BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
JAMES CANYON DRIVE PERMANENT REPAIRS
PROJECT NO. SEPT12C24 (BOULDER CO.)
PROJECT NO. SEPT12C91 (JAMESTOWN)

SCOPE OF WORK

THIS PROJECT CONSISTS OF REPAIRING FLOOD DAMAGED ROADS IN BOULDER COUNTY. PRIOR TO SEPTEMBER 12, 2013 JAMES CANYON DRIVE WAS A PAVED ROADWAY APPROXIMATELY 27' WIDE IN THE BOULDER COUNTY FOOTHILLS WITH JAMES CREEK RUNNING ALONG ONE SIDE. WITH THE RECENT FLOODING EVENT MANY SECTIONS OF THE ROADWAY WERE WASHED AWAY. A 22' WIDE TEMPORARY ROADWAY WAS CONSTRUCTED TO CARRY TRAFFIC. WORK WILL CONSIST OF CONSTRUCTING A PAVED ROADWAY INCLUDING EMBANKMENT, ROCKERY, PERMANENT DRAINAGE STRUCTURES, STRIPING, AND CONSTRUCTION SIGNING. THE PROJECT IS APPROXIMATELY 4.8 MILES IN LENGTH.

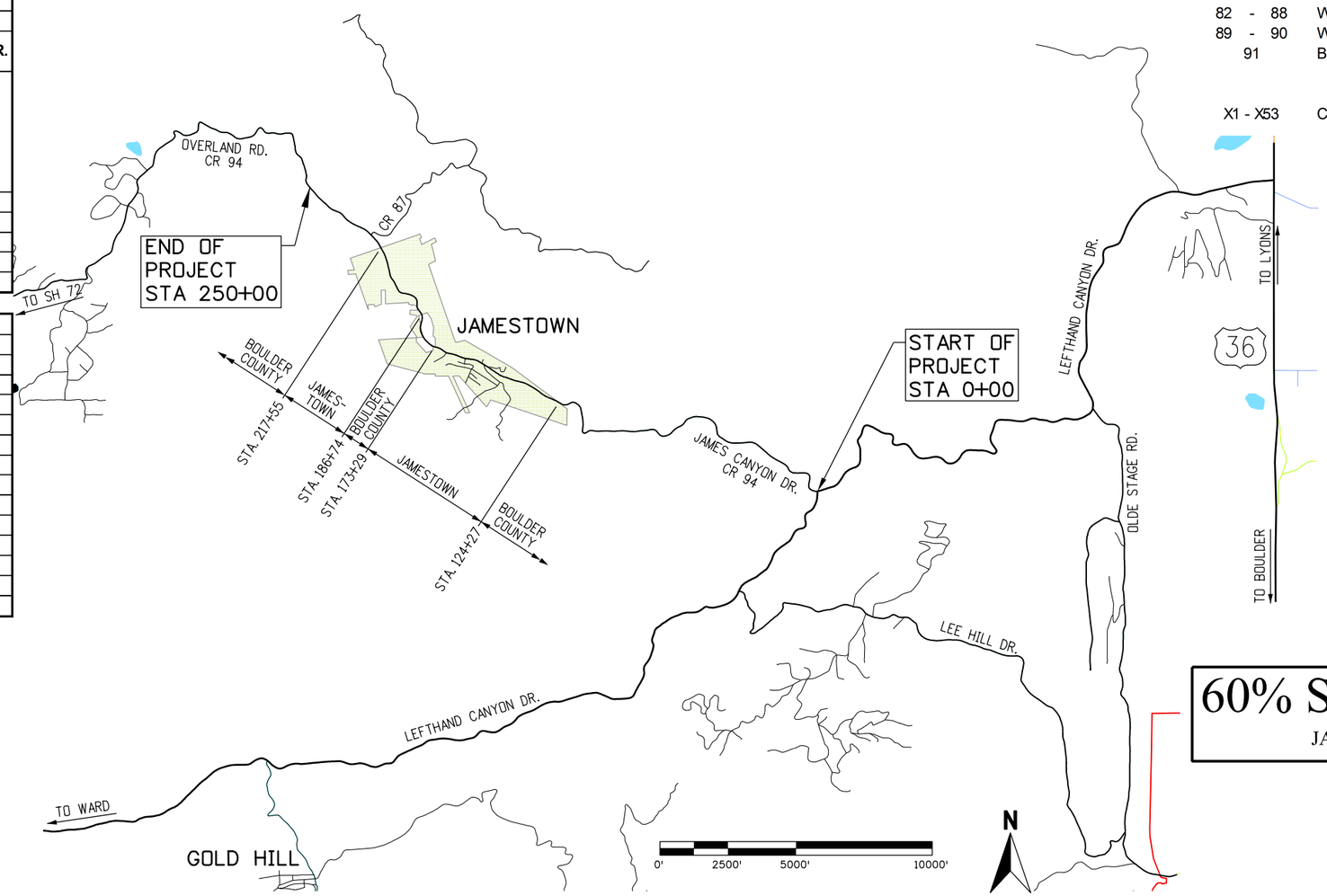
INDEX OF SHEETS

SHEET NO.	INDEX OF SHEETS
1	TITLE SHEET
2	STANDARD PLANS LIST
3 - 5	TYPICAL SECTIONS
6	GENERAL NOTES
7 - 23	PLAN AND PROFILE
24	STRUCTURE GENERAL NOTES
25	STRUCTURES DETAILS
26 - 29	CBC PLAN AND PROFILE
30	STORM DRAIN PLAN AND PROFILE
31 - 35	CROSS CULVERT PROFILES
36 - 38	SWMP NOTES
39 - 55	SWMP INTERIM
56 - 72	SWMP FINAL
73	PHASING OVERVIEW
74	TRAFFIC CONTROL PLAN TABULATION
75 - 79	TRAFFIC CONTROL PLAN
80	WALL KEY
81	WALL GENERAL NOTES
82 - 88	WALL GENERAL LAYOUT
89 - 90	WALL DETAILS
91	BRIDGE RAIL TYPE 3 DETAILS
X1 - X53	CROSS SECTIONS

TABULATION OF LENGTH & DESIGN DATA

STATION	LINEAR FEET ROADWAY	LINEAR FEET MAJOR STR.
STA. 0+00.00, JAMES CANYON BEGIN PROJECT STA. 250+00.00 JAMES CANYON END PROJECT	25,000.00	
TOTAL	25,000.00	0.00
SUMMARY OF PROJECT LENGTH	FEET	MILES
ROADWAY	25,000.00	4.73
MAJOR STRUCTURE	0.00	0.00
PROJECT GROSS LENGTH	25,000.00	4.73

DESIGN DATA	
MINIMUM RADIUS OF CURVE	86 FT
MAXIMUM GRADE	8.00%
MINIMUM S.S.D. HORIZONTAL	105 FT
MINIMUM S.S.D. VERTICAL	250 FT
DESIGN SPEED	35 MPH
2011 DESIGN TRAFFIC	960 ADT
DHV TRUCK %	



60% SUBMITTAL
JANUARY 22, 2016

APPROVED FOR CONSTRUCTION:

MICHAEL A. THOMAS, P.E. DATE:
COUNTY ENGINEER

60%

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ENGINEERING DIVISION
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DESIGNED:	CAD:	CHECKED:	DATE:
JTS	JTS	MES	01/22/2016

JAMES CANYON
TITLE SHEET

PROJECT NO: SEPT12C24 SEPT12C91 | SHEET NO: 1

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PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-100-1		STANDARD SYMBOLS (3 SHEETS)	1-3
M-100-2		ACRONYMS AND ABBREVIATIONS (4 SHEETS)	4-7
M-203-1	▭	APPROACH ROADS (REVISED ON JULY 08, 2013)	~~8~~
M-203-2		DITCH TYPES	9
M-203-11		SUPERELEVATION CROWNED AND DIVIDED HIGHWAYS (3 SHEETS)	10-12
M-203-12		SUPERELEVATION STREETS (2 SHEETS)	13-14
M-206-1		EXCAVATION AND BACKFILL FOR STRUCTURES (2 SHEETS)	15-16
M-206-2		EXCAVATION AND BACKFILL FOR BRIDGES (2 SHEETS)	17-18
M-208-1	▭	TEMPORARY EROSION CONTROL (10 SHEETS) (REVISED ON JULY 16, 2015)	~~19-30~~
M-210-1		MAILBOX SUPPORTS (2 SHEETS)	31-32
M-214-1		PLANTING DETAILS	33
M-216-1	▭	SOIL RETENTION COVERING (2 SHEETS) (NEW ON JULY 16, 2015)	
M-412-1	▭	CONCRETE PAVEMENT JOINTS (5 SHEETS) (REVISED ON JULY 24, 2012)	~~34-38~~
M-510-1		STRUCTURAL PLATE PIPE H-20 LOADING	39
M-601-1	■	SINGLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	~~40-41~~
M-601-2	■	DOUBLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	~~42-43~~
M-601-3	▭	TRIPLE CONCRETE BOX CULVERT (2 SHEETS) (REVISED ON NOVEMBER 25, 2015)	~~44-45~~
M-601-10		HEADWALL FOR PIPES	46
M-601-11		TYPE "S" SADDLE HEADWALLS FOR PIPE	47
M-601-12		HEADWALLS AND PIPE OUTLET PAVING	48
M-601-20		WINGWALLS FOR PIPE OR BOX CULVERTS	49
M-603-1	■	METAL PIPE (4 SHEETS). (REVISED ON OCTOBER 02, 2014)	~~50-53~~
M-603-2	■	REINFORCED CONCRETE PIPE . (REVISED ON OCTOBER 02, 2014)	~~54~~
M-603-3		PRECAST CONCRETE BOX CULVERT	55
M-603-4	▭	CORRUGATED POLYETHYLENE PIPE (AASHTO M294) (REVISED ON OCT. 02, 2014).	~~56~~
M-603-5	▭	POLYVINYL CHLORIDE (PVC) PIPE (AASHTO M304) . (REVISED ON OCT. 02, 2014).	~~57~~
M-603-6	▭	STEEL REINFORCED POLYETHYLENE RIBBED PIPE (AASHTO MP 20) (NEW ON APRIL 30, 2015)	
M-603-10		CONCRETE AND METAL END SECTIONS (2 SHEETS)	58-59
M-604-10		INLET, TYPE C	60
M-604-11		INLET, TYPE D	61
M-604-12		CURB INLET TYPE R (2 SHEETS)	62-63
M-604-13		CONCRETE INLET TYPE 13	64
M-604-20		MANHOLES (3 SHEETS)	65-67
M-604-25		VANE GRATE INLET (5 SHEETS)	68-72
M-605-1		SUBSURFACE DRAINS	73
M-606-1	■	GUARDRAIL TYPE 3 W-BEAM (20 SHEETS) (REVISED ON OCTOBER 27, 2014)	~~74-92~~
M-606-1	▭	MIDWEST GUARDRAIL SYSTEM (MGS) TYPE 3 W-BEAM 31 INCHES (20 SHEETS) (REVISED ON DECEMBER 29, 2015)	
M-606-13	▭	GUARDRAIL TYPE 7 F-SHAPE BARRIER (4 SHEETS) (REVISED ON AUGUST 30, 2013)	~~93-96~~
M-606-14		PRECAST TYPE 7 CONCRETE BARRIER (3 SHEETS)	97-99

PLAN NUMBER	NEW OR REVISED	M STANDARD TITLE	PAGE NUMBER
M-607-1		WIRE FENCES AND GATES (3 SHEETS)	100-102
M-607-2		CHAIN LINK FENCE (3 SHEETS)	103-105
M-607-3		BARRIER FENCE	106
M-607-4	▭	DEER FENCE, GATES, AND GAME RAMPS (5 SHEETS) (REVISED ON APRIL 30, 2015)	~~107-109~~
M-607-10		PICKET SNOW FENCE	110
M-607-15		ROAD CLOSURE GATE (9 SHEETS)	111-119
M-608-1	▭	CURB RAMPS (7 SHEETS) (REVISED ON JUNE 16, 2014)	~~120-125~~
M-609-1	▭	CURBS, GUTTERS, AND SIDEWALKS (4 SHEETS) (REVISED ON JULY 24, 2012).	~~126-129~~
M-611-1		CATTLE GUARD (2 SHEETS)	130-131
M-611-2	▭	DEER GUARD (2 SHEETS) (NEW ON APRIL 30, 2015)	
M-613-1		ROADWAY LIGHTING (4 SHEETS)	132-135
M-614-1		RUMBLE STRIPS (3 SHEETS)	136-138
M-614-2		SAND BARREL ARRAYS (2 SHEETS)	139-140
M-615-1		EMBANKMENT PROTECTOR TYPE 3	141
M-615-2		EMBANKMENT PROTECTOR TYPE 5	142
M-616-1		INVERTED SIPHON	143
M-620-1		FIELD LABORATORY CLASS 1	144
M-620-2		FIELD LABORATORY CLASS 2 (2 SHEETS)	145-146
M-620-11		FIELD OFFICE CLASS 1	147
M-620-12		FIELD OFFICE CLASS 2	148
M-629-1		SURVEY MONUMENTS (2 SHEETS)	149-150

COLORADO
DEPARTMENT OF TRANSPORTATION

M&S STANDARDS PLANS LIST

July 04, 2012

Revised on December 29, 2015

ALL OF THE M&S STANDARD PLANS, AS SUPPLEMENTED AND REVISED, APPLY TO THIS PROJECT WHEN USED BY DESIGNATED PAY ITEM OR SUBSIDIARY ITEM.

NEW OR REVISED STANDARD PLAN SHEETS APPLICABLE TO THIS PROJECT, INDICATED BY A MARKED BOX ■, WILL BE ATTACHED TO THE PLANS.

PLAN NUMBER	NEW OR REVISED	S STANDARD TITLE	PAGE NUMBER
S-612-1		DELINEATOR INSTALLATIONS (7 SHEETS)	151-157
S-614-1	■	GROUND SIGN PLACEMENT (2 SHEETS) (REVISED ON DECEMBER 12, 2014).	~~158-159~~
S-614-2		CLASS I SIGNS	160
S-614-3		CLASS II SIGNS	161
S-614-4	▭	CLASS III SIGNS (3 SHEETS) (REVISED ON DECEMBER 17, 2014)	~~162-164~~
S-614-5		BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS (2 SHEETS)	165-166
S-614-6	▭	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS (2 SHEETS) (REVISED ON SEPTEMBER 16, 2013)	~~167-168~~
S-614-8	▭	TUBULAR STEEL SIGN SUPPORT DETAILS (6 SHEETS) (REVISED ON OCTOBER 23, 2014)	~~169-173~~
S-614-9		PEDESTRIAN PUSH BUTTON POST ASSEMBLY	174
S-614-10		MARKER ASSEMBLY INSTALLATIONS	175
S-614-11		MILEPOST SIGN DETAIL FOR HIGH SNOW AREAS	176
S-614-12		STRUCTURE NUMBER INSTALLATION	177
S-614-14		FLASHING BEACON AND SIGN INSTALLATIONS (3 SHEETS)	178-180
S-614-20		TYPICAL POLE MOUNT SIGN INSTALLATIONS	181
S-614-21		CONCRETE BARRIER SIGN POST INSTALLATIONS	182
S-614-22		TYPICAL MULTI-SIGN INSTALLATIONS	183
S-614-40	▭	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS (5 SHEETS) (REVISED ON APRIL 2, 2015)	~~184-188~~
S-614-40A	▭	ALTERNATIVE TRAFFIC SIGNAL INSTALLATION DETAILS (4 SHEETS) (REVISED ON APRIL 2, 2015)	~~189-192~~
S-614-41	▭	TEMPORARY SPAN WIRE SIGNALS (REVISED ON APRIL 2, 2015)	~~193~~
S-614-42		CABINET FOUNDATION DETAIL (4 SHEETS)	194-197
S-614-43		TRAFFIC LOOP AND MISCELLANEOUS SIGNAL DETAILS (10 SHEETS)	198-207
S-614-44	▭	PEDESTAL POLE SIGNALS (2 SHEETS) (REVISED ON NOVEMBER 03, 2014)	
S-614-50	▭	STATIC SIGN MONOTUBE STRUCTURES (12 SHEETS) (REVISED ON NOVEMBER 28, 2012)	~~208-219~~
S-614-60	▭	DYNAMIC SIGN MONOTUBE STRUCTURES (14 SHEETS) (REVISED ON NOVEMBER 28, 2012)	~~220-233~~
S-627-1	■	PAVEMENT MARKINGS (5 SHEETS) (REVISED ON JUNE 10, 2014)	~~234-238~~
S-630-1	■	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION (20 SHEETS) (REVISED ON DECEMBER 08, 2014)	~~239-258~~
S-630-2		BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) AND VERTICAL PANELS	259
S-630-3		FLASHING BEACON (PORTABLE) DETAILS	260
S-630-4		STEEL SIGN SUPPORT (TEMPORARY) INSTALLATION DETAILS (2 SHEETS)	261-262
S-630-5	▭	PORTABLE RUMBLE STRIPS (TEMPORARY) (2 SHEETS) (REVISED ON AUGUST 13, 2015)	~~263-264~~
S-630-6		EMERGENCY PULL-OFF AREA (TEMPORARY)	265
S-630-7		ROLLING ROADBLOCKS FOR TRAFFIC CONTROL (3 SHEETS)	266-268

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JAMES CANYON
STANDARD PLANS LIST

PROJECT NO: SEPT12C24 SEPT12C91 | SHEET NO: 2

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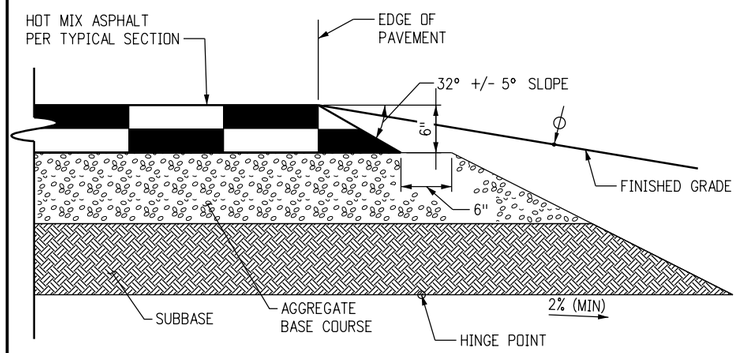
TYPICAL SECTION LEGEND:

ABC	AGGREGATE BASE COURSE
POSS	POINT OF SLOPE SELECTION
HMA	HOT MIX ASPHALT
○	VERTICAL ALIGNMENT CONTROL POINTS
■	SAFETY EDGE WITH A 32° +/- 5° SLOPE AND SHOULDER MATERIAL (SEE SAFETY EDGE DETAILS).
ϕ	MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE
◿	SEE PLAN AND PROFILE SHEETS FOR SUPERELEVATION RATES



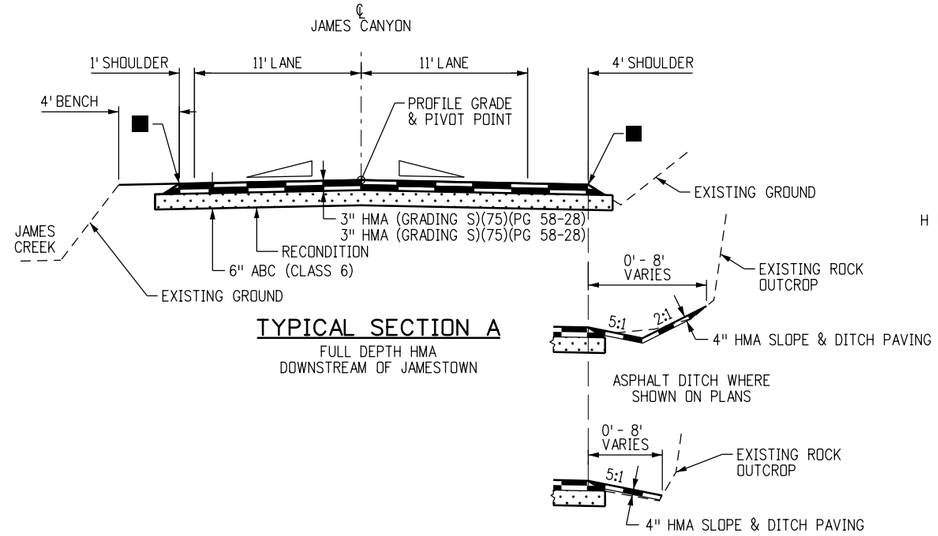
SAFETY EDGE DETAIL

SAFETY EDGE GENERAL NOTES

1. THE SAFETY EDGE WILL BE CONSTRUCTED AS PART OF THE ROADWAY PAVEMENT. A SHOULDER WEDGE DEVICE WILL BE ADDED TO THE SCREED OF THE PAVING MACHINE.
2. THE CONTRACTOR MAY USE A SHOULDER WEDGE MAKER OR A SIMILAR DEVICE THAT PRODUCES THE SAME COMPACTION RESULTS.
3. SHORT SECTIONS OF HANDWORK WILL BE ALLOWED WHEN NECESSARY FOR TRANSITIONS AND TURNOUTS.
4. THE SAFETY EDGE SHALL NOT BE INSTALLED IN FRONT OF GUARDRAIL OR AT INTERSECTIONS.

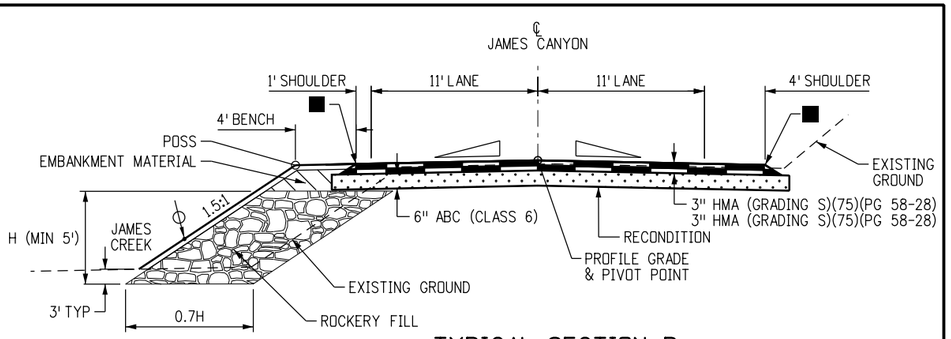
TYPICAL SECTION NOTES:

1. THE DEPTH AND WIDTH OF SIDE DITCHES SHALL BE VARIED WHERE NECESSARY TO PROVIDE PROPER DRAINAGE AT NO COST TO THE PROJECT.
2. THE TYPICAL SECTIONS MAY NOT APPLY NEAR STRUCTURES, SEE CROSS SECTIONS FOR AREAS WHERE TYPICAL SECTIONS DO NOT APPLY.



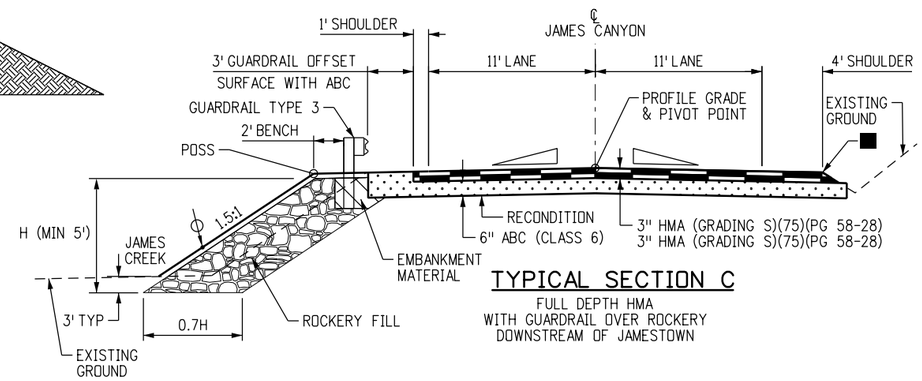
TYPICAL SECTION A

FULL DEPTH HMA
DOWNSTREAM OF JAMESTOWN



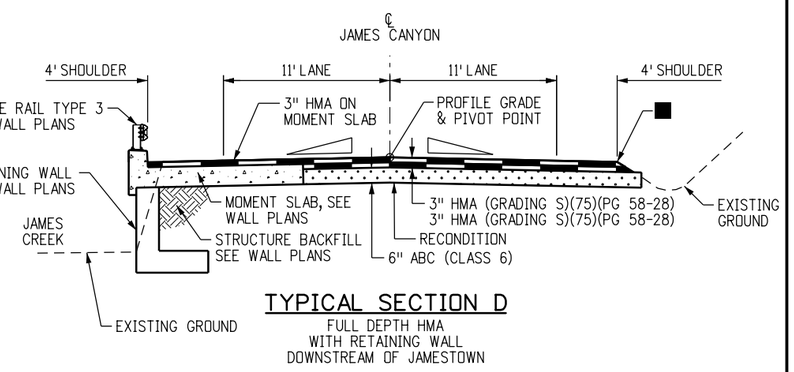
TYPICAL SECTION B

FULL DEPTH HMA
WITH ROCKERY SLOPE
DOWNSTREAM OF JAMESTOWN



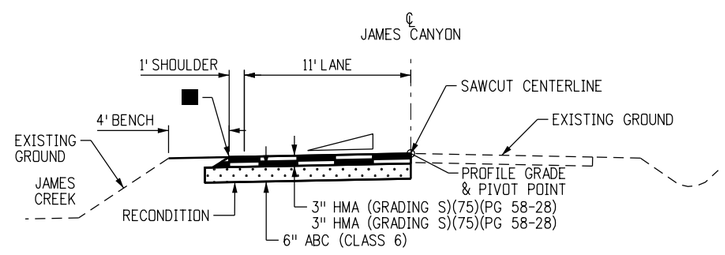
TYPICAL SECTION C

FULL DEPTH HMA
WITH GUARDRAIL OVER ROCKERY
DOWNSTREAM OF JAMESTOWN



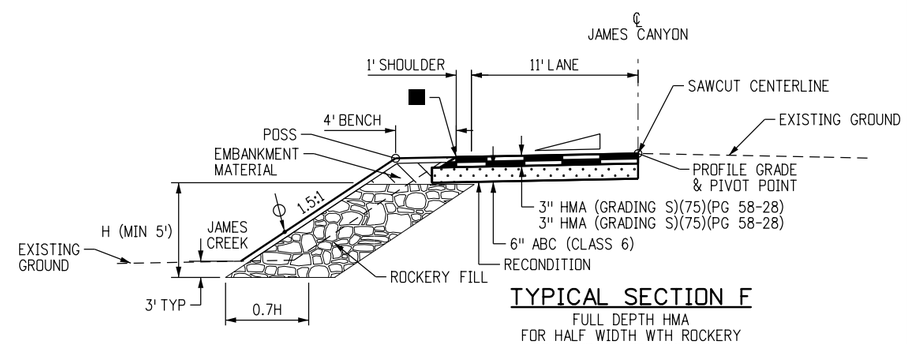
TYPICAL SECTION D

FULL DEPTH HMA
WITH RETAINING WALL
DOWNSTREAM OF JAMESTOWN



TYPICAL SECTION E

FULL DEPTH HMA
FOR HALF WIDTH
DOWNSTREAM OF JAMESTOWN



TYPICAL SECTION F

FULL DEPTH HMA
FOR HALF WIDTH WTH ROCKERY
DOWNSTREAM OF JAMESTOWN

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TYPICAL SECTIONS

PROJECT NO: SEPT12C24 SEPT12C91 | SHEET NO: 3

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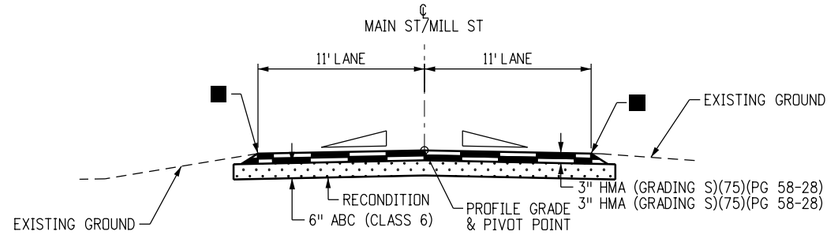
TYPICAL SECTION LEGEND:

ABC	AGGREGATE BASE COURSE
POSS	POINT OF SLOPE SELECTION
HMA	HOT MIX ASPHALT
○	VERTICAL ALIGNMENT CONTROL POINTS
■	SAFETY EDGE WITH A 32° +/- 5° SLOPE AND SHOULDER MATERIAL (SEE SAFETY EDGE DETAILS).
ϕ	MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE
◿	SEE PLAN AND PROFILE SHEETS FOR SUPERELEVATION RATES

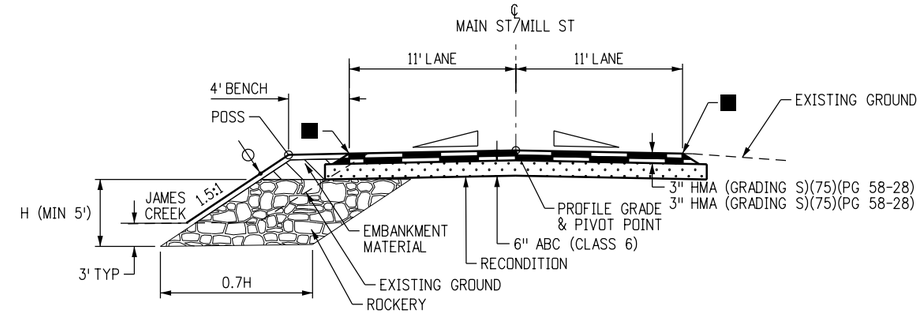
TYPICAL SECTION NOTES:

1. THE DEPTH AND WIDTH OF SIDE DITCHES SHALL BE VARIED WHERE NECESSARY TO PROVIDE PROPER DRAINAGE AT NO COST TO THE PROJECT.

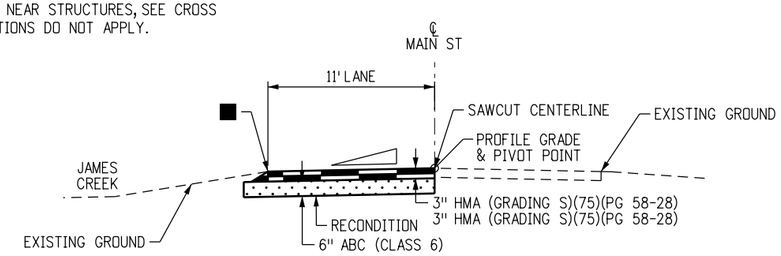
2. THE TYPICAL SECTIONS MAY NOT APPLY NEAR STRUCTURES, SEE CROSS SECTIONS FOR AREAS WHERE TYPICAL SECTIONS DO NOT APPLY.



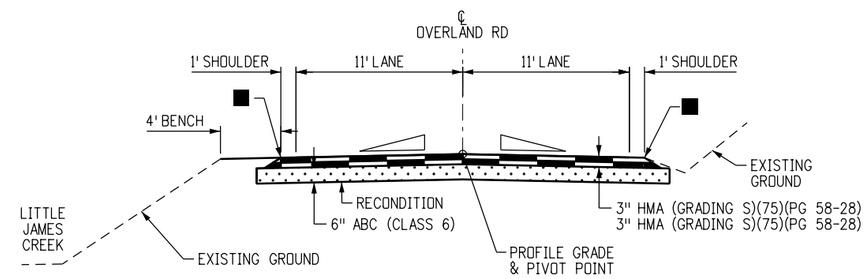
TYPICAL SECTION G
JAMESTOWN



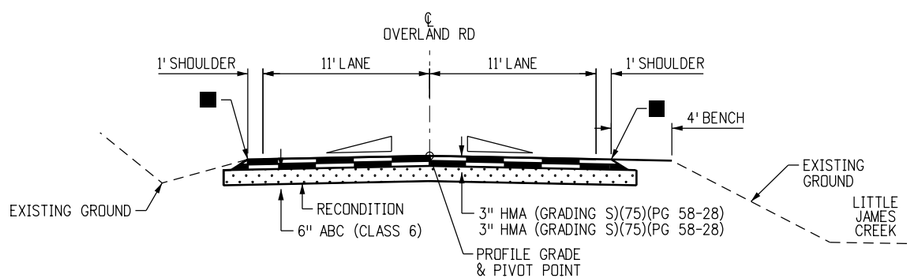
TYPICAL SECTION H
FULL DEPTH HMA
WITH ROCKERY SLOPE
JAMESTOWN



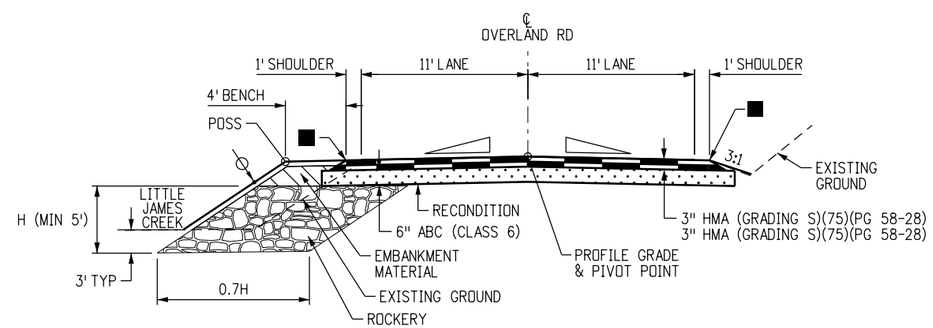
TYPICAL SECTION I
FULL DEPTH HMA
FOR HALF WIDTH
JAMESTOWN



TYPICAL SECTION J
FULL DEPTH HMA WITH LT BENCH
UPSTREAM OF JAMESTOWN



TYPICAL SECTION K
FULL DEPTH HMA WITH RT BENCH
UPSTREAM OF JAMESTOWN



TYPICAL SECTION L
FULL DEPTH HMA
WITH ROCKERY SLOPE
UPSTREAM OF JAMESTOWN

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JAMES CANYON
TYPICAL SECTIONS

PROJECT NO: SEPT12C24 SEPT12C91 | SHEET NO: 4

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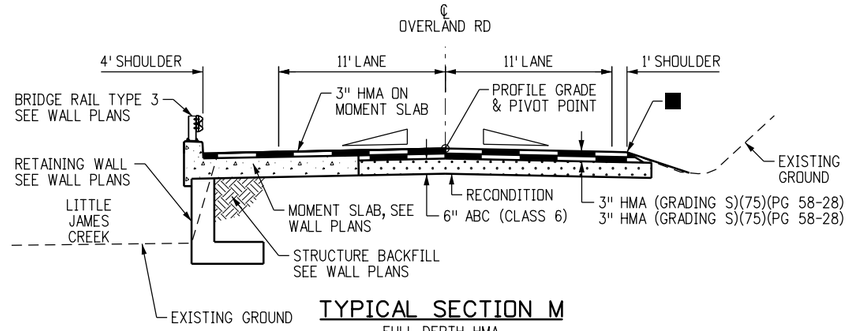
TYPICAL SECTION LEGEND:

P.G.L.	PROFILE GRADE LINE
P.O.S.S.	POINT OF SLOPE SELECTION
H.M.A.	HOT MIX ASPHALT
○	VERTICAL ALIGNMENT CONTROL POINTS
■	SAFETY EDGE WITH A 32° +/- 5° SLOPE AND SHOULDER MATERIAL (SEE SAFETY EDGE DETAILS).
ϕ	MINIMUM 4" TOPSOIL OR SPECIFIED ALTERNATIVE
◿	SEE PLAN AND PROFILE SHEETS FOR SUPERELEVATION RATES

TYPICAL SECTION NOTES:

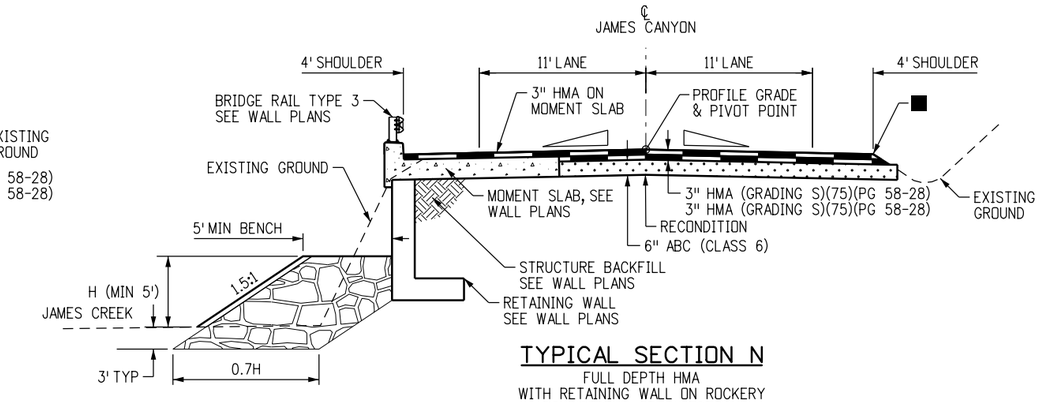
1. THE DEPTH AND WIDTH OF SIDE DITCHES SHALL BE VARIED WHERE NECESSARY TO PROVIDE PROPER DRAINAGE AT NO COST TO THE PROJECT.

2. THE TYPICAL SECTIONS MAY NOT APPLY NEAR STRUCTURES, SEE CROSS SECTIONS FOR AREAS WHERE TYPICAL SECTIONS DO NOT APPLY.



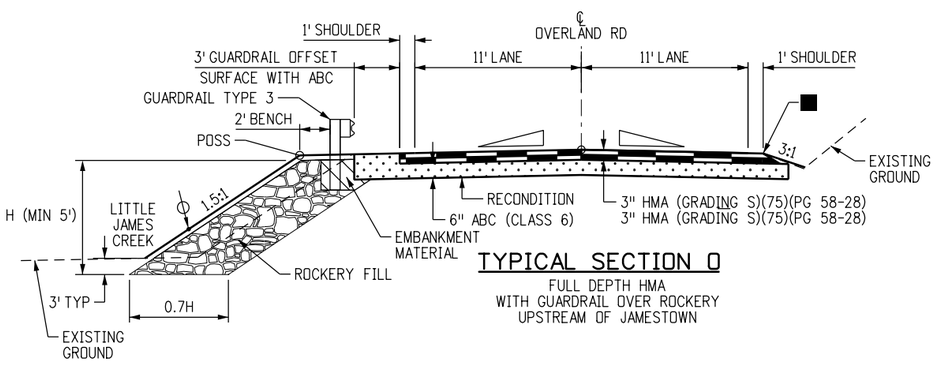
TYPICAL SECTION M

FULL DEPTH HMA
WITH RETAINING WALL
UPSTREAM OF JAMESTOWN



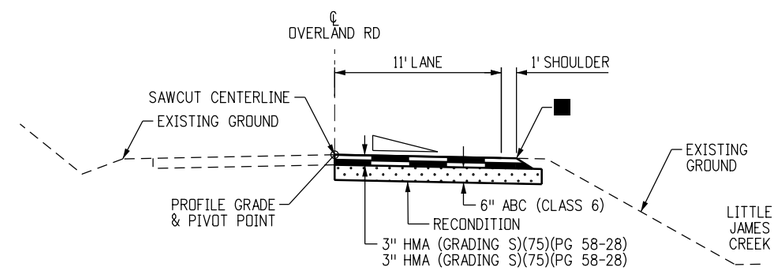
TYPICAL SECTION N

FULL DEPTH HMA
WITH RETAINING WALL ON ROCKERY
DOWNSTREAM OF JAMESTOWN



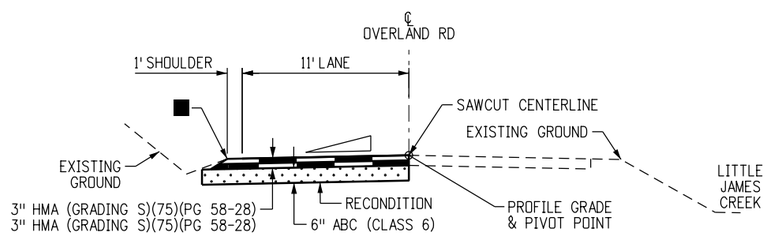
TYPICAL SECTION O

FULL DEPTH HMA
WITH GUARDRAIL OVER ROCKERY
UPSTREAM OF JAMESTOWN



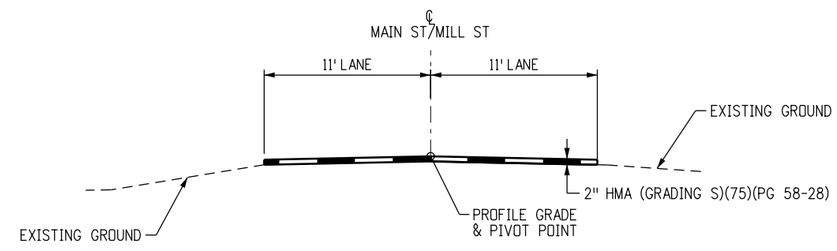
TYPICAL SECTION P

FULL DEPTH HMA RIGHT SIDE
UPSTREAM OF WARD STREET



TYPICAL SECTION Q

FULL DEPTH HMA LEFT SIDE
UPSTREAM OF WARD STREET



TYPICAL SECTION R

JAMESTOWN 2" OVERLAY

60% REVIEW SET

60%

CALL UTILITY NOTIFICATION CENTER OF COLORADO
811
CALL 2-BUSINESS DAYS IN ADVANCE BEFORE YOU DIG, GRADE, OR EXCAVATE FOR THE MARKING OF UNDERGROUND MEMBER UTILITIES

REVISIONS:	NO.	DATE	REVISION DESCRIPTION:

BOULDER COUNTY TRANSPORTATION DEPARTMENT
ENGINEERING DIVISION
AECOM

DESIGNED:	CAD:	CHECKED:	DATE:
JTS	JTS	MES	01/22/2016

JAMES CANYON
TYPICAL SECTIONS

PROJECT NO: SEPT12C24 SEPT12C91 | SHEET NO: 5

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GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH 2011 COLORADO DEPARTMENT OF TRANSPORTATION (CDOT) STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, PROJECT SPECIAL PROVISIONS, M & S STANDARDS, STANDARD SPECIAL PROVISIONS AND THESE DRAWINGS.
2. ALL MATERIALS AND WORKMANSHIP SHALL BE SUBJECT TO INSPECTION AND APPROVAL BY THE ENGINEER OR APPLICABLE ENTITY.
3. THE ENGINEER SHALL BE NOTIFIED 72 HOURS PRIOR TO THE COMMENCEMENT OF ANY CONSTRUCTION.
4. ALL WORK SHALL BE DONE TO THE LINES, GRADES, SECTIONS, AND ELEVATIONS SHOWN ON THE PLANS UNLESS OTHERWISE NOTED OR APPROVED BY THE ENGINEER.
5. MILE POST REFERENCES ARE APPROXIMATE.
6. STATIONING ALONG JAMES CANYON DRIVE BEGINS AT STA 0+00 AT THE LEFTHAND CANYON INTERSECTION.
7. ALL SURVEYING NECESSARY TO COMPLETE THE PROJECT WILL BE PAID FOR AS CONSTRUCTION SURVEYING 1 LUMP SUM.
8. THE CONTRACTOR SHALL PROTECT ALL RANGE POINTS, TIES, BENCH MARKS, OR OTHER SURVEY CONTROL POINTS WHICH MAY BE ENCOUNTERED DURING CONSTRUCTION THAT ARE DESIGNATED TO REMAIN, FROM DAMAGE. ANY MONUMENTS DISTURBED BY THE CONTRACTOR, DURING CONSTRUCTION OPERATION, SHALL BE RESET BY THE CONTRACTOR AT HIS OWN EXPENSE. THE CONTRACTOR AND THE ENGINEER SHALL NOTE THOSE MONUMENTS IN THE FIELD PRIOR TO CONSTRUCTION. SEE TABULATION OF SURVEY.
9. UTILITY LINES AS SHOWN ON THE PLAN SHEETS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE VERIFICATION AND PROTECTION OF ALL UTILITIES AND STRUCTURES AFFECTED BY THE WORK AND ANY DAMAGE SHALL BE REPAIRED AND RESTORED TO THE SATISFACTION OF THE ENGINEER OR APPLICABLE ENTITY.
10. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 811 AT LEAST THREE BUSINESS DAYS IN ADVANCE OF ANY EXCAVATING OR GRADING.
11. THE CONTRACTOR SHALL NOTIFY ALL BUSINESSES AND RESIDENTS, IN WRITING, PRIOR TO ANY INTERRUPTION IN UTILITY SERVICE. NOTICE MUST BEAR ALL APPROPRIATE CONTACT INFORMATION, AND AN EMERGENCY NUMBER FOR AFTER HOURS CALLS.
12. WHERE NEW PAVEMENT IS TO ABUT EXISTING PAVEMENT, THE EXISTING PAVEMENT SHALL BE REMOVED TO A NEAT VERTICAL LINE BY FULL DEPTH SAWING. SAW CUTTING OF JOINTS WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE WORK.
13. THE FOLLOWING SHALL BE FURNISHED WITH EACH ASPHALT PAVER. THIS EQUIPMENT SHALL BE USED ON ALL PASSES AND LIFTS OF HOT MIX ASPHALT PAVEMENT PLACED.
    1. A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH
    2. SHORT SKI OR SHORT SHOE
    3. AT LEAST 1500 FEET OF CONTROL LINE AND STAKES
14. ANY LAYER OF ASPHALT PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.
15. BEFORE PLACEMENT OF THE TACK COAT, THE CONTRACTOR SHALL CLEAN THE EXISTING PAVEMENT SURFACE BY MEANS OF A POWER BROOM VACUUM SYSTEM OR OTHER APPROVED METHOD. CLEANING WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF THE WORK.
16. FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

    TACK COAT DILUTED EMULSIFIED ASPHALT @ 0.1 GALS./SQ. YD. (DILUTED)
    DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER
    HOT MIX ASPHALT @ 110 LBS./SQ. YD./INCH
    ABC @ 133 LBS./CU. FT.
17. ALL ACCESSES TO BUSINESSES OR DRIVEWAYS TO REMAIN OPEN AT ALL TIMES.
18. THE CONTRACTOR SHALL FURNISH, INSTALL, AND MAINTAIN TEMPORARY TRAFFIC CONTROL DEVICES NECESSARY THROUGHOUT THE DURATION OF CONSTRUCTION IN CONFORMANCE WITH TRAFFIC CONTROL PLANS.
19. THE CONTRACTOR SHALL MAINTAIN PAVEMENT MARKINGS ON THE ROADWAYS DURING ALL PHASES OF CONSTRUCTION IN ACCORDANCE WITH MUTCD AND CDOT STANDARDS.
20. WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATIONS SHALL BE AS ORDERED. WATER WILL NOT BE PAID FOR SEPARATELY.
21. DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE AS FOLLOWS:
    - RECOMPACTED ROADWAY SUBGRADE - 12" BELOW EMBANKMENT MATERIAL.
    - FULL DEPTH OF EMBANKMENTS FOR ALL ROADWAYS AND DETOURS
    - BASES OF CUTS AND FILLS - 6" DEPTH BELOW EXISTING GROUND

    EXCAVATION REQUIRED FOR COMPACTION OF BASES AND CUTS AND FILLS AND RECOMPACTED SUBGRADE WILL BE CONSIDERED SUBSIDIARY TO EARTHWORK OPERATIONS AND WILL NOT BE PAID FOR SEPARATELY.

GENERAL NOTES (CONT'D):

22. THE CONCENTRATIONS OF WATER-SOLUBLE SULFATES IS UNKNOWN. CONCRETE SHALL MEET CLASS 2 REQUIREMENTS FOR SULFATE RESISTANCE, IN ACCORDANCE WITH TABLE 601-2 OF CDOT STANDARD SPECIFICATION 601.04.
23. FINAL GRADING OF PAVING SHALL PROVIDE POSITIVE DRAINAGE. WATER POCKETS AND POOLING OF WATER ON THE ROADWAY WILL NOT BE ACCEPTED, AND SHALL BE CORRECTED AT THE CONTRACTOR'S EXPENSE.
24. THE ENTIRE CORRIDOR FROM LEFTHAND CANYON TO MILEPOST 4.8 SHALL BE SWEPT PRIOR TO FINAL STRIPING.
25. IT IS ESTIMATED THE FOLLOWING WILL BE REQUIRED:
    MOBILIZATION - 1 LS
    HOT MIX ASPHALT (PATCHING) - 100 TONS (TO BE PLACED AS DIRECTED BY THE ENGINEER)
    PROOF ROLLING - 30 HRS
    POTHOLING - 8 HOURS
    WILDLIFE BIOLOGIST - 20 HOURS
26. IT IS ESTIMATED THE FOLLOWING FIELD FACILITIES WILL BE REQUIRED:

    FIELD OFFICE (CLASS 2): 1 EACH
    FIELD LABORATORY (CLASS 2): 1 EACH
    SANITARY FACILITY: 2 EACH
27. EMBANKMENT MATERIAL IMPORTED ONTO THE PROJECT SHALL BE TESTED TO CONFIRM THAT ITS WATER SOLUBLE SULFATE CONTENT IS NOT GREATER THAN THAT CORRESPONDING TO SULFATE EXPOSURE CLASS 2.
28. IMPORTED MATERIAL USED FOR BACKFILLING PIPES SHALL BE TESTED FOR COMPATIBILITY WITH THE PLANNED PIPE MATERIAL, AS PER STANDARD SPECIAL PROVISION REVISION OF SECTION 203, IMPORTED MATERIAL FOR EMBANKMENT.
29. ROADWAY SMOOTHNESS CATEGORY SHALL BE: HRI CATEGORY I FOR ALL PAVEMENTS.
30. IT IS ESTIMATED THAT PUBLIC INFORMATION SERVICES WILL BE REQUIRED ON THIS PROJECT AND WILL BE PAID FOR AS PUBLIC INFORMATION SERVICES, 1 LUMP SUM.
31. DEWATERING SHALL BE INCLUDED IN THE WORK IF ENCOUNTERED.
32. TYPE C AND D INLET STATION AND OFFSET CALLOUTS ARE TO THE CENTER OF THE INLET BOX.
33. PIPE LENGTHS CALLED OUT IN THIS PLAN SET ARE THE ACTUAL LENGTH OF PIPE, AND DO NOT INCLUDE END SECTION LENGTHS. WHEN A PIPE CONNECTS TO AN INLET, THE INLET STATION AND OFFSET SHALL BE USED TO ALIGN THE PIPE. THE DISTANCE FROM THE INSIDE FACE OF THE INLET TO THE CENTER OF THE INLET IS NOT INCLUDED IN THE MEASURED PIPE LENGTH.
34. ALL END SECTION INSTALLATIONS TO INCLUDE CONCRETE JOINT FASTERNERS INSTALLED PER M-603-10.
36. CONTRACTOR SHALL CLEAN EXISTING BORROW DITCHES TO ENSURE PROPER DRAINAGE.

MBTA NOTES:

THE CONTRACTOR SHALL COMPLY WITH THE MIGRATORY BIRD TREATY ACT (MBTA) AT ALL TIMES, INCLUDING CONDUCTING PRE-CONSTRUCTION SURVEYS FOR NESTING BIRDS SET FORTH BY U.S. FISH AND WILDLIFE SERVICE (USFWS) AND THE COLORADO PARKS AND WILDLIFE (CPW). THE CONTRACTOR SHALL SCHEDULE WORK TO AVOID TAKING (PURSUE, HUNT, TAKE, CAPTURE OR KILL; ATTEMPT TO TAKE, CAPTURE, KILL OR POSSESS) MIGRATORY BIRDS PROTECTED BY THE MBTA. THE INCIDENTAL TAKING OF A MIGRATORY BIRD SHALL BE REPORTED TO THE ENGINEER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PENALTIES LEVIED BY THE USFWS FOR THE TAKING OF A MIGRATORY BIRD. THE CONTRACTOR SHALL RETAIN A QUALIFIED WILDLIFE BIOLOGIST, WITH A MINIMUM OF THREE YEARS' EXPERIENCE CONDUCTING MIGRATORY BIRD SURVEYS, TO IMPLEMENT THE REQUIREMENTS OF THE MBTA. THE CONTRACTOR SHALL SUBMIT DOCUMENTATION OF THE BIOLOGIST'S EDUCATION AND EXPERIENCE TO THE ENGINEER FOR ACCEPTANCE PRIOR TO COMMENCEMENT OF ANY ASSOCIATED WORK. A BIOLOGIST WITH LESS EXPERIENCE MAY BE USED BY THE CONTRACTOR SUBJECT TO THE ACCEPTANCE OF THE ENGINEER BASED ON REVIEW OF THE BIOLOGIST'S QUALIFICATIONS. DOCUMENTATION OF THE NEST SURVEYS SHALL BE SUBMITTED TO THE ENGINEER FOR REVIEW.

THE CONTRACTOR SHALL COMPLETE ADDITIONAL RAPTOR NEST SURVEYS TO EVALUATE THE PRESENCE OF ACTIVE RAPTOR NESTS WITHIN THE STUDY AREA. IF AN ACTIVE NEST IS LOCATED IN OR NEAR THE STUDY AREA, THE USFWS AND CPW SHALL BE CONTACTED REGARDING USE OF SEASONAL BUFFERS TO PREVENT DISTURBANCE TO NESTING BIRDS DURING CONSTRUCTION.

LAND-CLEARING ACTIVITIES IN NATURAL HABITATS SHALL BE TIMED TO AVOID THE BREEDING SEASON AND TO AVOID IMPACTS TO ACTIVE BIRD NESTS. IF REQUIRED, TREES SHALL BE CLEARED PRIOR TO APRIL 1 OR AFTER AUGUST 31 TO PREVENT RAPTORS (AND OTHER BIRDS) FROM NESTING ON-SITE AND TO AVOID THE TAKING OF, OR DISTURBANCE TO, ACTIVE NESTS DURING THE BREEDING SEASON. WHERE WORK IS TO BE COMPLETED DURING THE NESTING SEASON, MIGRATORY BIRD SURVEYS WILL BE REQUIRED.

REPAIR AREA	BEGINNING STATION	ENDING STATION	TYPICAL SECTION
1	5+75	7+06	B
	7+06	7+76	C
	7+76	8+48	D
	8+48	9+17	C
	9+17	9+29	A
2	19+81	20+06	B
	20+06	21+68	A
	21+68	22+12	B
	22+12	23+78	A
	23+78	27+33	B
3	28+70	29+40	B
4	36+80	39+15	B
4A	40+15	40+45	A
5	41+00	42+14	A
	42+14	43+72	B
	43+72	44+15	A
6	50+13	56+30	B
	56+30	58+30	F
6A	59+40	59+90	E
7	65+05	66+56	A
	66+56	68+95	B
8	69+95	74+50	F
	74+50	76+74	B
	76+74	77+40	C
	77+40	79+32	N
	79+32	80+30	C
	80+30	85+70	D
	85+70	86+46	C
	86+46	89+23	B
9	99+83	100+20	C
	100+20	102+68	N
	102+68	104+88	A
10	106+59	110+62	A
	110+62	111+04	B
11	112+54	118+13	B
	118+13	118+42	A
12	119+86	121+01	A
	121+01	122+05	B
	122+05	122+36	A
12A	127+16	129+68	F
	129+68	132+29	E

REPAIR AREA	BEGINNING STATION	ENDING STATION	TYPICAL SECTION
13	133+60	136+80	C
	136+80	138+00	B
14	140+11	141+10	B
	141+10	141+63	H
15	146+26	146+88	G
	146+88	149+00	H
	149+00	152+19	G
15A	152+19	153+88	R
16	153+88	155+69	G
16A	155+69	166+08	R
17	166+08	167+00	G
17A	167+00	169+00	R
17B	177+71	179+02	I
17C	179+61	179+98	I
18	180+41	181+05	J
	181+05	181+79	O
	181+79	183+69	M
	183+69	183+76	O
19	185+73	187+42	L
	187+42	187+61	J
20	190+32	192+76	J
21	194+28	194+45	J
	194+45	195+52	L
22	197+94	198+90	J
	198+90	199+48	K
23	201+36	203+04	K
24	206+94	208+32	K
25	218+80	219+83	K
26	225+30	225+55	Q
	225+55	226+25	K
	226+25	228+45	P
27	234+10	234+83	Q
28	239+65	240+21	P
29	246+02	246+83	P
30	247+41	248+21	P

60% REVIEW SET

60%

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811
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BOULDER COUNTY TRANSPORTATION DEPARTMENT
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AECOM

DESIGNED:	CAD:	CHECKED:	DATE: 01/22/2016

JAMES CANYON
GENERAL NOTES

PROJECT NO: SEPT12C24 SEPT12C91 | SHEET NO: 6

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