## Annex W

# **Implementation Schedule**

Figure W1 Drawdown Implementation Schedule

# **Annex W: Implementation Schedule**

# W.1 General

The schedule information presented in this annex was based on the scope of work, assumptions, and methodology presented in the companion engineering annexes (Annexes A through V of this appendix). The following sections summarize the overall project implementation schedule and provide specific details concerning the schedule of the proposed work items.

The general process for implementing the work is to perform a three-step process consisting of 1) preparation of a detailed design report, 2) preparation of contract documents, and 3) performance of construction.

The detailed design report, formerly designated a General Design Memorandum or a Feature Design Memorandum, details the process of identifying, evaluating, and selecting a design option. The activities often are precluded by a survey of each construction site to establish the land configuration. Subsurface explorations using intrusive methods such as drilling, excavating, and sampling and/or geophysical methods such a pulse-velocity, radar, or other subsurface logging methods are conducted at this stage. For some features, hydraulic models must be constructed and flow conditions evaluated for a range of flow and physical conditions. Options are developed for the feature and detailed evaluations are made to select the most favorable option. The selected option is often further developed so that a reliable schedule and cost estimate may be generated.

After review and approval of the detailed design report, preparation of the plans and specifications can proceed. This phase requires completion of the feature design and the development of contract documents. The documents must be prepared in a manner that allows bidders to prepare a realistic bid proposal, that presents features in manner that is constructable, and that provides implementation and operations that address the relevant environmental concerns.

Once a contract has been awarded, the construction can begin. The short-term nature of many of the tasks coupled with the complexity of implementation will require the participation of many individuals and organizations. Construction activity spans a time period of approximately 8 to 9 years. During the peak years, expenditures are estimated at 200 million in a single year. The bulk of the work is done during a 3-month period. Extensive contractor participation is necessary for this level of effort. Significant administration and construction management participation is also required.

The schedules below reflect reasonable time durations to perform these efforts. They identify time for producing detailed design reports, contract documents, peer and policy reviews, advertising periods and construction operations.

# W.2 Overall Implementation Schedule

The implementation of drawdown can be grouped into 3 distinct phases. The preparatory phase is the work necessary to be done in advance of drawdown in order to be able to perform drawdown and to continue operations during drawdown. The drawdown phase is the work required during and immediately following drawdown of the reservoirs. Numerous tasks are anticipated to be performed following drawdown. The period of time that all these occur is shown in Figure W1.

A key decision in implementing drawdown is the sequence of dam breaching. Many options are conceivable. They range from concurrent breaching of all 4 dams in a single construction season to individual breaching of each dam during different seasons with many combinations between.

Breaching individual dams on different years greatly simplifies construction operations and focuses attention on one project at a time. The first project provides a troubleshooting opportunity so that subsequent projects can be breached more effectively. Events that may lead to delays that prevent breaching during the designated season are more effectively controlled increasing the likelihood of on-schedule completion. Funding is less difficult to secure because annual requirements can be spread out over a longer period of time.

Breaching of an embankment structure will generate the migration of embankment silts and sands down river. A much more significant effect is the migration of silt deposits and higher velocity river flows erode those deposits. Silts suspended in the water may be at very high concentrations during the drawdown period of August to December and possibly higher levels during the high flow months of January through June. The effect of this silt and sediment is expected to have a serious negative effect on adult fish migration and a lesser effect on juvenile migration.

If the four dams are breached simultaneously, then this condition will be concentrated to the shortest time period thereby minimizing the negative effects on migrating fish. Biologists expect that expanding this situation as long a four consecutive years could be detrimental to the species (Jones, 1999). Breaching the four dams over two consecutive years provides for realistic implementation of all the construction activity for a time period less devastating than other options that include longer periods.

An aggressive schedule to simultaneously breach four dams needs much more detailed evaluation. An evaluation of risks and impacts of specific construction activities is necessary to produce a plan that contains the appropriate backup plans and contingencies to guarantee that the work can be completed in the short timeframe. At the current level of study, it is clear that too many things can go wrong that may force the project into a 2-year breach schedule. Until those uncertainties can be resolved, a 1-year breach schedule cannot be considered.

There is appropriate equipment available to accomplish simultaneous removal of all four dams using one or more contractors. The fewer contractors used, the less the overall cost would be. Each additional contractor used would add approximately 10 percent to the total cost of the individual dam's work. There are three scenarios for removal of the embankments at the four lower Snake River dams:

- Remove one embankment each year.
- Remove one or two embankments the first year, gaining experience from that operation, then remove the remaining two or three embankments the following year.
- Remove all four dams concurrently in one year.

There are significant advantages to removing all four embankment dams in one year. This option would return the river to its natural state for fish migration much sooner. It would also shorten construction duration because reservoirs could be drawn down and some of the work could be accomplished in the dry. The headwater of one dam would be the tailwater of the next dam upstream, and if that reservoir had been drawn down, then construction at the upstream dam could more easily be accomplished either in the dry, or in a lower, quieter flow condition.

The schedule shown in this annex presents the scheme where Lower Granite and Little Goose are removed in the first removal season and Lower Monumental and Ice Harbor are removed in the second removal season. Further consideration of impacts to fish migration, sedimentation, and specific site conditions may encourage removal to be done in reverse order. We do not have sufficient information at this time to determine which order is clearly preferred.

# W.3 Schedules for Individual Tasks

The following discussion provides explanation of some of the assumptions that support the schedules for the individual tasks.

## W.3.1 Turbine Passage Modification

The design of required elements of turbine modifications may result in 2 to 8 contracts. It is very likely that all the intake gate modifications will be designed and contracted as a group. Likewise work for tailrace draft tube bulkheads, cooling water modifications, and instrumentation systems will be packaged into separate design and construction packages. Groups refer to all the items to be done at one time, e.g., Little Goose and Lower Granite intake gates in one contract.

Sufficient lead time is necessary to order specific parts. Precast construction of tailrace bulkheads requires significant lead time. Most of the work can be completed at any time in advance of drawdown. Target deadlines have been assume to be 60 days in advance of the start of drawdown for the respective project.

The critical element in this feature is the removal of the turbine blades for three units at each project. Very early removal of the blades results is a longer period of lost power production. More importantly, turbines must remain operational through the previous spill season in order to minimize spillway usage and limit the consequent gas levels in the river. For this reason some further development of blade removal activity should be considered.

## W.3.2 Dam Embankment Excavation and River Channelization

It is anticipated that the contract for breaching and removing the embankment dam will be for both dams scheduled for that season. This work involves developing stockpile or waste areas, haul roads, excavation, bank protection, and restoration of the site. The contract will also include construction of the channelization levees, installation of the permanent fish passage features, and certain elements of the decommissioning of the remaining powerplant, spillway, navigation lock, and appurtenant facilities.

Contract award should provide up to 6 months of lead time contract work in advance of drawdown. It is critical that the breach and embankment removal be completed in advance of 31 December. River channel efforts can be more easily accommodate short periods of high flows during the months of January and February.

The study team believed construction excavation rates could exceed the values assumed for this schedule. However, even with the excavation rates assumed, the drawdown rate of 0.6 meter (2 feet) per day governs the length of construction. Beginning drawdown several weeks before the start of excavation and allowing faster excavation rates would shorten the length of time the embankment is exposed to overtopping during construction, but would not reduce the overall length of the in-water construction period, which is governed by the drawdown rate.

#### W.3.3 Temporary Fish Passage

The major tasks in this feature are modification of the existing fish ladder to incorporate a fish trap and loading facility, the modification of existing fish transport trailers, and the fabrication of new fish transport trailers.

Significant lead time is necessary to fabricate and modify fish transport trailers. Existing trailers must be used to transport juveniles downstream during the spring-early summer migration period. Consequently modifications must allow trailers the ability to switch between juvenile and adult haul mode without major effort. Adult hauling will commence almost immediately following juvenile hauling.

#### W.3.4 Bridge Pier Protection

Protection measures for bridge piers include the transportation of riprap for bank protection, the installation of sheetpile to encapsulate bridge piers, and the placement of rock and concrete inside the sheetpile enclosures. The in-water work is configured to be done during the in-water work window, although some provision for early extensions is necessary.

Two sets of floating plant are required to perform all the bridge pier and abutment modifications in the Lower Granite and Little Goose Reservoirs. A single set of floating plant is required the following season to complete the bridge modifications in the Lower Monumental pool. No modifications are necessary in the Ice Harbor pool.

Following drawdown, final trimming of sheetpile and backfill with concrete can be done during low water periods. Some in-water work, consisting of diving and steel cutting is necessary during the late summer and fall time period. Concrete backfill will be placed within the cells via a concrete pump from the bridge deck or from the river bank.

#### W.3.5 Railroad and Highway Embankment Protection

Production of adequate quantities of rock, transportation of the rock, and placement of riprap for embankment protection and stabilization of drainage structures is one of the critical path elements in this implementation scheme. Two new quarries must be located and evaluated for suitable rock. Rock must be crushed into the proper sizes and barge transported to pre-determined underwater stockpile locations. This work must be completed for the respective reservoirs prior to drawdown of those reservoirs. Access to the work sites after drawdown may be a difficult and time consuming process. Access over previously inundated rail and road beds may require significant measures to make viable. There is little latitude for adding contingency time during the barge transportation phase without extending the drawdowns one season later. Contingency time for placement of riprap will extend the placement season accordingly.

## W.3.6 Drainage Structures Protection

For each reservoir, durations were determined and timeframes considered for all major functions necessary to load, transport, and place riprap materials for drainage structure modifications. Quantities derived for all treatments in each reservoir were added to the schedules. Durations for completion of the construction activities were then calculated based on selected productivity rates and numbers of crews to perform the tasks. Since this work will be done concurrently with reservoir embankment protection activities, appropriate work items have been included in the reservoir embankment protection schedules.

#### W.3.7 Railroad and Roadway Damage Repair

No schedule is provided for this task since it will depend on the nature and location of damage. Contract arrangement to perform the required repairs will be pre-negotiated so that contract forces can be mobilized to initiate repairs at the earliest possible time.

## W.3.8 Lyons Ferry Hatchery Modification

The work required to modify Lyon's Ferry Hatchery will be done in two phases. The critical element is to modify the water supply pipeline prior to drawdown. The most expeditious method is to make modifications to the pipe pile system from a floating plant. Much of this pipeline is in the delta zone of the Palouse River. Access is difficult but not impossible. The installation of new pipe pile bents to stabilize the pipeline will require 6 months of in-water work.

The second critical element is to perform the necessary well modifications to restore the required hatchery water as soon as possible after drawdown. Wells will be modified or additional wells drilled to provide water lost by a drop in water surface. Pumps cannot be ordered until the wells are established and pump characteristics established. Up to 9 months lead time is required for pumps to be fabricated for this application.

During and immediately following the drawdown period temporary drain and overland flow piping is required until permanent structures can be constructed. Construction of those structures will be done during the late summer months after sufficient drainage of the bank deposits has occurred.

## W.3.9 Habitat Management Units Modification

Habitat management unit modifications consist of revising and relocating irrigation system water intakes and installation of wildlife fencing. New intakes cannot be installed until after drawdown when the river location during low water conditions can be determined for each site. Intake structures will be prefabricated concrete units that can be placed on a prepared surface. The intake is mounted on the vertical face and the pump is mounted on the top of the unit. Fill material is placed out to the intake structure.

Temporary watering facilities are necessary for the summer and fall season following drawdown until the permanent intakes can be constructed. Temporary pumps mounted on trailers are one means to provide this interim water supply.

## W.3.10 Reservoir Revegetation

Revegetation of exposed ground will commence within a few weeks after the start of drawdown of each reservoir. The schedule assumes an aerial application of seed and fertilizer on the exposed land mass for each reservoir on a 2 to 3 week interval.

## W.3.11 Cattle Watering Facilities

Cattle watering facilities consist of a low capacity drilled well, a solar powered pump, and a ground level stock tank. Since the wells cannot be drilled until after drawdown, temporary watering facilities must be provided and maintained until the permanent system is complete. Temporary watering will be truck-hauled water to each watering site. Because access to some sites is difficult, installation of the temporary and permanent systems is estimated to take a long period of time.

#### W.3.12 Recreation Access Modification

Modifications to recreation areas are separated into two phases. Prior to drawdown, the critical feature is to establish an irrigation system for the areas to remain in operation. A combination of temporary and permanent systems have been scheduled. Other modifications such as demolition of facilities, relocation of boat ramps, and construction of other facilities is scheduled to be completed following drawdown.

#### W.3.13 Cultural Resources Protection

Protection of cultural resources sites cannot proceed until the sites are exposed by drawdown. The construction schedules show that the work will commence immediately following drawdown and continue for a period of one year following drawdown.

#### W.3.14 Hydropower Facilities Decommissioning

The major activities include disposal of value items, disposal of hazardous wastes, and securing each project site. Site security facilities will be constructed as part of the site construction work. Concurrent work in securing the facilities to be abandoned will be done concurrently. Disposal of items of value can commence as early as January, immediately following drawdown. This work may require many months to complete. Identified hazardous wastes will be collected and disposed of concurrently with removal of items of value.

#### W.3.15 Non-Federal Implementation Tasks

Schedules were not developed for the following tasks. Those tasks were developed in order to provide a "ballpark" estimate of costs in order to make the appropriate economic evaluations. Those non-federal tasks are:

- Irrigation systems modification
- Water well modification
- Potlatch Corporation water intake modification
- Other water intakes modification
- Potlatch Corporation effluent diffuser modification
- PG&E gas transmission main crossings modification

#### W.3.16 Concrete Structures Removal

Schedules were not developed for this task. The purpose of providing a cost estimate for full removal of concrete structures is to provide an estimate of the cost of full removal. It is not a task that is part of the recommended activities to implement drawdown.

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9	Engineering Report	182.7 days	8SS+90 days	Engineeri 9/14	4/15				
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11	Design Phase	304.2 days			7/31	gn Phase 7/21			
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21	Fabricate Draft Tube Platforms	121.7 days	13			:	12/9		
22	Install Draft Tube Platforms	30.4 days	21				-1/14		
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64	Install Draft Tube Platforms	30.4 days	63	Install Draft Tube Platforms 12/9 4/14
65	Remove Blades and Re-assemble	91.3 days	64FS+30 days	Remove Blades and Re-assemble 2/18
66		121.7 days	64FS+30 days	Install Instrumentation Prototype 2/18
67	Install Instrumentation	121.7 days	66FS+120 days	Instal Instrumentation 11/26
68	Complete Turbine Modifications	0 days	61,62,65,67	5/23
69		60 days	4SS	Trash Rack Clearing 8/+
70	DAM EMBANKMENT EXCAVATION / RIVER CHANNELIZATION PLAN	1685.5 days		
71		1368 days		Lower Granite
72		552 days		Engineering Phase 1/13
73		400 days	74FF-60 days	Detailed Model Studies
P	Engineering Report	121.7 days		Engineering Report 5/9 9/27
8	Review	91.3 days	74	9/29 1/13
6	Design Phase	304.5 days		1/14 Design Phase 1/3
"	Prepare Contract	182.5 days	75	1/14
78		121.7 days	77,2FF-180 days	8/14
79		421 days		4/19 Contract Phase a/2
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113	Design Phase	304.2 days		9/29 Design Phase
114	Prepare Contract	182.5 days	112	1/14 1/3 repare Contract 1/14 1/3
115	Advertise	121.7 days	114	Advertise 8/14
116	Contract Phase	403.5 days		Contract Phase
117	Mobilize	91.3 days	115,2SS-90 days	
118	Embankment Excavation	87.7 days	117	Embankorunt Excavation 8/2 11/10
130	Channel and Levee Construction	111 days		Channel and Levee Construction 8/1
138	Site Clean-up	8 days	137	Site Clean-up 12/17 1/12/26
139	Demobilize	8 days	138	Demogitize 1227 113
D-	Hydropower Facilities Decommissioning Plan	227.2 days		Hidrochwer Facilities Decommission/ing Plan
W-	Transfer Materials to Other Projects	182.5 days	355	Transfer Materials to Other Projects 12/3 → 12/3
10	HazWaste Cleanup	182.5 days	388	12/3≯ Inetall Foreing and Sates
144	Install Fencing and Gates	91 days 91 days	132	
145	Lower Monumental	1357.5 days	145	Lower Monume Ital
146	Engineering Phase	552 days		4/28 Engineering Phase 7/31
147	Detailed Model Studies	400 days	148FF-60 days	4/28 1/29 1/29 Detailed Model Studies
148	Engineering Report	121.7 days		4/28 Engineering Report
149	Review	91.3 days	148	5/26 Baseline 10/14 Baview 10/15 Baview
150	Design Phase	305.5 days		Design Plase
151	Prepare Contract	182.5 days	149	Eropare Contract
152	Advertise	121.7 days	4FF-180 days,151	Advertise 8/31 888 88 4442
153	Contract Phase	409.5 days		4/21 Contract Phase 7/31
154	Mobilize	91.3 days	152,4SS-90 days	
155	Embankment Excavation	96 days	154	Embahknynt Excavation 82 11/17
167	Channel and Levee Construction	125 days		Channel and evee Construction 8/2 4 12/18
Projec Date:	ct: Drawdown Implementation Schedule Task Mon 1/28/02 Split	Progress Milestone 🔶	Summary Rolled Up Task	Rolled Up Split     Rolled Up Progress       Rolled Up Milestone     External Tasks
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				Figure W1 Drawdown Implementation Schedule			
				Year1 Year2 Year3 Year4 Year5 Year6 Year7 Year			
10 168	Task Name D/S Levee Construction Phase I - First 50%	Duration 19 days	Predecessors 154	Qtr1         Qtr2         Qtr3         Qtr4         Qtr1         Qtr2         Qtr3         Qtr1         Qtr2         Qtr3         Qtr4         Qtr4         Qtr1         Qtr2         Qtr3         Qtr4         Qtr4         Qtr1         Qtr2         Qtr3         Qtr4         Qtr4         Qtr4         Qtr4         Qtr4         Qtr4         Qtr4         Qtr4         Qtr4 <td< td=""><td>r 3 Qtr 4</td></td<>	r 3 Qtr 4		
169	U/S Levee Construction	24 days	164	4 UP Layee Construction 10/26 11/11/21			
170	Dredging Outside U/S Cofferdam	9 days	163	3 Dredgling Outside U S Cofferdam 10po    pr29			
171	Place Bank Protection (Rip Rap)	12 days	166	3 Place Bark Protection (Rip Rap) 1/17 1 1/129			
172	Place Fish Passage Features	12 days	166	5 Place Fish Pas age Features 1/17 1/129			
173	D/S Levee Construction Phase II - Second 50%	19 days	166				
174	D/S Levee Rip Rap	10 days	173				
175	U/S Levee Rip Rap	6 days	169	1/21 1/127			
176	Site Clean-up	8 days	174				
177	Demobilize	10 days	176	1227 0 1/8			
178	Hydropower Facilities Decommissioning Plan	218.2 days		Hydropower aclifities Decommissioning Plan:			
179	Transfer Materials to Other Projects	182.5 days	5SS				
180	HazWaste Cleanup	182.5 days	555				
P-	Install Fencing and Gates	91 days	169	1/21			
₹-	Install Closure Devices	91 days	181	3/6 <b>6</b> /19			
11	Ice Harbor	1357.5 days		4/28 7/31			
107	Engineering Phase	552 days		4/28 1/30			
185	Detailed Model Studies	400 days	186FF-60 days				
186	Engineering Report	121.7 days		Engineering Report			
187	Review	91.3 days	186	10/15			
189	Design Phase Prepare Contract	305.5 days	187	1/31			
190	Advertise	182.5 days	189,4FF-180 days	1/31 8888888 883 8/29			
191	Contract Phase	409.5 days		8/31 4/46 Contract Phase			
192	Mobilize	91.3 days	4SS-90 days,190	4/21			
193	Embankment Excavation	90 days	192	4/2 <b>1 →</b> 4/2 2 Embankrugert Excivation			
194	Remove Utilities and Misc Metal from Dam	7 days		82 82 1110 Femore Utilities and there Metal from Dam			
195	Prepare Stockpile Areas and Haul Roads	7 days	192				
196	Excavate D/S Abutment	38 days	192	2 State Stat			
197	Excavate and Stockpile Embankment	5 days	194,195	5 Excavate and Stockarle Empandment			
	nt Drawdown Implementation Schedule	Progress	Summary	Rolled Up Split Rolled Up Progress Project Summary			
Proje Date:	ct: Drawdown Implementation Schedule Task Mon 1/28/02 Split	A	Rolled Up Task	Rolled Up Milestone C External Tasks			
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				Figure W1 Drawdown Implementation Schedule
				Year1 Year2 Year3 Year4 Year5 Year6 Year7 Year8
ID 198		ration	Predecessors	Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 3 Qtr 4 Qtr 3 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 4 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 4 Qtr 4 Qtr 1 Qtr 2 Qtr 3 Qtr 4
130	Excavate U/S Abutment	29 days	196	Excavate US Atturnent
199	Excavate Below Cofferdams	36 days	197	Excavate Bodyw Conferdams 8/15
200	Breach Downstream Cofferdam	3 days	199	Breach Downstream Cofferdam 9/26 9/92
201	Breach Upstream Cofferdam	3 days	200	Breact Upstream dofferdam 9/29 1/100
202		6 days	201	Equalize Water Surfaces
203		23 days	200	Excavation of Dpwgstrham Cofferdam 9/29 E - 10/24
204		16 days	202,203	Excavation of Upstream Cofferdam
205		02 days		Channel and Livee Construction 8/2 11/23
214 215		8 days	213	Site Clean-up 116 P-1115
215		9 days	214	Uemoguizo 1/15 1/124 Hydroppwer Picilities Decommissioning Plan
210	Hydropower Facilities Decommissioning Plan 239	.2 days		
217	Transfer Materials to Other Projects 182	2.5 days	588	Transfer Materials to Other Projects
218	· · · · · · · · · · · · · · · · · · ·	2.5 days	588	HarWaste Cleanup 122+
Ţ	-	91 days	207	Install Fending and Gates
8		91 days	219	TEMPORARY FISH PASSAGE PLAN
5		14 days		7/24 12/30
222		79 days		Little Goose 12/30
223		13 days		Engineering Phase 7/24 J 3/28
224 225		1.7 days	004	Engineering Report 7/24 Example 1/2/12 Review
225		1.3 days	224	12/12 Design Phase
220		65 days 3.3 days	225	J29 5/27 Prepare Contracts
228	·····	1.7 days	225	3/23 1/7 Advertise
229		01 days		1/7 Contract Phase
230		65 days	228	5/28 Modify Existing Tanker Trailers
231		2.5 days	228FS+120 days	5/28 States and States
232		2.5 days	228	10/15 10/15
233	Install Trap Metalwork 182	2.5 days	232	5/28 Install Trap Metalwork
234	Haul Fish 1	32 days	230,231,233,2SS	12/27 898999999999 9 7 27 ↓ raul Fren Ø → ↓ 12/30
235	Ice Harbor 11	01 days		Ice Harbor
Proje Date	ect: Drawdown Implementation Schedule Task Progress : Mon 1/28/02 Split Milestone	•	Summary Rolled Up Task	Rolled Up Split     Rolled Up Progress     Project Summary       BBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBBB
	1			Page 6

			Figure W1 Drawdown Implementation Schedule
			Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8
ID 236	Task Name Duration Engineering Phase 213 days	Predecessors	Qtr 1         Qtr 2         Qtr 3         Qtr 4         Qtr 4         Qtr 1         Qtr 2         Qtr 3         Qtr 4         Qtr 4         Qtr 4         Qtr 4 <td< td=""></td<>
			7/24 - 3/27
237	Engineering Report 121.7 days		Engineering Report 7/24
238	Review 91.3 days	237	12/12 3/27
239	Design Phase 365 days		Design Phase 3/29 5/27
240	Prepare Contracts 243.3 days	238	1/6
241	Advertise 121.7 days	240	1/8 222-
242	Contract Phase 523 days		5/28 Contract Phase 1 12/30
243	Modify Existing Tanker Trailers 365 days	241	6/bdify/Existing Tanker Trailers
244	Construct New Tanker Trailers 182.5 days	241FS+120 days	Construct New Tanker Trailers
245	Fabricate Trap Metalwork 182.5 days	241	Fabric Tap Melahwork 5/28 0 00 000 12/224
246	Install Trap Metalwork 182.5 days	245	12/24 Hastall Trap MetaWork
247 248	Haul Fish 138 days	243,244,246,4SS	
	BRIDGE PIER PROTECTION 1678.3 days Engineering Phase 213 days		11/6 Engineering Phase
D-1			11/6 7/11 Engineering Report
W-1	Engineering Report 121.7 days Review 91.3 days	250	11/6 227 Review
3	Design Phase 304.2 days	250	3/27 7/11 Design Phase
253	Prepare Contract 182.5 days	251	7/12 7/1 Prepare Contract
254	Advertise 121.7 days	253	7/12 2/10 Advertise
255	Contract Phase 1161.1 days		2/10 Contract Phase
256	Group #1 Construction 826.1 days		7/1 Crept I Construction
257	Mob Floating Plants 60.8 days	254	7/1 Vice 1/23
258	Install Sheetpile Pier Protection 140 days	257	7/1 BBB 9/9 E Install Sheptple Pier Protection 9/10 BBBBBBBB 2/19
259	Place Rock Abutments and Slope Protection 140 days	257	9/10 Ballingshall 2/19 Place Rock Abuttents and Slope Protection 9/10 Ballingshall 2/19
260	Fill Interior of Cells 140 days	258,2SF-60 days	
261	Concrete In-fill 112 days	3SS+243.3 days	
262	Cut Sheetpile 112 days	3SS+243.3 days	
263	Group #2 Construction 826.1 days		Group #2 Construction 1/23
264	Mob Floating Plants 60.8 days	254	Mob Flogting Plants 7/1 9/9
265	Install Sheetpile Pier Protection 140 days	264	Install Sneptpile Pier Protection 9/10
Proje Date:	ct: Drawdown Implementation Schedule Task Progress Mon 1/28/02 Split , , , , , , , Milestone Implementation Schedule Split Spl	Summary Rolled Up Task	Rolled Up Split     Rolled Up Progress       Project Summary     Project Summary
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				Figure W1 Drawdown Implementation Schedule
				Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8
ID 266	Task Name Place Rock Abutments and Slope Protection	Duration 140 days	Predecessors 264	Qtr 1         Qtr 2         Qtr 3         Qtr 4         Qtr 4         Qtr 1         Qtr 2         Qtr 3         Qtr 4         Qtr 4         Qtr 1         Qtr 2 <td< td=""></td<>
267	Fill Interior of Cells	140 days	2SF-60 days,265	9/10 9/10 Fill Interior of Cells
268	Concrete In-fill	112 days	3SS+243.3 days	
269	Cut Sheetpile	112 days	3SS+243.3 days	ULI Shreetpile 924
270	Group #3 Construction	340.8 days		6/14 Group #3 Construction 6/17
271	Mob Floating Plants	60.8 days	254	Mob Fidenting Plants 6/14 32 8/20
272	Install Sheetpile Pier Protection	140 days	271	Install Sheetpile Fier Protection 8/20 1128 1128
273	Place Rock Abutments and Slope Protection	140 days	271	Place Rock Abuttrents and Sippe Protection 820 5555 5551 128
274	Fill Interior of Cells	140 days	4SF-60 days,272	Fill laterior of Cells
275	Concrete In-fill	112 days	5SS+243.3 days	Concrete In-fill
276	Cut Sheetpile	112 days	5SS+243.3 days	Cut Sherplie 
	RAILROAD AND HIGHWAY EMBANKMENT PROTECTION PLAN	2185 days		RAILROAD AND HIGHWAY EMBANKMENT PROTECTION PLAN
278	Engineering Phase	517.1 days		Engineering2Phase 1 1 1025 Exploration
D-1	Exploration	243.3 days	279	exportation 12:10 Prepare Palouse Quarry Contracts
W-	Prepare Palouse Quarry Contracts	30.4 days	279	
-14	Engineering Report	182.5 days	279	Egyboring Report 12/10 7/10
202	Review	91.3 days	281	Boview 7/10 80000 - 10/25
283	Design Phase	425.9 days		10/25 Jack State S
284	Prepare Contracts	304.2 days	282	10/25 10/25 10/15
285 286	Advertise	121.7 days	284	Advertise       10/15       Contract Phase
	Contract Phase	1911.3 days		1/14
287 288	Lower Granite	258 days	285	Lower Glanite 3/22 Mobilize to Quarters
288	Mobilize to Quarries	60 days	000	Moduze to Cuarres 3/22524 Develop Quarry
209	Develop Quarry Stabilize LLA (N1)	60 days	288	5/25 1 - 1/31 Stabilize LLA N1)
291	Stabilize LLA (N2-4)	102 days	289	8/1 11/19 Stabilize LLA (4/2-4)
292	Stabilize LLA (N5-7)	131 days	289	8/1 1121 Stable LA 145-7)
293	Stabilize LLA (N8-9, Hwy 12)	120 days	289	8/ 1/2/22 Stabilize UA (N8-5, Hwy 12)
294	Stabilize LLA (Lewiston Levees)	108 days	289	8/1 [329 Stabilize LLA Leviespi 8/1 [327
295	Stabilize Remote Drainage Structures	30 days	294	8/1 11/27 Stabilize Remote organizage Structures
Proje	ct: Drawdown Implementation Schedule Task Progres Mon 1/28/02 Split Milesto	ss	Summary	Rolled Up Split Rolled Up Progress Project Summary
Date:	Mon 1/28/02 Split Milestor	ne 🔶	Rolled Up Task	Rolled Up Milestone 🛇 External Tasks
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				Figure W1 Drawdown Implementation Schedule
				Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8
ID 296	Task Name Little Goose	Duration 1597.3 days	Predecessors	Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 2 Qr 3 Qr 4 Qr 4 Qr 1 Qr 4 Qr 1 Qr 4 Qr 4 Qr 1 Qr 4 Qr 4
				1/14
297	Mobilize to Palouse Quarry	60 days	280	Mobilize to Calouse Quarry 1/14
298	Develop Quarry	60 days	297	Bevelpo Quarry 325 000 043
299	Crush and Transport to Stockpile	1000 days	298	6/3 Crush and Transport to Stockpile
300	Stabilize LGA (N1-4)	120 days	299	Stabilize LGA N1-4) 8/1 129
301	Stabilize LGA (N5-6)	98 days	299	Stabilized LGA (MS-6) 8/1 6 1003 11/77
302	Stabilize LGA (N7-9)	113 days	299	Stabilizh LGA N7-9) Bit 1222
303	Stabilize Remote Drainage Structures	60 days	301	Stabilize Remote Drainage Structures
304	Ice Harbor and Lower Monumental	1673 days		10/19 1/24
305	Crush and Transport to Stockpile (Lower Monumental)	1000 days	298	Crush and Transport to Stockpile (Lower Monumental)
306	Mobilize to Ice Harbor Quarry	60 days	280	Mobilize to be Harbor Quarry 10/19 12/27
307	Develop Quarry	60 days	306	Develop Quarry 12/28
308	Crush and Transport to Stockpile (Ice Harbor)	1000 days	307	Crush and Transport to Stockpile (ice Harbon)
P	Stabilize HLD (N1-9)	152 days	305,308	Steblize HLD (M1-9) 8/1
W-	Stabilize HLD (S1-4)	86 days	308	Stabilge HLD (S1-4) 8/1
15	Stabilize HLD (S5-8)	78 days	308	Stabilgo HLD (55-8) 8/1
512	Stabilize LMA (S1-3)	120 days	305	Stablize LMA (S1-3) 8/1
313	Stabilize LMA (S4-6)	102 days	305	Stabilize LMA(S4-6) 8/1
314	Stabilize LMA (S7 and N1-2)	91 days	305	Stabilize UMA (37 and N1-2) 8/1 8/1 8/1 1/1/4
315	Stabilize Remote Drainage Structures (HLD)	30 days	311	Stabilize Remote Draibage Structures (HLD) 10/31
316		60 days	314	Stabilize Remote Drainage Structures (LMA) 11/15 1/23
317		647 days		
	LYONS FERRY HATCHERY MODIFICATION PLAN	1355.1 days		11/29 2/29
319	Engineering Phase	213 days		Engineering Phase 11/29 8/3
320	Engineering Report	121.7 days		Engineering Report 11/29 4/19
321	Review	91.3 days	320	4/19 8/3
322	Design Phase	304.2 days		Design Phase 7/25
323	Prepare Contract	182.5 days	321	Hepare Contract           8/4         8/8         3/4
324	Advertise	121.7 days	323	Advertise 3/4 2127 725
325	Contract Phase	837.4 days		7/25 Centract Phase 2/29
Proje Date:	ct: Drawdown Implementation Schedule Task Split	Progress Milestone	Summary Rolled Up Task	Rolled Up Split     Rolled Up Progress     Project Summary       Rolled Up Milestone     External Tasks
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				Figure W1 Drawdown Implementation Schedule
				Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8
ID 326	Task Name Deliver Pipe Pile Hardware	Duration 91.3 days	Predecessors 324	Qtr 1         Qtr 2         Qtr 3         Qtr 4         Qtr 1         Qtr 4         Qtr 4 <td< th=""></td<>
327		182.5 days	326,4FF-60 days	7/25 STILLE 1/16
328	Install Temporary Drain Piping	30.4 days	5SS+30 days	11/8 <b>11/8</b> Install Temporary Drain Piping 
329	Drill Three New Wells	91.3 days	5SS	Drill Three New Wells 123
330	Deliver Three Pumps and Motors	273.8 days	329	Deliver Three Pumps and Motors 4/16 2/29
331	Other Pump Modification	60.8 days	5SS	Dther Fump Modification
332	Install New Fish Ladder Drain	30.4 days	5SS+197 days	Install New Fish Ladder Drain
333		30.4 days	5SS+197 days	Construct New Steelhead Exit Channel
334		30.4 days	5SS+197 days	Install Fish Return Pipes
335		30.4 days	5SS+197 days	Construct New Pollution Abatement Pond
336	HABITAT MANAGEMENT UNITS MODIFICATION PLAN	1618 days		HABITAT MANAGEMENT UNITS MODIFICATION PLAN
337	Engineering Phase	213 days		Engineering Phase 8/20 4/23
338	Engineering Report	121.7 days		Engineering Report 8/20 (1995)1991 1/8
Ļ	Review	91.3 days	338	1/8 4/23
D-W-	Design Phase	243.4 days		4/24 Design Phase 2/2
6	Prepare Contract	121.7 days	339	Propare Contract 4/24 9/13 9/13
372	Advertise	121.7 days	341	Advertise 9/13 2/2
343		826.6 days		2/2 ↓ Contract Phase Drawdown #1 2/2 ↓ 8/27
344		60.8 days	342	Profabricate Headwall Structures
345 346		121.7 days	342	2/2 55555555 6/24
		344.9 days	345	6/25 Tompdraly Pumps 6/25 Construct New Intake Structures
347 348		220 days 182.5 days	3SS+180 days,346FF 347FF	Construct fee Intake Structures
349		873 days	347FF	126 ↓ 27 ↓ 27
350		60.8 days	342	1/2 Prefabricate Headwall Structures
351		121.7 days	342	12 3/7 Delivery of Pumps
352		391.3 days	351	1/2 Tempogery Pumps
353		220 days	352FF,5SS+180 days	59 59 59 59 Construct New Intake Structures
354		182.5 days	353FF	7/20 - 7/20
355	RESERVOIR REVEGETATION PLAN	1157.7 days		2/21 2/20 RESERVOIR REVEGETATION PLAN
				3/18 🖤
Proje Date:	ect: Drawdown Implementation Schedule :: Mon 1/28/02 Task Progr Split ,,,,,,,, Milest		Summary Rolled Up Task	Rolled Up Split     Rolled Up Progress       Rolled Up Milestone     External Tasks
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			Figure W1 Drawdown Implementation Schedule
			Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8
ID 356	Task Name Duration Engineering Phase 213.7 days	Predecessors	Qtr 1         Qtr 2         Qtr 3         Qtr 4         Qtr 4         Qtr 1         Qtr 2         Qtr 3 <th< td=""></th<>
			3/18
357	Engineering Report 121.7 days		Engineering Report 3/16 BOSSBORT a/6
358	Review 91.3 days	357	8/7 8/7 11/22
359	Design Phase 243.7 days		11/23 Design Phase 8/31
360	Prepare Contract 121.7 days	358	Prepare Contract 11/23
361	Advertise 121.7 days	360	4/14 831
362	Contract Phase 700 days		ari Contract Phise
363	Phase #1 384 days	361	a1 ♥ 10/31
364	Aerial Application 79 days	2	9/1 12/1
365	Drill Seeding 31 days		Drill Seeding 3/1 💽 3/31
366	Tree Planting 55 days		9ri 9ri 1001
367	Phase #2 371 days		ain 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
368	Aerial Application 79 days	4,361	Aeria Application 91 11/26
P	Drill Seeding 30 days		Drill Seeding 2/26 📑 3/31
₩-	Tree Planting 52 days		Tree Planting 9/1 2021 10/31
17	CATTLE WATERING FACILITIES PLAN 1408.5 days		CATTLE WATERING FACILITIES PLAN
512	Engineering Phase 213 days		Engineering Phase 2/27
373	Real Estate 121.7 days		Real Estate 2/27 2/18 2/27 2/18 2/2
374	Engineering Report 90 days		44
375	Review 91.3 days		
376	Design Phase 243.4 days		Design Phase 11/3 8/12
377	Prepare Contract 121.7 days		11/3 5555555 1223
378	Advertise 121.7 days		3/23
379	Contract Phase Drawdown #1 618.6 days		Contract Phase Drawdown #1 8/12
380	Extend Fences 121.7 days		8/12
381	Install Wells 182.5 days		1234
382	Setup Tanks/Pumps/Controls 182.5 days		12/3+4
383	Install Temporary Water System 304.2 days		8/12
384	Operate Temporary Water System 315 days		
385	Contract Phase Drawdown #2 624.5 days		827 Contract Phase Drawddwn #2 827
Projec Date:	t: Drawdown Implementation Schedule Task Progress Mon 1/28/02 Split Milestone	Summary Rolled Up Task	Rolled Up Split     Rolled Up Progress     Project Summary       Rolled Up Milestone     External Tasks
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				Figure W1 Drawdown Implementation Schedule
				Year 1 Year 2 Year 3 Year 4 Year 5 Year 6 Year 7 Year 8
ID 386	Task Name Extend Fences	Duration 121.7 days	Predecessors 378	tr 1 Qtr 2 Qtr 3 Qtr 4 Qtr 4 Qtr 1 Qtr 4 Q
387	Install Wells	182.5 days	5SS	bizz bizz bizz bizz bizz bizz bizz bizz
388	Setup Tanks/Pumps/Controls	182.5 days	5SS	12/31-3-11 12/31-
389	Install Temporary Water System	304.2 days	378	Install Temporary Water System 8/29
390	Operate Temporary Water System	319 days	388FF,4SS	Operate Temporary Water System 8/4
391	RECREATION ACCESS MODIFICATION PLAN	1531 days		RECREATION ACCESS MODIFICATION PLAN
392	Engineering Phase	213 days		Engineering Phase 3/25 U 11/27
393	Engineering Report	121.7 days		Engineering Report 3/25 States At 3
394	Review	91.3 days	393	8/13 8/13 11/27
395	Design Phase	243.4 days		11/28 9/7
396 397	Prepare Contract	121.7 days	394	Program Contract 11/28 1000000000000000000000000000000000000
397	Advertise Contract Phase Drawdown #1	121.7 days	396	4/17 Contract Phase Drawdown #1
ļ	Install Irrigation System Modifications	223 days	397,2SF-60 days	9/7 Install Irrigation System Modifications
D-1	Demolish Recreation Area	147 days	397	917 Demoly h Recreation Area
W-1	Boat Ramp Relocation and Parking Area	147 days	3SS+180 days	9/7 2/25 Boat Ramp Relocation and Parking Area
18	Install New Fencing	147 days	3SS+180 days	Period Tropporty Water System RECELATION ACCESS MODIF CATION PLAN 112 Engineering Report 112 112 112 112 112 112 112 11
403	Contract Phase Drawdown #2	747 days		Contract Phase Drawdown #2 9/22 9/2
404	Install Irrigation System Modifications	223 days		Install Irrigation System Modifications 9/23 9/25 9/25
405	Demolish Recreation Area	147 days	397	Demolish Recreation Area 9/22 18/18/18/18/18 3/5
406	Boat Ramp Relocation and Parking Area	147 days	5SS+180 days	Boat Ramp Relocation and Parking Area
407	Install New Fencing	147 days	5SS+180 days	Install New Fencing
408	CULTURAL RESOURCES PROTECTION PLAN	961 days		CULTURAL RESOURCES PROTECTION PLAN
	et: Drawdown Implementation Schedule Task	Progress	Summary	Rolled Up Split Rolled Up Progress Project Summary
Projec Date:		Milestone	Rolled Up Task	Rolled Up Spirt , , , , , , , , , , , , , , , , , , ,
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