

Oversight / NHS	
FHWA FULL OVERSIGHT	<input checked="" type="checkbox"/> NO <input type="checkbox"/> YES
NATIONAL HIGHWAY SYSTEM	<input type="checkbox"/> NO <input checked="" type="checkbox"/> YES

DEPARTMENT OF TRANSPORTATION STATE OF COLORADO

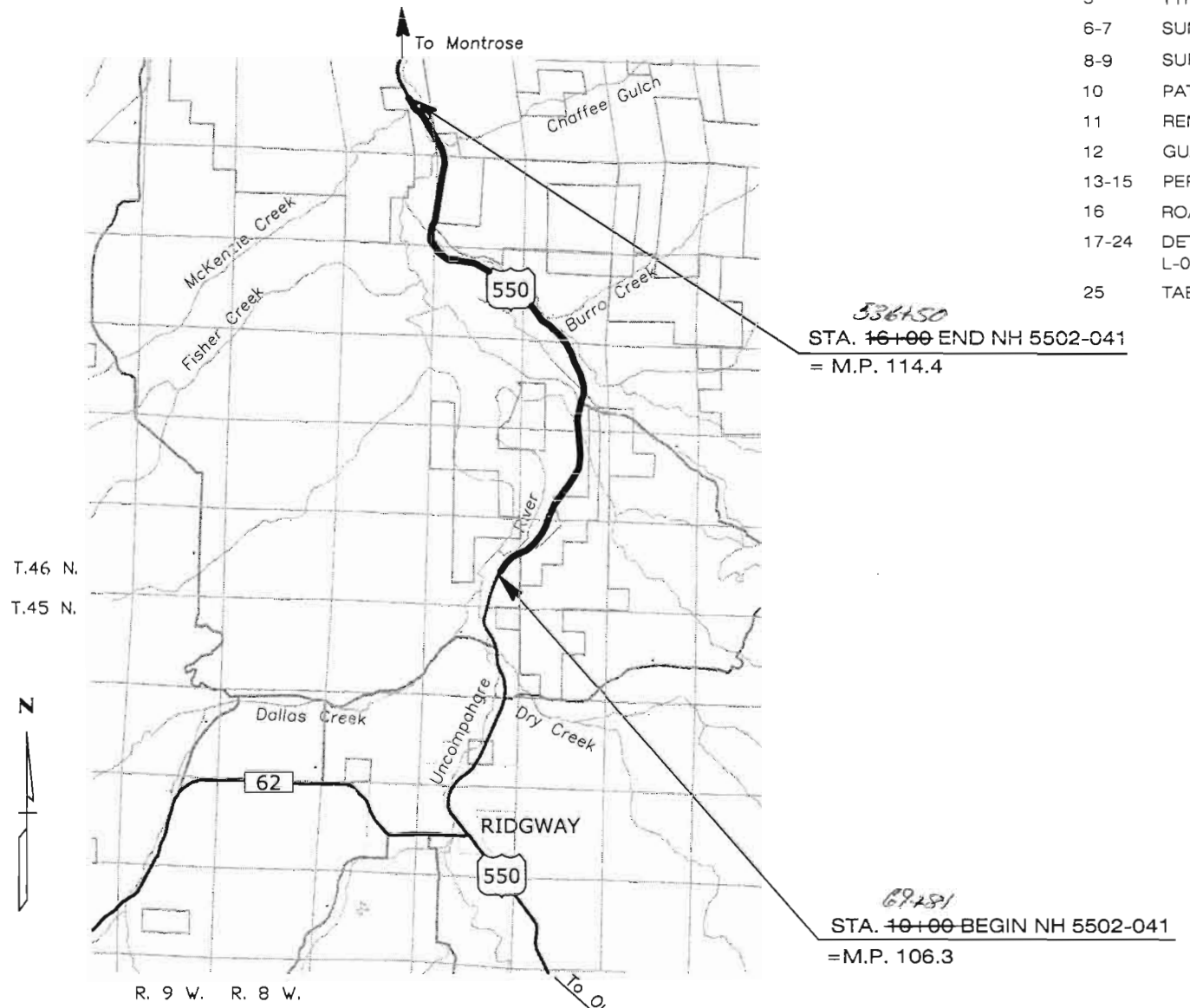
HIGHWAY CONSTRUCTION BID PLANS OF PROPOSED
FEDERAL AID PROJECT NO. NH 5502-041
U.S. HIGHWAY NO. 550
OURAY COUNTY
CONSTRUCTION PROJECT CODE NO. 14046

INDEX OF SHEETS


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LENGTH AND DESIGN DATA

STATION		ROADWAY
		LINEAR FEET
STA. 10+00	BEGIN NH 5502-041 = M.P. 106.3	42,768 46,669
STA. 16+00	END NH 5502-041 = M.P. 114.4	
TOTAL		42,768
SUMMARY		FEET
PROJECT NET LENGTH		42,768 46,669
PROJECT GROSS LENGTH		42,768 46,669
DESIGN DATA *		
MAXIMUM DEGREE OF CURVE	EXISTING	
MAXIMUM GRADE	EXISTING	
MINIMUM S.S.D. HORIZONTAL	EXISTING	
MINIMUM S.S.D. VERTICAL	EXISTING	
MAXIMUM DESIGN SPEED	EXISTING	
2002 TRAFFIC VOLUME		
ADT		6380
DHV		830
% TRUCKS		13%
2012 DESIGN TRAFFIC DATA		
ADT		7965
DHV		1035
% TRUCKS		16%



* FOR INFORMATION ONLY

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Contract Information		Project No./Code	
Creation Date:	04/01/2002 Initials: grs	<input type="checkbox"/>		 3803 North Main Ave. Suite 300 Durango, CO 81301 Phone: (970) 385-1400 FAX: (970) 385-1410 Region 5 B.S.	No Revisions:	Contractor: <i>Vanco Companies</i>		Project No./Code		NH 5502-041	
Last Modification Date:	05/17/2002 Initials: tlb	<input type="checkbox"/>			Revised: <i>2/11/03</i>	Resident Engineer: <i>Paul McVey</i>		Project Engineer: <i>Ken Farnsworth</i>		14046	
Full Path:	C:\projects\14046\	<input type="checkbox"/>			Void:	PROJECT STARTED: <i>7/26/02</i> ACCEPTED: <i>11/01/02</i>		Sheet Subset: Roadway Subset Sheets: 1 of 1		Sheet Number 1	
Drawing File Name:	14046 TITLE.dwg	<input type="checkbox"/>									
Acad Ver. R2002	Scale: NTS Units: English	<input type="checkbox"/>									

PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER
<input checked="" type="checkbox"/> M-100-1	STANDARD SYMBOLS	1
<input type="checkbox"/> M-107-1	TEMPORARY EROSION CONTROL	2
<input checked="" type="checkbox"/> M-203-1	APPROACH ROADS	3
<input checked="" type="checkbox"/> M-203-2	DITCH TYPES	4
<input type="checkbox"/> M-203-10	SUPERELEVATION CROWNED HIGHWAYS	5
<input type="checkbox"/> M-203-11	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT	6
<input type="checkbox"/> M-203-12	SUPERELEVATION STREETS	7
<input type="checkbox"/> M-203-13	SUPERELEVATION DIVIDED HIGHWAYS CENTER PIVOT	8
<input type="checkbox"/> M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES (3 SHEETS)	9
<input type="checkbox"/> M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES	12
<input checked="" type="checkbox"/> M-210-1	MAILBOX SUPPORTS(2 SHEETS)	13
<input type="checkbox"/> M-214-1	PLANTING DETAILS	15
<input type="checkbox"/> M-412-1	CONCRETE PAVEMENT JOINTS	16
<input type="checkbox"/> M-412-2	CURBED CONCRETE PAVEMENT JOINTS	17
<input type="checkbox"/> M-504-1	STEEL CRIBBING	18
<input type="checkbox"/> M-506-1	GABIONS AND SLOPE MATTRESS	19
<input type="checkbox"/> M-510-1	STRUCTURAL PLATE CULVERT PIPE H-20 LOADING	20
<input type="checkbox"/> M-601-1	SINGLE CONCRETE BOX CULVERT(2 SHEETS)	21
<input type="checkbox"/> M-601-2	DOUBLE CONCRETE BOX CULVERT(2 SHEETS)	23
<input type="checkbox"/> M-601-3	TRIPLE CONCRETE BOX CULVERT(2 SHEETS)	25
<input type="checkbox"/> M-601-10	HEADWALL FOR PIPE CULVERTS	27
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<input type="checkbox"/> M-601-12	HEADWALLS AND CULVERT OUTLET PAVING	29
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<input type="checkbox"/> M-603-1	METAL AND PLASTIC CULVERT PIPE(2 SHEETS)	31
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<input type="checkbox"/> M-603-10	CONCRETE AND METAL END SECTIONS(2 SHEETS)	35
<input type="checkbox"/> M-604-10	INLET, TYPE C	37
<input type="checkbox"/> M-604-11	INLET, TYPE D	38
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<input checked="" type="checkbox"/> M-605-1	SUBSURFACE DRAINS	45
<input checked="" type="checkbox"/> M-606-1	GUARDRAIL, TYPE 3, W-BEAM(12 SHEETS)	46
<input checked="" type="checkbox"/> M-606-12	GUARDRAIL, TYPE 4, CONCRETE BARRIER(6 SHEETS)	58

PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER
<input type="checkbox"/> M-607-1	WIRE FENCES AND GATES(2 SHEETS)	64
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<input type="checkbox"/> M-607-4	DEER FENCE AND GATE(2 SHEETS)	70
<input type="checkbox"/> M-607-10	PICKET SNOW FENCE	72
<input type="checkbox"/> M-608-1	CURB RAMPS	73
<input type="checkbox"/> M-609-1	CURBS AND GUTTERS	74
<input type="checkbox"/> M-611-1	CATTLE GUARD(2 SHEETS)	75
<input type="checkbox"/> M-613-1	CONVENTIONAL HIGHWAY LIGHTING(3 SHEETS)	77
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<input type="checkbox"/> M-614-1	RUMBLE STRIPS	82
<input type="checkbox"/> M-615-1	EMBANKMENT PROTECTOR, TYPE 3	83
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<input type="checkbox"/> M-620-1	FIELD LABORATORY, CLASS 1	86
<input checked="" type="checkbox"/> M-620-2	FIELD LABORATORY, CLASS 2	87
<input type="checkbox"/> M-620-11	FIELD OFFICE, CLASS 1	88
<input checked="" type="checkbox"/> M-620-12	FIELD OFFICE, CLASS 2	89
<input type="checkbox"/> M-629-1	SURVEY MONUMENTS(2 SHEETS)	90

PLAN NUMBER	S STANDARD TITLE	PAGE NUMBER
<input checked="" type="checkbox"/> S-612-1	TYPICAL DELINEATOR INSTALLATIONS(5 SHEETS)	93
<input type="checkbox"/> S-614-1	TYPICAL GROUND SIGN PLACEMENT	98
<input type="checkbox"/> S-614-2	CLASS I GROUND SIGN INSTALLATIONS	99
<input type="checkbox"/> S-614-3	CLASS II GROUND SIGN INSTALLATIONS	100
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<input type="checkbox"/> S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATION	113
<input type="checkbox"/> S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS	114
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<input type="checkbox"/> S-627-1	TYPICAL PAVEMENT MARKINGS(4 SHEETS)	119
<input checked="" type="checkbox"/> S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION(9 SHEETS)	123
<input checked="" type="checkbox"/> S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS	132
<input checked="" type="checkbox"/> S-630-3	FLASHING BEACON (PORTABLE) DETAILS	133

THE STANDARD PLAN SHEETS INDICATED HEREON BY A MARKED BOX ARE TO BE USED TO CONSTRUCT THIS PROJECT.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		STANDARD PLANS LIST		Project No./Code			
Creation Date:	04/01/2002	Initials:	grs				No Revisions:			NH 5502-041			
Last Modification Date:	05/13/2002	Initials:	grs				Revised:	<i>4/11/03</i>	Designer:	grs	14046		
Full Path:	C:\projects\14046\						Void:		Detailer:	grs			
Drawing File Name:	14046mas.dwg								Sheet Subset:	Standards	Subset Sheets:		
Acad Ver. R2002	Scale:	NTS	Units:	English							1 of 1	Sheet Number	2



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Region 5 B.S.

TO ESTABLISH GEOMETRIC CONTROL FOR THE CONSTRUCTION OF THIS PROJECT, THE DEPARTMENT HAS PROVIDED THE FOLLOWING INFORMATION:

- Format*
- Horizontal Control _____
 - Vertical Control _____
 - Roadway Alignment _____
 - Original Terrain Data _____
 - Other: _____

*Specify the information format, i.e., plan sheet, computer disk, computer printout, or other. The information marked is either contained on the plans or is available from the Engineer.

TYPE OF PROJECT

- Landscaping
- Signalization
- Safety Improvement
- Asphalt Overlay
- Concrete Overlay
- Minor Widening
- Major Reconstruction
- New Roadway Construction
- Bridge Replacement
- Bridge Widening
- New Bridge

SURVEY WORK TO BE PERFORMED BY OTHERS: PRE-AD STAKING

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 625:

- Establish and Maintain Project Centerline or Engineer Approved Offset Line(s)
- Verification and Maintenance of Horizontal and Vertical Control
- Verify or Determine existing grades and alignments
- Verify or Determine existing topography
- Clearing and Grubbing Limits
- Removal Limits
- Excavation and Embankment
 - Excavation
 - Unclassified
 - Stripping
 - Muck
 - Rock
 - Borrow
 - Other: _____
 - Embankment
 - Site Grading
 - Erosion Control (Perm)
 - Other: _____
- As Staked Earthwork Quantities
- Landscaping
 - Top Soil
 - Seeding
 - Mulching
 - Planting
 - Other: _____
- Erosion Control
 - Seeding (Temp)
 - Silt Fences
 - Straw Bales
 - Temporary Berm
 - Riprap (Temp)
 - Other (Temp Diversion, Temp Slope Drain, Bush Barrier, Check Dam, Other: _____)

SLOPE STAKING	GRID	GRADE STAKES	SPECIAL INTERVAL
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

- Roadway Bases
 - Untreated Subgrade
 - Treated Subgrade
 - Aggregate Base Course
 - Other: _____

- Pavements
 - PMBB - Plant Mix Bituminous Base
 - HBP - Hot Bituminous Pavement
 - Concrete
 - Other: _____

- Roadway Elements
 - Curb and Gutter
 - Drop inlets - alignment and grades
 - Retaining Walls
 - Guard Rail
 - Sidewalk
 - Other: _____

- Riprap (Perm)
- Slope and Ditch Paving

- Minor Structures
 - Structure Excavation limits
 - Culverts
 - Culverts w/ Headwalls and Wingwalls
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Pipes
 - Sanitary Sewer
 - Storm Sewer
 - Water
 - Irrigation
 - Miscellaneous

- Manholes
- Inlets
- Other: _____

- Major Structures - Overhead Signs, Concrete Box Culverts, Bridges - and all other structures assigned a structure number
 - Structure Excavation limits
 - Concrete Box Culverts w/ Headwalls and Wingwalls
 - Piling locations and cut off elevations
 - Caisson locations and elevations
 - Footing locations, alignment, and elevations
 - Abutment/Pier locations, alignment, and elevations
 - Wingwall skew angles/offsets
 - Structural concrete form locations
 - Substructure survey (See Revision of Subsection 601.12(m))
 - Bridge expansion joint(s) alignment and grade (longitudinal and transverse)
 - Deck grades at Girder 10th or "n" th point locations and elevations
 - Slope and Ditch Paving
 - Other: _____

- Fencing
 - Temporary
 - Permanent
 - Sound Barriers
 - Other: _____

- Delineators
 - Temporary
 - Permanent

- Lighting and Traffic Control Devices (Perm)
 - Signal pole locations and elevations
 - Light pole locations and elevations
 - Signs
 - Field verify sign post locations, elevations, and lengths before fabrication.
 - Other: _____

- Pavement Marking
 - Striping (Temp)
 - Striping (Perm)
 - Symbols
 - Other: _____

GRADE STAKES	GRID	SPECIAL INTERVAL	SPECIAL OFFSET
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

- Temporary Lighting and Construction Traffic Control Devices
 - Signal pole locations and elevations (Temp)
 - Light pole locations and elevations (Temp)
 - Signs (Temp)
 - Other: _____
- Easement (Temp)(Staking)

WORK PERFORMED BY THE CONTRACTOR'S SURVEYOR UNDER ITEM 629:

- Monumentation
 - Control
 - Right of Way (Temp) (Staking)
 - Right of Way
 - Land corners, Aliquot corners
 - Easement (Temp)(Staking)
 - Easement (Perm)
 - Reference the specified existing monuments: ** _____
 - Relocate the specified existing monuments: ** _____
 - Locate monuments. It is estimated _____ hours are required.
- ** A Tabulation of Survey Monuments may be provided on the plans.

GENERAL NOTES:

All work shall be done in accordance with the latest edition of the entire CDOT Survey Manual including all revisions to date:
- Chapter 5 - Construction Surveying, revised 02/07/96.

Adequate information for establishing lines, grades, and locations for all work items have been specified on the plans. Any additional information required to stake the item or element shall be generated by the Contractor's surveyor.

The Contractor's surveyor shall provide an estimate of the man-hours necessary to complete the work items indicated on this sheet. A copy of this sheet, with the estimated man hours written on the blank line to the left of the specified items, shall be submitted with the Survey Schedule to the Engineer 3 days prior to the Pre-survey Conference.

The following surveying notebooks are required:

- Alignment Notebook
- Benchmark Notebook
- Control Survey/Monumentation Notebook
- Minor Structure Notebook
- Major Structure Notebook
- Slope Staking Notebook
- Grade Notebook
- Other Notebook(s): _____

Stakes and Monuments which are damaged or destroyed by the progress of construction shall be replaced by the Contractor at no additional cost to the Department.

The Contractor shall furnish an As Staked earthwork quantity to the Engineer prior to completion of twenty percent (20%) of the planned earthwork in any phase as per the CDOT Survey Manual. A printed copy of the As Staked earthwork data and a computer disk in the specified format shall be submitted to the Engineer. The Contractor shall field verify original ground cross sections at maximum 160 m (500 ft) intervals.

Prior to beginning work on any subsequent operation, such as placing base course or paving, the Contractor shall certify in writing to the Engineer that the final grade is within the specified tolerance.

The Contractor shall perform all field surveying and calculations necessary to tie plan grades into field grades.

The Contractor shall coordinate construction staking on the project with any utility work.

Computer File Information	
Creation Date:	04/01/2002 Initials: grs
Last Modification Date:	05/13/2002 Initials: grs
Full Path:	C:\projects\14046\
Drawing File Name:	14046mas.dwg
Acad Ver. R2002	Scale: NTS Units: English

Sheet Revisions	

Colorado Department of Transportation
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As Constructed		SURVEY TABULATION		Project No./Code	
No Revisions:				NH 5502-041	
Revised:	2/1/03	Designer:	grs	14046	
Void:		Detailer:	grs		
		Sheet Subset:	Survey	Subset Sheets:	1 of 1
				Sheet Number	3

GENERAL NOTES

1. For preliminary plan quantities of pavement structure materials, the following rates of application were used:

Hot Bituminous Pavement.....110 lbs./sq. yd./inch
 Tack Coat Emulsified Asphalt (Slow-Setting).....0.10 gal./sq. yd. (diluted)
 Emulsified Asphalt (Prime Coat).....0.30 gal./sq. yd. (undiluted)
 Asphalt Rejuvenating Agent0.05 gal./sq. yd. (undiluted)
 Aggregate Base Course133 lbs./cu. ft.

Diluted emulsified asphalt for tack coat ~~shall consist~~ ^{CONSISTED} of 1 part emulsified asphalt and 1 part water.

Rates of application ~~shall be as~~ ^{WERE} directed by the Engineer at the time of application.

Before placement of the tack coat and after paving, the Contractor ~~shall clean~~ ^{CLEANED} the present roadway as directed by the Engineer. Tack coat to extend 6" beyond edge of existing pavement on both sides of the pavement. Sweeping of dirt and gravel from the mat to be overlaid ~~shall not be paid for separately but shall be included~~ ^{WERE} in the cost of item 403.

2. Road approaches which require bituminous pavement ~~shall be~~ ^{WERE} paved with a 2 inch thickness of Hot Bituminous Pavement as shown in the Road Approaches details.

Existing paved approaches or side roads ~~shall be~~ ^{WERE} planed, tacked, and paved as shown in the Road Approach Tabulation or as directed by the Engineer. Unpaved field and road approaches ~~shall be~~ ^{WERE} paved out 10' feet from the edge of paved shoulder or as directed by the Engineer.

3. Depth of Moisture-Density control for this project ~~shall be~~ ^{WERE} as follows:

Full Depth for all embankments
 Bases of cuts and fills: 0.50 feet

4. Excavation required for compaction of bases ~~will be~~ ^{ARE} subsidiary to that operation and will not be paid for separately.

5. Type of Compaction for this project ~~will be~~ ^{WERE} AASHTO T-99.

6. It is estimated that ~~3092~~ ^{2501.0} gallons of Emulsified Asphalt (Prime Coat) ~~will be~~ ^{WERE} required for Prime Coat for road approaches, intersecting roads, and pavement widening.

7. It is estimated that ~~1294~~ ^{1492.3} tons of Hot Bituminous Pavement (Patching)(Asphalt) ~~will be~~ ^{WERE} required for this project at locations designated by the Engineer. See Patching Detail.


8. Centerline striping is to be painted by the end of each day. Contractor ~~shall~~ ^{WERE} keep and verify passing and no passing zones prior to paving. Contractor ~~shall~~ ^{WERE} place new striping according to existing striping centerline patterns.

9. It is estimated that ~~190~~ ³⁶⁰ gallons of yellow and ~~240~~ ²⁵³ gallons of white for a total of ~~430~~ ⁶¹³ gallons of Epoxy Pavement Marking Paint ~~will be~~ ^{WERE} required for final pavement marking. It is estimated that ~~190~~ ^{322.54} gallons of yellow pavement marking paint ~~will be~~ ^{WERE} required for temporary striping.

10. It is estimated that ~~100~~ ¹²⁹ hours of Blading with a motor grader in the 80 to 125 Flywheel Horsepower range ~~will be~~ ^{WERE} required for shaping approaches, or as directed by the Engineer.
11. It is estimated that ~~100~~ ¹⁰³ hours of Rolling with a roller in the 80 to 100 Horsepower range ~~will be~~ ^{WERE} required for shaping approaches, or as directed by the Engineer.
12. A Mobile Pavement Marking Zone ~~will be~~ ^{WERE} required ~~which shall be~~ ^{AND} paid for on a lump sum basis. See Revision of Section 630 - Mobile Pavement Marking Zone in the Project Special Provisions.
13. A Mobile Profilograph Operation Zone ~~will be~~ ^{WERE} required ~~which shall be~~ ^{AND} paid for on a lump sum basis. See Revision of Section 630 - Mobile Profilograph Operation Zone in the Project Special Provisions.
14. It is estimated that ~~20~~ ³⁵ hours of potholing ~~will be~~ ^{WERE} required to locate utilities on the project.
15. It is estimated that ~~450~~ ^{210.5} hours for Pilot Car Operations for construction traffic control ~~will be~~ ^{WERE} required.
16. It is estimated that ~~25~~ ²⁹ Days of Traffic Control Inspection for construction traffic control ~~will be~~ ^{WERE} required.
17. It is estimated that ~~45~~ ⁵⁶ days of Traffic Control Management for construction traffic control ~~will be~~ ^{WERE} required.
18. It is estimated that ~~2000~~ ^{2878.5} hours for Flagging for construction traffic control ~~will be~~ ^{WERE} required.
19. Delineators and milepost markers are to remain in place but the Contractor may remove and reset at their convenience at no cost to the project.
20. It is estimated that ~~3~~ ⁴ Type 1, ~~1~~ ⁰ type 2 and 3 type 3 Mailbox supports ~~shall be~~ ^{WERE} required for this project. The locations and pavement widening, if any ~~shall be~~ ^{WERE} as directed by the Engineer.
21. It is estimated that ~~200~~ ⁰ cubic yards of Muck Excavation and ~~1000~~ ²⁹³ cubic yards of Embankment CIP ~~will be~~ ^{WERE} required for this project as directed by the Engineer.
22. Pavement Smoothness Incentive/Disincentive payment ~~shall be~~ ^{WERE} based on Pavement Smoothness Category II (Inches/Mile).

NOTE: All items listed on this page shall be placed as directed by the Project Engineer.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GENERAL NOTES		Project No./Code		
Creation Date:	03/12/99	Initials:	grs				No Revisions:			NH 5502-041		
Last Modification Date:	05/13/2002	Initials:	grs				Revised:	<i>[Signature]</i>	Designer:	grs	14046	
Full Path:	C:\projects\14046\						Void:		Detailer:	grs		
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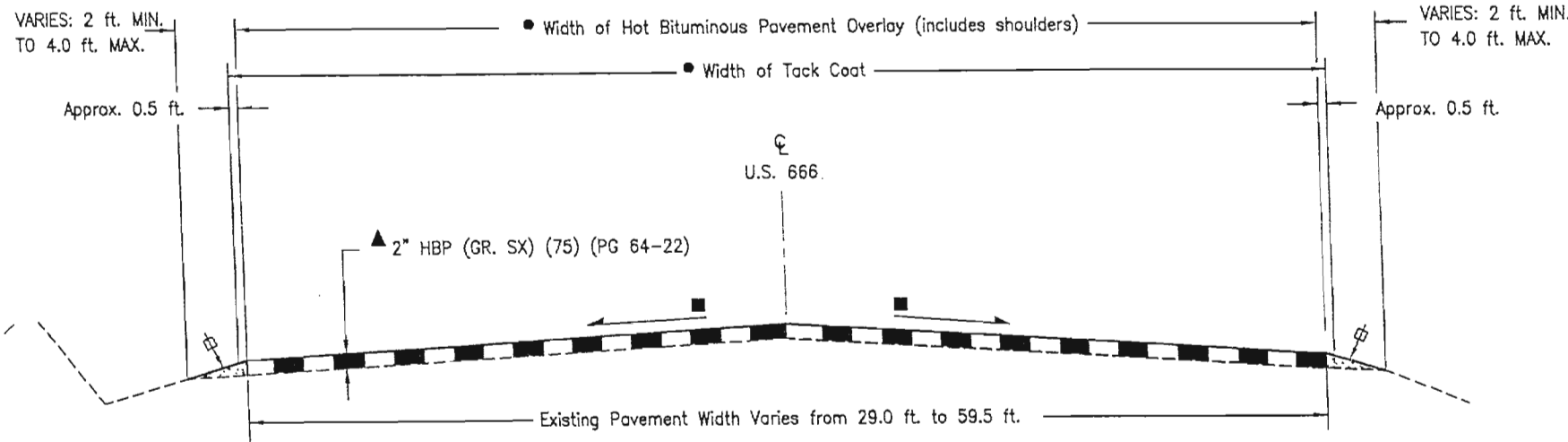


3803 North Main Ave.
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TYPICAL SECTION

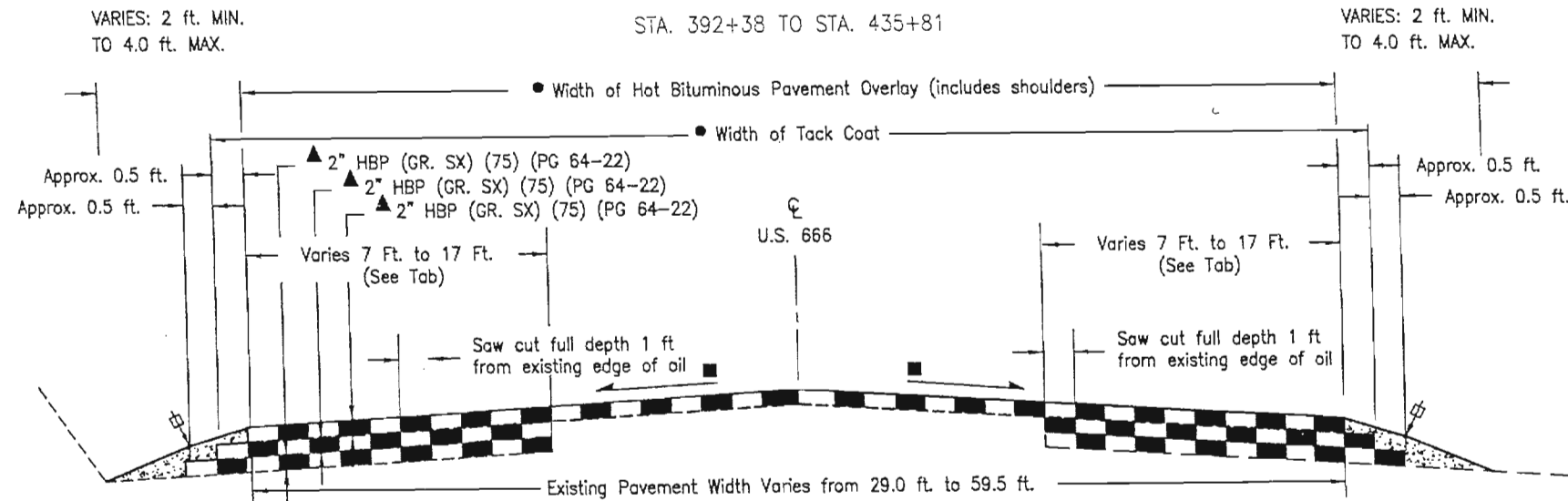
STA. 71+60 TO STA. 392+38
STA. 435+81 TO STA. 568+22



- Match existing cross-slope
- ▲ Approximate Thickness
- Varies (See Surfacing Tabulation)
- ✂ The Contractor ~~will be~~ required to place ABC (Class 6) to this line after completion of the Paving Operation.

TYPICAL SECTION

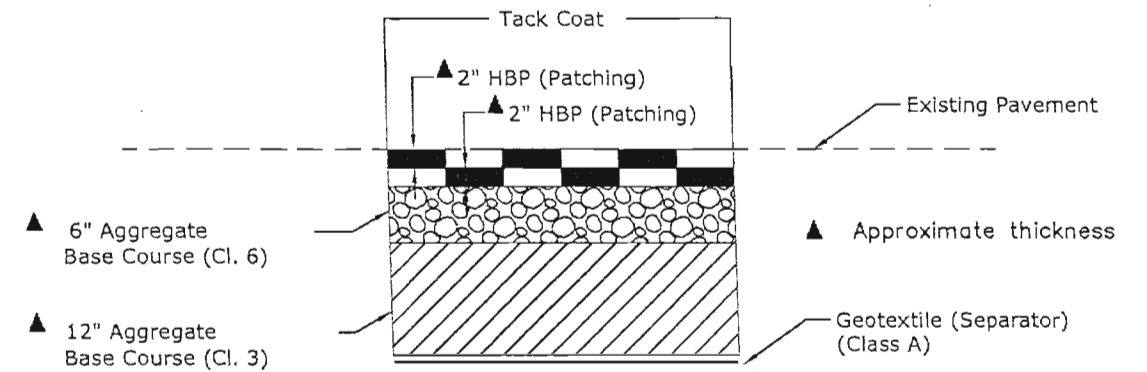
STA. 392+38 TO STA. 435+81



- Match existing cross-slope
 - ▲ Approximate Thickness
 - Varies (See Surfacing Tabulation)
 - ✂ The Contractor ~~will be~~ required to place ABC (Class 6) to this line after completion of the Paving Operation.
- ABC CLASS (SPECIAL)*

PATCHING DETAIL

LOCATIONS AS SHOWN IN THE PATCHING TABULATION

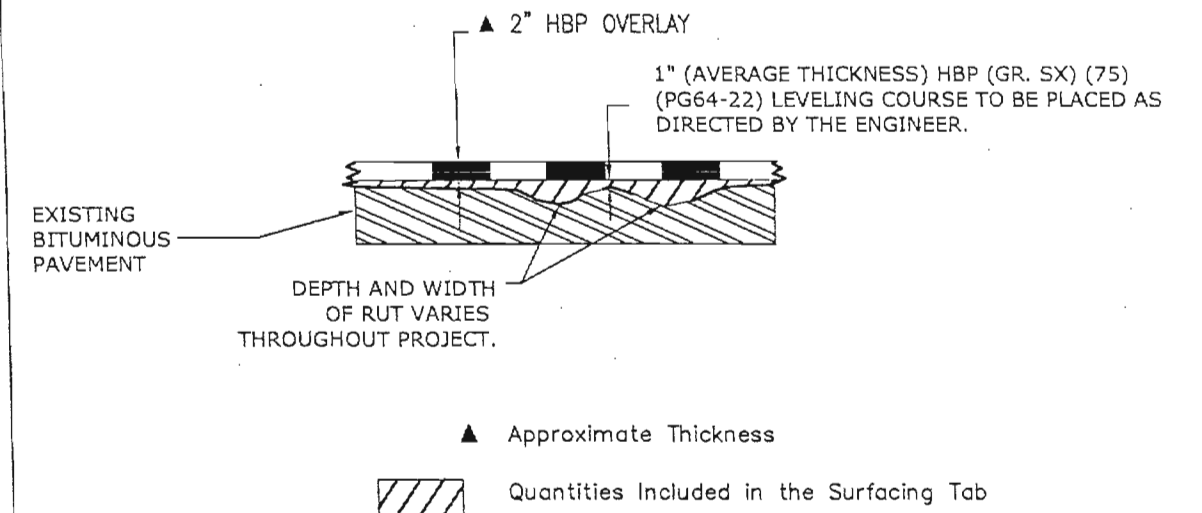


If areas of unstable base are encountered that require base stabilization to depths greater than those shown on this detail, pay items 304, Aggregate Base Course (Class 6), (Class 3), and Item 203, Muck Excavation will be measured and paid for separately to the depth directed by the Engineer.

Geotextile (separator)(Class A), Asphalt Cement, Tack and Prime Coat for HBP (Patching) will not be measured and paid for separately but shall be included in the cost of HBP (Patching).

LEVELING COURSE DETAIL


LOCATIONS AS SHOWN IN SURFACING TABULATION



Computer File Information	
Creation Date:	03/12/99 Initials: grs
Last Modification Date:	05/13/2002 Initials: grs
Full Path:	C:\projects\14046\
Drawing File Name:	14046mcs.dwg
Acad Ver. R2002	Scale: NTS Units: English

Sheet Revisions	

Colorado Department of Transportation
3803 North Main Ave.
Suite 300
Durango, CO 81301
Phone: (970) 385-1400 FAX: (970) 385-1410



Region 5 B.S.

As Constructed	
No Revisions:	4/1/02
Revised:	
Void:	

TYPICAL SECTION			
Designer:	grs		
Detailer:	grs		
Sheet Subset:	Roadway	Subset Sheets:	1 of 1

Project No./Code	
NH 5502-041	
14046	
Sheet Number	5

INDEX LINE ITEM BOOK PAGE SHEET	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY BID ITEMS			Structure L-05-K			Structure L-05-C			Structure K-05-BS			Structure K-05-AC			PROJECT TOTALS					
				PLAN	AS CONST.	LINE ITEM	PLAN	AS CONST.		PLAN	AS CONST.	LINE ITEM	PLAN	AS CONST.	LINE ITEM	LINE ITEM	PLAN	AS CONST.	PLAN	AS CONST.				
340	202-00240	Removal of Asphalt Mat (Planing)	SY	300	4151	05						897	57512	285			1,300	1,368.9	315	335	849	691.1	3,346	3,050.3
290	202-00425	Removal of Bridge Railing	LF																		220	220	220	220
10	202-00495	Removal of Portions of Present Structure	L S									1	1	290									1	1
15	202-01130	Removal of Guardrail Type 3	LF	4,715	5,240.5																		4,715	5,240.5
20	202-01300	Removal of End Anchorage	EACH	16	12																		16	12
20	202-04002	Clean Culvert	EACH	1	1		1	DELETED															2	1
265	202-05100	Sandblasting Reinforcing Steel	SY				320	DELETED															320	0
25	203-00060	Embankment Material (Complete In Place)	CY	1,000	293																		1,000	293
30	203-00100	Muck Excavation	CY	1,000	DELETED																		1,000	0
35	203-01140	Rolling	HOUR	100	103																		100	103
40	203-01500	Blading	HOUR	100	129																		100	129
45	203-01597	Potholing	HOUR	20	5.5																		20	5.5
50	210-00010	Reset Mailbox Structure	EACH	3	4																		3	4
55	210-00012	Reset Mailbox Structure (Type 2)	EACH	1	0																		1	0
60	210-00013	Reset Mailbox Structure (Type 3)	EACH	3	3																		3	3
65	304-03000	Aggregate Base Course (Class 3)	TON	3,519	DELETED																		3,519	0
70	304-06000	Aggregate Base Course (Class 6)	TON	6,190	7,200.93																		6,190	7,200.93
75	403-00720	Hot Bituminous Pavement (Patching) (Asphalt)	TON	1,294	1,492.3																		1,294	1,492.3
80	403-34801	Hot Bituminous Pavement (Grading SX) (75)	TON	32,814	34,433.22																		32,814	34,433.22
85	411-03354	Asphalt Cement Performance Grade (PG 64-22)	TON	1,969	2,320.126																		1,969	2,320.126
90	411-10255	Emulsified Asphalt (Slow-Setting)	GAL	14,858	11,194.30																		14,858	11,194.30
95	411-10300	Emulsified Asphalt (Prime Coat)	GAL	3,092	2,501.0																		3,092	2,501.0
270	420-00500	Geotextile (Paving)	SY									273	223	295			130	0	320	345	120	120	523	393
275	506-00000	Riprap	CY				45	DELETED															45	0
280	515-00120	Waterproofing (Membrane)	SY														817	0	325	350	381	381	1,198	381
285	515-00410	Concrete Sealer (Calcium Nitrite)	SY									350	350	300									350	350
290	601-03030	Concrete Class D (Box Culvert)	CY				42	DELETED															42	0
300	601-06150	Concrete (Patching)	SF									100	208	305			70	0	330	366	38	0	208	208
310	602-00020	Reinforcing Steel (Epoxy Coated)	LB				3,000	DELETED															3,000	0
100	605-00080	8 Inch Perforated Pipe Underdrain	LF	350	350																		350	350
105	605-84100	Subsurface Drain Outlet Structure	EACH	2	2																		2	2
110	606-00301	Guardrail Type 3 (6-3 Post Spacing)	LF	4,715	4,206.5																		4,715	4,206.5
310	606-00465	Guardrail Type 4 (Precast-Portable)	LF									340	340										340	340

Computer File Information	
Creation Date:	04/01/2002 Initials: grs
Last Modification Date:	05/13/2002 Initials: grs
Full Path:	C:\projects\14046\
Drawing File Name:	14046mas.dwg
Acad Ver. R2002	Scale: NTS Units:

Sheet Revisions	

Colorado Department of Transportation
 3803 North Main Ave.
 Suite 300
 Durango, CO 81301
 Phone: (970) 385-1400 FAX: (970) 385-1410
 Region 5 B.S.

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SUMMARY OF APPROXIMATE QUANTITIES			
Designer:	grs		
Detailer:	grs		
Sheet Subset:	Roadway	Subset Sheets:	1 of 2

Project No./Code	
NH 5502-041	
14046	
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INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	ROADWAY BID ITEMS		Structure L-05-K		Structure L-05-C		Structure K-05-BS		Structure K-05-AC		PROJECT TOTALS	
				PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.	PLAN	AS CONST.
115	606-01370	Transition Type 3G	EACH	4	0					0	4	0	4	4	3
120	606-02001	End Anchorage (Slotted Rail Terminal)	EACH	14	16								14	16	
125	606-02003	End Anchorage (Nonflared)	EACH	2	0								2	0	
365	606-11010	Bridge Rail Type 10R	LF									220	220	220	220
370	620-00002	Field Office (Class 2)	EACH	1	1								1	1	
375	620-00012	Field Laboratory (Class 2)	EACH	1	1								1	1	
380	620-00015	Field Laboratory (State Furnished)	EACH	1	DELETED								1	0	
385	620-00020	Sanitary Facility	EACH	1	1								1	1	
505	626-00000	Mobilization	L S	1	1								1	1	
135	626-01000	Public Information Services	L S	1	1								1	1	
140	627-00001	Pavement Marking Paint	GAL	190	354.54								190	354.54	
145	627-00005	Epoxy Pavement Marking	GAL	430	619								430	619	
150	630-00000	Flagging	HOUR	2,000	2875.5								2,000	2875.5	
155	630-00001	Pilot Car Operation	HOUR	450	215.5								450	215.5	
160	630-00007	Traffic Control Inspection	DAY	25	29								25	29	
165	630-00012	Traffic Control Management	DAY	45	56								45	56	
170	630-80001	Flashing Beacon (Portable)	EACH	2	2								2	2	
175	630-80341	Construction Traffic Sign (Panel Size A)	EACH	16	17								16	17	
180	630-80342	Construction Traffic Sign (Panel Size B)	EACH	56	77								56	77	
185	630-80343	Construction Traffic Sign (Panel Size C)	EACH	8	6								8	6	
190	630-80344	Construction Traffic Sign (Special)	SF	95	0								95	0	
195	630-80357	Advance Warning Flashing or Sequencing Arrow Panel (B Type)	EACH	2	0								2	0	
200	630-80360	Drum Channelizing Device	EACH	300	158								300	158	
205	630-80363	Drum Channelizing Device (With Light) (Flashing)	EACH	20	16								20	16	
210	630-80365	Portable Message Sign Panel (State Furnished)	EACH	2	2								2	2	
215	630-80380	Traffic Cone	EACH	200	200								200	200	
220	630-80510	Mobile Pavement Marking Zone	L S	1	1								1	1	
225	630-80560	Mobile Profilograph Operation Zone FORCE ACCOUNT	L S	1	1								1	1	
230	700-70010	F/A Minor Contract Revisions	F A	1	1								1	1	
235	700-70011	F/A Partnering	F A	1	DELETED								1	0	
240	700-70012	F/A Asphalt Pavement Incentive	F A	1	1								1	1	
245	700-70022	F/A OJT Pilot	F A	1	1								1	1	
250	700-70025	F/A Quality Incentive Payment	F A	1	1								1	1	
255	700-70028	F/A ESB Program	F A	1	0								1	0	

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SUMMARY OF APPROXIMATE QUANTITIES	
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Project No./Code	
NH 5502-041	
14046	
Sheet Number	7

Station LINEAR FEET		DISTANCE	WIDTH RANGE		WIDTH AVERAGE	TOTAL ASPHALT AREA	HOT BITUMINOUS PAVEMENT (GR. 5X)(75)	EMULSIFIED ASPHALT (SLOW-SETTING)	ASPHALT CEMENT (PG 64-22)	ABC (Class G) 133 LBS/CU FT
BEGIN	END	LIN. FT.	BEGIN	END		SQ. YD.	TONS	.05 GALS/SY	TON	TON
71+60	97+93	2633.00	29.00	26.00	27.50	8045.28	884.98	402.26	53.10	175.13
97+93	99+35	142.00	26.00	26.00	26.00	410.22	45.12	20.51	2.71	9.44
99+35	102+42	307.00	26.00	26.00	26.00	886.89	97.56	44.34	5.85	20.42
102+42	107+35	493.00	26.00	30.00	28.00	1533.78	168.72	76.69	10.12	32.79
107+35	110+24	289.00	30.00	51.50	40.75	1308.53	143.94	65.43	8.64	19.22
110+24	117+65	741.00	51.50	51.50	51.50	4240.17	466.42	212.01	27.99	49.29
117+65	120+06	241.00	51.50	59.50	55.50	1486.17	163.48	74.31	9.81	16.03
120+06	128+11	805.00	59.50	39.50	49.50	4427.50	487.03	221.38	29.22	53.54
128+11	134+00	589.00	39.50	48.00	43.75	2863.19	314.95	143.16	18.90	39.18
134+00	136+75	275.00	48.00	48.00	48.00	1466.67	161.33	73.33	9.68	18.29
136+75	139+23	248.00	48.00	47.50	47.75	1315.78	144.74	65.79	8.68	16.50
139+23	150+26	1103.00	47.50	48.00	47.75	5852.03	643.72	292.60	38.62	73.36
150+26	163+01	1275.00	48.00	47.00	47.50	6729.17	740.21	336.46	44.41	84.80
163+01	166+86	385.00	47.00	57.50	52.25	2235.14	245.87	111.76	14.75	25.61
166+86	168+70	184.00	57.50	65.50	61.50	1257.33	138.31	62.87	8.30	12.24
168+70	177+07	837.00	65.50	72.00	68.75	6393.75	703.31	319.69	42.20	55.67
177+07	181+21	414.00	72.00	71.50	71.75	3300.50	383.06	165.03	21.78	27.54
181+21	186+98	577.00	71.50	69.50	70.50	4519.83	497.18	225.99	29.83	38.38
186+98	190+21	323.00	69.50	63.00	66.25	2377.64	261.54	118.88	15.69	21.48
190+21	192+93	272.00	63.00	57.30	60.15	1817.87	199.97	90.89	12.00	18.09
192+93	197+21	428.00	57.30	47.00	52.15	2480.02	272.80	124.00	16.37	28.47
197+21	200+90	369.00	47.00	46.50	46.75	1916.75	210.84	95.84	12.65	24.54
200+90	202+83	193.00	46.50	41.00	43.75	938.19	103.20	46.91	6.19	12.84
202+83	215+70	1287.00	41.00	39.30	40.15	5741.45	631.56	287.07	37.89	85.60
215+70	217+39	169.00	39.30	41.30	40.30	756.74	83.24	37.84	4.99	11.24
217+39	219+43	204.00	41.30	47.00	44.15	1000.73	110.08	50.04	6.60	13.57
219+43	222+43	300.00	47.00	48.00	47.50	1583.33	174.17	79.17	10.45	19.95
222+43	231+00	857.00	48.00	46.00	47.00	4475.44	492.30	223.77	29.54	57.00
231+00	239+48	848.00	46.00	47.70	46.85	4414.31	485.57	220.72	29.13	56.40
239+48	243+18	370.00	47.70	46.00	46.85	1926.06	211.87	96.30	12.71	24.61
243+18	251+51	833.00	46.00	47.70	46.85	4336.23	476.99	216.81	28.62	55.41
251+51	268+33	1682.00	47.70	39.50	43.60	8148.36	896.32	407.42	53.78	111.88
268+33	276+35	802.00	39.50	40.00	39.75	3542.17	389.64	177.11	23.38	53.34
276+35	288+32	1197.00	40.00	38.80	39.40	5240.20	576.42	262.01	34.59	79.62
288+32	298+83	1051.00	38.80	38.00	38.90	4542.66	499.69	227.13	29.98	69.91
298+83	305+64	681.00	39.00	39.00	39.00	2951.00	324.61	147.55	19.48	45.30
305+64	321+79	1615.00	39.00	39.20	39.10	7016.28	771.79	350.81	46.31	107.42
321+79	333+04	1125.00	39.20	39.50	39.35	4918.75	541.06	245.94	32.46	74.83
333+04	344+54	1150.00	39.50	39.80	39.65	5066.39	557.30	253.32	33.44	76.49
344+54	347+42	288.00	39.80	45.00	42.40	1356.80	149.25	67.84	8.95	19.16
347+42	351+67	425.00	45.00	47.00	46.00	2172.22	238.94	108.61	14.34	28.27
351+67	354+64	297.00	47.00	47.50	47.25	1559.25	171.52	77.96	10.29	19.75
354+64	360+96	632.00	47.50	64.30	55.90	3925.42	431.80	196.27	25.91	42.04
360+96	364+72	376.00	64.30	61.00	62.65	2617.38	287.91	130.87	17.27	25.01
364+72	367+45	273.00	61.00	58.70	59.85	1815.45	199.70	90.77	11.98	18.16
367+45	371+39	394.00	58.70	44.00	51.35	2247.99	247.28	112.40	14.84	26.21
371+39	377+58	619.00	44.00	39.50	41.75	2871.47	315.86	143.57	18.95	41.17
377+58	382+38	480.00	39.50	39.80	39.65	2114.67	232.61	105.73	13.96	31.93
382+38	390+19	781.00	39.80	39.50	39.65	3440.74	378.48	172.04	22.71	51.95
390+19	391+89	170.00	39.50	29.50	34.50	651.67	71.68	32.58	4.30	11.31
391+89	394+18	229.00	29.50	28.70	29.10	740.43	81.45	37.02	4.89	15.23
394+18	402+38	820.00	28.70	27.00	27.85	2537.44	279.12	126.87	16.75	54.54
402+38	408+82	644.00	27.00	25.40	26.20	1874.76	206.22	93.74	12.37	42.83
408+82	415+37	655.00	25.40	25.60	25.50	1855.83	204.14	92.79	12.25	43.57
415+37	421+33	596.00	25.60	26.00	25.80	1708.53	187.94	85.43	11.28	39.64
421+33	429+20	787.00	26.00	26.50	26.25	2295.42	252.50	114.77	15.15	52.35
429+20	434+00	480.00	26.50	25.20	25.85	1378.67	151.65	68.93	9.10	31.93
434+00	435+81	181.00	25.20	32.00	28.60	575.18	63.27	28.76	3.80	12.04
435+81	438+42	261.00	32.00	44.00	38.00	1102.00	121.22	55.10	7.27	17.36
438+42	443+33	491.00	44.00	44.00	44.00	2400.44	264.05	120.02	15.84	32.66
443+33	450+88	755.00	44.00	42.50	43.25	3628.19	399.10	181.41	23.95	56.22
Sheet 1 total		36682				172303.80	18953.42	8615.19	1137.21	2439.84

Computer File Information	
Creation Date:	04/01/2002 Initials: grs
Last Modification Date:	05/13/2002 Initials: grs
Full Path:	C:\projects\14046\
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SURFACE TABULATION	
Designer:	grs
Detailer:	grs
Sheet Subset:	Roadway
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Project No./Code	
NH 5502-041	
14046	
Sheet Number	8

Station LINEAR FEET		DISTANCE	WIDTH RANGE		WIDTH AVERAGE	TOTAL ASPHALT AREA	HOT BITUMINOUS PAVEMENT (GR. SX)(75)	EMULSIFIED ASPHALT (SLOW-SETTING)	ASPHALT CEMENT (PG 64-22)	ABC (Class 6) 133 LBS/CU FT
BEGIN	END	LIN. FT.	BEGIN	END		SQ. YD.	TONS	Tack GAL	TON	TON
4 4 3 + 3 3	4 5 0 + 8 8	7 5 5 . 0 0	4 4 . 0 0	4 2 . 5 0	4 3 . 2 5	3 6 2 8 . 1 9	3 9 9 . 1 0	1 8 1 . 4 1	2 3 . 9 5	5 0 . 2 2
4 5 0 + 8 8	4 6 0 + 6 0	9 7 2 . 0 0	4 2 . 5 0	4 3 . 7 0	4 3 . 1 0	4 6 5 4 . 8 0	5 1 2 . 0 3	2 3 2 . 7 4	3 0 . 7 2	6 4 . 6 5
4 6 0 + 6 0	4 6 3 + 8 6	3 2 6 . 0 0	4 3 . 7 0	4 3 . 7 0	4 3 . 7 0	1 5 8 2 . 9 1	1 7 4 . 1 2	7 9 . 1 5	1 0 . 4 5	2 1 . 6 8
4 6 3 + 8 6	4 6 6 + 2 4	2 3 8 . 0 0	4 3 . 7 0	2 5 . 3 0	3 4 . 5 0	9 1 2 . 3 3	1 0 0 . 3 6	4 5 . 6 2	6 . 0 2	1 5 . 8 3
4 6 6 + 2 4	4 7 7 + 4 0	1 1 1 6 . 0 0	2 5 . 3 0	2 5 . 5 0	2 5 . 4 0	3 1 4 9 . 6 0	3 4 6 . 4 6	1 5 7 . 4 8	2 0 . 7 9	7 4 . 2 3
4 7 7 + 4 0	4 8 6 + 5 9	9 1 9 . 0 0	2 5 . 5 0	2 5 . 3 0	2 5 . 4 0	2 5 9 3 . 6 2	2 8 5 . 3 0	1 2 9 . 6 8	1 7 . 1 2	6 1 . 1 3
4 8 6 + 5 9	4 9 6 + 8 7	1 0 0 8 . 0 0	2 5 . 3 0	2 6 . 2 0	2 5 . 7 5	2 8 8 4 . 0 0	3 1 7 . 2 4	1 4 4 . 2 0	1 9 . 0 3	6 7 . 0 5
4 9 6 + 8 7	5 0 4 + 5 0	7 8 3 . 0 0	2 6 . 2 0	2 6 . 5 0	2 6 . 3 5	2 2 9 2 . 4 5	2 5 2 . 1 7	1 1 4 . 6 2	1 5 . 1 3	5 2 . 0 8
5 0 4 + 5 0	5 1 8 + 0 4	1 3 5 4 . 0 0	2 6 . 5 0	2 5 . 5 0	2 6 . 0 0	3 9 1 1 . 5 6	4 3 0 . 2 7	1 9 5 . 5 8	2 5 . 8 2	9 0 . 0 6
5 1 8 + 0 4	5 2 5 + 0 4	7 0 0 . 0 0	2 5 . 5 0	2 6 . 7 0	2 6 . 1 0	2 0 3 0 . 0 0	2 2 3 . 3 0	1 0 1 . 5 0	1 3 . 4 0	4 6 . 5 6
5 2 5 + 0 4	5 2 9 + 8 4	4 8 0 . 0 0	2 6 . 7 0	2 8 . 3 0	2 7 . 5 0	1 4 6 6 . 6 7	1 6 1 . 3 3	7 3 . 3 3	9 . 6 8	3 1 . 9 3
5 2 9 + 8 4	5 3 5 + 5 0	5 6 6 . 0 0	2 8 . 3 0	2 5 . 5 0	2 6 . 9 0	1 6 9 1 . 7 1	1 8 6 . 0 9	8 4 . 5 9	1 1 . 1 7	3 7 . 6 5
5 3 5 + 5 0	5 4 4 + 1 3	8 6 3 . 0 0	2 5 . 5 0	2 6 . 5 0	2 6 . 0 0	2 4 9 3 . 1 1	2 7 4 . 2 4	1 2 4 . 6 6	1 6 . 4 5	5 7 . 4 0
5 4 4 + 1 3	5 5 5 + 9 3	1 1 8 0 . 0 0	2 6 . 5 0	2 6 . 8 0	2 6 . 6 5	3 4 9 4 . 1 1	3 8 4 . 3 5	1 7 4 . 7 1	2 3 . 0 6	7 8 . 4 9
5 5 5 + 9 3	5 6 8 + 2 2	1 2 2 9 . 0 0	2 6 . 8 0	2 6 . 0 0	2 6 . 4 0	3 6 0 5 . 0 7	3 9 6 . 5 6	1 8 0 . 2 5	2 3 . 7 9	8 1 . 7 4
Sheet 1 total		36682				172303.80	18953.42	8615.19	1137.21	2439.84
Sheet 2 total		12980				42796.58	4706.96	2139.53	282.42	863.34
Total		49662				215094.38	23660.38	10754.72	1419.62	3303.18
Levelling Course							2366.04	1075.48	141.96	
Irregularities 10%							2366.04	1075.48	141.96	
Guardrail areas							903	205	54.04	1760 [⊕]
Approaches							322.13	878.00	19.32	
Widening Total		8470				9686.27	3196.47	869.39	191.79	1126.46
Project Total						224780.65	32814	14858	1969	6190

Project Total

⊕ For patching areas.

34 433.22 11 194.30 2 320.126 3 200.930

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Creation Date:	04/01/2002	Initials:	grs			3803 North Main Ave. Suite 300 Durango, CO 81301 Phone: (970) 385-1400 FAX: (970) 385-1410		No Revisions:		NH 5502-041	
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Widening Area Right

sta	sta	DIST	W1	W2	AVE W	AREA	TONS	PG64-22	TACK	PRIME	class 6
392+38	395+38	300	0	17.00	8.50	283.33	93.50	5.61	28.33	94.44	39.90
395+38	402+38	700	17	17.00	17.00	1322.22	436.33	26.18	132.22	440.74	93.09
402+38	414+08	1170	17	17.00	17.00	2210.00	729.30	43.76	221.00	736.67	155.59
414+08	417+08	300	17	7.00	12.00	400.00	132.00	7.92	40.00	133.33	39.90
417+08	431+20	1412	7	7.00	7.00	1098.22	362.41	21.74	109.82	366.07	187.78
432+28	433+13	85	7	7.00	7.00	66.11	21.82	1.31	6.61	22.04	11.30
433+13	434+00	87	7	7.00	7.00	67.67	22.33	1.34	6.77	22.56	11.57
434+00	435+81	181	7	7.00	7.00	140.78	46.46	2.79	14.08	46.93	24.07

Widening Area Left

STA 1	STA2	DIST	W1	W2	AVE W	AREA	TONS	PG64-22	TACK	PRIME	class6
392+38	394+18	180.00	0.00	7.00	3.50	70.00	23.10	1.39	3.50	21.00	23.94
394+18	401+18	700.00	17.00	17.00	17.00	1322.22	436.33	26.18	66.11	396.67	93.09
401+18	404+18	300.00	17.00	7.00	12.00	400.00	132.00	7.92	20.00	120.00	39.90
404+18	431+20	2702.00	7.00	7.00	7.00	2101.56	693.51	41.61	105.08	630.47	359.33
432+28	434+00	172.00	7.00	7.00	7.00	133.78	44.15	2.65	6.69	40.13	22.87
434+00	435+81	181.00	7.00	0.00	3.50	70.39	23.23	1.39	3.52	21.12	24.07

* Widening Total	8470	9686.27	3196.47	191.79	869.39	3092.16	1126.46
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* Carried to Surface Tabulation Sheet

Patched areas - As designated by the Engineer

Location	Length	Width	AREA	TONS	PG64-22	TACK	PRIME	CL 6	CL 3
MP 107.25 area 1	475.00	14.00	738.89	162.56	9.75	36.94	246.30	221.11	442.23
MP 107.50 area 2	470.00	12.50	652.78	143.61	8.62	32.64	217.59	195.34	390.69
MP 107.85 area 3	180.00	12.00	240.00	52.80	3.17	12.00	80.00	71.82	143.64
MP 107.95 area 4	153.00	16.00	272.00	59.84	3.59	13.60	90.67	81.40	162.79
MP 108.10 area 5	275.00	40.00	1222.22	268.89	16.13	61.11	407.41	365.75	731.50
MP 108.15 area 6	107.00	30.00	356.67	78.47	4.71	17.83	118.89	106.73	213.47
MP 108.70 area 7	1172.00	13.00	1692.89	372.44	22.35	84.64	564.30	506.60	1013.19
MP 111.70 area 8	47.00	35.00	182.78	40.21	2.41	9.14	60.93	54.70	109.39
MP 111.80 area 9	162.00	15.00	270.00	59.40	3.56	13.50	90.00	80.80	161.60
MP 112.00 area 10	162.00	14.00	252.00	55.44	3.33	12.60	84.00	75.41	150.82


Patching Total	3203	5880.22	1294	77.62	294.01	1960.07	1759.66	3519.31
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PATCHING TOTAL

1492.3

⊕ Carried to summary of Approximate Quantities

☑ Will be included in the cost of Hot Bituminous Pavement (Patching)(Asphalt)

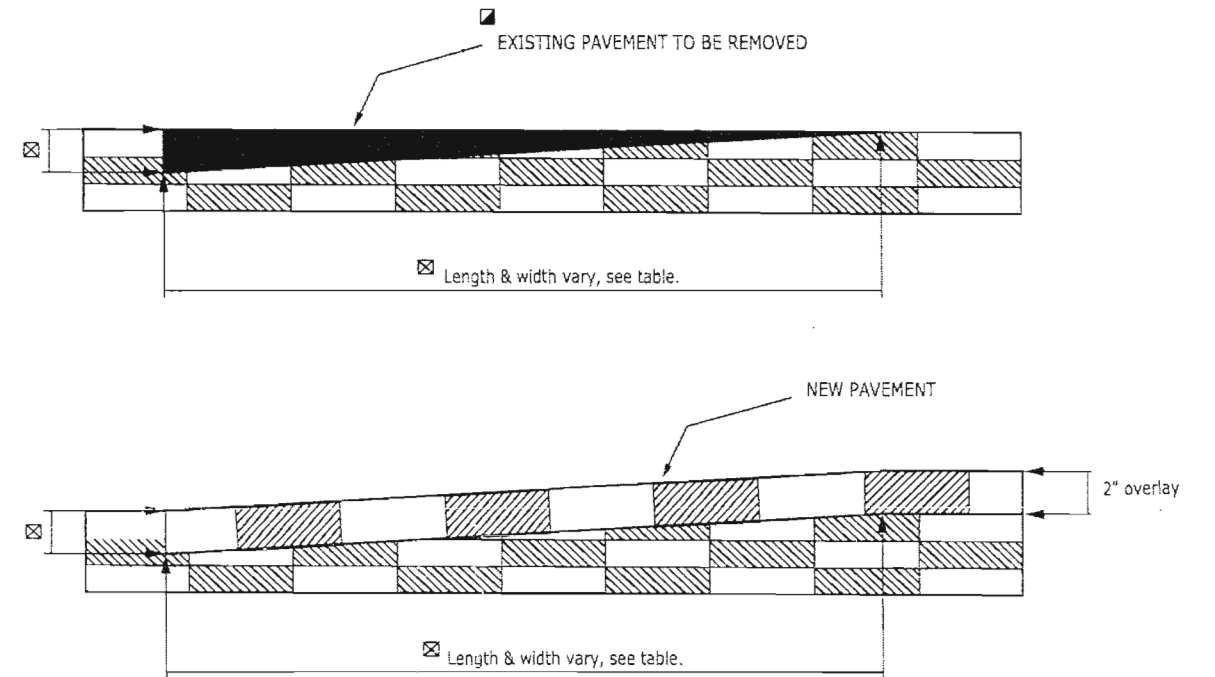
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Creation Date:	04/01/2002 Initials: grs			 3803 North Main Ave. Suite 300 Durango, CO 81301 Phone: (970) 385-1400 FAX: (970) 385-1410 Region 5 B.S.		No Revisions:		Designer: grs Detailer: grs		NH 5502-041	
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Full Path:	C:\projects\14046\					Void:				Sheet Number 10	
Drawing File Name:	14046mas.dwg										
Acad Ver. R2002	Scale: NTS Units:										

REMOVAL OF ASPHALT MAT (PLANING)

LOCATION	STATION		AVERAGE WIDTH	LENGTH	DEPTH OF PLANING	AREA
	BEGIN	END				
			FEET	FEET	INCHES	SQUARE YARDS
Begin of Project	71+00	72+10	27.5	50	2"	153
End of Project	567+72	568+22	26.4	50	2"	147
STRUCTURES						
COW CREEK L-05-K	367+45	367+95	30	50	2"	
COW CREEK L-05-C	430+20	433+09	30	269	4"	897
CHAFFEE GULCH K-05-AC	430+70	432+52	42	182	2"	849
UNCOMPHAGRE RIVER K-05-BS	444+77	447+43	44	266	2"	1300
PROJECT TOTAL						3346

PROJECT TOTAL 3,050.3

REMOVE ASPHALT MAT (PLANING) TRANSITION DETAIL



Material developed from the planing operation shall be stockpiled as directed by the Engineer.

Computer File Information		Sheet Revisions		Colorado Department of Transportation 3803 North Main Ave. Suite 300 Durango, CO 81301 Phone: (970) 385-1400 FAX: (970) 385-1410 Region 5 B.S.		As Constructed		REMOVAL OF ASPHALT MAT		Project No./Code	
Creation Date:	04/01/2002 Initials: grs					No Revisions:				NH 5502-041	
Last Modification Date:	05/13/2002 Initials: grs			Revised:	<i>2/4/03</i>	Designer: grs		14046			
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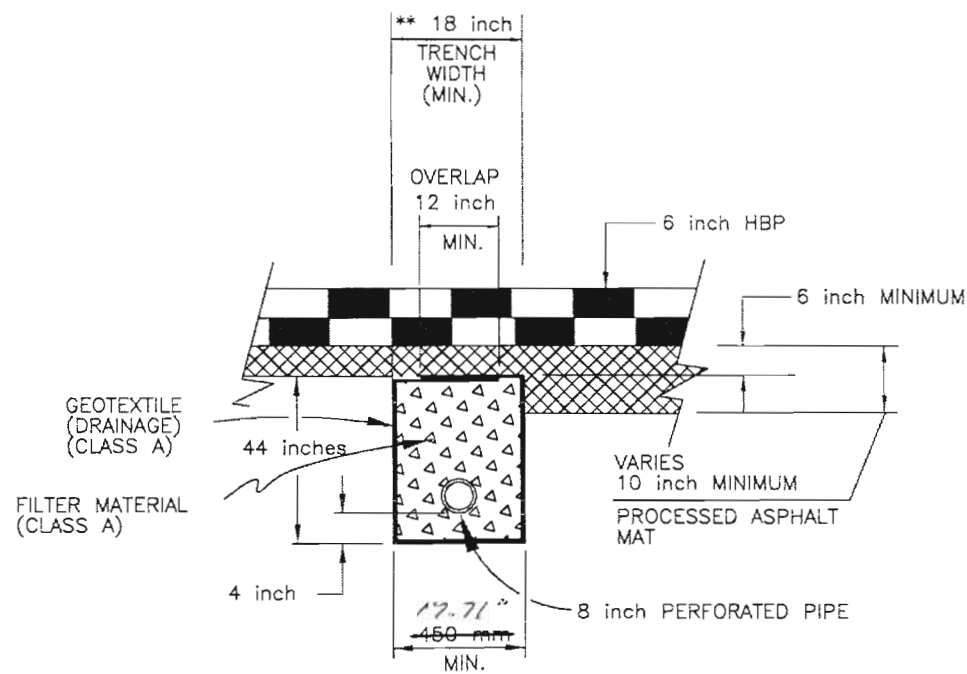
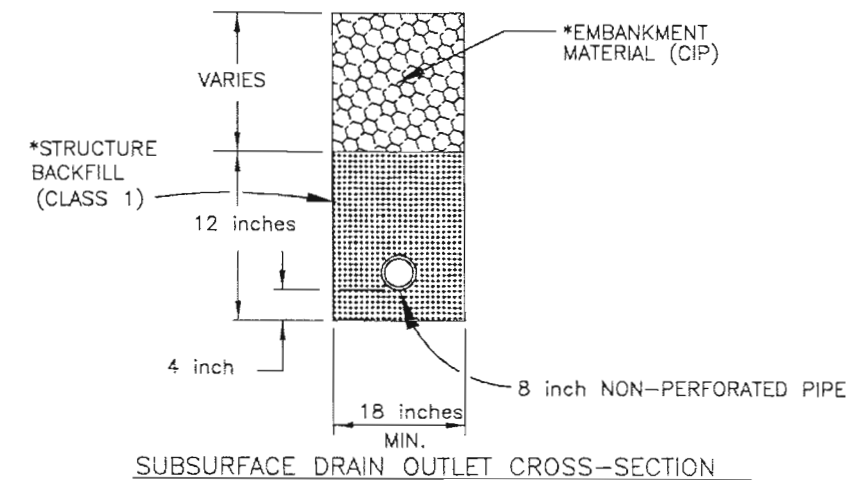
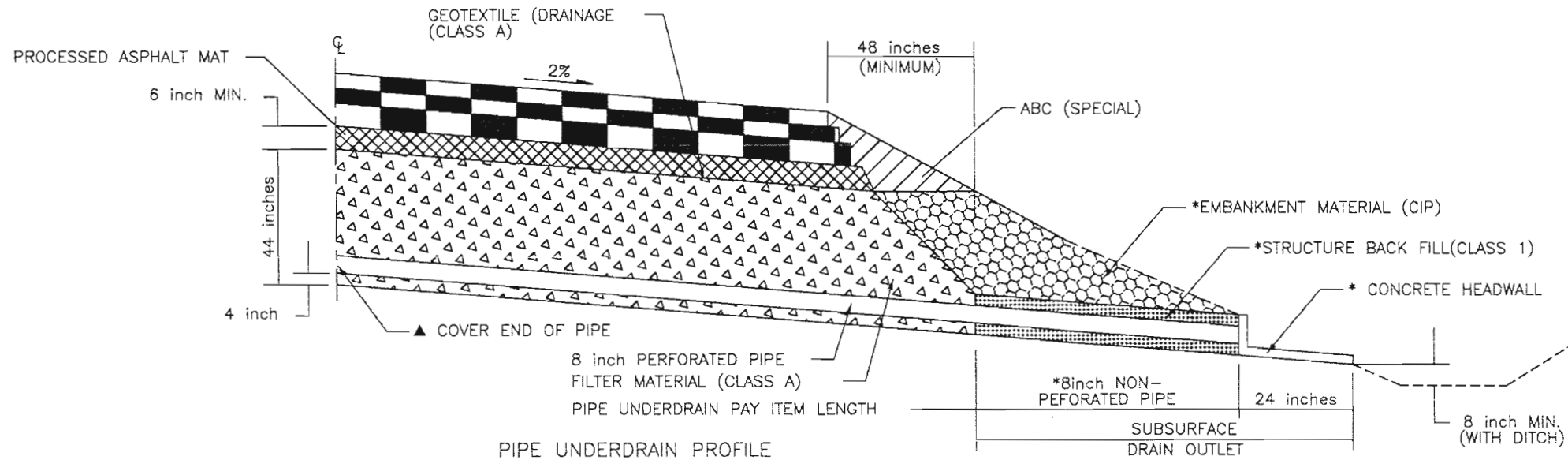
GUARDRAIL TABULATIONS

STATION TO STATION	OFFSET	REMOVAL OF GUARDRAIL TYPE 3		REMOVAL OF END ANCHORAGE		GUARDRAIL TYPE 3 (6' 3" POST SPACING) (10 GAGE)		END ANCHORAGE SRT		END ANCHORAGE NONFLARED		TRANSITION TYPE 3G	
		LINEAR FEET		EACH		LINEAR FEET		EACH		EACH		EACH	
		PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL	PLAN	FINAL
U.S. 550 MAINLINE													
355+01.5 TO 360+58.5	RT	557.0		2		557.0		2					
367+82.5 TO 377+42.5	RT	960.0		2		960.0		2					
369+15.5 TO 377+20.5	LT	805.0		2		805.0		2					
443+70.5 TO 450+50.5	LT	680.0		2		680.0		2				2	
444+69.5 TO 454+85.5	RT	1,016.0		2		1,016.0		3				2	
452+07.5 TO 459+04.5	LT	697.0		4		697.0		3		2			
SHEET TOTAL		4,715.0		16		4,715.0		14		2		4	
<i>SHEET TOTAL</i>		<i>5,240.5</i>		<i>12</i>		<i>4,206.5</i>		<i>16</i>		<i>0</i>		<i>8</i>	

- Guardrail and guardrail posts ~~shall be~~ ^{WERE} corrosion resistant and 10 gauge.
- * Final locations and quantities ~~shall be as~~ ^{WERE} directed by the Engineer.
- It is ~~estimated that~~ 903 tons of Hot Bituminous Pavement and 205 gallons of tack ~~shall be~~ ^{WERE} required to pave the guardrail areas in accordance with M&S 606.
- This quantity has been carried to the Surface Tabulation.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GUARDRAIL TABULATION		Project No./Code	
Creation Date:	03/12/99	Initials:	grs			3803 North Main Ave.	No Revisions:			NH 5502-041	
Last Modification Date:	05/13/2002	Initials:	grs			Suite 300	Revised:				
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Acad Ver. R2002	Scale:	NTS	Units: English			FAX: (970) 385-1410				Sheet Number	12
				Region 5		B.S.					

PERFORATED PIPE UNDERDRAIN AND SUBSURFACE DRAIN OUTLET STRUCTURE DETAILS



NOTES:

PROTECTED
 CONTRACTOR ~~MUST PROTECT~~ UNDERDRAINS FROM DISTURBANCE BY CONSTRUCTION TRAFFIC PRIOR TO PAVING.

LOCATION OF PIPE UNDERDRAIN IS APPROXIMATE, ACTUAL LOCATION SHALL BE AS DIRECTED BY ENGINEER.

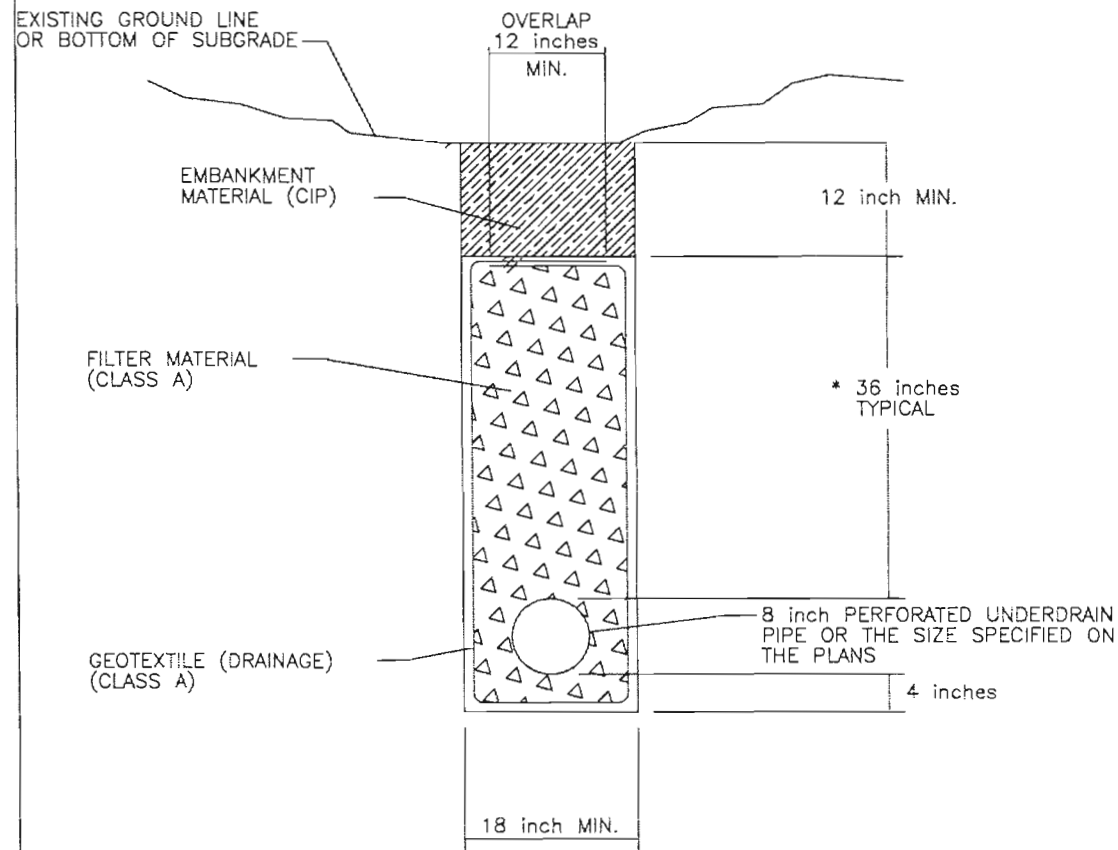
REFER
 REFER TO STANDARD PLAN NO. M-605-1 FOR GENERAL NOTES AND INSTALLATION REQUIREMENTS.

ENSURED
 CONTRACTOR ~~SHALL ENSURE~~ THAT NO EXISTING OR PROPOSED UNDERDRAINS ~~ARE~~ DAMAGED DURING GUARDRAIL INSTALLATION. ANY UNDERDRAINS DAMAGED BY THE CONTRACTOR SHALL BE REPLACED AT NO ADDITIONAL COST TO THE PROJECT.

PIPE UNDERDRAIN BELOW PAVEMENT

- * NOT TO BE PAID SEPARATELY, BUT ~~TO BE INCLUDED~~ ^{WAS} IN THE COST OF THE SUBSURFACE DRAIN OUTLET STRUCTURE. ~~IF NOT INDICATED ON UNDERDRAIN PROFILES, CONCRETE HEADWALL IS NOT REQUIRED. OUTLET PROTECTION SHALL BE AS DIRECTED BY THE ENGINEER AND ANIMAL GUARD IS PER STANDARD M-605-1.~~
- ** PAY LIMITS FOR PIPE UNDERDRAIN IS MINIMUM TRENCH WIDTH.
- △ UPSTREAM ENDS OF ALL PERFORATED PIPE ~~SHALL BE~~ ^{WERE} COVERED WITH GEOTEXTILE AND SECURELY FASTENED TO PREVENT FILTER MATERIAL FROM ENTERING PIPE. GEOTEXTILE, FILTER MATERIAL AND FASTENERS ~~SHALL BE~~ ^{WERE} INCLUDED IN THE WORK.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		PERFORATED PIPE UNDERDRAIN DETAIL		Project No./Code	
Creation Date:	04/01/2002	Initials:	grs				No Revisions:			NH 5502-041	
Last Modification Date:	05/13/2002	Initials:	grs				Revised:	2/11/03	Designer:	grs	14046
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Acad Ver. R2002	Scale:	NTS	Units:	English							1 of 3
Region 5						B.S.				Sheet Number	13



PIPE UNDERDRAIN

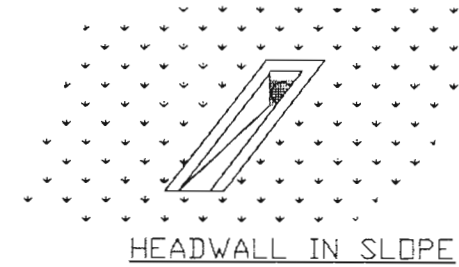
NOTES:

1. POTHOLES TO IDENTIFY DEPTH TO BEDROCK ^{WAS} ~~SHALL BE~~ COMPLETED PRIOR TO INITIATING UNDERDRAIN TRENCHING OPERATIONS AS DIRECTED BY THE ENGINEER. PLACEMENT OF UNDERDRAINS ~~SHALL BE~~ AS DIRECTED BY THE ENGINEER.
2. UPSTREAM ENDS OF ALL PERFORATED PIPE ~~SHALL BE~~ COVERED WITH GEOTEXTILE AND SECURELY FASTENED TO PREVENT FILTER MATERIAL FROM ENTERING THE PIPE. GEOTEXTILE, FILTER MATERIAL AND FASTENERS ~~SHALL BE~~ INCLUDED IN THE WORK.
3. THE COST FOR BEDROCK POTHOLES ^{WAS} ~~SHALL BE~~ INCLUDED IN THE COST FOR UNDERDRAIN PLACEMENT
4. CONTRACTOR ~~SHALL INSTALL~~ ^{INSTALL} LONGITUDINAL UNDERDRAINS FROM DOWNHILL INVERT TO UPHILL INVERT. LATERAL UNDERDRAINS ~~SHALL BE~~ CONSTRUCTED FROM UPHILL INVERT TO DOWNHILL INVERT SO THAT POSITIVE DRAINAGE ~~WILL BE~~ ESTABLISHED.
5. DEPTH AND GRADE OF UNDERDRAINS ~~SHALL BE~~ ^{WERE} AS SHOWN ON PROFILES. ROCK EXCAVATION ~~MAY BE REQUIRED AND SHALL BE~~ INCLUDED IN THE COST OF THE UNDERDRAINS.

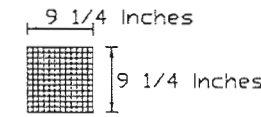
* TOP OF GEOTEXTILE MATERIAL VARIES IN HEIGHT AND ~~SHALL BE~~ ^{WAS} AS DIRECTED BY THE ENGINEER. REFER TO STANDARD M-605-1.

~~CONCRETE HEADWALL SHOWN IN DETAILS SHALL BE USED IN LIEU OF EROSION CONTROL PAD SHOWN IN STANDARD M-605-1. CONCRETE HEADWALL WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE COST OF SUBSURFACE DRAIN OUTLET. WHERE UNDERDRAINS DISCHARGE ON STEEP SLOPES NO CONCRETE HEADWALL IS REQUIRED AND OUTLET PROTECTION SHALL BE PLACED AS DIRECTED BY THE ENGINEER.~~

GEOTEXTILE (DRAINAGE) (CLASS A), FILTER MATERIAL (CLASS A) AND 8 inch PERFORATED PIPE IS INCLUDED IN THE COST OF 8 inch PERFORATED PIPE UNDERDRAIN. ~~APPROXIMATELY 0.21 cu. yd. OF FILTER MATERIAL AND 1.3 sq. yd. OF GEOTEXTILE WILL BE REQUIRED PER FOOT OF 8 inch PERFORATED PIPE UNDERDRAIN.~~

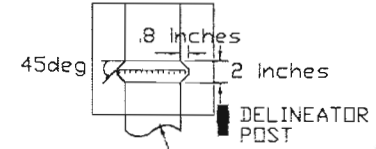


HEADWALL IN SLOPE

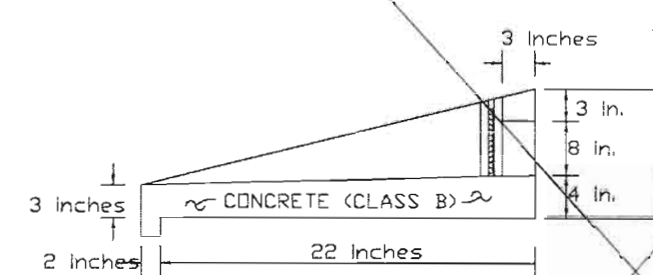


GALVANIZED, 12 GAGE MINIMUM, WIRE MESH, .4 inch x .4 inch OPENINGS, OVER PIPE END.

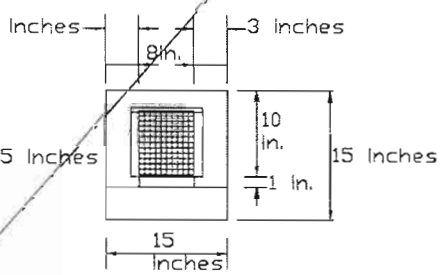
ANIMAL GUARD FRONT VIEW



TOP VIEW

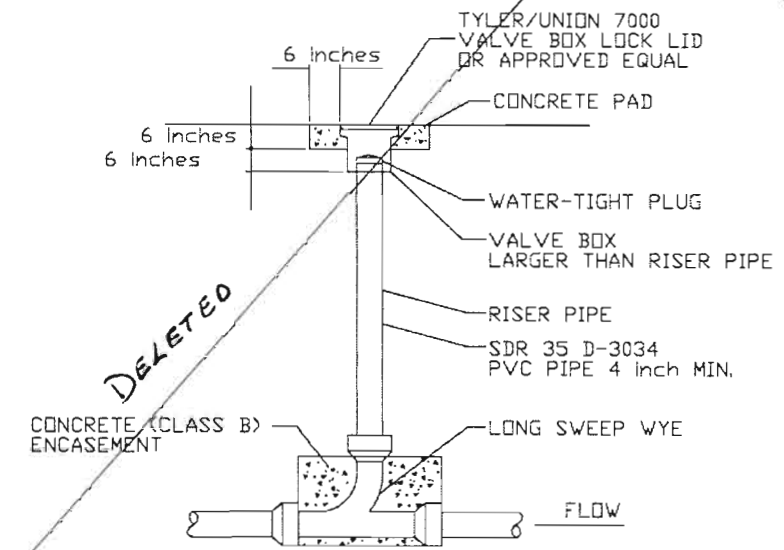


SIDE VIEW



FRONT VIEW

▲ CONCRETE (CLASS B) HEADWALL AND REMOVABLE ANIMAL GUARD FOR SUBSURFACE DRAIN OUTLET STRUCTURE



CLEAN OUT DETAIL

NOTES:

1. CLEAN-OUT SHALL BE CONSTRUCTED SO THAT THE SURFACE LOAD WILL NOT BE TRANSFERRED TO THE MAIN.
2. CONCRETE PAD SHALL BE INSTALLED SO THAT THE WATER WILL RUN AWAY FROM THE INSTALLATION.
3. CLEAN OUT, INCLUDING ALL ITEMS SHOWN IN DETAIL, SHALL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE COST OF 8 inch PERFORATED PIPE UNDERDRAIN.
4. CLEAN OUT SHALL BE 1.2 M MINIMUM FROM EDGE OF OIL.
5. STATIONS SHOWN ON PROFILES FOR CLEANOUTS ARE APPROXIMATE. FINAL LOCATIONS TO BE DETERMINED BY THE ENGINEER.

Computer File Information	
Creation Date:	04/01/2002
Initials:	grs
Last Modification Date:	05/13/2002
Initials:	grs
Full Path:	C:\projects\14046\
Drawing File Name:	14046mas.dwg
Acad Ver. R2002	Scale: NTS Units: English

Sheet Revisions	

Colorado Department of Transportation
 3803 North Main Ave.
 Suite 300
 Durango, CO 81301
 Phone: (970) 385-1400 FAX: (970) 385-1410
 Region 5 B.S.

As Constructed
No Revisions:
Revised: <i>g/ies</i>
Void:

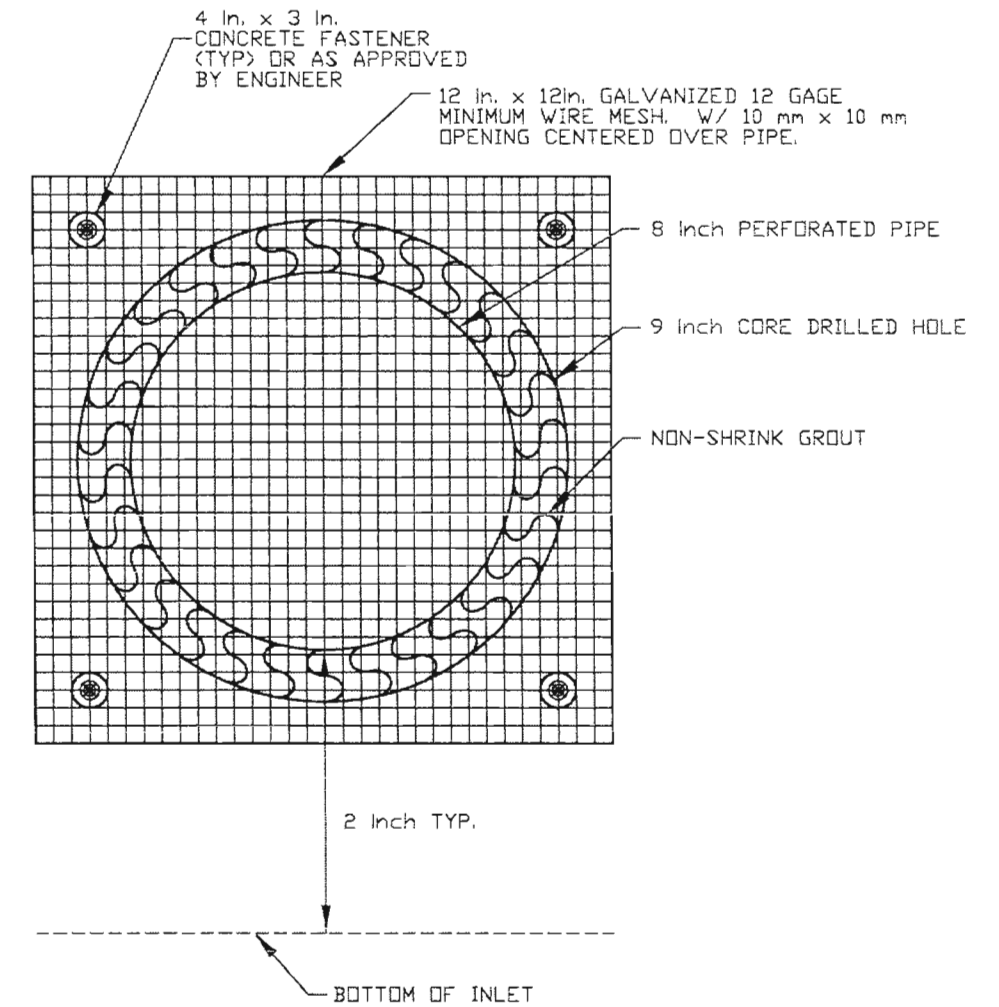
PERFORATED PIPE UNDERDRAIN DETAIL	
Designer:	grs
Detailer:	grs
Sheet Subset:	Roadway
Subset Sheets:	1 of 3


Project No./Code
NH 5502-041
14046
Sheet Number 14

ANIMAL GUARD FOR UNDERDRAIN DETAIL

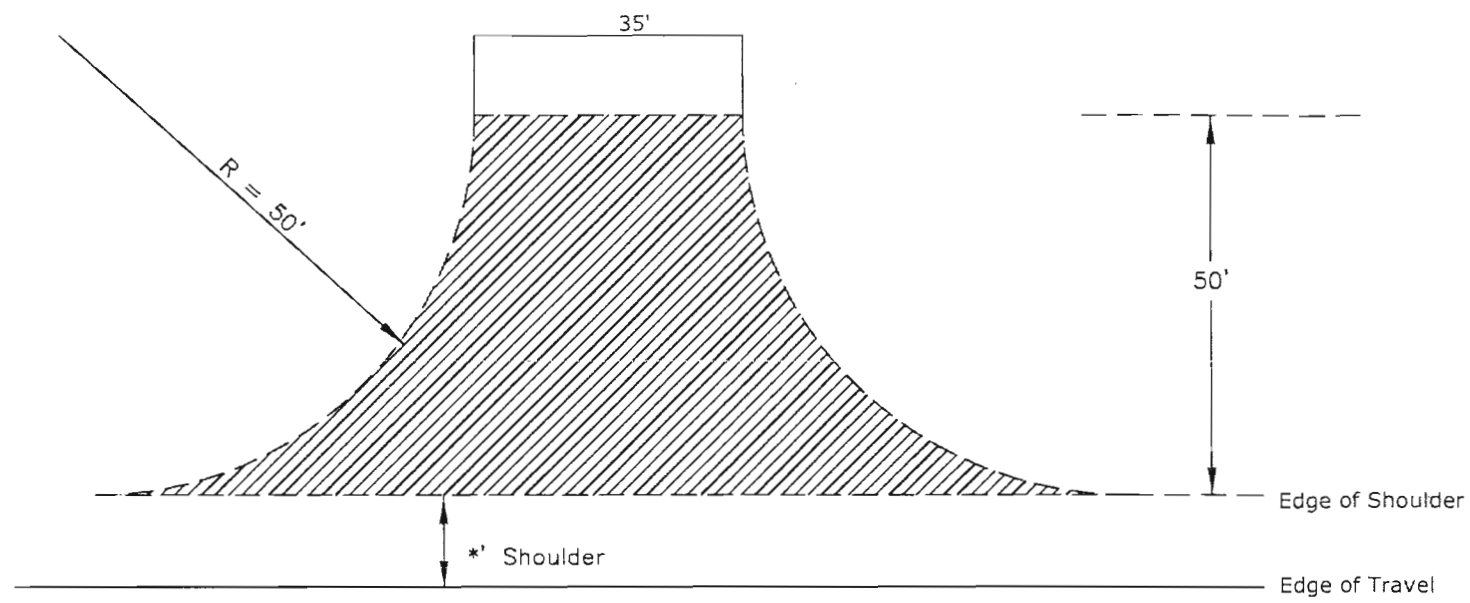
Milepost	Perforated Pipe Underdrain		Subsurface Drain
	LT or RT	Length	Outlet Structure
		LF	EACH
108.15	LT	200	2
108.20	Crossing	150	
Total		350	2

Exact location and profile to be determined by the Engineer.

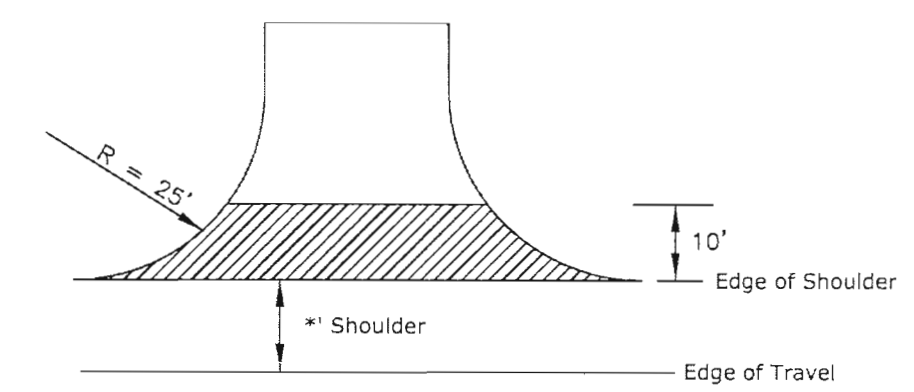


Computer File Information		Sheet Revisions		Colorado Department of Transportation  3803 North Main Ave. Suite 300 Durango, CO 81301 Phone: (970) 385-1400 FAX: (970) 385-1410 Region 5	As Constructed	PERFORATED PIPE UNDERDRAIN DETAIL	Project No./Code
Creation Date: 04/01/2002	Initials: grs		No Revisions: 2/2/02		NH 5502-041		
Last Modification Date: 05/13/2002	Initials: grs		Revised:		14046		
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Acad Ver. R2002	Scale: NTS	Units: English					

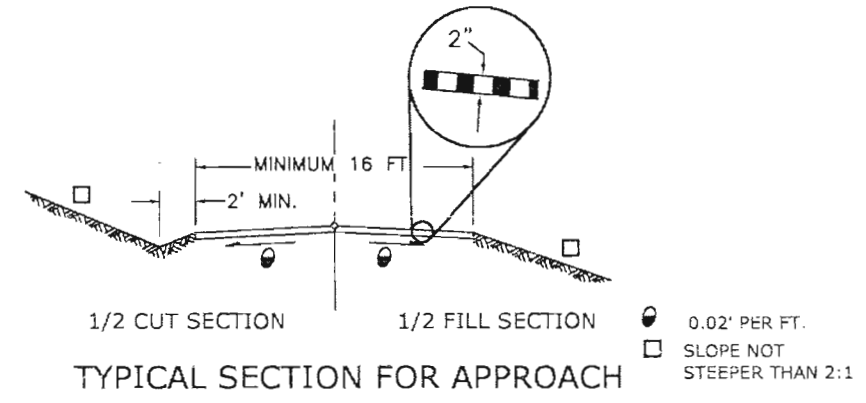
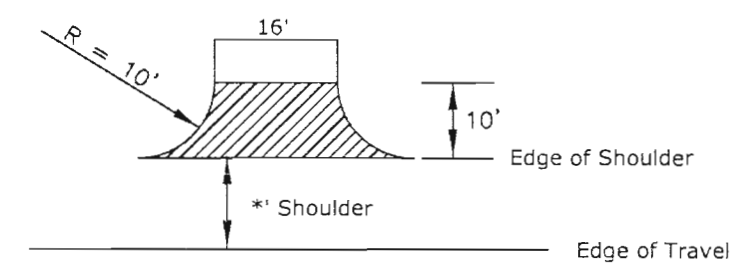
COUNTY ROAD OR COMMERCIAL ENTRANCE
(W = 35', R = 50')



ROAD APPROACH
(W = 24', R = 25')



FIELD APPROACH
(W = 16', R = 10')



TYPICAL SECTION FOR APPROACH

FOR INFORMATION ONLY

Emulsified Asphalt (Prime Coat)	0.30 Gals./Sq.Yd. (Undiluted)
Hot Bituminous Pavement	110 Lbs./Sq.Yd./Inch
Aggregate Base Course (Class 6)	133 Lbs./Cu.Ft.

Asphalt area. Spandrel area.

APPROXIMATE APPROACH QUANTITIES			
	COUNTY	ROAD	FIELD
AREA (Sq. Yds.)	313.67	51.1	23
2" HBP (Tons)	34.5	5.62	2.53
PRIME (Gal.)	94	15.3	6.9
ABC (Special) (CY)**	25	6	5

NOTE: Quantities listed are for shaded areas only.
** ABC quantities are for radius area

- NOTES**
- * Shoulder area included in Roadway Quantity.
 - ▲ County (or Commercial) Roads ~~to be~~ paved 50' out from the edge of shoulder or to the R.O.W. line, whichever is less, or as directed by the Engineer. (See below)
 - ◊ Road (or Residential) approaches ~~to be~~ paved 10' out from the edge of shoulder or to the R.O.W. line, whichever is less, or as directed by the Engineer. (See below)
 - Field approaches ~~to be~~ paved 10' out from the edge of shoulder or to the R.O.W. line, whichever is less, or as directed by the Engineer. (See below)
 - ▶ ~~The Contractor shall plane all existing paved approaches that extend beyond the paving lengths as specified above. The Asphalt Mat (planing) shall take place within the approach lengths as specified above, and shall consist of planing the required width of the approach times a length of 10 feet. The depth of the planing shall range from 2" at the required end point of the approach and taper to 0" at the 10 foot mark. The Contractor shall then pave the approach, tying in and matching the elevation of the existing pavement.~~

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		ROAD APPROACH DESIGN AID		Project No./Code	
Creation Date:	12/10/01 Initials: dtm			3803 North Main Ave.		No Revisions:		Designer: dtm		NH 5502-041	
Last Modification Date:	2/06/02 Initials: dtm			Suite 300		Revised: <i>[Signature]</i>		Detailer: dtm		14046	
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Drawing File Name:	13925 Master.dwg			Phone: (970) 385-1400		B.S.		Sheet Number		16	
Acad Ver. 2002	Scale: 1:1 Units: English			FAX: (970) 385-1410							

GENERAL NOTES

GRADE 60 REINFORCING STEEL IS REQUIRED.
 ALL REINFORCING STEEL SHALL BE EPOXY COATED UNLESS OTHERWISE NOTED.
 THE FOLLOWING TABLE GIVES THE MINIMUM LAP SPLICE LENGTH FOR EPOXY COATED REINFORCING BARS PLACED IN ACCORDANCE WITH SUBSECTION 602.06. THESE SPLICE LENGTHS SHALL BE INCREASED BY 25% FOR BARS SPACED AT LESS THAN 6" ON CENTER.

BAR SIZE #4 #5 #6
 SPLICE LENGTH FOR CLASS D CONCRETE 1'-3" 1'-6" 1'-10"

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM THE "AS CONSTRUCTED PLANS". THESE STATIONS, ELEVATIONS, AND DIMENSIONS MAY BE ADJUSTED TO MEET THE EXISTING STRUCTURE. THE CONTRACTOR SHALL VERIFY ALL DEPENDENT DIMENSIONS IN THE FIELD BEFORE ORDERING OR FABRICATING ANY MATERIAL.

DESIGN DATA

REINFORCED CONCRETE:
 CLASS D CONCRETE: $f'_c = 4,500$ psi
 REINFORCING STEEL: $f_y = 60,000$ psi

INDEX OF DRAWINGS

- Dwg. No. B 1 GENERAL INFORMATION SUMMARY OF QUANTITIES
- Dwg. No. B 2 GENERAL LAYOUT AND DETAILS L-05-K
- Dwg. No. B 3 GENERAL LAYOUT AND DETAILS L-05-C
- Dwg. No. B 4 GENERAL LAYOUT AND DETAILS K-05-BS
- Dwg. No. B 5 GENERAL LAYOUT AND DETAILS K-05-AC
- Dwg. No. B 6 BRIDGE RAIL TYPE 10R REPLACEMENT RAIL
- Dwg. No. B 7 BRIDGE RAIL TYPE 10
- Dwg. No. B 8 BRIDGE RAIL TYPE 10

SUMMARY OF QUANTITIES

Item No.	Description	Unit	L-05-K			L-05-C			K-05-BS			K-05-AC			Total	TOTAL
			Super-structure		Total	Super-structure	Sub-Structure	Total	Super-structure	Abut-ments	Piers	Total	Super-structure	Abut-ments		
202	Clean Culvert	EA		1	1			0			0			0	1	1
202	Removal of Asphalt Mat (planing)*	SY	0		0	273		273	851		851	439		439	1563	2,635.2
202	Removal of Bridge Railing	LF	0		0	0		0	0		0	220		220	220	220
403	Hot Bituminous Pavement*	TON	0		0	60		60	141		141	74		74	275	275
420	Geotextile (Paving)	SY	0		0	273		273	⑤ 130		⑤ 130	120		120	523	393
506	Riprap (24 inch)	CY	0	45	45	0		0	0		0	0		0	45	0
515	Waterproofing (Membrane)	SY	0		0	0		0	⑤ 817		⑤ 817	381		381	1198	351
515	Concrete Sealer (Calcium Nitrite)	SY	0		0	284	66	350	0	0	0	381		381	731	731
601	Concrete (Patching)	SF	0		0	100		100	⑤ 70		⑤ 70	38		38	208	208
601	Concrete Class D (Box Culvert)	CY	42		42	0		0	0		0	0		0	42	0
602	Reinforcing Steel (Epoxy)	Lb	3000		3000	0		0	0		0	0		0	3000	0
606	Guardrail Ty 4 (Precast-Portable)	LF				340		340			0	0		0	340	340
606	Bridge Rail Type 10R	LF	0		0	0		0	0		0	220		220	220	220

- ① DO NOT MILL CONCRETE. SCRAPE OFF THE LAST PART (3/8" MIN.) OF THE EXISTING HBP.
- ② THE ASPHALT CEMENT BINDER (ACB) FOR GEOTEXTILE TACK AND PRIMER SHALL BE PERFORMANCE GRADED EITHER AS 58-22 OR 58-28 HOT APPLIED ACB. APPLICATION OF ACB SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF SUBSECTION 702.01. ACB WILL NOT BE MEASURED AND PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN ITEM NO. 420 GEOTEXTILE (PAVING).
- ③ TREAT CONCRETE AREAS TO BE PATCHED WITH CONCRETE SEALER (CALCIUM NITRITE) CONCRETE PATCHING FOR DECK AS NEEDED TO REPLACE LOOSE DECK CONCRETE AND COVER REINFORCING STEEL. CONCRETE PATCHING MATERIAL (DECK AND JOINTS)
 1. DAYTON SUPERIOR HD-50
 2. SIKASET ROADWAY PATCH, BY SIKA
 3. MASTER BUILDERS EMOCO T430
 APPLIED IN ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS AT LOCATIONS AS DIRECTED BY THE ENGINEER. ON THE TOP OF BRIDGE DECKS A REHABILITATION IS NOT INTENDED. WHEN MEMBRANE IS TO BE APPLIED THE PATCHING IS FOR PROVIDING A SMOOTH SURFACE FOR MEMBRANE APPLICATION. WHERE HBP WITH GEOTEXTILE (PAVING) IS TO BE APPLIED THE PATCHING IS FOR COVERING ANY EXPOSED REINFORCING AFTER REMOVAL OF LOOSE CONCRETE.
- ④ PLACE AS DIRECTED BY THE ENGINEER AT THE INLET AND OUTLET OF CELL #3 (NORTH CELL) AND TO PROTECT THE END OF THE NORTHWEST WINGWALL.
- ⑤ THIS QUANTITY IS NECESSARY ONLY IF EXISTING STRUCTURE, K-05-BS, DOES NOT HAVE A WATERPROOFING MEMBRANE. HOWEVER, IF IT HAS A MEMBRANE DELETE THIS QUANTITY AND LIMIT THE REMOVAL OF ASPHALT MAT TO PROVIDE FOR 1" OF EXISTING HBP TO REMAIN.
- ⑥ TEMPORARY DIVERSION OF WATER IS TO BE INCLUDED IN THE COST OF ITEM 202: CLEAN CULVERT. THE TEMPORARY CONSTRUCTION AND REMOVAL OF THE DIVERSION SHALL ALSO BE INCLUDED IN THE WORK.

* For information only - all quantities are included on the Surface Tabulation and Removal of Asphalt Mat Sheets.

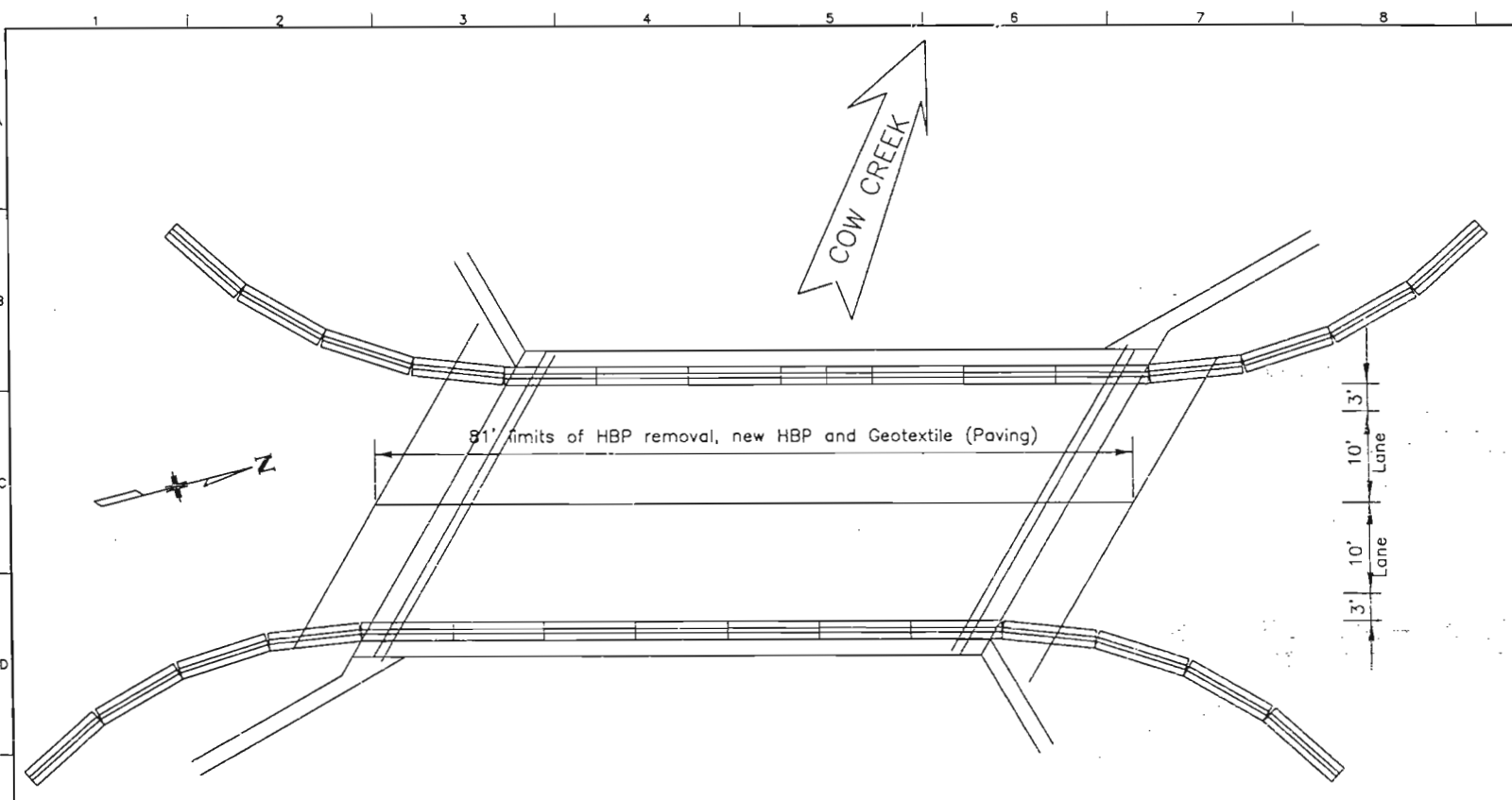
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Detail	5/02	PJM	5/02	PJM
Checked By	5/02		5/02	
Checked By	5/02		5/02	

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GENERAL INFORMATION		Project No./Code	
Creation Date:	4/01	Initials:	MLM			No Revisions:		SUMMARY OF QUANTITIES		NH 5502-041	
Last Modification Date:	5/01	Initials:	MLM			Revised: 2/1/02		Designer:	M. McMullen	Structure	L-05-K, L-05-C
Full Path:	T:\0221\K05AC					Void:		Detailer:	M. McMullen	Numbers	K-05-BS, K-05-AC
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Acad Ver.	2000	Scale:								Sheet Number	17

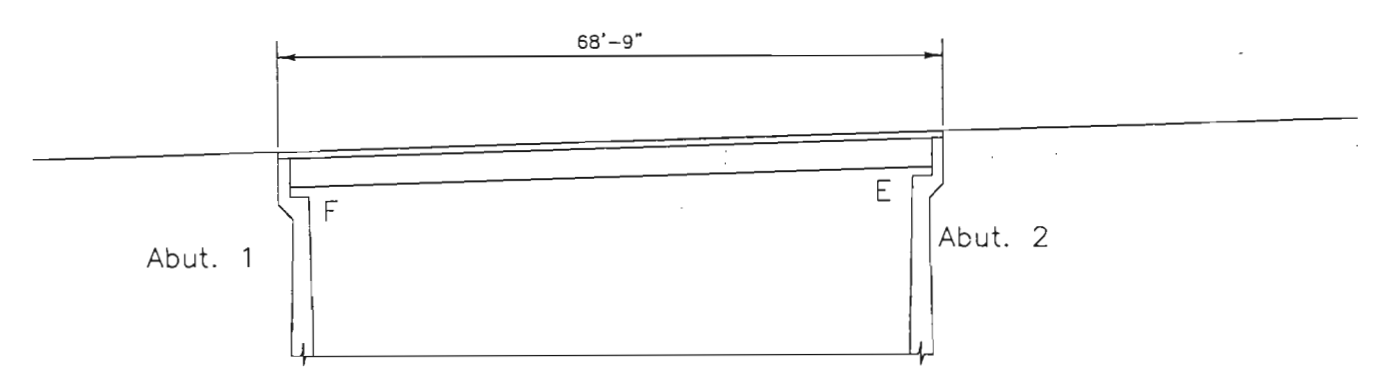
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NO.	DATE	BY	REASON

Quantities			
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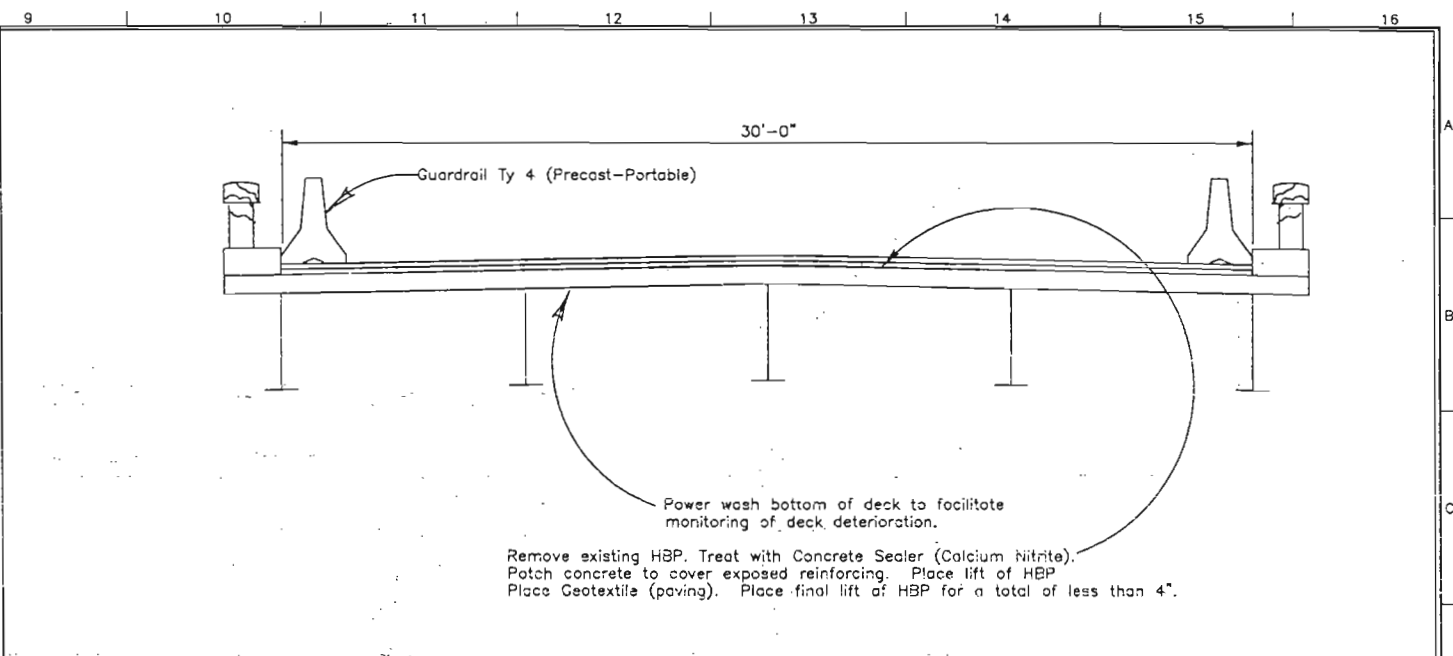
Design			
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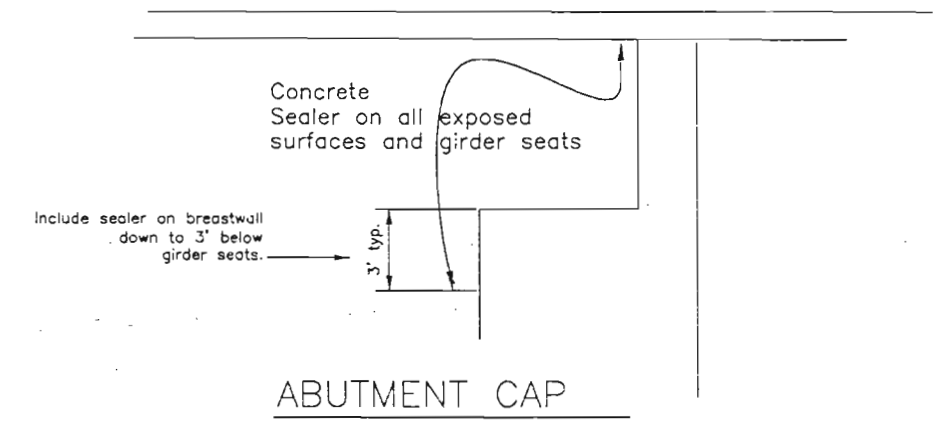
PLAN



ELEVATION



SECTION




REPAIR DETAIL

Computer File Information			
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Last Modification Date:	5/02	Initials:	MLM
Full Path:	T:\0221\K05AC		
Drawing File Name:	K05AC03.DWG		
Acad Ver.	2000	Scale:	Units: English

Sheet Revisions	

Colorado Department of Transportation



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Staff Bridge Branch

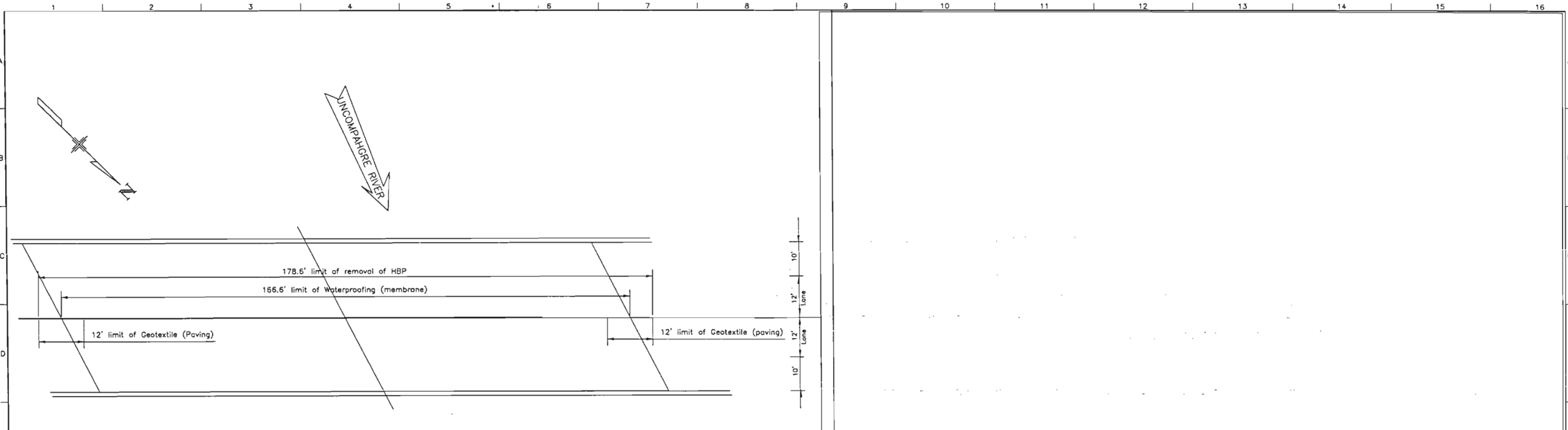
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Revised:	
Void:	

GENERAL LAYOUT & DETAILS			
L-05-C			
Designer:	M. McMullen	Structure Numbers	L-05-C
Detailer:	M. McMullen	Sheet Subset:	Bridge
Subset Sheets: B		3 of	

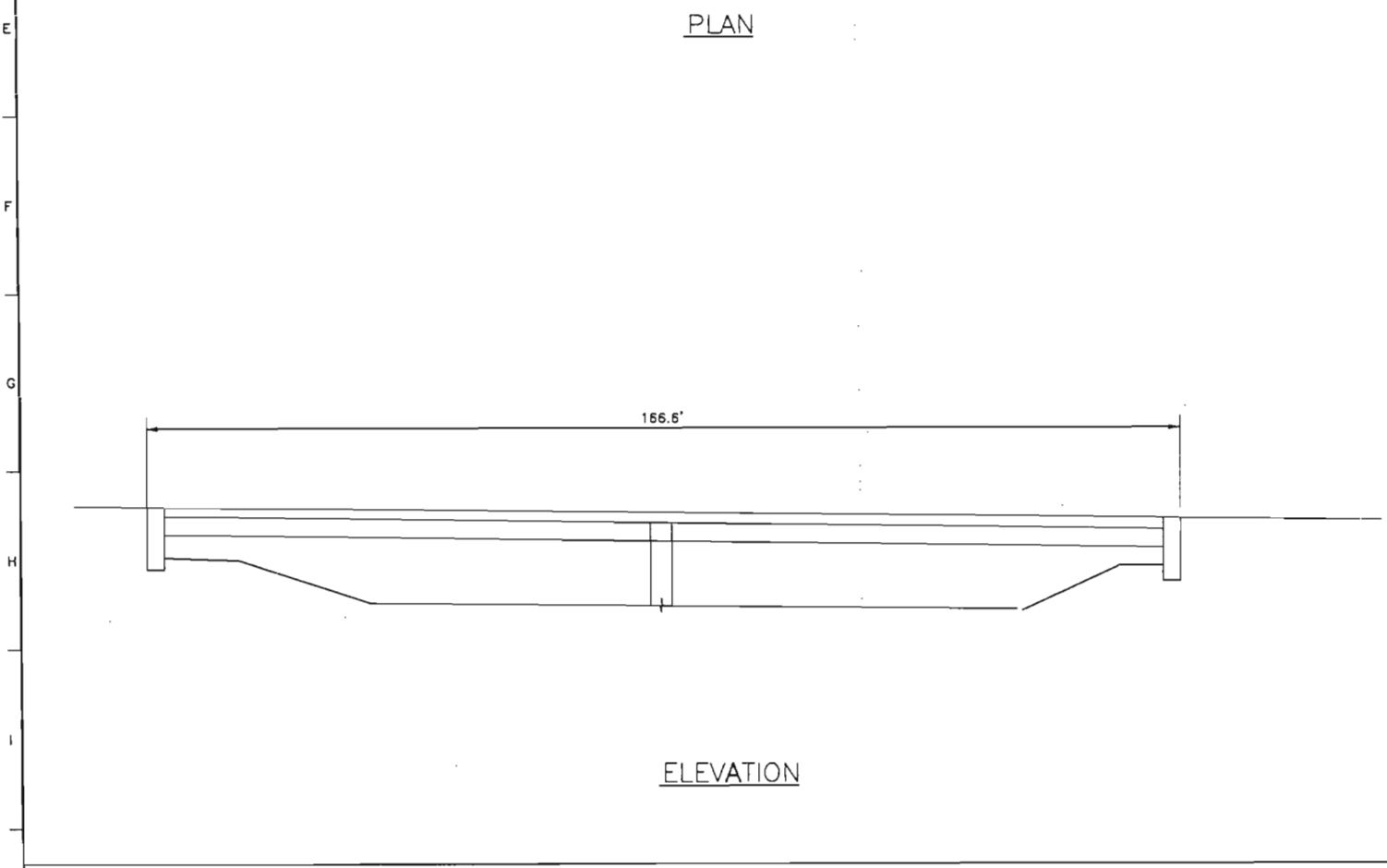
Project No./Code	
NH 5502-041	
14046	
Sheet Number	19

Revision Dates (Preliminary Stage Only)	
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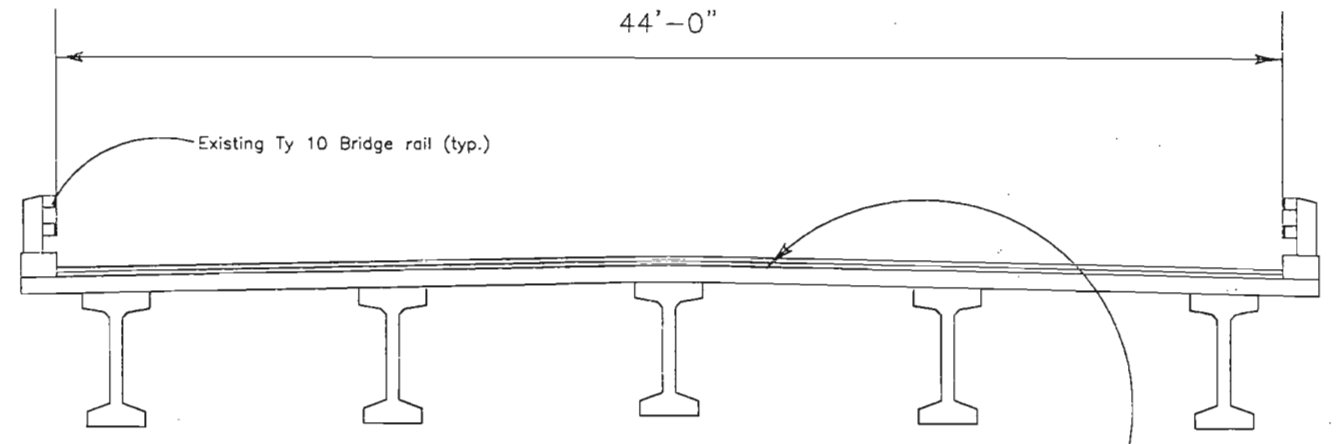
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INITIAL	DATE	INITIAL	DATE	INITIAL	DATE
	5/02		5/02		5/02



PLAN



ELEVATION



If the deck has existing Waterproofing (Membrane) remove all but 1" of HBP and place 2" of new HBP. Otherwise, remove all HBP and treat top of deck with Concrete Sealer (Calcium Nitrite). Patch concrete as needed to provide a smooth surface. Install a Waterproofing (membrane) then 3" of HBP.

SECTION

Computer File Information		
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Last Modification Date:	5/02	Initials: MLM
Full Path:	T:\0221\K05AC	
Drawing File Name:	K05BS04.DWG	
Acad Ver.	2000	Scale: Units: English

Sheet Revisions	

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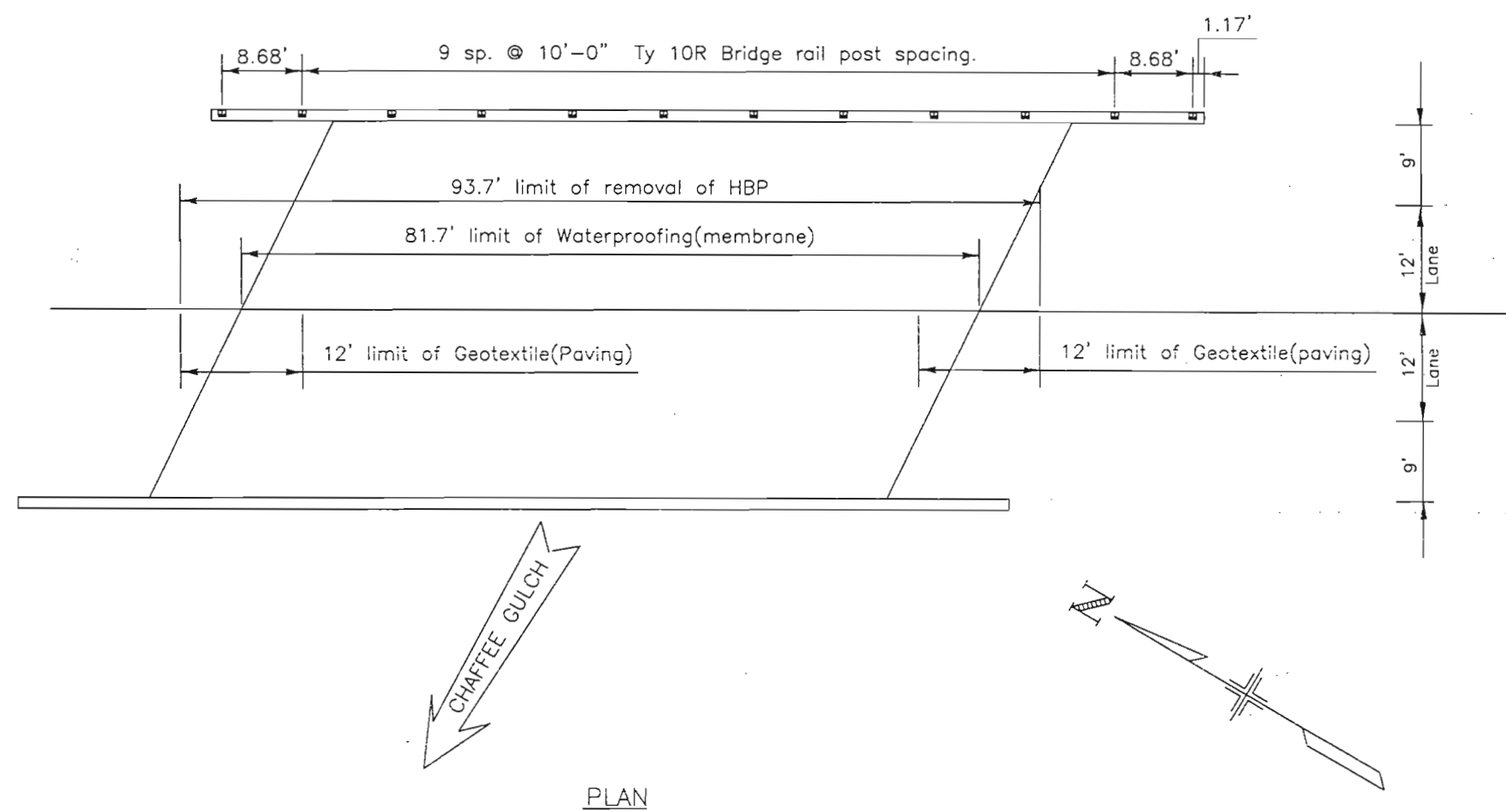
As Constructed
No Revisions: <i>2/4/02</i>
Revised:
Void:

GENERAL LAYOUT & DETAILS		
K-05-BS		
Designer:	M. McMullen	Structure Numbers: K-05-BS
Detailer:	M. McMullen	
Sheet Subset:	Bridge	Subset Sheets: B 4 of

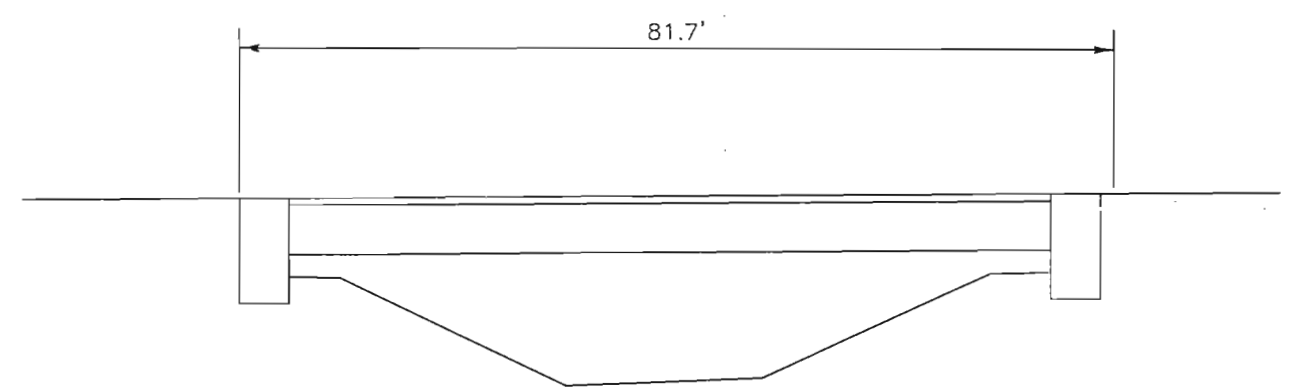
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NH 5502-041
14046
Sheet Number 20

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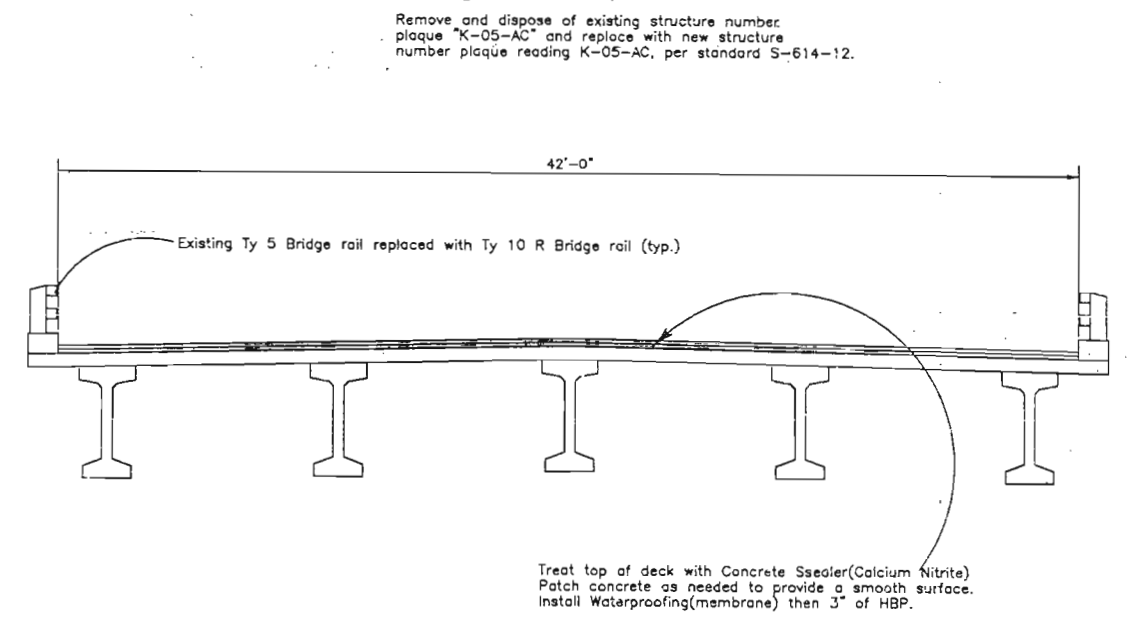
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Designed By	DATE	INITIAL	DATE	INITIAL	DATE
Checked By	5/02	MLM	5/02	MLM	5/02
		PJM		PJM	



PLAN



ELEVATION




SECTION

Remove and dispose of existing structure number plaque "K-05-AC" and replace with new structure number plaque reading K-05-AC, per standard S-614-12.

Computer File Information			
Creation Date:	5/02	Initials:	MLM
Last Modification Date:	5/02	Initials:	MLM
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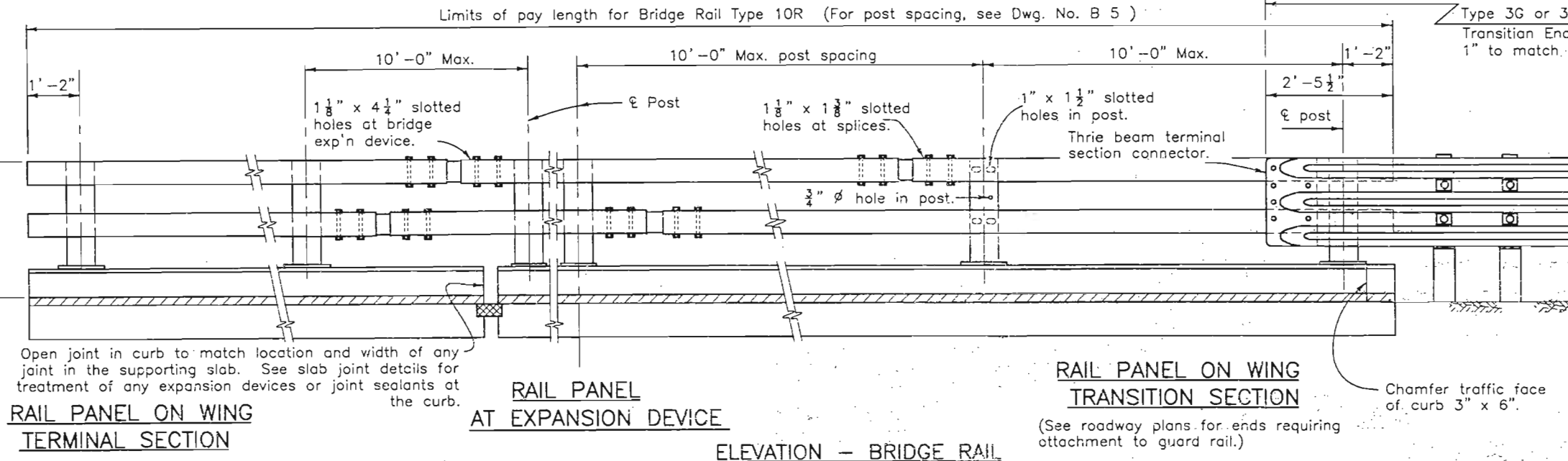
Sheet Revisions	

Colorado Department of Transportation
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 Denver, Colorado 80222-3400
 Phone: 303-757-9352 FAX: 303-757-9197
 Staff Bridge Branch

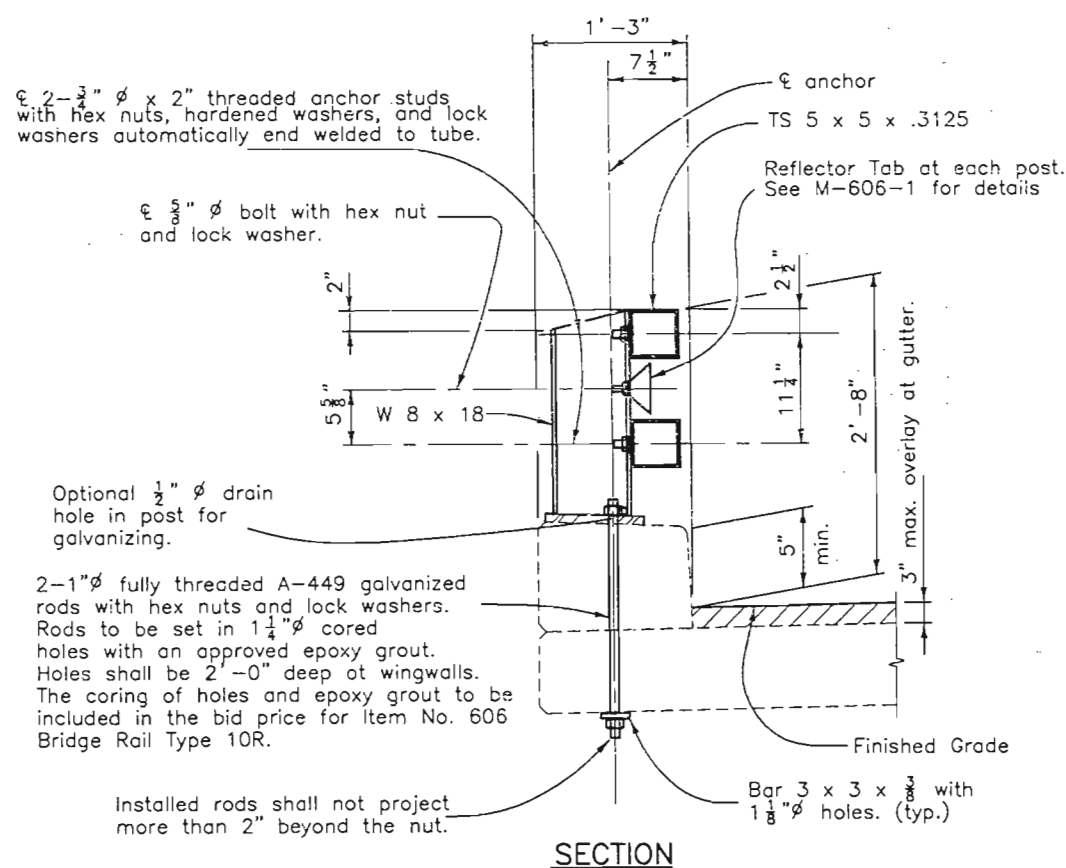
As Constructed
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Revised:
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GENERAL LAYOUT & DETAILS			
K-05-AC			
Designer:	M. McMullen	Structure	K-05-AC
Detailer:	M. McMullen	Numbers	
Sheet Subset:	Bridge	Subset Sheets:	B 5 of

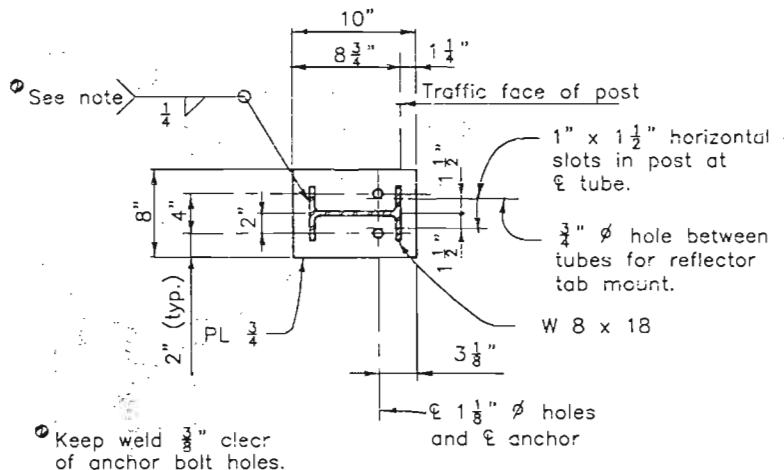
Project No./Code	NH 5502-041
	14046
Sheet Number	21



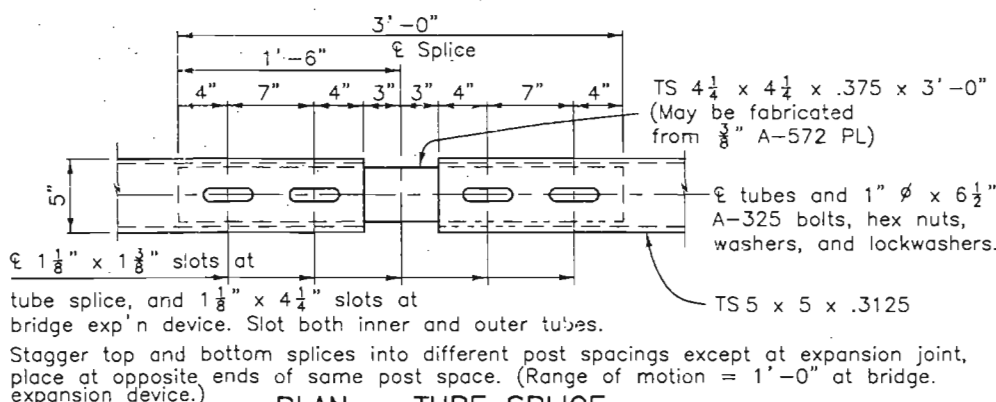
(See Roadway plans for ends not attached to Guard Rail.)



SECTION



PLAN - POST DETAIL



PLAN - TUBE SPLICE

NOTES:

- All tubes shall be ASTM A-500 Grade B.
- All posts and base plates shall be ASTM A-572 Grade 50.
- All other steel shall be ASTM A-36 unless otherwise noted.
- The above material and all anchor bolts and miscellaneous bolts, nuts, and washers shall be galvanized after fabrication in accordance with Section 509. Concrete reinforcing steel, and structural steel elements shall conform to the requirements of Sections 601, 602 and 509, respectively.
- The tubes shall be shop bent or fabricated to fit horizontal curve when radius is less than 1,500 feet.
- Tubes shall be continuous over not less than two posts.
- The centerline of the tube splice shall be 1'-8" minimum and 2'-6" maximum from the centerline of the posts.
- All bolts that have lock washers shall be tightened to snug only.
- Posts shall be perpendicular to the longitudinal roadway grade.
- One or more 10'-0" post spacings may be reduced (6'-8" min.) in order to maintain dimensions from the end of the rail and expansion joints.
- Payment will be made under Item 606, Bridge Rail Type 10R for all posts, base plates, backing plates, anchor bolts, miscellaneous bolts, nuts, washers, tubes, tube expansion devices, tube splices, end plates, cored holes, grout, and reflector tabs.
- Prior to fabrication of this item, three sets of working drawings which comply with the requirements of Section 105, shall be submitted to the Engineer for information only.

Structural Steel:

AASHTO M-183 (ASTM A-36)	$f_y = 36,000$ psi
AASHTO M-223 (ASTM A-572)	$f_y = 50,000$ psi
Cold formed ASTM A-500 Grade B	$f_y = 46,000$ psi

For additional details see next rail sheets.

INFORMATION ONLY

Description	Unit	Per Lin. Ft.
Structural Steel (Galvanized)	Lb.	45.8

Computer File Information			
Creation Date:	11/91	Initials:	KDH
Last Modification Date:	5/02	Initials:	MLM
Full Path:	T:\0221\K05AC		
Drawing File Name:	07K5AC.DWG		
Acad Ver.	R2000	Scale:	Units: English

Sheet Revisions	

Colorado Department of Transportation

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 Phone: 303-757-9352 FAX: 303-757-9197
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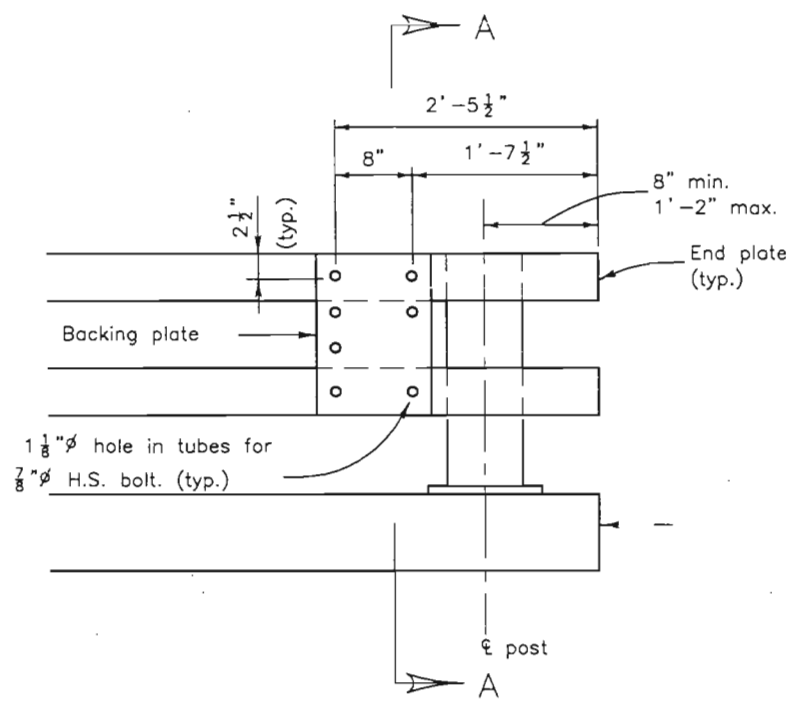
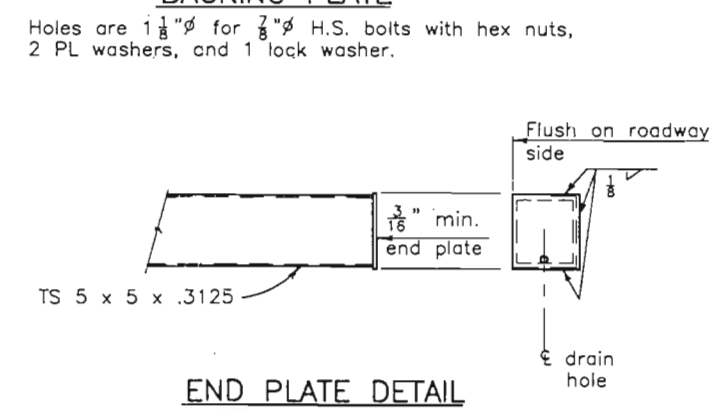
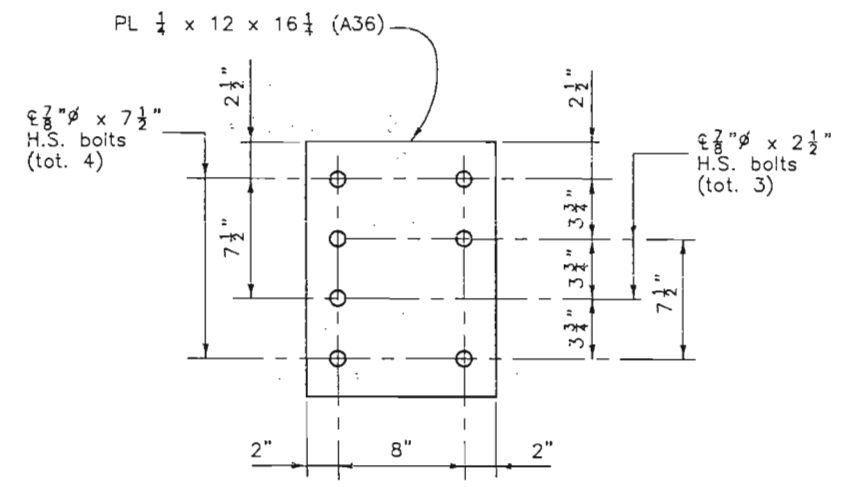
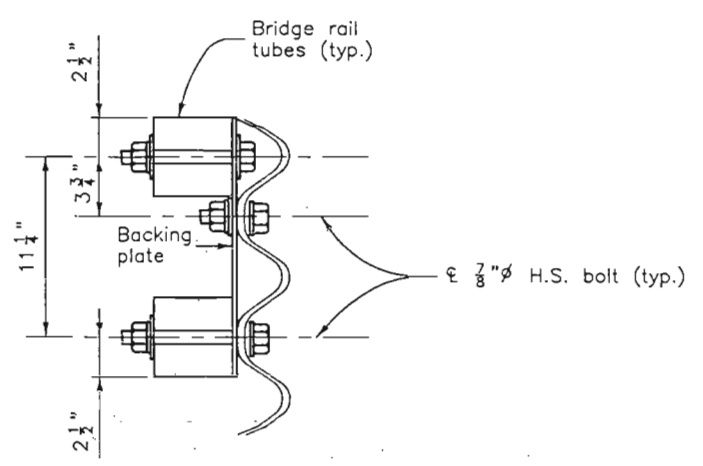
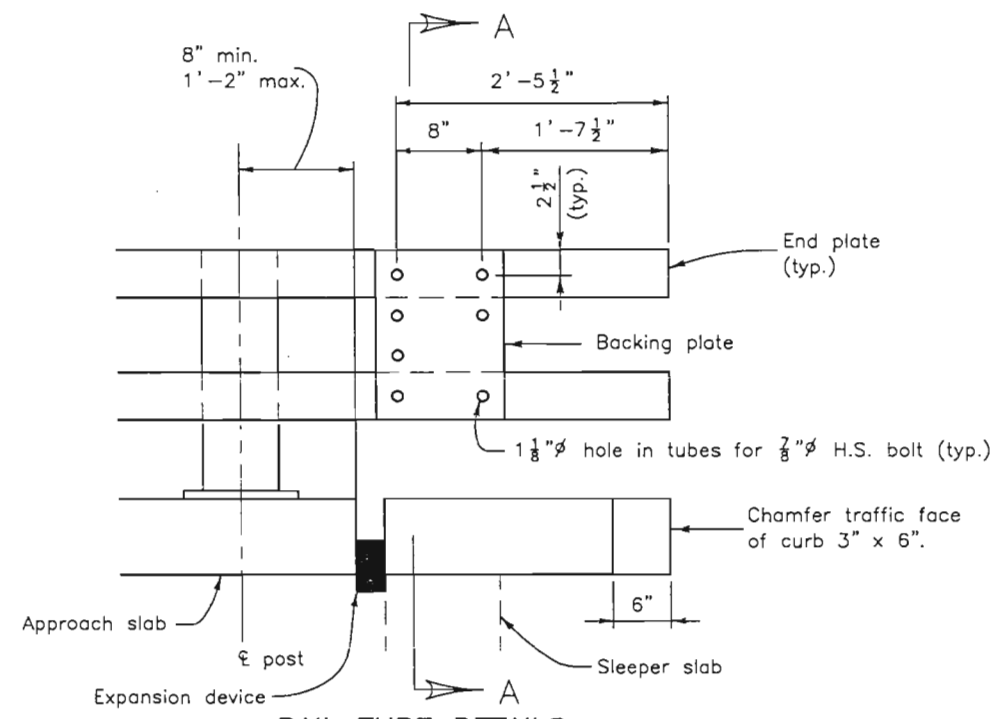
As Constructed	
No Revisions:	
Revised:	
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BRIDGE RAIL TYPE 10R REPLACEMENT RAIL			
Designer:	M. McMullen	Structure	K-05-AC
Detailer:	M. McMullen	Numbers	
Sheet Subset:	Bridge	Subset Sheets:	B 6 of

Project No./Code	
NH 5502-041	
14046	
Sheet Number 22	

Revision Dates (Preliminary Stage Only)			
Revision	Date	By	Checked
8/90	3/92	8/95	11/99
			5/00

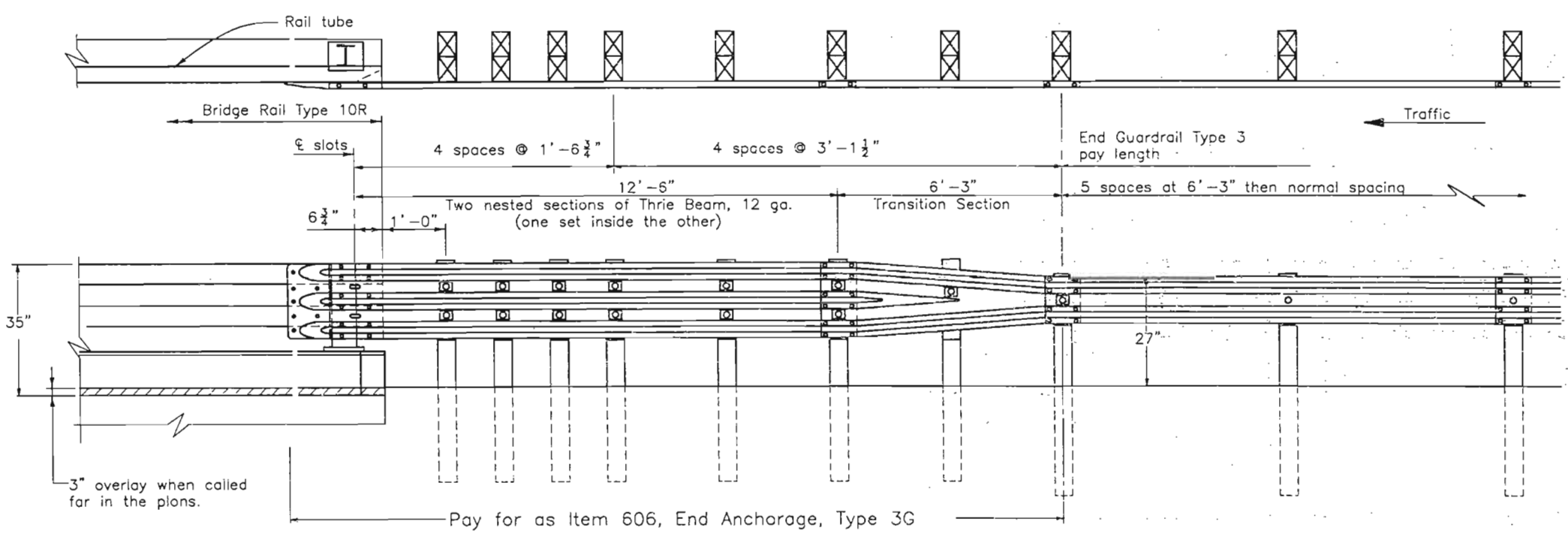
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		5/02				5/02						



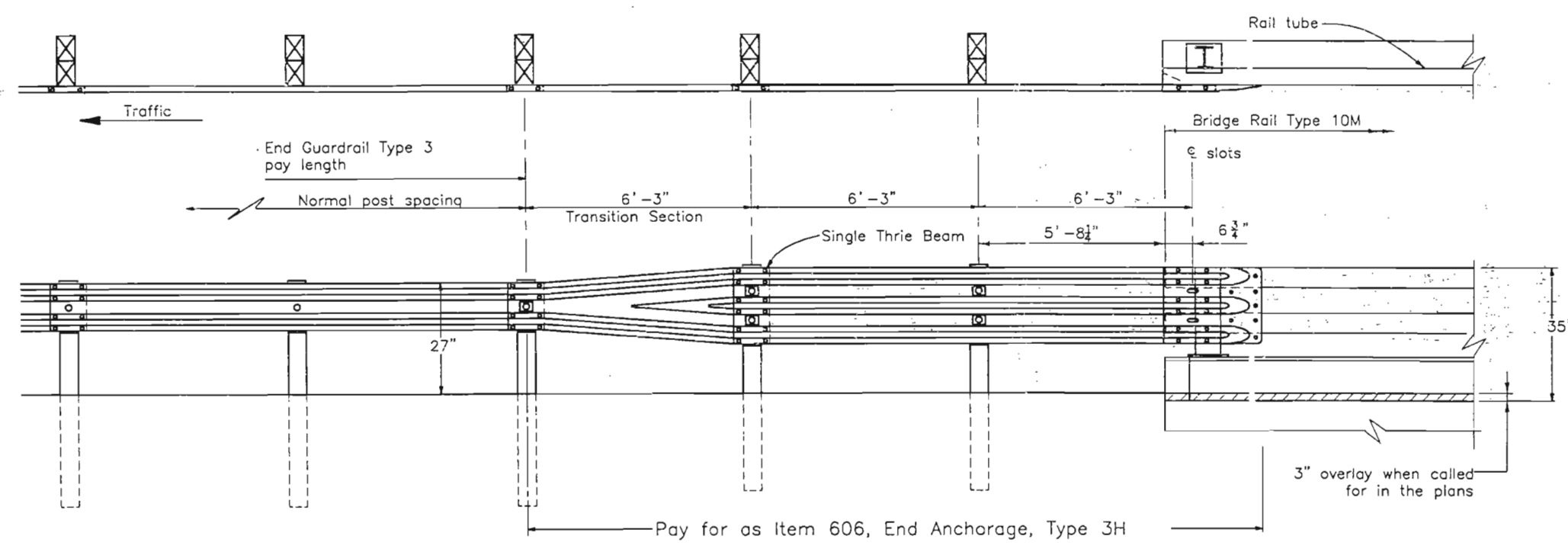
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Last Modification Date:	5/02	Initials:	MLM				Revised:	Designer:	M. McMullen	Structure:	K-05-AC	14046					
Full Path:	T:\0221\K05AC							Detailer:	M. McMullen	Numbers:							
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Revision Dates		Preliminary Stage Only	
3/92	9/92	2/96	10/98
8/95	3/99	11/99	5/00

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Detailed By	Checked By	MLM	5/02	PJM	5/02
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TYPE 3G END ANCHORAGE



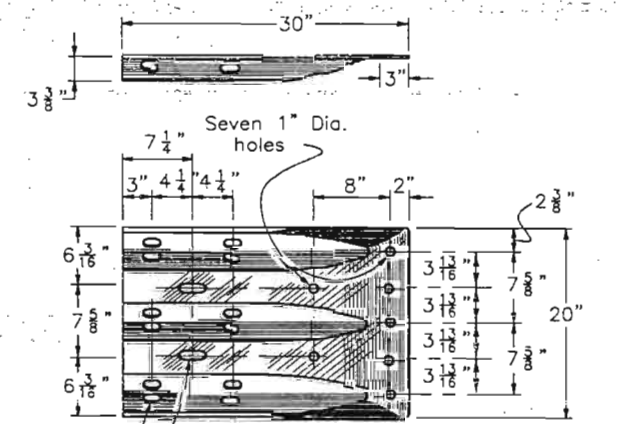
TYPE 3H END ANCHORAGE

NOTES:

Type 3G End Anchorage is for use at both ends of bridges on two-way roads and the approach end of bridges on one-way roads.

Type 3H End Anchorage is for use at the trailing end of bridges on one-way roads.

See M-606-1 for additional details.



THRIE BEAM TERMINAL SECTION (CONNECTOR)

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		BRIDGE RAIL TYPE 10		Project No./Code	
Creation Date:	3/92	Initials: KDH			4201 East Arkansas Avenue, Room 330 Denver, Colorado 80222-3400 Phone: 303-757-9352 FAX: 303-757-9197		No Revisions:		Designer: M. McMullen		NH 5502-041	
Last Modification Date:	5/02	Initials: MLM					Revised: 2/4/03		Detailer: M. McMullen		14046	
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Drawing File Name:	09K5AC.DWG						Sheet Subset: Bridge		Subset Sheets: B 8 of			
Acad Ver.	2000	Scale:										

CONSTRUCTION TRAFFIC CONTROL DEVICES


SIGN CODE	LEGEND	DIMENSIONS	PANEL SIZE			
			A	B	C	SPECIAL
			EACH	EACH	EACH	SQ. FT.
G20-1	"ROAD WORK/NEXT 12 MILES"	60" X 24"		2		
G20-4	"PILOT CAR FOLLOW ME"	36" X 18"	2			
G20-10	"THANK YOU..."	48" X 48"		2		
G20-2A	END ROAD WORK	48" X 24"	2			
R2-1(30)	"SPEED/LIMIT/30"	36" X 48"		8		
R2-1(40)	"SPEED/LIMIT/40"	36" X 48"		4		
R2-1(50)	"SPEED/LIMIT/50"	36" X 48"		4		
R52-4	BEGIN/FINES/DOUBLED/FOR/SPEEDING"	48" X 60"			4	
R52-5	"END/FINES/DOUBLED/FOR/SPEEDING"	48" X 60"			8	
W20-64	"FINES/DOUBLED"	36" X 18"	8			
W20-1	"ROAD WORK/(DIST.)"	48" X 48"		2		
W20-1	"ROAD WORK/AHEAD"	48" X 48"		2		
W20-7a	FLAGGER SYMBOL	48" X 48"		6		
W20-7b	"BE/PREPARED/TO STOP"	48" X 48"		6		
W20-5(L)	LEFT LANE CLOSED AHEAD	48" X 48"		2		
W20-5(R)	RIGHT LANE CLOSED AHEAD	48" X 48"		2		
W4-2L	LEFT LANE TRANSITION SYMBOL	48" X 48"		2		
W4-2R	RIGHT LANE TRANSITION SYMBOL	48" X 48"		2		
W20-4	"ONE LANE/ROAD/(DIST.)"	48" X 48"		4		
W8-11	"UNEVEN LANE"	48" X 48"		4		
W8-9a	"SHOULDER DROP-OFF"	48" X 48"		4		
W8-1	"BUMP"	30" X 30"	10			
R4-1	DO NOT PASS	24" X 30"	4			
SPECIAL	"ROAD WORK/SH 160" - 1 SIGN	60" X 36"				15
SPECIAL	CONSTRUCTION INFORMATION	60" X 48"				80
TOTAL			16	56	8	95
<i>TOTAL</i>			<i>17</i>	<i>77</i>	<i>6</i>	<i>0</i>

OTHER DEVICES	
ITEM	QUANTITY (EACH)
TRAFFIC CONE (36")	200
DRUM CHANNELIZING DEVICE	300
DRUM CHANNELIZING DEVICE-FLASHING	20
FLASHING ARROW PANEL (B TY)	2
FLASHING BEACON (PORTABLE)	2
VMS (State Furnished)	2

200
158
16
0
2
2

Computer File Information	
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Last Modification Date:	05/13/2002 Initials: grs
Full Path:	C:\projects\14046\
Drawing File Name:	14046mas.dwg
Acad Ver. R2002	Scale: NTS Units:

Sheet Revisions	

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 3803 North Main Ave.
 Suite 300
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 Phone: (970) 385-1400 FAX: (970) 385-1410

 Region 5 B.S.

As Constructed
No Revisions:
Revised: <i>grs</i>
Void:

TABULATION OF TRAFFIC CONTROL DEVICES	
Designer: grs	
Detailer: grs	
Sheet Subset: Roadway	
Subset Sheets: 1 of 1	

Project No./Code
NH 5502-041
14046
Sheet Number 25