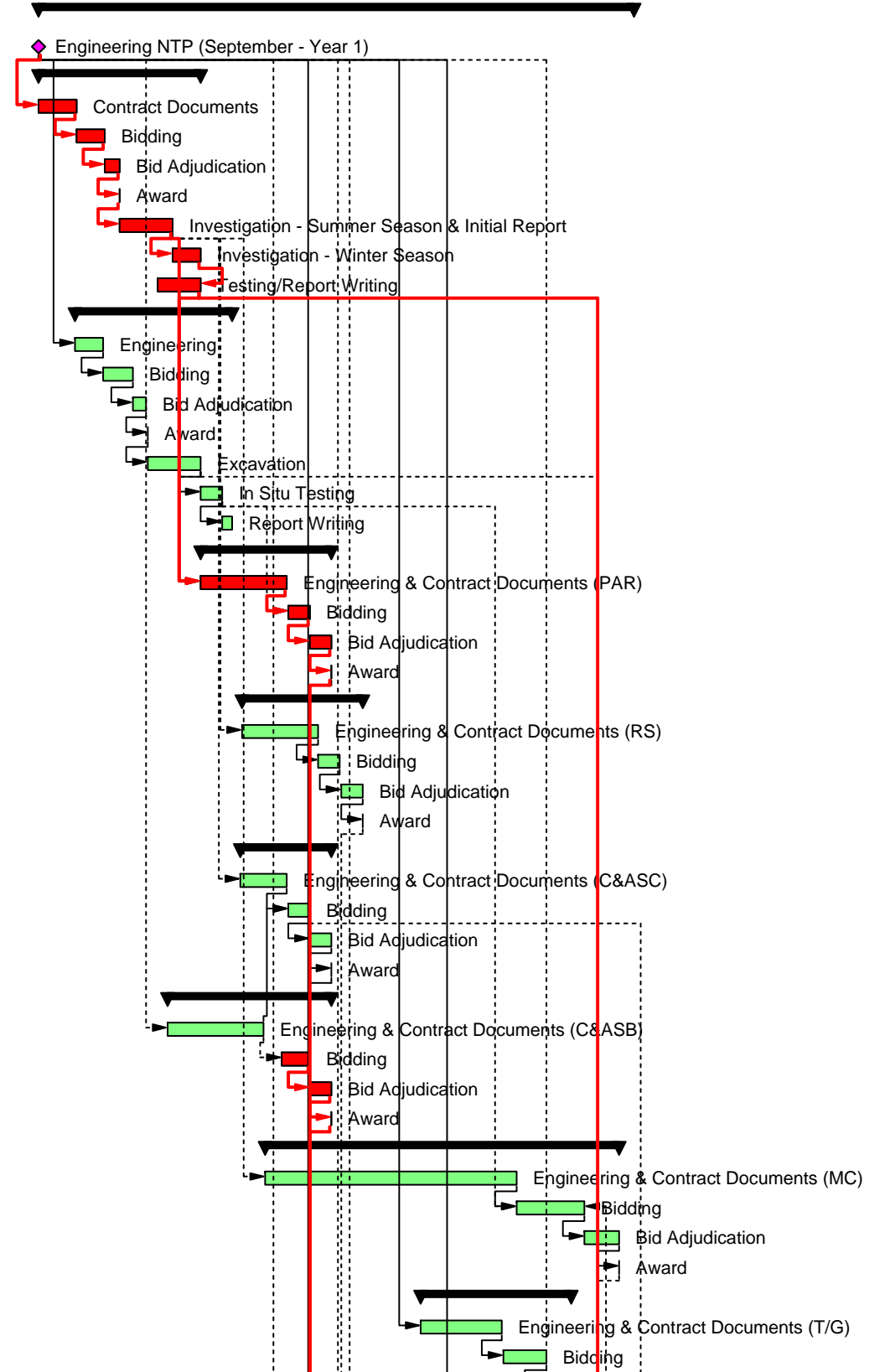


Appendix B11
Engineering and Construction Schedule

Susitna-Watana Hydroelectric Project - Engineering & Construction Schedule

Activity ID	Activity Name	Original Duration	Total Float	Year											
				1	2	3	4	5	6	7	8	9	10	11	12
Susitna-Watana Hydroelectric Project - Engineerin...		2573.9d	0.0d												
Engineering Activities		1231.0d	1606.0d												
Site Investigation		335.0d	0.0d												
A0000	Engineering NTP (September - Year 1)	0.0d	0.0d												
A1000	Contract Documents	78.0d	0.0d												
A1010	Bidding	60.0d	0.0d												
A1020	Bid Adjudication	30.0d	0.0d												
A1030	Award	1.0d	0.0d												
A1050	Investigation - Summer Season & Initial Report	109.0d	0.0d												
A1051	Investigation - Winter Season	57.0d	0.0d												
A1060	Testing/Report Writing	90.0d	0.0d												
Engineering Adits		325.0d	2438.0d												
A1070	Engineering	60.0d	1.0d												
A1080	Bidding	60.0d	1.0d												
A1090	Bid Adjudication	30.0d	1.0d												
A1100	Award	1.0d	1.0d												
A1110	Excavation	109.0d	1.0d												
A1120	In Situ Testing	45.0d	136.0d												
A1125	Report Writing	20.0d	2438.0d												
Permanent Access Road Engineering		271.0d	0.0d												
A1130	Engineering & Contract Documents (PAR)	180.0d	0.0d												
A1140	Bidding	45.0d	0.0d												
A1150	Bid Adjudication	45.0d	0.0d												
A1160	Award	1.0d	0.0d												
Rail Siding Engineering		251.0d	387.0d												
A1170	Engineering & Contract Documents (RS)	160.0d	387.0d												
A1180	Bidding	45.0d	387.0d												
A1190	Bid Adjudication	45.0d	387.0d												
A1200	Award	1.0d	387.0d												
Camp & Airstrip Civil Works Engineering		191.0d	354.0d												
A1210	Engineering & Contract Documents (C&ASC)	100.0d	354.0d												
A1220	Bidding	45.0d	354.0d												
A1230	Bid Adjudication	45.0d	354.0d												
A1240	Award	1.0d	354.0d												
Camp & Airstrip Buildings Engineering		341.0d	0.0d												
A1250	Engineering & Contract Documents (C&ASB)	200.0d	35.0d												
A1260	Bidding	60.0d	0.0d												
A1270	Bid Adjudication	45.0d	0.0d												
A1280	Award	1.0d	0.0d												
Main Civil Contract Engineering		731.0d	0.0d												
A1290	Engineering & Contract Documents (MC)	520.0d	0.0d												
A1300	Bidding	140.0d	0.0d												
A1310	Bid Adjudication	70.0d	0.0d												
A1320	Award	1.0d	0.0d												
Turbine, Generator, Transformer Supply		311.0d	3.0d												
A1330	Engineering & Contract Documents (T/G)	170.0d	3.0d												
A1340	Bidding	90.0d	3.0d												



█ Current Bar Labels ◆ Milestone
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Susitna-Watana Hydroelectric Project - Engineering & Construction Schedule

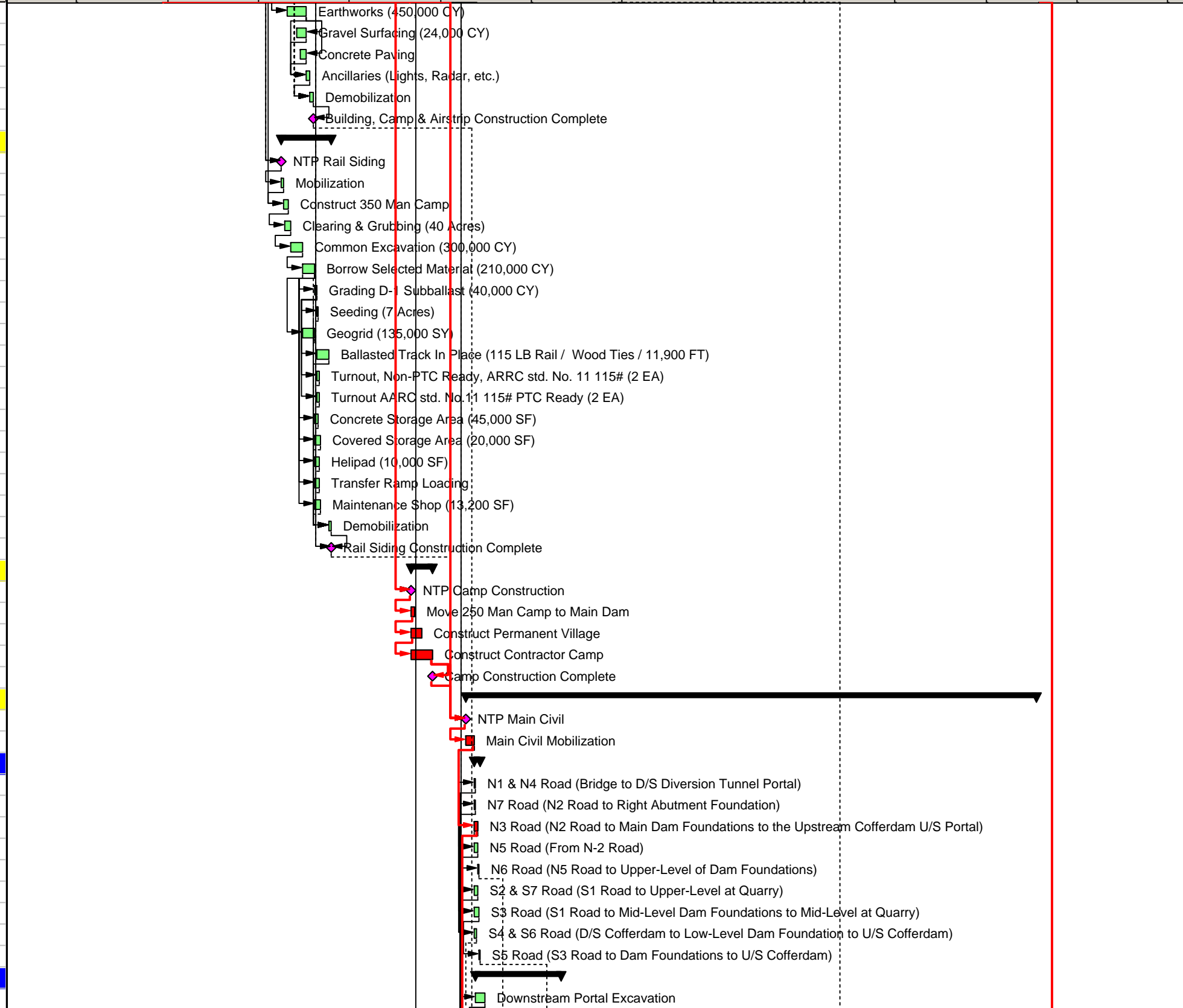
Activity ID	Activity Name	Original Duration	Total Float	Year															
				1	2	3	4	5	6	7	8	9	10	11	12	13	14		
S1140	Permanent Access Road - Excavation Rock (2nd Season)	74.0d	186.0d																
S1145	Permanent Access Road Embankment (2nd Season)	74.0d	186.0d																
S1150	S1 Road (Main Access Road to Bridge)	18.0d	2966.0d																
S1155	Place Organics on Slopes	70.0d	186.0d																
S1160	Gravel Surfacing	40.0d	234.0d																
S1170	Permanent Access Road Long Span Bridge (MP 5.8)	30.0d	3.0d																
S1175	Permanent Access Road Long Span Bridge (MP 14.9)	40.0d	3.0d																
S1180	Permanent Access Road Long Span Bridge (MP 15.1)	30.0d	3.0d																
S1185	Permanent Access Road Long Span Bridge (MP 17.3)	30.0d	3.0d																
S1190	Permanent Access Road Long Span Bridge (MP 21.6)	45.0d	0.0d																
S1195	Permanent Access Road Long Span Bridge (MP 26)	40.0d	0.0d																
S1200	Permanent Access Road Long Span Bridge (MP 43)	40.0d	0.0d																
S1205	Permanent Access Road Drainage	53.0d	274.0d																
S1210	Guard Rail	200.0d	274.0d																
S1215	Rip Rap	24.0d	274.0d																
S1225	Seeding	88.0d	186.0d																
S1230	24.9 kV System Inc Transmission (& Fiberoptics) from Intertie	72.0d	244.0d																
S1235	Demobilization	30.0d	244.0d																
S1240	Permanent Access Road Construction Complete	0.0d	186.0d																
Clearing		526.1d	736.9d																
S01	Clearing NTP	0.0d	134.1d																
S02	Mobilization	5.0d	134.1d																
S03	Permanent Village Clearing (56 Acres)	12.0d	134.1d																
S04	Clearing Camp & Contractor Yard (80.7 Acres)	16.0d	134.1d																
S05	Camp Roads Clearing (31 Acres)	16.0d	134.1d																
S06	Airport Clearing (160 Acres)	20.0d	134.1d																
S07	Dam Site Clearing (50 Acres)	11.0d	134.1d																
S10	Site Access Roads - North & South (141.9 Acres)	26.0d	134.1d																
S20	End Dam Site Clearing	0.0d	134.1d																
S60	Reservoir Clearing (2,887 Acres)	584.0d	805.0d																
Building, Camp & Airstrip Civil Works		220.0d	935.1d																
S1439	NTP Building, Camp & Airstrip	0.0d	494.0d																
S1440	Snow Road from the North	10.0d	494.0d																
S1495	Temporary Camp	20.0d	514.0d																
S1550	Mobilization / SWPPP	10.0d	558.0d																
S1660	Clearing	40.0d	494.0d																
S1715	N2 Road (N1 Road to Construction Camp)	30.0d	722.0d																
S1770	Permanent Bridge at Site	50.0d	722.0d																
Building & Camp Areas		85.0d	1005.1d																
S1685	Grubbing (167 acre)	34.0d	494.0d																
S1690	Earthworks Building Areas Including Roads & Locations for Water &...	31.0d	494.0d																
S1695	Gravel Surfacing (12 in./46,000 CY)	58.0d	1010.1d																
S1700	Site Drainage	20.0d	1005.1d																
S1705	Sports Fields	20.0d	1036.1d																
S1710	Fencing Building All Areas (15,666 LF)	15.0d	1010.1d																
Air Strip		136.0d	935.1d																
S1730	Grubbing (160 Acres)	32.0d	961.1d																

█ Current Bar Labels ◆ Milestone
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Susitna-Watana Hydroelectric Project - Engineering & Construction Schedule

Activity ID	Activity Name	Original Duration	Total Float	Year																
				1	2	3	4	5	6	7	8	9	10	11	12	13	14			
S1735	Earthworks (450,000 CY)	75.0d	935.1d																	
S1740	Gravel Surfacing (24,000 CY)	40.0d	935.1d																	
S1745	Concrete Paving	24.0d	935.1d																	
S1750	Ancillaries (Lights, Radar, etc.)	15.0d	935.1d																	
S1755	Demobilization	15.0d	935.1d																	
S1760	Building, Camp & Airstrip Construction Complete	0.0d	935.1d																	
Rail Siding Construction		201.0d	542.0d																	
S1001	NTP Rail Siding	0.0d	542.0d																	
S1002	Mobilization	10.0d	542.0d																	
S1003	Construct 350 Man Camp	20.0d	542.0d																	
S1004	Clearing & Grubbing (40 Acres)	20.0d	542.0d																	
S1005	Common Excavation (300,000 CY)	50.0d	542.0d																	
S1010	Borrow Selected Material (210,000 CY)	50.0d	542.0d																	
S1015	Grading D-1 Subballast (40,000 CY)	10.0d	542.0d																	
S1020	Seeding (7 Acres)	2.0d	585.0d																	
S1025	Geogrid (135,000 SY)	50.0d	597.0d																	
S1030	Ballasted Track In Place (115 LB Rail / Wood Ties / 11,900 FT)	45.0d	542.0d																	
S1035	Turnout, Non-PTC Ready, ARRC std. No. 11 115# (2 EA)	6.0d	581.0d																	
S1040	Turnout AARC std. No.11 115# PTC Ready (2 EA)	6.0d	581.0d																	
S1045	Concrete Storage Area (45,000 SF)	12.0d	585.0d																	
S1050	Covered Storage Area (20,000 SF)	20.0d	577.0d																	
S1060	Helipad (10,000 SF)	15.0d	582.0d																	
S1065	Transfer Ramp Loading	15.0d	582.0d																	
S1070	Maintenance Shop (13,200 SF)	24.0d	573.0d																	
S1075	Demobilization	10.0d	542.0d																	
S1080	Rail Siding Construction Complete	0.0d	542.0d																	
Camp Construction		90.0d	0.0d																	
S1804	NTP Camp Construction	0.0d	0.0d																	
S1805	Move 250 Man Camp to Main Dam	15.0d	0.0d																	
S1810	Construct Permanent Village	45.0d	0.0d																	
S1815	Construct Contractor Camp	90.0d	0.0d																	
S1820	Camp Construction Complete	0.0d	0.0d																	
Main Civil Contract		1601.9d	0.0d																	
S1244	NTP Main Civil	0.0d	0.0d																	
S1245	Main Civil Mobilization	30.0d	0.0d																	
Site Access Roads		28.0d	570.1d																	
S1250	N1 & N4 Road (Bridge to D/S Diversion Tunnel Portal)	7.0d	21.0d																	
S1255	N7 Road (N2 Road to Right Abutment Foundation)	8.0d	87.1d																	
S1260	N3 Road (N2 Road to Main Dam Foundations to the Upstream Coff...)	15.0d	0.0d																	
S1265	N5 Road (From N-2 Road)	15.0d	119.1d																	
S1270	N6 Road (N5 Road to Upper-Level of Dam Foundations)	5.0d	119.1d																	
S1280	S2 & S7 Road (S1 Road to Upper-Level at Quarry)	15.0d	0.1d																	
S1285	S3 Road (S1 Road to Mid-Level Dam Foundations to Mid-Level at ...)	20.0d	570.1d																	
S1290	S4 & S6 Road (D/S Cofferdam to Low-Level Dam Foundation to U/...)	10.0d	109.1d																	
S1295	S5 Road (S3 Road to Dam Foundations to U/S Cofferdam)	8.0d	570.1d																	
Diversion Tunnel & Access Tunnels		348.0d	1213.0d																	
S1300	Downstream Portal Excavation	40.0d	21.0d																	



■ Current Bar Labels ◆ Milestone
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Susitna-Watana Hydroelectric Project - Engineering & Construction Schedule

Activity ID	Activity Name	Original Duration	Total Float	Year													
				1	2	3	4	5	6	7	8	9	10	11	12	13	14
Sluice Bypass																	
S1330	Sluice Inlet Portal Concrete (2,800 CY)	12.0d	263.0d														
Spillway Construction																	
S1560	Spillway Excavation (310,000 CY)	35.0d	139.1d														
S1565	Spillway Concrete (50,000 CY)	300.0d	299.0d														
S1570	Spillway Concrete Upstream Dam Face (60,000 CY)	359.0d	299.0d														
S1575	Spillway Gates	90.0d	299.0d														
Power Intake																	
S1580	Concrete (93,965 CY)	535.0d	28.0d														
S1585	Intake Electrical Mechanical	133.0d	28.0d														
Low Level Outlet																	
S1590	Excavation Below Spillway (24,600 CY)	8.0d	139.1d														
S1595	Install 20ft & 8ft Diameter Piping (20,650 CY)	210.0d	299.0d														
S1665	Concrete Surround LLO Piping (14,959 CY)	90.0d	299.0d														
S1670	Intake Low Level Concrete (22,705 CY)	150.0d	139.1d														
S1675	Intake Electrical Mechanical	90.0d	139.1d														
Penstocks																	
S1600	Install Steel Penstocks - Dam Toe	114.0d	209.0d														
S1610	Install Steel Penstocks - Dam Slope	365.0d	209.0d														
S1615	Install Steel Penstocks - Dam to Intake	160.0d	209.0d														
S1680	Concrete Encasement Penstocks - Dam Toe (15,300 CY)	114.0d	734.0d														
S1765	Concrete Encasement Penstocks - Dam Slope (16,000 CY)	365.0d	369.0d														
S1775	Concrete Encasement Penstocks - Dam to Intake (8,000 CY)	160.0d	209.0d														
Powerhouse																	
S1620	Power House Concrete (55,100 CY)	239.0d	0.0d														
S1625	Power House Concrete (Second Stage)	90.0d	0.0d														
S1630	Steel Superstructure	120.0d	0.0d														
S1635	Turbine & Generator (3 Units)	710.0d	0.0d														
S1640	Unit Testing 1 - (Complete February - Year 12)	130.0d	0.0d														
S1645	Unit Testing 2	100.0d	0.0d														
S1650	Unit Testing 3	100.0d	0.0d														
River Diversion & Filling Reservoir																	
S171	Close Diversion Tunnel Gates	1.0d	57.1d														
S18	Remove Downstream Cofferdam	21.0d	675.0d														
Plug & Valve Chamber																	
S17	Valve Chamber Excavation (7,585 CY)	25.0d	57.1d														
S17	Valve Chamber Concrete (675 CY)	10.0d	57.1d														
S17	Construct Plug Piping	45.0d	40.0d														
S17	Construct Concrete Plug	66.0d	57.9d														
S17	Valve Chamber Mechanical	20.0d	57.9d														
S17	Excavate Tunnel Floor	56.0d	41.9d														
S17	Concrete Tunnel Floor	15.0d	41.9d														
S17	Remove Gate from Diversion Tunnel & Move/Install Sluice at Sluice...	15.0d	57.9d														
S17	Plug Sluice (37,000 CY)	129.0d	268.9d														
Reservoir Filling																	
S1655	Reservoir Filling	340.0d	57.9d														
Turbine Generator Manufacture																	

█ Current Bar Labels █ Critical Remaining Work ◆ Milestone Summary



