

Appendix K. Preliminary Construction Schedules (Final Draft)

1. Purpose and Introduction

The Delta Conveyance Project (DCP or Project) would include intakes along the Sacramento River between its confluences with American River and Sutter Slough. The DCP also includes a main tunnel, along the Bethany Reservoir Alignment, extending from the intakes to a surge basin and pumping plant at the downstream terminus of the main tunnel in the Bethany Complex. From the pumping plant water would flow in the Bethany Reservoir Aqueduct pipeline into Bethany Reservoir. This pipeline would include two sections of tunneling below the existing CVP Jones Plant discharge penstock pipelines and below the Bethany Reservoir Conservation Easement.

This technical memorandum (TM) provides a narrative for construction schedules produced in support of the Project.

1.1 Organization

This TM is organized as follows:

- Construction Schedules
- Construction Packages Sequencing
- References
- Attachment 1 Construction Schedule

2. Construction Schedules

The schedule provided Attachment 1 represents the sequenced construction activities and durations for the 6,000 cfs capacity Project with cylindrical tee screen intakes.

The conceptual schedule is intended to provide relative guidance for the overall duration of the construction project starting at year zero and are not associated with specific notice-to-proceed dates.

The schedule was developed using scheduling software and provides a conceptual sequence of construction activities that could be used to complete the facility components. The schedule was based on the 2021 footprint design information available at the time the schedule was developed (see Concept Engineering Report (CER) DCA Volume 2 – Drawings (2024a)) and an assumed number of construction packages. The schedule only delineates one possible sequence of work and is not meant to dictate contractor means and methods, encapsulate possible phasing activities that could shorten the overall schedule, or accommodate unforeseen elements that drive critical path.

The final construction package configuration, sequence of activities, and duration of the schedule will depend upon future project execution decisions, the actual execution of the work, the contractor's actual means and methods, seasonal constraints, definition and variation of the design, abnormal conditions, and other variable factors. Therefore, final schedules would be expected to vary from the conceptual schedules presented here.

3. Construction Packages Sequencing

The schedule reflects the sequencing of various preliminary construction packages, including:

- Early works
- Intakes
- Tunnels and Shafts
- Pumping Plant
- Surge Basin
- Aqueduct Pipeline

This information represents preliminary construction sequencing to be used in development of the EIR impact analysis. During future design phases, additional analyses will be completed to determine the configuration and sequencing of multiple construction contracts.

3.1 Early Works

Early works packages include work required to provide access and utilities to each work site. Separate road access works packages were assumed for the northern and southern parts of the Project area. The sequence of the individual access works has been set to match the order of the main feature works. Rail access, power supply, and other utility provisions will also be completed as early works to support the main feature contracts.

3.2 Intakes

Each intake structure was considered as a separate contract with a 1-year stagger to the start of each. The sequence of the intakes is from south to north to reflect the direction of the northern tunnel drive, so the inlet shafts are ready for the advancing tunnel drive. The sequence of construction for intakes includes:

- Stage 1 to prepare temporary levee embankment and temporary diversion of State Route 160
- Stage 2 to construct the cofferdam and intake structure
- Stage 3 to complete the sediment basins and associated earthworks

The stages were established for scheduling purposes and do not match the phases shown on the drawings, which are intended to support overall sequencing of highway relocation and flood control features.

3.3 Tunnels and Shafts

The schedules assume four main tunnel contracts and one Aqueduct tunnel contract, described later in this TM. The Tunnel contracts include shaft construction and the preparation of the shaft working pads, except working pads at the intakes. At sites with tunnel drives in opposite directions, the first tunnel contract would include the completion of a double launch shaft before handing over one cell of the shaft to the second contract.

The tunnel contracts would include reception and maintenance shafts, with the construction sequenced to follow on from the launch shaft in the direction of the tunnel drive. The reception shaft at Terminus Tract receives two tunnel drives and is included in the first planned to arrive contract. The reception

shaft at the Bethany Complex would be constructed early within the Reach 4 tunnel contract so the site could be released to the pumping plant and surge basin contracts.

Tunnel excavation rates were established from various tunnels of similar size and similar ground conditions using the same type of equipment. The rates were determined using historical data for segmental ring erection sequences from published data: Colzani (2001) and Davies (2009). Using a similar buildup of tunnel liner building and excavation activities, the overall average for tunnel excavation for these 36-foot-inside-diameter tunnels was estimated at approximately 40 linear feet per day, using a segmental precast concrete lining on a 20-hour work day and taking into account tunnel boring machine startup and stoppages.

3.4 Pumping Plant

The Bethany Reservoir Pumping Plant contract includes the construction of a deep box structure and the wet well conduit, as well as associated mechanical and electrical buildings, and the installation of the pumping equipment and associated pipework and surge tank facilities. Pipe work in and around the box structure are included in the contract to the southern extent of the site, where they join to the Bethany Reservoir Aqueduct contract.

The pumping plant box structure would be sequenced as a top-down construction, where the installation of the perimeter diaphragm walls and columns would be followed by the construction of the ground level slab. Subsequent excavation would take place below this top slab, installing intermediate slabs sequentially to support the walls as excavation progresses. Internal walls and bulkheads would be installed at each slab level once there was sufficient clearance to the excavation and slab construction below. This method would also enable surrounding building structures to be progressed concurrently with the main box excavation.

The pumping plant contract would also include the construction of a wet well conduit from the northern side of the pumping plant to the main tunnel reception shaft in the surge basin. This inlet conduit would be constructed at the same time as the main wet well, using the same methods.

3.5 Surge Basin

The surge basin construction would commence as a separate contract after the main tunnel reception/surge shaft and the near surface parts of the wet well conduit were completed. The perimeter diaphragm walls would be installed, followed sequentially by the excavation with tie back anchors, the holding down piles, the base slab, and the access ramp. These activities could take place concurrently with the wet well conduit and pumping plant once the second level slab was completed and operations could be isolated.

The top sections of the reception/surge shaft and the wet well inlet conduit diaphragm walls would be removed by the surge basin contractor before they completed the overlying section of the base slab. Final works to install the dewatering bridge structure and weir wall around the surge shaft would be delayed until after the completion of the main tunnel drive and the removal of the tunnel boring machine from the shaft.

3.6 Aqueduct

Initial site clearance work for the Bethany Reservoir Aqueduct alignment would include the preparation of site access to the tunnel portal areas, so the tunnel construction could be completed before the

excavation for the cut-and-cover sections of the pipeline. The Aqueduct tunnel includes two sets of four tunnels, one set below the CVP Jones Pumping Plant discharge penstock pipelines and one set below the Bethany Reservoir Conservation Easement.

The riser shafts at the downstream end of the Conservation Easement set of tunnels at the Bethany Reservoir Discharge Structure would be constructed concurrently with the tunnels so they were completed before the Conservation Easement tunnels arrived. The completion of the discharge structure over the shafts would be delayed until after the pipeline was installed within the shaft excavations.

The steel pipeline within the tunnel sections would be installed before the excavation of the cut-and-cover sections, enabling the use of the portal and tunnel excavation material to backfill the portal areas. The Aqueduct excavation with the installation of pipes could continue with concurrent backfilling as work progressed.

4. References

California Department of Water Resources (DWR). 2023. *Delta Conveyance Project Final Environmental Impact Report*. SCH# 2020010227. December 2023.

Delta Conveyance Design and Construction Authority (DCA). 2024a. CER Volume 2 - Drawings. Draft.

G Colzani, J. Strid, S. Cole, and D. Olsen. 2001. Tunneling at Hollywood Reservoir. Proceedings of the Rapid Excavation and Tunneling Conference 2001.

J. Davies, K. Chin, J. Ohnigian, and J. Stokes. 2009 Construction of the North Dorchester Bay CSO Storage Tunnel in Boston. Proceedings of the Rapid Excavation and Tunneling Conference 2009.

Attachment 1
Construction Schedules

Activity ID	Activity Name	Original Duration	Year																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
DELTA CONVEYANCE PROJECT EDM - Bethany 2A 2020-10 Footprint			3773																
CO CONSTRUCTION			3773																
CO.PG PROGRAMMATIC MANAGEMENT			3493																
CONSTRUCTION MILESTONES			3493																
Construction Milestones			3493																
G1010	NTP Early works	0	◆ NTP Early works																
A1000	NTP - Overall Construction Project	0	◆ NTP - Overall Construction Project																
E1000	NTP Reach 2	0	◆ NTP Reach 2																
C1000	NTP Reach 4	0	◆ NTP Reach 4																
J1000	NTP Surge Basin	0	◆ NTP Surge Basin																
D1000	NTP Reach 3	0	◆ NTP Reach 3																
K1000	NTP Pumping Plant Works	0	◆ NTP Pumping Plant Works																
F1010	NTP - Reach 1	0	◆ NTP - Reach 1																
G1000	NTP Intake 5	0	◆ NTP Intake 5																
B1000	NTP Aqueduct Tunnels	0	◆ NTP Aqueduct Tunnels																
G9010	NTP Intake 3	0	◆ NTP Intake 3																
I1000	NTP Intermediate overlays	0	◆ NTP Intermediate overlays																
G1020	NTP Aqueduct pipeline	0	◆ NTP Aqueduct pipeline																
B9000	Aqueduct Tunnels Complete	0	◆ Aqueduct Tunnels Complete																
F9002	Reach 1 Complete	0	◆ Reach 1 Complete																
G9020	Intake 5 Complete	0	◆ Intake 5 Complete																
G1030	Aqueduct Pipeline Complete	0	◆ Aqueduct Pipeline Complete																
D9000	Reach 3 Complete	0	◆ Reach 3 Complete																
K9000	Pumping Plant Complete	0	◆ Pumping Plant Complete																
E9000	Reach 2 Complete	0	◆ Reach 2 Complete																
G9000	Intake 3 Complete	0	◆ Intake 3 Complete																
C9000	Reach 4 Complete	0	◆ Reach 4 Complete																
I1010	NTP Final overlays	0	◆ NTP Final overlays																
J9000	Surge Basin Complete	0	◆ Surge Basin Complete																
Z9000	Project Snagging	0	◆ Project Snagging																
Z9010	Construction Completion	0	◆ Construction Completion																
CO.EW CONSTRUCTION EARLY WORKS			3253																
ROAD WORKS			3253																
NORTH ROAD WORKS			3253																
MOB/FACILITIES NORTH			80																
771003	Mobilization North	80	[Bar chart showing duration from Year 1 to Year 1]																
PARK AND RIDES N			212																
771314000	Employee Park & Ride - Rio Vista - Both	18	[Bar chart showing duration from Year 1 to Year 1]																
771315000	Employee Park & Ride - Hood Franklin - Both	154	[Bar chart showing duration from Year 1 to Year 1]																
ACCESS TO INTAKES			396																
771120000	Hood Franklin Road Widening	5	[Bar chart showing duration from Year 1 to Year 1]																
771130000	Intakes Access Road - Both	281	[Bar chart showing duration from Year 1 to Year 1]																
771150000	C-E-05 Intake Access Road	55	[Bar chart showing duration from Year 1 to Year 1]																
771460000	Lambert Road Widening	38	[Bar chart showing duration from Year 1 to Year 1]																
771840000	Intake #3	48	[Bar chart showing duration from Year 1 to Year 1]																
771860000	Intakes - SR160 - Both	15	[Bar chart showing duration from Year 1 to Year 1]																
7719900	Intake #2 Access Road - Option	153	[Bar chart showing duration from Year 1 to Year 1]																
ACCESS TO TWIN CITIES			287																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
771420000	- Dierssen Road Paving	42																
771430000	- Franklin Blvd Improvements at Dierssen	44																
771470000	- Twin Cities Road Widening (East)	36																
ACCESS TO N MID DELTA			30															
771710000	-New Hope Tract Road - East	9																
771730000	-Highway 12 /Terminus Tract Widening - East	21																
ROAD MAINTENANCE NORTH			523															
771710000	-New Hope Tract Road - East	523																
INTERMEDIATE OVERLAYS			62															
771006200	-Contractor Site Mgmt & Facilities - Intrm Ovrly B	62																
771006300	-Mobilization - Intrm Overlay - Both	20																
771120000	-Hood Franklin Road - Both	6																
771130000	-Intakes Access Road - Both	9																
771150000	-C-E-05Intake Access Road - Both	3																
771420000	-Dierssen Road Paving - Both	3																
771430000	-Franklin Blvd Improvements at Dierssen - Both	3																
771460000	-Lambert Road Widening - Both	7																
771470000	-Twin Cities Road Widening (East) - Both	3																
7717700	-Canal Ranch Tract - East	2																
771840000	-Intake #3 Access Road - Both	1																
7719900	-Intake #2 Access Road - Option	5																
FINAL OVERLAYS			130															
771006500	-Contractor Site Mgmt & Facilities - Final Ovrly B	62																
771006600	-Mobilization - Final Overlay - Both	20																
771120000	-Hood Franklin Road - Both	6																
771130000	-Intakes Access Road - Both	9																
771150000	-C-E-05Intake Access Road - Both	3																
771420000	-Dierssen Road Paving - Both	3																
771430000	-Franklin Blvd Improvements at Dierssen - Both	3																
771460000	-Lambert Road Widening - Both	7																
771470000	-Twin Cities Road Widening (East) - Both	3																
771840000	-Intake #3 Access Road - Both	1																
771860000	-Intakes - SR160 - Both	15																
7718700	-Kings Island Access Road - East	5																
7718800	-Union Island Access Road	75																
7719000	-Byron Hwy Frontage Rd	3																
7719900	-Intake #2 Access Road - Option	5																
SOUTH ROAD WORKS			3248															
MOB/FACILITIES SOUTH			30															
771003	-Mobilization - South	30																
PARK AND RIDES S			213															
771310000	- Employee Park & Rides - Byron	54																
771311000	-Employee Park & Ride - Bethany	17																
771313000	-Employee Park & Ride - I-05& Charter Way	12																
7713170	-Employee Park & Ride - W Grant Line Rd	33																
7713180	-Employee Park & Ride - Pavillion Pkwy	36																
ACCESS TO S MID DELTA			262															
7717700	-Canal Ranch Tract - East	2																
7718200	- Upper Jones Tract Road - East	21																
771830000	-Lower Roberts Island Road - East	222																
7718800	-Union Island Access Road	12																
ACCESS TO SOUTHERN COMPLEX			373															
7718700	-Kings Island Access Road - East	5																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7719000-Byron Hwy Frontage Rd		44	█	█														
7719100-Byron Hwy		31	█															
7719200-Byron Hwy - Lindemann Rd Intersection		217	█	█	█													
7719300-Mountain House Shaft Access Road		158	█	█	█													
7719400-Kelso Road Widening		34	█															
7719500-Mountain House Road Widening		124	█	█	█													
7719600-Bethany Road		103	█	█	█													
7719700-Mountain House Rd By-pass		130	█	█	█													
ROAD MAINTENANCE SOUTH		20																
771005320-Mobilization - Gravel Road Maintenance - East		20		█														
INTERMEDIATE OVERLAYS		72																
771006320-Mobilization - Intrm Overlay - East		15						█										
771830000-Lower Roberts Island Road - East		20						█										
771860000-Intakes - SR160 - Both		15						█										
7718700-Kings Island Access Road - East		5						█										
7718800-Union Island Access Road		4						█										
7719000-Byron Hwy Frontage Rd		3						█										
7719200-Byron Hwy - Lindemann Rd Intersection		4						█										
7719300-Mountain House Shaft Access Road		5						█										
7719400-Kelso Road Widening		3						█										
7719500-Mountain House Road Widening		15						█										
7719600-Bethany Road		4						█										
7719700-Mountain House Rd By-pass		2						█										
FINAL OVERLAYS		125																
771006520-Contractor Site Mgmt & Facilities - Final Ovrly E		125														█	█	
771006620-Mobilization - Final Overlay - East		20														█		
7717700-Canal Ranch Tract - East		2														█		
771830000-Lower Roberts Island Road - East		10														█		
7719200-Byron Hwy - Lindemann Rd Intersection		4														█		
7719300-Mountain House Shaft Access Road		5														█		
7719400-Kelso Road Widening		3														█		
7719500-Mountain House Road Widening		15														█		
7719600-Bethany Road		4														█		
7719700-Mountain House Rd By-pass		2														█		
RAIL WORKS		128																
LOWER ROBERTS ISLAND RAIL WORKS		128																
7720030-Mobilization - East		0																
7720200-Ballast/Sub-ballast - East		23														█		
7720200-Embankment - East		23														█		
7720200-Excavate Unsuitable - East		10														█		
7720200-Subdrain System - East		28														█		
7720200-Track - East		44														█		
POWER AND UTILITY EARLY WORKS		1150																
POWER/ELECTRIC WORKS		700																
601008 - Electrical		700																
UTILITY LOGISTICS		1150																
Utility Logistics		700																
CONCRETE SUPPLY		875																
6201 - Erect Batch Plants Lambert Rd		875																
6252 - Erect Batch Plants Bethany Complex		120																
CO.MAJOR CONSTRUCTION		2944																
IN INTAKES		2073																
IN INTAKE 3		1848																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mobilization & Operations			220															
113003000	- Intake 3 Contractor Mobilization	60																
113007010	- Construct Temp Buildings & Utilities	220																
113007100	- Intake 3 Build Site Construction Roads	29																
Phase 1 Sitework			1121															
113305100	- Int 3 Ph1Site Clear & Grub	39																
113305210	- Int 3 Ph 1 DMM Soil Improvement	111																
113305220	- Int 3 Ph 1 DMM Cut-off Trench	48																
113305230	- Int 3 Ph 1 DMM Subcontract Mobe & Demobe	49																
113305300	- Int 3 Ph 1 Excavate Key Trenches	5																
113305410	- Int 3 Ph 1 Highway Temporary Fill from Reqd Exc	115																
113305430	- Int 3 Ph1 Moisture Condition Suitable Soil	120																
113305510	- Int 3 Ph1 Place Dike Fill from Reqd Excavation	30																
113305520	- Int 3 Ph 1 Moisture Condition Suitable Soil	34																
113305600	- Int 3 Ph1 Dewater Excavation W Deep Wells	1121																
113305800	- Int 3 Ph 1 Temporary Plating	12																
Phase 2 Sitework			470															
113306210	- Int 3 Ph 2 DMM Soil Improvement	420																
113306220	- Int 3 Ph 2 DMM Cut-off Trench	170																
113306230	- Int 3 Ph 2 DMM Subcontract Mobe & Demobe	10																
113306300	- Int 3 Ph 2 Excavate Key Trenches	14																
113306510	- Int 3 Ph 2 Fills from Required Excavation	198																
113306520	- Int 3 Ph 2 Fills From Borrow	42																
113306530	- Int 3 Ph 2 Moisture Condition Suitable Soil	205																
113306700	- Int 3 Ph 2 Temporary Plating	24																
113322300	- H Piles in DMM Wall	83																
Roads			721															
113305900	- Intake 3 Pave Temporary Highway 160	25																
113306800	- Int 3 Ph 2 Pave New Highway 160 & Dike Roads	38																
Phase 3 Sitework			643															
113309120	- Int 3 Ph 3 Embankment Fill from Site Excavation	165																
113309130	- Int 3 Ph 3 Moisture Condition Soil	163																
113309140	- Int 3 Ph3 Excavate Unsuitable to Spoil	112																
113309150	- Int 3 Ph3 Final Grade and Invert Rock	191																
113309160	- Int 3 Ph3 Final Grade and Road Plating	57																
113309200	- Int 3 Ph 3 Dredge Pipe From Basin To Lagoons	25																
113309320	- Intake 3 Ph 3 Sed Drying Lagoons Shotcrete Lining	46																
113309330	- Intake 3 Ph 3 Sed Drying Lagoons Underdrains	23																
113309340	- Intake 3 Ph 3 Sed Drying Lagoons Roller Compact	41																
113309400	- Intake 3 Hypalon Curtain	24																
113309500	- Intake 3 Final Utilities, Paving, Fence, S	82																
113309600	- Intake 3 Office & Vehicle Storage	57																
113309700	- Intake 3 Fueling Station	15																
113309800	- Intake 3 Substation & Elect Distribution	112																
113309900	- Intake 3 Drop Gate/Stoplog Storage Enclosure	32																
Cofferdams			852															
113307100	- Intake 3 HZ975D-14/AZ18 Front Combi Wall Coffe	561																
113307200	- Intake3 Fender System	12																
113307300	- Intake 3 PZC26 Back Wall Cofferdam	852																
113307400	- Dredging in front of Cofferdam	15																
Intake Structure			614															
113313000	- Intake 3 Excavate Inside Intake Coffertam	72																
113315100	- Mobilize Drill Spread	162																

Activity ID	Activity Name	Original Duration	Year																		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
22300530	Reach 2 Tunnel 36 Foot	1770	[Gantt bar from Year 4 to Year 11]																		
22300535	Reach 2 Remove TBM	36	[Gantt bar at Year 11]																		
22300550	Reach 2 Remove Tunnel Utilities & Cleanup	46	[Gantt bar at Year 11]																		
MAINTAINANCE SHAFT NEW HOPE TRACT			350			[Summary bar from Year 3 to Year 4]															
225006	Reach 2 Work Area for Maint Shaft - New Hope Tract	142	[Gantt bar from Year 3 to Year 4]																		
22500610	Reach 2 D'Walls for Maint Shaft - New Hope Tract	73	[Gantt bar from Year 3 to Year 4]																		
22500615	Reach 2 Excavate/build Maint Shaft - New Hope Tract	131	[Gantt bar from Year 3 to Year 4]																		
22500616	Reach 2 Maint Shaft Finishing - New Hope Tract	4	[Gantt bar at Year 4]																		
MAINTAINANCE SHAFT CANAL ROAD			403			[Summary bar from Year 3 to Year 4]															
226006	Reach 2 Work Area for Maint Shaft - Canal Road	202	[Gantt bar from Year 3 to Year 4]																		
22600625	Reach 2 D'Walls for Maint Shaft - Canal Road	73	[Gantt bar from Year 3 to Year 4]																		
22600630	Reach 2 Excavate/build Maint Shaft - Canal Road	122	[Gantt bar from Year 3 to Year 4]																		
22600635	Reach 2 Maint Shaft Finishing - Canal Island	6	[Gantt bar at Year 4]																		
Site Restoration			134			[Summary bar from Year 11 to Year 12]															
Glanville Tract - Launch Shaft Site Restoration		134	[Gantt bar from Year 11 to Year 12]																		
REACH 3			1970			[Summary bar from Year 3 to Year 11]															
MOBILIZATION & INDIRECTS			409			[Summary bar from Year 3 to Year 4]															
23100005	Reach 3 Mobilize & Setup Main Site	40	[Gantt bar from Year 3 to Year 4]																		
23100006	Reach 3 Work site RTM Area preparation	219	[Gantt bar from Year 3 to Year 4]																		
23100006	Reach 3 Work site segment pad	200	[Gantt bar from Year 3 to Year 4]																		
23300050	Reach 3 Tunnel Plant & Equipment	300	[Gantt bar from Year 3 to Year 4]																		
TUNNEL REACH 3			1503			[Summary bar from Year 4 to Year 11]															
23300020	Reach 3 Tunnel	1490	[Gantt bar from Year 4 to Year 11]																		
23300025	Reach 3 Remove TBM	36	[Gantt bar at Year 11]																		
23300040	Reach 3 Remove Tunnel Utilities & Cleanup	54	[Gantt bar at Year 11]																		
MAINTAINANCE SHAFT KINGS ISLAND			522			[Summary bar from Year 3 to Year 4]															
234000	Reach 3 Work Area for Maint shaft - Kings island	315	[Gantt bar from Year 3 to Year 4]																		
23400096	Reach 3 D'Wall for Maint Shaft - Kings Island	73	[Gantt bar from Year 3 to Year 4]																		
23400097	Reach 3 Excavate/build Maint Shaft - Kings Island	128	[Gantt bar from Year 3 to Year 4]																		
23400098	Reach 3 Shaft Finishing - Kings Island	6	[Gantt bar at Year 4]																		
RECEPTION SHAFT TERMINUS TRACT			1603			[Summary bar from Year 4 to Year 11]															
234000	Reach 3(4) Work Area for Reception Shaft - Terminus Track	342	[Gantt bar from Year 4 to Year 11]																		
23400014	Reach 3(4) D'Wall for Reception Shaft - Terminus Track	73	[Gantt bar from Year 4 to Year 11]																		
23400015	Reach 3 (4) excavate/build reception Shaft - Terminus Track	107	[Gantt bar from Year 4 to Year 11]																		
2420016	Reach 3(4) Reception Shaft Finishing - Terminus Track	6	[Gantt bar at Year 11]																		
REACH 4			2769			[Summary bar from Year 3 to Year 12]															
MOBILIZATION & INDIRECTS			492			[Summary bar from Year 3 to Year 4]															
24100115	Reach 4 Mobilize & Setup Site - SF North	40	[Gantt bar from Year 3 to Year 4]																		
24100116	Reach 4 RTM site preperation - SF North	217	[Gantt bar from Year 3 to Year 4]																		
24100120	Reach 3/4 Work site Levee improvements	100	[Gantt bar from Year 3 to Year 4]																		
24200126	Reach 4 Work Area Segment pad - SF North	197	[Gantt bar from Year 3 to Year 4]																		
24300155	Reach 4 Tunnel Plant & Equipment	385	[Gantt bar from Year 3 to Year 4]																		
LAUNCH SHAFT SF NORTH			2729			[Summary bar from Year 3 to Year 12]															
2420001	Reach 3/4 Work Area for Launch Shaft - Lower Roberts	215	[Gantt bar from Year 3 to Year 4]																		
2420005	Reach 4 D'walls for Launch Shaft - Lower Roberts	146	[Gantt bar from Year 3 to Year 4]																		
2420006	Reach 3 D'Walls for Launch Shaft - Lower Roberts Island	148	[Gantt bar from Year 3 to Year 4]																		
2420007	Reach 4 Excavate/build Launch Shaft - Lower Roberts	282	[Gantt bar from Year 3 to Year 4]																		
2420008	Reach 3 Excavate/build Launch Shaft - Lower Roberts Island	214	[Gantt bar from Year 3 to Year 4]																		
24200120	Reach 3/4 Launch Shaft Finishing	424	[Gantt bar from Year 3 to Year 4]																		
Lower Roberts Island - Launch Shaft Site Restore		133	[Gantt bar from Year 11 to Year 12]																		
TUNNEL REACH 4			1944			[Summary bar from Year 4 to Year 11]															
24300125	Reach 4 Tunnel	1934	[Gantt bar from Year 4 to Year 11]																		
24300130	Reach 4 Remove TBM	36	[Gantt bar at Year 11]																		

Activity ID	Activity Name	Original Duration	Year																		
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16			
441017600	RS Base Slabs Reinforcing Steel	15																			
441017610	Rebar Shop Pre-Engineered Building	44																			
441017630	RS Furnish & Install Overhead Cranes	68																			
441017640	Rebar Shop Miscellaneous Equipment	44																			
Site Work			1844																		
442005010	Clear and Grub Pump Station Area	33																			
442005030	Site Grading to Elev 41	20																			
442005040	Gravel Plating	15																			
442005110	Aggregate Base Plating under Roads/Parking Areas	12																			
442005120	Storm Drains & Culverts	57																			
442005130	Curbs, Gutters, And Sidewalks	26																			
442005140	Pave Roads & Parking Lots	5																			
442005150	Underground Utilities	103																			
442005160	Landscaping	85																			
442005170	Area Lighting	20																			
442005180	Added Security Fencing & Gates	20																			
443150010	Site Electrical Work	89																			
443160010	SCADA Electrical Work	22																			
Water Control			100																		
442005020	Deep Wells	100																			
Diaphragm Wall Construction			319																		
442015	Diaphragm Walls Below Foundation Slab	239																			
442015	Diaphragm Walls Full Height	225																			
442015	Exterior Walls	289																			
442015	Mobilization & Overhead	319																			
442015	Wet Well Perimeter Diaphragm Walls	226																			
Excavation			851																		
442020	Excavate Level El. 42 to -2	50																			
442021	Excavate Level El. -2 to -27	50																			
442022	Excavate Level El. -27 to -52	50																			
442023	Excavate Level El. -52 to -77	50																			
442025	Excavate Level El. -77 to -88.25	50																			
442026	Excavate Level El. -88.25 to -110.5	50																			
442030	Excavate Wet Well	614																			
442035	Excavate Mechanical Room	116																			
442036	Excavate Surge Tank Vault	96																			
442045	Drilled Piers for Mechanical Room	60																			
442045	Drilled Piers for Vault	22																			
442045	Mobilization & Overhead	159																			
15' Dia Bethany Reservoir Pipe to Y			181																		
4420510	Mass Exc. for 16' Pipe, Ramp to 'Y'	17																			
4420520	Furnish and Place Bedding	10																			
4420520	Place Cradles on Bedding	17																			
4420530	Cathodic Protection	1																			
4420530	Furnish Materials to Site, Unload and Store	19																			
4420530	Line-up and Stringer Bead	71																			
4420530	Mortar Line Pipe	50																			
4420530	String Pipe	26																			
4420530	Weld Pipe	56																			
4420540	Cure and Cleanup	28																			
4420540	Furnish and Place Flowable Concrete	91																			
4420550	Place Backfill from Stockpile	71																			
Remove Section of Diphram Walls - WW Pipe, Elec, Conduit			48																		

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
INSTALL PIPES - JONES CROSSING																		
815050	Installation of Pipes at Crossing	83																
INSTALL PIPES - BETHANY TUNNELS																		
815055	Installation of Pipes at Tunnels and Shafts	150																
INSTALL PIPES - CUT AND COVER																		
812030	Furnish Concrete Cradles - Section 1	16																
813030	Furnish Concrete Cradles - Section 2	9																
815020	Installation of Pipes at Open Cut	340																
815040	Internal Mortar Lining	340																
815045	Cathodic Protection	20																
INSTALL PIPES - BETHANY SHAFTS																		
815055	Installation of Pipes at Tunnels and Shafts	171																
AQUEDUCT TUNNELS AND SHAFTS																		
TUNNEL PORTALS																		
851010	Mobilize Portals	10																
851020	Excavate East Portal	8																
851025	Excavate West Portal	8																
851030	Excavate Single Portal	10																
851031	Portal Cut Support	10																
851032	Site Setup Portals	16																
851040	Indirect Cost	26																
AQUEDUCT TUNNELS																		
852020	Excavate Short Tunnel 1	9																
852025	Excavate Short Tunnel 2	9																
852030	Excavate Short Tunnel 3	9																
852035	Excavate short Tunnel 4	9																
852040	Excavate Long Tunnel 1	148																
852045	Excavate Long Tunnel 2	148																
852050	Excavate Long Tunnel 3	148																
852055	Excavate Long Tunnel 4	148																
OUTLET SHAFT AND STRUCTURE																		
852010	Mobilize Shaft site	16																
852015	Site Setup Tunnels & Shafts	16																
852060	Excavate for Outlet structure	49																
852060	Excavate Shaft 1	79																
852065	Excavate Shaft 2	79																
852070	Excavate Shaft 3	79																
852075	Excavate Shaft 4	79																
853010	Mobilize Reservoir Structure	16																
853015	Site Setup Reservoir Structure	16																
853020	Build Reservoir Cofferdam	1412																
853020	Build Reservoir Structure	354																
853024	Discharge MEP	100																
CM COMMUNICATION & CONTROL / COMMISSIONING																		
Commissioning																		
802	System-Wide Start Up / Commissioning	520																
P10010	Comissioning	520																
Communicatrion & Control																		
		506																

System-Wide Start Up / Commissioning
Comissioning

Activity ID	Activity Name	Original Duration	Year																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
DELTA CONVEYANCE PROJECT EDM - Bethany 2B 2020-10 Footprint			3773																
CO CONSTRUCTION			3773																
CO.PG PROGRAMMATIC MANAGEMENT			3493																
CONSTRUCTION MILESTONES			3493																
Construction Milestones			3493																
G1010	NTP Early works	0	◆ NTP Early works																
A1000	NTP - Overall Construction Project	0	◆ NTP - Overall Construction Project																
E1000	NTP Reach 2	0	◆ NTP Reach 2																
C1000	NTP Reach 4	0	◆ NTP Reach 4																
J1000	NTP Surge Basin	0	◆ NTP Surge Basin																
D1000	NTP Reach 3	0	◆ NTP Reach 3																
K1000	NTP Pumping Plant Works	0	◆ NTP Pumping Plant Works																
F1010	NTP - Reach 1	0	◆ NTP - Reach 1																
G1000	NTP Intake 5	0	◆ NTP Intake 5																
B1000	NTP Aqueduct Tunnels	0	◆ NTP Aqueduct Tunnels																
G9010	NTP Intake 3	0	◆ NTP Intake 3																
I1000	NTP Intermediate overlays	0	◆ NTP Intermediate overlays																
G1020	NTP Aqueduct pipeline	0	◆ NTP Aqueduct pipeline																
B9000	Aqueduct Tunnels Complete	0	◆ Aqueduct Tunnels Complete																
F9002	Reach 1 Complete	0	◆ Reach 1 Complete																
G9020	Intake 5 Complete	0	◆ Intake 5 Complete																
G1030	Aqueduct Pipeline Complete	0	◆ Aqueduct Pipeline Complete																
D9000	Reach 3 Complete	0	◆ Reach 3 Complete																
K9000	Pumping Plant Complete	0	◆ Pumping Plant Complete																
E9000	Reach 2 Complete	0	◆ Reach 2 Complete																
G9000	Intake 3 Complete	0	◆ Intake 3 Complete																
C9000	Reach 4 Complete	0	◆ Reach 4 Complete																
I1010	NTP Final overlays	0	◆ NTP Final overlays																
J9000	Surge Basin Complete	0	◆ Surge Basin Complete																
Z9000	Project Snagging	0	◆ Project Snagging																
Z9010	Construction Completion	0	◆ Construction Completion																
CO.EW CONSTRUCTION EARLY WORKS			3253																
ROAD WORKS			3253																
NORTH ROAD WORKS			3253																
MOB/FACILITIES NORTH			80																
771003	Mobilization North	80	[Bar chart showing duration from Year 1 to Year 1]																
PARK AND RIDES N			212																
771314000	Employee Park & Ride - Rio Vista - Both	18	[Bar chart showing duration from Year 1 to Year 1]																
771315000	Employee Park & Ride - Hood Franklin - Both	154	[Bar chart showing duration from Year 1 to Year 1]																
ACCESS TO INTAKES			396																
771120000	Hood Franklin Road Widening	5	[Bar chart showing duration from Year 1 to Year 1]																
771130000	Intakes Access Road - Both	281	[Bar chart showing duration from Year 1 to Year 1]																
771150000	C-E-05 Intake Access Road	55	[Bar chart showing duration from Year 1 to Year 1]																
771460000	Lambert Road Widening	38	[Bar chart showing duration from Year 1 to Year 1]																
771840000	Intake #3	48	[Bar chart showing duration from Year 1 to Year 1]																
771860000	Intakes - SR160 - Both	15	[Bar chart showing duration from Year 1 to Year 1]																
7719900	Intake #2 Access Road - Option	153	[Bar chart showing duration from Year 1 to Year 1]																
ACCESS TO TWIN CITIES			287																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
771420000	- Dierssen Road Paving	42																
771430000	- Franklin Blvd Improvements at Dierssen	44																
771470000	- Twin Cities Road Widening (East)	36																
ACCESS TO N MID DELTA			30															
771710000	-New Hope Tract Road - East	9																
771730000	-Highway 12 /Terminus Tract Widening - East	21																
ROAD MAINTENANCE NORTH			523															
771710000	-New Hope Tract Road - East	523																
INTERMEDIATE OVERLAYS			62															
771006200	-Contractor Site Mgmt & Facilities - Intrm Ovrly B	62																
771006300	-Mobilization - Intrm Overlay - Both	20																
771120000	-Hood Franklin Road - Both	6																
771130000	-Intakes Access Road - Both	9																
771150000	-C-E-05Intake Access Road - Both	3																
771420000	-Dierssen Road Paving - Both	3																
771430000	-Franklin Blvd Improvements at Dierssen - Both	3																
771460000	-Lambert Road Widening - Both	7																
771470000	-Twin Cities Road Widening (East) - Both	3																
7717700	-Canal Ranch Tract - East	2																
771840000	-Intake #3 Access Road - Both	1																
7719900	-Intake #2 Access Road - Option	5																
FINAL OVERLAYS			130															
771006500	-Contractor Site Mgmt & Facilities - Final Ovrly B	62																
771006600	-Mobilization - Final Overlay - Both	20																
771120000	-Hood Franklin Road - Both	6																
771130000	-Intakes Access Road - Both	9																
771150000	-C-E-05Intake Access Road - Both	3																
771420000	-Dierssen Road Paving - Both	3																
771430000	-Franklin Blvd Improvements at Dierssen - Both	3																
771460000	-Lambert Road Widening - Both	7																
771470000	-Twin Cities Road Widening (East) - Both	3																
771840000	-Intake #3 Access Road - Both	1																
771860000	-Intakes - SR160 - Both	15																
7718700	-Kings Island Access Road - East	5																
7718800	-Union Island Access Road	75																
7719000	-Byron Hwy Frontage Rd	3																
7719900	-Intake #2 Access Road - Option	5																
SOUTH ROAD WORKS			3248															
MOB/FACILITIES SOUTH			30															
771003	-Mobilization - South	30																
PARK AND RIDES S			213															
771310000	- Employee Park & Rides - Byron	54																
771311000	-Employee Park & Ride - Bethany	17																
771313000	-Employee Park & Ride - I-05& Charter Way	12																
7713170	-Employee Park & Ride - W Grant Line Rd	33																
7713180	-Employee Park & Ride - Pavillion Pkwy	36																
ACCESS TO S MID DELTA			262															
7717700	-Canal Ranch Tract - East	2																
7718200	- Upper Jones Tract Road - East	21																
771830000	-Lower Roberts Island Road - East	222																
7718800	-Union Island Access Road	12																
ACCESS TO SOUTHERN COMPLEX			373															
7718700	-Kings Island Access Road - East	5																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
7719000-Byron Hwy Frontage Rd		44	█	█														
7719100-Byron Hwy		31	█															
7719200-Byron Hwy - Lindemann Rd Intersection		217	█	█	█													
7719300-Mountain House Shaft Access Road		158	█	█	█													
7719400-Kelso Road Widening		34	█															
7719500-Mountain House Road Widening		124	█	█	█													
7719600-Bethany Road		103	█	█	█													
7719700-Mountain House Rd By-pass		130	█	█	█													
ROAD MAINTENANCE SOUTH		20																
771005320-Mobilization - Gravel Road Maintenance - East		20		█														
INTERMEDIATE OVERLAYS		72																
771006320-Mobilization - Intrm Overlay - East		15						█										
771830000-Lower Roberts Island Road - East		20						█										
771860000-Intakes - SR160 - Both		15						█										
7718700-Kings Island Access Road - East		5						█										
7718800-Union Island Access Road		4						█										
7719000-Byron Hwy Frontage Rd		3						█										
7719200-Byron Hwy - Lindemann Rd Intersection		4						█										
7719300-Mountain House Shaft Access Road		5						█										
7719400-Kelso Road Widening		3						█										
7719500-Mountain House Road Widening		15						█										
7719600-Bethany Road		4						█										
7719700-Mountain House Rd By-pass		2						█										
FINAL OVERLAYS		125																
771006520-Contractor Site Mgmt & Facilities - Final Ovrly E		125															█	█
771006620-Mobilization - Final Overlay - East		20															█	
7717700-Canal Ranch Tract - East		2															█	
771830000-Lower Roberts Island Road - East		10															█	
7719200-Byron Hwy - Lindemann Rd Intersection		4															█	
7719300-Mountain House Shaft Access Road		5															█	
7719400-Kelso Road Widening		3															█	
7719500-Mountain House Road Widening		15															█	
7719600-Bethany Road		4															█	
7719700-Mountain House Rd By-pass		2															█	
RAIL WORKS		128																
LOWER ROBERTS ISLAND RAIL WORKS		128																
7720030-Mobilization - East		0																
7720200-Ballast/Sub-ballast - East		23															█	
7720200-Embankment - East		23															█	
7720200-Excavate Unsuitable - East		10															█	
7720200-Subdrain System - East		28															█	
7720200-Track - East		44															█	
POWER AND UTILITY EARLY WORKS		700																
POWER/ELECTRIC WORKS		700																
601008 - Electrical		700																
UTILITY LOGISTICS		700																
Utility Logistics		700																
CONCRETE SUPPLY		377																
6201 - Erect Batch Plants Lambert Rd		40															█	
6252 - Erect Batch Plants Bethany Complex		120															█	█
CO.MAJOR CONSTRUCTION		2944																
IN INTAKES		2066																
IN INTAKE 3		1841																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Mobilization & Operations			220															
113003000	- Intake 3 Contractor Mobilization	60																
113007010	- Construct Temp Buildings & Utilities	220																
113007100	- Intake 3 Build Site Construction Roads	28																
Phase 1 Sitework			865															
113305100	- Int 3 Ph1Site Clear & Grub	37																
113305210	- Int 3 Ph 1 DMM Soil Improvement	107																
113305220	- Int 3 Ph 1 DMM Cut-off Trench	45																
113305230	- Int 3 Ph 1 DMM Subcontract Mobe & Demobe	47																
113305300	- Int 3 Ph 1 Excavate Key Trenches	5																
113305410	- Int 3 Ph 1 Highway Temporary Fill from Reqd Exc	108																
113305430	- Int 3 Ph1 Moisture Condition Suitable Soil	113																
113305510	- Int 3 Ph1 Place Dike Fill from Reqd Excavation	28																
113305520	- Int 3 Ph 1 Moisture Condition Suitable Soil	32																
113305600	- Int 3 Ph1 Dewater Excavation W Deep Wells	865																
113305800	- Int 3 Ph 1 Temporary Plating	12																
Phase 2 Sitework			452															
113306210	- Int 3 Ph 2 DMM Soil Improvement	402																
113306220	- Int 3 Ph 2 DMM Cut-off Trench	163																
113306230	- Int 3 Ph 2 DMM Subcontract Mobe & Demobe	10																
113306300	- Int 3 Ph 2 Excavate Key Trenches	13																
113306510	- Int 3 Ph 2 Fills from Required Excavation	192																
113306520	- Int 3 Ph 2 Fills From Borrow	41																
113306530	- Int 3 Ph 2 Moisture Condition Suitable Soil	205																
113306700	- Int 3 Ph 2 Temporary Plating	23																
113322300	- H Piles in DMM Wall	76																
Roads			470															
113305900	- Intake 3 Pave Temporary Highway 160	25																
113306800	- Int 3 Ph 2 Pave New Highway 160 & Dike Roads	38																
Phase 3 Sitework			892															
113309120	- Int 3 Ph 3 Embankment Fill from Site Excavation	165																
113309130	- Int 3 Ph 3 Moisture Condition Soil	163																
113309140	- Int 3 Ph3 Excavate Unsuitable to Spoil	112																
113309150	- Int 3 Ph3 Final Grade and Invert Rock	191																
113309160	- Int 3 Ph3 Final Grade and Road Plating	57																
113309200	- Int 3 Ph 3 Dredge Pipe From Basin To Lagoons	25																
113309320	- Intake 3 Ph 3 Sed Drying Lagoons Shotcrete Lining	46																
113309330	- Intake 3 Ph 3 Sed Drying Lagoons Underdrains	23																
113309340	- Intake 3 Ph 3 Sed Drying Lagoons Roller Compact	41																
113309400	- Intake 3 Hypalon Curtain	24																
113309500	- Intake 3 Final Utilities, Paving, Fence, S	82																
113309600	- Intake 3 Office & Vehicle Storage	57																
113309700	- Intake 3 Fueling Station	15																
113309800	- Intake 3 Substation & Elect Distribution	112																
113309900	- Intake 3 Drop Gate/Stoplog Storage Enclosure	32																
Cofferdams			766															
113307100	- Intake 3 HZ975D-14/AZ18 Front Combi Wall Coffe	764																
113307200	- Intake3 Fender System	10																
113307300	- Intake 3 PZC26 Back Wall Cofferdam	766																
113307400	- Dredging in front of Cofferdam	13																
Intake Structure			501															
113313000	- Intake 3 Excavate Inside Intake Coffertam	58																
113315100	- Mobilize Drill Spread	142																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
22600635	Reach 2 Maint Shaft Finishing - Canal Island	6																
	Site Restoration	134																
	Glanville Tract - Launch Shaft Site Restoration	134																
	REACH 3	1970																
	MOBILIZATION & INDIRECTS	409																
	23100005 - Reach 3 Mobilize & Setup Main Site	40																
	23100006 - Reach 3 Work site RTM Area preparation	219																
	23100006 - Reach 3 Work site segment pad	200																
	23300050 - Reach 3 Tunnel Plant & Equipment	300																
	TUNNEL REACH 3	1503																
	23300020 - Reach 3 Tunnel	1490																
	23300025 - Reach 3 Remove TBM	36																
	23300040 - Reach 3 Remove Tunnel Utilities & Cleanup	54																
	MAINTAINANCE SHAFT KINGS ISLAND	522																
	234000 - Reach 3 Work Area for Maint shaft - Kings island	315																
	23400096 - Reach 3 D'Wall for Maint Shaft - Kings Island	73																
	23400097 - Reach 3 Excavate/build Maint Shaft - Kings Island	128																
	23400098 - Reach 3 Shaft Finishing - Kings Island	6																
	RECEPTION SHAFT TERMINUS TRACT	1603																
	234000 - Reach 3(4) Work Area for Reception Shaft - Terminus Track	342																
	23400014 - Reach 3(4) D'Wall for Reception Shaft - Terminus Track	73																
	23400015 - Reach 3 (4) excavate/build reception Shaft - Terminus Track	107																
	2420016 - Reach 3(4) Reception Shaft Finishing - Terminus Track	6																
	REACH 4	2769																
	MOBILIZATION & INDIRECTS	492																
	24100115 - Reach 4 Mobilize & Setup Site - SF North	40																
	24100116 - Reach 4 RTM site preparation - SF North	217																
	24100120 - Reach 3/4 Work site Levee improvements	100																
	24200126 - Reach 4 Work Area Segment pad - SF North	197																
	24300155 - Reach 4 Tunnel Plant & Equipment	385																
	LAUNCH SHAFT SF NORTH	2729																
	2420001 - Reach 3/4 Work Area for Launch Shaft - Lower Roberts	215																
	2420005 - Reach 4 D'walls for Launch Shaft - Lower Roberts	146																
	2420006 - Reach 3 D'Walls for Launch Shaft - Lower Roberts Island	148																
	2420007 - Reach 4 Excavate/build Launch Shaft - Lower Roberts	282																
	2420008 - Reach 3 Excavate/build Launch Shaft - Lower Roberts Island	214																
	24200120 - Reach 3/4 Launch Shaft Finishing	424																
	Lower Roberts Island - Launch Shaft Site Restore	133																
	TUNNEL REACH 4	1944																
	24300125 - Reach 4 Tunnel	1934																
	24300130 - Reach 4 Remove TBM	36																
	24300145 - Reach 4 Remove Tunnel Utilities & Cleanup	48																
	MAINTAINANCE SHAFT UPPER JONES TRACT	515																
	234000 - Reach 3 Work Area for Maint shaft - Upper Jones Tract	315																
	23400096 - Reach 3 D'Wall for Maint Shaft - Upper Jones Tract	73																
	23400097 - Reach 3 Excavate/build Maint Shaft - Upper Jones Tract	121																
	23400098 - Reach 3 Shaft Finishing - Upper Jones Tract	6																
	MAINTAINANCE SHAFT UNION ISLAND	515																
	234000 - Reach 3 Work Area for Maint shaft - Union Island	315																
	23400096 - Reach 3 D'Wall for Maint Shaft - Union Island	73																
	23400097 - Reach 3 Excavate/build Maint Shaft - Union Island	121																
	23400098 - Reach 3 Shaft Finishing - Union Island	6																
	RECEPTION SHAFT BETHANY COMPLEX	302																

Activity ID	Activity Name	Original Duration	Year															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
242001	Reach 4 Work Area for Reception Shaft	5																
24200187	Reach 4 D'Wall for Reception Shaft	146			█	█	█											
24200189	Reach 4 Excavate/build Reception shaft	151			█	█	█	█										
SURGE BASIN		1941																
South Surge Basin		1941																
Mobilization & Overhead		45																
331003000	Surge Basin Equipment Mobilization	45																
Temporary Facilities		55																
331007110	SB Contractor's Office	27																
331007120	SB Shops & Warehouse (No Rebar Shop)	22																
331007130	SB Other Structures	5																
331007210	SB Site Roads & Site Work	1																
331007310	SB Electrical Supply & Distribution	1																
331007330	SB Telephone Installation	1																
331007340	SB Water Supply & Distribution	1																
331007350	SB Sewer Collection & Treatment	0																
Rebar Shop		118																
331015110	RS Base Slabs	30																
331015200	Rebar Shop Pre-Engineered Building	44																
331015310	RS Furnish & Install Overhead Cranes	68																
331015400	Rebar Shop Miscellaneous Equipment	44																
Earthworks		1021																
332005000	Surge Basin Clear & Grub/Demolition	10																
332010000	Surge Basin Excavation & Demo'n	365																
332015000	Surge Basin Ramp Construction	25																
334050000	Surge Basin Finish Out	28																
Diaphragm Walls		376																
333010100	Level Land & Prepare for Diaphragm Wall Cont.	13																
333010200	Slurry Wall Mobe and Demobe	376																
333010310	Set Guide Walls	54																
333010320	Excavate (Hydromill) Slurry Trench	238																
333010330	Reinforcing Steel	238																
333010340	Concrete	238																
Tie Backs		209																
333020010	Mobilize Tieback Spread	209																
333020030	Install Tiebacks	200																
333020060	Tieback Contractor Profit, G&A, & Conti	205																
Drilled Piers		554																
333030020	Mobilize Drill Spread	554																
333030040	Drill 72" Pier Shafts	530																
333030050	Reinforcing Steel	530																
333030060	Place Fill Concrete	530																
Invert Slab		270																
334010110	SB IS Ground Preparation	270																
334010130	SB IS Concrete	270																
Ramp Slab		39																
334010210	SB RS Ground Preparation	13																
334010230	SB RS Concrete	26																
Laydown Slab		24																
334010310	SB LS Ground Preparation	8																
334010330	SB LS Concrete	16																
Overflow Weir		59																
334020110	SB OW Surface Preparation	20																

Activity ID	Activity Name	Original Duration	Year																
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
AQUEDUCT TUNNELS AND SHAFTS			1448	[Gantt bars for Aqueduct Tunnels and Shafts]															
TUNNEL PORTALS			37	[Gantt bars for Tunnel Portals]															
851010	Mobilize Portals	10	[Gantt bar]																
851020	Excavate East Portal	8	[Gantt bar]																
851025	Excavate West Portal	8	[Gantt bar]																
851030	Excavate Single Portal	10	[Gantt bar]																
851031	Portal Cut Support	10	[Gantt bar]																
851032	Site Setup Portals	16	[Gantt bar]																
851040	Indirect Cost	26	[Gantt bar]																
AQUEDUCT TUNNELS			628	[Gantt bars for Aqueduct Tunnels]															
852020	Excavate Short Tunnel 1	9	[Gantt bar]																
852025	Excavate Short Tunnel 2	9	[Gantt bar]																
852030	Excavate Short Tunnel 3	9	[Gantt bar]																
852035	Excavate short Tunnel 4	9	[Gantt bar]																
852040	Excavate Long Tunnel 1	148	[Gantt bar]																
852045	Excavate Long Tunnel 2	148	[Gantt bar]																
852050	Excavate Long Tunnel 3	148	[Gantt bar]																
852055	Excavate Long Tunnel 4	148	[Gantt bar]																
OUTLET SHAFT AND STRUCTURE			1448	[Gantt bars for Outlet Shaft and Structure]															
852010	Mobilize Shaft site	16	[Gantt bar]																
852015	Site Setup Tunnels & Shafts	16	[Gantt bar]																
852060	Excavate for Outlet structure	49	[Gantt bar]																
852060	Excavate Shaft 1	79	[Gantt bar]																
852065	Excavate Shaft 2	79	[Gantt bar]																
852070	Excavate Shaft 3	79	[Gantt bar]																
852075	Excavate Shaft 4	79	[Gantt bar]																
853010	Mobilize Reservoir Structure	16	[Gantt bar]																
853015	Site Setup Reservoir Structure	16	[Gantt bar]																
853020	Build Reservoir Cofferdam	1432	[Gantt bar]																
853020	Build Reservoir Structure	354	[Gantt bar]																
853024	Discharge MEP	120	[Gantt bar]																
CM COMMUNICATION & CONTROL / COMMISSIONING			1270	[Gantt bars for CM Communication & Control / Commissioning]															
	Commissioning	520	[Gantt bar]																
	Communicatrion & Control	506	[Gantt bar]																