FY 2017-18 TABLE OF CONTENTS

Index

Index <u>Number</u> <u>Title</u> REVISIONS Booklet Revisions ABBREVIATIONS AND SYMBOLS Standard Abbreviations Standard Symbols EROSION CONTROL AND WATER QUALITY 104 Permanent Erosion Control 105 Shoulder Sodding and Turf on Existing Facilities Drainage 200 Structure Bottoms - Type J and P 201 Supplementary Details for Manholes and Inlets 206 Trench Drain Curb Inlet Tops - Types 1, 2, 3 and 4 210 211 Curb Inlet Tops - Types 5 and 6 212 Curb Inlet - Type 7 213 Curb Inlet - Type 8 214 Curb Inlet Top - Type 9 215 Curb Inlet Top - Type 10 216 Closed Flume Inlet 217 Median Barrier Inlets Types 1, 2, 3, 4 and 5 218 Barrier Wall Inlet 219 Concrete Barrier Wall Inlet 220 Gutter Inlet - Type S 221 Gutter Inlet - Type V 230 Ditch Bottom Inlet - Type A 231 Ditch Bottom Inlet - Type B 232 Ditch Bottom Inlet - Type C, D, E and H 233 Ditch Bottom Inlet - Type F and G 234 Ditch Bottom Inlet - Type J 235 Ditch Bottom Inlet - Type K 240 Skimmer For Outlet Control Structures 241 Skimmers For French-Drain Outlets 245 Underdrain Inspection Box 250 Straight Concrete Endwalls - Single And Multiple Pipe 251 Straight Concrete Endwalls - Single And Double 60" Pipe 252 Straight Concrete Endwalls - Single And Double 66" Pipe 253 Straight Concrete Endwalls - Single And Double 72" Pipe 255 Straight Concrete Endwalls - Single 84" Pipe 258 Straight Sand-Cement Endwalls 260 U-Type Concrete Endwalls With Grates - 15" to 30" Pipe 261 U-Type Concrete Endwalls-Baffles and Grate Optional - 15" To 30" Pipe 264 U-Type Concrete Endwall-Energy Dissipator - 30" to 72" Pipe 266 Winged Concrete Endwalls - Single Round Pipe 268 U-Type Sand-Cement Endwalls 270 Flared End Section 272 Cross Drain Mitered End Section 273 Side Drain Mitered End Section 280 Miscellaneous Drainage Details 281 Ditch Pavement and Sodding 282 Back of Sidewalk Drainage 283 Median Opening Flume 284 Concrete Shoulder Gutter Spillway 285 French Drain 286 Underdrain 287 Concrete Pavement Subdrainage 288 Deep Well Injection Box 289 Concrete Box Culvert Details (LRFD) 291 Supplemental Details for Precast Concrete Box Culverts 292 Standard Precast Concrete Box Culverts 293 Safety Modifications for Inlets in Box Culverts 295 Safety Modifications for Endwalls

Numbe	<u>er Title</u>	
CURBS, CONCRETE PAVEMENT AND SIDEWALKS		
300	Curb & Curb and Gutter	
301	Turn Lanes	
302	Traffic Separators	
303	Curb Return Profiles	
304	Detectable Warnings and Sidewalk Curb Ramps	
305	Concrete Pavement Joints	
306 307	Bridge Approach Expansion Joint -Concrete Pavement Miscellaneous Utility Details	
308	Concrete Slab Replacement	
310	Concrete Sidewalk	
Traffic Railings		
400	Guardrail	
402	Guardrail Transitions and Connections for Existing Bridges	
404	Guardrail Transitions - Existing Post & Beam Bridge Railings (Narrow & Recessed Curbs)	
405	Guardrail Transitions - Existing Post & Beam Bridge Railings (Wide Curbs)	
410	Concrete Barrier Wall	
411	Pier Protection Barrier	
412	Low Profile Barrier	
414	Type K Temporary Concrete Barrier System	
415 420	Temporary Concrete Barrier	
420 421	Traffic Railing - (32" F Shape) Traffic Railing - (Median 32" F Shape)	
422	Traffic Railing - (42" Vertical Shape)	
423	Traffic Railing - (32" Vertical Shape)	
424	Traffic Railing - (Corral Shape)	
425	Traffic Railing - (42" F Shape)	
426	Traffic Railing - (Median 36" Single Slope)	
427	Traffic Railing - (36" Single Slope)	
428	Traffic Railing - (42" Single Slope)	
430 461	Crash Cushion Details Opaque Visual Barrier	
401 470	Traffic Railing-(Thrie Beam Retrofit) General Note & Details	
471	Traffic Railing-(Thrie Beam Retrofit) Narrow Curb	
472	Traffic Railing-(Thrie Beam Retrofit) Wide Strong Curb Type 1	
473	Traffic Railing-(Thrie Beam Retrofit) Wide Strong Curb Type 2	
474	Traffic Railing-(Thrie Beam Retrofit) Intermediate Curb	
475	Traffic Railing-(Thrie Beam Retrofit) Wide Curb Type 1	
476	Traffic Railing-(Thrie Beam Retrofit) Wide Curb Type 2	
477	Thrie-Beam Panel Retrofit (Concrete Handrail)	
480	Traffic Railing-(Vertical Face Retrofit) General Notes & Details Traffic Railing-(Vertical Face Retrofit) Narrow Curb	
481 482	Traffic Railing-(Vertical Face Retrofit) Wide Curb	
483	Traffic Railing-(Vertical Face Retrofit) Intermediate Curb	
484	Traffic Railing- (Vertical Face Retrofit) Spread Footing Approac	
Genera		
500	Removal of Organic and Plastic Material	
505	Embankment Utilization	
506 510	Miscellaneous Earthwork Details Superelevation - Rural Highways, Urban Freeways and High	
511	Speed Urban Highways Superelevation - Urban Highways and Streets	
515	Turnouts and Driveways	
516	Turnouts - Resurfacing Projects	
517	Raised Rumble Strips	
518	Shoulder Rumble Strips	
519	Rumble Striping	
521	Concrete Steps	
525	Ramp Terminals	
526	Roadway Transitions	
527 530	Directional Median Opening	
530 532	Rest Area Pavilion Mailboxes	
J32	Mailbuxes	

535	Tractor Crossings
540	Settlement Plate
542	Tree Protection and Preservation
544	Landscape Installation
546	Sight Distance at Intersections
560	Railroad Crossings
	······· - · · · · · · · · · · · · · · ·
[raffic	Control Through Work Zones
600	General Information for Traffic Control Through Work Zones
601	Two-Lane, Two-Way, Work Outside Shoulder
602	
	Two-Lane, Two-Way, Work On Shoulder
603	Two-Lane, Two-Way, Work Within The Travel Way
604	Two-Lane, Two-Way, Work in Intersection
605	Two-Lane, Two-Way, Work Near Intersection
606	Two-Lane, Two-Way, Work Within the Travel Way - Signal Control
607	Two-Lane, Two-Way, Mobile Operation, Work On Shoulder and Work Within the Travel Way
608	Two-Lane, Two-Way, Temporary Diversion Connection
611	Multilane, Work Outside Shoulder
612	Multilane, Work On Shoulder
613	Multilane, Work Within Travel Way-Median or Outside Lane
614	Multilane, Work Within Travel Way-Center Lane
615	Multilane, Work in Intersection
616	Multilane, Work Near Intersection-Median or Outside Lane
617	Multilane, Work In Intersection - Center Lane
618	Multilane, Work In Intersection -Two Lanes Closed-45mph or Less
619	Multilane, Mobile Operations Work on Shoulder, Work Within
	Travel Way
620	Multilane, Divided, Temporary Diversion Connection
621	Multilane Undivided, Temporary Diversion Connection
622	Multilane, Work Near Intersection-Temporary Diversion
	Connection 35mph or Less
623	Multilane, Work Within the Travel Way Double Lane Closure
625	Temporary Road Closure- 5 Minutes or Less
628	Two Way Left Turn Lane Closure
630	Crossover for Paving Train Operations, Rural
631	Temporary Crossover
640	Converting Two-Lanes to Four-Lanes Divided, Rural
641	Converting Two-Lanes to Four-Lanes Divided, Urban
642	Transitions for Temporary Concrete Barrier Wall on Freeway Facilities
650	Two-Lane Two-Way, Rural Structure Replacement
651	Multilane Divided, Maintenance and Construction
655	Traffic Pacing
660	Pedestrian Control for Closure of Sidewalks
665	Limited Access, Temporary Opening
667	Toll Plaza, Traffic Control Standards
670	Motorist Awareness System (MAS)
0,0	Thotorist rimareness system (rins)
ENCING	and Pedestrian Railings
800	Fence Location
801	Fence - Type A
802	Fence - Type B
803	Cantilever Slide Gate - Type B Fence
810	Bridge Fencing (Vertical)
811	Bridge Fencing (Curved Top)
812	Bridge Fencing (Enclosed)
820	27" Concrete Parapet With Pedestrian/Bicycle With Bullet Railing
821	Bridge Aluminum Pedestrian/Bicycle Bullet Railing for Traffic Railing (32" F Shape)
822	Bridge Aluminum Pedestrian/Bicycle Bullet Railing Details
825	42" Concrete Pedestrian/Bicycle Railing
851	Bridge Pedestrian/Bicycle Railing (Steel)
<i>852</i>	Steel Pedestrian/Bicycle Railing

Index

Number Title

FY 2017-18 TABLE OF CONTENTS

Index	
Numbe	
861	Bridge Pedestrian/Bicycle Railing (Aluminum)
862	Aluminum Pedestrian/Bicycle Railing
870 880	Aluminum Pipe Guiderail Steel Pipe Guiderail
880	Steer Fipe Guiderall
	nd Perimeter Wall Systems
5200	Precast Noise Walls
5210 5211	Traffic Railing/Noise Wall (8'-0") Traffic Railing/Noise Wall (14'-0")
5211 5212	Traffic Railing/Noise Wall (8'-0") Junction Slab
5212 5213	Traffic Railing/Noise Wall T-Shaped Spread Footing
5214	Traffic Railing/Noise Wall L-Shaped Spread Footing
5 <i>2</i> 15	Traffic Railing/Noise Wall Trench Footing
5250	Perimeter Walls
Wall S	YSTEMS
6010	C-I-P Cantilever Retaining Wall
6011	Gravity Wall
6020	Permanent MSE Retaining Wall Systems
6030	Temporary MSE Retaining Wall Systems
6040 6100	Precast Concrete Sheet Pile Wall MSE Wall Coping (Precast or C-I-P)
6110	Wall Coping With Traffic Railing/Junction Slab
6120	Wall Coping With Traffic Railing/Raised Sidewalk
6130	Wall Coping/Parapet With C-I-P Sidewalk
6200	Coping Mounted Light Pole Pedestal
6201	Junction Slab at Drainage Inlet Openings
Signing	and Markings
11200	Multi-Column Ground Sign
11300	Steel Overhead Sign Structures
11310	Cantilever Sign Structure
11320	Span Sign Structure
11860 11861	Single Column Ground Signs Single Column Cantilever Ground Mounted Sign
11862	Roadside Flashing Beacon Assembly
11870	Single Post Bridge Mounted Sign Support
11871	Single Post Median Barrier Mounted Sign Support
13417	Mounting Exit Number Panels To Highway Signs
17302	Typical Sections For Placement of Single & Multi-Column Signs
17328	Typical Signing for Truck Weigh & Inspection Stations
17344 17345	School Signs & Markings
17345 17346	Interchange Markings Pavement Markings
17347	Bicycle Markings
17349	Traffic Controls For Street Terminations
17350	Signing For Motorist Services
17 3 5 1	Welcome Center Signing
17352	Typical Placement Of Reflective Pavement Markers
17354	Tourist Oriented Directional Signs
17355 17356	Special Sign Details Span Wire Mounted Sign Details
17 350 17 357	Bridge Weight Restrictions
17359	Rural Narrow Bridge Treatment
Roadwa	y Lighting
17500	Conventional Lighting
17502	High Mast Lighting
17504	Service Point Details
17505	External Lighting For Signs
17515	Standard Aluminum Lighting

Index Number Title TRAFFIC SIGNAL AND EQUIPMENT 17700 Pull & Splice Box 17721 Conduit Installation Details 17723 Steel Strain Pole 17725 Concrete Poles 17727 Signal Cable & Span Wire Installation Details 17733 Aerial Interconnect 17736 Electrical Power Service 17743 Standard Mast Arm Assemblies 17745 Mast Arm Assemblies 17748 Free-Swinging Internally-Illuminated Street Sign Assemblies 17764 Pedestrian Control Signal Installation Details 17781 Vehicle Loop Installation Details 17784 Pedestrian Detector Assembly Installation Details 17841 Cabinet Installation Details 17870 Standard Signal Operating Plans 17881 Advance Warning For R/R Crossing 17882 Railroad Grade Crossing Traffic Control Devices 17890 Traffic Control Devices For Movable Span Bridge Signals PLANNING 17900 Traffic Monitoring Site INTELLIGENT TRANSPORTATION SYSTEMS (ITS) 18100 CCTV Pole Placement 18101 Typical CCTV Site 18102 Grounding And Lightning Protection 18104 Typical CCTV Cabinet Equipment Layout 18105 CCTV Block Diagram 18107 Ground Mounted CCTV Cabinet 18108 Pole Mounted CCTV Cabinet 18110 Camera Mounting Details 18111 Steel CCTV Pole 18113 Concrete CCTV Pole 18300 Dynamic Message Sign Walk-In Prestressed Concrete Beams 20010 Typical Florida-I Beam Details and Notes 20036 Florida-I 36 Beam - Standard Details 20045 Florida-I 45 Beam - Standard Details 20054 Florida-I 54 Beam - Standard Details 20063 Florida-I 63 Beam - Standard Details 20072 Florida-I 72 Beam - Standard Details 20078 Florida-I 78 Beam - Standard Details 20084 Florida-I 84 Beam - Standard Details 20096 Florida-I 96 Beam - Standard Details 20120 AASHTO Type II Beam 20199 Build-Up & Deflection Data For Prestressed I-Beams 20210 Typical Florida-U Beam Details and Notes 20248 Florida-U 48 Beam - Standard Details 20254 Florida-U 54 Beam - Standard Details 20263 Florida-U 63 Beam - Standard Details 20272 Florida-U 72 Beam - Standard Details 20299 Build-Up and Deflection Data For Florida-U Beams Bridge Bearings 20502 Beveled Bearing Plate Details - Prestressed Florida-U Beams 20510 Composite Elastomeric Bearing Pads-Prestressed Florida-I & AASHTO Type II Beams 20511 Bearing Plates (Type I) - Prestressed Florida-I & AASHTO Type II Beams 20512 Bearing Plates (Type 2) - Prestressed Florida-I & AASHTO Type II Beams

Index	
<u>Numbe</u>	<u>er Title</u>
Square	AND ROUND CONCRETE PILES (WITH CARBON STEEL)
20600	Notes and Details For Square Prestressed Concrete Piles
20601	Square Prestressed Concrete Pile Splices
20602	EDC Instrumentation For Square Prestressed Concrete Piles
20612	12" Square Prestressed Concrete Pile
20614	14" Square Prestressed Concrete Pile
20618	18" Square Prestressed Concrete Pile
20620	20" Square Prestressed Concrete Pile
20624	24" Square Prestressed Concrete Pile
20630	30" Square Prestressed Concrete Pile
20631	High Moment Capacity 30" Square Prestressed Concrete Pile
20654	54" Precast/Post- Tensioned Concrete Cylinder Pile
20660	60" Prestressed Concrete Cylinder Pile
Approac	CH SLABS
20900	Approach Slabs (Flexible Pavement Approaches)
20910	Approach Slabs (Rigid Pavement Approaches)
Bridge	Expansion Joints
21100	Strip Seal Expansion Joint
21110	Poured Joint With Backer Rod Expansion Joint System
Structu	ures Access and Lighting
21200	Light Pole Pedestal
21210	Conduit Details
21220	Navigation Light System Details (Fixed Bridges)
21240	Maintenance Lighting For Box Girders
21250	Access Hatch Assembly For Steel Box Sections
21251	Access Hatch Assembly For Concrete Box Sections
21252	Access Door Assembly For Concrete Box Sections
Standai	rd Bar Bending Details
21300	Standard Bar Bending Details
TEMPORA	ary Detour Bridges
21600	Temporary Detour Bridge General Notes and Details
21610	Temporary Detour Bridge Details - Timber Pile Foundations
21620	Temporary Detour Bridge Details - Steel H Pile Foundations
21630	Temporary Detour Bridge Details - Steel Pipe Pile Foundations
21640	Temporary Detour Bridge Thrie-Beam Guardrail
Post-Te	ension Details
21801	Post-Tensioning Vertical Profiles
21802	Post-Tensioning Anchorage Protection
21803	Post-Tensioning Anchorage and Grouting Details
Fender	System Details
21930	Fender System - Prestressed Concrete Piles
WALL S	YSTEM (CORROSION RESISTANT)
	Precast Concrete CFRP/GFRP & HSSS/GFRP Sheet Pile Wall
Souare	AND ROUND CONCRETE PILES (CORROSION RESISTANT)
22600	Notes and Details for Square CFRP & SS Prestressed
	Concrete Piles
22601	Square CFRP and SS Prestressed Concrete Pile Splices
22612	12" Square CFRP and SS Prestressed Concrete Pile
22614	14" Square CFRP and SS Prestressed Concrete Pile
22618	18" Square CFRP and SS Prestressed Concrete Pile
22624	24" Square CFRP and SS Prestressed Concrete Pile
22630	30" Square CFRP and SS Prestressed Concrete Pile
22654 22660	54" Square CFRP and SS Prestressed Concrete Pile 60" Square CFRP and SS Prestressed Concrete Pile
22000	55 Square Crim and 55 Frestressed Cultillete File