

All reinforcing steel joints and/or splices in the bridge railing steel shall be tied. A dry run to check for reinforcing clearance and rigidity of the reinforcing cages shall be required before any concrete is placed. The Contractor shall verify reinforcing clearances and make any adjustments to the cage to establish the required clearances during the dry run. Reinforcing steel cages are to be rigid (defined as no movement during the slipforming dry run). If the Engineer determines the cages are not rigid, the Contractor must stabilize the cages before any slipforming is performed. The Contractor may add any additional diagonal reinforcing steel between the front and rear vertical reinforcing faces to establish the required rigidity. Any additional reinforcing steel required to adequately stabilize the cages shall be the Contractor's expense.

Honeycombing, cracking, tearing and other defects shall be repaired or patched immediately upon exit from the slipform equipment. Defects shall be completely filled with concrete.

Control joints shall be constructed by sawing 1 1/4 inches (32 mm) deep the perimeter of the parapet, after the concrete has taken its initial set but before any shrinkage cracks develop. Generally initial set is within 6 hours of batching of the concrete. All joints shall be sawed within 24 hours of placement. Joints shall be sawed by using an edge guide, fence or jig to insure that the joint is straight, true and aligned on all faces of the parapet. The joint width shall be the width of the saw blade, a nominal 1/4 inch (6 mm).

Slip formed concrete will require different slumps than those listed in 899 or other plan specified concrete. The consistency of the concrete should be such that the concrete exiting the slipform does not pull but is stiff enough to prevent waviness and sags in the finished surfaces. Method A, Water Curing, 842.14 is required. As slipformed concrete has a low water-cement ratio, timely application of the water cure is critical in helping control shrinkage cracks.

No water shall be added or applied to the concrete after it has left the truck.

The Contractor shall furnish all necessary platforms to protect against falling debris during the slipforming operation, to allow access for completing the finishing operation and to allow the inspector access.

Concrete control joints will be sawed 1 1/2 inch (35mm) into the concrete by use of an edge guide, fence or jig to assure the cut joint is straight, true and aligned on all faces of the parapet. The joint will be a saw blade wide, (nominal 1/4 inch (6mm)). The perimeter of the control joint will be caulked with a polyurethane or polymeric material meeting Federal Specification TT-S-00227E.

The Engineer will inspect the slipformed surface for horizontal cracking no earlier than 21 days after completion of the slipforming operation. All horizontal cracks shall be repaired by epoxy injection. If a concrete sealer has been applied, any damage to the sealer shall be repaired after the epoxy injection has been completed. The aforementioned repairs shall be made at no additional cost to the State.

844.04 MIX OPTIONS. Unless specific concrete mixes are specified in the pay item descriptions, the following provisions will apply:

All superstructure concrete except for parapet concrete will consist of mix 3 or mix 4. If mix 3 is used for the deck, then all other concrete will be mix 1 or mix 3 concrete. If mix 4 is used for the deck, then all other concrete will be mix 2 or mix 4 concrete.

Any 899 calendar time restrictions regarding the use of fly ash will be waived for this concrete.

The following proportions will be used as a starting mix design.

CONCRETE TABLE
Quantities Per Cubic Yard
Aggregates (SSD)

Mix 1 (Fly Ash)								
Aggregate Type	Fine Aggregate (lb)	#8 Coarse Aggregate (lb)	Total (lb)	Cement Content (lb)	Fly Ash (lb)	Water to Cementitious Ratio Max	Air Content +/-2%	
Gravel	1320	1480	2800	530	170	0.38	7	
Limestone	1320	1495	2815	530	170	0.38	7	
Slag	1320	1300	2620	530	170	0.38	7	
Mix 2 (GGBF Slag)								
Aggregate Type	Fine Aggregate (lb)	#8 Coarse Aggregate (lb)	Total (lb)	Cement Content (lb)	GGBF Slag (lb)	Water to Cementitious Ratio Max	Air Content +/-2%	
Gravel	1335	1480	2815	490	210	0.38	7	
Limestone	1335	1495	2830	490	210	0.38	7	
Slag	1335	1295	2630	490	210	0.38	7	
Mix 3 (Fly Ash + Microsilica)								
Aggregate Type	Fine Aggregate (lb)	#8 Coarse Aggregate (lb)	Total (lb)	Cement Content (lb)	Fly Ash (lb)	Micro-Silica (lb)	Water to Cementitious Ratio Max	Air Content +/-2%
Gravel	1355	1475	2830	480	150	30	0.40	7
Limestone	1355	1490	2845	480	150	30	0.40	7
Slag	1355	1295	2650	480	150	30	0.40	7
Mix 4 (GGBF Slag + Microsilica)								
Aggregate Type	Fine Aggregate (lb)	#8 Coarse Aggregate (lb)	Total (lb)	Cement Content (lb)	GGBF Slag (lb)	Micro-Silica (lb)	Water to Cementitious Ratio Max	Air Content +/-2%
Gravel	1370	1475	2845	440	190	30	0.40	7
Limestone	1370	1490	2860	440	190	30	0.40	7
Slag	1370	1295	2665	440	190	30	0.40	7

8 inch maximum slump at placement for all mixes.