

DETAILED DRAWINGS

TABLE OF CONTENTS

STANDARD SPECIFICATION SECTION AND DRAWING TITLE	DRAWING NUMBER
<u>SECTION 101: DEFINITIONS AND TERMS</u>	
ABBREVIATIONS.....	101-05
ABBREVIATIONS.....	101-06
ABBREVIATIONS.....	101-07
ABBREVIATIONS.....	101-08
SYMBOLS.....	101-10
<u>SECTION 203: EXCAVATION AND EMBANKMENT</u>	
APPROACHES.....	203-05
DITCH BLOCKS.....	203-20
<u>SECTION 301: AGGREGATE SURFACING</u>	
ROADWAY EMBANKMENT AT BRIDGE END.....	301-00
<u>SECTION 411: COLD MILLING</u>	
SHOULDER RUMBLE STRIPS.....	411-02
MODIFIED SHOULDER RUMBLE STRIPS.....	411-03
CENTERLINE RUMBLE STRIPS.....	411-05
<u>SECTION 501: PORTLAND CEMENT CONCRETE PAVEMENT</u>	
PCCP JOINTS.....	501-00
PCCP ISOLATION JOINTS.....	501-05
PCCP ISOLATION JOINTS.....	501-10
PCCP REPAIR.....	501-15
DOWEL BAR RETROFIT FOR PCCP.....	501-20
DOWEL BAR RETROFIT FOR PCCP.....	501-25

SECTION 552: CONCRETE STRUCTURES

CONCRETE CUTOFF WALLS FOR CULVERTS..... 552-00

CONCRETE, RIPRAP AND GRANULAR BEDDING MATERIAL QUANTITIES
FOR SING. AND DBL. CULVERT INSTALLATION..... 552-04

CONCRETE, RIPRAP AND GRANULAR BEDDING MATERIAL QUANTITIES
FOR SING. AND DBL. CULVERT INSTALLATION..... 552-06

CONCRETE, RIPRAP AND GRANULAR BEDDING MATERIAL QUANTITIES
FOR SING. AND DBL. CULVERT INSTALLATION..... 552-08

**SECTION 603: CULVERTS, STORM DRAINS, SANITARY SEWERS, STOCKPASSES AND
UNDERPASSES**

CMP FLARED END TERMINAL SECTION (FETS) 603-02

PREFABRICATED RCP FLARED END TERMINAL SECTION (FETS)..... 603-08

PREFABRICATED RCP FLARED END TERMINAL SECTION (FETS) (METRIC)..... 603-08

PREFABRICATED RCP ARCH FLARED END TERMINAL SECTION (FETS)..... 603-10

RCP ROAD APPROACH CULVERT END TREATMENT (RACET)..... 603-12

CMP ROAD APPROACH CULVERT END TREATMENT (RACET)..... 603-14

PRECAST MEDIAN U-TURN CROSS DRAIN AND CONC. BEVELED END..... 603-17

BEDDING FOR CULVERTS 54" (1350 mm) EQUIVALENT & SMALLER..... 603-18

GRANULAR BEDDING FOR CULVERTS 54" (1350 mm) EQUIVALENT & LARGER..... 603-19

STORM DRAIN TRENCH BEDDING DETAIL..... 603-20

WATER TIGHT JOINT FOR REINFORCED CONCRETE PIPE..... 603-22

REINFORCED CONCRETE PIPE JOINT..... 603-24

TYPICAL FIELD CAST CONCRETE CONNECTIONS..... 603-26

CTX ADAPTER..... 603-27

EMBANKMENT PROTECTOR..... 603-28

VEHICULAR UNDERPASS AND BACKFILL RETAINER &
CUTOFF WALL DETAIL..... 603-30

VEHICULAR UNDERPASS AND BACKFILL RETAINER &
CUTOFF WALL DETAIL (METRIC)..... 603-30

VEHICULAR UNDERPASS PCCP TRANSVERSE JOINT &
BACKFILL RETAINER DETAIL..... 603-31

STEP BEVEL FOR CIRCULAR METAL CULVERT..... 603-32

BEVEL ON ARCH METAL CULVERT..... 603-34

CORRUGATED STEEL PIPE STOCKPASS..... 603-36

SECTION 604: MANHOLES, COMBINATION MANHOLES AND INLETS, AND INLETS

MEDIAN INLET	604-00
CONCRETE MANHOLE.....	604-02
CURB INLET TYPE II.....	604-03
DROP INLET TYPE IV.....	604-04
DROP INLETS TYPE I AND V.....	604-14
DROP INLETS TYPE III AND VI.....	604-16
TYPE A AND B CURB INLETS.....	604-18

SECTION 605: CONCRETE BARRIER RAIL

CONCRETE BARRIER RAIL.....	605-00
CONCRETE BARRIER RAIL ANCHORS.....	605-05
TALL CONCRETE BARRIER RAIL.....	605-10
CONCRETE BARRIER RAIL TRANSITION.....	605-15
CONCRETE BARRIER RAIL TERMINAL SECTION (ONE-WAY DEPARTURE).....	605-20

SECTION 606: GUARDRAIL

METAL GUARDRAIL - WOOD POSTS (MGS).....	606-05A
METAL GUARDRAIL - STEEL POSTS (MGS).....	606-05B
STIFFENED GUARDRAIL SECTIONS (MGS).....	606-07
LONG SPAN GUARDRAIL (MGS).....	606-09
METAL GUARDRAIL - LONG POSTS - WOOD (MGS).....	606-11A
METAL GUARDRAIL - LONG POSTS - STEEL (MGS).....	606-11B
MASH OPTIONAL TERMINAL SECTIONS.....	606-13
ONE-WAY DEPARTURE TERMINAL SECTION (MGS).....	606-18
MGS TO METAL GUARDRAIL TRANSITION.....	606-20
MGS THRIE BEAM BRIDGE APPROACH SECTION - WOOD POSTS.....	606-23A
MGS THRIE BEAM BRIDGE APPROACH SECTION - STEEL POSTS.....	606-23B
BRIDGE APPROACH SECTIONS - WOOD POSTS.....	606-24A
BRIDGE APPROACH SECTIONS - STEEL POSTS.....	606-24B
SKewed BRIDGE APPROACH SECTIONS - WOOD POSTS.....	606-25A

SKewed BRIDGE APPROACH SECTIONS - STEEL POSTS.....	606-25B
TAPERED CONCRETE CURB DETAIL.....	606-26
TAPERED CONCRETE CURB DETAIL.....	606-27
INTERSECTING ROADWAY TERMINAL SECTION (MGS).....	606-46
BOX BEAM GUARDRAIL.....	606-50
BOX BEAM ONE-WAY DEPARTURE TERMINAL SECTION.....	606-52
BOX BEAM BRIDGE APPROACH SECTION - TYPES 1 & 2.....	606-53
BOX BEAM BRIDGE APPROACH SECTION - TYPE 3.....	606-53A
BOX BEAM BRIDGE APPROACH SECTION - TYPE 4.....	606-53B
BOX BEAM ONE-WAY BRIDGE DEPARTURE SECTION.....	606-54
BOX BEAM TERMINAL SECTION - MBEAT.....	606-55
BOX BEAM TO MGS TRANSITION SECTION.....	606-58
SCHEDULE OF GUARDRAIL HARDWARE.....	606-80
SCHEDULE OF GUARDRAIL HARDWARE.....	606-80A
GUARDRAIL HARDWARE.....	606-82
W-BEAM METAL GUARDRAIL HARDWARE.....	606-84
W-BEAM METAL GUARDRAIL HARDWARE.....	606-88
LOW-TENSION CABLE GUARDRAIL HARDWARE.....	606-94
BOX BEAM GUARDRAIL HARDWARE.....	606-97
BOX BEAM GUARDRAIL HARDWARE.....	606-98
BOX BEAM GUARDRAIL HARDWARE.....	606-98A
BOX BEAM GUARDRAIL HARDWARE.....	606-99
BOX BEAM GUARDRAIL HARDWARE.....	606-99A

SECTION 607: FENCES

FARM FENCE.....	607-00
WILDLIFE FRIENDLY FENCE.....	607-01
FARM ENTRANCE GATES.....	607-02
FENCE DETAILS.....	607-05
FENCE DETAILS.....	607-10
FENCE DETAILS.....	607-15
FENCE DETAILS.....	607-17

FENCING AT RIGHT OF WAY BREAKS.....	607-20
CHAIN LINK FENCE.....	607-25
8' (2.4 m) WOOD SNOW FENCE W/ ANCHOR SYSTEM #1.....	607-30
12' (3.6 m) WOOD SNOW FENCE W/ ANCHOR SYSTEM #1.....	607-35
WOOD SNOW FENCE ANCHOR SYSTEM #3 AND #1 DETAILS.....	607-40
WOOD SNOW FENCE ANCHOR SYSTEM #2 DETAILS.....	607-45
WILDLIFE FENCE.....	607-50
JACKLEG WIRE FENCE.....	607-55
JACKLEG POLE FENCE.....	607-60

SECTION 608: CONCRETE SIDEWALKS

CONCRETE SIDEWALK.....	608-05
NEW CONSTRUCTION PUBLIC SIDEWALK CURB RAMPS.....	608-15
PERPENDICULAR PUBLIC SIDEWALK CURB RAMPS.....	608-25
PARALLEL PUBLIC SIDEWALK CURB RAMPS.....	608-30
DIAGONAL PERPENDICULAR PUBLIC SIDEWALK CURB RAMPS.....	608-35
DETECTABLE WARNING DEVICES.....	608-40

SECTION 609: CURBS AND GUTTERS

CONCRETE VALLEY GUTTER.....	609-00
MISCELLANEOUS CURBS.....	609-05
DROP INLET APRONS.....	609-07
MEDIAN CONCRETE CURBS.....	609-10
CONCRETE MEDIAN CAPS.....	609-12

SECTION 610: ROADSIDE RE-VEGETATION

TOPSOIL AND SEEDING.....	610-00
ROLLED EROSION CONTROL (REC).....	610-05

SECTION 611: CATTLE GUARDS

HEAVY DUTY CATTLE GUARD CAST-IN-PLACE.....	611-00
CATTLE GUARD HINGED GRATE.....	611-03

LIGHT DUTY CATTLE GUARD – PRECAST.....	611-10
LIGHT DUTY CATTLE GUARD - PRECAST (METRIC).....	611-10
HEAVY DUTY CATTLE GUARD – PRECAST.....	611-15
PRECAST CONCRETE CATTLE GUARD BASE DETAILS.....	611-20

SECTION 613: RIPRAP AND SLOPE AND BANK PROTECTION

CONCRETE EDGE PROTECTION FOR METAL CULVERTS.....	613-06
CONCRETE EDGE PROTECTION FOR CONCRETE CULVERTS.....	613-08
CONCRETE SLOPE PROTECTION.....	613-10
INLET AND OUTLET HEADWALLS FOR RCP AND CMP PIPES.....	613-12
CULVERT RIPRAP.....	613-14
RIPRAP SLOPE PROTECTION.....	613-16
DRAINAGE CHUTES.....	613-18

SECTION 615: IRRIGATION FACILITIES AND HEADWALLS

TRASHGUARD FOR CONCRETE IRRIGATION INLET AND OUTLET TRANSITION STRUCTURES.....	615-02
STANDARD CONCRETE IRRIGATION DIVISION BOXES.....	615-04
CONCRETE IRRIGATION INLET AND OUTLET TRANSITION FOR RCP AND CSP PIPES.....	615-06

SECTION 618: TRAFFIC CONTROL

CHANNELIZING DEVICES AND OBJECT MARKERS.....	618-00
CONSTRUCTION SIGN DETAILS.....	618-01
PORTABLE SIGN SUPPORT ASSEMBLY.....	618-02
BARRICADES.....	618-03
TWO-LANE WORK ZONE.....	618-04
TWO-LANE WORK AREAS.....	618-08
TWO-LANE WORK ZONE SEAL COAT.....	618-10
TWO-LANE WORK AREA LANE CLOSURE - FLAGGER CONTROLLED.....	618-12
TWO-LANE WORK AREA LANE CLOSURE - SIGNAL CONTROLLED.....	618-13
TWO-LANE EQUIPMENT ENTRANCES.....	618-14
TWO-LANE EQUIPMENT ENTRANCES.....	618-16

TWO-LANE WORK ZONE DIVERSION.....	618-18
DIVIDED FOUR-LANE WORK ZONE.....	618-20
TEMPORARY ENTRANCE RAMP MEDIAN CROSSOVER.....	618-21
TEMPORARY EXIT RAMP MEDIAN CROSSOVER.....	618-22
DIVIDED FOUR-LANE WORK AREAS.....	618-24
DIVIDED FOUR-LANE EQUIPMENT ENTRANCE.....	618-27
DIVIDED FOUR-LANE MEDIAN CROSSING.....	618-28
TEMPORARY FOUR-LANE TO TWO-LANE MEDIAN CROSSOVER.....	618-30
TEMPORARY TWO-LANE TO FOUR-LANE MEDIAN CROSSOVER.....	618-32
DIVIDED FOUR-LANE SINGLE LANE CLOSURE LANE SHIFT.....	618-33
SHORT DURATION OR SHORT-TERM STATIONARY CREW SIGNING.....	618-34
MAINTENANCE GUIDELINE FOR SHORT-TERM TWO-LANE CRACK SEALING WORK ZONE.....	618-M1
MAINTENANCE GUIDELINE FOR SHORT-TERM TWO-LANE CHIP SEAL AND OVERLAY (PILOTED TRAFFIC).....	618-M2
MAINTENANCE GUIDELINE FOR SHORT-TERM LANE CLOSURE ON INTERSTATE.....	618-M3
MOBILE OPERATIONS.....	618-M4
LANE CLOSURE - FLAGGER CONTROLLED (URBAN TWO-LANE, TWO-WAY ROAD).....	618-U01
WORK ZONE OCCUPIES ONE HALF OF ROAD (LOW SPEED URBAN TWO-LANE, TWO-WAY ROAD).....	618-U02
WORK ZONE IN CENTER OF ROAD (URBAN TWO-LANE, TWO-WAY ROAD).....	618-U03
SIDEWALK CLOSURES AND BYPASS WALKWAY.....	618-U05
LANE CLOSURE (URBAN TWO-LANE, TWO-WAY ROAD WITH TWO-WAY LEFT TURN LANE).....	618-U15
TURN LANE CLOSURE (URBAN TWO-LANE, TWO-WAY ROAD WITH TWO-WAY LEFT TURN LANE).....	618-U16
RIGHT LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U20
LEFT LANE CLOSURE (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U25
LEFT LANE CLOSURES (LOW SPEED URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U30
DOUBLE LANE CLOSURE (URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U35
RIGHT LANE CLOSURE - WORK AREA BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U40
LEFT LANE CLOSURE - WORK AREA BEYOND INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U45

DOUBLE LANE CLOSURE AT INTERSECTION (URBAN MULTI-LANE, UNDIVIDED ROAD).....	618-U50
LEFT LANE CLOSURE (URBAN LOW SPEED, MULTI-LANE UNDIVIDED ROAD WITH TWO-WAY LEFT TURN LANE).....	618-U60

SECTION 619: SIGNS AND DELINEATORS

SIGN CLEARANCES AND MOUNTING HEIGHTS.....	619-00
SIGN CLEARANCES AND MOUNTING HEIGHTS (METRIC).....	619-00
TYPICAL RURAL AND URBAN APPROACHES.....	619-02
ALUMINUM SHEET INCREMENT SIGN CONSTRUCTION DETAILS.....	619-04
GUIDE SIGN CLEARANCE AND MOUNTING DETAILS.....	619-08
SHEET ALUMINUM OVERLAY.....	619-10
TUBULAR SIGN POST DETAILS.....	619-12
BREAKAWAY AND FOUNDATION DETAILS FOR MULTIPLE GUIDE SIGN SUPPORTS.....	619-13
BREAKAWAY AND FOUNDATION DETAILS FOR MULTIPLE GUIDE SIGN SUPPORTS (METRIC).....	619-13
SQUARE TUBULAR SIGN POST BREAKAWAY DEVICES.....	619-14
TYPICAL STEEL POST MOUNTING DETAILS.....	619-16
CANTILEVER TYPE SIGN SUPPORT DETAILS FOR SIDEWALK AREAS.....	619-18
STRUCTURAL STEEL POST SIGN MOUNTING DETAILS.....	619-19
TREATED WOOD POLE SIGN MOUNTING AND SUPPORT DETAILS.....	619-20
TREATED WOOD POLE SIGN MOUNTING DETAILS.....	619-21
TREATED WOOD POLE OPTIONAL BACKBRACE.....	619-22
CHEVRON MOUNTING DETAILS.....	619-24
SPECIAL DESIGN ROUTE MARKER PANELS AND SHIELDS.....	619-26
SIGN HINGE DETAILS	619-30
MILEPOST (REFERENCE POST) DETAILS.....	619-32
DELINEATOR DETAILS.....	619-34
PANEL DELINEATOR DETAIL.....	619-35
DELINEATOR PLACEMENT DETAILS.....	619-36
OBJECT MARKER DESIGN AND PLACEMENT DETAILS FOR OBSTRUCTIONS ADJACENT TO OR WITHIN HIGHWAYS.....	619-38
FLEXIBLE DELINEATORS.....	619-40

PERMANENT BARRICADE DESIGN DETAILS.....	619-42
INSTALLATION DATE TAGS.....	619-44

SECTION 620: PAVEMENT MARKING APPLICATION

PAVEMENT MARKINGS (LETTERS).....	620-00
PAVEMENT MARKINGS (NUMBERS).....	620-05
PAVEMENT MARKINGS (WORDS).....	620-10
PAVEMENT MARKINGS (ARROWS).....	620-15
PAVEMENT MARKINGS (SYMBOLS).....	620-20
PAVEMENT MARKINGS (SYMBOLS).....	620-25
PAVEMENT MARKINGS (CENTERLINE RUMBLE STRIPING).....	620-30

SECTION 621: REMOVE, RE-SET AND ADJUST FACILITIES

MANHOLE AND VALVE BOX ADJUSTMENT DETAILS.....	621-00
OPTIONAL MANHOLE AND VALVE BOX ADJUSTMENT DETAILS.....	621-05

SECTION 623: MAILBOXES

APPROACH MAILBOX TURNOUT.....	623-10
MAILBOX TURNOUT.....	623-15
MAILBOX DETAIL.....	623-20
OPTIONAL MAILBOX DETAIL.....	623-25
TEMPORARY MAILBOX SUPPORT.....	623-30
TEMPORARY MAILBOX SUPPORT BRACKET DETAILS.....	623-35

MISCELLANEOUS

U-TURN MEDIAN OPENINGS ON CONTROLLED ACCESS HIGHWAYS.....	900-00
ADJUSTABLE MONUMENT BOX.....	900-15
PUBLIC SIGNAGE - STORMWATER.....	900-20