

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS – STATE OF COLORADO

FEDERAL AID PROJECT NO. IM 0253–168
STATE HIGHWAY I–25
ADAMS COUNTY

PLAN AND PROFILE OF PROPOSED
AID PROJECT NO. IM 0253–168

Related Projects:
PE, ROW, UTILITIES ARE UNDER PROJECT:
Project Number: IM 0253–168
Project Code: 13344

R.O.W. Projects:
R.O.W. Project Description
XXXXXXXXXXXXXXXXXXXX

Oversight / NHS

FHWA OVERSIGHT?

☐ NO ☒ YES

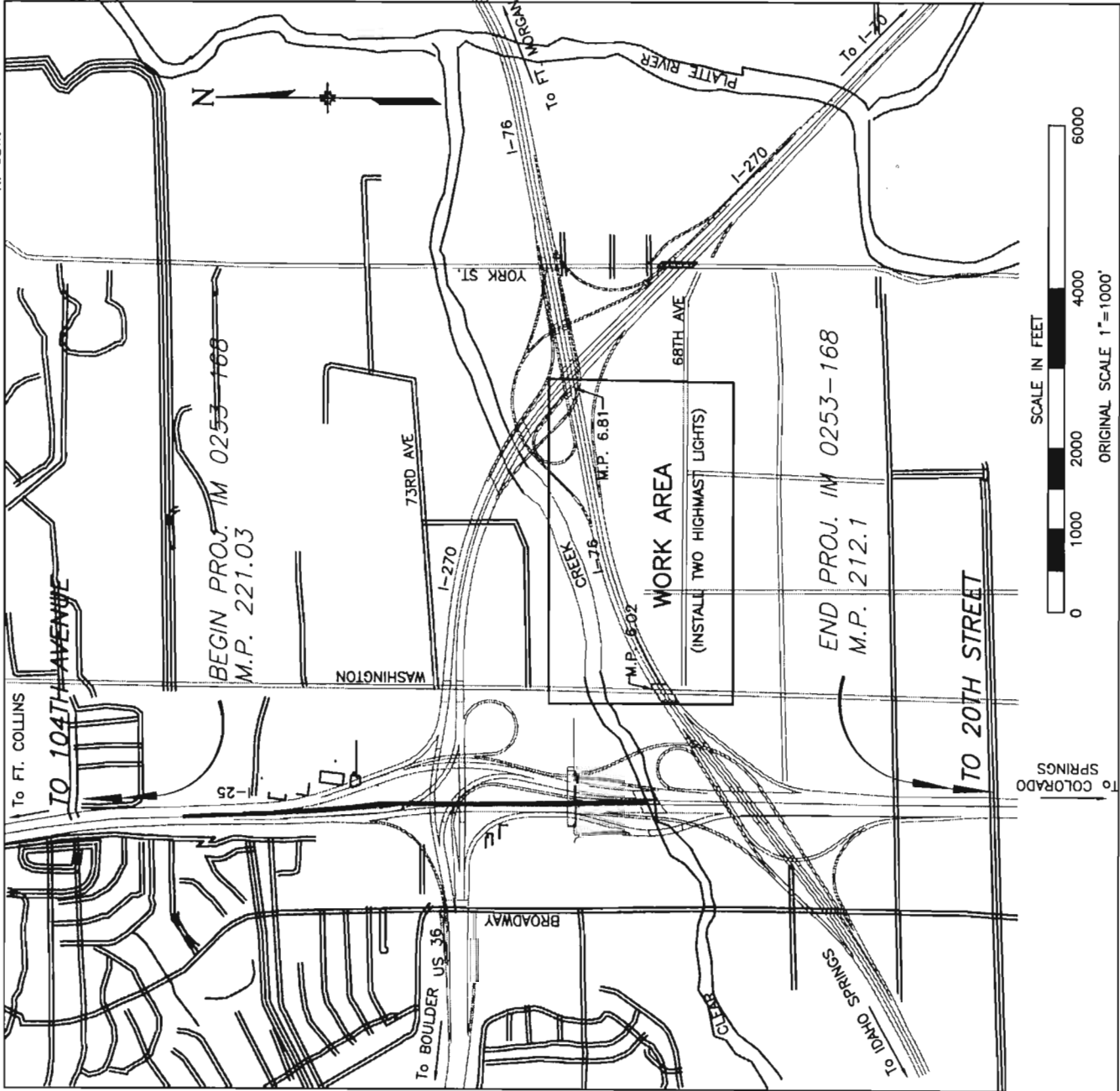
NATIONAL HIGHWAY SYSTEM?

☐ NO ☒ YES

TABULATION OF LENGTH
(FOR INFORMATION ONLY)
SEE PLAN SHEETS FOR ACTUAL LENGTHS

(FOR INFORMATION ONLY)		ROADWAY		MAJOR STRUCTURES	
STATION TO STATION		FL	Mile	FL	Mile
BEGIN PROJECT IM 0253–168 M.P. 221.03 (104TH AVENUE)					
I–25 CL					
STA 255+51.47 TO STA 313+33.13		5,781.66	1.10		
I–25 NB–C					
STA 1312+33.13 TO STA 1319+46.30		713.17	0.14		
HOV NB					
STA 580+21.28 TO STA 627+78.29		4,757.01	0.90		
HOV SB					
STA 400+00 TO STA 411+10		1,110.00	0.21		
I–25 CL					
STA 364+28.20 TO STA 453+00, (NO EARTHWORK AND NEW PAVEMENT)					
END PROJECT IM 0253–168 M.P. 212.1 (20TH STREET)					
TOTAL		12,361.84	2.35		
SUMMARY					
ROADWAY MAJOR STRUCTURES		FL	Mile		
		12,361.84	2.35		
PROJECT GROSS LENGTH		12,361.84	2.35		
PROJECT NET LENGTH		12,361.84	2.35		

DESIGN DATA (I-25)		HOV NB	HOV SB	I-25 NB-C	I-25 CL
MINIMUM RADIUS OF CURVE	3831.72' ft	22930.32' ft	5729.57' ft	5729.58' ft	
MAXIMUM GRADE	4.05 %	1.52 %	4.11 %	3.95 %	
MINIMUM SSD (HORIZONTAL)	>743 ft	>1354 ft	>904 ft	>910 ft	
MINIMUM SSD (VERTICAL)	N/A	2135 ft	N/A	1069 ft	
MAXIMUM DESIGN SPEED	> 70 mph	> 70 mph	> 70 mph	> 70 mph	
2019 DESIGN TRAFFIC VOL	5,400	5,400	96,350	96,350	
DESIGN HOURLY VOLUME	2,100	2,100	10,593	10,593	
PERCENT TRUCK	0%	0%	5%	5%	



INDEX OF SHEETS

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NEW AND REVISED STANDARD PLANS

M–412–1	CONCRETE PAVEMENT JOINTS	12/20/02
M–606–14	PRECAST TYPE 7 CONCRETE BARRIER	07/02/02
S–614–2	CLASS 1 GROUND SIGN INSTALLATIONS	08/22/02
S–614–40	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS	03/18/02
S–614–50	MONOTUBE OVERHEAD SIGN	11/23/01

Computer File Information		Sheet Revisions		As Constructed		Contract Information	
Last Modification Date:	05/13/03 Initials: MH	(R–1)	7/10/03	1,25,142,150,160,188,189,190	JCS	Contractor	Project No./Code
Cross References:				191,193,198,200,225,226,227,			
Full Path:	c:\My documents\I–25HOV–AD\Planview\	(R–2)		228,244		Resident Engineer	IM 0253–168
Drawing File Name:	I–25 Titlesheet.dwg		7/15/03	1,20,21,22,23,24,30	JCS	Project Engineer	13344
Acad Ver.	R02 Scale: English					PROJECT STARTED	ACCEPTED
						Comments:	Sheet Number 1

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway																PROJECT TOTALS	
					PLAN	AS CONST.															PLAN	AS CONST.
		201-00001	Clearing and Grubbing	ACRE	7.19															7.19		
		202-00001	Removal of Structure	EACH	6															6		
		202-00010	Removal of Tree	EACH	2															2		
		202-00026	Removal of Slope and Ditch Paving	SY	253															253		
		202-00033	Removal of Pipe	EACH	614															614		
		202-00035	Removal of Pipe	LF	614															614		
		202-00037	Removal of End Section	EACH	1															1		
		202-00090	Removal of Delineator	EACH	20															20		
		202-00210	Removal of Concrete Pavement	SY	200															200		
		202-00220	Removal of Asphalt Mat	SY	24,337															24,337		
		202-00240	Removal of Asphalt Mat (Planing)	SY	32,731															32,731		
		202-00250	Removal of Pavement Marking	SF	11,560															11,560		
		202-00503	Removal of Portions of Present Structure	SY	315															315		
		202-00750	Removal of Luminaire	EACH	8															8		
		202-00805	Removal of Overhead Sign Structure	EACH	6															6		
		202-00810	Removal of Ground Sign	EACH	28															28		
		202-00821	Removal of Sign Panel	EACH	13															13		
		202-00895	Removal of Impact Attenuator	EACH	3															3		
		202-01000	Removal of Fence	LF	114															114		
		202-01040	Removal of HOV Gate	EACH	10															10		
		202-01130	Removal of Guardrail Type 3	LF	668															668		
		202-01140	Removal of Guardrail Type 4	LF	6,535															6,535		
		202-01300	Removal of End Anchorage	EACH	8															8		
		202-04001	Plug Culvert	EACH	6															6		
		202-05150	Sandblasting	SF	2,000															2,000		
		203-00060	Embankment Material (Complete In Place)	CY	33,713															33,713		
		203-00100	Muck Excavation	CY	6,000															6,000		
		203-01500	Blading	HOURL	200															200		
		203-01510	Backhoe	HOURL	40															40		
		203-01597	Potholing	HOURL	40															40		
		203-02330	Laborer	HOURL	200															200		
		206-00000	Structure Excavation	CY	466															466		
		207-00205	Topsoil	CY	2,320															2,320		
		208-00011	Erosion Bales (Weed Free)	EACH	364															364		

Computer File Information				Sheet Revisions			Colorado Department of Transportation			As Constructed		SUMMARY OF APPROXIMATE QUANTITIES		Project No./Code	
Creation Date:	6/11/03	Initials:	MH	7/15/03	DELETED/ADDED ITEM	JCS	 2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2040 FAX:(720) 945-1028	No Revisions:		IM 0253-168		Revised:		13344	
Last Modification Date:	6/11/03	Initials:	MH					Revised:				Void:			
Full Path:	C:\My Document\125-HOV-AD\Tab\														
Drawing File Name:	SAQ20.dwg													Sheet Number	
								Region 6-North Engineering		JCS				20	

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway												PROJECT TOTALS	
					PLAN	AS CONST.											PLAN	AS CONST.
	BOOK PAGE SHEET	208--00020	Silt Fence	LF	2,130												2,130	
		208--00045	Concrete Washout Structure	EACH	4												4	
		208--00055	Rigid Inlet Protection Device	EACH	12												12	
		208--00070	Stabilized Construction Entrance	EACH	8												8	
		208--00200	Erosion Control Supervisor	L S	1												1	
		210--00475	Reset Closed Circuit Television Pole	EACH	1												1	
		210--00750	Reset Light Standard	EACH	3												3	
		210--00755	Reset Light Standard Steel High Mast	EACH	2												2	
		210--00805	Reset Overhead Sign Structure	EACH	2												2	
		210--04011	Adjust Manhole (Special)	EACH	3												3	
		210--04015	Modify Manhole	EACH	3												3	
		210--04016	Modify Manhole (Special)	EACH	1												1	
		210--04020	Modify Inlet	EACH	9												9	
		212--00006	Seeding (Native)	ACRE	14.7												14.7	
		213--00002	Mulching (Weed Free Hay)	ACRE	24.5												24.5	
		213--00061	Mulch Tackifier	LB	2,205												2,205	
		213--00100	Soil Binder	ACRE	4.9												4.9	
		216--00041	Soil Retention Blanket (Straw/Coconut)	SY	6,336												6,336	
		250--00100	Environmental Health and Safety	L S	1												1	
		250--00110	Health and Safety Officer	HOURL	160												160	
		304--06000	Aggregate Base Course (Class 6)	TON	3,210												3,210	
		403--00720	Hot Bituminous Pavement (Patching) (Asphalt)	TON	300												300	
		403--33841	Hot Bituminous Pavement (Grading S) (100) (PG 64--22)	TON	7,718												7,718	
		403--33871	Hot Bituminous Pavement (Grading S) (100) (PG 76--28)	TON	9,208												9,208	
		408--01000	Hot Poured Joint and Crack Sealant	TON	6												6	
		411--10255	Emulsified Asphalt (Slow-Setting)	GAL	4,819												4,819	
		412--01150	Concrete Pavement (11--1/2 Inch)	SY	200												200	
		412--01300	Concrete Pavement (13 Inch)	SY	17,899												17,899	
		420--00101	Geotextile (Erosion Control) (Class B)	SY	18												18	
		503--00030	Drilled Caisson (30 Inch)	LF	40												40	
		503--00042	Drilled Caisson (42 Inch)	LF	36												36	
		503--00048	Drilled Caisson (48 Inch)	LF	64												64	

Computer File Information				Sheet Revisions			Colorado Department of Transportation			As Constructed	
Creation Date:	6/11/03	Initials:	MH	(R-2)	7/15/03	REVISED ITEMS	JCS	 2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2040 FAX:(720) 945-1028	No Revisions:		
Last Modification Date:	6/11/03	Initials:	MH	(R-X)					Revised:		
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Drawing File Name:	SAQ21.dwg			(R-X)						Void:	
				(R-X)					Region 6-North Engineering	JCS	

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway													PROJECT TOTALS	
				PLAN	AS CONST.												PLAN	AS CONST.
		503--00054 Drilled Caisson (54 Inch) 506--00209 Riprap (9 Inch) 507--00000 Concrete Slope and Ditch Paving 507--00100 Concrete Slope and Ditch Paving(Reinforced) (R-2) ADDED	LF CY CY CY	280 6 84 108													280 6 84 108	
		601--40301 Structural Concrete Coating (R-2) REVISED 603--01185 18 Inch Reinforced Concrete Pipe (Complete In Place)	SF LF	24,156 1,512													24,156 1,512	
		603--01245 24 Inch Reinforced Concrete Pipe (Complete In Place) 603--01305 30 Inch Reinforced Concrete Pipe (Complete In Place) 603--01365 36 Inch Reinforced Concrete Pipe (Complete In Place)	LF LF LF	887 875 53													887 875 53	
		603--05018 18 Inch Reinforced Concrete End Section 603--05024 24 Inch Reinforced Concrete End Section 603--05030 30 Inch Reinforced Concrete End Section	EACH EACH EACH	3 2 1													3 2 1	
		603--07240 24 Inch Reinforced Concrete Pipe (Jacked) 603--07360 36 Inch Reinforced Concrete Pipe (Jacked)	LF LF	85 75													85 75	
		604--00305 Inlet Type C (5 Foot) 604--00310 Inlet Type C (10 Foot) 604--26005 Vane Gate Inlet (Double) (5 Foot)	EACH EACH EACH	5 1 13													5 1 13	
		604--26010 Vane Gate Inlet (Double) (10 Foot) 604--30010 Manhole Slab Base (10 Foot)	EACH EACH	4 5													4 5	
		604--30015 Manhole Slab Base (15 Foot) 604--39050 Manhole (Traffic Management System) (R-2) REVISED 606--00301 Guardrail Type 3 (6--3 Post Spacing)	EACH EACH LF	1 13 3,075													1 13 3,075	
		606--00710 Guardrail Type 7 (Style CA) 606--00720 Guardrail Type 7 (Style CC)	LF LF	315 625													315 625	
		606--00726 Guardrail Type 7 (Style CC-HOV) 606--00730 Guardrail Type 7 (Style CD) 606--00740 Guardrail Type 7 (Style CE)	LF LF LF	1,078 630 1,607													1,078 630 1,607	
		606--00747 Guardrail Type 7 (Style CD-HOV) (Special) 606--01340 End Anchorage Type 3D (R-2) REVISED	LF EACH	3,759 5													3,759 5	
		606--01370 Transition Type 3G 606--02001 End Anchorage (Slotted Rail Terminal) (R-2) REVISED 607--11580 Fence (Temporary)	EACH EACH LF	6 11 340													6 11 340	

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		SUMMARY OF APPROXIMATE QUANTITIES				Project No./Code					
Creation Date:		6/11/03		Initials:		MH		7/15/03		ADDED/REVISED ITEMS		JCS						No Revisions:		IM 0253-168			
Last Modification Date:		6/11/03		Initials:		MH												Revised:		13344			
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								2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2040 FAX:(720) 945-1028								JCS							

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway													PROJECT TOTALS	
				PLAN	AS CONST.												PLAN	AS CONST.
		607-53172 Fence Chain Link (72 Inch)	LF	230													230	
		607-60610 Vehicle Gate	EACH	1													1	
		607-60630 HOV Gate	EACH	10													10	
		612-00001 Delineator (Type I) (R-2) REVISED	EACH	102													102	
		612-00002 Delineator (Type II) (R-2) REVISED	EACH	26													26	
		612-15000 Install Marker	EACH	50													50	
		613-00200 2 Inch Electrical Conduit	LF	600													600	
		613-00201 2 Inch Electrical Conduit (Jacked)	LF	40,000													40,000	
		613-00300 3 Inch Electrical Conduit	LF	2,400													2,400	
		613-01200 2 Inch Electrical Conduit (Plastic)	LF	78,890													78,890	
		613-07000 Pull Box (Special)	EACH	1													1	
		613-07034 Pull Box (24"x36"x18") Deep	EACH	35													35	
		613-10000 Wiring (R-2) ADDED	LS	1													1	
		613-32400 Light Standard Steel (40 Foot)	EACH	4													4	
		613-35120 Light Standard Steel High Mast (120 Foot)	EACH	1													1	
		613-40000 Concrete Foundation Pad	EACH	7													7	
		613-45048 High Mast Foundation (Drilled Caisson) (48 Inch)	LF	60													60	
		613-50000 Lowering Device	EACH	1													1	
		613-50100 Lighting Control Center	EACH	1													1	
		613-50150 Secondary Service Pedestal	EACH	1													1	
		613-70250 Luminaire High Pressure Sodium (250 Watt)	EACH	6													6	
		613-70400 Luminaire High Pressure Sodium (400 Watt)	EACH	3													3	
		613-71000 Luminaire High Pressure Sodium (1000 Watt)	EACH	4													4	
		614-00011 Sign Panel (Class I)	SF	16													16	
		614-00012 Sign Panel (Class II)	SF	732													732	
		614-00013 Sign Panel (Class III)	SF	1,561													1,561	
		614-00200 Steel Sign Post (U-2)	LF	10													10	
		614-00357 Steel Sign Post (S 3x5.7)	LF	28													28	
		614-00375 Steel Sign Post (S 3x7.5)	LF	22													22	
		614-00477 Steel Sign Post (S 4x7.7)	LF	54													54	
		614-00510 Steel Sign Post (S 5x10)	LF	12													12	
		614-01582 Steel Sign Post (2.5 Inch Round)(Slipbase Sch. 80)	LF	167													167	
		614-10015 Overpass Mounted Sign Bracket	EACH	1													1	
		614-10120 Variable Message Sign	EACH	4													4	

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	6/11/03	Initials:	MH	7/15/03	ADDED\REVISED ITEMS	No Revisions:		IM 0253-168	
Last Modification Date:	6/11/03	Initials:	MH			Revised:		13344	
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Drawing File Name:	SAQ23.dwg					JCS		23	

SUMMARY OF
APPROXIMATE QUANTITIES

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway														PROJECT TOTALS	
				PLAN	AS CONST.													PLAN	AS CONST.
	614-32000	Monotube Overhead Sign Cantilever (20 Inch Diameter)	EACH	1														1	
	614-41600	Monotube Overhead Sign Bridge (16 Inch Diameter)	EACH	1														1	
	614-42000	Monotube Overhead Sign Bridge (20 Inch Diameter)	EACH	1														1	
	614-42400	Monotube Overhead Sign Bridge (24 Inch Diameter)	EACH	4														4	
	614-72855	Traffic Signal Controller Cabinet	EACH	4														4	
	614-72871	Loop Detector Wire (Prefab) Special	LF	140														140	
	614-72875	Loop Detector Wire	LF	2,583														2,583	
	614-72878	Traffic Signal Vehicle Detector Amplifier (Loop Type) (4 Channel)	EACH	9														9	
	614-85125	Impact Attenuator (Quadguard) (Tapered)	EACH	2														2	
	614-86240	Traffic Signal Controller (Type 170)	EACH	3														3	
	614-87020	Optical Transceiver	EACH	13														13	
	614-87028	Video Optical Transceiver	EACH	12														12	
	614-87320	Closed Circuit Television	EACH	6														6	
	614-87325	Closed Circuit Television Pole	EACH	3														3	
	614-87350	Test Fiber Optic Cable	L S	1														1	
	614-87406	Fiber Optic Cable (Single Mode) (6 Strands)	LF	7,800														7,800	
	614-87496	Fiber Optic Cable (Single Mode) (96 Strands)	LF	22,000														22,000	
	614-87498	Fiber Optic Cable (Single Mode) (144 Strands)	LF	3,500														3,500	
	620-00002	Field Office (Class 2)	EACH	1														1	
	620-00012	Field Laboratory (Class 2)	EACH	1														1	
	620-00020	Sanitary Facility	EACH	1														1	
	621-00450	Detour Pavement	SY	690														690	
	625-00000	Construction Surveying	L S	1														1	
	626-00000	Mobilization	L S	1														1	
	626-01000	Public Information Services	L S	1														1	
	627-00002	Thermoplastic Pavement Marking	SF	16,874														16,874	
	627-00004	Epoxy Pavement Marking (R-2) DELETED	SF	177														177	
	627-00005	Epoxy Pavement Marking (R-2) ADDED	GAL	177														177	
	627-00012	Pavement Marking Paint (Low VOC Solvent Base)	GAL	1,320														1,320	
	627-01000	Preformed Plastic Pavement Marking (Type A)	SF	563														563	
	627-03000	Preformed Plastic Pavement Marking (Type C)	SF	5,687														5,687	
	627-30325	Preformed Plastic Pavement Marking (Type B) (Word-Symbol)	SF	168														168	

Computer File Information				Sheet Revisions			Colorado Department of Transportation		As Constructed		SUMMARY OF APPROXIMATE QUANTITIES		Project No./Code	
Creation Date:	6/11/03	Initials:	MH	(R-2)	7/15/03	ADDED\DELETED ITEMS	JCS	No Revisions:		IM 0253-168				
Last Modification Date:	6/11/03	Initials:	MH	(R-X)				Revised:		13344				
Full Path:	C:\My Document\125-HOV-AD\Tab\			(R-X)				Void:						
Drawing File Name:	SAQ24.dwg			(R-X)						Sheet Number 24				
								 2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2040 FAX:(720) 945-1028						
								Region 6-North Engineering						
								JCS						

TABULATION OF DELINEATORS

[illegible]

NOTE: 1. ALL DELINEATORS SHALL BE PLACED AND INSTALLED ACCORDING TO CDOT STANDARDS AS SPECIFIED IN S-612-1.

2. PLACE DELINEATORS ON TYPE 7 CONCRETE BARRIER IN ACCORDANCE WITH CDOT STANDARDS AS SPECIFIED IN S-612-1. BACK TO BACK DELINEATORS SHALL BE INSTALLED ON MEDIAN BARRIERS.

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		TABULATION OF DELINEATORS		Project No./Code													
Last Modification Date:		06/10/03		Initials:		MH		7/15/03		REVISED ITEM QUANTITY		JCS		No Revisions:		mm/dd/yy		0253-168											
Cross References:												Revised:				mm/dd/yy				Designer:		JO		Structure Numbers		13344			
Full Path:				C:\My Document\125-HOV-AD\Tab\												Detailer:				XXX				Sheet Subset:		XXX		30	
Drawing File Name:				Tabdelineator.dwg																									
Acad Ver.				2000																									
Units:				English																									

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS – STATE OF COLORADO
PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. IM 0253–168
STATE HIGHWAY I-25
ADAMS COUNTY

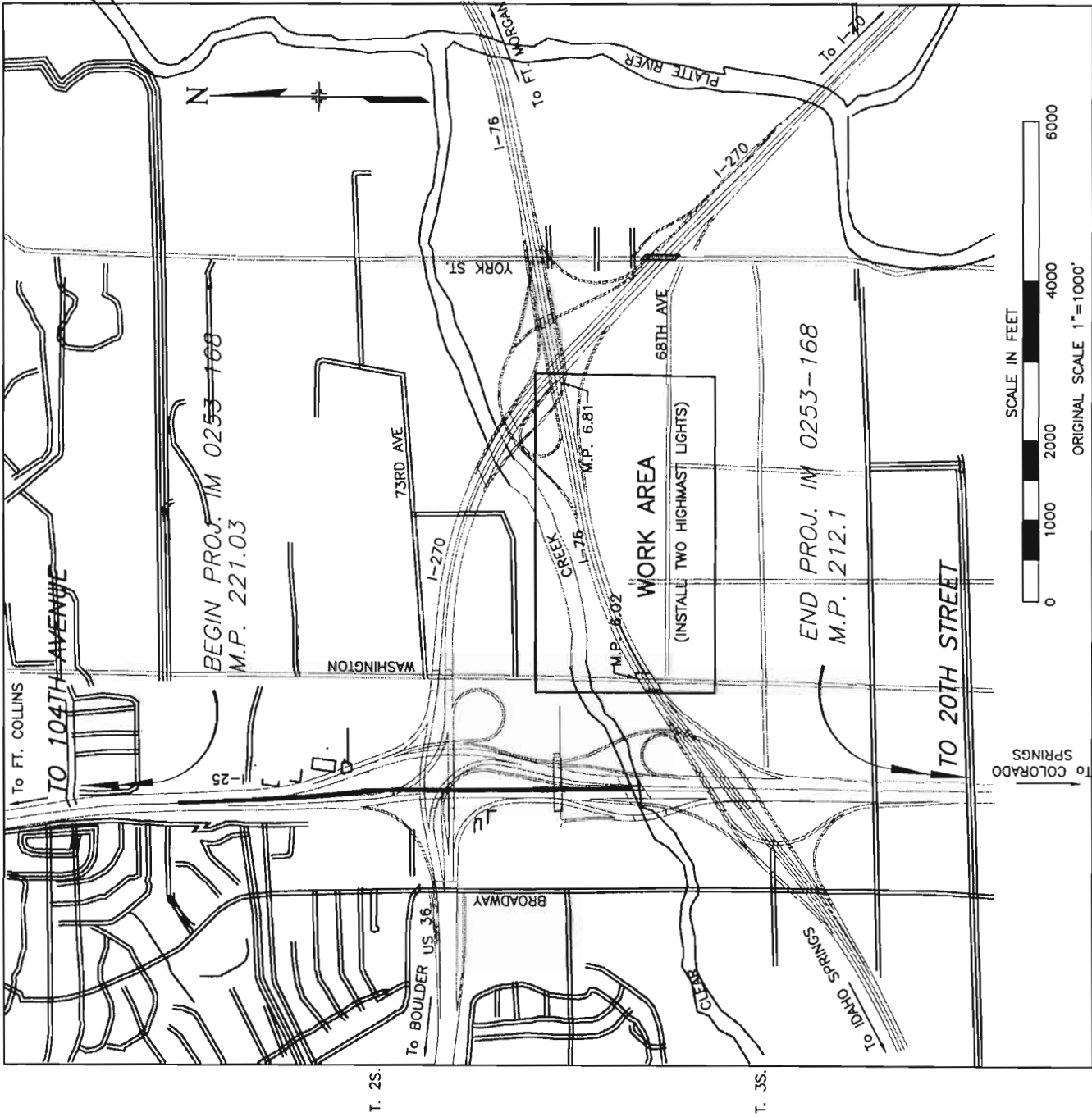
ON PLANS: 1"=100' HORIZONTAL
1"=100' HORIZONTAL
PROFILES: 1"=10' VERTICAL

SCALES OF ORIGINAL DRAWINGS

TABULATION OF LENGTH
(FOR INFORMATION ONLY)
SEE PLAN SHEETS FOR ACTUAL LENGTHS

(FOR INFORMATION ONLY)		ROADWAY		MAJOR STRUCTURES	
STATION TO STATION		FL	Mile	FL	Mile
BEGIN PROJECT IM 0253-168 M.P. 221.03 (104TH AVENUE)					
I-25 CL					
STA 255+51.47 TO STA 313+33.13	5,781.66	1.10			
I-25 NB-C					
STA 1312+33.13 TO STA 1319+46.30	713.17	0.14			
HOV NB					
STA 580+21.28 TO STA 627+78.29	4,757.01	0.90			
HOV SB					
STA 400+00 TO STA 411+10	1,110.00	0.21			
I-25 CL					
STA 364+28.20 TO STA 459+00. (NO EARTHWORK AND NEW PAVEMENT)					
END PROJECT IM 0253-168 M.P. 212.1 (20TH STREET)					
TOTAL	12,361.84	2.35			
SUMMARY					
ROADWAY MAJOR STRUCTURES		FL	Mile		
	12,361.84		2.35		
PROJECT GROSS LENGTH	12,361.84		2.35		
PROJECT NET LENGTH	12,361.84		2.35		

DESIGN DATA (I-25)	HOV NB	HOV SB	I-25 NB-C	I-25 CL
MINIMUM RADIUS OF CURVE	3831.72' ft	22930.32' ft	5729.57' ft	5729.58' ft
MAXIMUM GRADE	4.05 %	1.52 %	4.11 %	3.95 %
MINIMUM SSD (HORIZONTAL)	>743 ft	>1354 ft	>904 ft	>910 ft
MINIMUM SSD (VERTICAL)	N/A	2135 ft	N/A	1069 ft
MAXIMUM DESIGN SPEED	> 70 mph	> 70 mph	> 70 mph	> 70 mph
2019 DESIGN TRAFFIC VOL	5,400	5,400	96,350	96,350
DESIGN HOURLY VOLUME	2,100	2,100	10,593	10,593
PERCENT TRUCK	0%	0%	5%	5%



(R-1)	1	TITLE SHEET
	2	STANDARD PLANS LIST SHEET
	3-4	GENERAL NOTES
	5	SUMMARY OF EARTHWORK
	6-19	TYPICAL SECTIONS
(R-1)	20-26	SUMMARY OF APPROXIMATE QUANTITIES
	27	TABULATION OF REMOVALS
	28	TABULATION OF SURFACING
	29	TABULATION OF GUARDRAIL AND FENCE
	30-35	GORE DETAILS
	36	MAINTENANCE ACCESS DETAIL
	37-39	GUARDRAIL DETAIL AT STRUCTURES
	40-46	CONCRETE PAVEMENT JOINT DETAILS
	47-49	STR E-17-QN, E-17-JK TABULATION OF QUANTITIES AND SLOPE & DITCH PAVING DETAILS
	50-64	REMOVAL SHEETS
	65-66	SURVEY CONTROL DIAGRAM
	67-76	CONTROL AND MONUMENTATION SHEET
	77	SURVEY TABULATION
	78-80	PROJECT ALIGNMENTS
	81-96	FINAL PROJECT CONSTRUCTION PLANS
	97-109	ROADWAY PROFILES
	110-128	TABULATION OF STORM SEWERS, DRAINAGE PLAN AND STRUCTURE SECTIONS
	129-138	GRADING PLANS
	139	CONCRETE WASH OUT STRUCTURE
(R-1)	140-147	STORMWATER MANAGEMENT PLAN
	148-149	MODIFY MANHOLE SPECIAL(MANHOLE SPECIAL DETAILS)
(R-1)	150	TABULATION OF TRAFFIC ITEMS
	151	PAVEMENT MARKING TABULATION
	152-153	TABULATION OF SIGNS
	154	TABULATION OF OVERHEAD SIGNS
	155	LOOP WIRE TABULATION
(R-1)	156-171	FINAL SIGNING AND STRIPING PLANS
	172-176	SIGN STRUCTURE CROSS SECTIONS
	177-178	OVERPASS MOUNTED SIGN BRACKET GENERAL LAYOUT AND SIGN MOUNTING BRACKET DETAILS
	179	GUARDRAIL TYPE 7 AT OVERHEAD SIGN CAISSON DETAIL
	180-181	SAND BARREL DETAILS
	182-185	SIGN SUPPORTS DETAILS
	186	MOBILE PAVEMENT MARKING
(R-1)	187-208	CONSTRUCTION PHASING PLANS
	209	AREA SIGNING PLAN
(R-1)	210-272	ITS PLANS, TABULATIONS, SUMMARY SHEETS, STRUCTURE CROSS SECTIONS, TYPICAL SECTIONS AND DETAILS
	273-277	TABULATION OF LIGHTING QUANTITIES, PLANS AND DETAILS

NEW AND REVISED STANDARD PLANS

M-412-1	CONCRETE PAVEMENT JOINTS	12/20/02
M-606-14	PRECAST TYPE 7 CONCRETE BARRIER	07/02/02
S-614-2	CLASS I GROUND SIGN INSTALLATIONS	08/22/02
S-614-40	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS	03/18/02
S-614-50	MONOTUBE OVERHEAD SIGN	11/23/01

Related Projects:
PE, ROW, UTILITIES ARE UNDER PROJECT:
Project Number: IM 0253-168
Project Code: 13344

R.O.W. Projects:
R.O.W. Project Description
XXXXXXXXXXXXXXXXXXXX

Oversight / NHS

FHWA OVERSIGHT? ☐ NO ☒ YES

NATIONAL HIGHWAY SYSTEM? ☐ NO ☒ YES

INDEX OF SHEETS

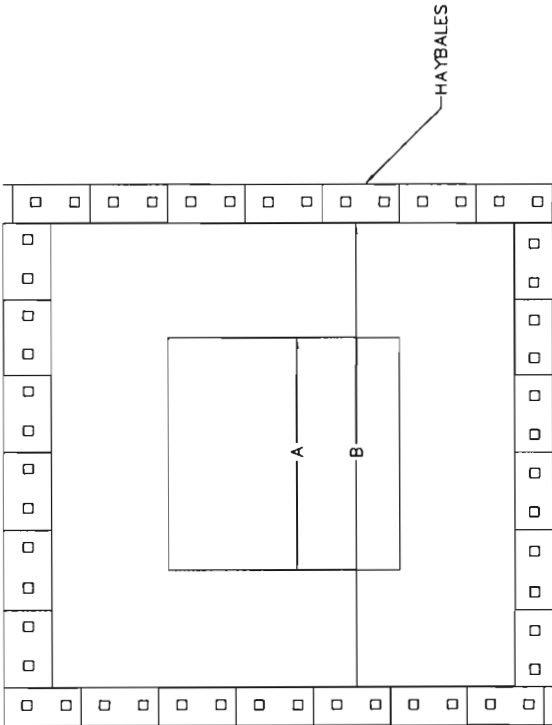
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Acad Ver.	R02 Scale:					Comments:	Sheet Number 1

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway															PROJECT TOTALS	
					PLAN	AS CONST.														PLAN	AS CONST.
		627-30330	Preformed Plastic Pavement Marking (Type B) (Xwalk-Stopline)	SF	100															100	
		630-00000	Flagging	HOUR	1,000															1,000	
		630-00003	Uniformed Traffic Control	HOUR	1,000															1,000	
		630-00004	Traffic Control Vehicle	EACH	2															2	
		630-00007	Traffic Control Inspection	DAY	95															95	
		630-00012	Traffic Control Management	DAY	235															235	
		630-80001	Flashing Beacon (Portable)	EACH	4															4	
		630-80337	Barricade (Type 3 M-C) (Temporary)	EACH	8															8	
		630-80341	Construction Traffic Sign (Panel Size A)	EACH	8															8	
		630-80342	Construction Traffic Sign (Panel Size B)	EACH	63															63	
		630-80343	Construction Traffic Sign (Panel Size C)	EACH	20															20	
		630-80344	Construction Traffic Sign (Special)	SF	462															462	
		630-80355	Portable Message Sign Panel	EACH	5															5	
		630-80358	Advance Warning Flashing or Sequencing Arrow Panel (C Type)	EACH	2															4	
		630-80360	Drum Channelizing Device	EACH	400															400	
		630-80370	Concrete Barrier (Temporary)	LF	7,938															7,938	
		630-80380	Traffic Cone	EACH	400															400	
		630-80520	Mobile Pavement Marking Zone	DAY	5															5	
		630-85010	Impact Attenuator (Temporary)	EACH	8															8	
			FORCE ACCOUNT =====																		
		700-70010	F/A Minor Contract Revisions	F A	1															1	
		700-70012	F/A Asphalt Pavement Incentive	F A	1															1	
		700-70013	F/A Concrete Incentive Payment	F A	1															1	
		700-70021	F/A On-the-Job Trainee	HOUR	1,920															1,920	
		700-70022	F/A OJT Colorado Training Program	F A	1															1	
		700-70025	F/A Quality Incentive Payment (Smoothness-Concrete)	F A	1															1	
		700-70028	F/A ESB Program	F A	1															1	
		700-70033	F/A Quality Incentive (Smoothness-Asphalt)	F A	1															1	
		700-70072	F/A Obtain Power from Public Service Co	F A	1															1	

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Drawing File Name:	SAQ25.dwg		Void:										
				Region 6-North Engineering		JCS		SUMMARY OF APPROXIMATE QUANTITIES				Sheet Number 25	

DIMENSIONS AND QUANTITIES FOR DEWATERING POND

A (ft)	B (ft)	# OF HAYBALES (EA)	GEOTEXTILE (SQ. YD.)	EMBANKMENT MATERIAL (CU. YD.)
18	30	32	60	10



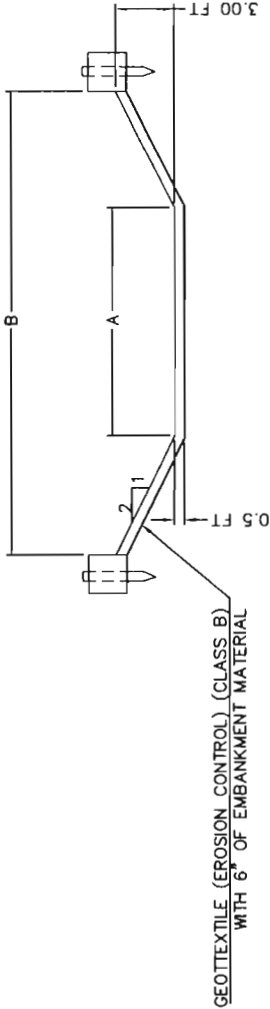
PLAN

NOTES:

- (R-1)

1. DEWATERING POND SHALL BE LOCATED SUCH THAT DEWATERING OPERATIONS FOR CAISSONS AT SIGN STRUCTURES AND HIGH MAST TOWERS WILL BE PUMPED TO AND RETAINED IN DEWATERING POND, OR PUMPED INTO A TANK TRUCK AND TRANSPORTED TO DEWATERING POND.
2.

QUANTITIES ARE FOR INFORMATION ONLY. DEWATERING PONDS SHALL BE PAID FOR AS BACKHOE HOURS AND EROSION BALES (WEED FREE).

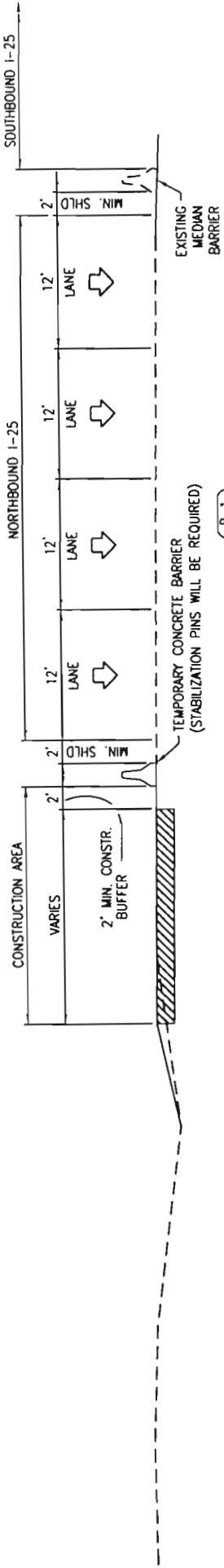


SECTION

TurnerCollie&BradenInc

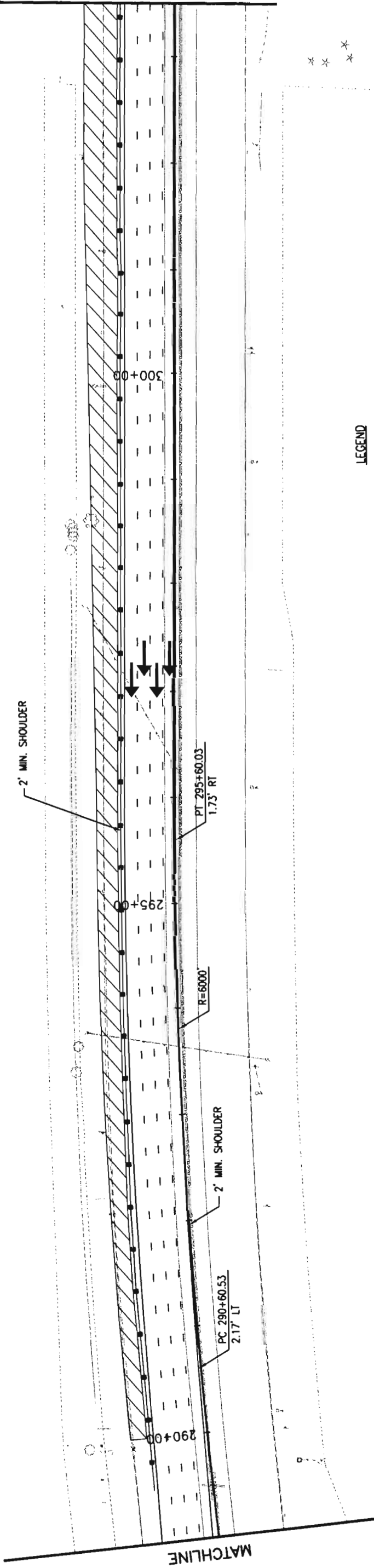
999 Eighth Street, Suite 1500
Denver, Colorado 80202
Phone: 303-298-7117 FAX: 303-296-1124

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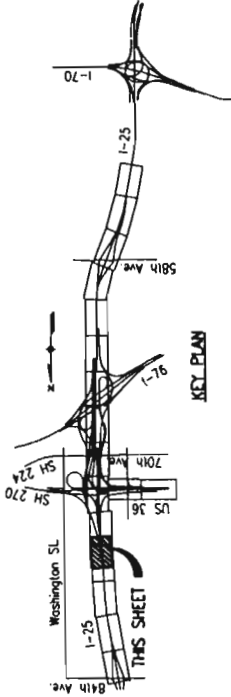
HOV CONSTRUCTION ICP - PHASE 1
STA. 290+00 TO STA. 301+00

(R-1)



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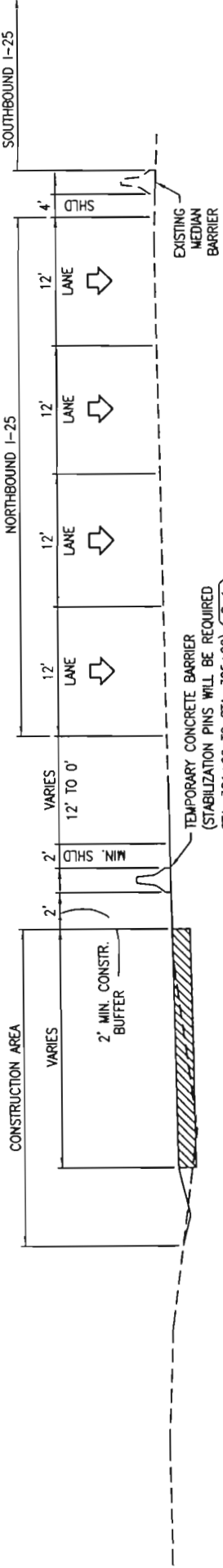
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- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW



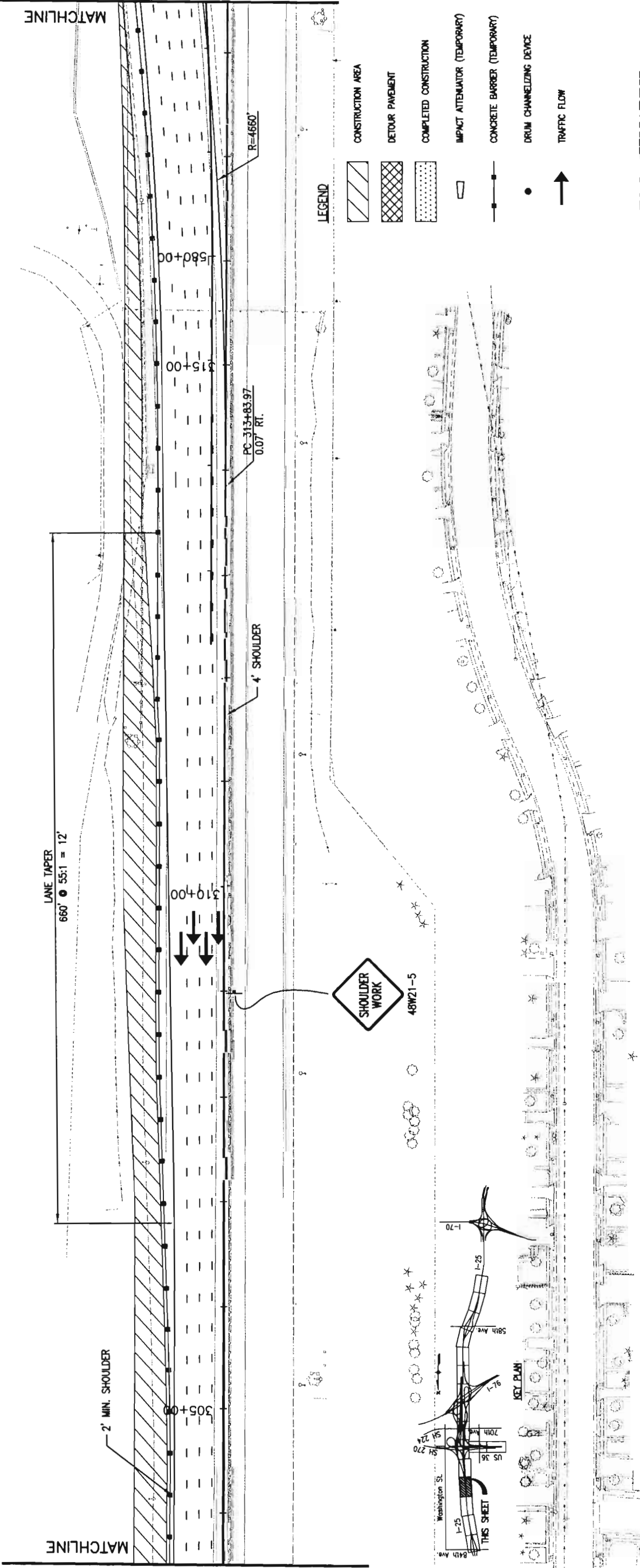
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Creation Date:	05/01/01	Initials: JDB	(R-1)	7/10/03	REVISED NOTE	JCS	 Street Address: 2000 S. Holly Street Denver, CO 80222 Phone: (720) 945-1026 Fax: (720) 945-1028	No Revisions:				0253-168		
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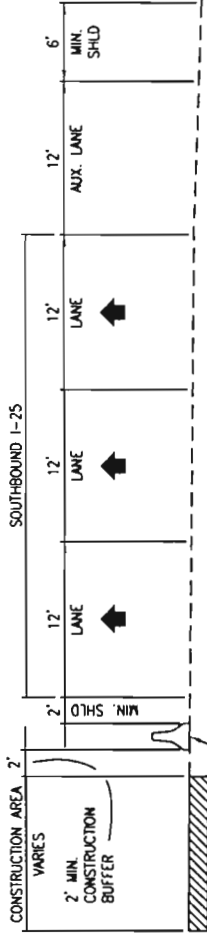


HOV CONSTRUCTION TCP - PHASE 1
STA. 301+00 TO STA. 315+00



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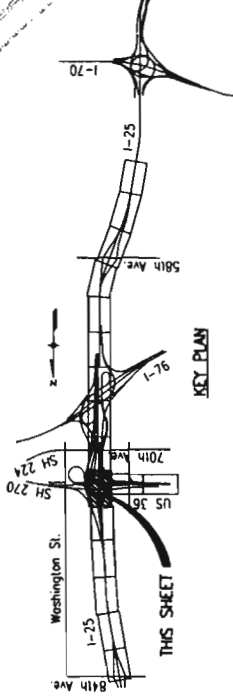
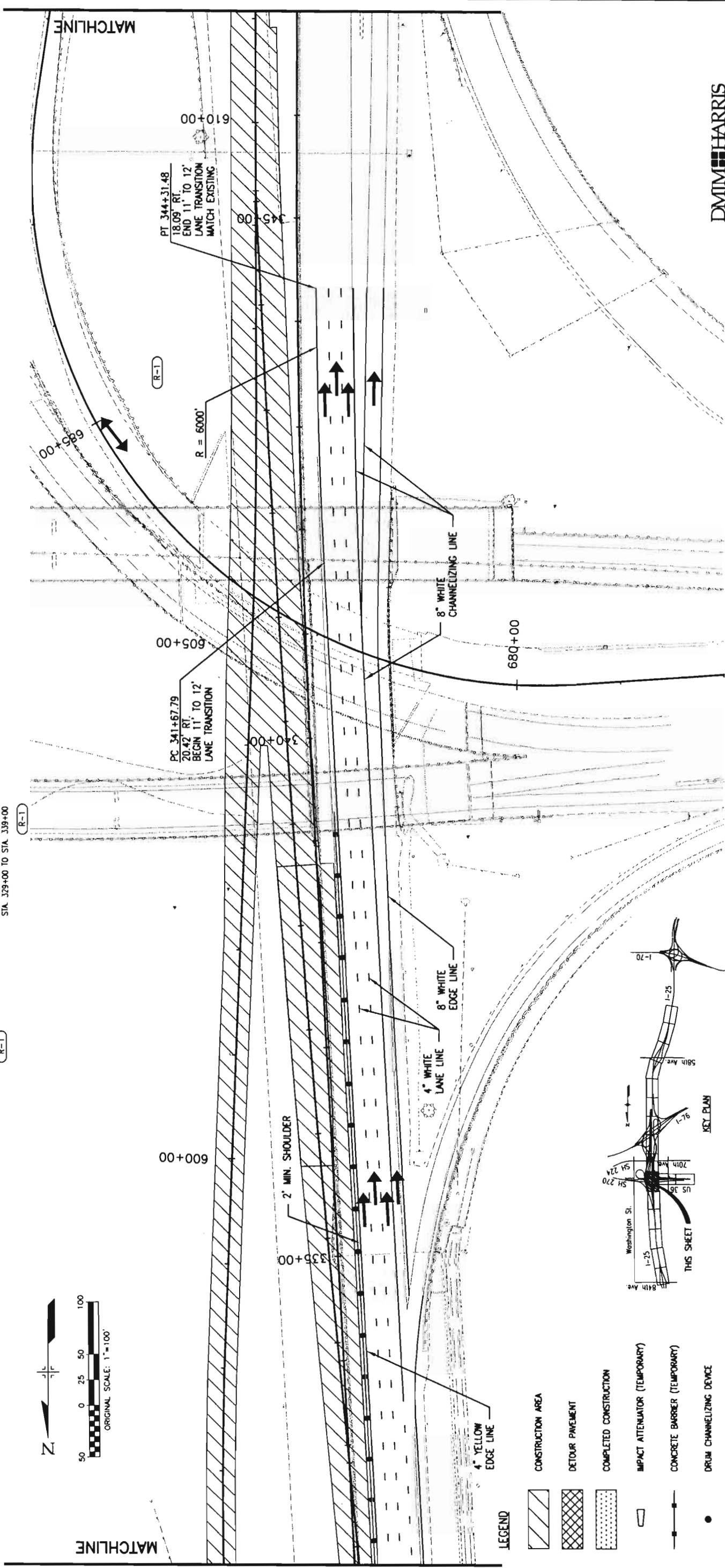
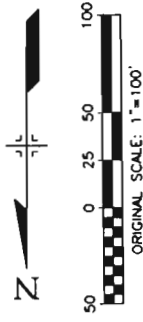
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717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999



TEMPORARY CONCRETE BARRIER
(STABILIZATION PINS WILL BE REQUIRED)

HOV CONSTRUCTION TCP - PHASE 1

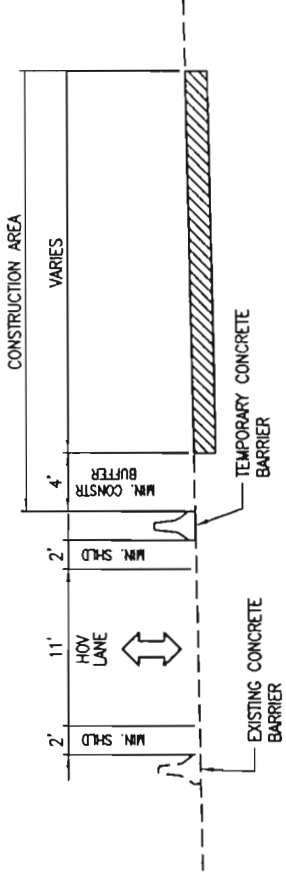
STA 329+00 TO STA 339+00



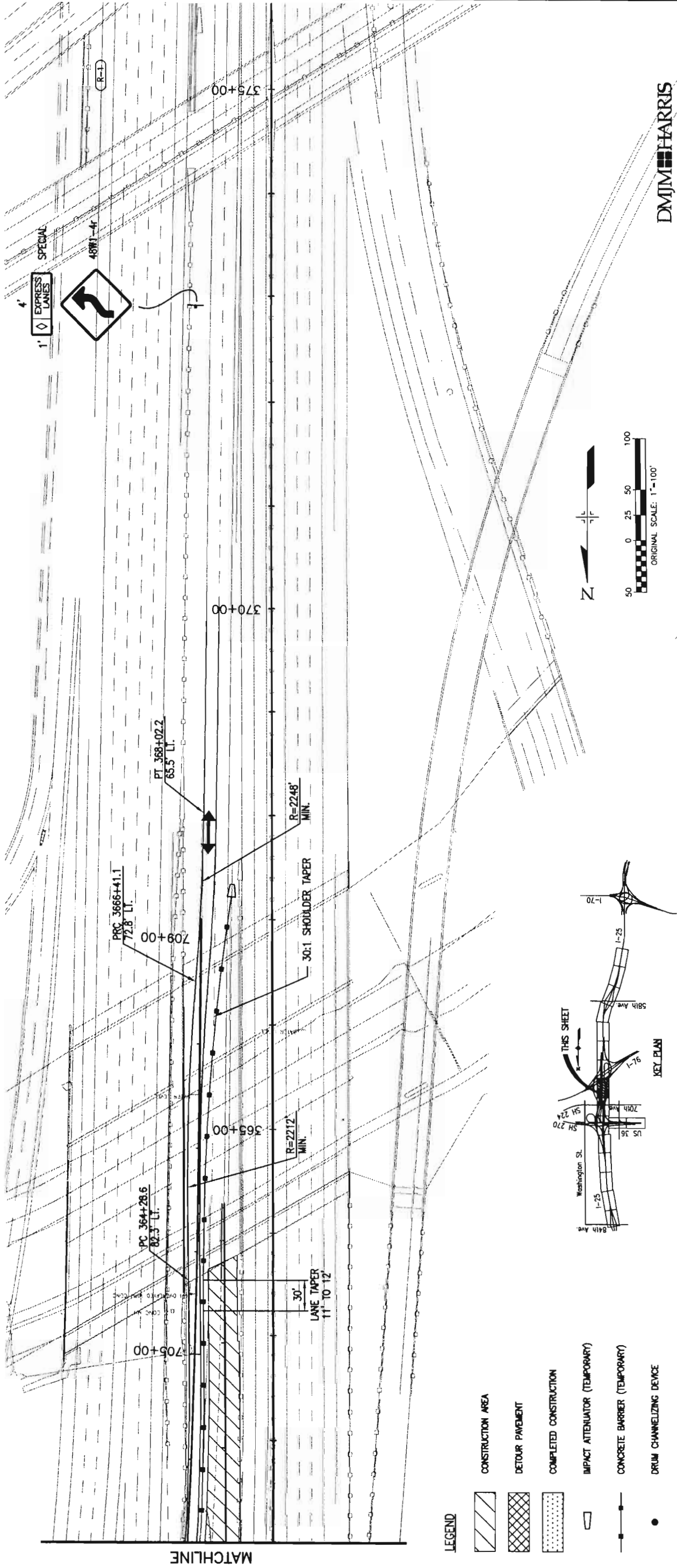
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	CONSTRUCTION AREA
	DETOUR PAVEMENT
	COMPLETED CONSTRUCTION
	IMPACT ATTENUATOR
	CONCRETE BARRIER (
	DRUM CHANNELIZING
	TRAFFIC FLOW

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HOV CONSTRUCTION TCP - PHASE 1
STA. 325+00 TO STA. 363+00



LEGEND



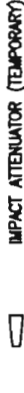
CONSTRUCTION AREA



DETOUR PAVEMENT



COMPLETED CONSTRUCTION



IMPACT ATTENUATOR (TEMPORARY)



CONCRETE BARRIER (TEMPORARY)



DRUM CHANNELIZING DEVICE



TRAFFIC FLOW

Computer File Information

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Sheet Revisions

7/10/03	DELETED SIGN	JCS

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Street Address:
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Phone: (720) 945-1026 Fax: (720) 945-1028
Region 6 - North Engineering JCS

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No Revisions:

Revised:

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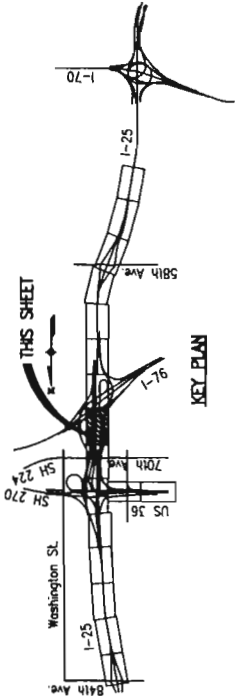
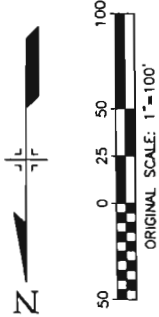
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HOV LANES - PHASE 1

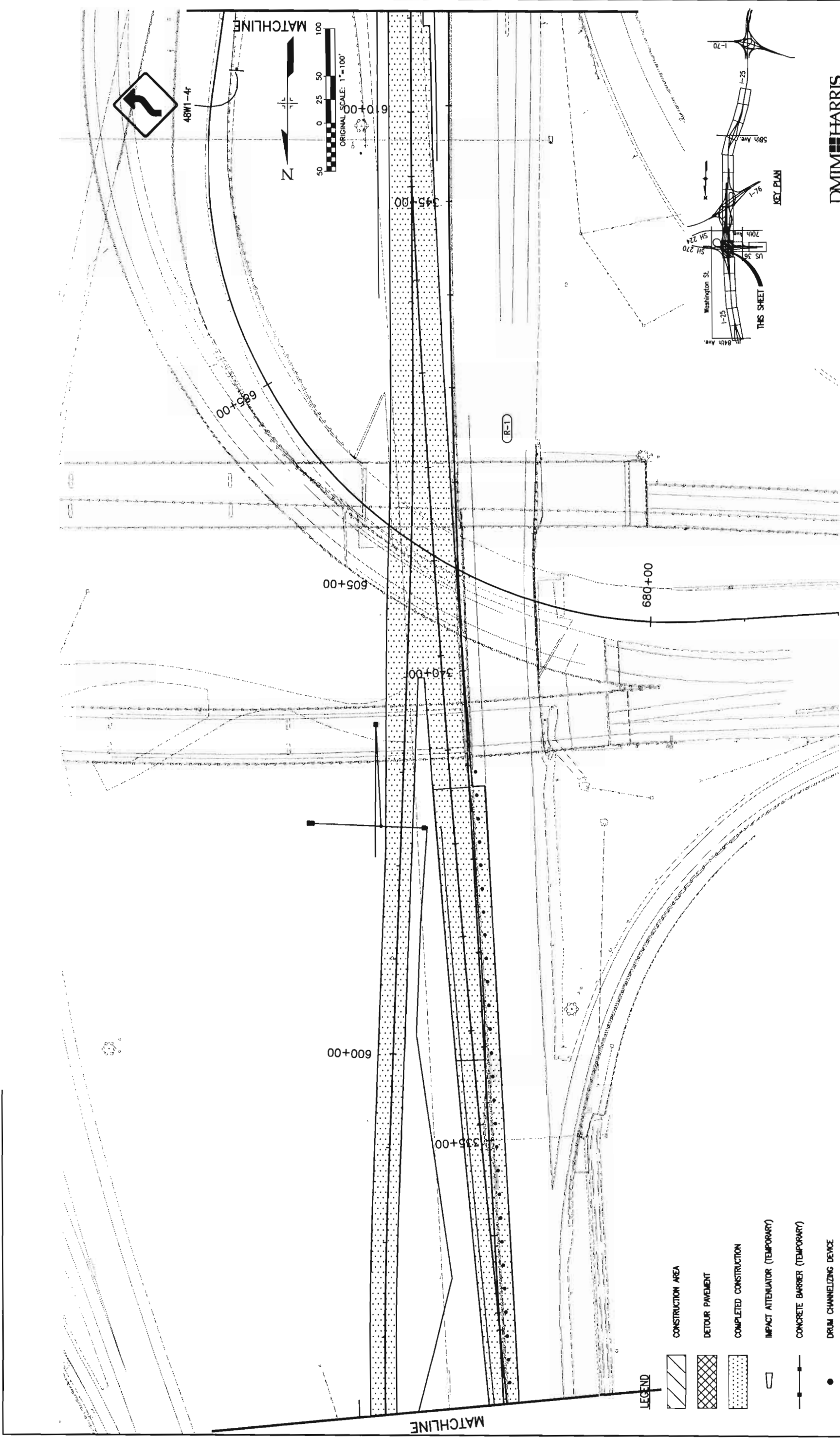
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Project No./Code	0253-168
Sheet Number	13344
Sheet Number	193

DMJM HARRIS

717 17th Street, Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999





LEGEND

- CONSTRUCTION AREA
- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW

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Sheet Revisions

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Region 6 - North Engineering JCS

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No Revisions:	
Revised:	
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HOV LANES - PHASE 2

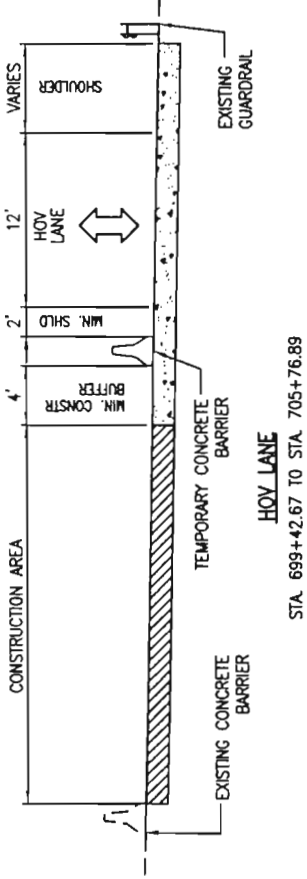
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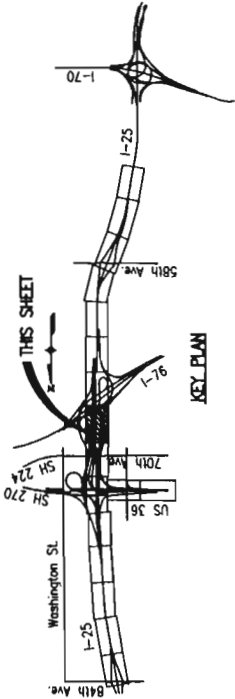
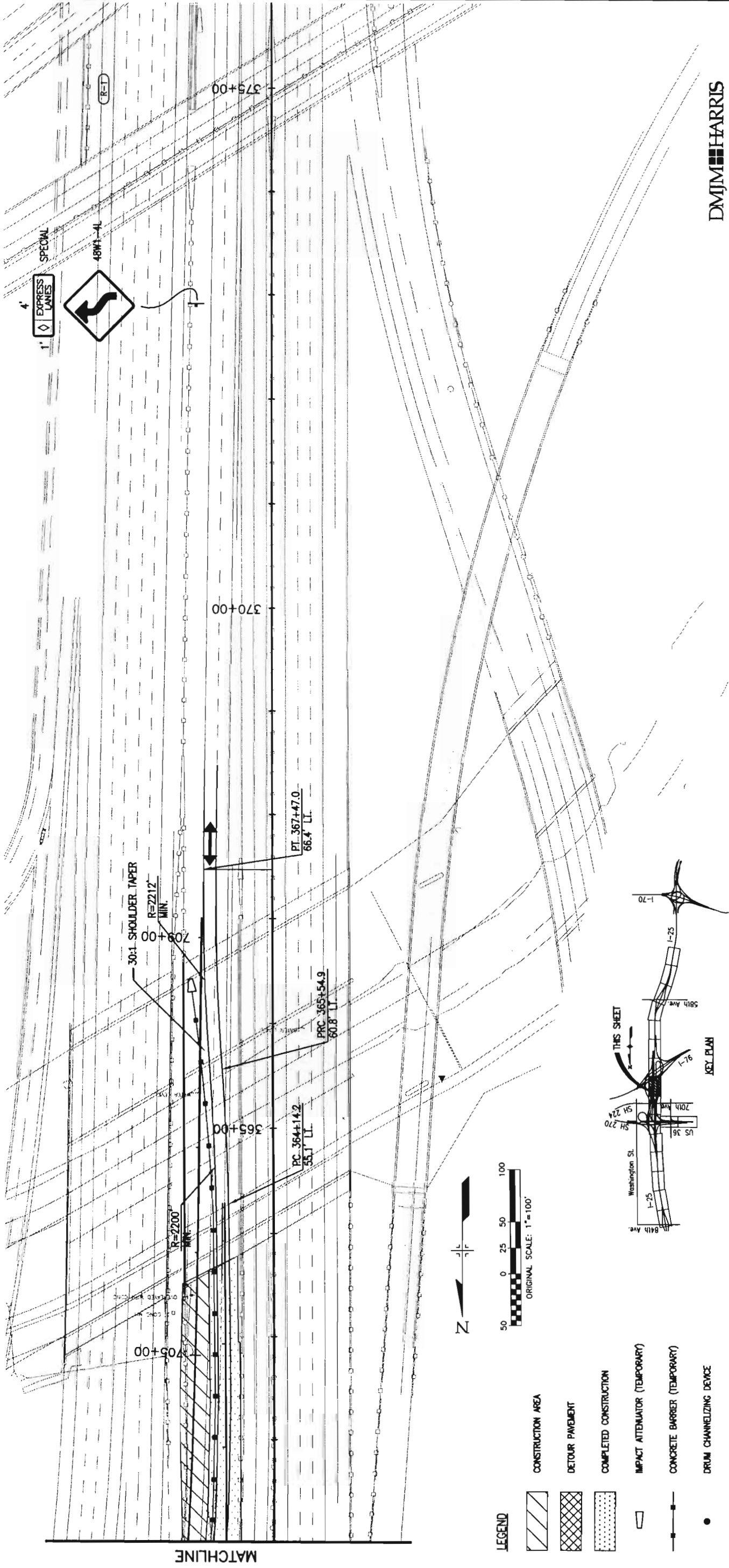
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HOV LANE
STA. 699+42.67 TO STA. 705+76.89



DRUM CHANNELIZING DEVICE

TRAFFIC FLOW

KEY PLAN

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Colorado Department of Transportation



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Region 6 - North Engineering

JCS

As Constructed

No Revisions:

Revised:

Void:

CONSTRUCTION PHASING

HOV LANES - PHASE 2

Designer: BRG

Detailer: JDB

Structure Numbers

Sheet Subsets: Phasing

Sheet Number 200

Project No./Code

0253-168

13344

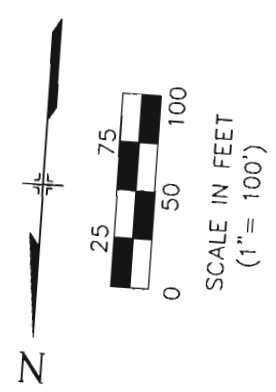
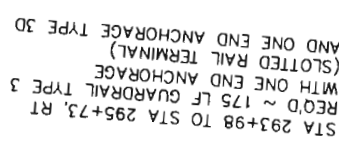
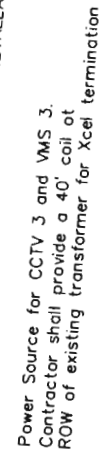
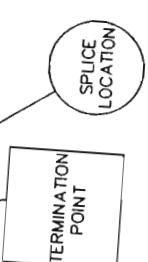
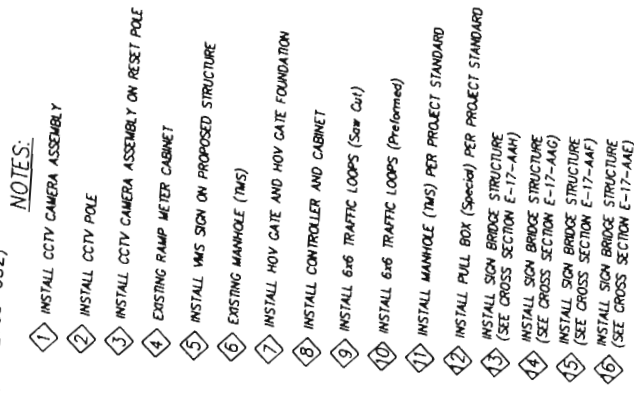
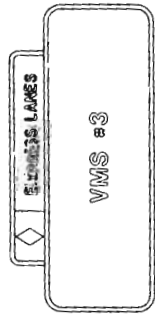
0253-168

DMJM HARRIS

717 17th Street Suite 500, Denver, Colorado 80202

Phone: (303) 378-2900, Fax: (303) 378-2999

DMJM HARRIS
717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999



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CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information				Sheet Revisions	
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		Units:	English		

As Constructed
No Revisions:
Revised:
Void:

Colorado Department of Transportation
Region 6
2000 South Holly Street
Denver, Colorado 80222
Phone: 303 757 9029 FAX: 303 757 9907
Traffic and Safety - ITS Unit

ITS DESIGN PLAN (SR 1-25)	Project No./Code
	IM 0253-168

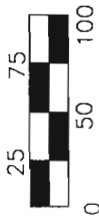
LEGEND

EXISTING

- TMS MANHOLE
- JUNCTION BOX/PULL BOX
- ▲ POWER SOURCE WITH NUMBER
- ▨ J34 CONTROLLER CABINET (MODEL 334)
- ▨ J32 CONTROLLER CABINET (MODEL 332)
- ▨ CCTV CAMERA AND POLE
- CONDUIT

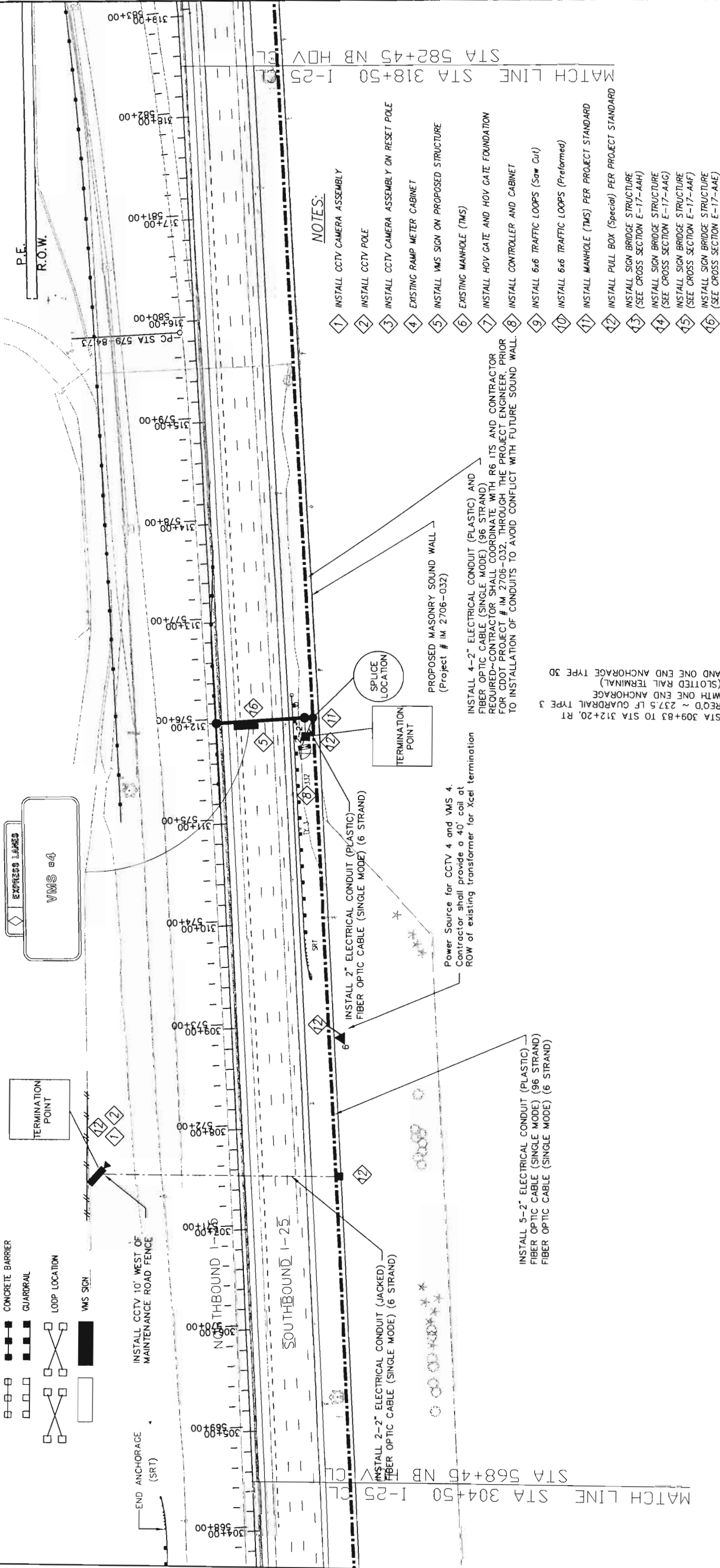
PROPOSED

- ▨ CONCRETE BARRIER
- ▨ GUARDRAIL
- ⊗ LOOP LOCATION
- ▨ VMS SIGN
- ▨ END ANCHORAGE (SRT)
- ▨ INSTALL CCTV 10' WEST OF MAINTENANCE ROAD FENCE



SCALE IN FEET
(1" = 100')

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 3 BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.



NOTES:

1. INSTALL CCTV CAMERA ASSEMBLY
2. INSTALL CCTV POLE
3. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
4. EXISTING RAMP METER CABINET
5. INSTALL VMS SIGN ON PROPOSED STRUCTURE
6. EXISTING MANHOLE (TMS)
7. INSTALL HOV GATE AND HOV GATE FOUNDATION
8. INSTALL CONTROLLER AND CABINET
9. INSTALL 6x6 TRAFFIC LOOPS (Saw Cut)
10. INSTALL 6x6 TRAFFIC LOOPS (Preformed)
11. INSTALL MANHOLE (TMS) PER PROJECT STANDARD
12. INSTALL PULL BOX (Special) PER PROJECT STANDARD
13. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAH)
14. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAG)
15. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAF)
16. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAE)

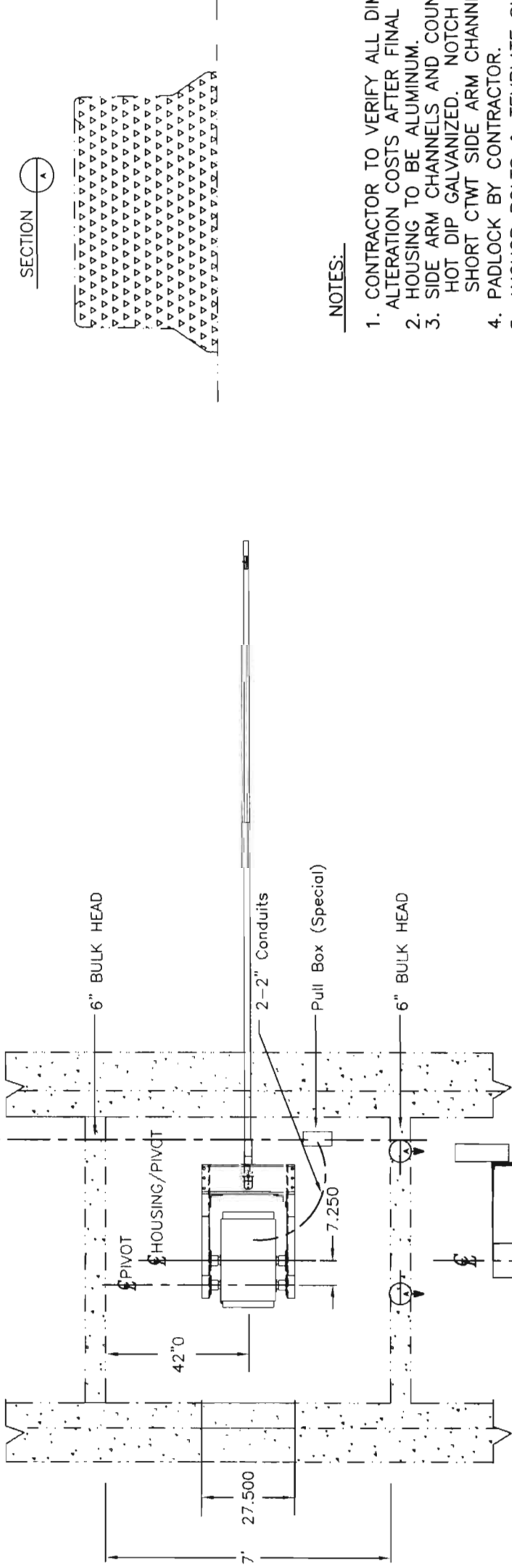
INSTALL 4-2" ELECTRICAL CONDUIT (PLASTIC) AND FIBER OPTIC CABLE (SINGLE MODE) (96 STRAND) REQUIRED--CONTRACTOR SHALL COORDINATE WITH R6 ITS AND CONTRACTOR FOR CDOT PROJECT # IM 2706-032, THROUGH THE PROJECT ENGINEER, PRIOR TO INSTALLATION OF CONDUITS TO AVOID CONFLICT WITH FUTURE SOUND WALL.

Power Source for CCTV 4 and VMS 4. Contractor shall provide a 40' coil at ROW of existing transformer for Xcel termination

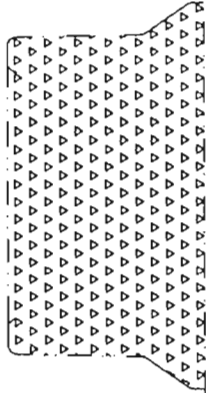
STA 309+83 TO STA 312+20, RT
REQD ~ 237.5 LF GUARDRAIL TYPE 3
WITH ONE END ANCHORAGE
(SLOTTED RAIL TERMINAL)
AND ONE END ANCHORAGE TYPE 3D

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed	ITS DESIGN PLAN		Project No./Code
Creation Date:	12/19/01	Initials:	KP	(R-1)	7-10-03	Revised Conduit Note	JCS	No Revisions:		IM 0253-168
Last Modification Date:	6-1-03	Initials:	JKS					Revised:		13344
Full Path:	FINAL-TMSDESIGNPLANS.DWG									
Drawing File Name:	2002									
Acad Ver.	2002	Scale:	X:X	Units:	English	Traffic and Safety - ITS Unit		SHEET 13 of 18		Sheet Number 227

2-2" Conduits Per I.T.S. Design Plan

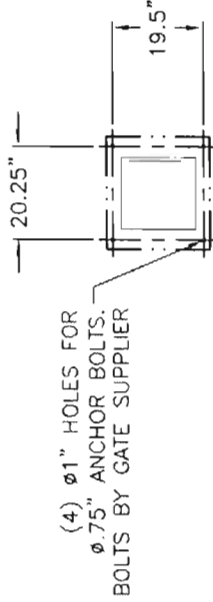
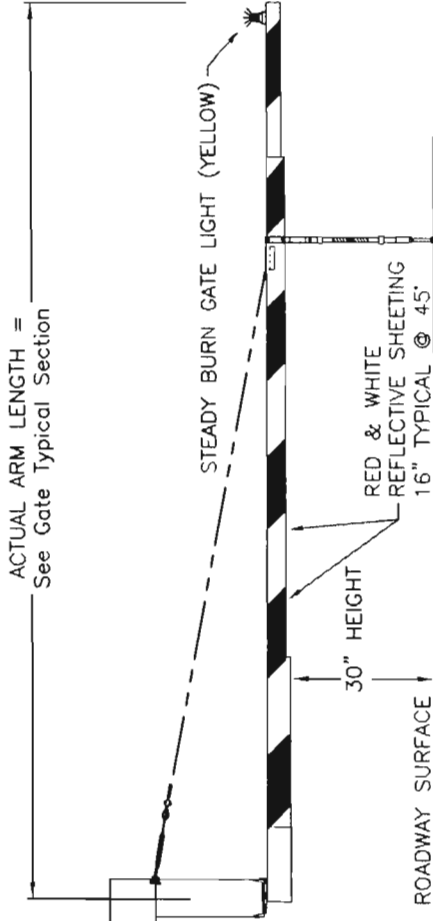


SECTION A



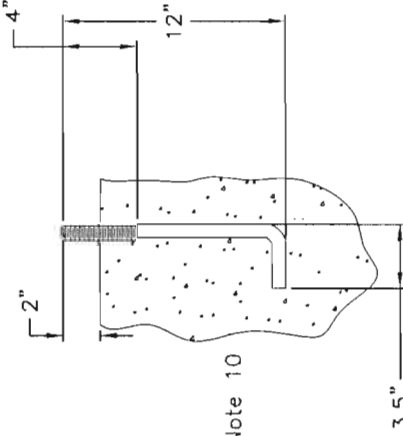
NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS. FACTORY CANNOT ASSUME ALTERATION COSTS AFTER FINAL SUBMITTAL DRAWINGS HAVE BEEN APPROVED.
 2. HOUSING TO BE ALUMINUM.
 3. SIDE ARM CHANNELS AND COUNTERWEIGHTS (12 x 24) TO BE HOT DIP GALVANIZED. NOTCH CTWTS TO CLEAR PARAPET. SHORT CTWT SIDE ARM CHANNELS REQUIRED TO CLEAR PARAPET.
 4. PADLOCK BY CONTRACTOR.
 5. ANCHOR BOLTS & TEMPLATE SUPPLIED BY MANUFACTURER.
 6. CONTRACTOR SHALL POUR 4" LIFT AND PAD MONOLITHIC OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
 7. CONCRETE PAD AND LIFT SHALL BE PAID AS 412-CONCRETE PAVEMENT
 8. CONCRETE BARRIER AND BULK HEADS SHALL BE INCLUDED WITH HOV BARRIER.
 9. RED AND WHITE REFLECTIVE SHEETING SHALL BE INCLUDED WITH THE GATE.
 10. ALL BOLT AND BOLT PATTERN REFERENCES MAY CHANGE WITH THE MANUFACTURE'S RECOMMENDATIONS.
- * DIMENSION VARIES FOR GATES 6-10 DUE TO EXISTING TYPE 4 BARRIER.



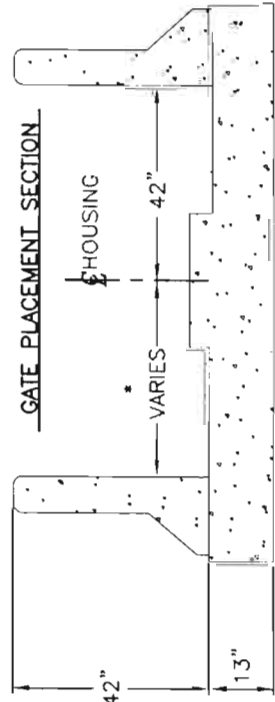
MOUNTING DIMENSION
See Note 10

See Note 10



ANCHOR BOLT DETAIL
SCALE 1/4

GATE PLACEMENT SECTION



Computer File Information				Sheet Revisions		Colorado Department of Transportation		As Constructed		HOV GATE DETAILS		Project No./Code	
Creation Date:		1-9-02		Initials:		JKS		Gate Arm/Pivoting Height/		AI		IM 0253-168	
Last Modification Date:		7-10-03		Initials:		JKS		Cold Joint Allowance				13344	
Full Path:		C:\UserData\Projects\1-25GateRelocation										Revised:	
Drawing File Name:		GateBandB										Void:	
										Region 6- ITS		Sheet Number	
										AI		244	

STATE DEPARTMENT OF HIGHWAYS
DIVISION OF HIGHWAYS - STATE OF COLORADO

PLAN AND PROFILE OF PROPOSED
FEDERAL AID PROJECT NO. IM 0253-168
STATE HIGHWAY I-25
ADAMS COUNTY

Related Projects:
PE ROW UTILITIES ARE UNDER PROJECT:
Project Number: IM 0253-168
Project Code: 13344

R.O.W. Projects:
R.O.W. Project Description
XXXXXXXXXXXXXXXXXXXX

Oversight / NHS

FRWA OVERSIGHT?

☐ NO ☒ YES

NATIONAL HIGHWAY SYSTEM?

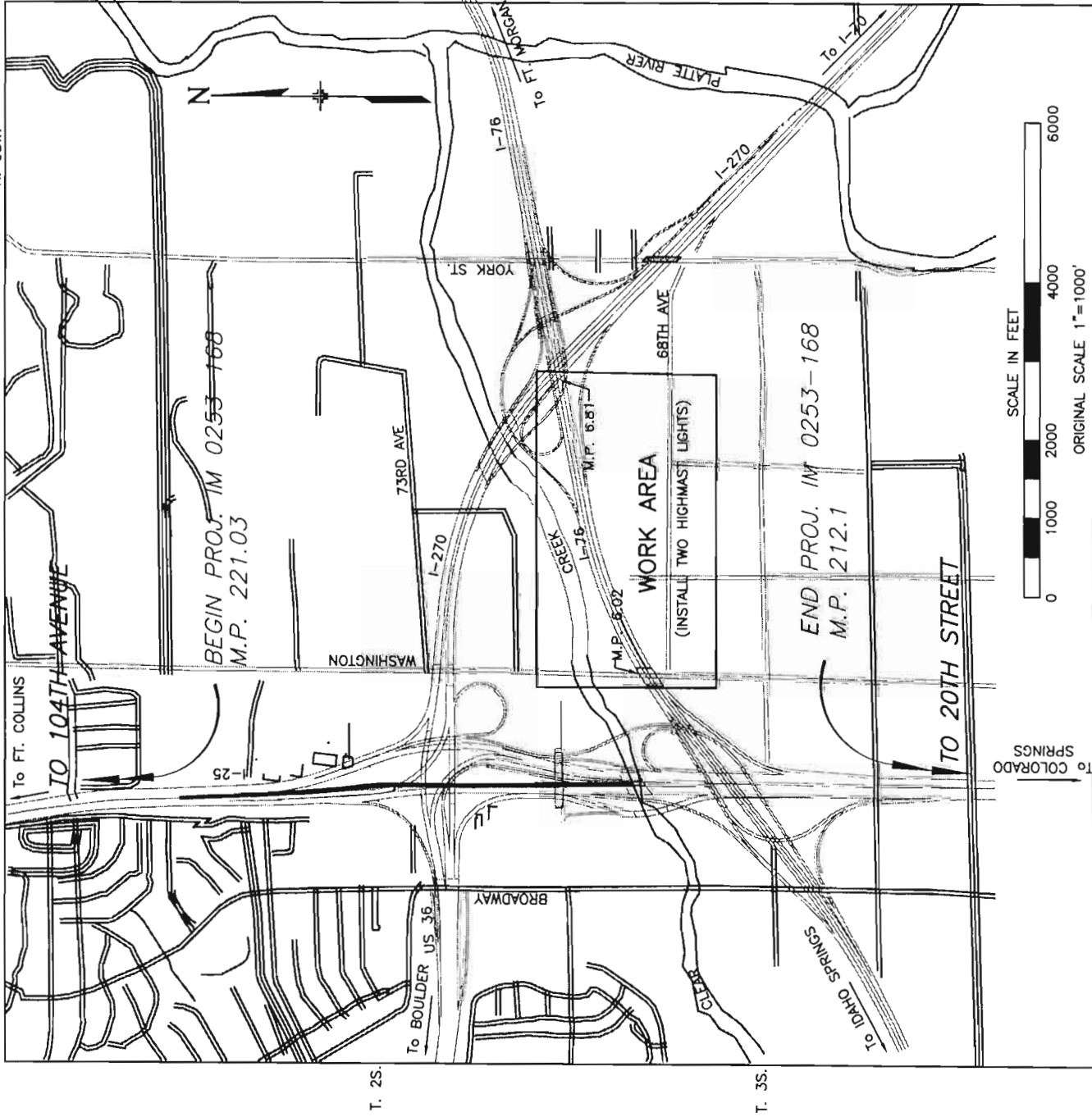
☐ NO ☒ YES

INDEX OF SHEETS

1	TITLE SHEET
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5	SUMMARY OF EARTHWORK
6-19	TYPICAL SECTIONS
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27	TABULATION OF REMOVALS
28	TABULATION OF SURFACING
29	TABULATION OF GUARDRAIL AND FENCE
30-35	GORE DETAILS
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140-147	STORMWATER MANAGEMENT PLAN
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180-181	SAND BARREL DETAILS
182-185	SIGN SUPPORTS DETAILS
186	MOBILE PAVEMENT MARKING
187-208	CONSTRUCTION PHASING PLANS
209	AREA SIGNING PLAN
210-272	ITS PLANS, TABULATIONS, SUMMARY SHEETS, STRUCTURE CROSS SECTIONS, TYPICAL SECTIONS AND DETAILS
273-277	TABULATION OF LIGHTING QUANTITIES, PLANS AND DETAILS

NEW AND REVISED STANDARD PLANS

M-412-1	CONCRETE PAVEMENT JOINTS	12/20/02
M-606-14	PRECAST TYPE 7 CONCRETE BARRIER	07/02/02
S-614-2	CLASS 1 GROUND SIGN INSTALLATIONS	08/22/02
S-614-40	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS	03/18/02
S-614-50	MONOTUBE OVERHEAD SIGN	11/23/01



TABULATION OF LENGTH
(FOR INFORMATION ONLY)
SEE PLAN SHEETS FOR ACTUAL LENGTHS

(FOR INFORMATION ONLY)		ROADWAY		MAJOR STRUCTURES	
STATION TO STATION		FL	Mile	FL	Mile
BEGIN PROJECT IM 0253-168 M.P. 221.03 (104TH AVENUE)					
I-25 CL					
STA 255+51.47 TO STA 313+33.13		5,781.66	1.10		
I-25 NB-C					
STA 1312+33.13 TO STA 1319+46.30		713.17	0.14		
HOV NB					
STA 580+21.28 TO STA 627+78.29		4,757.01	0.90		
HOV SB					
STA 400+00 TO STA 411+10		1,110.00	0.21		
I-25 CL					
STA 364+28.20 TO STA 453+00; (NO EARTHWORK AND NEW PAVEMENT)					
END PROJECT IM 0253-168 M.P. 212.1 (20TH STREET)					
TOTAL		12,361.84	2.35		
SUMMARY					
ROADWAY MAJOR STRUCTURES		FL	Mile		
		12,361.84	2.35		
PROJECT GROSS LENGTH		12,361.84	2.35		
PROJECT NET LENGTH		12,361.84	2.35		

DESIGN DATA (I-25)	HOV NB	HOV SB	I-25 NB-C	I-25 CL
MINIMUM RADIUS OF CURVE	3831.72' ft	22930.32' ft	5729.57' ft	5729.58' ft
MAXIMUM GRADE	4.05 %	1.52 %	4.11 %	3.95 %
MINIMUM SSD (HORIZONTAL)	>743 ft	>1354 ft	>904 ft	>910 ft
MINIMUM SSD (VERTICAL)	N/A	2135 ft	N/A	1069 ft
MAXIMUM DESIGN SPEED	> 70 mph	> 70 mph	> 70 mph	> 70 mph
2019 DESIGN TRAFFIC VOL	5,400	5,400	96,350	96,350
DESIGN HOURLY VOLUME	2,100	2,100	10,593	10,593
PERCENT TRUCK	0%	0%	5%	5%

Computer File Information

Last Modification Date: 05/13/03 Initials: MH

Cross References:

Full Path: c:\My documents\I-25HOV-AD\Planview\

Drawing File Name: I-25 Titlesheet.dwg

Acad Ver. R02 Scale: Units: English

Sheet Revisions

Colorado Department of Transportation

2000 S. Holly Street
Denver, CO 80222
Phone: (303) 370-2040 FAX: (720) 945-1028

Region 6 - North Engineering JCS

As Constructed

No Revisions:

Revised:

Comments:

Contract Information

Contractor Resident Engineer

Project Engineer

PROJECT STARTED

Project No./Code

IM 0253-168

13344

Sheet Number

1

Computer File Information				Sheet Revisions		Colorado Department of Transportation			As Constructed		STANDARD PLANS LIST			Project No./Code					
Creation Date: 04/01/03		Initials: MH				Street Address: 2000 S. Holly Denver, CO 80222 Phone: (303)370-2040 FAX: 720.945.1028 Region 6 – North Engineering JCS					COLORADO DEPARTMENT OF TRANSPORTATION			STANDARD PLANS LIST		M & S STANDARDS		OCTOBER 1, 2000	
Last Modification Date: 05/14/03		Initials: MH											13344						
Full Path: C:\My Documents\I-25HOV-AD\Tab\									Designer: JCI Structure Numbers										
Drawing File Name: HOVSids.dwg									Detailer: MH										
Acad Ver.: R14		Scale:							Sheet Subset:		Subset Sheets:		Sheet Number 2						
PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	M STANDARD TITLE	PAGE NUMBER	PLAN NUMBER	S STANDARD TITLE	PAGE NUMBER								
■ M-100-1	STANDARD SYMBOLS	1	□ M-607-1	WIRE FENCES AND GATES	(3 SHEETS) 78-80	■ S-612-1	TYPICAL DELINEATOR INSTALLATIONS	(5 SHEETS) 109-113											
□ M-203-1	APPROACH ROADS	2	■ M-607-2	CHAIN LINK FENCE	(3 SHEETS) 81-83	■ S-614-1	TYPICAL GROUND SIGN PLACEMENT	114											
■ M-203-2	DITCH TYPES	3	□ M-607-3	BARRIER FENCE	84	□ S-614-2	CLASS I GROUND SIGN INSTALLATIONS	115											
■ M-203-10	SUPERELEVATION CROWNED HIGHWAYS	4	□ M-607-4	DEER FENCE AND GATES	(2 SHEETS) 85-86	■ S-614-3	CLASS II GROUND SIGN INSTALLATIONS	116											
■ M-203-11	SUPERELEVATION DIVIDED HIGHWAYS SHOULDER PIVOT	5	□ M-607-10	PICKET SNOW FENCE	87	■ S-614-4	CLASS III SIGNS, SHEET ALUMINUM PANELS	(3 SHEETS) 117-119											
□ M-203-12	SUPERELEVATION STREETS	6	□ M-608-1	CURB RAMPS	88	■ S-614-5	BREAK-AWAY SIGN SUPPORT DETAILS FOR GROUND SIGNS	(2 SHEETS) 120-121											
■ M-203-13	SUPERELEVATION DIVIDED HIGHWAYS CENTER PIVOT	7	□ M-609-1	CURBS, GUTTERS, AND SIDEWALKS	(2 SHEETS) 89-90	■ S-614-6	CONCRETE FOOTINGS AND SIGN ISLANDS FOR CLASS III SIGNS	(2 SHEETS) 122-123											
■ M-206-1	EXCAVATION AND BACKFILL FOR STRUCTURES	(2 SHEETS) 8-9	□ M-611-1	CATTLE GUARD	(2 SHEETS) 91-92	□ S-614-10	TYPICAL MARKER ASSEMBLY INSTALLATIONS	124											
■ M-206-2	EXCAVATION AND BACKFILL FOR BRIDGES	(2 SHEETS) 10-11	■ M-613-1	CONVENTIONAL HIGHWAY LIGHTING	(3 SHEETS) 93-95	■ S-614-11	MILEPOST SIGN AND INSTALLATION	125											
■ M-208-1	TEMPORARY EROSION CONTROL	(7 SHEETS) 12-18	■ M-613-2	HIGH MAST LIGHTING	(2 SHEETS) 96-97	■ S-614-12	STRUCTURE NUMBER INSTALLATION (BRIDGE INFORMATION SHEET)	126											
□ M-210-1	MAILBOX SUPPORTS	(2 SHEETS) 19-20	□ M-614-1	RUMBLE STRIPS	(2 SHEETS) 98-99	■ S-614-14	FLASHING BEACON AND SIGN INSTALLATION	(2 SHEETS) 127-128											
■ M-214-1	PLANTING DETAILS	21	■ M-615-1	EMBANKMENT PROTECTOR, TYPE 3	100	□ S-614-20	TYPICAL POLE MOUNT SIGN INSTALLATION	129											
■ M-412-1	CONCRETE PAVEMENT JOINTS	(3 SHEETS) 22-24	□ M-615-2	EMBANKMENT PROTECTOR, TYPE 5	101	■ S-614-21	CONCRETE BARRIER SIGN POST INSTALLATIONS	130											
□ M-506-1	GABIONS AND SLOPE MATTRESS	25	□ M-616-1	INVERTED SIPHON	102	■ S-614-22	TYPICAL MULTI-SIGN INSTALLATIONS	131											
□ M-510-1	STRUCTURAL PLATE CULVERT PIPE H-20 LOADING	26	□ M-620-1	FIELD LABORATORY, CLASS 1	103	□ S-614-40	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS	(5 SHEETS) 132-136											
□ M-601-1	SINGLE CONCRETE BOX CULVERT	(2 SHEETS) 27-28	■ M-620-2	FIELD LABORATORY, CLASS 2	104	□ S-614-50	OVERHEAD SIGNS MONOTUBE	(12 SHEETS) 137-148											
□ M-601-2	DOUBLE CONCRETE BOX CULVERT	(2 SHEETS) 29-30	□ M-620-11	FIELD OFFICE, CLASS 1	105	■ S-627-1	TYPICAL PAVEMENT MARKINGS	(5 SHEETS) 149-153											
□ M-601-3	TRIPLE CONCRETE BOX CULVERT	(2 SHEETS) 31-32	■ M-620-12	FIELD OFFICE, CLASS 2	106	■ S-630-1	TRAFFIC CONTROLS FOR HIGHWAY CONSTRUCTION	(10 SHEETS) 154-163											
□ M-601-10	HEADWALL FOR PIPE CULVERTS	33	■ M-629-1	SURVEY MONUMENTS	(2 SHEETS) 107-108	■ S-630-2	BARRICADES, DRUMS, CONCRETE BARRIERS (TEMP) & VERTICAL PANELS	164											
□ M-601-11	TYPE "S" SADDLE HEADWALL FOR PIPE CULVERTS	34				■ S-630-3	FLASHING BEACON (PORTABLE) DETAILS	165											
□ M-601-12	HEADWALLS AND CULVERT OUTLET PAVING	35																	
□ M-601-20	WINGWALLS FOR PIPE OR BOX CULVERTS	36																	
□ M-603-1	METAL AND PLASTIC CULVERT PIPE	(2 SHEETS) 37-38																	
■ M-603-2	REINFORCED CONCRETE PIPE	39																	
□ M-603-3	PRECAST CONCRETE BOX CULVERT	40																	
■ M-603-10	CONCRETE AND METAL END SECTIONS	(2 SHEETS) 41-42																	
■ M-604-10	INLET, TYPE C	43																	
□ M-604-11	INLET, TYPE D	44																	
□ M-604-12	CURB INLET, TYPE R	(2 SHEETS) 45-46																	
□ M-604-13	CONCRETE INLET, TYPE 13	47																	
■ M-604-20	MANHOLES	(3 SHEETS) 48-50																	
■ M-604-25	VANE GRATE INLET WITH FRAME AND CONCRETE APRON	(5 SHEETS) 51-55																	
□ M-605-1	SUBSURFACE DRAINS	56																	
■ M-606-1	GUARDRAIL, TYPE 3, W-BEAM	(15 SHEETS) 57-71																	
■ M-606-12	GUARDRAIL, TYPE 4, CONCRETE BARRIER	(2 SHEETS) 72-73																	
■ M-606-13	GUARDRAIL, TYPE 7, F-SHAPE BARRIER	(4 SHEETS) 74-77																	

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

COLORADO
DEPARTMENT OF TRANSPORTATION

STANDARD PLANS LIST

M & S STANDARDS

OCTOBER 1, 2000

GENERAL NOTES

UTILITY LINES AS SHOWN ON THE PLAN SHEETS ARE PLOTTED FROM THE BEST AVAILABLE INFORMATION. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SUBSECTION 105.06 OF THE STANDARD SPECIFICATIONS CONCERNING UTILITIES.

THE CONTRACTOR SHALL CALL THE UTILITY NOTIFICATION CENTER OF COLORADO (UNCC) AT 1-800-922-1987 FOR UTILITY LOCATIONS AT LEAST 2 BUSINESS DAYS, NOT INCLUDING THE DAY OF ACTUAL NOTIFICATION, PRIOR TO ANY EXCAVATION.

IT IS SUGGESTED THAT THE CONTRACTOR INITIATE A REQUEST TO XCEL ENERGY FOR ANY CONSTRUCTION RELATED TEMPORARY ELECTRICAL POWER SOURCES AS SOON AS POSSIBLE. IN SOME INSTANCES, UP TO 30 DAYS MAY BE REQUIRED TO PROVIDE THE SOURCES. THE REQUEST IS TO BE PROCESSED THROUGH XCEL ENERGY - STREET LIGHTING AT (303) 571-2505.

THE CONTRACTOR SHALL PROTECT ALL EXISTING SURVEY MONUMENTATION DESIGNATED TO REMAIN FROM DAMAGE DURING CONSTRUCTION OPERATIONS. ANY MONUMENTS DISTURBED BY THE CONTRACTOR SHALL BE RESET AT HIS EXPENSE. THE CONTRACTOR AND ENGINEER SHALL NOTE THOSE MONUMENTS IN THE FIELD PRIOR TO CONSTRUCTION.

IT IS ESTIMATED THAT 40 HOURS OF POTHOLING WILL BE REQUIRED ON THIS PROJECT AS DIRECTED BY THE ENGINEER.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR INVESTIGATING AND ADHERING TO LOCAL ORDINANCES.

WATER SHALL BE USED AS A DUST PALLIATIVE WHERE REQUIRED. LOCATION SHALL BE AS ORDERED AND SHALL NOT BE PAID FOR SEPARATELY.

FOR PRELIMINARY PLAN QUANTITIES OF PAVEMENT MATERIALS, THE FOLLOWING RATES OF APPLICATION WERE USED:

- 133 LBS/CU. FT.
 - 110 LBS/SQ.YD./INCH
 - 0.10 GAL/SQ.YD. (DILUTED)
 - 0.50 TONS/LANE MILE
- AGGREGATE BASE COURSE (CLASS 6)
- HOT BITUMINOUS PAVEMENT (GRADING S) (HAUL AND ASPHALT)
- TACK COAT DILUTED EMUL. ASPH. (SLOW-SETTING)
- CRACK SEALER

DILUTED EMULSIFIED ASPHALT FOR TACK COAT SHALL CONSIST OF 1 PART EMULSIFIED ASPHALT AND 1 PART WATER. RATE OF APPLICATION SHALL BE DETERMINED BY THE ENGINEER AT THE TIME OF APPLICATION.

A TACK COAT OF EMULSIFIED ASPHALT (SLOW SETTING) IS TO BE APPLIED TO IMPROVE BOND AT THE FOLLOWING LOCATIONS:

- BEFORE PLACING NEW PAVEMENT OVER EXISTING PAVEMENT
- ALONG THE FACE OF ALL CURBS, GUTTERS, MANHOLES, ADJACENT EXISTING PAVEMENT, AND OTHER SURFACES AGAINST WHICH ASPHALT WILL BE PLACED
- BETWEEN PAVEMENT COURSES WHEN ORDERED BY THE ENGINEER.

THE FOLLOWING SHALL BE FURNISHED WITH EACH BITUMINOUS PAVER UNLESS OTHERWISE DIRECTED BY THE ENGINEER:

1. A SKI TYPE DEVICE AT LEAST 30 FEET IN LENGTH.
2. SHORT SKI OR SHOE.
3. 1600 FEET OF CONTROL LINE STAKES. THE CONTROL LINE WILL BE REQUIRED FOR ALL LAYERS OR AS DIRECTED BY THE ENGINEER.

ANY LAYER OF BITUMINOUS PAVEMENT THAT IS TO HAVE A SUCCEEDING LAYER PLACED THEREON SHALL BE COMPLETED FULL WIDTH BEFORE SUCCEEDING LAYER IS PLACED.

THE DEPTH OF MOISTURE-DENSITY CONTROL FOR THIS PROJECT SHALL BE FULL DEPTH OF ALL EMBANKMENT AND BASES OF CUTS AND FILLS 0.5 FOOT.

PRIOR TO PLACING THE OVERLAY THE FOLLOWING WORK SHALL BE COMPLETED AS DIRECTED BY THE ENGINEER:

EXCAVATE BROKEN AND/OR SOFT AREAS OF PAVEMENT DOWN TO A DEPTH OF 15 3/4" BELOW THE EXISTING GRADE AND REPLACE WITH HBP (PATCHING), AS DIRECTED BY THE ENGINEER.

WHERE IT IS REQUIRED TO CUT EXISTING PAVEMENT, IT SHALL BE CUT FULL DEPTH TO A NEAT LINE WITH WITH A PAVEMENT SAW OR ANOTHER METHOD, AS APPROVED BY THE ENGINEER. THIS WILL NOT BE PAID SEPARATELY, BUT WILL BE CONSIDERED SUBSIDIARY TO REMOVAL OF ASPHALT MAT (PLANING).

THE VERTICAL EDGE OF EACH PLANING PASS EXPOSED TO TRAFFIC SHALL NOT EXCEED 1".

A TACK COAT OF DILUTED EMULSIFIED ASPHALT (SLOW-SETTING) SHALL BE APPLIED TO THE FULL WIDTH OF THE ROADWAY JUST PRIOR TO THE OVERLAY, OR AS DIRECTED BY THE ENGINEER.

IT IS ESTIMATED THAT 6 TONS OF HOT POURED JOINT AND CRACK SEALANT IS REQUIRED ON THIS PROJECT FOR THE MILL/OVERLAY.

PRIOR TO ADJUSTING THE GRADES AND SUPERELEVATIONS ON I-25 CENTERLINE STA. 290+00 TO STA. 314+00, THE CONTRACTOR IS REQUIRED TO VERIFY EXISTING GROUND ELEVATIONS SHOWN ON THE PROFILE.

THE OVERLAY WILL BE PLACED THE FULL WIDTH OF THE ROADWAY, AND TAPERED TO MATCH EXISTING SURFACES AS DIRECTED BY ENGINEER.

ALL BROOMING OPERATIONS WILL BE DONE BY PICKUP-TYPE BROOM AT THE CONTRACTOR'S EXPENSE. NO HYDRO-BROOMING WILL BE ALLOWED.

THE CONTRACTOR SHALL PREVENT CONSTRUCTION EQUIPMENT FROM OPERATION WITHIN 200' OF ANY CREEK OR DRAINAGE, EDGE OF RIPARIAN AREA, WETLAND, OR PRAIRIE DOG HABITAT BY ESTABLISHING A "NO WORK" ZONE, ATLOCATIONS DIRECTED BY THE ENGINEER. EQUIPMENT MAY OPERATE ON EXISTING SHOULDERS AND PAVEMENT.

CONTRACTOR SHALL CONTACT CDOT REGION 6 ENVIRONMENTAL AT (303) 757-9372 TO DISCUSS THE PROJECT'S AVOIDANCE AND PROTECTION OF WETLANDS AND PRAIRIE DOGS PRIOR TO ANY TRENCHING OR BORING OF CONDUIT OR ANY DEVICE. THE CONTRACTOR SHALL PLACE TEMPORARY FENCING AT RIPARIAN AREAS, WETLAND OR PRAIRE DOG HABITAT. SILT FENCE SHALL NOT BE TRENCHED FOR PRAIRE DOG HABITAT.

THE CONTRACTOR SHALL MAINTAIN, REFUEL AND STAGE CONSTRUCTION EQUIPMENT, AWAY FROM RIPARIAN AREA, OR PRAIRIE DOG HABITAT. THE CONTRACTOR SHALL CAREFULLY STORE CONSTRUCTION MATERIALS AND SUPPLIES TO MINIMIZE THE POTENTIAL FOR DEBRIS AND SPILLS CONTAMINATING RIPARIAN AREA OR WETLANDS.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information			Sheet Revisions		Colorado Department of Transportation 2000 South Holly St. Denver, CO 80222 Phone: 303.370.2040 FAX: 720.945.1028 Region 6 - North Engineering JCS	As Constructed		GENERAL NOTES			Project No./Code	
Last Modification Date: 05/21/03	Initials: SHM			IM 0253-168								
Cross References: N/A						No Revisions:	Revised:	Designer:	JO Structure Numbers	13344		
Full Path: C:\DOT\TRANSF.PRO\HOV.I-25\								Detailer:	BMC			
Drawing File Name: HOVEGNote.dwg								Sheet Subst:1 of 2		Sheet Number: 3		
Acad Ver. 2002 Scale: NONE Units: English												

GENERAL NOTES

EXCAVATION REQUIRED FOR COMPACTION OF BASES OF CUTS AND FILLS WILL BE CONSIDERED AS SUBSIDIARY TO THAT OPERATION AND WILL NOT BE PAID FOR SEPARATELY.

THE TYPE OF COMPACTION FOR EARTHWORK ON THIS PROJECT SHALL BE AASHTO T 99.

ANY OPEN EXCAVATIONS LEFT UNATTENDED SHALL BE FENCED OFF BY THE CONTRACTOR. COST OF THE FENCE TO BE INCLUDED IN THE COST OF EXCAVATION.

THE MINIMUM THICKNESS OF TOPSOIL SHALL BE 4 INCHES. IT IS ESTIMATED THAT 2320 CU. YDS. OF TOPSOIL (HAUL) WILL BE REQUIRED AND SHALL BE OBTAINED FROM CONTRACTOR SOURCE.

THE CONTRACTOR SHALL NOTIFY THE OWNER AND ENGINEER OF ANY PROBLEM IN CONFORMING TO THE APPROVED PLANS FOR ANY ELEMENT OF THE PROPOSED IMPROVEMENT PRIOR TO IT'S CONSTRUCTION.

CONTRACTOR SHALL LIMIT CONSTRUCTION ACTIVITIES TO THOSE AREAS WITHIN THE LIMITS OF DISTURBANCE AND/OR TOES OF SLOPES AS SHOWN ON THE PLANS AND CROSS SECTIONS. ANY DISTURBANCES BEYOND THESE LIMITS SHALL BE RESTORED TO THE ORIGINAL CONDITION BY THE CONTRACTOR AT THE CONTRACTOR'S EXPENSE.

THE CONTRACTOR SHALL PROTECT ALL STORM SEWER FACILITIES ADJACENT TO ANY LOCATION WHERE PAVEMENT CUTTING OPERATIONS INVOLVING WHEEL CUTTING, SAW CUTTING OR ABRASIVE WATER JET CUTTING ARE TO TAKE PLACE. THE CONTRACTOR SHALL REMOVE AND PROPERLY DISPOSE OF ALL WATER PRODUCTS GENERATED BY SAID CUTTING OPERATIONS ON A DAILY BASIS. THE DISCHARGE OF ANY WATER CONTAMINATED BY WASTE PRODUCTS FROM CUTTING OPERATIONS TO THE STORM SEWER SYSTEM IS PROHIBITED.

CONSTRUCTION ACTIVITIES IN ADDITION TO NORMAL CONSTRUCTION PROCEDURE SHALL INCLUDE THE PARKING OF VEHICLES OR EQUIPMENT, DISPOSAL OF LITTER, AND ANY OTHER ACTION WHICH WOULD ALTER EXISTING CONDITIONS.

DISPOSAL OF EXCESS MATERIAL OFF-SITE OR THE IMPORTING OF MATERIALS ON -SITE, REGARDLESS OF PROPERTY OWNERSHIP, MUST BE DONE IN ACCORDANCE WITH ALL FEDERAL, STATE, AND LOCAL ENVIRONMENTAL REGULATIONS AND CDOT PRAIRIE DOG POLICY. IF THE CONTRACTOR HAS ANY QUESTIONS ABOUT WHETHER OR NOT THEY ARE IN THE CDOT REGION 6 ENVIRONMENTAL MANAGER AT 303.757.9930 PRIOR TO REMOVAL AND DISPOSAL OF THE MATERIAL.

EXISTING INLETS SHALL BE COVERED DURING PAVING OPERATIONS FOR WATER QUALITY PROTECTION, AND UNCOVERED FOLLOWING COMPLETION OF THE PAVING.

WATER SHALL BE USED AS A DUST PALLATIVE TO REDUCE EMISSIONS OF FUGITIVE DUST. THE LOCATIONS WILL BE AS DIRECTED BY THE ENGINEER.

GUARDRAIL TYPE 4 (PRECAST-PORTABLE) REMOVED SHALL BE SALVAGED AND DELIVERED TO THE CDOT MAINTENANCE YARD AT 7800 VALLY HIGHWAY, AND THE EXISTING IMPACT ATTENUATOR (QUADGUARD) AT HOV GATES UNDER 58TH AVE. AND I-25 SHALL BE SALVAGED AND DELIVERED TO THE CDOT MAINTENANCE YARD AT 3601 PARK AVE.(I-25 AND 38TH AVE.). THE CONTRACTOR SHALL CONTACT DON MECUNE AT (303) 433-2559 TO SCHEDULE DELIVERY. DELIVERY OF GUARDRAIL AND IMPACT ATTENUATOR WILL NOT BE PAID FOR SEPARATELY, BUT SHALL BE INCLUDED IN THE WORK.

IT IS ESTIMATED THAT 20 DELINEATORS WILL BE REMOVED. ALL DELINEATOR POSTS SHALL BE GREEN IN COLOR. REMOVAL AND REPLACEMENT OF DELINEATORS SHALL BE AS DIRECTED BY THE PROJECT ENGINEER.

PRIOR TO OPENING ANY AREAS OF PAVEMENT REMOVAL, REPLACEMENT, OR OVERLAY TO TRAFFIC, THE CONTRACTOR SHALL PLACE ALL PAVEMENT MARKINGS IN ACCORDANCE WITH THE PLANS, SPECIFICATIONS, AND M.U.T.C.D..

ANY OFF ROAD STAGING AREAS MUST BE PRE-APPROVED BY CDOT PROJECT ENGINEER. ALL EQUIPMENT TO REMAIN ON THE ROAD SURFACE; PAVED PARKING LOTS OR AREAS OF DISTURBANCE COVERED IN THE PLANS.

IF TOPSOIL IS NOT GENERATED WITHIN THE PROJECT LIMITS, IT SHALL BE TREATED WITH A HERBICIDE APPLICATION FOR NOXIOUS WEEDS, AFTER PLACEMENT OF SOIL, AND BEFORE NATIVE SEEDING. HERBICIDE WILL BE SPRAYED BY A LICENSED HERBICIDE APPLICATOR.

IT IS ESTIMATED THAT 340 LF OF ORANGE PLASTIC FENCE WILL BE REQUIRED FOR THIS PROJECT AS DIRECTED BY THE PROJECT ENGINEER.

UNLESS CONFINED TO A PREDEFINED, BERMED CONTAINMENT AREA, THE CLEANING OF CONCRETE TRUCK DELIVERY CHUTES IS PROHIBITED AT THE JOB SITE. THE DISCHARGE OF WATER CONTAINING WASTE CEMENT TO THE STORM SEWER SYSTEM IS PROHIBITED. WASHING OUT OF CONCRETE TRUCKS SHALL BE LIMITED TO SPECIFIC SITES PRE-APPROVED BY THE ENGINEER. THESE SITES SHALL BE BERMED OR CONTAINED SITES THAT DO NOT ALLOW CONCRETE WASTE-WATER TO ENTER INTO THE STORM DRAINAGE SYSTEMS. AFTER ALL CONCRETE OPERATIONS ARE COMPLETE, THESE AREAS SHALL BE RESTORED TO THEIR ORIGINAL CONDITION BY THE CONTRACTOR, AT NO COST TO THE PROJECT.

ONE VEHICLE GATE WILL BE REQUIRED FOR THIS PROJECT. THE CONTRACTOR'S ATTENTION IS DIRECTED TO SECTION 607 OF THE PROJECT'S SPECIAL PROVISION.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO

1-800-922-1987

CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
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Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed			GENERAL NOTES			Project No./Code	
Last Modification Date:		05/21/03	Initials:		SHM						No Revisions:			IM 0253-168		
Cross References:		N/A									Revised:			13344		
Full Path:		C:\DOT TRANSF.PRO\HOV.I-25\									Designer:		JO	Structure		
Drawing File Name:		HOVEGNote.dwg									Detailer:		BMC	Numbers		
Acod Ver. R14		Scale: NONE		Units: English							Sheet Subset: 2 of 2		Sheet Number:		4	

TABULATION OF EARTHWORK QUANTITIES

	PLAN CU. YD.	AS CONST. CU. YD.
<u>EMBANKMENT MATERIAL (CIP)</u>		
Embankment Material (R10) (From Cross Sections)	8645	
Embankment Material (R20) (From Cross Sections)	25068	
TOTAL	33713	
<u>MUCK EXCAVATION (CIP)</u>		
Muck Excavation (As directed by the Engineer)	6000	
TOTAL	6000	
<u>ROADWAY QUANTITIES BALANCE (FOR INFORMATION ONLY)</u>		
<u>WETTING (FOR INFORMATION ONLY)</u>		
Compaction (Roadway)	M GAL	
	1870	
<u>COMPACTION (AASHTO T99) (FOR INFORMATION ONLY)</u>	PLAN CU. YD.	AS CONST. CU. YD.
Embankment Material (R10) (From Cross Sections)	8645	
Bases of Cuts and Fills	7017	
Embankment Material (R20) (From Cross Sections)	25068	
TOTAL	40730	
<u>EXCAVATION</u>		
Unclassified (Fram Cross Sections)	29680	
Estimated for Cut Slope Treatment	148	
Borrow from Contractor's Source	8942	
TOTAL	38770	
<u>EMBANKMENT NET</u>		
Embankment Material (R10) (From Cross Sections)	8645	
Embankment Material (R20) (From Cross Sections)	25068	
TOTAL	33713	
<u>EMBANKMENT X FACTOR (1.15)</u>		
Embankment Material (R10) (From Cross Sections)	9942	
Embankment Material (R20) (From Cross Sections)	28828	
TOTAL	38770	

SUMMARY OF UNCLASSIFIED EXCAVATION (FOR INFORMATION ONLY)

	PLAN CU. YD.	AS CONST. CU. YD.
<u>FROM CROSS SECTIONS</u>		
HOVNB BASE LINE		
STA. 583+50 TO STA. 627+50	23872	
I-25 CENTER LINE		
STA. 290+00 TO STA. 312+33	3530	
I-25 BASE LINE		
STA. 1312+33.13 TO STA. 1319+46.3	2278	
TOTAL OF UNCLASSIFIED EXCAVATION	29680	

SUMMARY OF EMBANKMENT MATERIAL (R20) (FOR INFORMATION ONLY)

	PLAN CU. YD.	AS CONST. CU. YD.
<u>FROM CROSS SECTIONS</u>		
HOVNB BASE LINE		
STA. 583+50 TO STA. 627+50	17766	
I-25 CENTER LINE		
STA. 290+00 TO STA. 312+33	5592	
I-25 BASE LINE		
STA. 1312+33.13 TO STA. 1319+46.3	1710	
TOTAL OF EMBANKMENT MATERIAL (R20)	25068	

SUMMARY OF EMBANKMENT MATERIAL (R10) (FOR INFORMATION ONLY)

	PLAN CU. YD.	AS CONST. CU. YD.
<u>FROM CROSS SECTIONS</u>		
HOVNB BASE LINE		
STA. 583+50 TO STA. 627+50	7039	
I-25 CENTER LINE		
STA. 290+00 TO STA. 312+33	1606	
TOTAL OF EMBANKMENT MATERIAL (R10)	8645	

SUMMARY OF BASES OF CUTS AND FILLS (FOR INFORMATION ONLY)

	PLAN CU. YD.	AS CONST. CU. YD.
<u>FROM CROSS SECTIONS</u>		
HOVNB BASE LINE		
STA. 583+50 TO STA. 627+50	5359	
I-25 CENTER LINE		
STA. 290+00 TO STA. 312+33	294	
I-25 BASE LINE		
STA. 1312+33.13 TO STA. 1319+46.3	1364	
TOTAL OF BASES OF CUTS AND FILLS	7017	

SUMMARY OF MUCK EXCAVATION (FOR INFORMATION ONLY)

	PLAN CU. YD.	AS CONST. CU. YD.
<u>FROM CROSS SECTIONS (AS DIRECTED BY THE ENGINEER)</u>		
HOVNB BASE LINE		
STA. 583+50 TO STA. 627+50	3000	
I-25 CENTER LINE		
STA. 290+00 TO STA. 312+33	3000	
TOTAL OF MUCK EXCAVATION	6000	

NOTE:
MUCK EXCAVATION WILL INCLUDE THE EXCAVATION AND BACKFILL WITH APPROVED MATERIAL AS PER SPECIFICATION 103.05. MUCK EXCAVATION WITHIN THE TOP THREE FEET OF SUBGRADE SHALL BE REPLACED WITH SUITABLE MATERIAL OF MINIMUM R VALUE OF 20.

Computer File Information		Sheet Revisions		As Constructed		SUMMARY OF EARTHWORK		Project No./Code	
Last Modification Date:	06/07/03	Initials:	BMC			No Revisions:		IM 0253-168	
Cross References:						Revised:			
Full Path:	HOV\TABS\						JO Structure Numbers		13344
Drawing File Name:	HOVEWork.DWG						BMC		
Acad Ver. '02	Scale:		Units: English				Sheet Subset:		Sheet Number 5

PAVEMENT DESIGN PARAMETERS

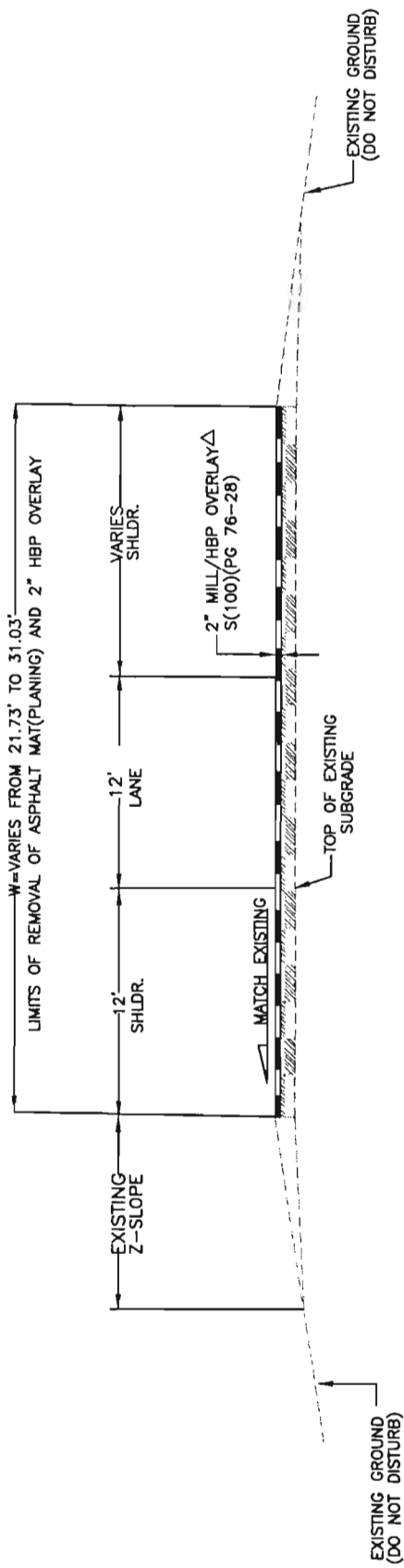
	ASPHALT		CONCRETE(UPCP)
	FLEXIBLE OVERLAY FWD DESIGN	PATCHING/ WIDENING	
DESIGN LIFE(YEARS)	10	20	30
INITIAL SERVICEABILITY	4.5	4.5	4.5
TERMINAL SERVICEABILITY	2.5	2.5	2.5
% RELIABILITY	95%	95%	95%
OVERALL DEVIATION	0.44	0.44	0.34
R-VALVE DESIGN	25	8	8
SOIL RESILIENT MODULUS(PSI)	5899	3337	3337
STRUCTURAL COEFFICIENT	0.44	0.44	--
REQUIRED STR. NUMBER(IN)	5.29	6.91	--
PCC MODULUS OF RUPTURE(PSI)	--	--	850
PCC MODULUS OF ELASTICITY(PSI)	--	--	3,400,000
PCC LOAD TRANSFER	--	--	2.8
EFFECTIVE PAVEMENT MODULUS(PSI)	120,495	--	--
DRAINAGE COEFFICIENT	--	1	1 FOR ABC
OVERLAY STR. NUMBER(IN)	0.84	--	--
I25 CL: 18 k ESAL	9,083,000	19,138,000	44,591,000
I25 NB-C: 18 k ESAL	9,083,000	19,138,000	--
HOV NB: 18 k ESAL	9,083,000	19,138,000	44,591,000
HOV SB: 18 k ESAL	9,083,000	19,138,000	44,591,000
PAVEMENT THICKNESS (inches)	15 3/4" HBP	--	13" W/LOAD TRANSFER DEVICES
BASE THICKNESS (inches)	--	--	6" ABC (CL6)

I-25 NORTH BOUND
(M.P. 217.4 TO M.P. 218.5)
EXISTING ROADWAY(PAVEMENT) SMOOTHNESS
(FOR INFORMATION ONLY)

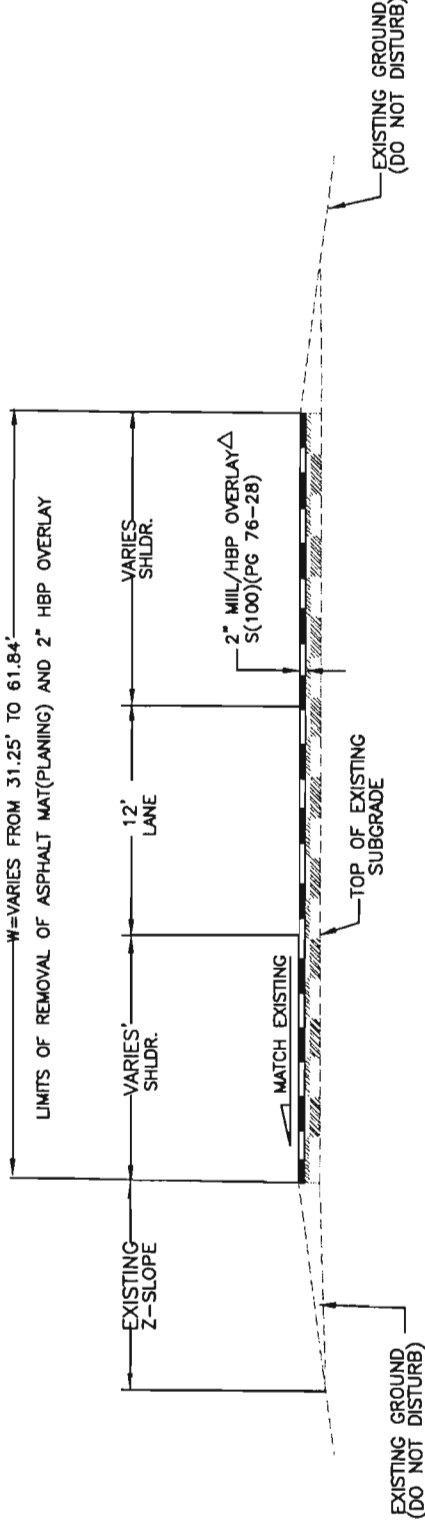
DIRECTION/LANE	INTERNATIONAL ROUGHNESS INDEX (IRI) / DATE OF SURVEY
INCREASING MILEPOST, LANE 2	120, 2/17/02

NOTES:

- △ REMOVAL OF ASPHALT MAT (PLANING) DEPTH SHALL BE 2 INCHES, OR 1/2 INCH BELOW THE WHEEL RUTS, WHICHEVER IS GREATER, AS DIRECTED BY THE ENGINEER.
- CRACK SEALANT TO BE APPLIED AT LOCATIONS AS DIRECTED BY THE ENGINEER.



84th AVENUE, NORTHEAST RAMP
(I-25 ON RAMP)



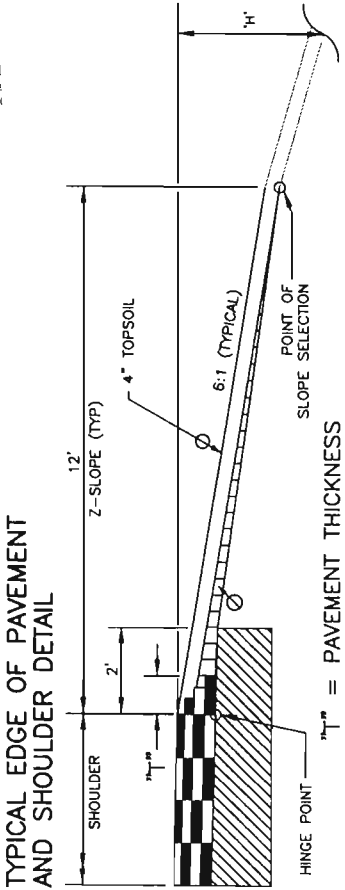
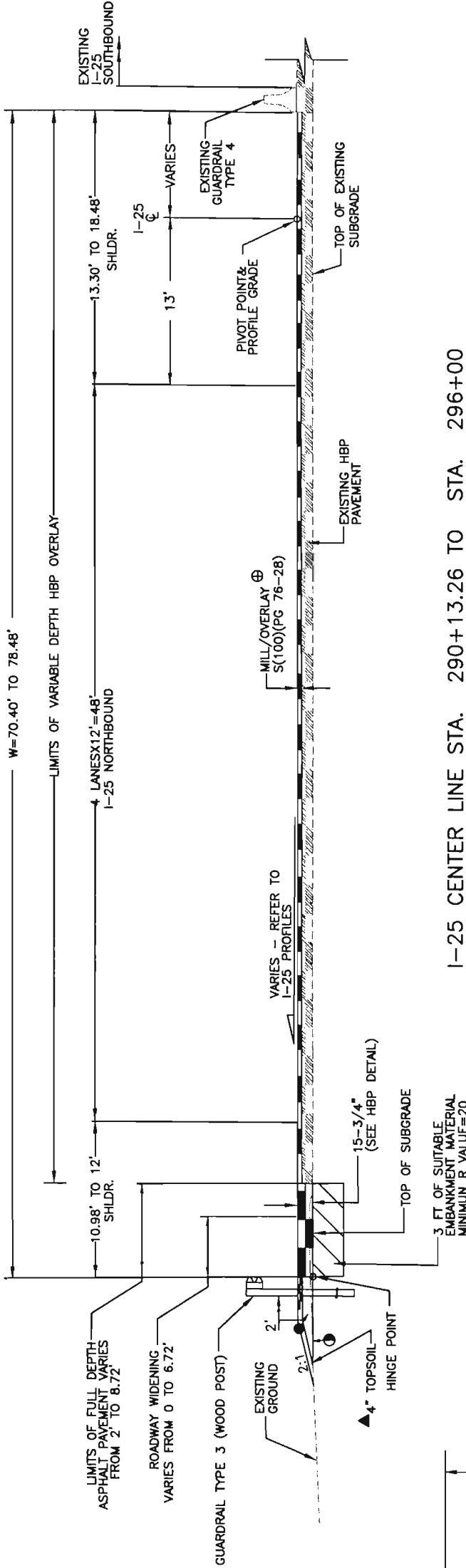
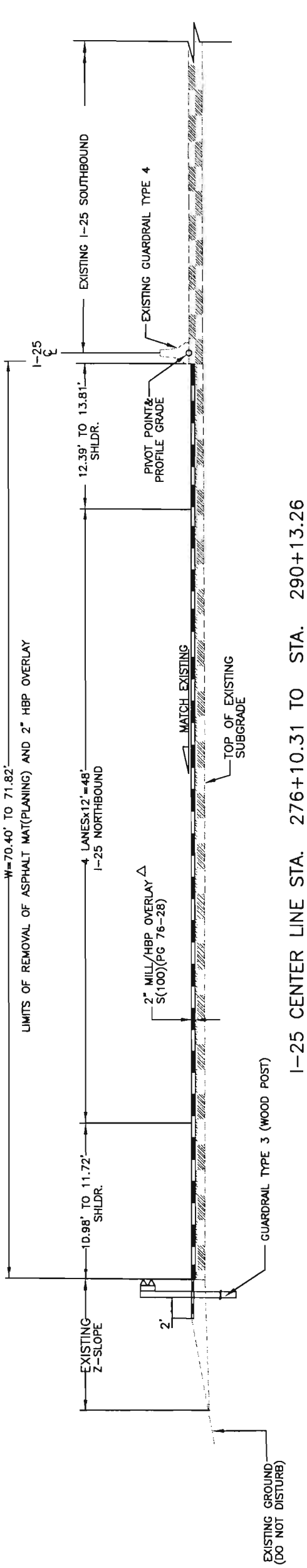
84th AVENUE, SOUTHEAST RAMP
(I-25 OFF RAMP)

15 3/4" HBP PATCHING



TOP 2 LIFTS HBP GRADING S(100)(PG 76-28)
BOTTOM 3 LIFTS HBP GRADING S(100)(PG 64-22)

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:		2/05/02	Initials:	MH				No Revisions:	IM 0253-168	
Last Modification Date:		4/18/03	Initials:	BMC				Revised:	13344	
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Drawing File Name:		I-25Typsec1.dwg							Sheet Number	
					84TH AVE. RAMPS					6
					Region 6 – North Engineering JCS					



NOTES:

BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

IN SPECIAL CASES SLOPE MAY BE STEEPENED OR FLATTENED AS PER GRADING PLAN OR AS DIRECTED BY THE ENGINEER.

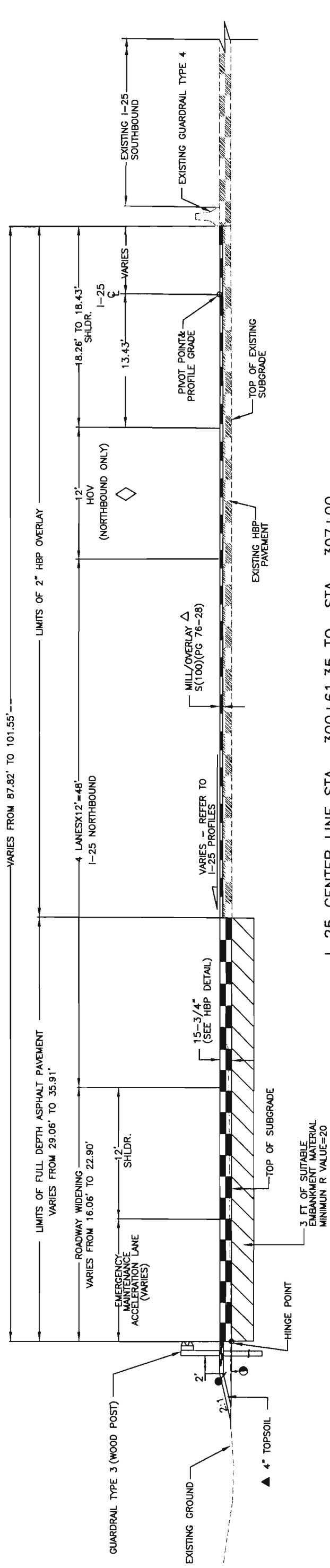
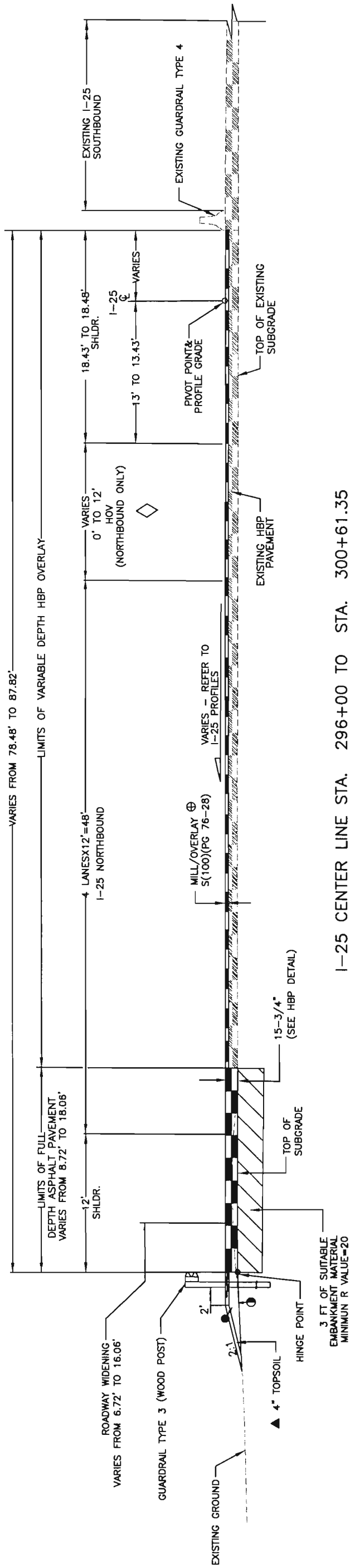
- SLOPE OF SUBGRADE FROM HINGE POINT TO POINT OF SLOPE SELECTION. (0.020%/ft MIN)
- ▲ THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL COMPLETION OF PAVING OPERATION.
- △ REMOVAL OF ASPHALT MAT (PLANING) DEPTH SHALL BE 2 INCHES, OR AS DIRECTED BY THE ENGINEER.
- ⊕ REMOVAL OF ASPHALT MAT (PLANING) DEPTH SHALL BE 2 INCHES, OR 1/2 INCH BELOW THE WHEEL RUTS, WHICHEVER IS GREATER, AS DIRECTED BY THE ENGINEER. PAVING DEPTH SHALL BE VARIABLE, MINIMUM OF 2 INCHES OF HBP ASPHALT.

15 3/4" HBP WIDENING/PATCHING



TOP 2 LIFTS HBP GRADING S(100)(PG 76-28)
BOTTOM 3 LIFTS HBP GRADING S(100)(PG 64-22)

Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed		TYPICAL SECTIONS		Project No./Code		
Creation Date:		2/25/02	Initials:		MH							I-25		IM 0253-168	
Last Modification Date:		4/18/03				Initials:		BMC				Designer:		JO	
Full Path:		C:\I-25HOV\TYPSEC\										Detailer:		MH	
Drawing File Name:		I-25 Typsec2.dwg												Sheet Number 8	
						Region 6 - North Engineering						JCS			



NOTES:

BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

IN SPECIAL CASES SLOPE MAY BE STEEPENED OR FLATTENED AS PER GRADING PLAN OR AS DIRECTED BY THE ENGINEER.

● **SUITABLE EMBANKMENT MATERIAL** MINIMUM R VALUE = 10.

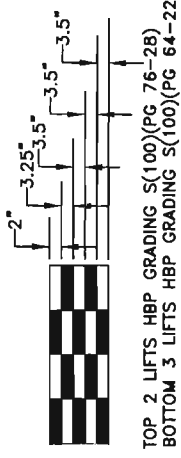
SLOPE OF SUBGRADE FROM HINGE POINT TO POINT OF
SLOPE SELECTION. (0.020ft/ft MIN)

▲ THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL AFTER COMPLETION OF PAVING OPERATION.

Δ REMOVAL OF ASPHALT MAT (PLANING) DEPTH SHALL BE 2 INCHES, OR AS DIRECTED BY THE ENGINEER. PAVING DEPTH SHALL BE 2 INCHES OF HBP ASPHALT, OR AS DIRECTED BY THE ENGINEER.

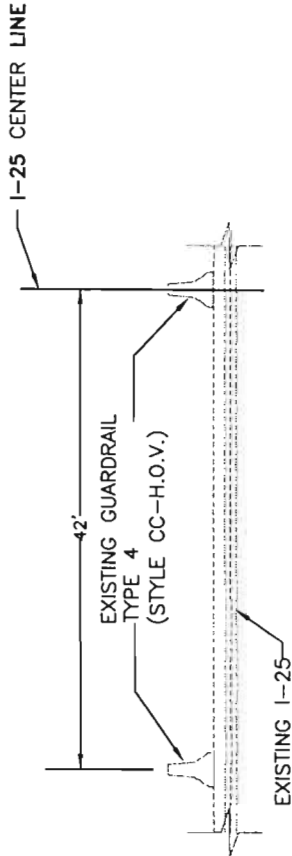
⊕ REMOVAL OF ASPHALT MAT (PLANING) DEPTH SHALL BE 2 INCHES, OR 1/2 INCH BELOW THE WHEEL RUTS, WHICHEVER IS GREATER, AS DIRECTED BY THE ENGINEER. PAVING DEPTH SHALL BE VARIABLE, MINIMUM OF 2 INCHES OF HBP ASPHALT.

15 3/4" HBP WIDENING/PATCHING

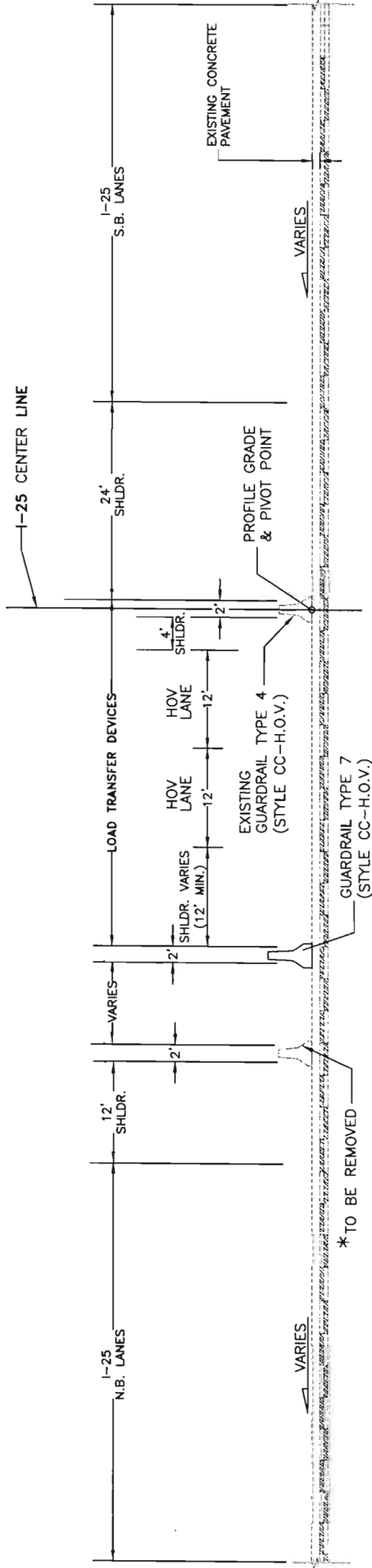
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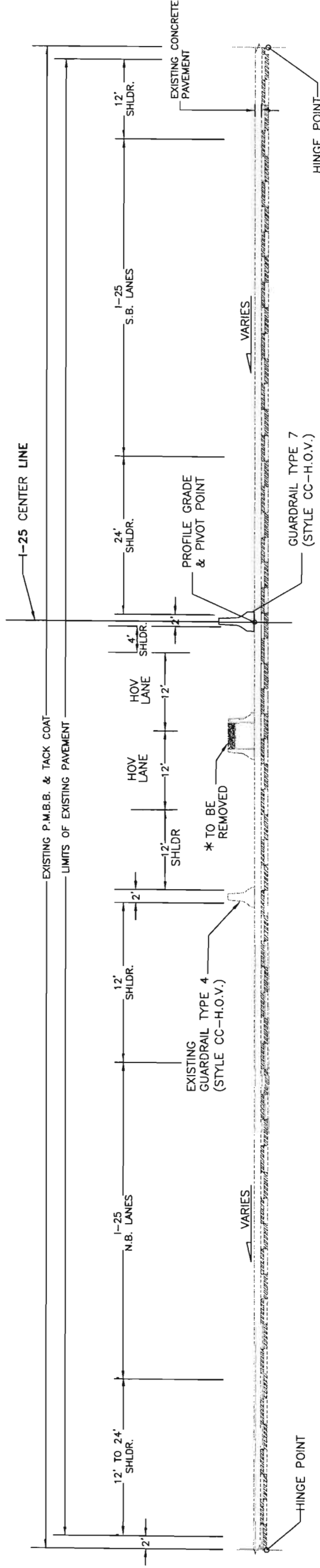
- * REQUIRED: REMOVE EXISTING GUARDRAIL TYPE 4 (STYLE CC HOV). REMOVE DOWELS TO 1 INCH BELOW PAVEMENT SURFACE. RESTORE PAVEMENT SURFACE USING NON-SHRINK EPOXY. COST TO BE INCLUDED IN THE COST OF REMOVAL OF GUARDRAIL TYPE 4.



EXISTING I-25 CENTER LINE STA. 395+00 TO STA. 415+77.08

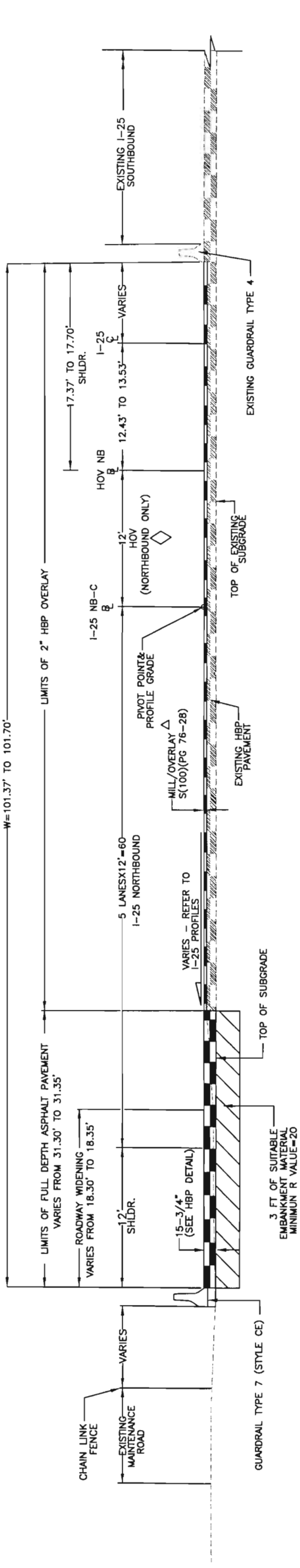


I-25 CENTER LINE STA. 415+77.08 TO STA. 427+00

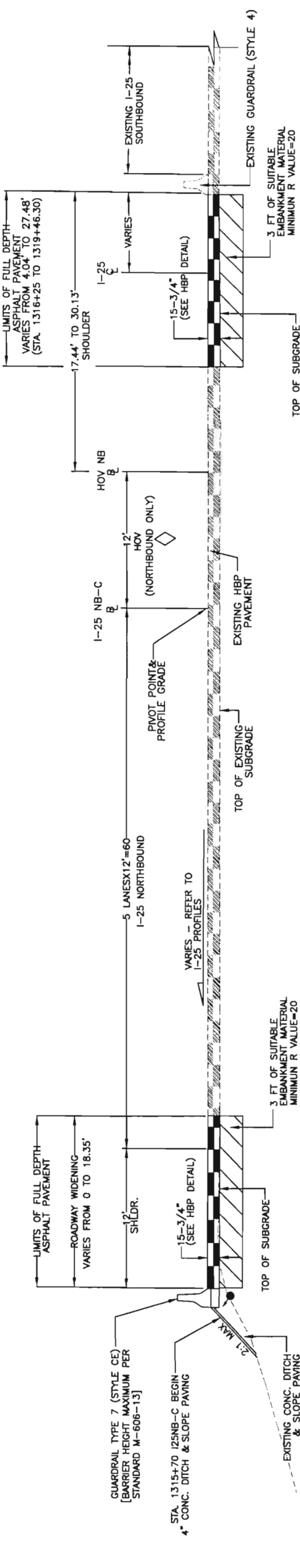


I-25 CENTER LINE STA. 435+65.00 TO STA. 444+70

Computer File Information			Sheet Revisions		As Constructed		TYPICAL SECTIONS		Project No./Code	
Creation Date:	05/25/00	Initials: MH				No Revisions:		I-25		IM 0253-168
Last Modification Date:	04/18/03	Initials: BMC				Revised:		Designer:	JO Structure	13344
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I-25 NB-C STA. 1312+33.13 TO STA. 1313+39.98



I-25 NB-C STA. 1313+39.98 TO STA. 1319+46.30

NOTES:

- BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.
- IN SPECIAL CASES SLOPE MAY BE STEEPENED OR FLATTENED AS PER GRADING PLAN OR AS DIRECTED BY THE ENGINEER.
- SUITABLE EMBANKMENT MATERIAL. MINIMUM R VALUE = 10.

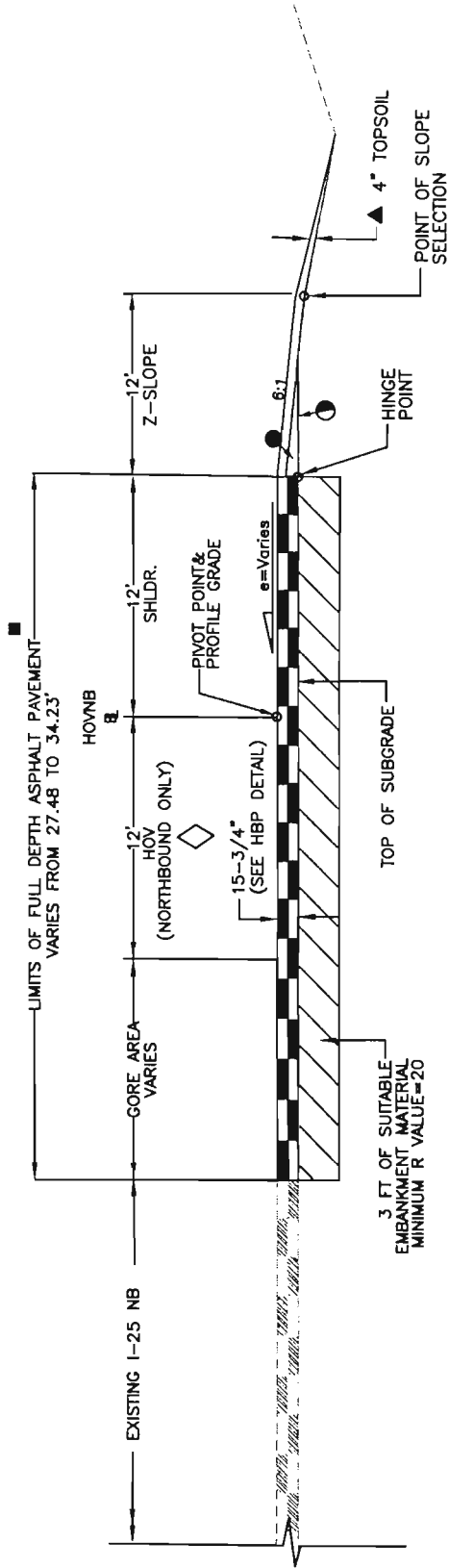
- Δ REMOVAL OF ASPHALT MAT (PLANING) DEPTH SHALL BE 2 INCHES, OR AS DIRECTED BY THE ENGINEER. PAVING DEPTH SHALL BE 2 INCHES OF HBP ASPHALT, OR AS DIRECTED BY THE ENGINEER.
- ▲ THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL AFTER COMPLETION OF PAVING OPERATION.

15 3/4" HBP WIDENING/PATCHING



TOP 2 LIFTS HBP GRADING S(100)(PG 76-28)
BOTTOM 3 LIFTS HBP GRADING S(100)(PG 64-22)

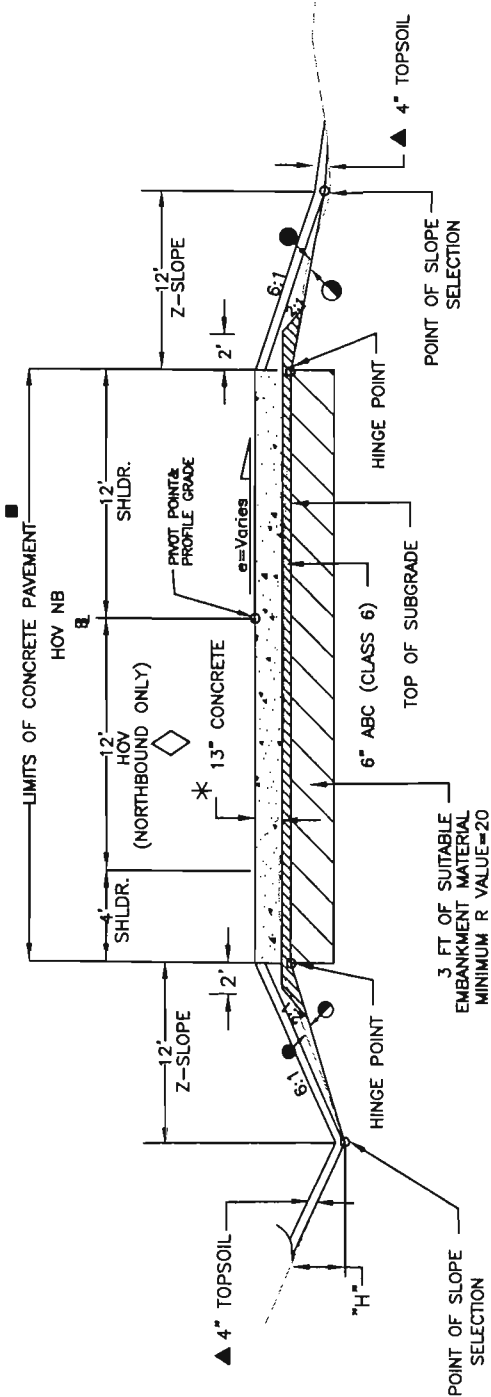
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HOV NB STA. 583+43 TO STA. 587+60

CUT OR FILL SLOPES

"H"	SLOPES
4' OR LESS	6:1
>4' TO 15'	4:1
OVER 15'	3:1



HOV NB STA. 587+60 TO STA. 602+17.74

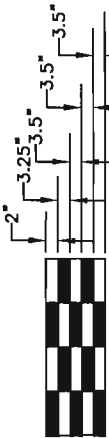
NOTES:

BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

- SUITABLE EMBANKMENT MATERIAL MINIMUM R VALUE = 10.
- PAVEMENT SMOOTHNESS CATEGORY 2.

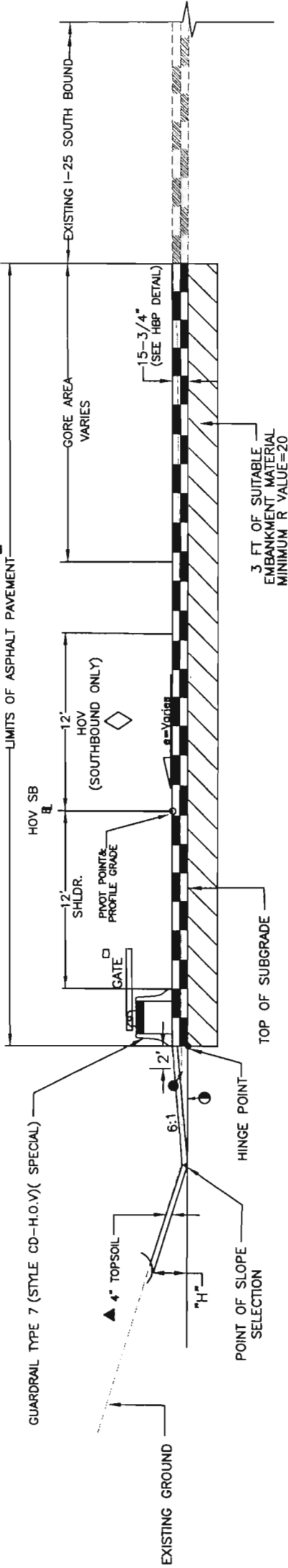
- SLOPE OF SUBGRADE FROM HINGE POINT TO POINT OF SLOPE SELECTION. (0.020ft/ft MIN)
- PORTLAND CEMENT CONCRETE PAVEMENT WITH LOAD TRANSFER DEVICES.
- THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL AFTER COMPLETION OF PAVING OPERATION. IN SPECIAL CASES SLOPE MAY BE STEEPENED OR FLATTENED AS PER GRADING PLAN OR AS DIRECTED BY THE ENGINEER.

15 3/4 inch HBP WIDENING/PATCHING

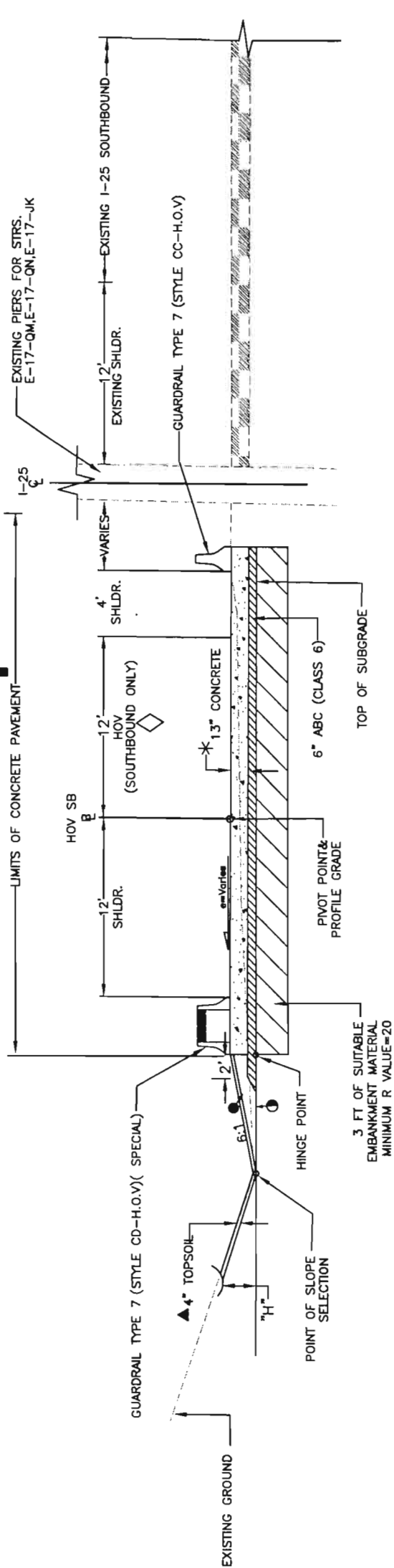


TOP 2 LIFTS HBP GRADING S(100)(PG 76-28)
BOTTOM 3 LIFTS HBP GRADING S(100)(PG 64-22)

Computer File Information			Sheet Revisions		Colorado Department of Transportation		TYPICAL SECTIONS		Project No./Code	
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									Sheet Number / 4	



HOV SB STA. 400+00 TO STA. 409+60



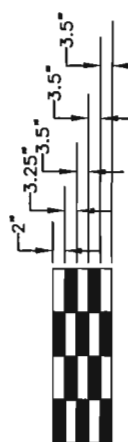
HOV SB STA. 409+60 TO STA. 411+10

NOTES:

- BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.
- SUITABLE EMBANKMENT MATERIAL. MINIMUM R VALUE = 10.
- PAVEMENT SMOOTHNESS CATEGORY 2.
- PORTLAND CEMENT CONCRETE PAVEMENT WITH LOAD TRANSFER DEVICES.

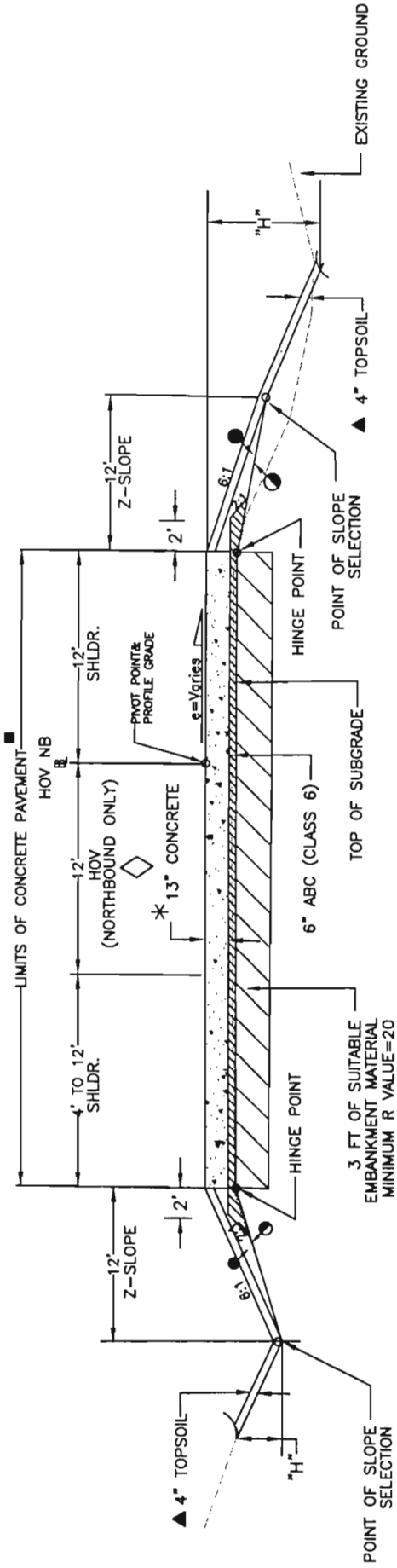
CUT OR FILL SLOPES

"H"	SLOPES
4' OR LESS	6:1
>4' TO 15'	4:1
OVER 15'	3:1

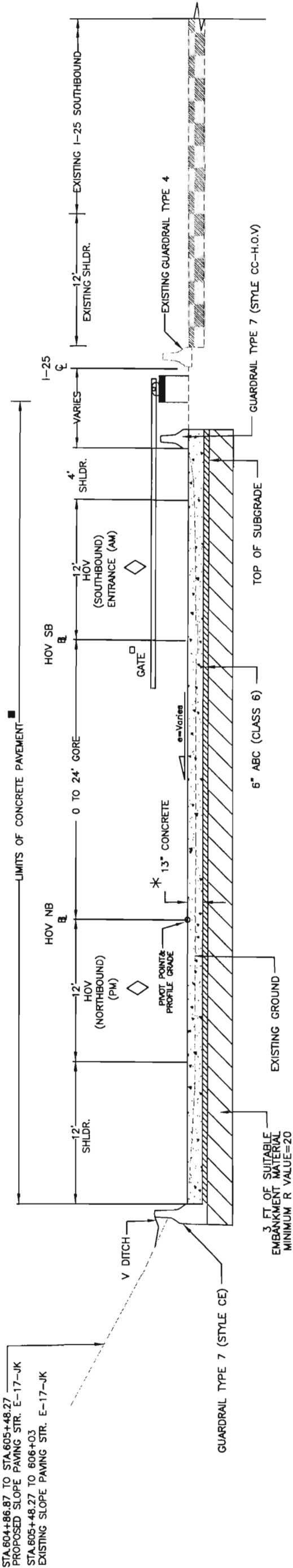


TOP 2 LIFTS HBP GRADING S(100)(PG 76-28)
BOTTOM 3 LIFTS HBP GRADING S(100)(PG 64-22)

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TYPICAL SECTIONS		Project No./Code	
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										Detailers:	
										J0	
										MH	
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										IM 0253-168	
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HOV NB STA. 602+17.74 TO STA. 604+00



HOV NB STA. 604+00 TO STA. 609+33.05 AT GATES

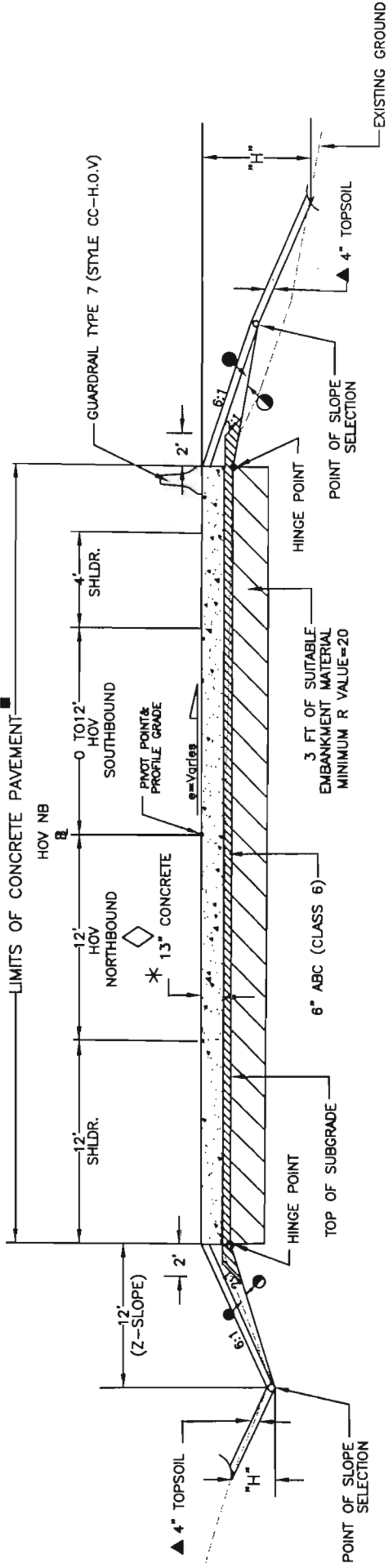
NOTES:

- BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.
- SUITABLE EMBANKMENT MATERIAL. MINIMUM R VALUE = 10.
- PAVEMENT SMOOTHNESS CATEGORY 2.
- PORTLAND CEMENT CONCRETE PAVEMENT WITH LOAD TRANSFER DEVICES.

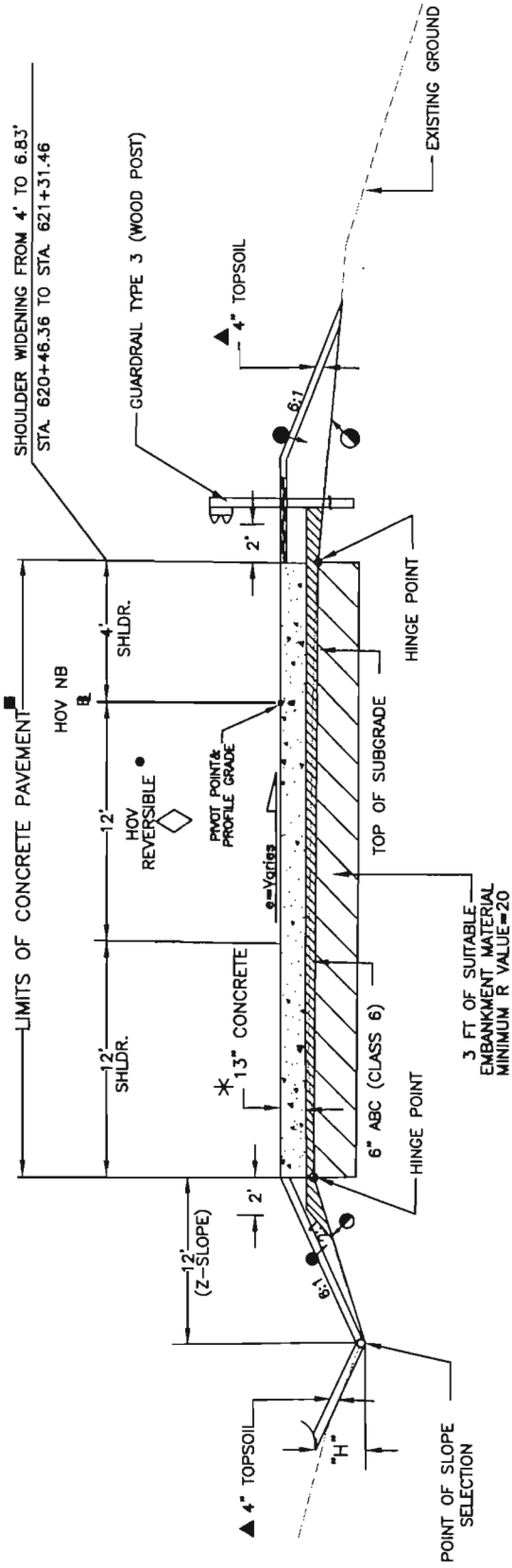
CUT OR FILL SLOPES

"H"	SLOPES
4' OR LESS	6:1
>4' TO 15'	4:1
OVER 15'	3:1

Computer File Information			Sheet Revisions		As Constructed		TYPICAL SECTIONS		Project No./Code	
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Last Modification Date:	4/21/03	Initials: BMC					JO		13344	
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HOV NB STA. 609+33.05 TO STA. 616+53.05



HOV NB STA. 616+53.05 TO STA. 621+31.46

NOTES:

BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.

- SUITABLE EMBANKMENT MATERIAL. MINIMUM R VALUE = 10.
- PAVEMENT SMOOTHNESS CATEGORY 2.

- SLOPE OF SUBGRADE FROM HINGE POINT TO POINT OF SLOPE SELECTION. (0.020ft/ft MIN)
- PORTLAND CEMENT CONCRETE PAVEMENT WITH LOAD TRANSFER DEVICES.
- REFER TO ITS PLANS FOR GATE DETAILS

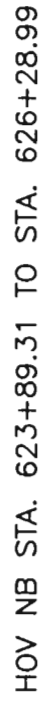
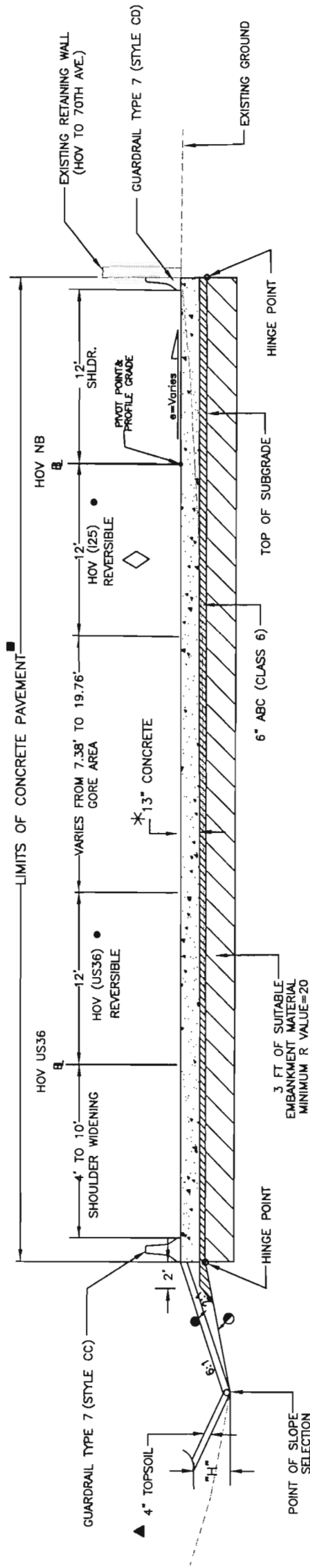
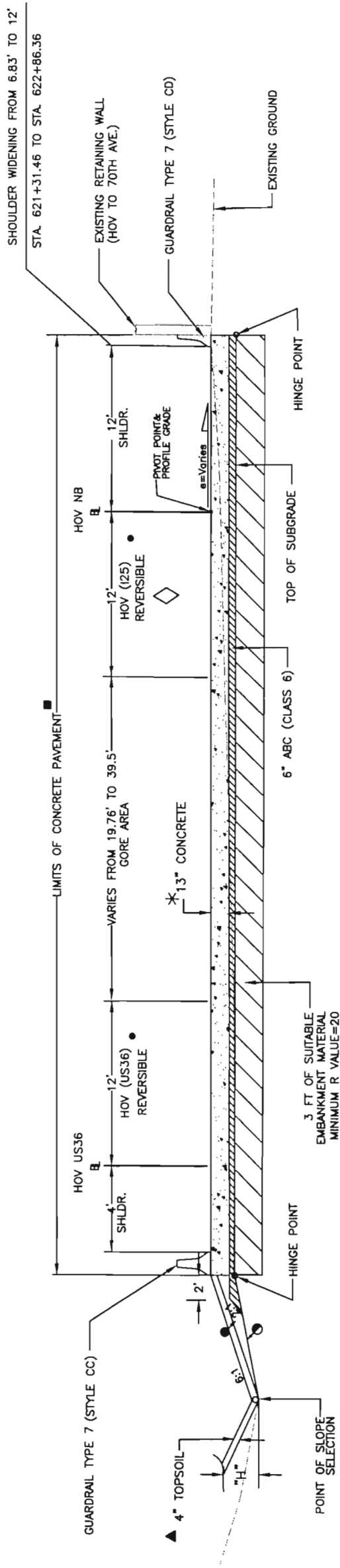
- THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL AFTER COMPLETION OF PAVING OPERATION.
- IN SPECIAL CASES SLOPE MAY BE STEEPENED OR FLATTENED AS PER GRADING PLAN OR AS DIRECTED BY THE ENGINEER.

- REVERSIBLE = A.M. HOV TRAFFIC S.B. P.M. HOV TRAFFIC N.B.

CUT OR FILL SLOPES

"H"	SLOPES
4' OR LESS	6:1
>4' TO 15'	4:1
OVER 15'	3:1

Computer File Information			Sheet Revisions		Colorado Department of Transportation		TYPICAL SECTIONS		Project No./Code		
Creation Date:	2/25/02	Initials: MH			 2000 S. Holly St. Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	As Constructed	HOV NB	IM 0253-168	13344		
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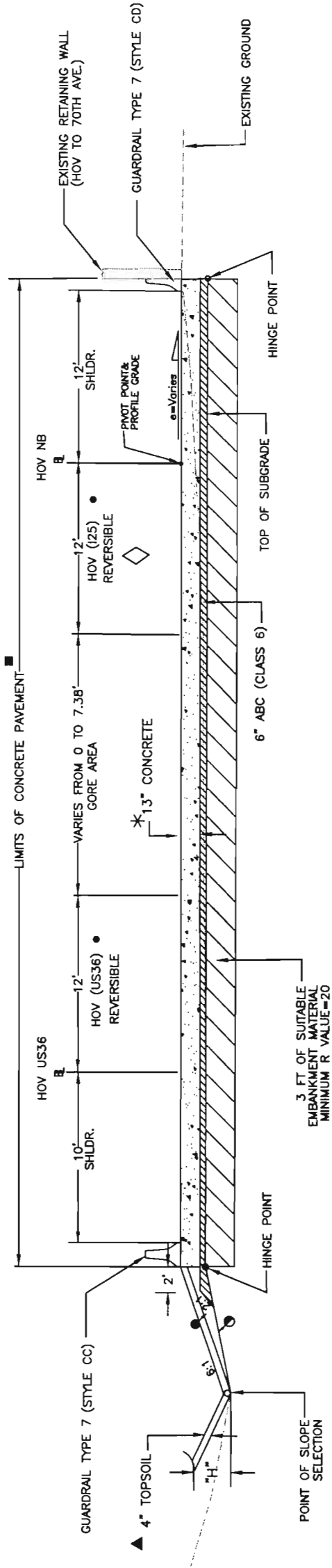
CUT OR FILL SLOPES

"H"	SLOPES
4' OR LESS	6:1
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OVER 15'	3:1

NOTES:

- | | | | |
|---|---|---|--|
| ■ | PAVEMENT SMOOTHNESS CATEGORY 2. | ▲ | THE CONTRACTOR WILL BE REQUIRED TO PLACE TOPSOIL AFTER COMPLETION OF PAVING OPERATION. |
| 🔩 | SLOPE OF SUBGRADE FROM HINGE POINT TO POINT OF SLOPE SELECTION. (0.020ft/ft MIN) | ● | IN SPECIAL CASES SLOPE MAY BE STEEPENED OR FLATTENED AS PER GRADING PLAN OR AS DIRECTED BY THE ENGINEER. |
| ✱ | PORTLAND CEMENT CONCRETE PAVEMENT WITH LOAD TRANSFER DEVICES. | | REVERSIBLE = A.M. HOV TRAFFIC S.B.
P.M. HOV TRAFFIC N.B. |
| | SUITABLE EMBANKMENT MATERIAL. MINIMUM R VALUE = 10. | | |
| | BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING. | | |

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Last Modification Date:	4/21/03	Initials:	BMC			 COLORADO DEPARTMENT OF TRANSPORTATION			J0		
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Drawing File Name:	Hovtypsec2.dwg								MH		13344
						Region 6 - North Engineering					Sheet Number / 8
						JCS					



HOV NB STA. 626+28.99 TO STA. 627+78.29

NOTES:

- ▲ BREAK POINTS ON SLOPES AND IN BOTTOM OF DITCHES SHALL BE ROUNDED DURING CONSTRUCTION FOR PLEASING APPEARANCE. SEE STANDARDS FOR DETAILS OF CUT SLOPE TREATMENT, FLARING AND WIDENING.
- SUITABLE EMBANKMENT MATERIAL. MINIMUM R VALUE = 10.
- PAVEMENT SMOOTHNESS CATEGORY 2.
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CUT OR FILL SLOPES

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INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway																PROJECT TOTALS	
				PLAN	AS CONST.															PLAN	AS CONST.
		201-00001	Clearing and Grubbing	ACRE	7.19															7.19	
		202-00001	Removal of Structure	EACH	6															6	
		202-00010	Removal of Tree	EACH	2															2	
		202-00026	Removal of Slope and Ditch Paving	SY	253															253	
		202-00033	Removal of Pipe	EACH	614															614	
		202-00037	Removal of End Section	EACH	1															1	
		202-00090	Removal of Delineator	EACH	20															20	
		202-00210	Removal of Concrete Pavement	SY	200															200	
		202-00220	Removal of Asphalt Mat	SY	24,337															24,337	
		202-00240	Removal of Asphalt Mat (Planing)	SY	32,731															32,731	
		202-00250	Removal of Pavement Marking	SF	11,560															11,560	
		202-00503	Removal of Portions of Present Structure	SY	315															315	
		202-00750	Removal of Luminaire	EACH	8															8	
		202-00805	Removal of Overhead Sign Structure	EACH	6															6	
		202-00810	Removal of Ground Sign	EACH	28															28	
		202-00821	Removal of Sign Panel	EACH	13															13	
		202-00895	Removal of Impact Attenuator	EACH	3															3	
		202-01000	Removal of Fence	LF	114															114	
		202-01040	Removal of HOV Gate	EACH	10															10	
		202-01130	Removal of Guardrail Type 3	LF	668															668	
		202-01140	Removal of Guardrail Type 4	LF	6,535															6,535	
		202-01300	Removal of End Anchorage	EACH	8															8	
		202-04001	Plug Culvert	EACH	6															6	
		202-05150	Sandblasting	SF	2,000															2,000	
		203-00060	Embankment Material (Complete In Place)	CY	33,713															33,713	
		203-00100	Muck Excavation	CY	6,000															6,000	
		203-01500	Blading	HOURL	200															200	
		203-01510	Backhoe	HOURL	40															40	
		203-01597	Potholing	HOURL	40															40	
		203-02330	Laborer	HOURL	200															200	
		206-00000	Structure Excavation	CY	466															466	
		207-00205	Topsoil	CY	2,320															2,320	
		208-00011	Erosion Bales (Weed Free)	EACH	364															364	

Computer File Information

Creation Date:6/11/03

Initials:MH

Last Modification Date:6/11/03

Initials:MH

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Sheet Revisions

CR-X

CR-X

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CR-X

Colorado Department of Transportation

DOT

2000 S. Holly Street

Denver, CO 80222

Phone:(303)370-2040

Region 6-North Engineering

FAX:(720) 945-1028

JCS

As Constructed

No Revisions:

Revised:

Void:

SUMMARY OF APPROXIMATE QUANTITIES

Project No./Code

IM 0253-168

13344

Sheet Number20

INDEX	CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway																PROJECT TOTALS	
				PLAN	AS CONST.															PLAN	AS CONST.
		208-00020 Silt Fence	LF	2,130																2,130	
		208-00045 Concrete Washout Structure	EACH	4																4	
		208-00055 Rigid Inlet Protection Device	EACH	12																12	
		208-00070 Stabilized Construction Entrance	EACH	8																8	
		208-00200 Erosion Control Supervisor	L S	1																1	
		210-00475 Reset Closed Circuit Television Pole	EACH	1																1	
		210-00750 Reset Light Standard	EACH	3																3	
		210-00755 Reset Light Standard Steel High Mast	EACH	2																2	
		210-00805 Reset Overhead Sign Structure	EACH	2																2	
		210-04011 Adjust Manhole (Special)	EACH	3																3	
		210-04015 Modify Manhole	EACH	3																3	
		210-04016 Modify Manhole (Special)	EACH	1																1	
		210-04020 Modify Inlet	EACH	9																9	
		212-00006 Seeding (Native)	ACRE	14.7																14.7	
		213-00002 Mulching (Weed Free Hay)	ACRE	24.5																24.5	
		213-00061 Mulch Tockifier	LB	2,205																2,205	
		213-00100 Soil Binder	ACRE	4.9																4.9	
		216-00041 Soil Retention Blanket (Straw/Coconut)	SY	6,336																6,336	
		250-00100 Environmental Health and Safety	L S	1																1	
		250-00110 Health and Safety Officer	HOURL	160																160	
		304-06000 Aggregate Base Course (Class 6)	TON	3,210																3,210	
		403-00720 Hot Bituminous Pavement (Patching) (Asphalt)	TON	300																300	
		403-33841 Hot Bituminous Pavement (Grading S) (100) (PG 64-22)	TON	7,718																7,718	
		403-33871 Hot Bituminous Pavement (Grading S) (100) (PG 76-28)	TON	9,209																9,209	
		408-01000 Hot Poured Joint and Crack Sealant	TON	6																6	
		411-10255 Emulsified Asphalt (Slow-Setting)	GAL	5,241																5,241	
		412-01150 Concrete Pavement (11-1/2 Inch)	SY	200																200	
		412-01300 Concrete Pavement (13 Inch)	SY	17,899																17,899	
		420-00101 Geotextile (Erosion Control) (Class B)	SY	18																18	
		503-00030 Drilled Caisson (30 Inch)	LF	40																40	
		503-00042 Drilled Caisson (42 Inch)	LF	36																36	
		503-00048 Drilled Caisson (48 Inch)	LF	64																64	

Computer File Information				Sheet Revisions		Colorado Department of Transportation		As Constructed		SUMMARY OF APPROXIMATE QUANTITIES		Project No./Code			
Creation Date:	6/11/03	Initials:	MH	☒			2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2040 FAX:(720) 945-1028	Region 6-North Engineering	JCS	No Revisions:		IM 0253-168			
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INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway															PROJECT TOTALS	
					PLAN	AS CONST.														PLAN	AS CONST.
		503-00054	Drilled Caisson (54 Inch)	LF	280															280	
		506-00209	Riprap (9 Inch)	CY	6															6	
		507-00000	Concrete Slope and Ditch Paving	CY	84															84	
		601-40301	Structural Concrete Coating	SF	17,078															17,078	
		603-01185	18 Inch Reinforced Concrete Pipe (Complete In Place)	LF	1,512															1,512	
		603-01245	24 Inch Reinforced Concrete Pipe (Complete In Place)	LF	887															887	
		603-01305	30 Inch Reinforced Concrete Pipe (Complete In Place)	LF	875															875	
		603-01365	36 Inch Reinforced Concrete Pipe (Complete In Place)	LF	53															53	
		603-05018	18 Inch Reinforced Concrete End Section	EACH	3															3	
		603-05024	24 Inch Reinforced Concrete End Section	EACH	2															2	
		603-05030	30 Inch Reinforced Concrete End Section	EACH	1															1	
		603-07240	24 Inch Reinforced Concrete Pipe (Jacked)	LF	85															85	
		603-07360	36 Inch Reinforced Concrete Pipe (Jacked)	LF	75															75	
		604-00305	Inlet Type C (5 Foot)	EACH	5															5	
		604-00310	Inlet Type C (10 Foot)	EACH	1															1	
		604-26005	Vane Grate Inlet (Double) (5 Foot)	EACH	13															13	
		604-26010	Vane Grate Inlet (Double) (10 Foot)	EACH	4															4	
		604-30010	Manhole Slab Base (10 Foot)	EACH	5															5	
		604-30015	Manhole Slab Base (15 Foot)	EACH	1															1	
		604-39050	Manhole (Traffic Management System)	EACH	13															13	
		606-00301	Guardrail Type 3 (6-3 Post Spacing)	LF	3,253.5															3,253.5	
		606-00710	Guardrail Type 7 (Style CA)	LF	315															315	
		606-00720	Guardrail Type 7 (Style CC)	LF	625															625	
		606-00726	Guardrail Type 7 (Style CC-HOV)	LF	1,078															1,078	
		606-00730	Guardrail Type 7 (Style CD)	LF	630															630	
		606-00740	Guardrail Type 7 (Style CE)	LF	1,607															1,607	
		606-00747	Guardrail Type 7 (Style CD-HOV) (Special)	LF	3,759															3,759	
		606-01340	End Anchorage Type 3D	EACH	6															6	
		606-01370	Transition Type 3G	EACH	6															6	
		606-02001	End Anchorage (Slotted Rail Terminal)	EACH	14															14	
		607-11580	Fence (Temporary)	LF	340															340	

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		SUMMARY OF APPROXIMATE QUANTITIES				Project No./Code			
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																Region 6-North Engineering				JCS	

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway															PROJECT TOTALS	
					PLAN	AS CONST.														PLAN	AS CONST.
		607-53172	Fence Chain Link (72 Inch)	LF	230															230	
		607-60610	Vehicle Gate	EACH	1															1	
		607-60630	HOV Gate	EACH	10															10	
		612-00001	Delineator (Type I)	EACH	107															107	
		612-00002	Delineator (Type II)	EACH	20															20	
		612-15000	Install Marker	EACH	50															50	
		613-00200	2 Inch Electrical Conduit	LF	600															600	
		613-00201	2 Inch Electrical Conduit (Jacked)	LF	40,000															40,000	
		613-00300	3 Inch Electrical Conduit	LF	2,400															2,400	
		613-01200	2 Inch Electrical Conduit (Plastic)	LF	78,890															78,890	
		613-07000	Pull Box (Special)	EACH	1															1	
		613-07034	Pull Box (24"x36"x18") Deep	EACH	35															35	
		613-32400	Light Standard Steel (40 Foot)	EACH	4															4	
		613-35120	Light Standard Steel High Mast (120 Foot)	EACH	1															1	
		613-40000	Concrete Foundation Pad	EACH	7															7	
		613-45048	High Mast Foundation (Drilled Caisson) (48 Inch)	LF	60															60	
		613-50000	Lowering Device	EACH	1															1	
		613-50100	Lighting Control Center	EACH	1															1	
		613-50150	Secondary Service Pedestal	EACH	1															1	
		613-70250	Luminaire High Pressure Sodium (250 Watt)	EACH	6															6	
		613-70400	Luminaire High Pressure Sodium (400 Watt)	EACH	3															3	
		613-71000	Luminaire High Pressure Sodium (1000 Watt)	EACH	4															4	
		614-00011	Sign Panel (Class I)	SF	16															16	
		614-00012	Sign Panel (Class II)	SF	732															732	
		614-00013	Sign Panel (Class III)	SF	1,561															1,561	
		614-00200	Steel Sign Post (U-2)	LF	10															10	
		614-00357	Steel Sign Post (S 3x5.7)	LF	28															28	
		614-00375	Steel Sign Post (S 3x7.5)	LF	22															22	
		614-00477	Steel Sign Post (S 4x7.7)	LF	54															54	
		614-00510	Steel Sign Post (S 5x10)	LF	12															12	
		614-01582	Steel Sign Post (2.5 Inch Round)(Slipbase Sch. 80)	LF	167															167	
		614-10015	Overpass Mounted Sign Bracket	EACH	1															1	
		614-10120	Variable Message Sign	EACH	4															4	

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code			
Creation Date:	6/11/03	Initials:	MH	 2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2040 FAX:(720) 945-1028		No Revisions:		IM 0253-168			
Last Modification Date:	6/11/03	Initials:	MH			Revised:		13344			
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Drawing File Name:	SAQ23.dwg							Sheet Number 23			
				SUMMARY OF APPROXIMATE QUANTITIES							
				Region 6-North Engineering JCS							

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway														PROJECT TOTALS	
					PLAN	AS CONST.												PLAN	AS CONST.	
		614--32000	Monotube Overhead Sign Cantilever (20 Inch Diameter)	EACH	1														1	
		614--41600	Monotube Overhead Sign Bridge (16 Inch Diameter)	EACH	1														1	
		614--42000	Monotube Overhead Sign Bridge (20 Inch Diameter)	EACH	1														1	
		614--42400	Monotube Overhead Sign Bridge (24 Inch Diameter)	EACH	4														4	
		614--72855	Traffic Signal Controller Cabinet	EACH	4														4	
		614--72871	Loop Detector Wire (Prefab) Special	LF	140														140	
		614--72875	Loop Detector Wire	LF	2,583														2,583	
		614--72878	Traffic Signal Vehicle Detector Amplifier (Loop Type) (4 Channel)	EACH	9														9	
		614--85125	Impact Attenuator (Quadguard) (Tapered)	EACH	2														2	
		614--86240	Traffic Signal Controller (Type 170)	EACH	3														3	
		614--87020	Optical Transceiver	EACH	13														13	
		614--87028	Video Optical Transceiver	EACH	12														12	
		614--87320	Closed Circuit Television	EACH	6														6	
		614--87325	Closed Circuit Television Pole	EACH	3														3	
		614--87350	Test Fiber Optic Cable	L S	1														1	
		614--87406	Fiber Optic Cable (Single Mode) (6 Strands)	LF	7,800														7,800	
		614--87496	Fiber Optic Cable (Single Mode) (96 Strands)	LF	22,000														22,000	
		614--87498	Fiber Optic Cable (Single Mode) (144 Strands)	LF	3,500														3,500	
		620--00002	Field Office (Class 2)	EACH	1														1	
		620--00012	Field Laboratory (Class 2)	EACH	1														1	
		620--00020	Sanitary Facility	EACH	1														1	
		621--00450	Detour Pavement	SY	690														690	
		625--00000	Construction Surveying	L S	1														1	
		626--00000	Mobilization	L S	1														1	
		626--01000	Public Information Services	L S	1														1	
		627--00002	Thermoplastic Pavement Marking	SF	16,874														16,874	
		627--00004	Epoxy Pavement Marking	SF	177														177	
		627--00012	Pavement Marking Paint (Low VOC Solvent Base)	GAL	1,320														1,320	
		627--01000	Preformed Plastic Pavement Marking (Type A)	SF	563														563	
		627--03000	Preformed Plastic Pavement Marking (Type C)	SF	5,687														5,687	
		627--30325	Preformed Plastic Pavement Marking (Type B) (Word-Symbol)	SF	168														168	

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		SUMMARY OF APPROXIMATE QUANTITIES		Project No./Code			
Creation Date:		6/11/03		Initials:		MH		☒		 REGIONAL & TRUCK DIVISION				No Revisions:		IM 0253-168			
Last Modification Date:		6/11/03		Initials:		MH		☒						Revised:		13344			
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Drawing File Name:		SAQ24.dwg		☒												24			
								Region 6-North Engineering								JCS			

INDEX		CONTRACT ITEM NO.	CONTRACT ITEM	UNIT	Roadway														PROJECT TOTALS	
					PLAN	AS CONST.													PLAN	AS CONST.
			627-30330	Preformed Plastic Pavement Marking (Type B) (Xwalk-Stopline)	SF	100													100	
			630-00000	Flagging	HOUR	1,000													1,000	
			630-00003	Uniformed Traffic Control	HOUR	1,000													1,000	
			630-00004	Traffic Control Vehicle	EACH	2													2	
			630-00007	Traffic Control Inspection	DAY	95													95	
			630-00012	Traffic Control Management	DAY	235													235	
			630-80001	Flashing Beacon (Portable)	EACH	4													4	
			630-80337	Barricade (Type 3 M-C) (Temporary)	EACH	8													8	
			630-80341	Construction Traffic Sign (Panel Size A)	EACH	8													8	
			630-80342	Construction Traffic Sign (Panel Size B)	EACH	58													58	
			630-80343	Construction Traffic Sign (Panel Size C)	EACH	20													20	
			630-80344	Construction Traffic Sign (Special)	SF	462													462	
			630-80355	Portable Message Sign Panel	EACH	5													5	
			630-80358	Advance Warning Flashing or Sequencing Arrow Panel (C Type)	EACH	2													4	
			630-80360	Drum Channelizing Device	EACH	400													400	
			630-80370	Concrete Barrier (Temporary)	LF	7,938													7,938	
			630-80380	Traffic Cone	EACH	400													400	
			630-80520	Mobile Pavement Marking Zone	DAY	5													5	
			630-85010	Impact Attenuator (Temporary)	EACH	8													8	
				FORCE ACCOUNT =====																
			700-70010	F/A Minor Contract Revisions	F A	1													1	
			700-70012	F/A Asphalt Pavement Incentive	F A	1													1	
			700-70013	F/A Concrete Incentive Payment	F A	1													1	
			700-70021	F/A On-the-Job Trainee	HOUR	1,920													1,920	
			700-70022	F/A OJT Colorado Training Program	F A	1													1	
			700-70025	F/A Quality Incentive Payment (Smoothness-Concrete)	F A	1													1	
			700-70028	F/A ESB Program	F A	1													1	
			700-70033	F/A Quality Incentive (Smoothness-Asphalt)	F A	1													1	
			700-70072	F/A Obtain Power from Public Service Co	F A	1													1	

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		SUMMARY OF APPROXIMATE QUANTITIES				Project No./Code	
Creation Date:	6/11/03	Initials:	MH	☒								No Revisions:		IM 0253-168				IM 0253-168	
Last Modification Date:	6/11/03	Initials:	MH	☒				2000 S. Holly Street Denver, CO 80222				Revised:		13344				13344	
Full Path:	C:\My Document\125-HOV-AD\Tab\			☒				Phone:(303)370-2040				Void:						Sheet Number 25	
Drawing File Name:	SAQ25.dwg			☒				FAX:(720) 945-1028											
				☒				Region 6-North Engineering						JCS					

LOCATION	SIDE	REMOVAL OF TREE	REMOVAL OF ASPHALT MAT (PLANING)	REMOVAL OF ASPHALT MAT YARDS	REMOVAL OF SLOPE AND DITCH PAVING	REMOVAL OF FENCE	REMOVAL OF GUARDRAIL TYPE 3	REMOVAL OF GUARDRAIL TYPE 4 ★					REMOVAL OF END ANCHORAGE TYPE			REMOVAL OF IMPACT ATTENUATOR	** SAWCUTTING ASPHALT	CLEARING AND GRUBBING	COMMENTS
								PRECAST PORTABLE	STYLE CE	STYLE CA	STYLE CC HOV	STYLE CD HOV • (SPECIAL)							
I25 CL																			
STA 255+51.47 to 313+39.98	LT		25671																
STA 262+15.49 to 265+44.76	LT						330						1						
STA 277+81.41 to 279+48.91	LT								167.5										
STA 290+13.26 to 315+68	LT															2326.72	LF	(ACRES)	
STA 292+00 to 295+00	LT																		
STA 293+20 to 299+60	LT								640										
STA 295+00 to 363+81	LT																		
STA 298+41.62 to 301+54	LT						275						1						
	LT																		
STA 300+61.35 to 313+39.98	LT			1854															
STA 311+16.25 to 313+63.75	LT								238										
STA 311+49 to 319+46	LT							793											
STA 315+68 to 319+41	LT				253														
STA 316+26 to 347+41	LT																		
STA 319+58.40 to 351+92	LT & RT			20447														3.32	
STA 329+51.24 to 338+49.80	LT									899								1.86	
STA 344+97 to 363+81	LT																		
STA 357+26 to 363+81	RT			2036															
STA 359+66.10 to 363+70.18	LT						63	230					2	2					
STA 357+25.56 to 363+52.64	LT																		
STA 416+77.08 to 424+00	LT									633						1			
STA 424+00 to 427+78.85	LT										730								
STA 435+65 to 445+25	LT										385					1			
STA 444+41.27 to 453+00	RT											960				1			
STA 329+36.76 to 329+38.97	LT	2										859				1			
STA 310+33 to 311+46	LT					114													
I25 NORTHEAST ON RAMP			2262																
I25 SOUTHEAST OFF RAMP			4798																
I25 NB-C																			
STA 1315+68 to 1319+46								1023	1046	1532	1115	1819		2	2	4	378		
SUBTOTAL																			
PROJECT TOTALS:		2	32731	24337	253	114	668			6535				8		3	2705	7.19	

★ All removed Guardrail Type 4 (Precast Portable) and Impact Attenuators will become the property of CDOT upon completion of the project.

The Contractor shall remove all steel angles and anchor bolts that attach the Type 4 Guardrail (Precast Portable) and patch holes with a non-shrink epoxy. Cost to be included in the work.

- Guardrail HOV Special Style CD may contain TMS items. Contact Region 6 Traffic-ITS.

** For information only. Cost to be included in the cost of removal of asphalt mat.

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		TABULATION OF REMOVALS		Project No./Code	
Last Modification Date:		06/03/03		Initials:		MH		(R-X)									
Creation Date:		07/02/02		Initials:		MH		(R-X)				No Revisions:				IM 0253-168	
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Drawing File Name:		Removal-Tab.dwg						(R-X)				Void:					
Acad Ver.		2000		Units:		English		(R-X)								Sheet Number 27	

TABULATION OF GUARDRAIL , ATTENUATORS AND FENCE

LOCATION	SIDE	GUARDRAIL TYPE 3 (6'-3" POST SPACING) (WOOD POST)		● GUARDRAIL TYPE 7										END ANCHORAGE TYPE	IMPACT ATTENUATOR	FENCE CHAIN LINK (72 INCH)	COMMENTS
		(FT)		(FT)							EACH						
		***LENGTH OF NEED N	TOTAL LENGTH	(STYLE CD-HOV) (SPECIAL)	(STYLE CC-HOV)	# PRECAST PORTABLE	CA	CC	CD	CE	3D	3G	SRT				
I25 CL																	
262+24.72 to 263+74.72	62' Left							150									
263+74.72 to 266+30.97	62' Left	208.47	237.5														
277+81.41 to 279+48.91	0																
290+00 to 304+00	73' to 86' Left		1408									1		1			
293+10 to 294+70.12	0 to 3' Right							160									
294+70.12 to 296+37.62	0																
296+37.62 to 299+70	0 to 7.25' Right							340									
310+61.37 to 312+88.95	97' to 138' Left																
311+06 to 315+21.24	97' Left																
311+16.25 to 312+83.75	0																
312+83.75 to 313+73.75	0 to 7.38' Right							90									
416+77.08 to 427+78.85	42' to 44' Left				•1115												
435+65.34 to 453+00	0				•1835										230		
I25NB-C																	
1315+21.24 to 1319+46.30	97' to 124' Left																
HOV SB																	
400+00 to 400+50	13' to 16' Left			50													
400+50 to 410+77.50	16' Left			1028										1			
HOV NB																	
602+87.40 to 610+91.62	17' to 70' Right				809							1	1	1			
604+00 to 607+03	25' Left									260							
607+03 to 608+28	25' Left	123.29	125									1	1	1			
617+24.66 to 621+55.91	5' Right	242.19	412.5									1	1	1			
621+55.91 to 627+78.29	5' to 13' Right									630							
I25NB																	
345+47.18 to 355+34.71	13' to 61' Left					998											
HOV US36																	
699+42.44 to 706+46.85	5' to 11' Left									625							
SHEET TOTAL:			2183	1078	3759**	1738			625	630	1607	1	3	4	2	230	

* INCLUDING 10' TRANSITION PIECE TO EXISTING GUARDRAIL TYPE 4 AND IS PAID FOR AS GUARDRAIL TYPE 7.
** IT IS ESTIMATED THAT 7518 LF OF 2 IN ELECTRICAL CONDUIT WILL BE REQUIRED FOR THE INSTALLATION OF GUARDRAIL TYPE 7(CC-HOV).
*** PRIOR TO INSTALLING GUARDRAIL, CONTRACTOR IS TO FIELD VERIFY LOCATIONS. REFER TO 'N' LENGTH IN CDOT STANDARD M-606-1.
● STRUCTURAL CONCRETE COATING SHALL BE REQUIRED ON ALL PROPOSED GUARD RAIL TYPE 7. STRUCTURAL CONCRETE COATING SHALL BE TAN. FEDERAL COLOR CODE 30450.
IT IS ESTIMATED THAT THIS PROJECT WILL REQUIRE 17078 SF OF STRUCTURAL CONCRETE COATING.
PAID FOR AS CONCRETE BARRIER (TEMP).

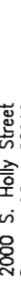
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Last Modification Date:		4/16/03	Initials:		MH				2000 S. Holly Street Denver, CO 80222 Phone: (303)370-2040 FAX: (720) 945-1028			No Revisions:		mm/dd/yy		IM 0253-168	
Cross References:									 Region 6 – North Engineering JSC			Revised:		mm/dd/yy		13344	
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Drawing File Name:		GDR-TAB.dwg															
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TABULATION OF DELINEATORS

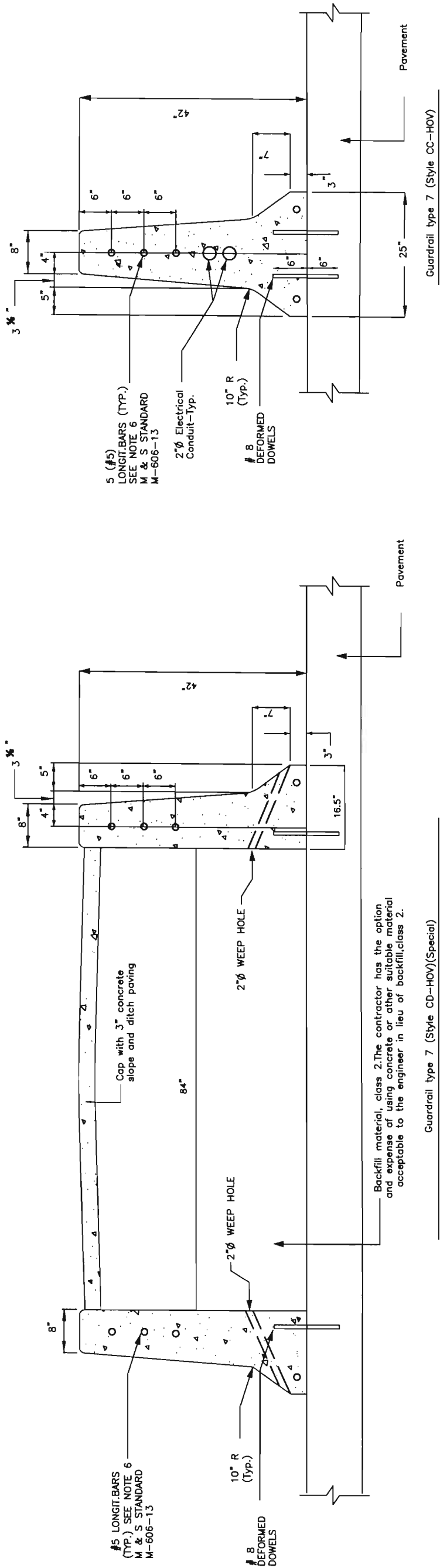
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NOTE: 1. ALL DELINEATORS SHALL BE PLACED AND INSTALLED ACCORDING TO CDOT STANDARDS AS SPECIFIED IN S-612-1.

2. PLACE DELINEATORS ON TYPE 7 CONCRETE BARRIER IN ACCORDANCE WITH CDOT STANDARDS AS SPECIFIED IN S-612-1. BACK TO BACK DELINEATORS SHALL BE INSTALLED ON MEDIAN BARRIERS.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF DELINEATORS		Project No./Code	
Last Modification Date: 06/10/03		MH		2000 S. Holly Street Denver, CO 80222 Phone: (303) 370-2040 FAX: (720) 945-1028		No Revisions: mm/dd/yy		JO Structure		0253-168	
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Note:
For detail information refer to CDOT M & S Standard M-606-13

Project No./Code	0253--168
	13344
Sheet Number	31

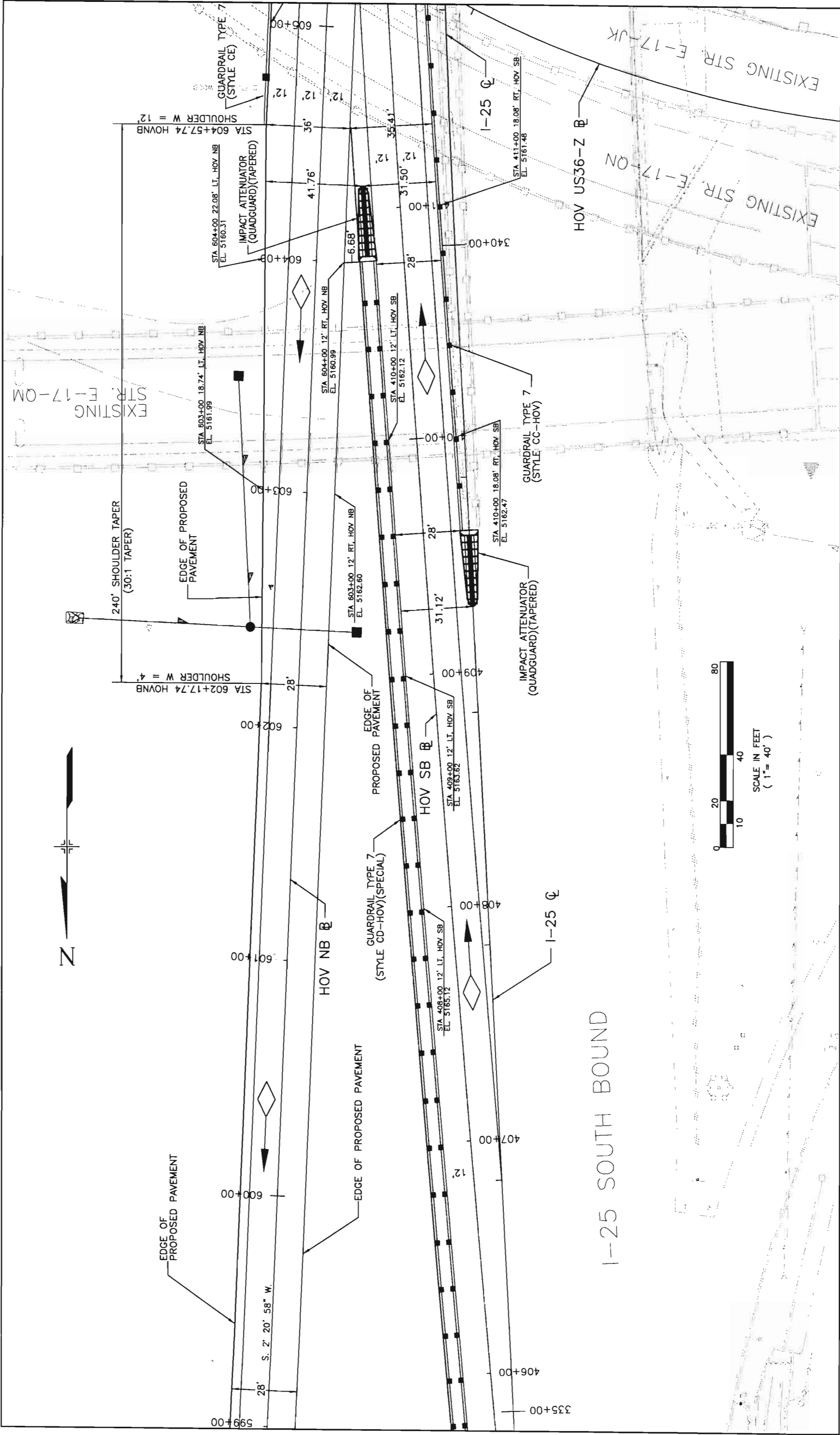
GUARDRAIL TYPE 7 (STYLE CC-HOV) AND (STYLE CD-HOV)(SPECIAL) DETAILS
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As Constructed
No Revisions:
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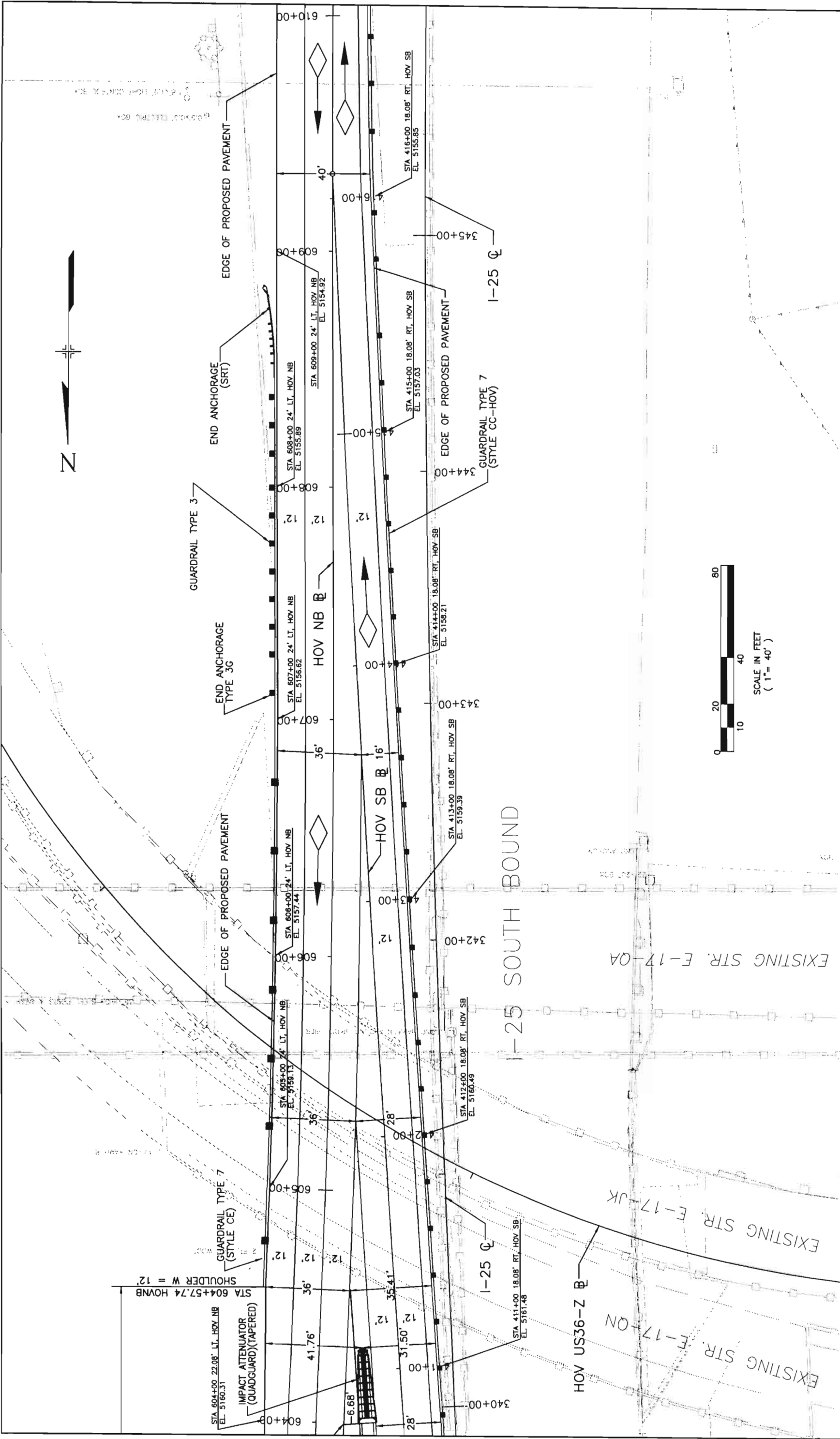
Colorado Department of Transportation
 2000 S. Holly Street Denver, CO 80222 Phone: (303) 370-2052 FAX: (720) 945-1028
Region 6-North Engineering
JCS

Sheet Revisions

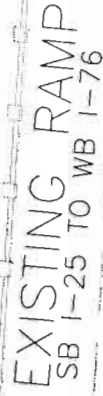
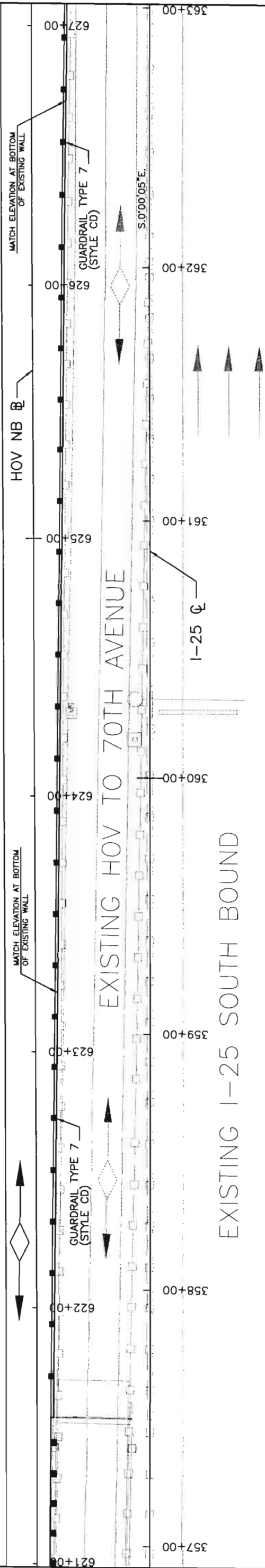
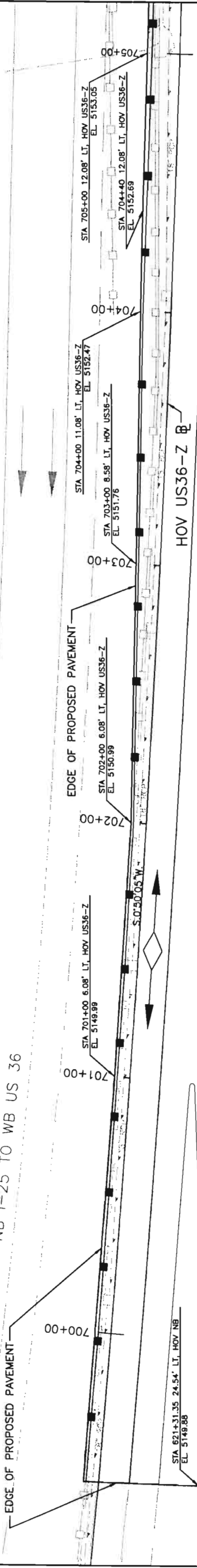
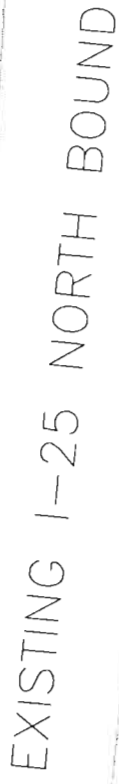
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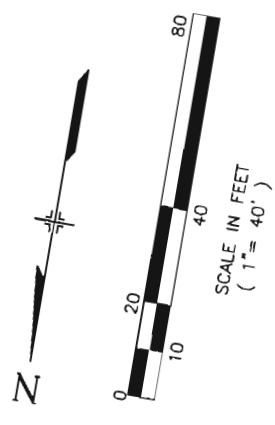
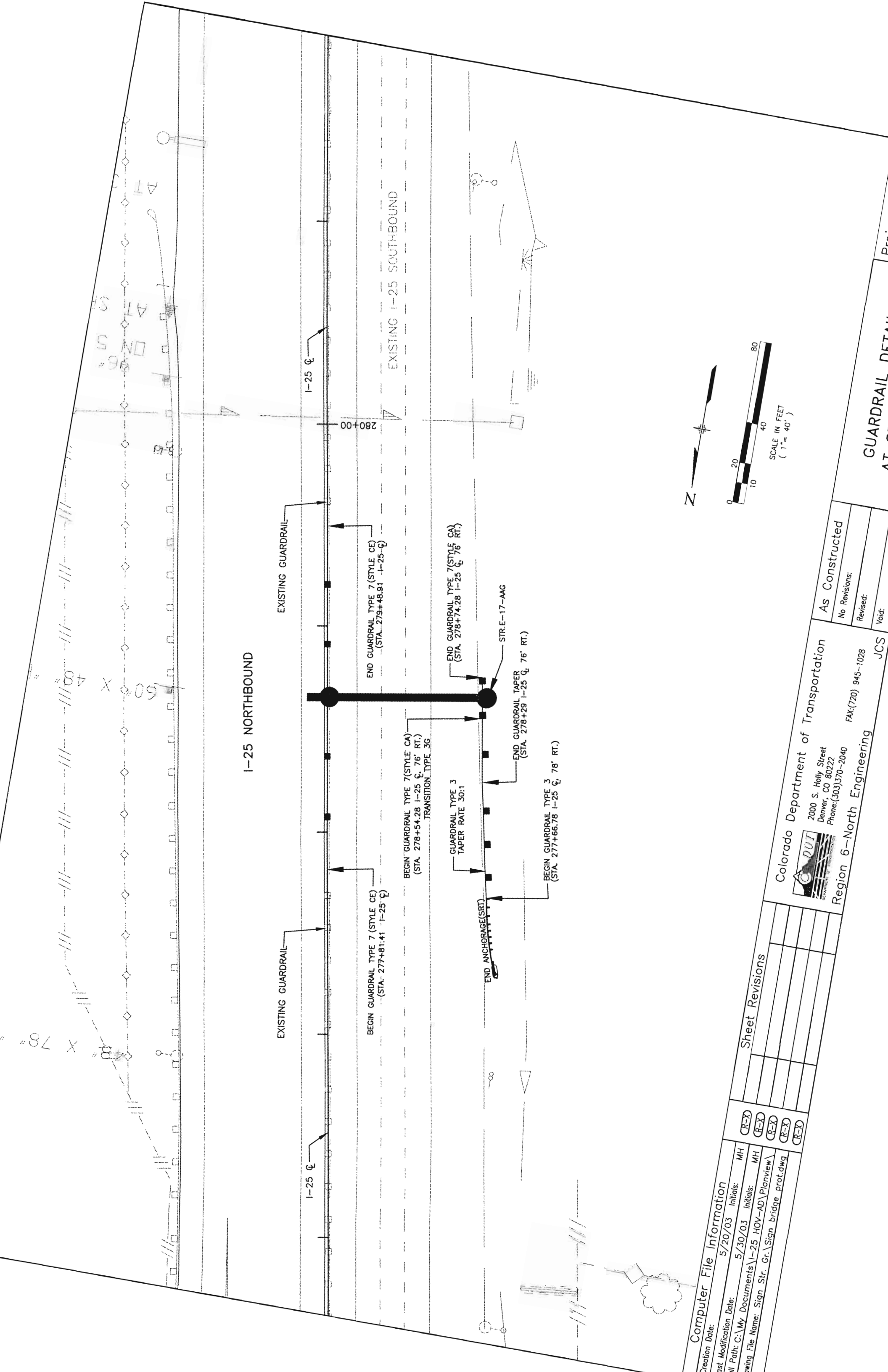


Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GORE DETAILS		Project No./Code	
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Last Modification Date: 05/15/03	Initials: BMC					Revised:		Designer: JG Structure Numbers		13344	
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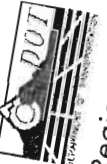
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Last Modification Date:	5/30/03	Initials:	MH
File Path:	C:\My Documents\I-25 HOV-AD\Planview\		
Drawing File Name:	Sign Str. Gr. Sign bridge prot.dwg		

Sheet Revisions	
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	CR-X
	CR-X

Colorado Department of Transportation

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 Denver, CO 80222
 Phone: (303) 370-2040
 Fax: (720) 945-1028
 Region 6-North Engineering

As Constructed
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Revised:
Void:

GUARDRAIL DETAILS
 AT

JCS

60" X 60" RIGHT LANE MUST EXIT ON 6 X 6-NO STICK

8" X 12" HIGH
8" X 22" HIGH

GUARDRAIL TYPE 3
I-25 NORTHBOUND

GUARDRAIL TYPE 7(PRECAST PORTABLE)
TAPER RATE 30:1
END GUARDRAIL TAPER
(STA. 294+00 I-25 C)

EXISTING GUARDRAIL
BEGIN GUARDRAIL TYPE 7(PRECAST PORTABLE)
(STA. 293+10 I-25 C, 2.98' RT.)

BEGIN GUARDRAIL TYPE 7(PRECAST PORTABLE)
(STA. 296+37.62 I-25 C)

BEGIN GUARDRAIL TAPER (TAPER RATE 30:1)
(STA. 298+30 I-25 C)

EXISTING I-25 SOUTHBOUND

END GUARDRAIL TYPE 7(PRECAST PORTABLE)
(STA. 299+70 I-25 C, 7.25' RT.)

END ANCHORAGE TYPE 3D
(STA. 295+73.11 I-25 C, 73' RT.)

END ANCHORAGE(SRT)

STR. E-17-AAF

BEGIN GUARDRAIL TYPE 3
(STA. 293+98.11 I-25 C, 73' RT.)



SCALE IN FEET
(1"= 50')

Computer File Information

Creation Date:	5/20/03	Initials:	MH
Last Modification Date:	5/30/03	Initials:	MH
Full Path:	C:\My Documents\I-25 HOV-AD\Planview\		
Drawing File Name:	Sign Str. Gr.\Sign bridge prot.dwg		

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Sheet Revisions

Colorado Department of Transportation



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Denver, CO 80222
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Region 6-North Engineering JCS

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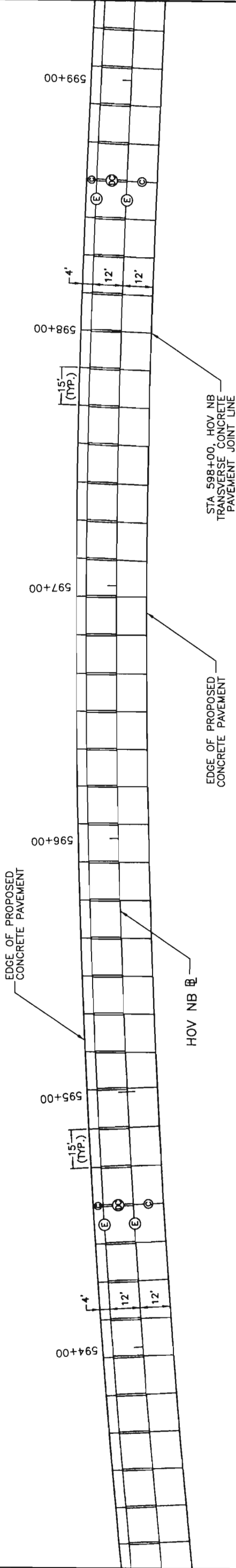
No Revisions:
Revised:
Void:

GUARDRAIL DETAIL
AT STR. E-17-AAF

Project No./Code
IM 0253-168
13344



SCALE IN FEET
(1"= 40')



CONCRETE JOINT LEGEND

- EXPANSION JOINT
- TRANSVERSE CONTRACTION JOINT
- TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT
- LONGITUDINAL CONTRACTION JOINT
- LONGITUDINAL CONSTRUCTION JOINT
- DOWELED TRANSVERSE CONTRACTION JOINT

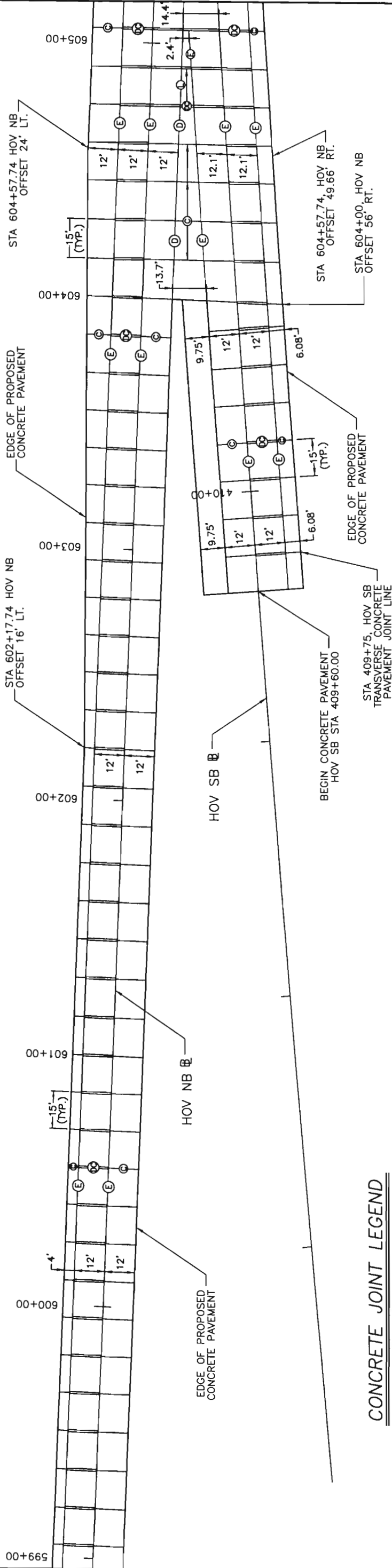
NOTES:

- 1. DIMENSIONS ARE FOR JOINTS ONLY.
- 2. SEE CDOT NEW AND REVISED STANDARD M-412-1 FOR MORE INFORMATION.
- 3. TOTAL CONCRETE PAVEMENT WIDTHS OF 40' OR LESS SHALL BE PAVED IN A SINGLE PASS. FOR PAVEMENT WIDTHS GREATER THAN 40', THE NUMBER OF PASSES SHALL BE MINIMIZED.

Computer File Information			Sheet Revisions		As Constructed	CONCRETE PAVEMENT JOINT DETAILS (HOV)			Project No./Code	
Last Modification Date:	4/23/2003	Initials:				IM 0253-168			IM 0253-168	
Cross References:					No Revisions:					
Full Path:	F:\pavement\joint\				Revised:	Designer:	JO	Structure		
Drawing File Name:	pavement_joint.dwg					Detailer:	BMC	Numbers	13344	
Acad Ver.	02	Scale:			Sheet Subset:					Sheet Number
									4	



SCALE IN FEET
(1" = 40')



CONCRETE JOINT LEGEND

- EXPANSION JOINT (Symbol: A)
- TRANSVERSE CONTRACTION JOINT (Symbol: C)
- TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT (Symbol: L, T)
- LONGITUDINAL CONTRACTION JOINT (Symbol: E)
- LONGITUDINAL CONSTRUCTION JOINT (Symbol: D)
- DOWELED TRANSVERSE CONTRACTION JOINT (Symbol: D-C)

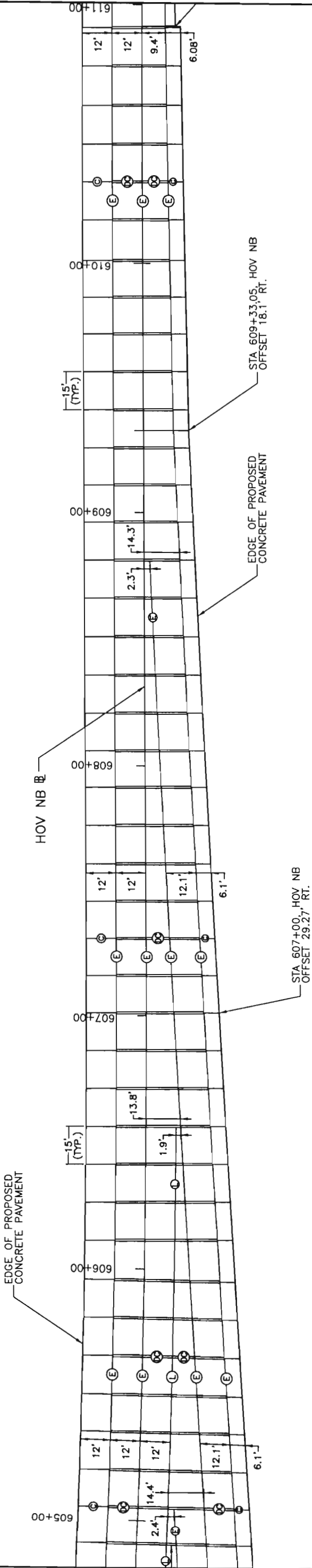
NOTES:

- 1. DIMENSIONS ARE FOR JOINTS ONLY.
- 2. SEE CDOT NEW AND REVISED STANDARD M-412--1 FOR MORE INFORMATION.
- 3. TOTAL CONCRETE PAVEMENT WIDTHS OF 40' OR LESS SHALL BE PAVED IN A SINGLE PASS. FOR PAVEMENT WIDTHS GREATER THAN 40', THE NUMBER OF PASSES SHALL BE MINIMIZED.

Computer File Information			Sheet Revisions		Colorado Department of Transportation			As Constructed		CONCRETE PAVEMENT JOINT DETAILS (HOV)			Project No./Code	
Last Modification Date:	4/23/2003	Initials:	BMC			2000 South Holly Street Denver, CO 80222 Phone: (303) 370-2040 FAX: (720) 945-1028		No Revisions:		Designer:			IM 0253-168	
Cross References:								Revised:		JO Structure Numbers			13344	
Full Path:	F:\pavement_joint\									BMC				
Drawing File Name:	pavement_joint.dwg													
Acad Ver.	'02	Scale:	English			Region 6 - North Engineering JCS				Sheet Subst:			Sheet Number 42	



SCALE IN FEET
(1"= 40')



CONCRETE JOINT LEGEND

- EXPANSION JOINT
- TRANSVERSE CONTRACTION JOINT
- TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT
- LONGITUDINAL CONTRACTION JOINT
- LONGITUDINAL CONSTRUCTION JOINT
- DOWELED TRANSVERSE CONTRACTION JOINT

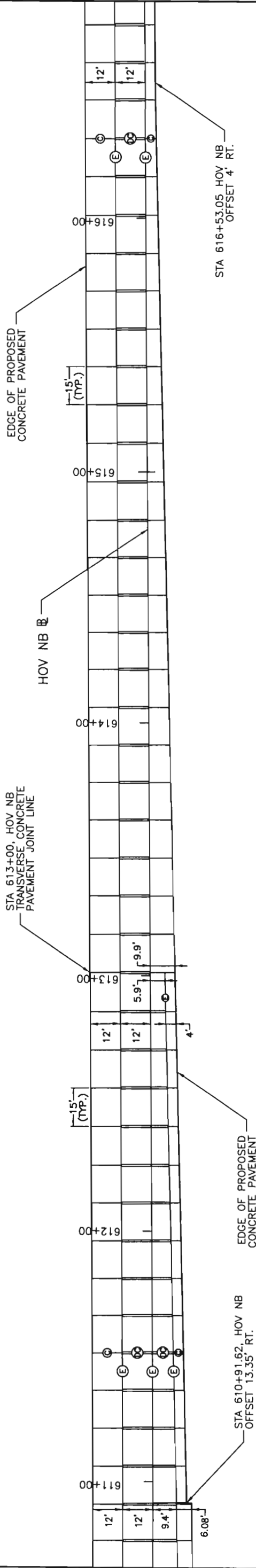
NOTES:

- DIMENSIONS ARE FOR JOINTS ONLY.
- SEE CDOT NEW AND REVISED STANDARD M-412-1 FOR MORE INFORMATION.
- TOTAL CONCRETE PAVEMENT WIDTHS OF 40' OR LESS SHALL BE PAVED IN A SINGLE PASS. FOR PAVEMENT WIDTHS GREATER THAN 40', THE NUMBER OF PASSES SHALL BE MINIMIZED.

Computer File Information			Sheet Revisions		As Constructed		CONCRETE PAVEMENT JOINT DETAILS (HOV)		Project No./Code
Last Modification Date:	4/23/2003	Initials: BMC			No Revisions:				IM 0253-168
Cross References:					Revised:		Designer: JCI	Structure Numbers	13344
Full Path:	F:\pavement_joint\						Detailer: BMC		Sheet Number 43
Drawing File Name:	pavement_joint.dwg								
Acad Ver:	02	Scale:	English						



SCALE IN FEET
(1"= 40')



CONCRETE JOINT LEGEND

- EXPANSION JOINT
- TRANSVERSE CONTRACTION JOINT
- TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT
- LONGITUDINAL CONTRACTION JOINT
- LONGITUDINAL CONSTRUCTION JOINT
- DOWELED TRANSVERSE CONTRACTION JOINT

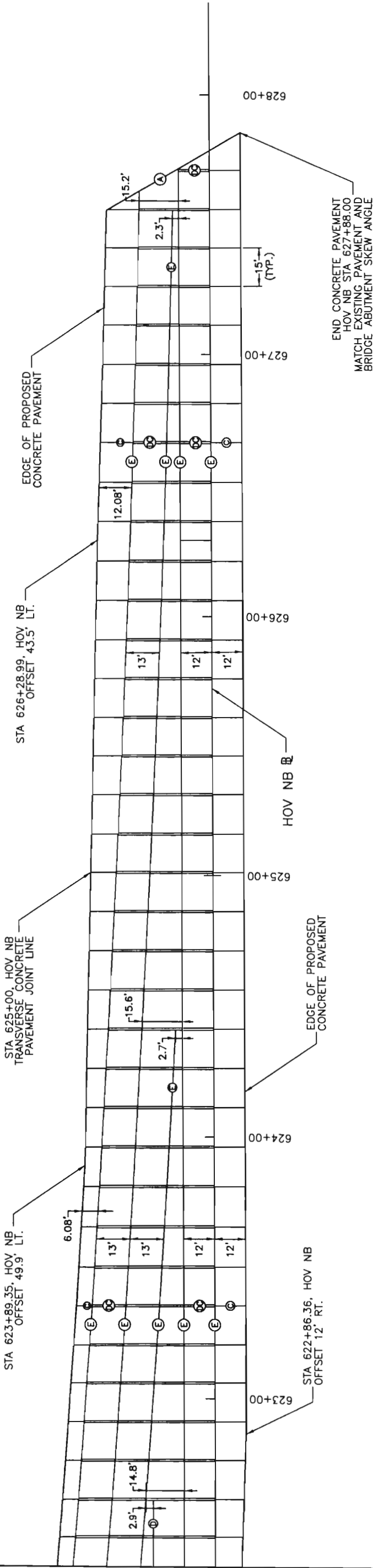
NOTES:

- DIMENSIONS ARE FOR JOINTS ONLY.
- SEE CDOT NEW AND REVISED STANDARD M-412-1 FOR MORE INFORMATION.
- TOTAL CONCRETE PAVEMENT WIDTHS OF 40' OR LESS SHALL BE PAVED IN A SINGLE PASS. FOR PAVEMENT WIDTHS GREATER THAN 40', THE NUMBER OF PASSES SHALL BE MINIMIZED.

Computer File Information			Sheet Revisions		As Constructed		CONCRETE PAVEMENT JOINT DETAILS (HOV)		Project No./Code
Last Modification Date:	4/23/2003	Initials:			No Revisions:				IM 0253-168
Cross References:									
Full Path:	F:\pavement_joint\						Designer: JO Structure		13344
Drawing File Name:	pavement_joint.dwg						Detailer: BMC		
Acad Ver. '02	Scale:	Units: English					Sheet Subset:		Sheet Number 44



SCALE IN FEET
(1"= 40')



CONCRETE JOINT LEGEND

- (A)— EXPANSION JOINT
- (C)— TRANSVERSE CONTRACTION JOINT
- (L)—(T)— TRANSVERSE OR LONGITUDINAL CONSTRUCTION JOINT
- (E)— LONGITUDINAL CONTRACTION JOINT
- (D)— LONGITUDINAL CONTRACTION JOINT
- == DOWELED TRANSVERSE CONTRACTION JOINT

NOTES:

- 1. DIMENSIONS ARE FOR JOINTS ONLY.
- 2. SEE CDOT NEW AND REVISED STANDARD M-412-1 FOR MORE INFORMATION.
- 3. TOTAL CONCRETE PAVEMENT WIDTHS OF 40' OR LESS SHALL BE PAVED IN A SINGLE PASS. FOR PAVEMENT WIDTHS GREATER THAN 40', THE NUMBER OF PASSES SHALL BE MINIMIZED.

Computer File Information			Sheet Revisions		As Constructed		CONCRETE PAVEMENT JOINT DETAILS (HOV)		Project No./Code	
Last Modification Date:	4/23/2003	Initials: BMC			No Revisions:		Designer: JCS Detailer: BMC Sheet Subset:		IM 0253-168 13344 Sheet Number 46	
Cross References:					Revised:					
Full Path:	F:\pavement_joint\									
Drawing File Name:	pavement_joint.dwg									
Acad Ver.	'02	Scale:								
Units:	English									

DESIGN

Checked by
L S
12/02

DESIGNED BY

L S

DETAIL

Checked by
M N
12/02

QUANTITIES

Checked by
L S
12/02

Revision Dates

03-94
08-94
01-97
12-95
3-99
4-99

(Preliminary Stage Only)

1

2

3

4

5

6

7

8

9

10

11

12

13

14

GENERAL NOTES

STRUCTURE EXCAVATION AND BACKFILL SHALL BE AS SHOWN IN THE PLANS.

ABBREVIATIONS:
F.F. = FRONT FACE
B.F. BACK FACE

ALL EXPOSED CONCRETE SURFACES, DOWN TO ONE FOOT BELOW FINISHED GRADE, SHALL BE FINISHED WITH A CLASS 1 FINISH FOLLOWED BY AN APPLICATION OF COLORED COATING. THE COLOR SHALL BE LIGHT BEIGE, EQUIVALENT TO FEDERAL STANDARD 595B COLOR NO. 30405, AND IS TO BE SELECTED FROM TEST PANELS PROVIDED BY THE CONTRACTOR.

ALL ELEVATIONS AND STATIONS ARE IN FEET.

THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE AND EXCAVATION DURING CONSTRUCTION.

STATIONS, ELEVATIONS, AND DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM A RECENT FIELD SURVEY AND ROADWAY 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.

THE INFORMATION SHOWN ON THESE PLANS CONCERNING THE TYPE AND LOCATION OF UNDERGROUND UTILITIES IS NOT GUARANTEED TO BE ACCURATE OR ALL INCLUSIVE. THE CONTRACTOR IS RESPONSIBLE FOR MAKING HIS OWN DETERMINATION AS TO THE TYPE AND LOCATION OF UNDERGROUND UTILITIES AS MAY BE NECESSARY TO AVOID DAMAGE THERETO. THE CONTRACTOR SHALL CONTACT THE UTILITY NOTIFICATION CENTER OF COLORADO AT 1-800-922-1987 AT LEAST 2 DAYS (NOT INCLUDING THE DAY OF NOTIFICATION) PRIOR TO ANY EXCAVATION OR OTHER EARTHWORK.

INDEX OF DRAWINGS

DWG. NO. B1 GENERAL INFORMATION SUMMARY OF QUANTITIES

DWG. NO. B2 SLOPE PAVING DETAILS

DWG. NO. B3 SLOPE PAVING DETAILS

SUMMARY OF QUANTITIES

Item No.	Description	Unit	Abut. 1	Abut. 3	Total
202	Removal of Portions of Present Structure	S.Y.	0	315	315
202	Structure Excavation	C.Y.	32	434	466
507	Concrete Slope and Ditch Paving (Reinforced)	C.Y.	32	76	108
601	Structural Concrete Coating	S.F.	1948	5130	7078

DESIGN DATA

AASHTO, 16th EDITION.

DESIGN METHOD: WORKING STRESS DESIGN.

REINFORCED CONCRETE:

CLASS D CONCRETE: $f'_c = 4,500$ psi, $f_c = 1,600$ psi

WWF: $f_y = 60,000$ psi, $f_g = 24,000$ psi

DESCRIPTION OF WORK

Remove portions and install slope paving under structures E-17-QN and E-17-JK.

Station

Station

Project No./Code

IM 0253-168

GENERAL INFORMATION SUMMARY OF QUANTITIES

Near

Sec.

T

R

Designer:

L Sanchez

Structure Numbers

E-17-QN

Detailer:

L Sanchez

E-17-JK

Sheet Subset:

BRIDGE

Subset Sheets: B1 of 3

As Constructed

No Revisions:

Revised:

Void:

Colorado Department of Transportation

DOT

Colorado Department of Transportation

4201 East Arkansas Avenue, Room 330
Denver, Colorado 80222-3400
Phone: 303-757-9352 FAX: 303-757-9197

Staff Bridge Branch

Computer File Information

Creation Date:

03/01/94

Initials:

KDH

Last Modification Date:

12/18/02

Initials:

LS

Full Path:

c:\Projects\E-17-QN slp pav\current dwgs

Drawing File Name:

Zerosht.DWG

Acad Ver.:

15.06s

Scale:

Varies

Units:

English

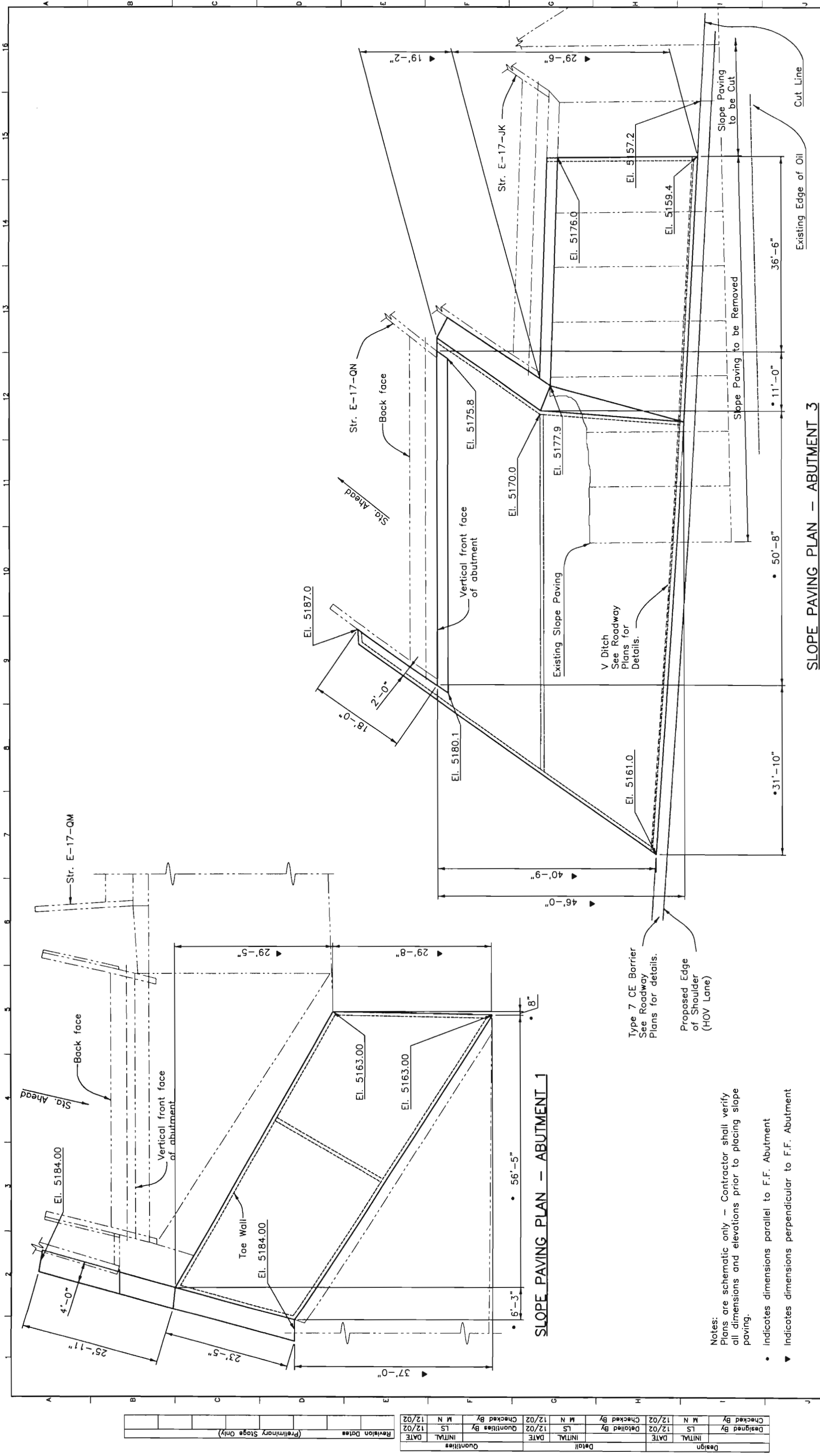
Sheet Revisions

B

A

CROSS REFERENCE SUBSET SHEET NUMBER
(IF BLANK, REFERENCE IS TO SAME SHEET)

SECTION OR DETAIL IDENTIFICATION



SLOPE PAVING PLAN - ABUTMENT 1

SLOPE PAVING PLAN - ABUTMENT 3

Design		Detail		Quantities	
Checked By	LS	Checked By	LS	Checked By	LS
DATE	12/02	DATE	12/02	DATE	12/02
Revision Dates		Revision Dates		Revision Dates	
(Preliminary Stage Only)		(Preliminary Stage Only)		(Preliminary Stage Only)	

Computer File Information				Sheet Revisions			Colorado Department of Transportation				As Constructed		SLOPE PAVING DETAILS				Project No./Code	
Creation Date:	11/21/95	Initials:	RAD	4/12/02	Convert to English dimensions	LES	 4201 East Arkansas Avenue, Room 330 Denver, Colorado 80222-3400 Phone: 303-757-9352 FAX: 303-757-9197 Staff Bridge Branch	No Revisions:	Revised:	Void:	Designer: L. Sanchez	Structure Numbers	E-17-QN	E-17-JK	Sheet Subst: Bridge	Subset Sheets: B2 of 3	Sheet Number 48	
Last Modification Date:	1/06/03	Initials:	LS															
Full Path:	C:\Projects\E-17-QN slp pav\current dwgs\																	
Drawing File Name:	2 Qnslpv.dwg																	
Acad Ver.	15.06s	Scale:																

Design						Detail						Quantities					
		DATE		INITIAL				DATE		INITIAL				DATE		INITIAL	
	Designed By	L S	12/02		Deleted By	L S	12/02		Quantities By	M N	12/02		Checked By	L S	12/02		
	Checked By	M N	12/02		Checked By	M N	12/02		Checked By	M N	12/02		Checked By	M N	12/02		



Slope paving shall be poured in 10 ft. transverse sections with a tooled construction joint at each section.

Wire fabric shall be 2" from the end of joints and shall lap 8" at splices.

Where slope or berm paving butts against structural concrete, separate with 1" expansion joint material.

Expansion joint material and welded wire fabric shall not be paid for separately, but shall be included in the work.

Structure excavation for concrete slope and ditch paving shall be limited to the actual volume occupied by the slope paving concrete.

Type 7 CE Barrier.
See Roadway
Plans for details.
(Abutment 3 only.)

V DITCH. See Roadway
Plans for details.
(Abutment 3 only.) —

on joint
ial

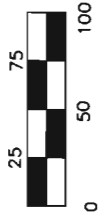
1'-0"Ø Corrugated Steel Pipe
(To be included in Item 206
Structure Excavation)

▲ To be included in Item 507.

TYPICAL SECTION
THRU CUT-OFF WALL

TYPICAL SECTION
THRU SLOPE PAVING

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		SLOPE PAVING DETAILS		Project No./Code	
Creation Date:	12/87	Initials: KDH	4/12/02	Convert to English Dimensions	 4201 East Arkansas Avenue, Room 330 Denver, Colorado 80222-3400 Phone: 303-757-9352 FAX: 303-757-9197	No Revisions:				IM 0253-168	
Last Modification Date:	1/06/03	Initials: KLL				Revised:				13344	
Full Path:	C:\Projects\E-17-QN slp pav\current dwgs\					Designer:		L. Sanchez		E-17-QN	
Drawing File Name:	3 Qns1pr.dwg					Detailer:		K. Largent		E-17-JK	
Acad Ver.	15.06s	Scale:			Staff Bridge Branch		Void:		Sheet Subset: Bridge		Sheet Number
Units:	English								Subset Sheets: B3		49
									of		3

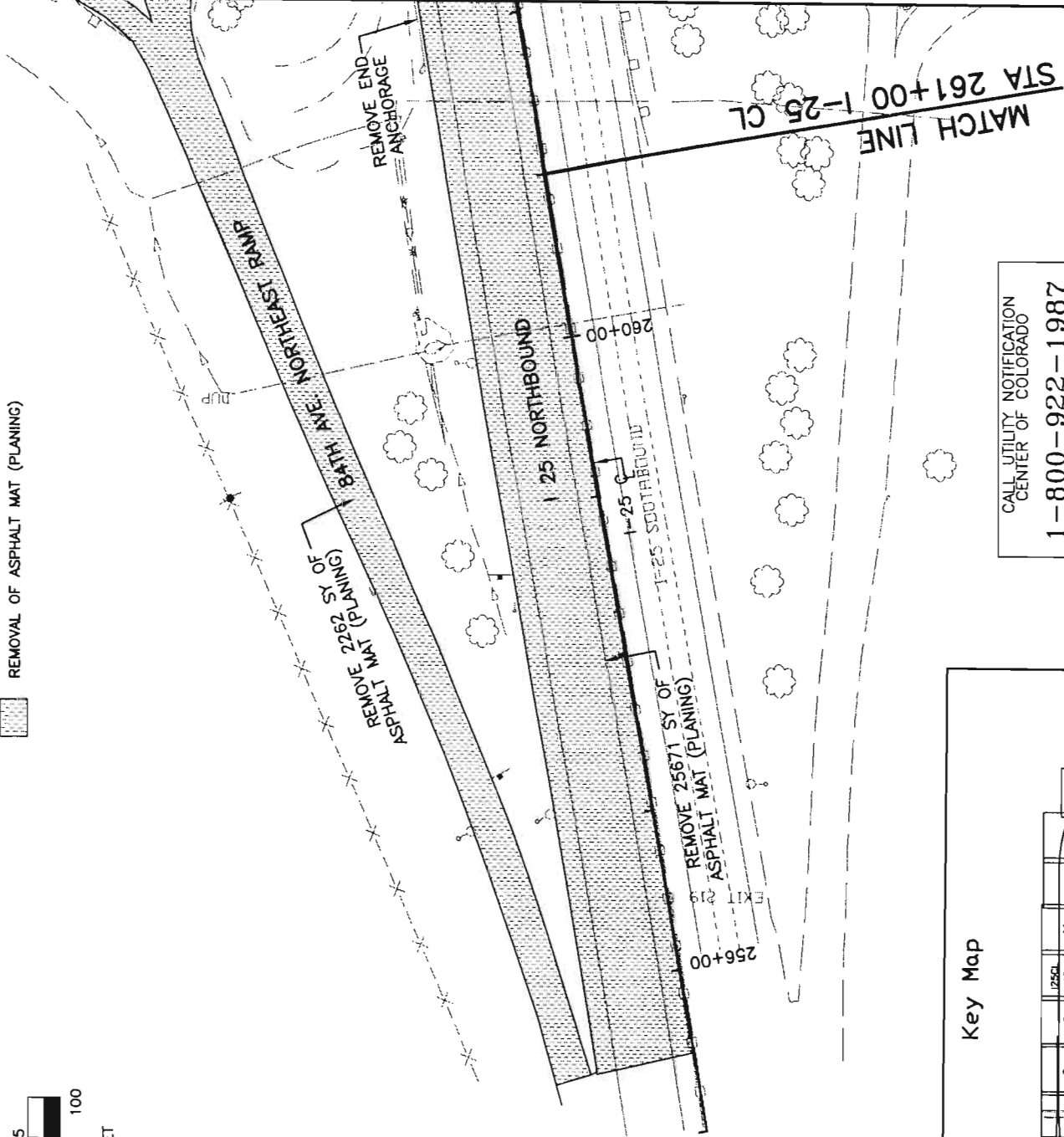


SCALE IN FEET
(1"= 100')

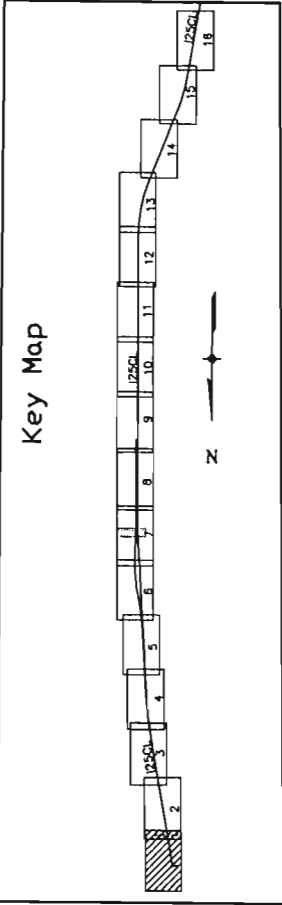
LEGEND



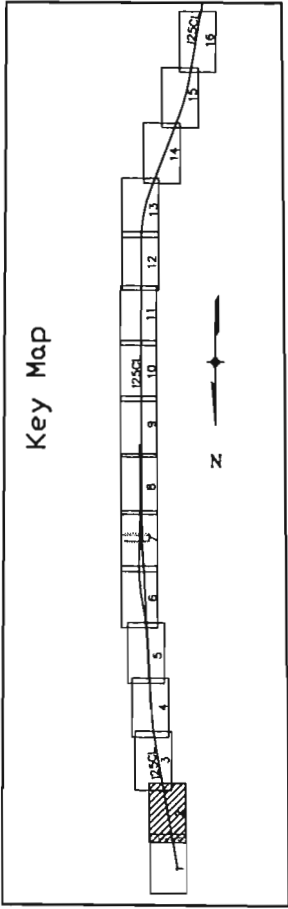
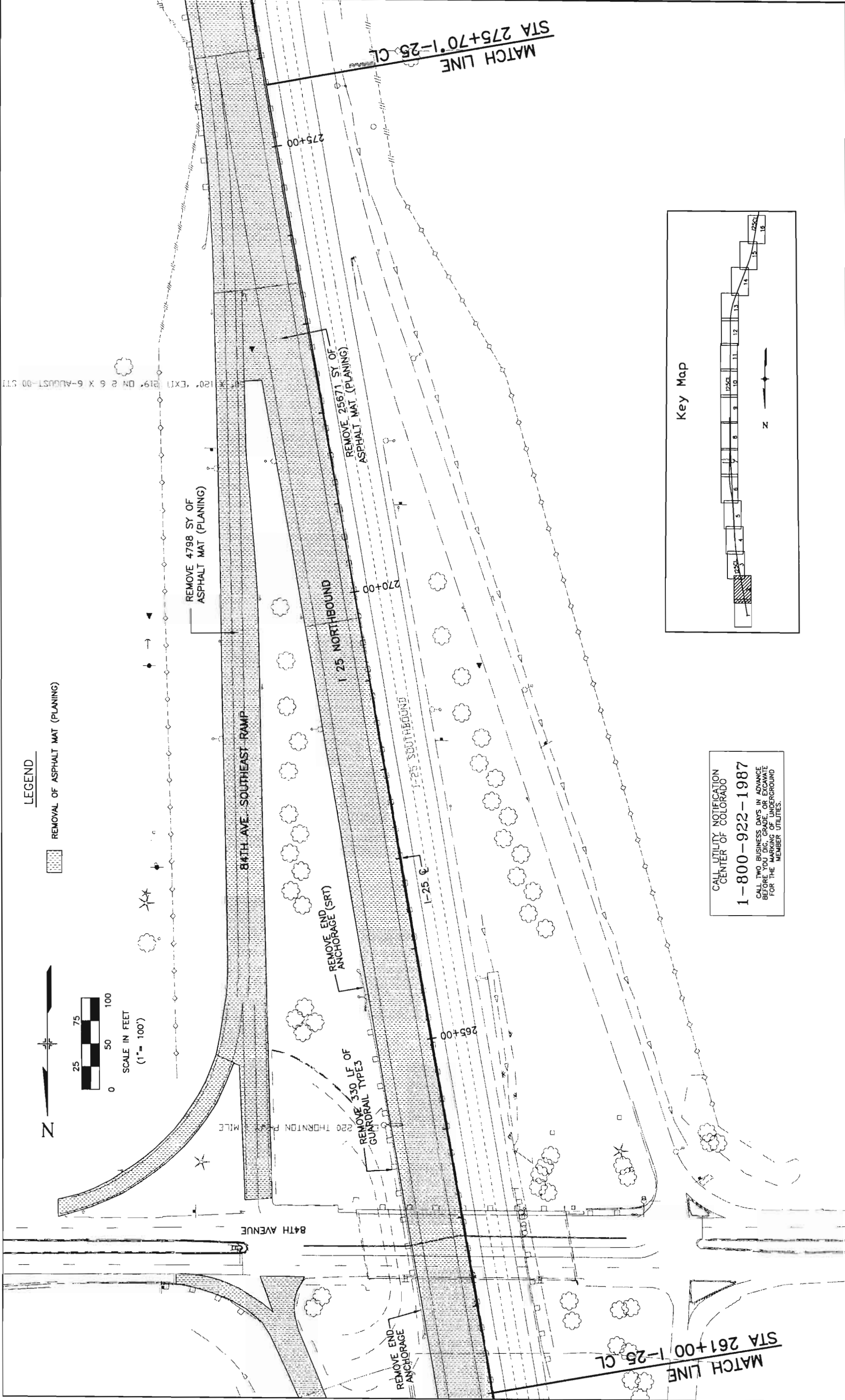
REMOVAL OF ASPHALT MAT (PLANING)



CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.



Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		REMOVALS		Project No./Code	
Creation Date:		3/30/03	Initials:	MH		 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	No Revisions:		IM 0253-168			
Last Modification Date:		4/18/03	Initials:	MH			Revised:		13344			
Full Path:		C:\25HOV-AD\Removal\					Void:					
Drawing File Name:		Removals and Resets.dwg									Sheet Number	50

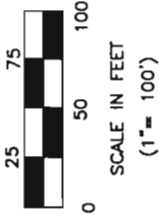


CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
FOR THE MEMBER UTILITIES.

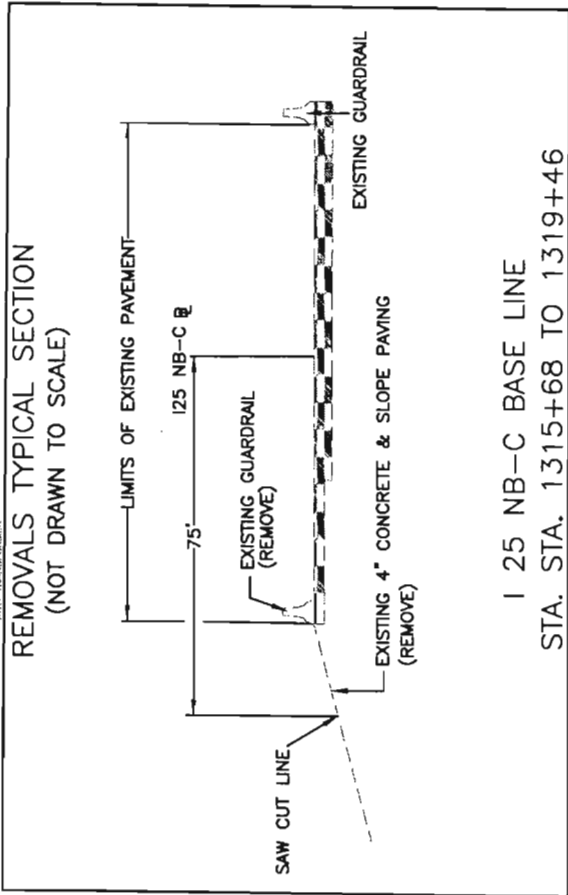
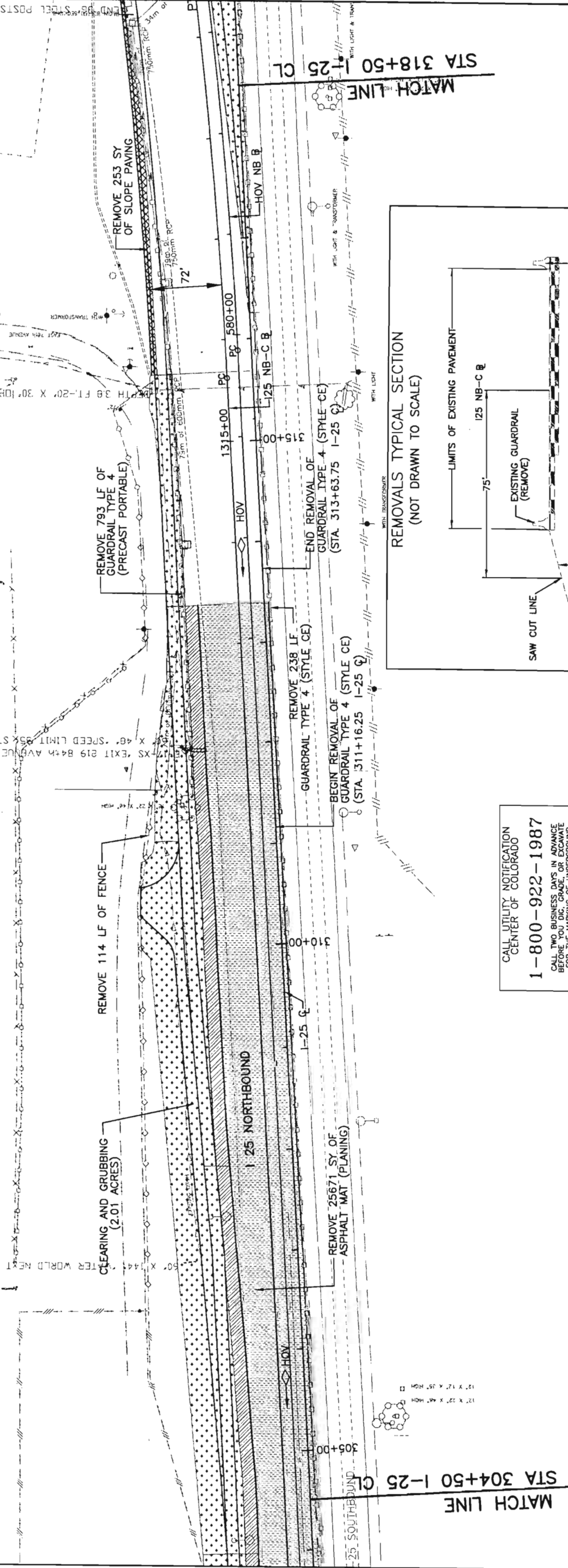
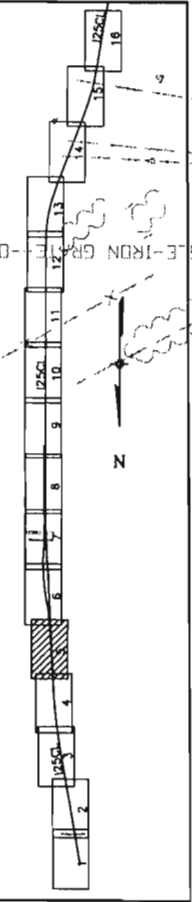
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Creation Date:	3/30/02	Initials: MH			 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	No Revisions:			IM 0253-168	
Last Modification Date:	4/18/03	Initials: MH				Revised:			13344	
Full Path:	C:\25HOV-AD\Removal\					Void:				
Drawing File Name:	Removals.dwg									Sheet Number 51
			(R-X)							

LEGEND

- CLEARING AND GRUBBING
- REMOVAL OF ASPHALT MAT(8" to 20")
- REMOVAL OF ASPHALT MAT (PLANING)
- REMOVAL OF 4" SLOPE PAVING

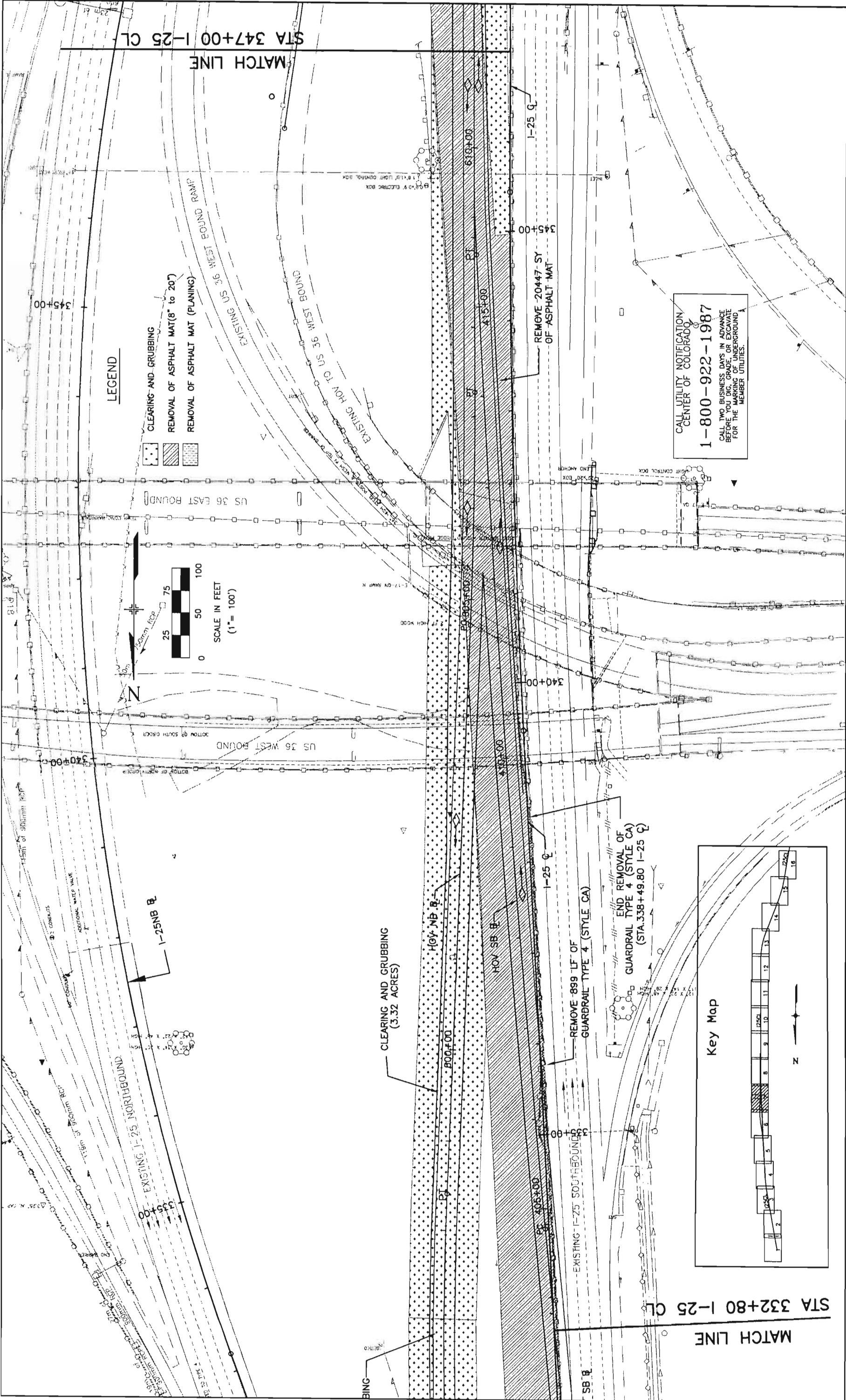


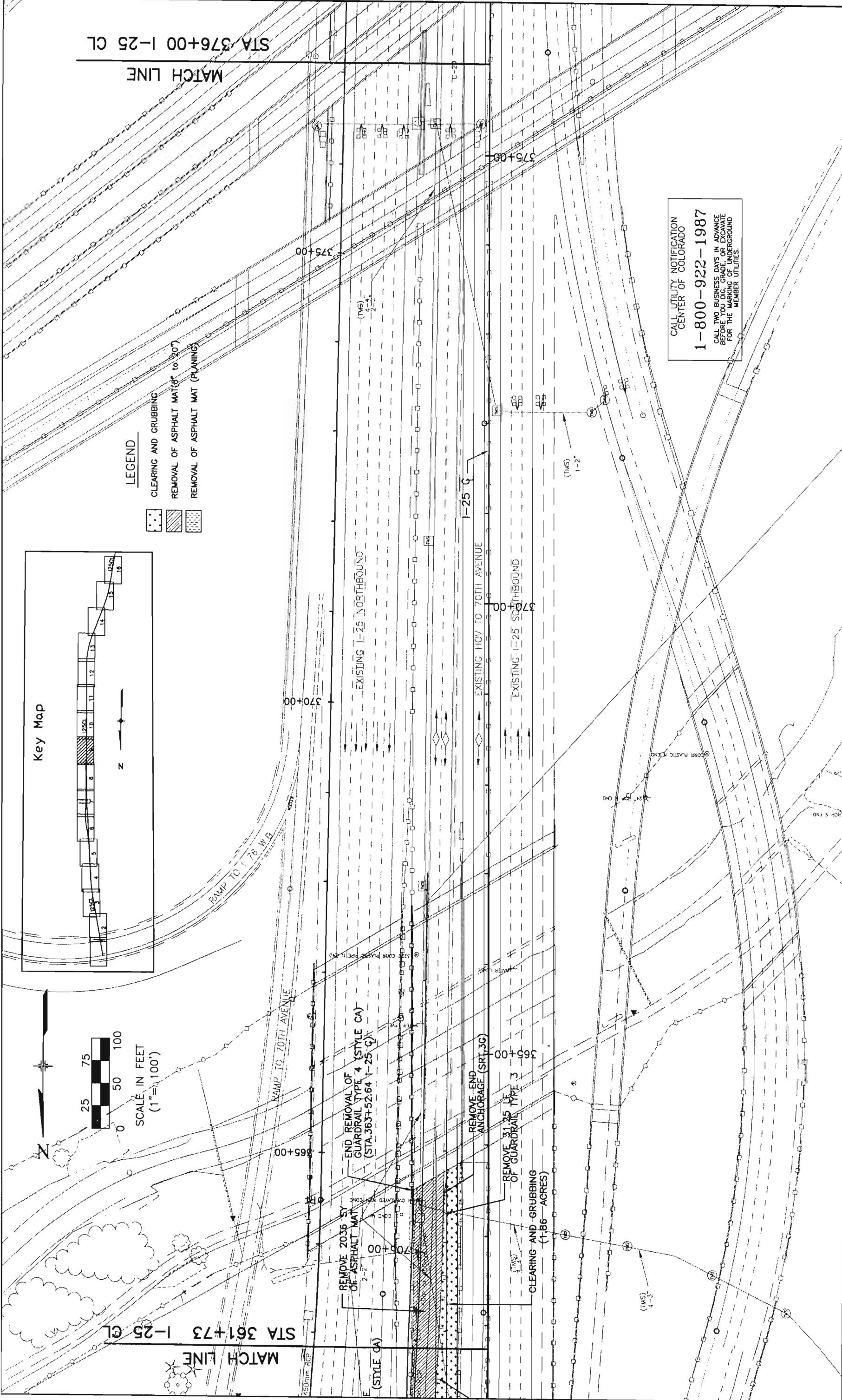
Key Map

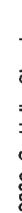


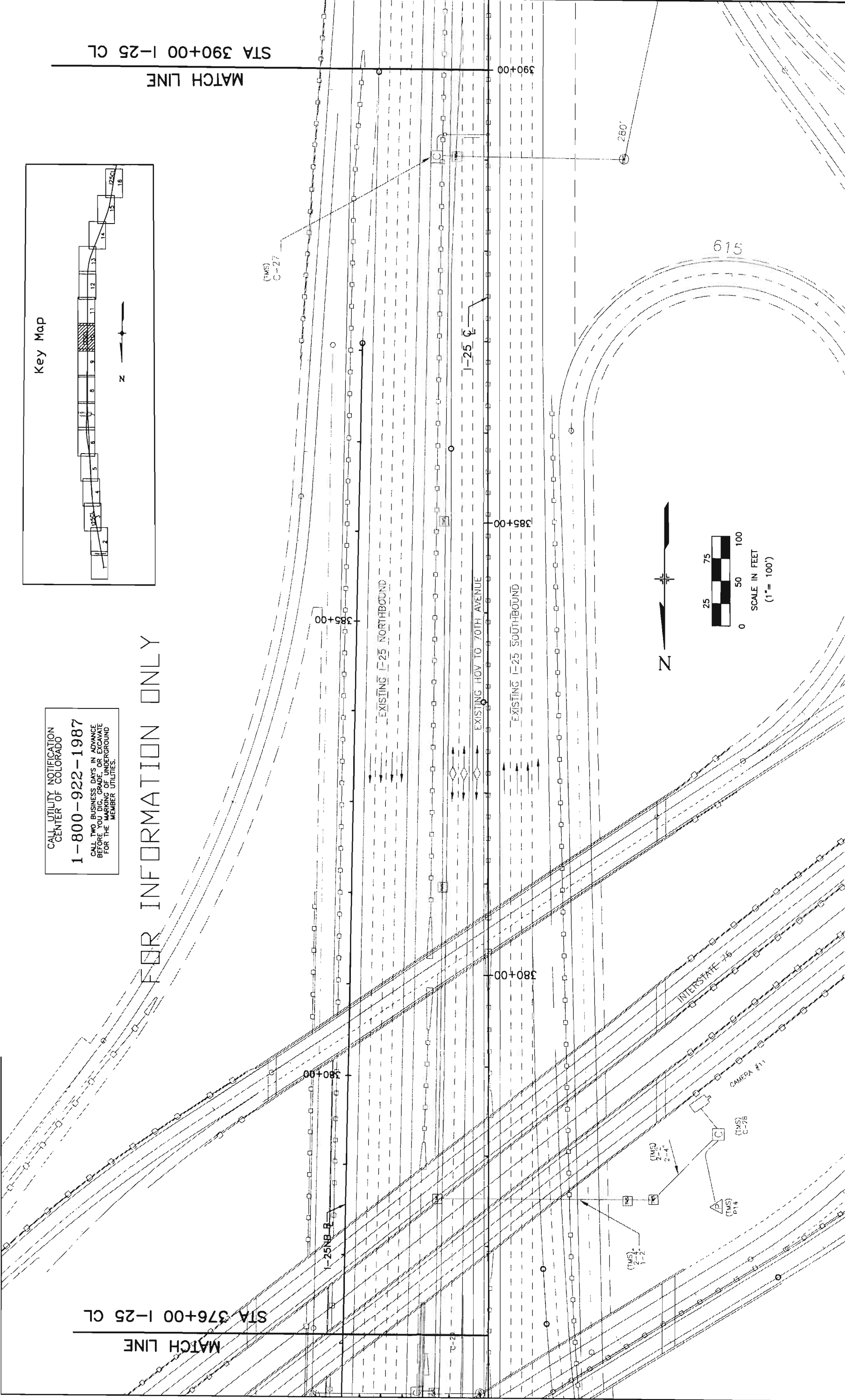
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		REMOVALS		Project No./Code	
Creation Date:	3/30/02	Initials: MH				 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	No Revisions:		IM 0253-168		13344	
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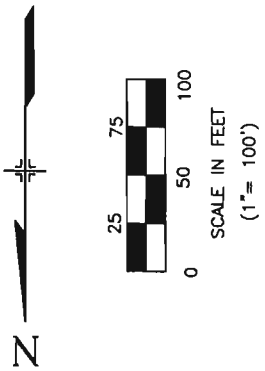
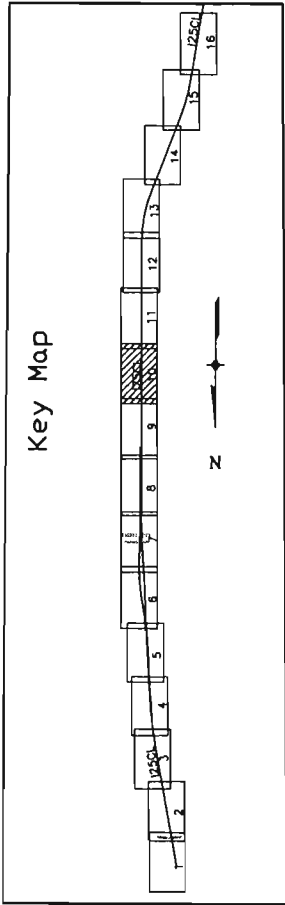
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Drawing File Name:	Removals.dwg		(R-X)									
			(R-X)									
					Region 6- North Engineering	JCS	Sheet Number 58					



MATCH LINE
STA 376+00 I-25 CL

MATCH LINE
STA 390+00 I-25 CL

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
FOR THE MEMBER UTILITIES.



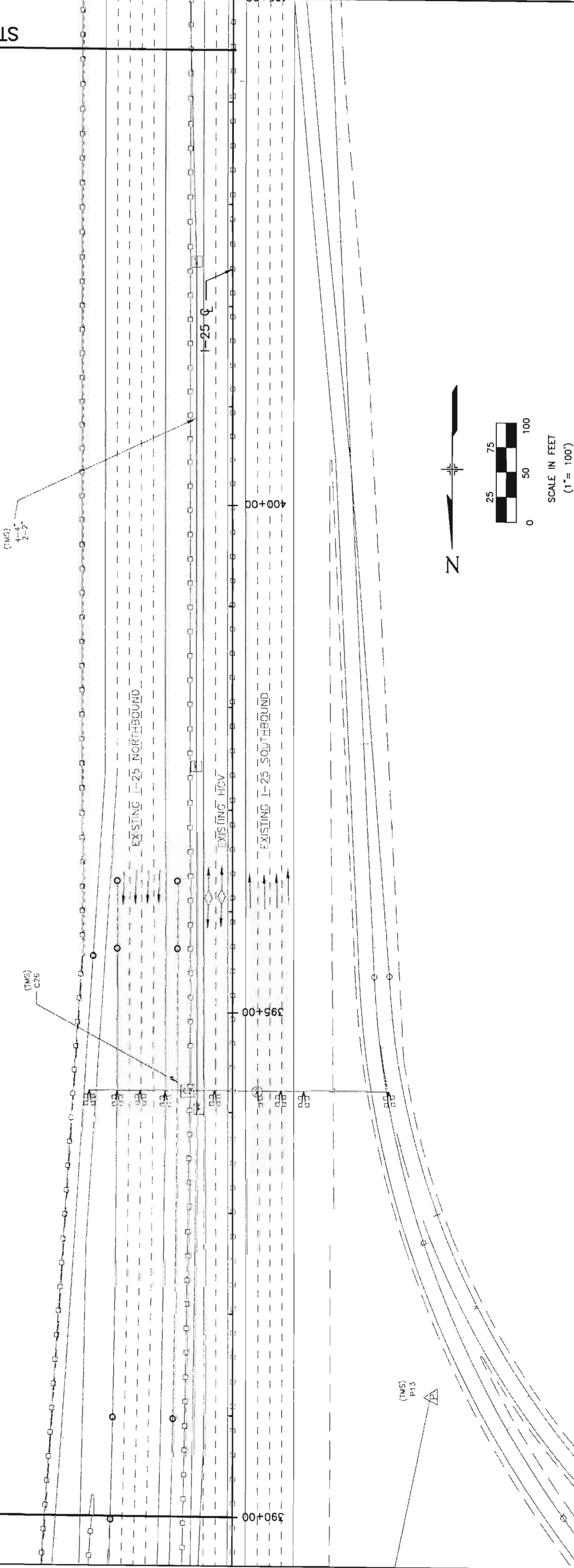
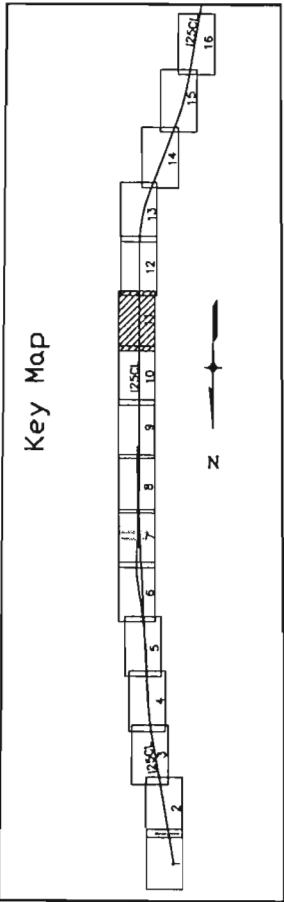
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Creation Date:	3/30/02	Initials: MH	(R-X)			 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	No Revisions:		IM 0253-168	13344	Sheet Number 59	
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Drawing File Name:	Removals.dwg		(R-X)		Void:							
			(R-X)									
					Region 6—	North Engineering	JCS					

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CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

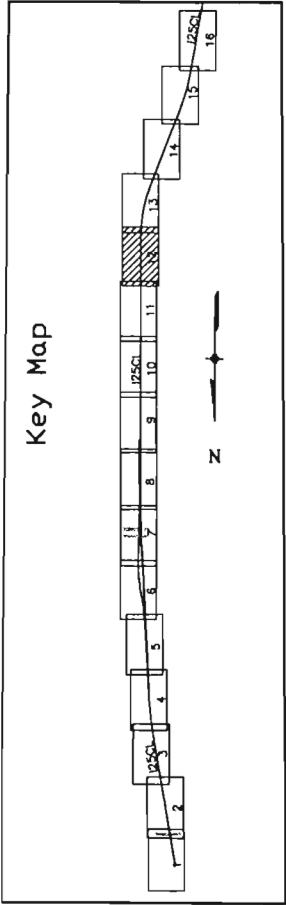
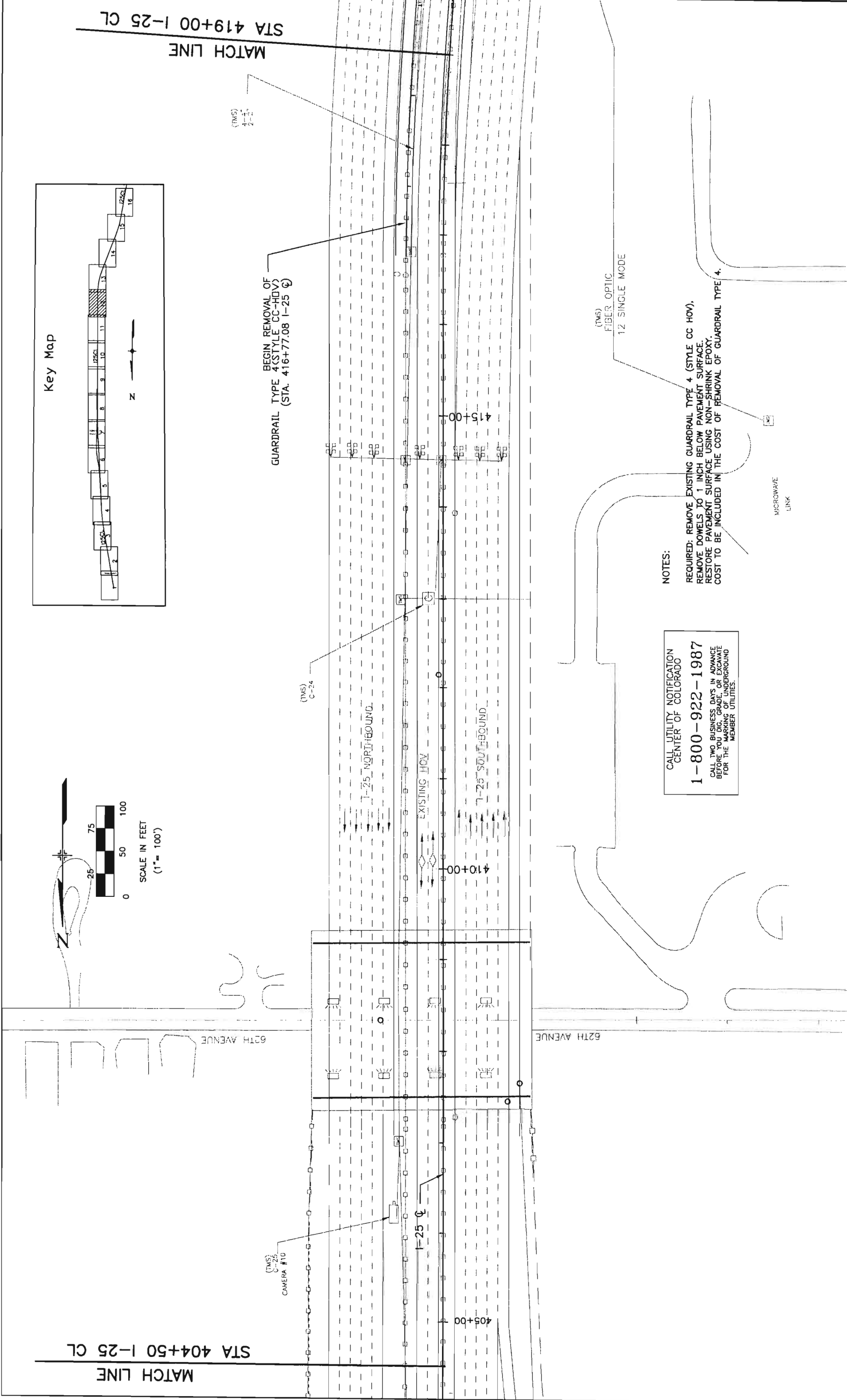
MATCH LINE
STA 390+00 I-25 CL

MATCH LINE
STA 404+50 I-25 CL

FOR INFORMATION ONLY



Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	3/30/02	Initials: MH	(R-X)		 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028 APPROVED BY: [Signature]	REMOVALS	No Revisions:	IM 0253-168		
Last Modification Date:	4/17/03	Initials: MH	(R-X)				Revised:	13344		
Full Path:	C:\I25HOV-AD\Removal\		(R-X)				Void:			
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			(R-X)							
					Region 6- North Engineering	JCS		Sheet Number	60	

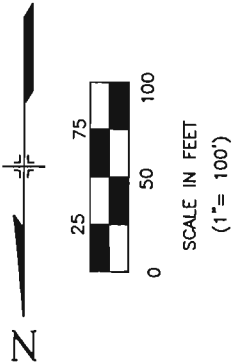
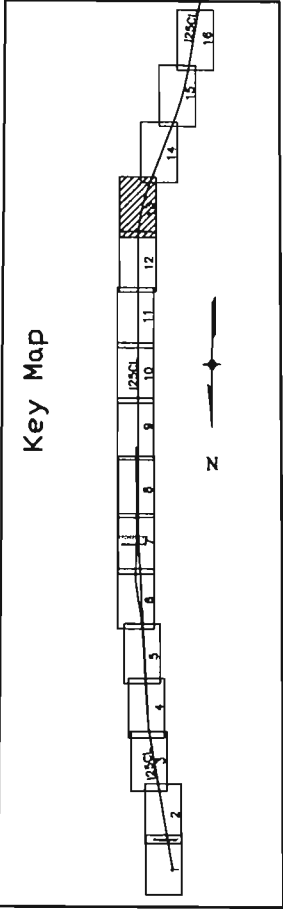
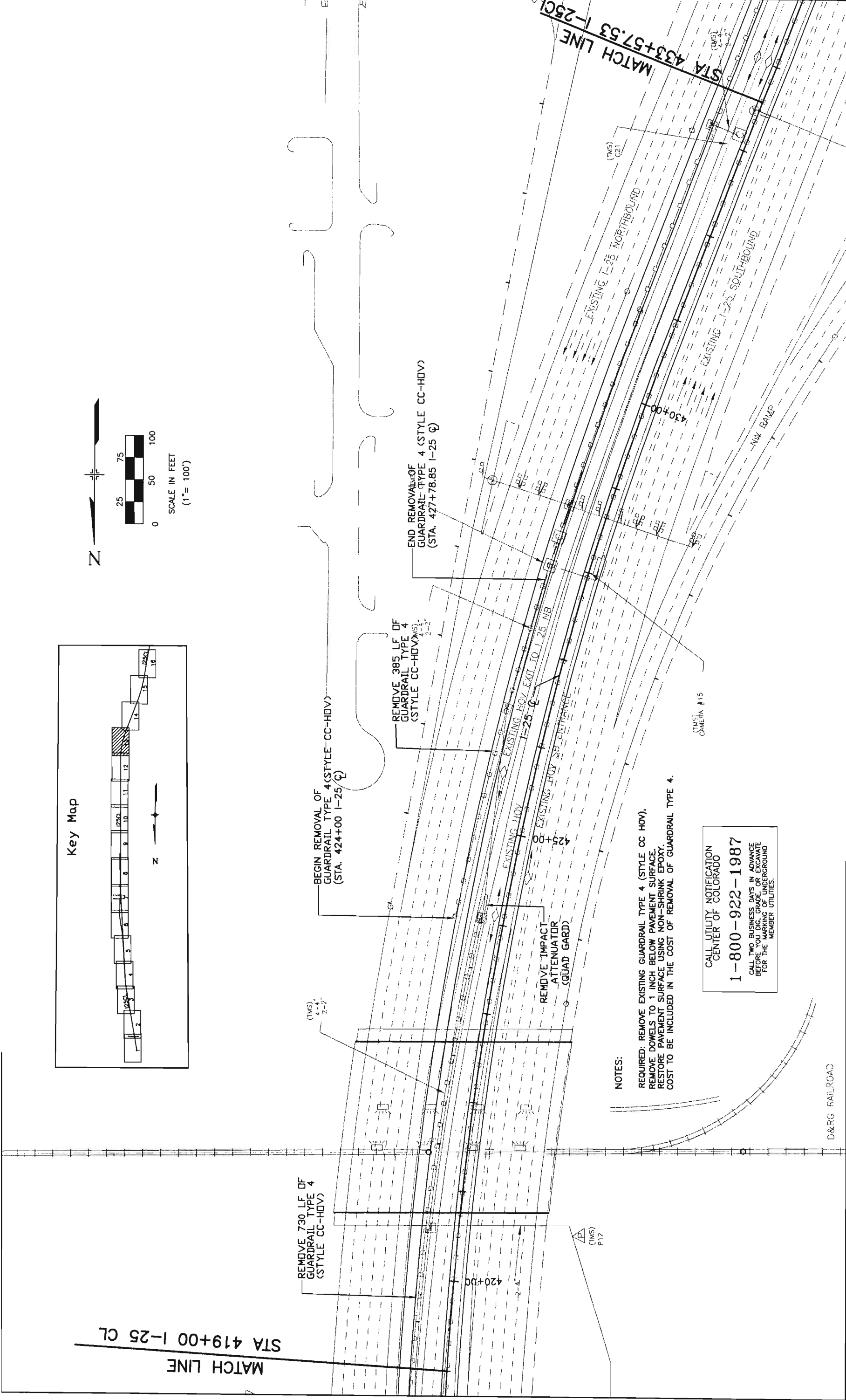


CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

NOTES:

REQUIRED: REMOVE EXISTING GUARDRAIL TYPE 4 (STYLE CC HOV),
REMOVE DOWELS TO 1 INCH BELOW PAVEMENT SURFACE.
RESTORE PAVEMENT SURFACE USING NON-SHRINK EPOXY.
COST TO BE INCLUDED IN THE COST OF REMOVAL OF GUARDRAIL TYPE 4.

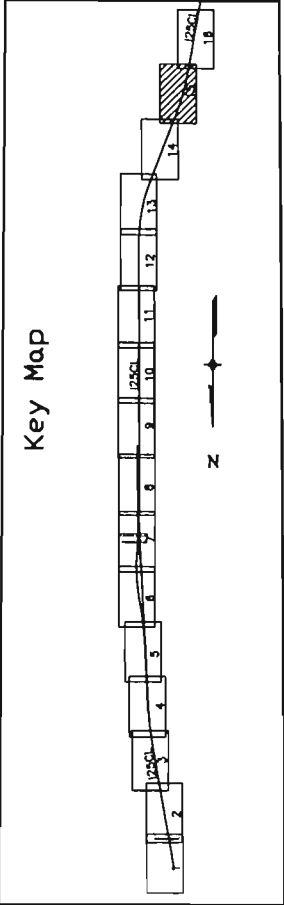
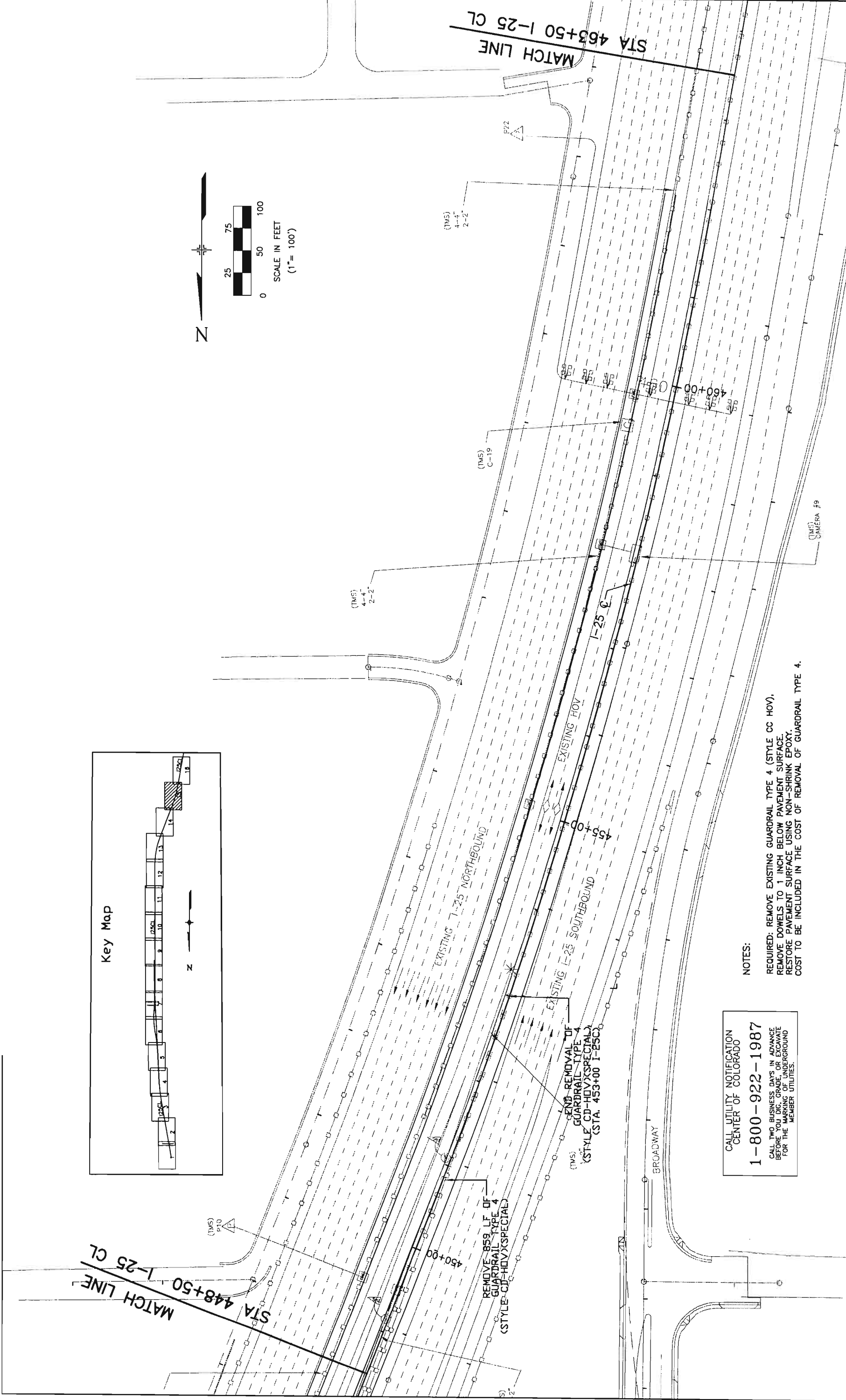
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Creation Date:	3/30/02	Initials: MH	(R-X)			 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	No Revisions:				IM 0253-168	
Last Modification Date:	4/17/03	Initials: MH	(R-X)				Revised:				13344	
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Drawing File Name:	Removals.dwg		(R-X)								Sheet Number 6 /	
						Region 6- North Engineering		JCS				



NOTES:
REQUIRED: REMOVE EXISTING GUARDRAIL TYPE 4 (STYLE CC HOV).
REMOVE DOWELS TO 1 INCH BELOW PAVEMENT SURFACE.
RESTORE PAVEMENT SURFACE USING NON-SHRINK EPOXY.
COST TO BE INCLUDED IN THE COST OF REMOVAL OF GUARDRAIL TYPE 4.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		REMOVALS		Project No./Code	
Creation Date:	3/30/02	Initials: MH	(R-X)				No Revisions:		IM 0253-168			
Last Modification Date:	4/17/03	Initials: MH	(R-X)				Revised:		13344			
Full Path:	C:\I25HOV-AD\Removal\		(R-X)									
Drawing File Name:	Removals.dwg		(R-X)				Void:				Sheet Number 62	



CALL UTILITY NOTIFICATION
CENTER OF COLORADO

1-800-922-1987

CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG. PROVIDE ADVISORY
FOR THE MARKING OF UNDERGROUND
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

NOTES:

REQUIRED: REMOVE EXISTING GUARDRAIL TYPE 4 (STYLE CC HOV).
REMOVE DOWELS TO 1 INCH BELOW PAVEMENT SURFACE.
RESTORE PAVEMENT SURFACE USING NON-SHRINK EPOXY.
COST TO BE INCLUDED IN THE COST OF REMOVAL OF GUARDRAIL TYPE 4.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		REMOVALS		Project No./Code	
Creation Date:	3/30/02	Initials: MH	(R-X)		 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2040 FAX:(720) 945-1028	No Revisions:		IM 0253-168		13344		
Last Modification Date:	4/17/03	Initials: MH	(R-X)			Revised:						
Full Path:	C:\25HOV-AD\Removal\		(R-X)			Void:						
Drawing File Name:	Removals.dwg		(R-X)			JCS						
			(R-X)			Region 6- North Engineering						
					Region 6- North Engineering				Sheet Number 64			

COLORADO DEPARTMENT OF TRANSPORTATION  Region 6 Address: 2000 South Holly Street Denver, CO 80222 Phone: (303) 757-9923 FAX: (303) 757-9053 DEPARTMENT OF TRANSPORTATION		Sheet Revisions <table border="1"> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> <tr><td> </td><td> </td></tr> </table>																					IN SECTIONS 26, 27, 34 AND 35, T. 2 S., R.68W.; SECTIONS 2, 3, 10 & 15, T. 3 S., R.68W.; of the 6th P.M. ADAMS COUNTY Prepared By C.D.O.T., Region 6, R.O.W.	  SCALE IN FEET 1" = 500' Full Size 1" = 1000' Folded	Survey Control Diagram Plan Sheet Project Number: IR(CX)270-6(026) Project Location: I-270 at I-76 Project Location:

SURVEY CONTROL POINT TABULATION - PROJECT SPECIFIC - U.S. SURVEY FEET FOUND MONUMENTS				
Sections 27, 34 & 35, Township 2 South and Sections 2 & 3, Township 3 South, Range 68 West of the 6th P.M.				
PNT	NORTHING	EASTING	ELEVATION	DESCRIPTION OF MONUMENTS
24	726141.638	149241.434	5126.500	3 1/4" AL CAP "CDOH GPS24 ZBS PLS 11434
25	725493.246	147971.841	5138.700	1 1/2" AL CAP "419"
26	726713.857	145559.167		
32	734674.153	145235.431	5251.290	3 1/4" AL CAP "CDOH 1.084003 GPS32 ZBS PLS 11434
43	726561.907	146576.819	5150.450	3 1/4" BR CAP "ZBS INC GPS43 1.071005 PLS 11434
47	726805.638	145630.624		
53	726815.090	146604.850	5199.230	3 1/4" BR CAP "CDOH PTS3 1.072006 1994 PLS 11434
55	725541.773	146375.816		
143			5150.363	SEE POINT 43
253			5199.117	SEE POINT 53
281	726707.144	147350.474	5147.510	1 1/2" AL CAP "2"
282	727446.318	147265.416	5143.700	3 1/4" AL CAP "282"
470	730726.143	145578.786	5259.320	3 1/4" AL CAP "CDOH 470 1.078003"
507	734070.969	145097.245	5255.220	3 1/4" AL CAP "CDOH 1.0760035 PLS14108

SET MONUMENTS
 Sections 27, 34 & 35, Township 2 South and Sections 2 & 3, Township 3 South, Range 68 West of the 6th P.M.

S.W. 1/4 SEC. 35

WB I-270

LEGEND
 Existing GPS control recovered
 Supplemental control point set

Washington Street

56 (TRANSPORTATION)

123

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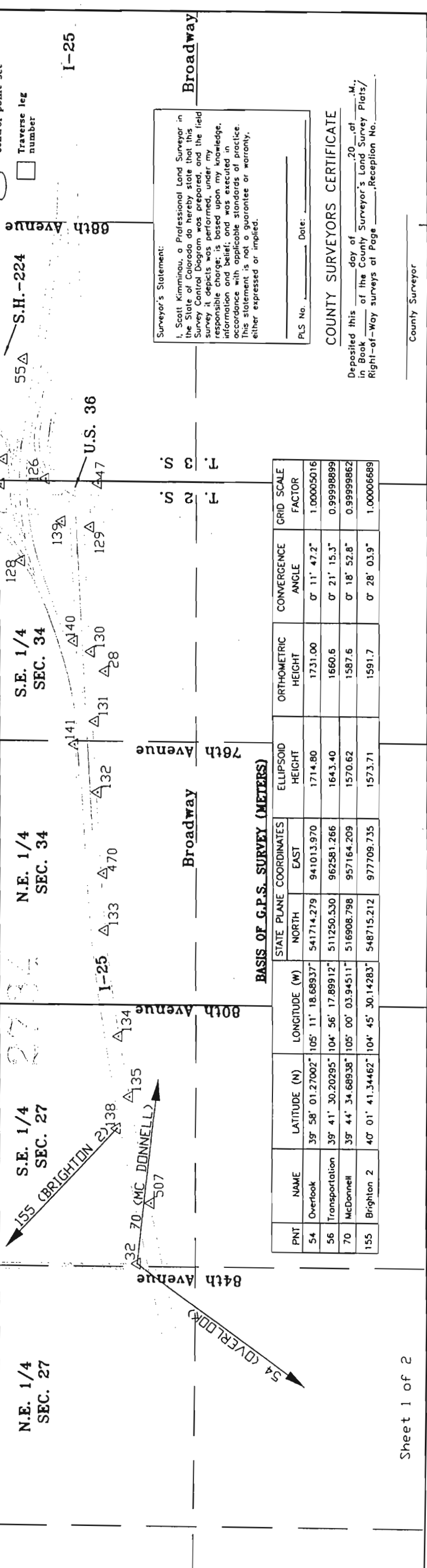
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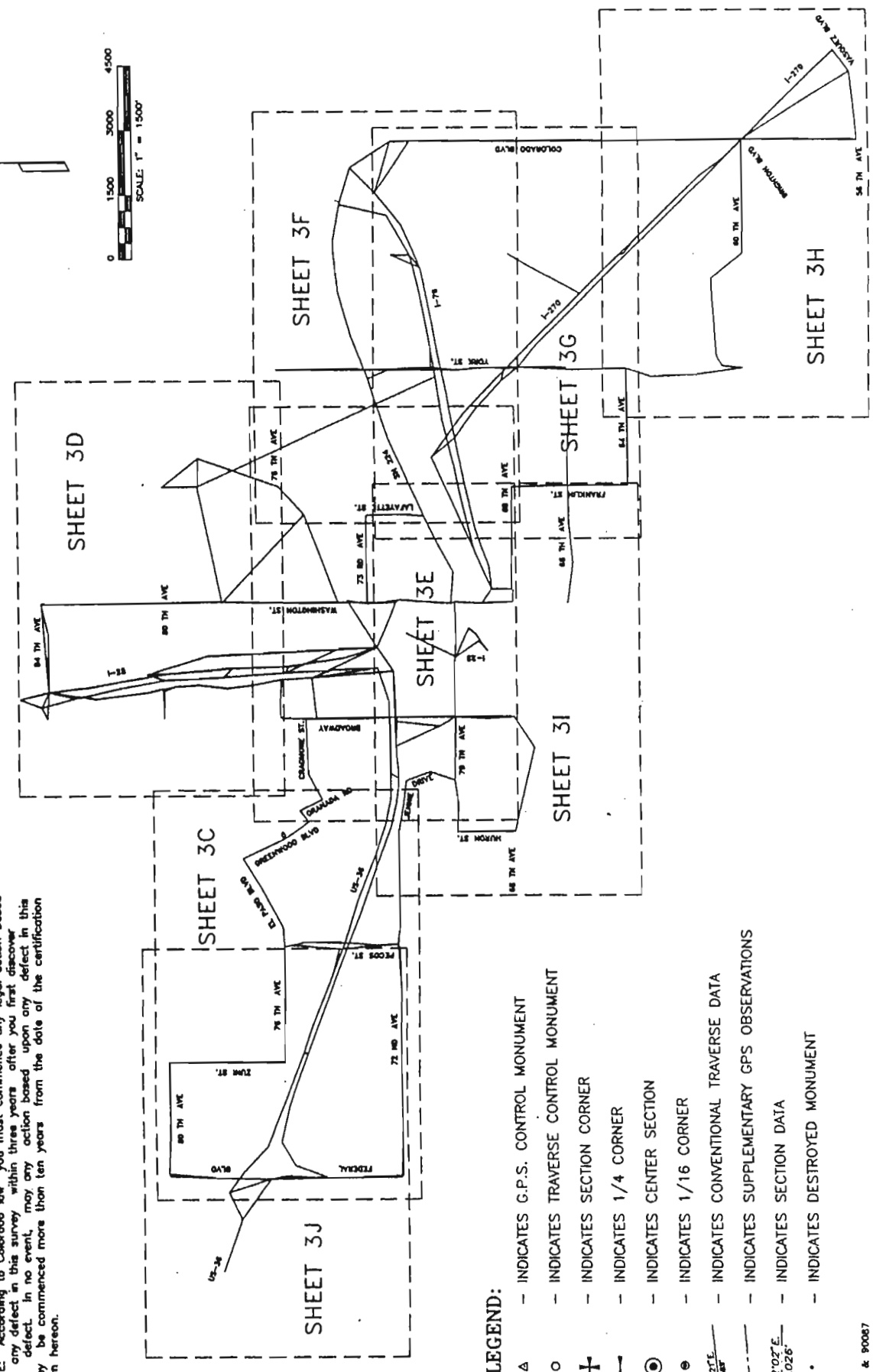
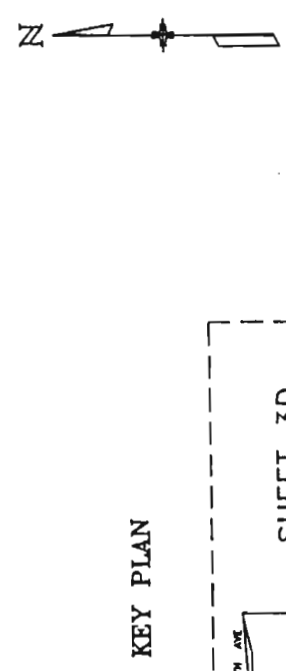
122



CONTROL AND MONUMENTATION SHEET
DEPARTMENT OF TRANSPORTATION - STATE OF COLORADO
SURVEY CONTROL DIAGRAM

GENERAL NOTES

1. This survey is not a complete boundary survey of all adjoining owners and is prepared for Colorado Department of Transportation purposes only.
2. The Survey Control Points shown and described hereon have been established with a higher degree of accuracy than R.O.W. markers.
3. All R.O.W. Markers are set from survey control points.
4. All centerline and offset stationing is theoretical only and may not represent the centerline as constructed in the field. All stationing is approximate.
5. The Global Positioning System (G.P.S.) Control Network was processed with TrimNet software and horizontal precision for all baselines exceeded 1:240,000. RBF/GeoStar reprocessed the data in September 1991 and incorporated the data into the C.D.O.T. District 6 G.P.S. network. RBF/GeoStar found all but two very short baselines to be within the 10ppm specifications for Class "D" First Order standards.
6. Basis of bearing of the project is based on the Global Positioning System (G.P.S.) Control Network shown and described on Sheets 3A and 3B. Horizontal control traverses have been run and adjusted to the G.P.S. network through use of Colorado Measurement System software (C.M.S.).
7. NOTICE: According to Colorado law you must commence any legal action based upon any defect in this survey within three years after you first discover such defect. In no event, may any action based upon any defect in this survey be commenced more than ten years from the date of the certification shown hereon.



- LEGEND:
- △ - INDICATES G.P.S. CONTROL MONUMENT
 - - INDICATES TRAVERSE CONTROL MONUMENT
 - + - INDICATES SECTION CORNER
 - - INDICATES 1/4 CORNER
 - - INDICATES CENTER SECTION
 - - INDICATES 1/16 CORNER
 - - INDICATES CONVENTIONAL TRAVERSE DATA
 - - INDICATES SUPPLEMENTARY GPS OBSERVATIONS
 - - INDICATES SECTION DATA
 - - INDICATES DESTROYED MONUMENT

FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VI	COLO.	14-IR(CD)25-3(107) SH 270 EXT.	3A-1

REVISIONS	DATE	BY	REASON
R-1	4/21/92	SH	REVISIONS
R-2	5/05/92	SH	REVISIONS
R-3	7/10/92	SH	REVISIONS
R-4	1/3/94	SH	REVISIONS
R-5	1/20/95	SH	REVISIONS
R-6	3/03/95	SH	REVISIONS

ACCURACY OF VERTICAL CONTROL

ACCURACY OF VERTICAL CONTROL: THIS SURVEY WAS CLASSIFIED AS A CLASS 1 SURVEY. THE VERTICAL CONTROL WAS ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION. THE VERTICAL CONTROL WAS ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION. THE VERTICAL CONTROL WAS ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION.

DESCRIPTION OF PRIMARY BENCH MARKS

DESCRIPTION OF PRIMARY BENCH MARKS: THE BENCH MARKS WERE ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION. THE BENCH MARKS WERE ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION. THE BENCH MARKS WERE ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION. THE BENCH MARKS WERE ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION. THE BENCH MARKS WERE ESTABLISHED BY THE COLORADO DEPARTMENT OF TRANSPORTATION.

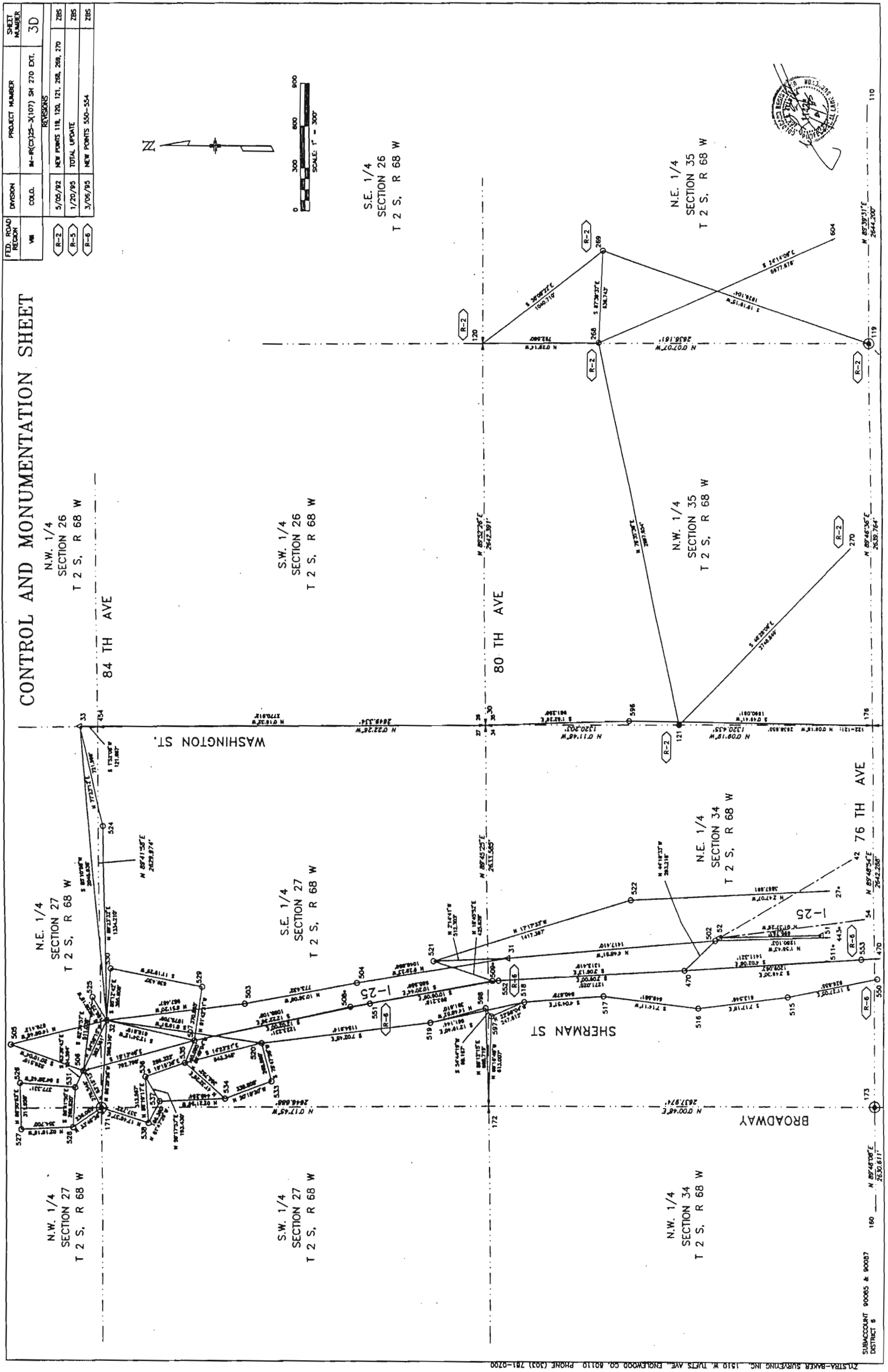
SURVEYOR CERTIFICATE (FIELD AND OFFICE)
Control And Monumentation Plans were prepared under my supervision and checking.

NAME: [Signature]
DATE: [Signature]
P.L.S. NO. 11454

F

FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VI	COLO.	84-R(C)25-X(107) SH 270 EXT.	3D
REVISIONS			
R-2	5/05/92	NEW POINTS 118, 120, 121, 268, 269, 270	ZBS
R-5	1/20/95	TOTAL UPDATE	ZBS
R-6	3/06/95	NEW POINTS 550-554	ZBS

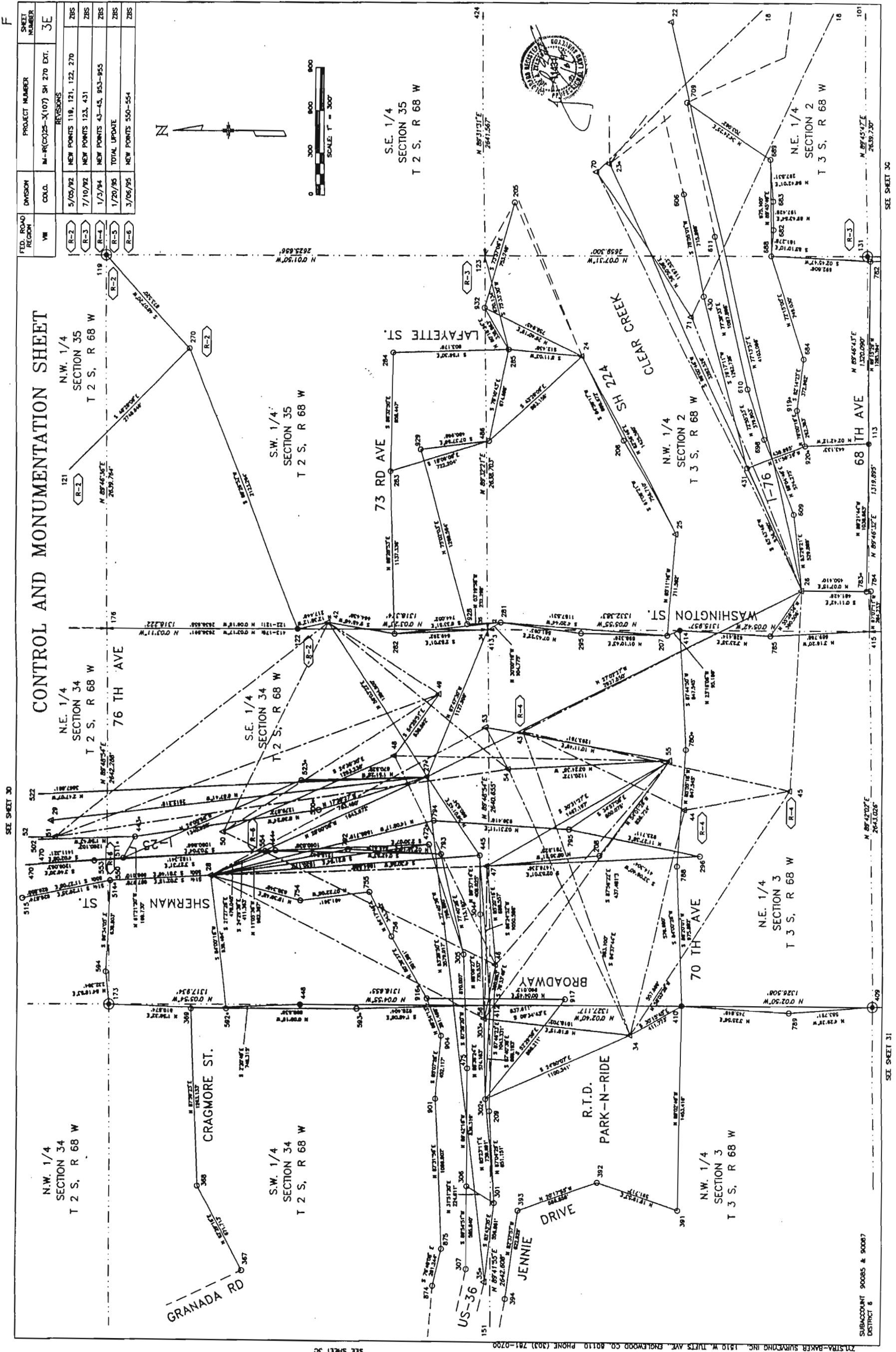
CONTROL AND MONUMENTATION SHEET



SEE SHEET 3E

SUBACCOUNT 90085 & 90087
DISTRICT 6

2015 TRA-BAXER SURVEYING INC., 1510 W. TULSA AVE., ENGLEWOOD CO., 80110 PHONE (303) 781-0700



FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VI	COLO.	M-R(CD)25-X(107) SH 270 EXT.	3E
REVISIONS			
R-2	5/05/92	NEW POINTS 119, 121, 122, 270	ZBS
R-3	7/10/92	NEW POINTS 123, 431	ZBS
R-4	1/3/94	NEW POINTS 43-45, 953-955	ZBS
R-5	1/20/95	TOTAL UPDATE	ZBS
R-6	3/06/95	NEW POINTS 550-554	ZBS

SEE SHEET 30

SEE SHEET 3F

SEE SHEET 3G

SEE SHEET 3G

SEE SHEET 31

SUBACCOUNT 90085 & 90087
DISTRICT 6

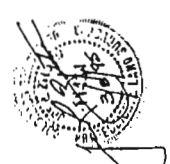
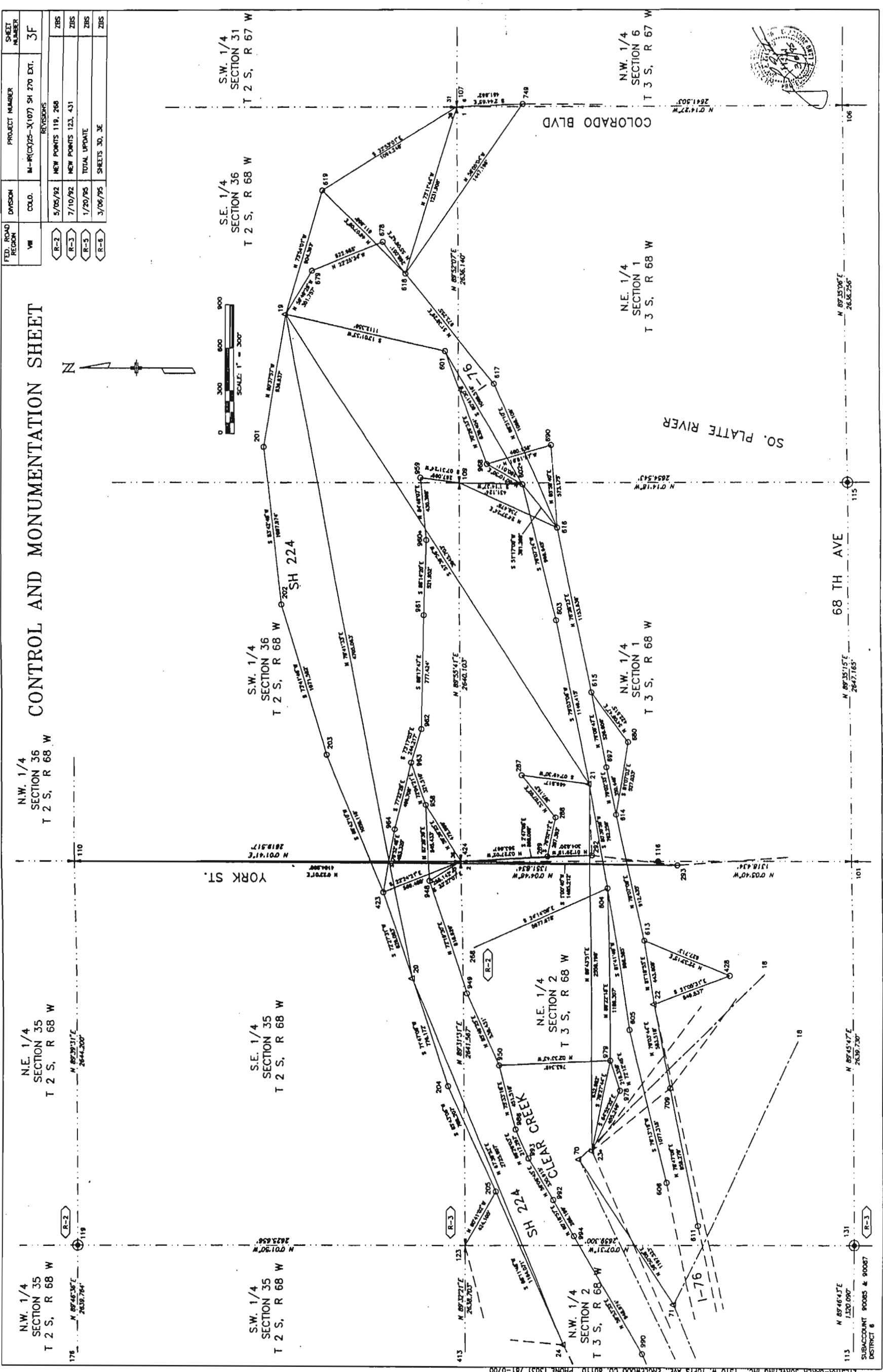
7015TH-BAXTER SURVEYING INC. 1510 W. TUFTS AVE. ENGLEWOOD CO. 80110 PHONE (303) 781-0700

FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VII	COLO.	M-10025-X(107) SH 270 EXT.	3F

REVISIONS
R-2
R-3
R-5
R-6

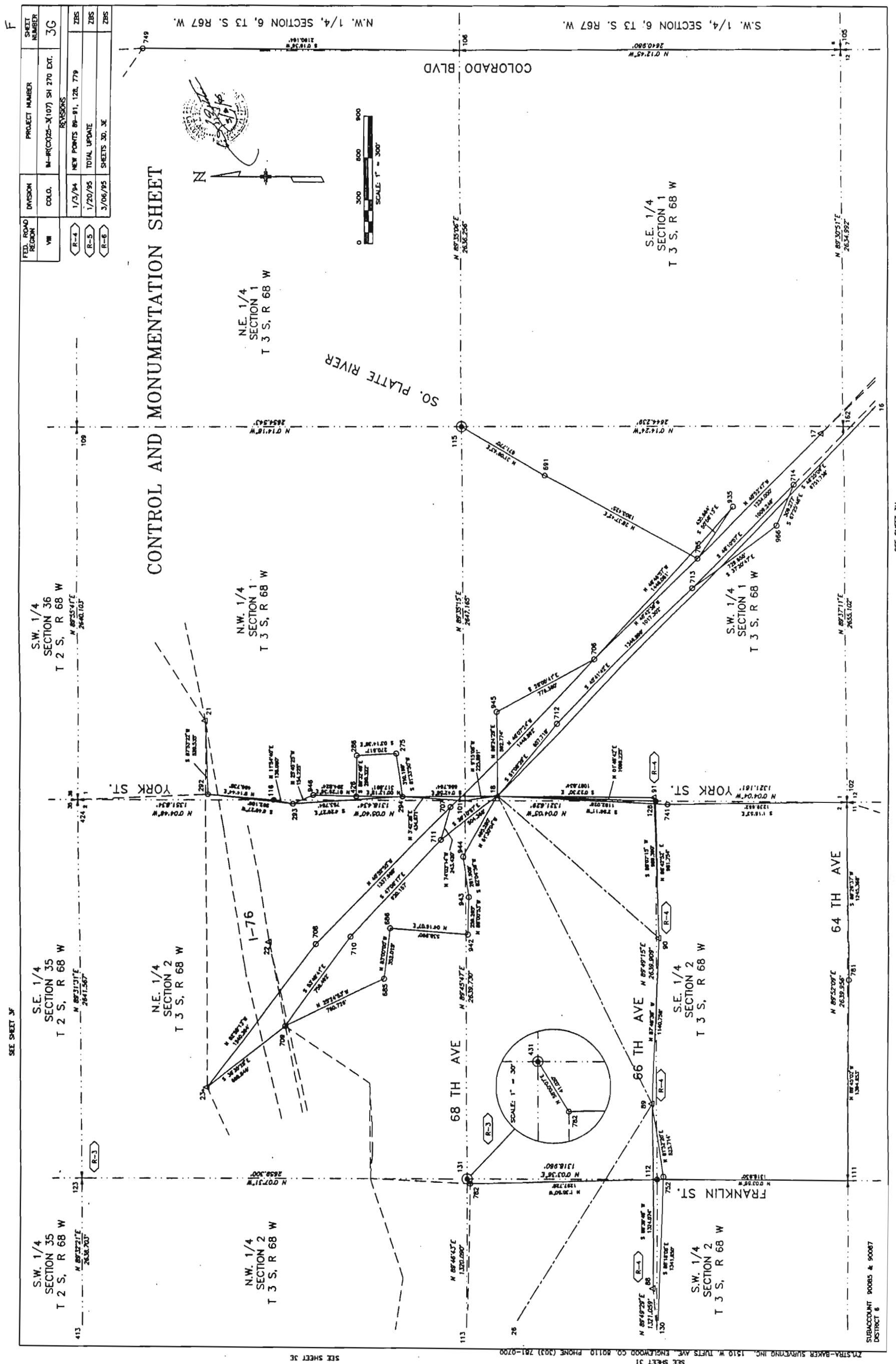
5/05/92	NEW POINTS 119, 268	ZBS
7/10/92	NEW POINTS 123, 431	ZBS
1/20/95	TOTAL UPDATE	ZBS
3/06/95	SHEETS 30, 3E	ZBS

CONTROL AND MONUMENTATION SHEET



SEE SHEET 3E

SEE SHEET 3C



F

SEE SHEET 3G

FED. ROAD REGION	DIVISION	PROJECT NUMBER	SHEET NUMBER
VI	COLO.	IM-R(CO)25-X(107) SH 270 EXT.	3H
REVISIONS			
4/21/92		CORRECTED DISTANCE 103-104	ZBS
1/20/95		TOTAL UPDATE	ZBS
3/06/95		SHEETS 30, 3E	ZBS

S.W. 1/4
SECTION 6
T 3 S, R 67 W

S.E. 1/4
SECTION 1
T 3 S, R 68 W

S.W. 1/4
SECTION 1
T 3 S, R 68 W

S.E. 1/4
SECTION 2
T 3 S, R 68 W

N.W. 1/4
SECTION 7
T 3 S, R 67 W

N.E. 1/4
SECTION 12
T 3 S, R 68 W

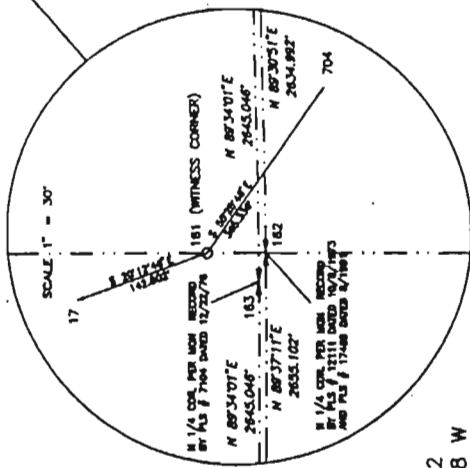
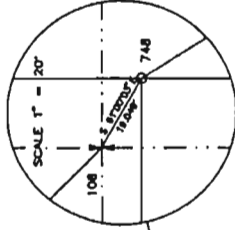
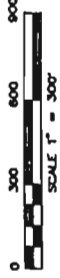
N.W. 1/4
SECTION 12
T 3 S, R 68 W

N.E. 1/4
SECTION 11
T 3 S, R 68 W

C.W. 1/4
SECTION 7
T 3 S, R 67 W

S.E. 1/4
SECTION 12
T 3 S, R 68 W

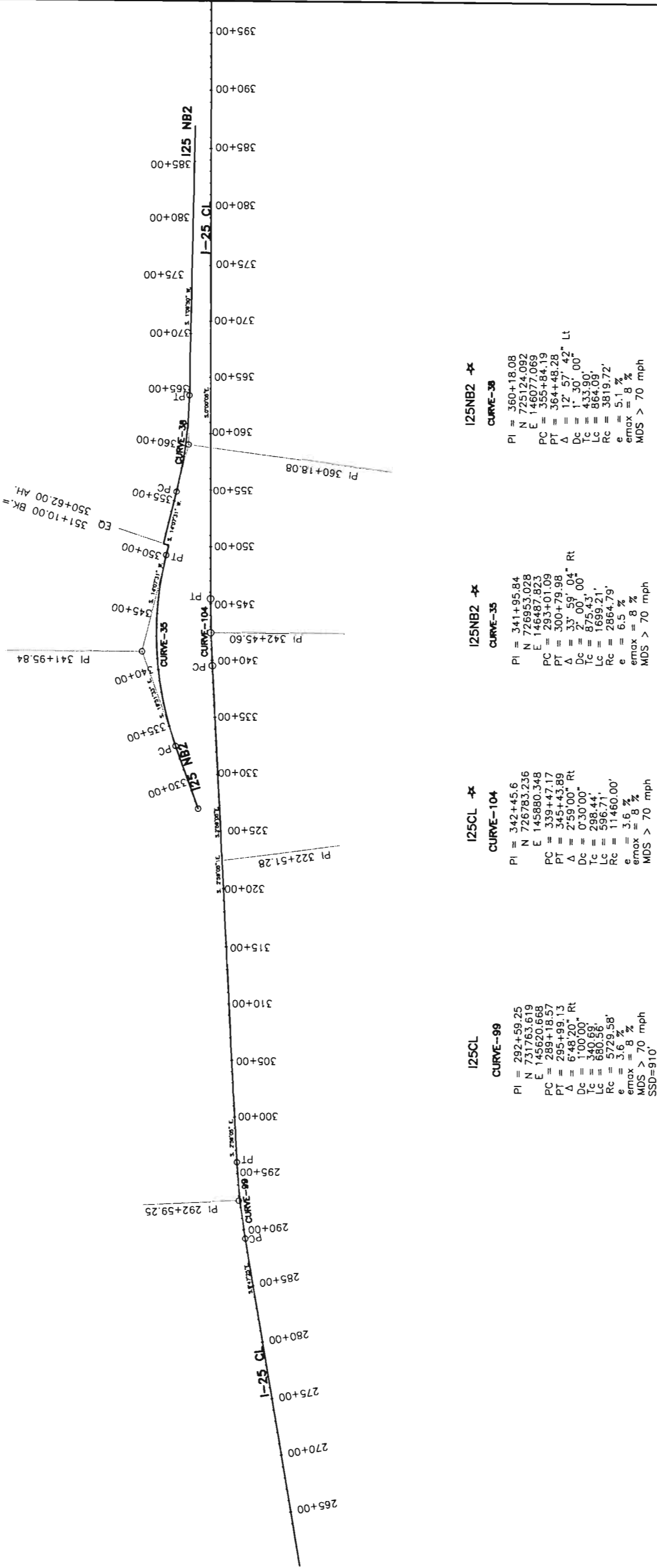
CONTROL AND MONUMENTATION SHEET

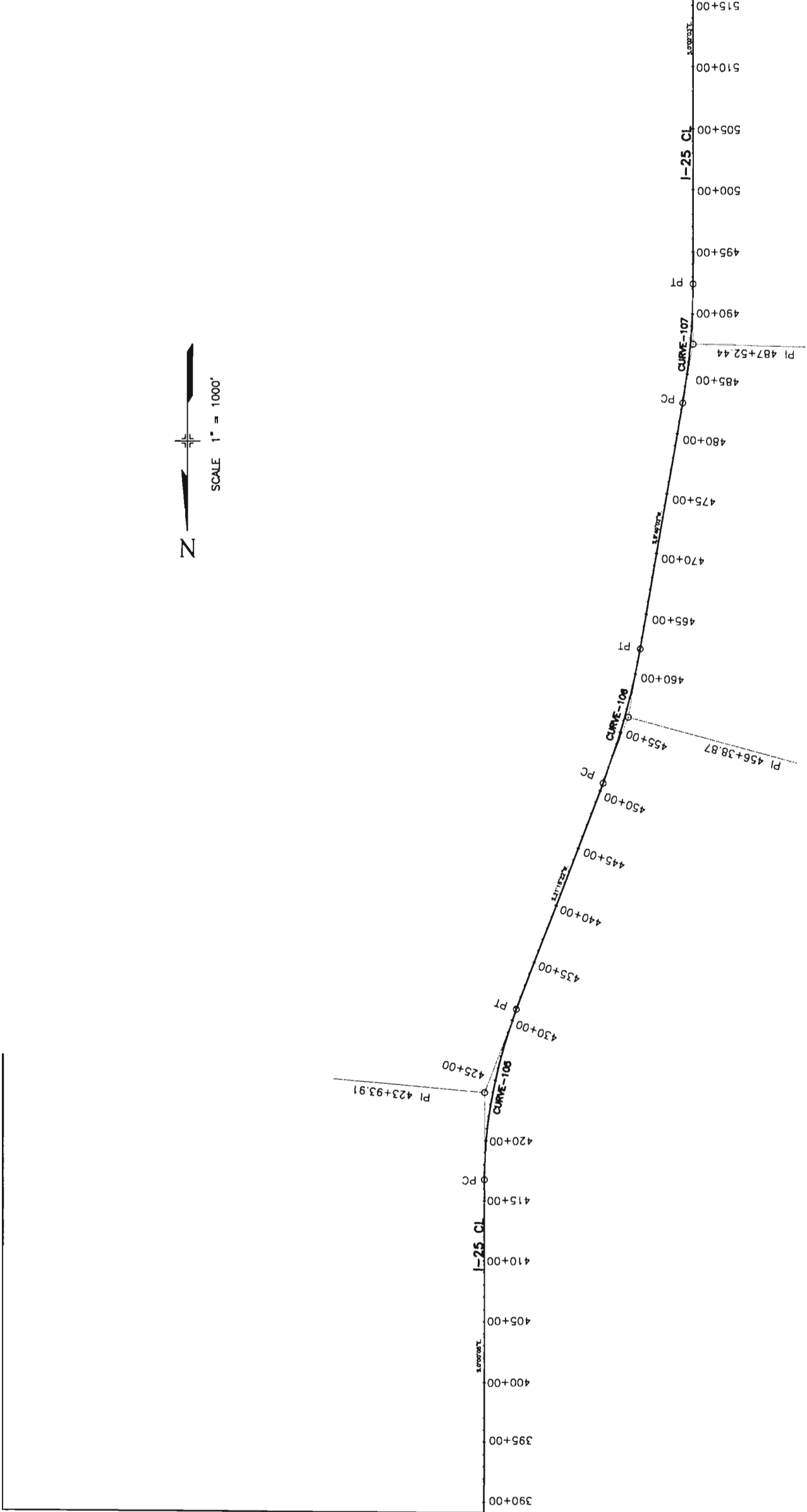


SUBACCOUNT 90085 & 90087
DISTRICT 6

Computer File Information				Sheet Revisions		As Constructed		PROJECT ALIGNMENTS			Project No./Code				
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Drawing File Name:	I25--align.dwg			(R-X)		JCS		Sheet Number 78							

✧ FOR INFORMATION ONLY





I25CL ✖
CURVE-105
PI = 423+93.91
N 718634.786
E 145880.545
PC = 416+77.09
PT = 430+94.26
Δ = 21°15'27" Rt
Dc = 1'30'00"
Tc = 716.83'
Lc = 1417.17'
Rc = 3819.72'
e = 5.1 %
emax = 8 %
MDS > 70 mph

I25CL ✖
CURVE-106
PI = 456+38.87
N 715595.226
E 144698.15
PC = 450+65.02
PT = 462+08.9
Δ = 11°26'20" Lt
Dc = 1'00'00"
Tc = 573.86'
Lc = 1143.88'
Rc = 5729.58'
e = 3.6 %
emax = 8 %
MDS > 70 mph

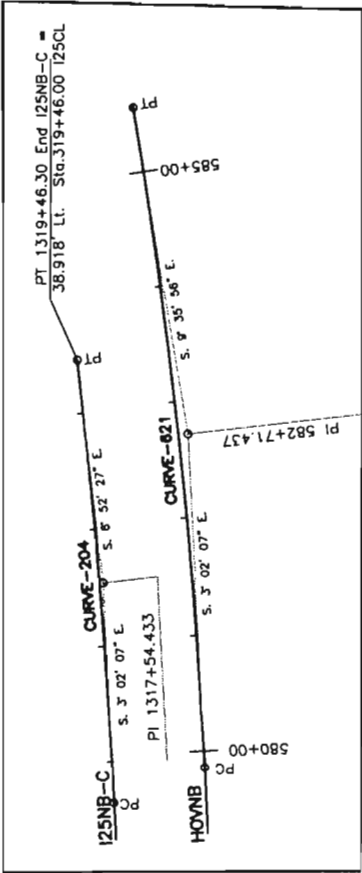
I25CL ✖
CURVE-107
PI = 487+52.44
N 712523.487
E 144166.613
PC = 482+58.65
PT = 492+43.80
Δ = 9°51'05" Lt
Dc = 1'00'00"
Tc = 493.80'
Lc = 685.13'
Rc = 5729.58'
e = 3.6 %
emax = 8 %
MDS > 70 mph

✖ FOR INFORMATION ONLY

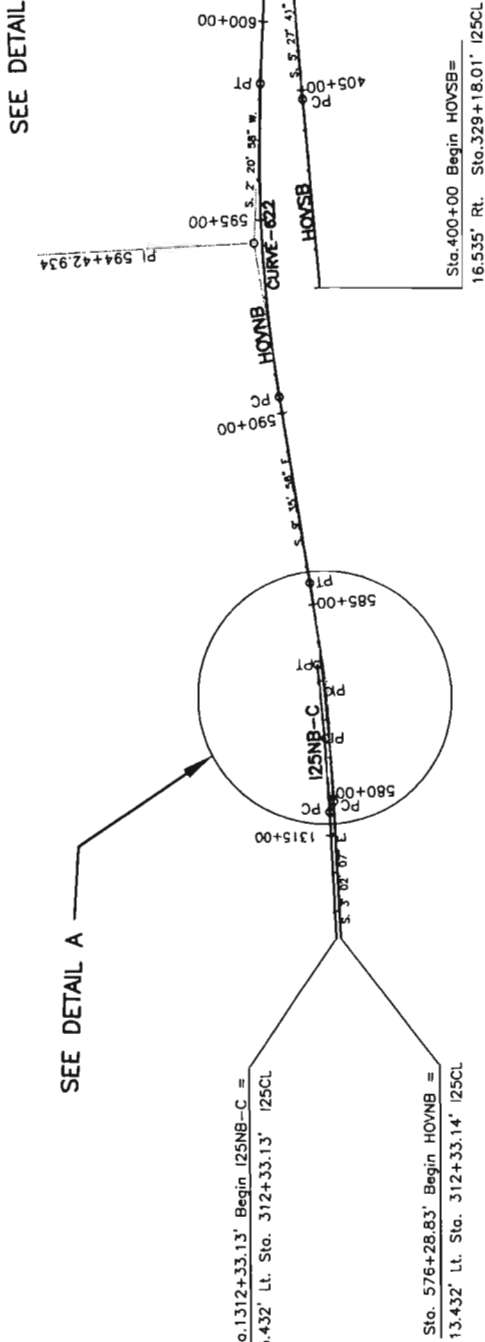
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Creation Date:	11/07/00	Initials: MH	(R-X)			 2000 S. Holly Street Denver, CO 80222 Phone:(303)370-2049 Phone:(303)370-2052 Region 6--North Engineering JCS			No Revisions:		0253--168				
Last Modification Date:	6/19/01	Initials: MH	(R-X)		Revised:				13344						
Full Path:	C:\I-25HOV\ALIGNMENT\I25-align.dwg		(R-X)		Void:										
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DETAIL A

NOT TO SCALE

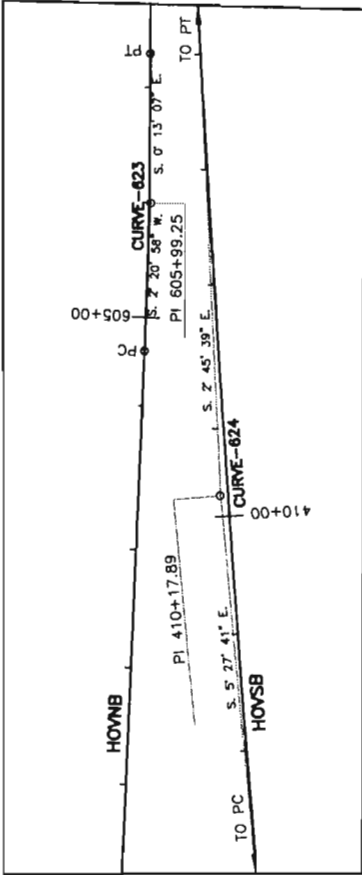


SEE DETAIL A



DETAIL B

NOT TO SCALE



125NB-C
CURVE-204
PI = 1317+54.433
N 729272.3729
E 145776.4915
PC = 1315+62.42
PT = 1319+46.303
Δ = 3° 50' 20" Lt
Dc = 1' 00' 01"
Tc = 192.02'
Lc = 383.88'
Rc = 5729.57'
e = 4.2%
emax = 8%
MDS > 75 mph
SSD=1894'

HOVNB
CURVE-821
PI = 582+71.437
N 729150.5939
E 145770.8323
PC = 579+84.735
PT = 585+57.511
Δ = 6° 33' 49" Lt
Dc = 1' 08' 46"
Tc = 286.70'
Lc = 572.77'
Rc = 5000.00'
e = 4.2%
emax = 8%
MDS > 75 mph
SSD=1767'

HOVNB
CURVE-822
PI = 594+42.934
N 727994.8799
E 145966.3842
PC = 590+41.952
PT = 598+41.008
Δ = 11° 56' 54" Rt
Dc = 1' 29' 44"
Tc = 400.99'
Lc = 799.06'
Rc = 3831.72'
e = 5.1%
emax = 8%
MDS > 70 mph
SSD=744'

HOVNB
CURVE-623
PI = 605+99.254
N 726836.6241
E 145918.8640
PC = 607+27.639
PT = 607+27.639
Δ = 2° 34' 05.2" Lt
Dc = 1' 00' 00"
Tc = 128.43'
Lc = 256.81'
Rc = 5729.58'
e = 3.6%
emax = 8%
MDS > 70 mph
SSD=908'

HOVNB
CURVE-624
PI = 410+17.885
N 727084.5953
E 145891.5841
PC = 404+77.42'
PT = 415+58.147'
Δ = 2° 42' 02" Rt
Dc = 0' 15' 00"
Tc = 540.46'
Lc = 1080.72'
Rc = 22930.32'
e = NC TO 3.6%
emax = 8%
MDS > 70 mph
SSD=1354'

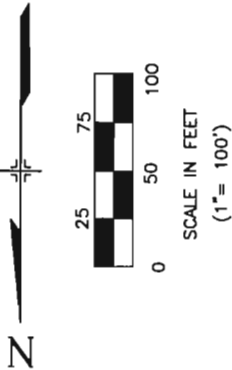
HOV US36
CURVE-300
PI = 700+16.17
N 724600.5430
E 145927.4010
PC = 693+83.76
PT = 706+46.85
Δ = 0' 34' 18" Lt
Dc = 0' 34' 18"
Tc = 632.42'
Lc = 1263.09'
Rc = 9842.50'
e = 3.6%
emax = 8%
MDS > 70 mph
SSD=1354'

✧ FOR INFORMATION ONLY

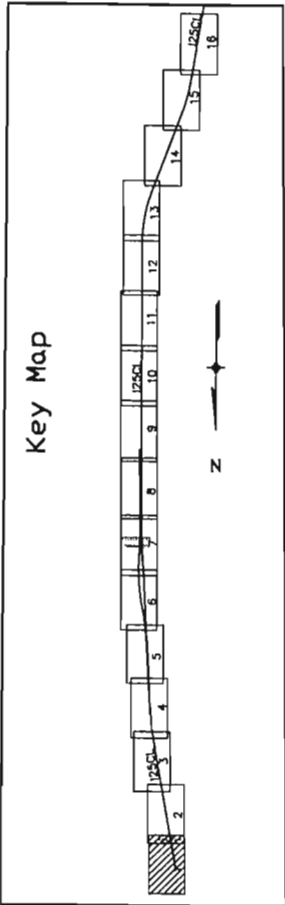
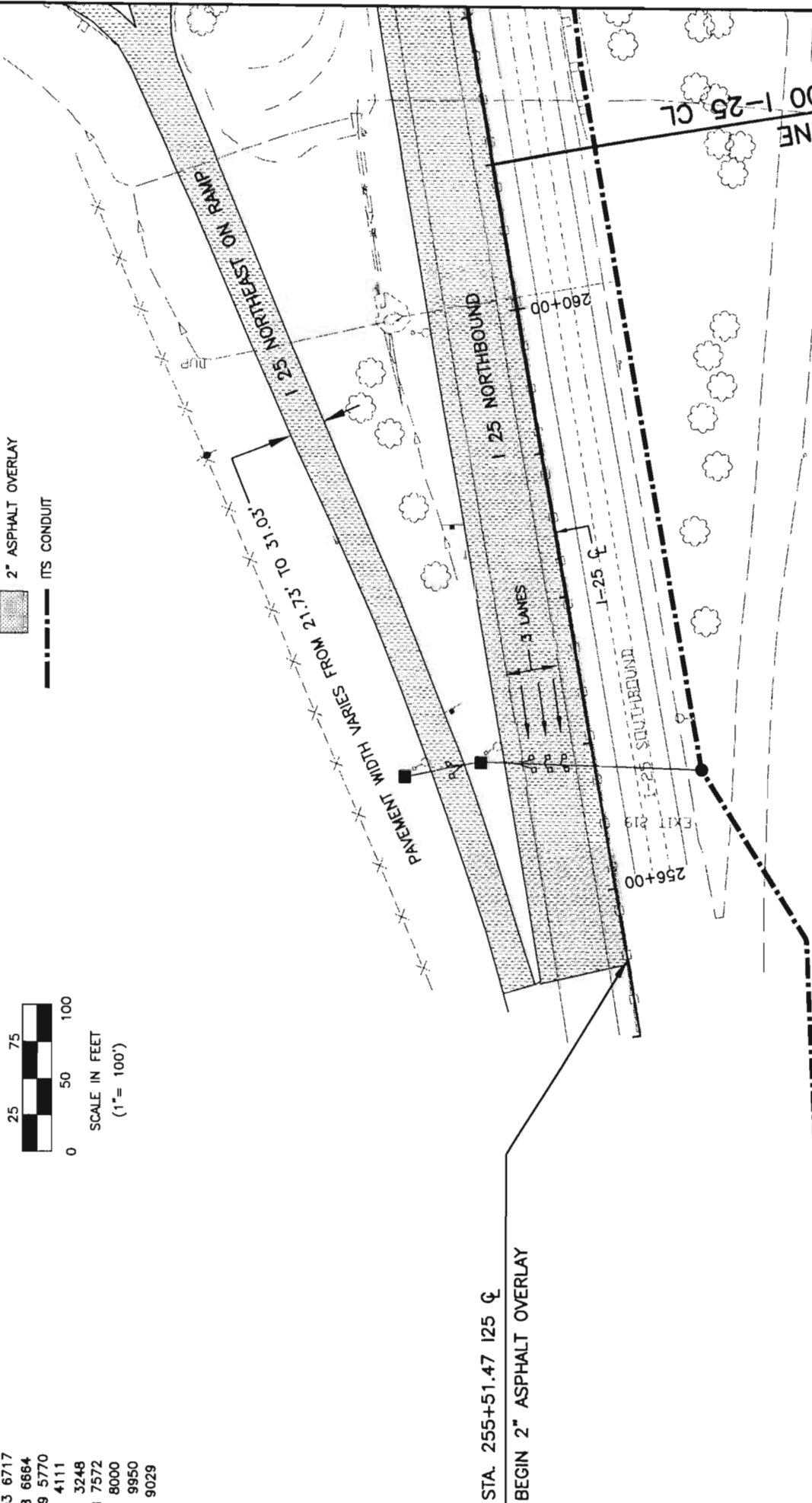
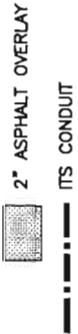
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Credion Date:	10/18/00	Initials: MH	(R-X)			No Revisions:			PROJECT ALIGNMENTS			0253-168
Last Modification Date:	03/01/03	Initials: MH	(R-X)			Revised:						13344
Full Path:	C:\-25HOV\Alignments\					Void:						Sheet Number 80
Drawing File Name:	125nb&hov&us36.dwg					Region 6-North Engineering			JCS			
						Colorado Department of Transportation						
						2000 S. Holly Street Denver, Co 80222 Phone: (303)370-2049 Fax : (720)945-1028						
						DOT DIVISION OF TRANSPORTATION						

KNOWN UTILITIES WITHIN THE LIMITS OF THE PROJECT:

XCEL ENERGY-STREET LIGHTING	303-571 3505	CHERI WEERS
XCEL ENERGY-ELECTRIC DISTRIBUTION	303-425 3870	BARB EVERARD
XCEL ENERGY-GAS	303-571 3744	JIM MCQUISTIN
QWEST COMMUNICATIONS	303-451 3032	MIKE DAVIS
AT&T BROADBAND	303-603 6717	JOHN RUSCIO
NORTH WASHINGTON STR. WATER & SANITATION	303-288 6664	JAMES JAMSAY
NORTH PECOS STR. WATER & SANITATION	303-429 5770	MIKE ROLSCH
LOWER CLEAR CREEK DITCH COMPANY	303-288 4111	GEORGE MAZZOTTI
METRO WASTEWATER RECLAMATION DISTRICT	303-286 3248	RON MARING
COLORADO AGRICULTURAL DITCH COMPANY	303-538 7572	C/O ED LANYON
OLIVER DITCH COMPANY	303-637 8000	C/O RICH ANDERSON
CDOT REGION 6 TRAFFIC-ITS	303-757 9950	JEFF LANCASTER
CDOT REGION 6 TRAFFIC-ITS	303-757 9029	JILL SCOTT

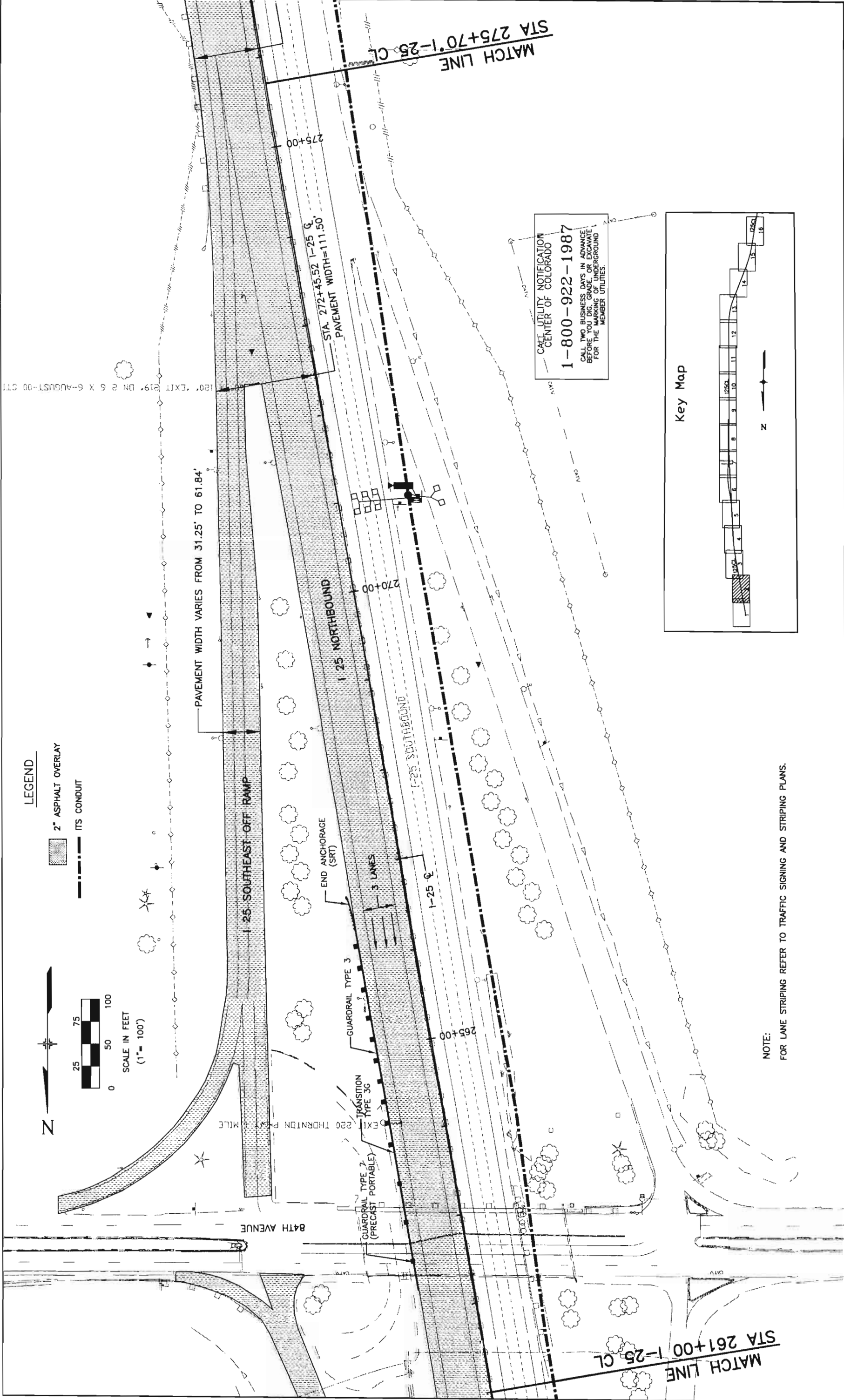


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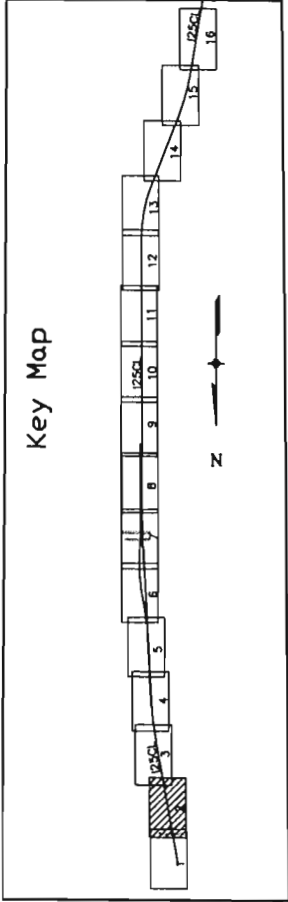


NOTE:
FOR LANE STRIPING REFER TO TRAFFIC SIGNING AND STRIPING PLANS.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		FINAL PROJECT CONSTRUCTION PLAN (1-25)		Project No./Code	
Creation Date:	03/30/01	Initials: MH	(R-X)		 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028	No Revisions:		IM 0253-168		13344		
Last Modification Date:	6/19/01	Initials: MH	(R-X)	Revised:								
Full Path: C:\I25HOV-FOR\Planview\Proposed-Roadway			(R-X)	Void:								
Drawing File Name:	Proposed-Roadway.DWG		(R-X)	JCS		Sheet Number				81		
			(R-X)			Region 6- North Engineering						



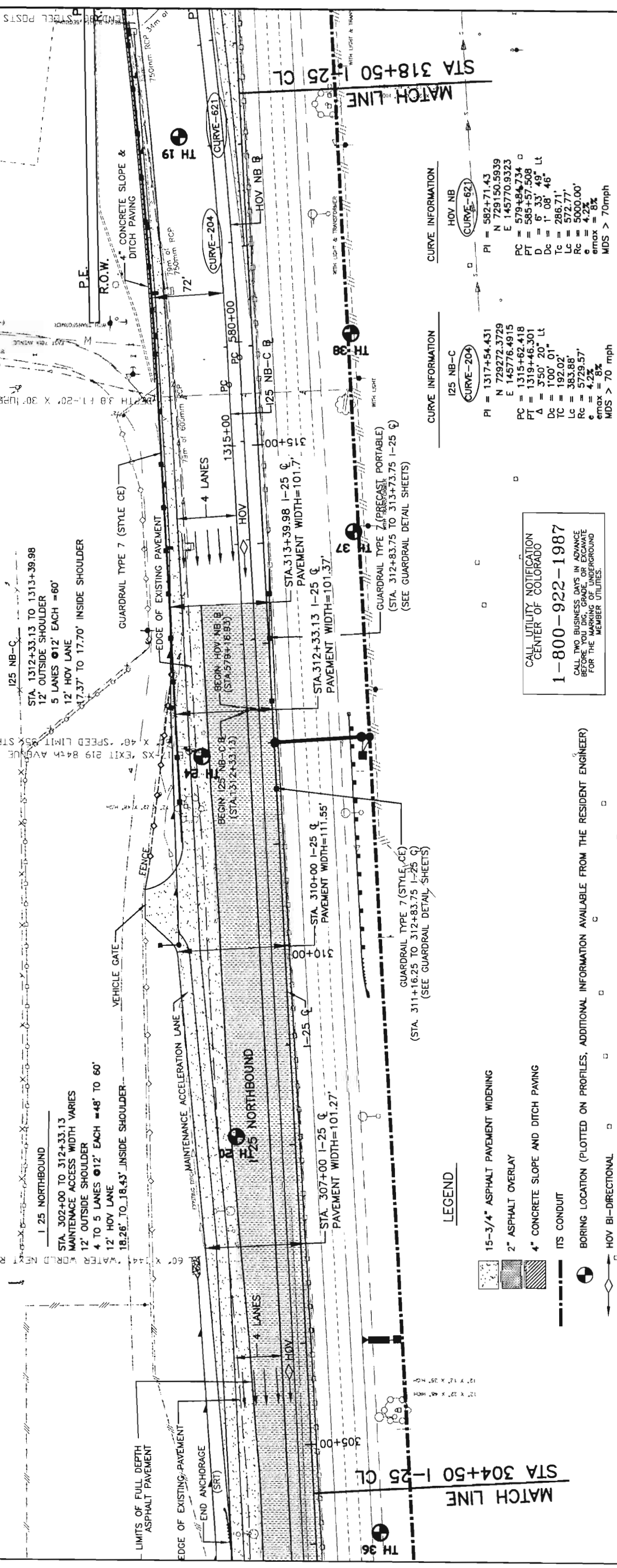
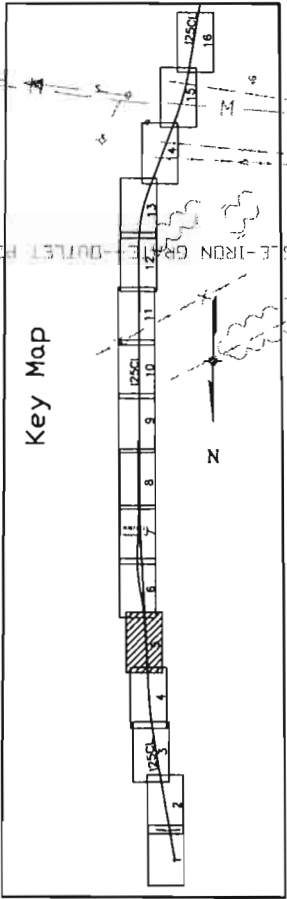
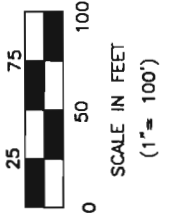
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG. GROUND OR EXCAVATE
FOR THE MEMBER UTILITIES.



NOTE:
FOR LANE STRIPING REFER TO TRAFFIC SIGNING AND STRIPING PLANS.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		FINAL PROJECT CONSTRUCTION PLAN (1-25)		Project No./Code	
Creation Date:	03/30/01	Initials: MH					2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028	No Revisions:			IM 0253-168	
Last Modification Date:	6/19/01	Initials: MH										
Full Path: C:\I25HOV-FOR\Planview\Proposed-Roadway												
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												Void:

NOTE:
FOR LANE STRIPING REFER TO TRAFFIC SIGNING AND STRIPING PLANS.



LEGEND

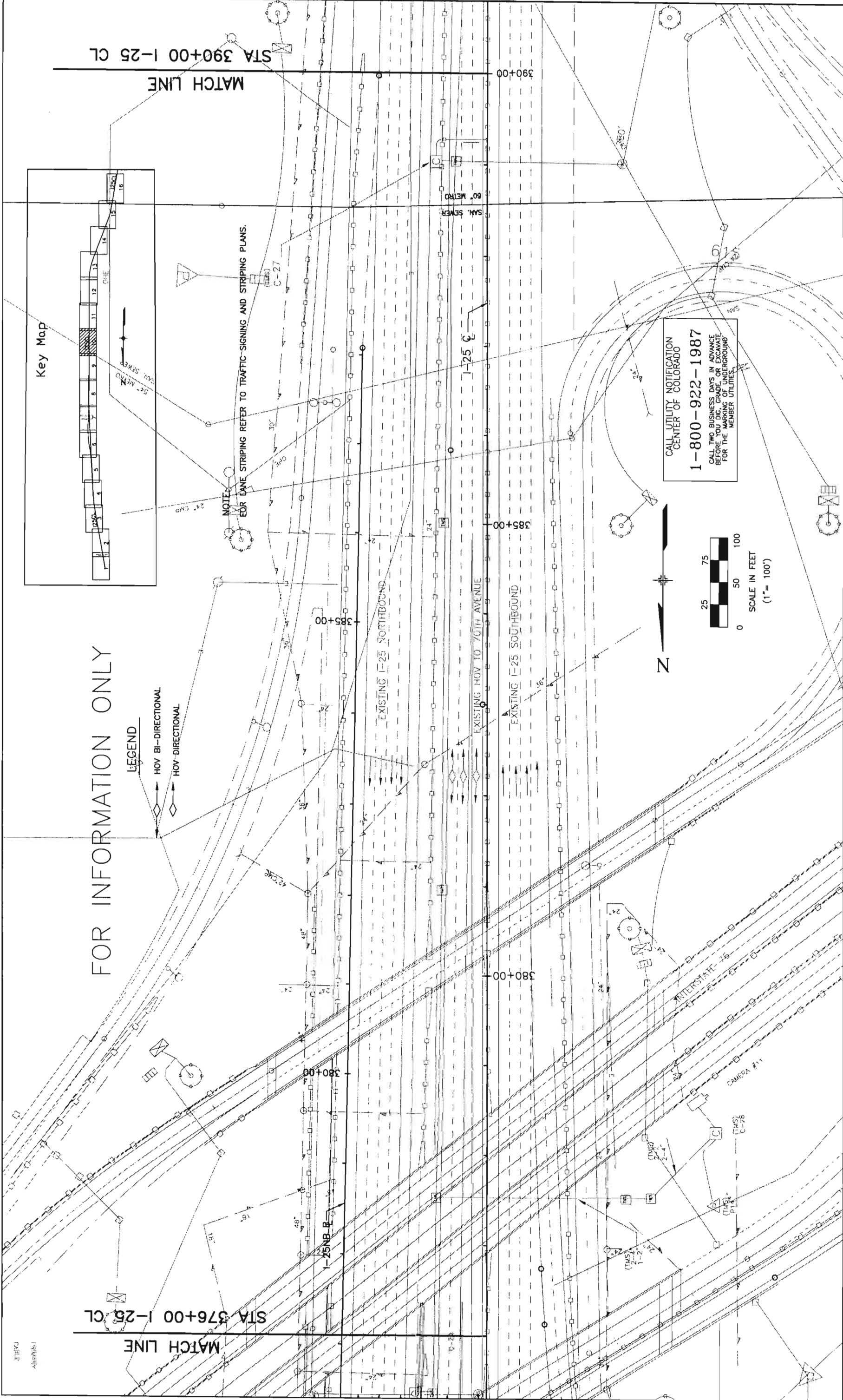
- 15-3/4" ASPHALT PAVEMENT WIDENING
- 2" ASPHALT OVERLAY
- 4" CONCRETE SLOPE AND DITCH PAVING
- ITS CONDUIT
- BORING LOCATION (PLOTTED ON PROFILES, ADDITIONAL INFORMATION AVAILABLE FROM THE RESIDENT ENGINEER)
- HOV BI-DIRECTIONAL
- HOV DIRECTIONAL

CURVE INFORMATION	
125 NB-C	125 NB
CURVE-204	
PI = 1317+54.431	
N 729272.3729	
E 145776.4915	
PC = 1315+62.418	
PT = 1319+46.301	
Δ = 350° 20' Lt	
Dc = 1'00' 01"	
Tc = 192.02'	
Lc = 383.88'	
Rc = 5729.57'	
e = 4.2%	
emax = 8%	
MDS > 70 mph	

CURVE INFORMATION	
HOV NB	HOV NB
CURVE-621	
PI = 582+71.43	
N 729150.5939	
E 145770.9323	
PC = 579+84.734	
PT = 585+57.508	
Δ = 6° 33' 49" Lt	
Dc = 1' 08' 46"	
Tc = 286.71'	
Lc = 572.77'	
Rc = 5000.00'	
e = 4.2%	
emax = 8%	
MDS > 70mph	

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		FINAL PROJECT CONSTRUCTION PLAN (1-25)		Project No./Code	
Creation Date:	03/30/01	Initials: MH				 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028	No Revisions:				IM 0253-168	
Last Modification Date:	6/19/01	Initials: MH			Revised:		13344					
Full Path: C:\25HOV-FOR\Planview\Proposed-Roadway					Void:							
Drawing File Name:	Proposed-Roadway.DWG											
					Region 6- North Engineering	JCS					Sheet Number 85	



MATCH LINE
STA 390+00 I-25 CL

FOR INFORMATION ONLY

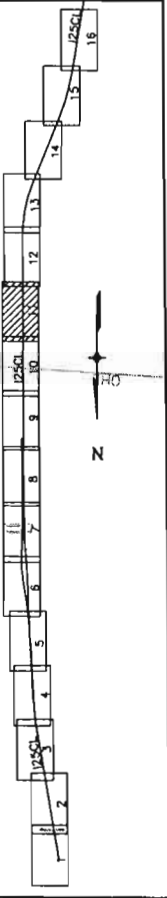
MATCH LINE

STA 404+50 I-25 CL

LEGEND

- HOV BI-DIRECTIONAL
- HOV DIRECTIONAL

Key Map



(TMS) 2-1
2-2

PSC OVERHEAD POWER

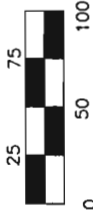
EXISTING I-25 NORTHBOUND

EXISTING HOV

EXISTING I-25 SOUTHBOUND

NOTE:
FOR LANE STRIPING REFER TO TRAFFIC SIGNING AND STRIPING PLANS.

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRAD, OR EXCAVATE
FOR THE MEMBER UTILITIES.



SCALE IN FEET
(1"= 100')

Computer File Information

Creation Date:	03/30/01	Initials:	MH
Last Modification Date:	6/19/01	Initials:	MH
Full Path:	C:\25HOV-FOR\Planview\Proposed-Roadway		
Drawing File Name:	Proposed-Roadway.DWG		

(R-X)

Sheet Revisions

Colorado Department of Transportation

2000 S. Holly Street
Denver, Co 80222
Phone:(303) 370-2049
FAX:(720) 945-1028

Region 6-- North Engineering JCS

As Constructed

No Revisions:

Revised:

Void:

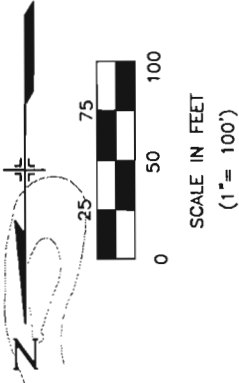
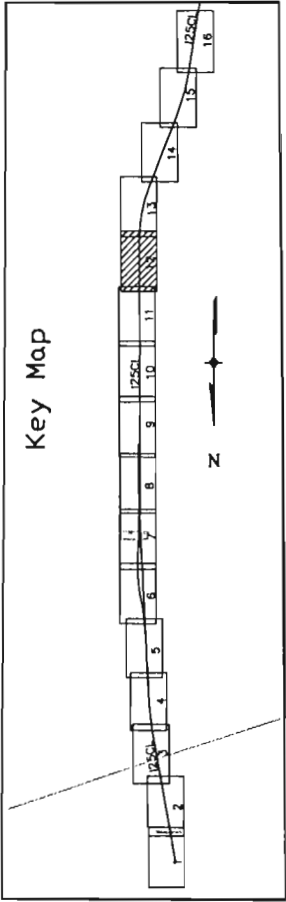
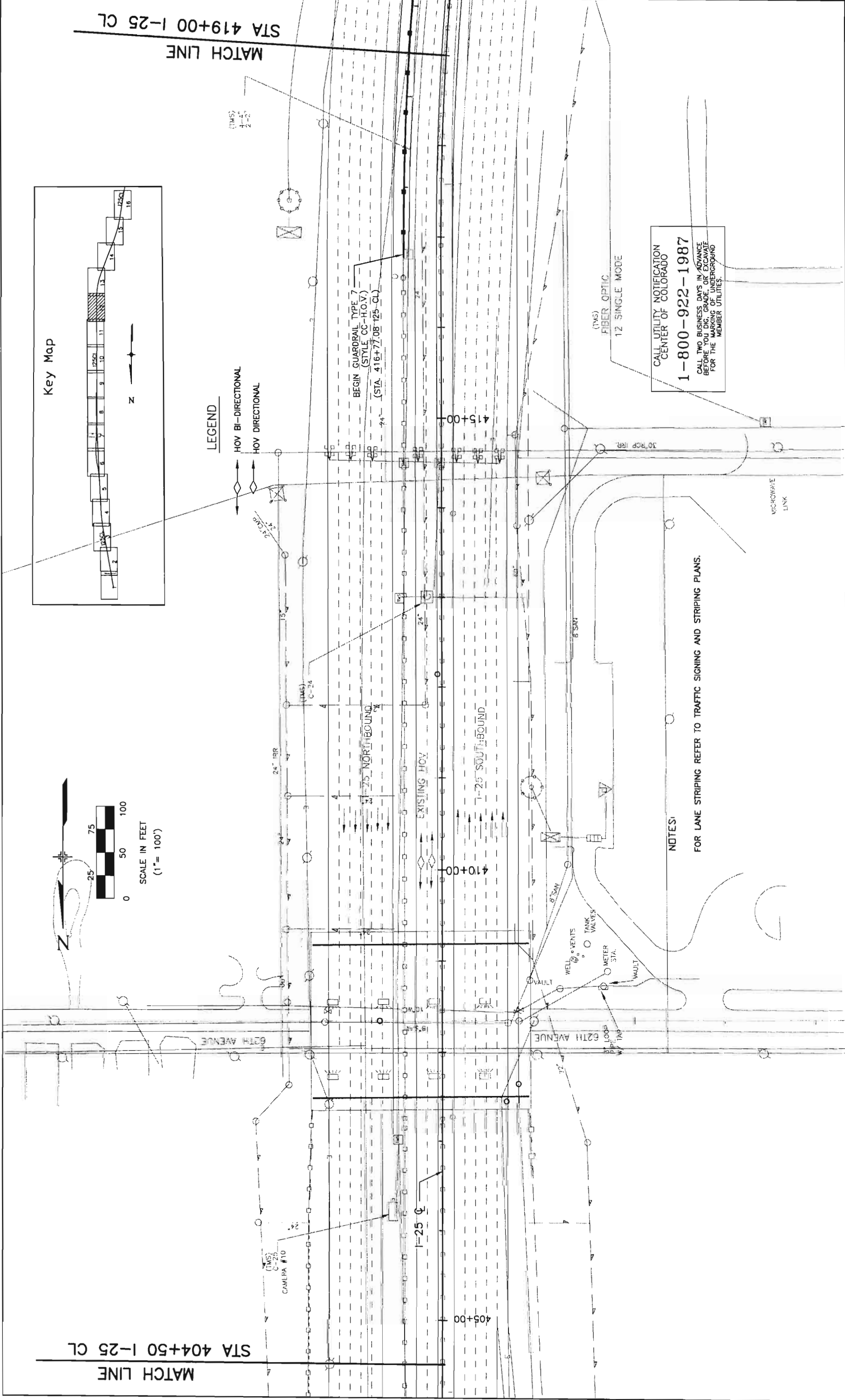
FINAL PROJECT
CONSTRUCTION PLAN
(I-25,HOV)

Project No./Code

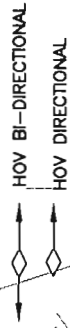
0253-168

13344

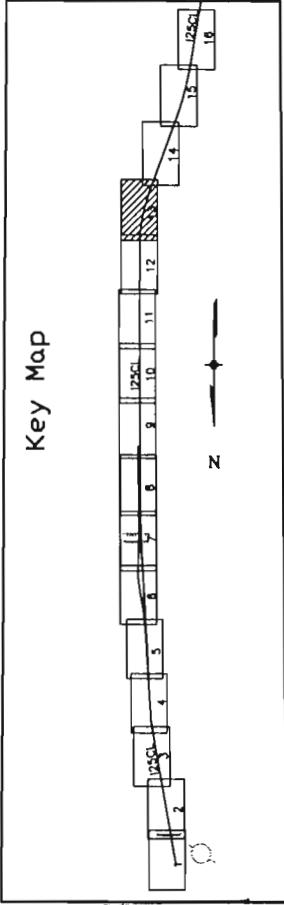
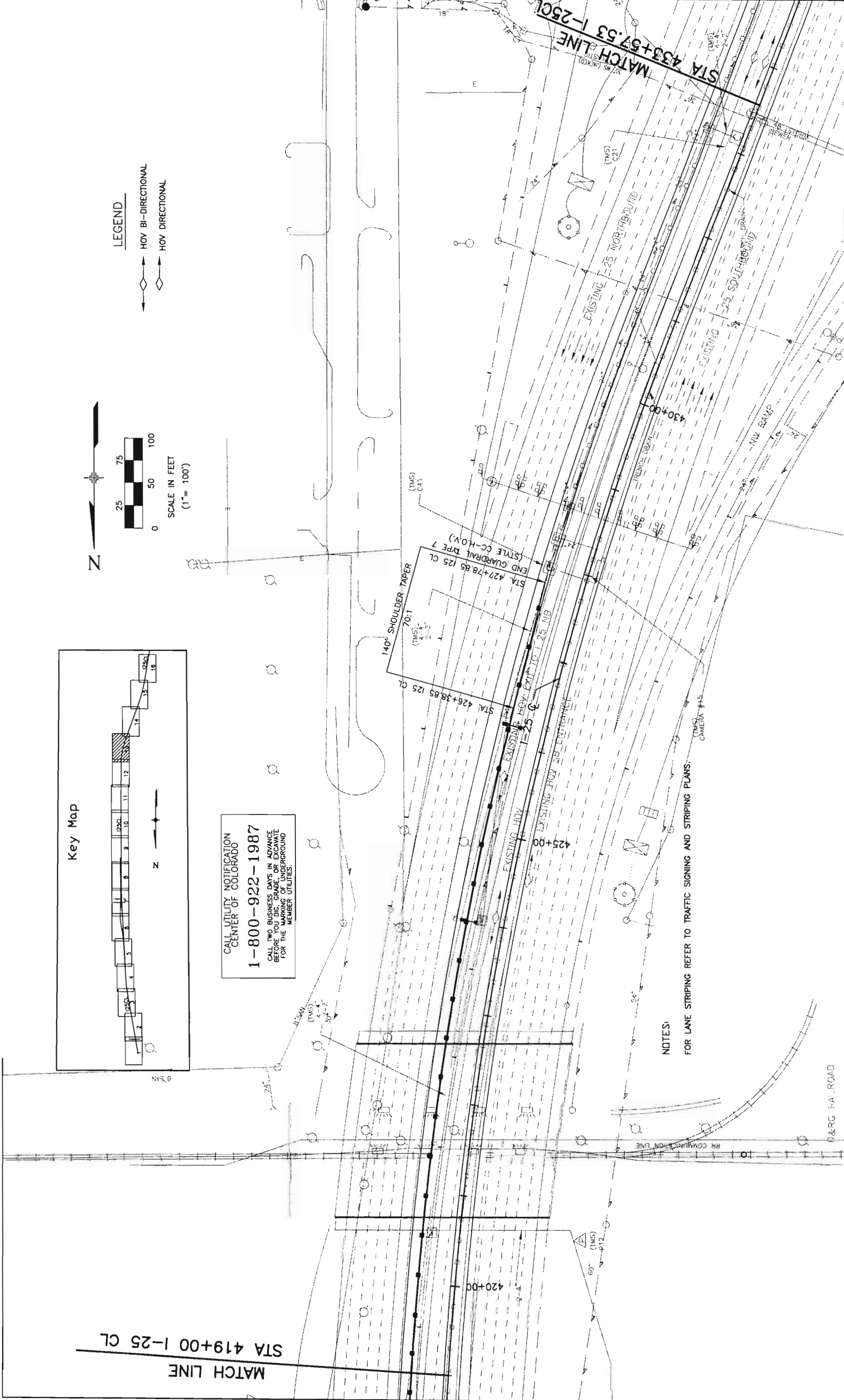
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LEGEND



Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		FINAL PROJECT CONSTRUCTION PLAN (I-25,HOV)		Project No./Code	
Creation Date:		03/30/01	Initials:	MH	 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028		No Revisions:		0253-168			
Last Modification Date:		6/19/01	Initials:	MH								
Full Path: C:\I25HOV-FOR\Planview\Proposed-Roadway												
Drawing File Name: Proposed-Roadway.DWG												
					Region 6- North Engineering		JCS				Sheet Number 92	



Key Map



LEGEND

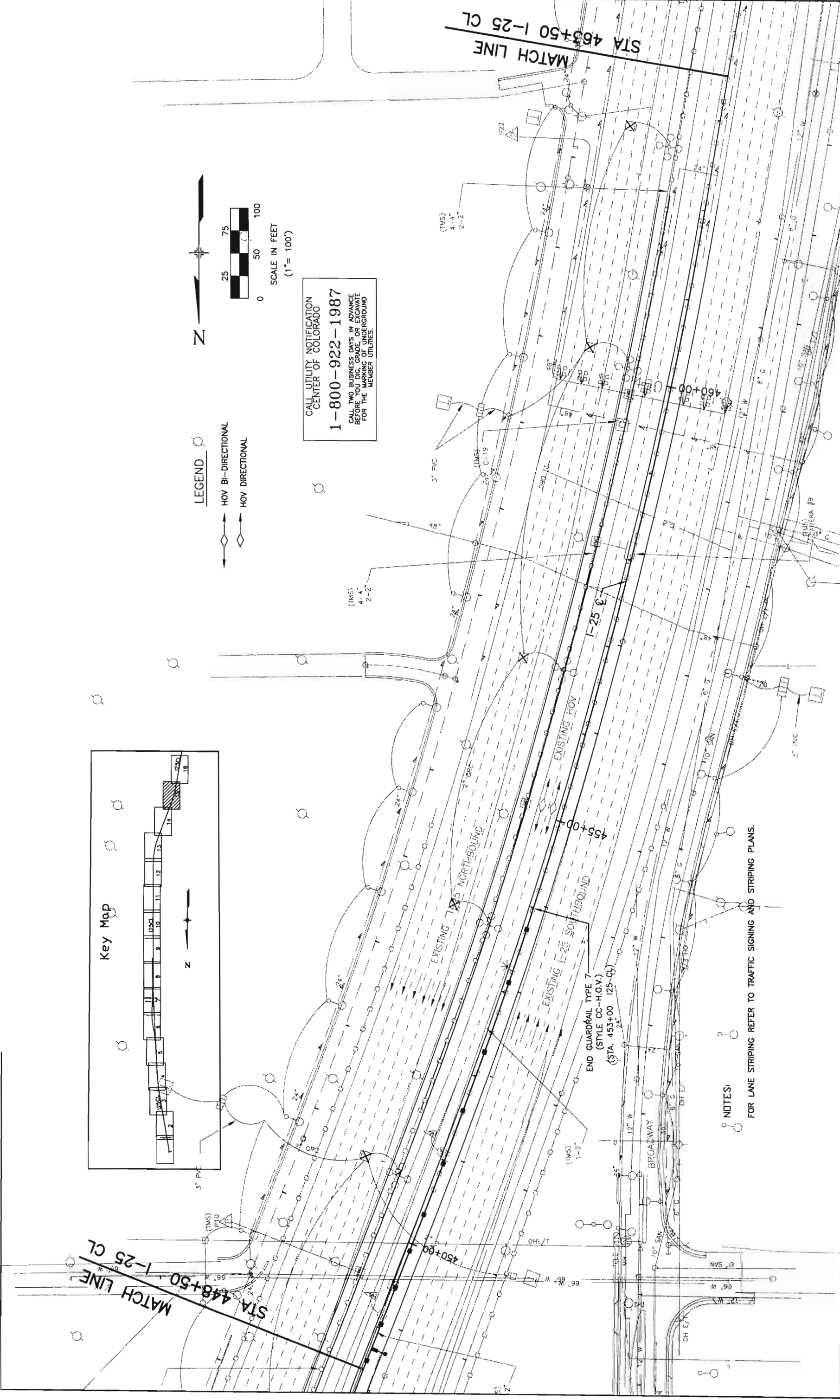


SCALE IN FEET
(1"= 100')

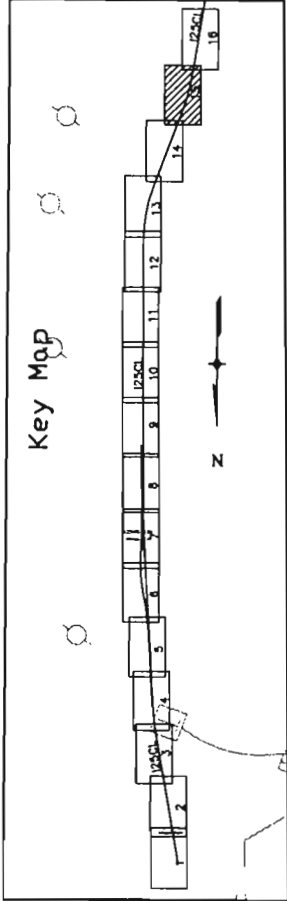
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

NOTES:
FOR LANE STRIPING REFER TO TRAFFIC SIGNING AND STRIPING PLANS.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	03/30/01	Initials: MH				 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028 Region 6 – North Engineering JCS	No Revisions:		0253-168	
Last Modification Date:	6/19/01	Initials: MH					Revised:		13344	
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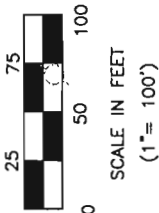
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE WORK BEGINS OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.



LEGEND

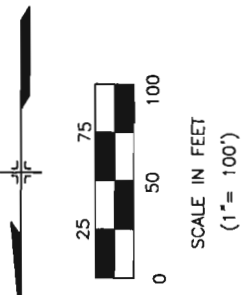
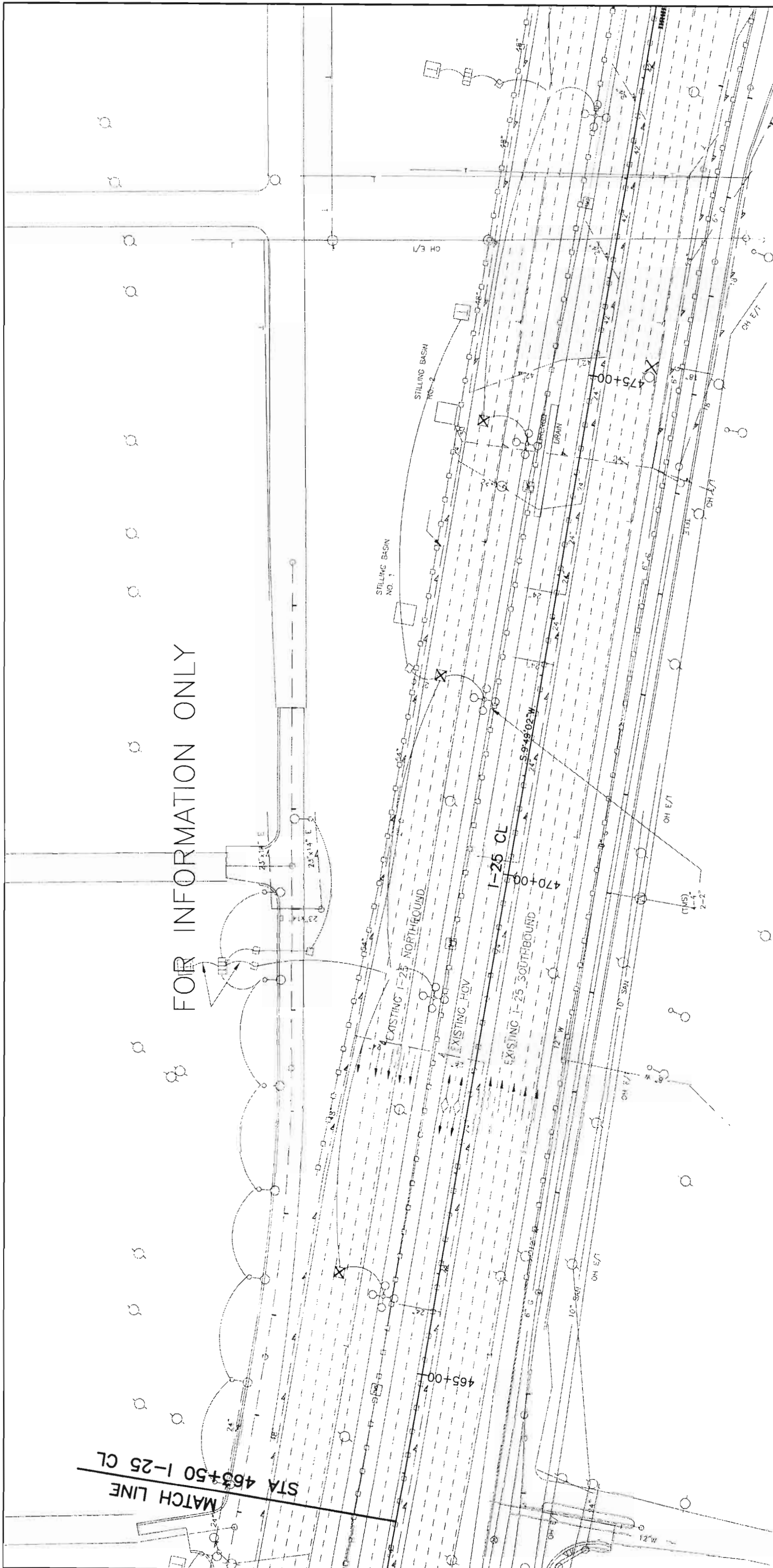
HOV BI-DIRECTIONAL

HOV DIRECTIONAL

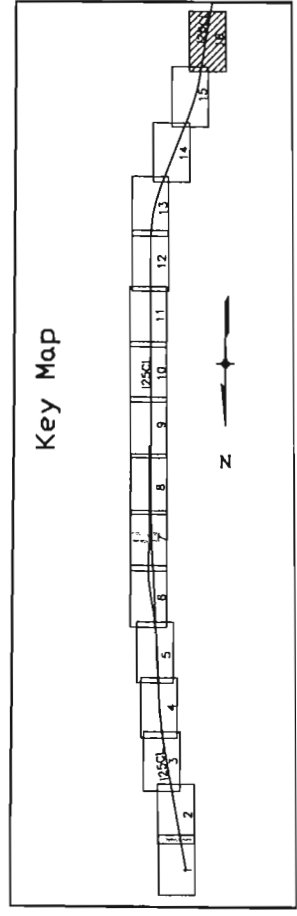


Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed		FINAL PROJECT CONSTRUCTION PLAN (I-25,HOV)		Project No./Code	
Creation Date:		03/30/01	Initials:	MH	(R-X)			 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028	No Revisions:			0253-168		Sheet Number 95
Last Modification Date:		6/19/01	Initials:	MH	(R-X)				Revised:			13344		
Full Path:		C:\I25HOV-FOR\Planview\Proposed-Roadway								Void:				
Drawing File Name:		Proposed-Roadway.DWG												
						(R-X)			Region 6- North Engineering		JCS			

STA 463+50 1-25 CL
MATCH LINE

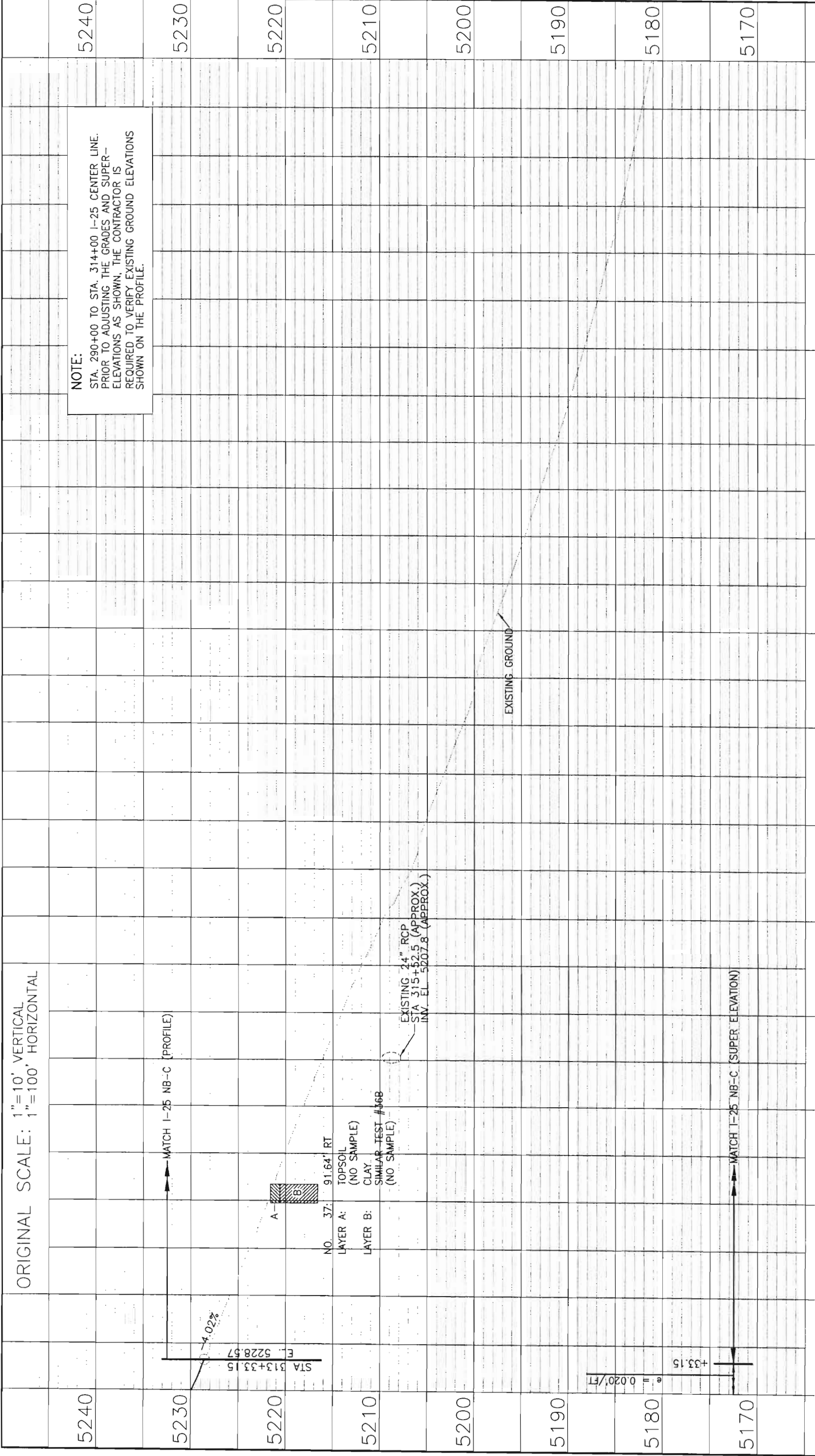


Key Map



CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		Project No./Code	
Creation Date:	03/30/01	Initials:	MH			No Revisions:		0253-168	
Last Modification Date:	6/19/01	Initials:	MH						
Full Path:	C:\25HOV-FOR\Planview\Proposed-Roadway					Phone:(303) 370-2049	Revised:	13344	
Drawing File Name:	Proposed-Roadway.DWG					FAX:(720) 945-1028	Void:		
						 REGION 6 - NORTH ENGINEERING		Sheet Number 96	



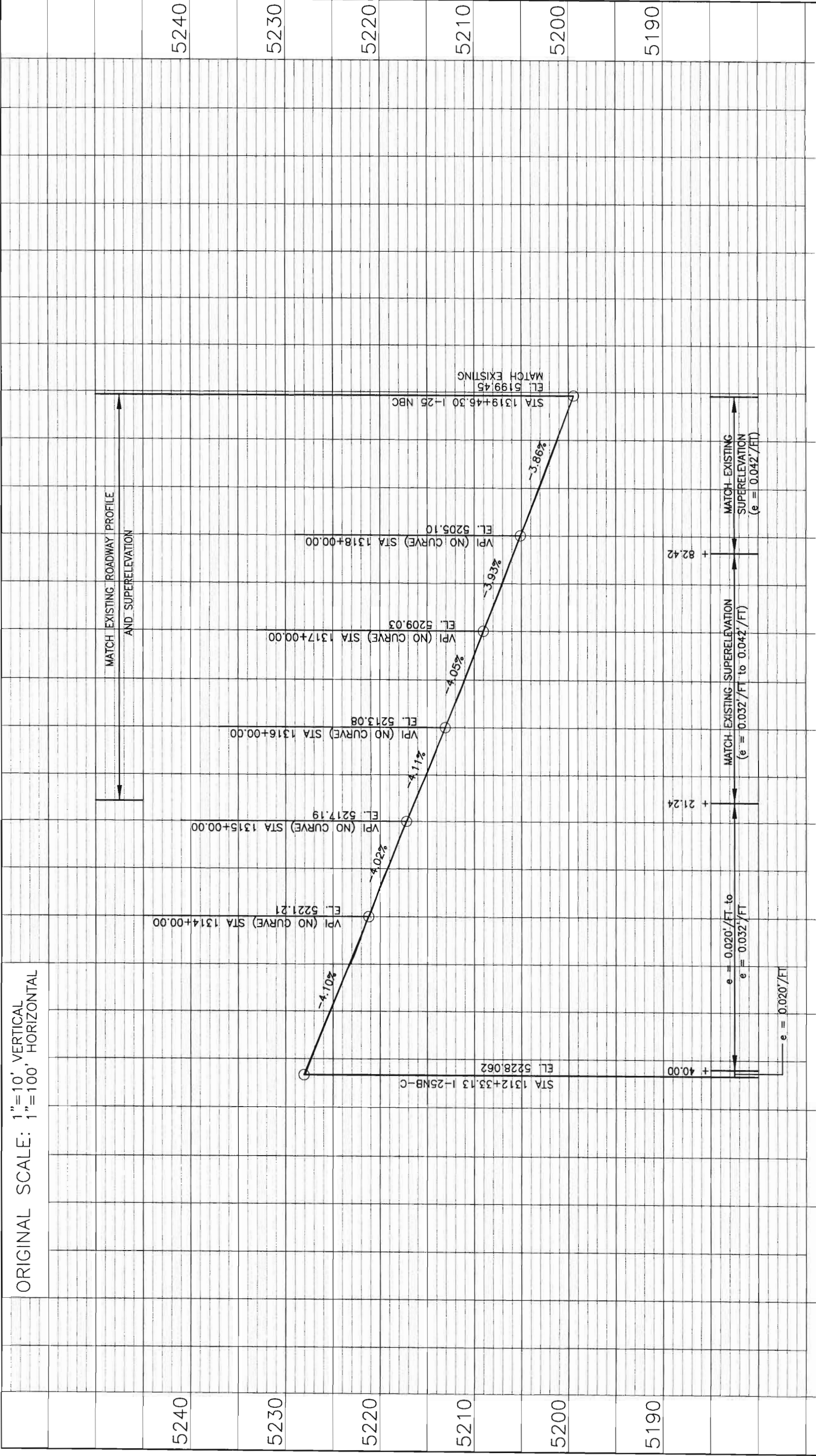
NOTE:
STA. 290+00 TO STA. 314+00 I-25 CENTER LINE.
PRIOR TO ADJUSTING THE GRADES AND SUPER-
ELEVATIONS AS SHOWN, THE CONTRACTOR IS
REQUIRED TO VERIFY EXISTING GROUND ELEVATIONS
SHOWN ON THE PROFILE.

315+00

320+00

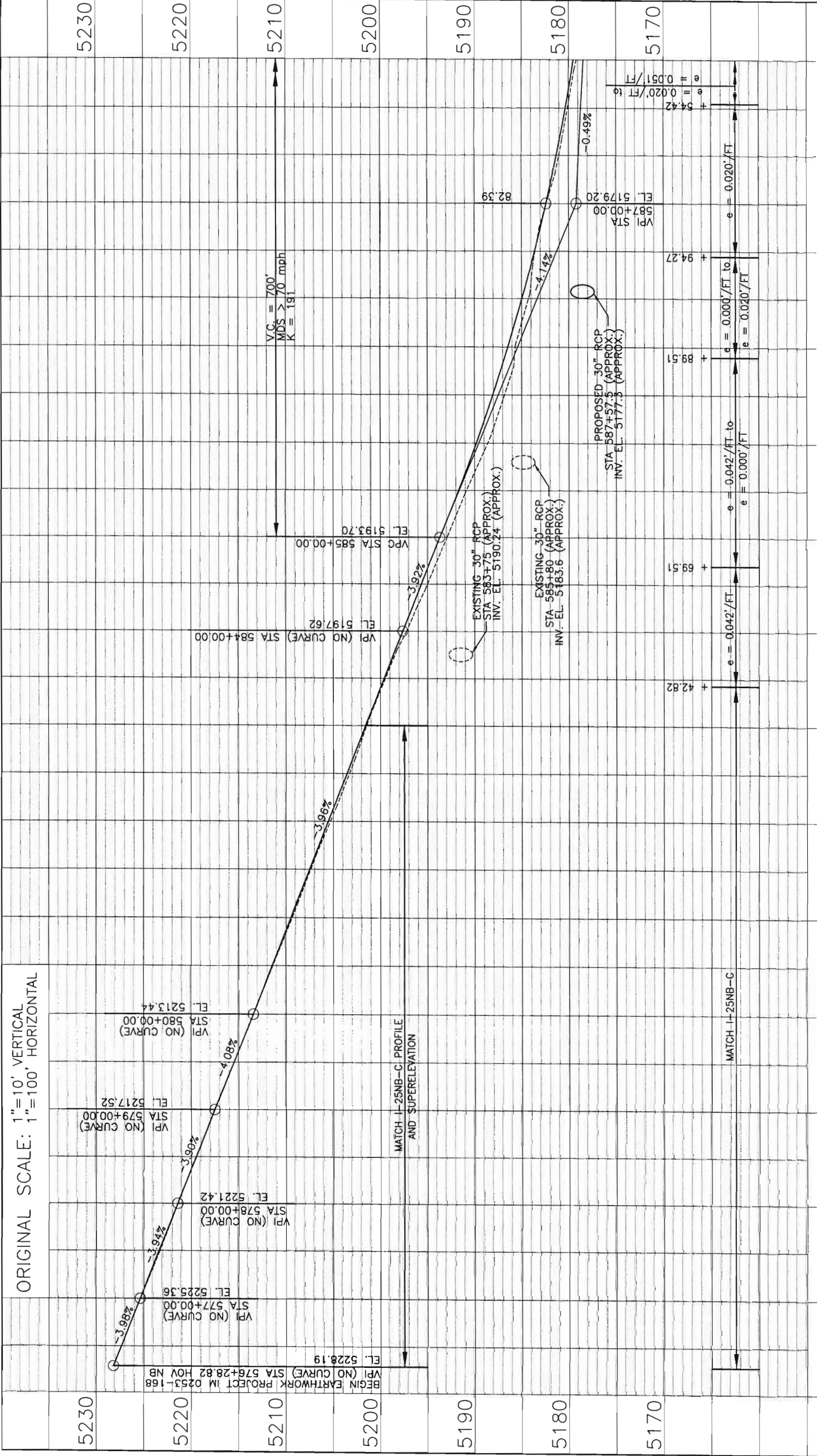
325+00

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Last Modification Date:	03/31/03	Initials:	BMC					Revised:											
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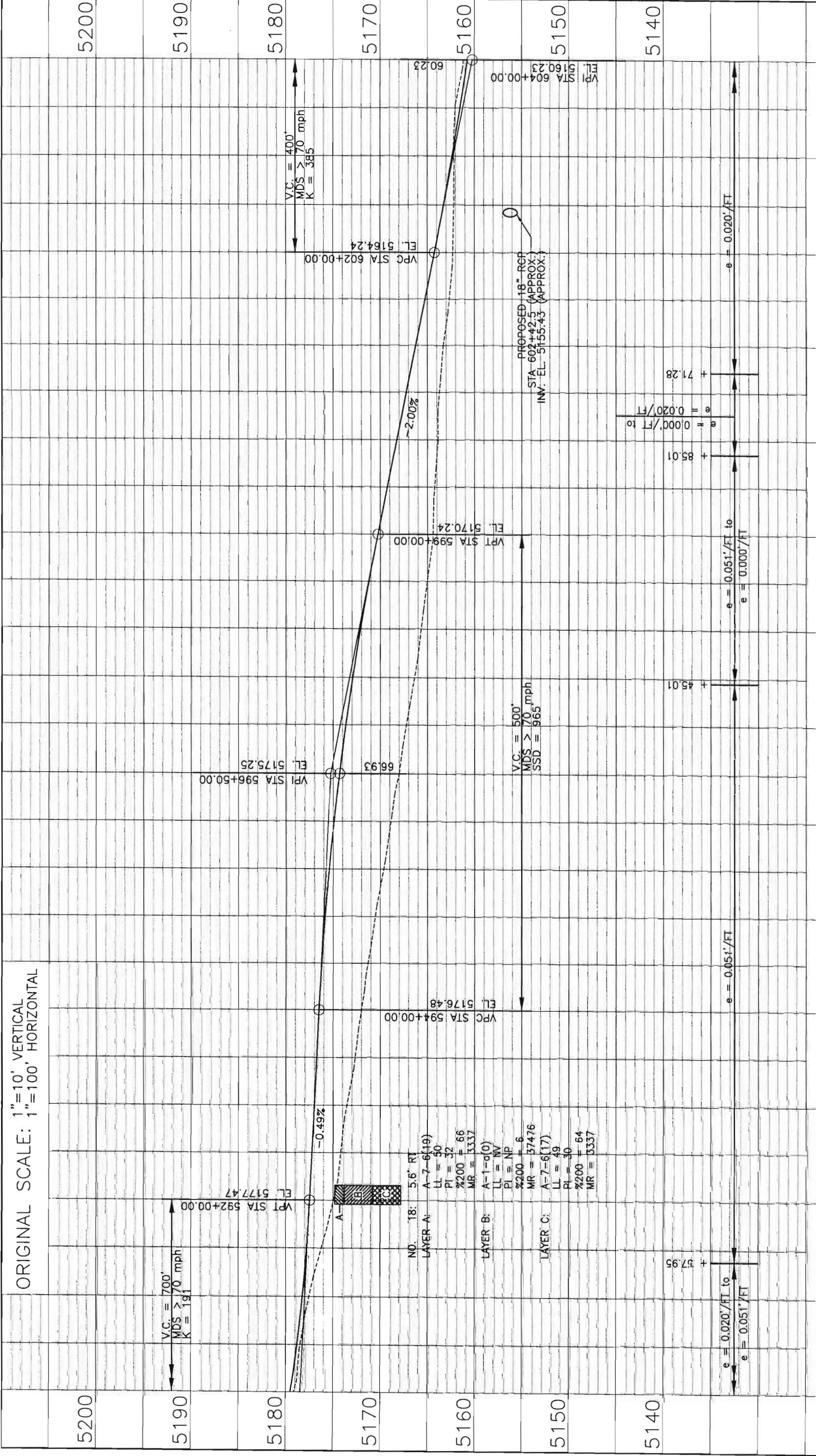


1315+00

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580+00			585+00			590+00							
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Colorado Department of Transportation						Region 6 - North Engineering JCS							
 2000 South Holly St. Denver, CO 80222 Phone: 303.370.2040 FAX: 720.945.1028													
DEPARTMENT OF TRANSPORTATION													

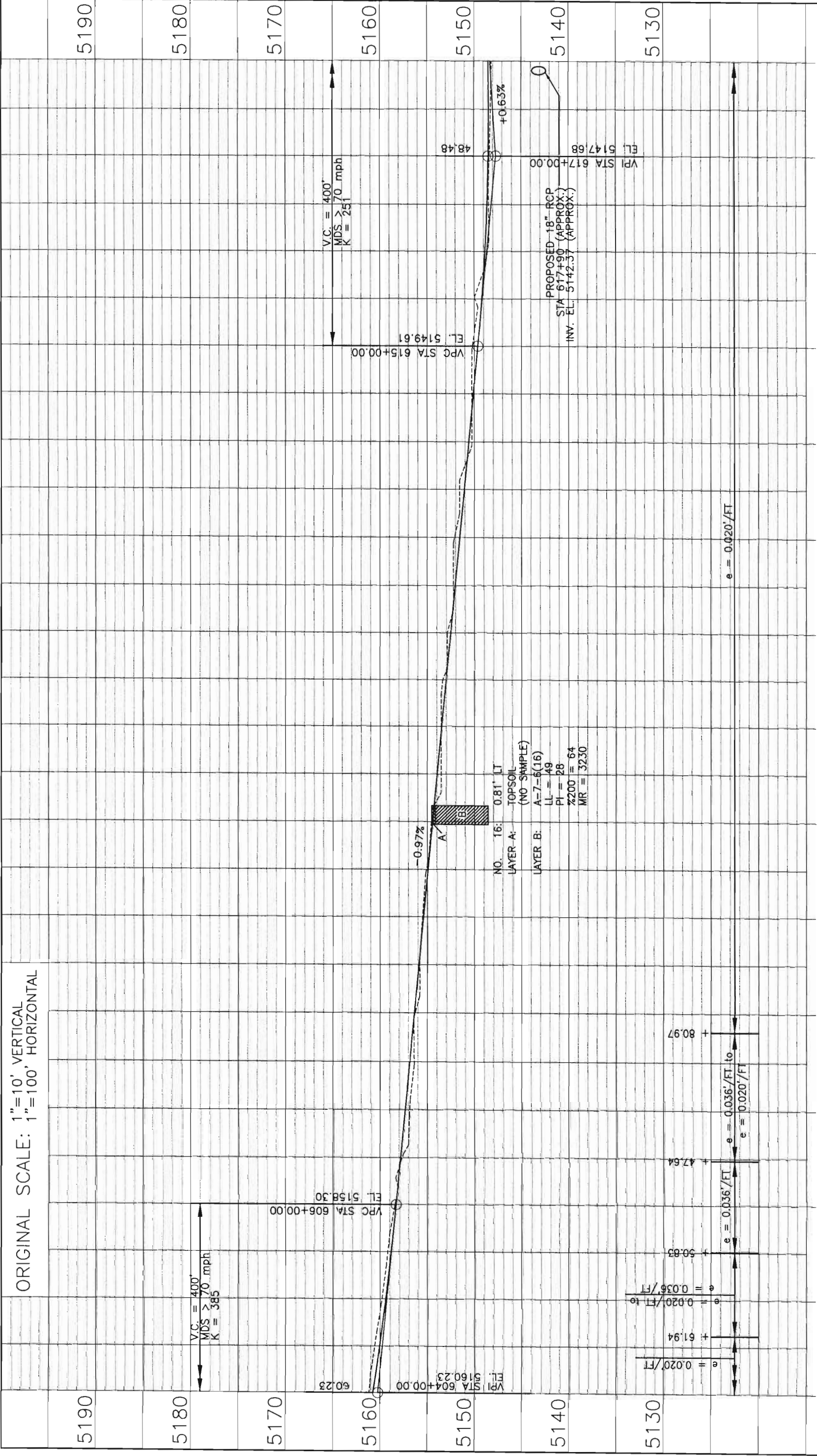


590+00

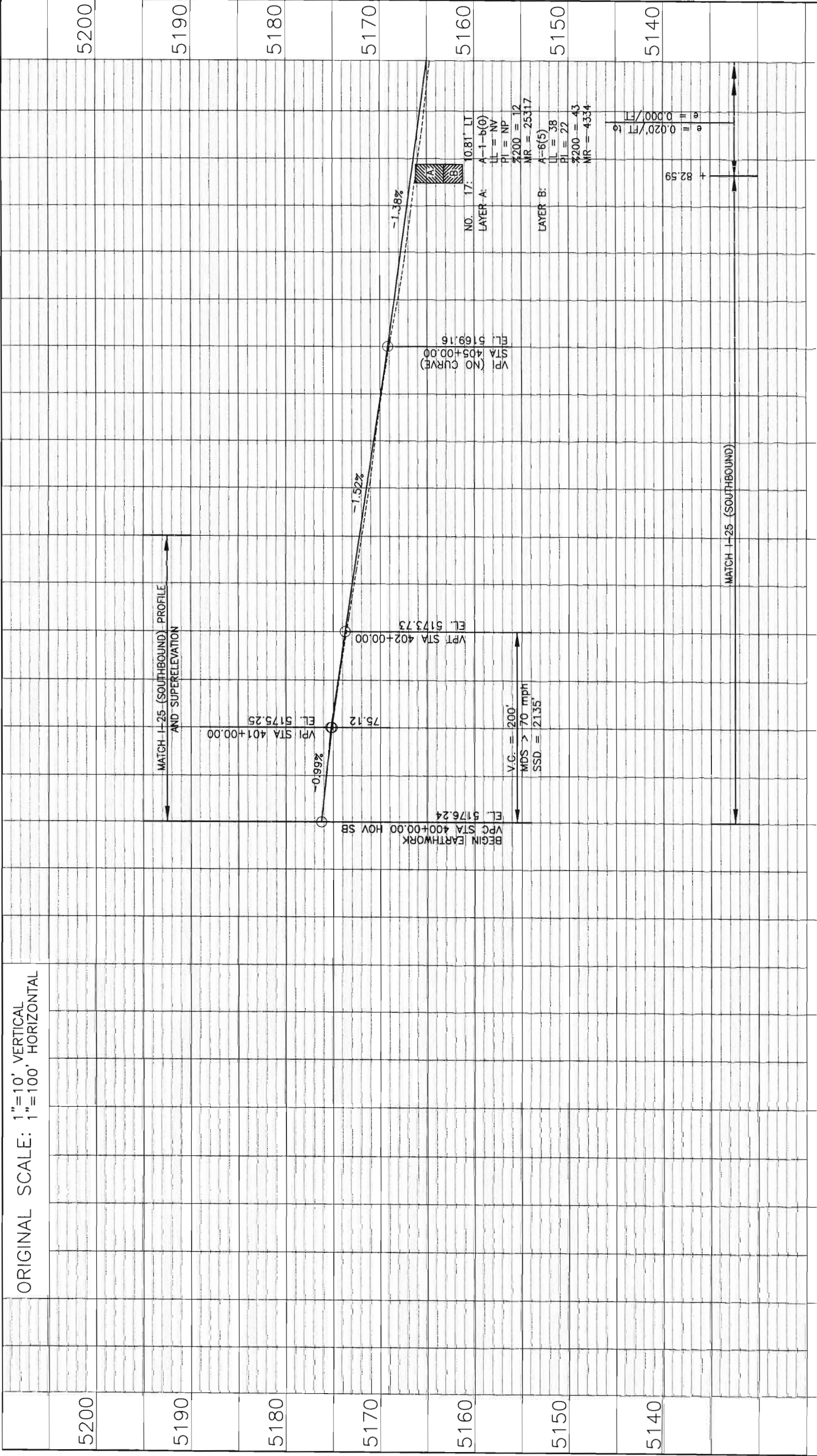
595+00

600+00

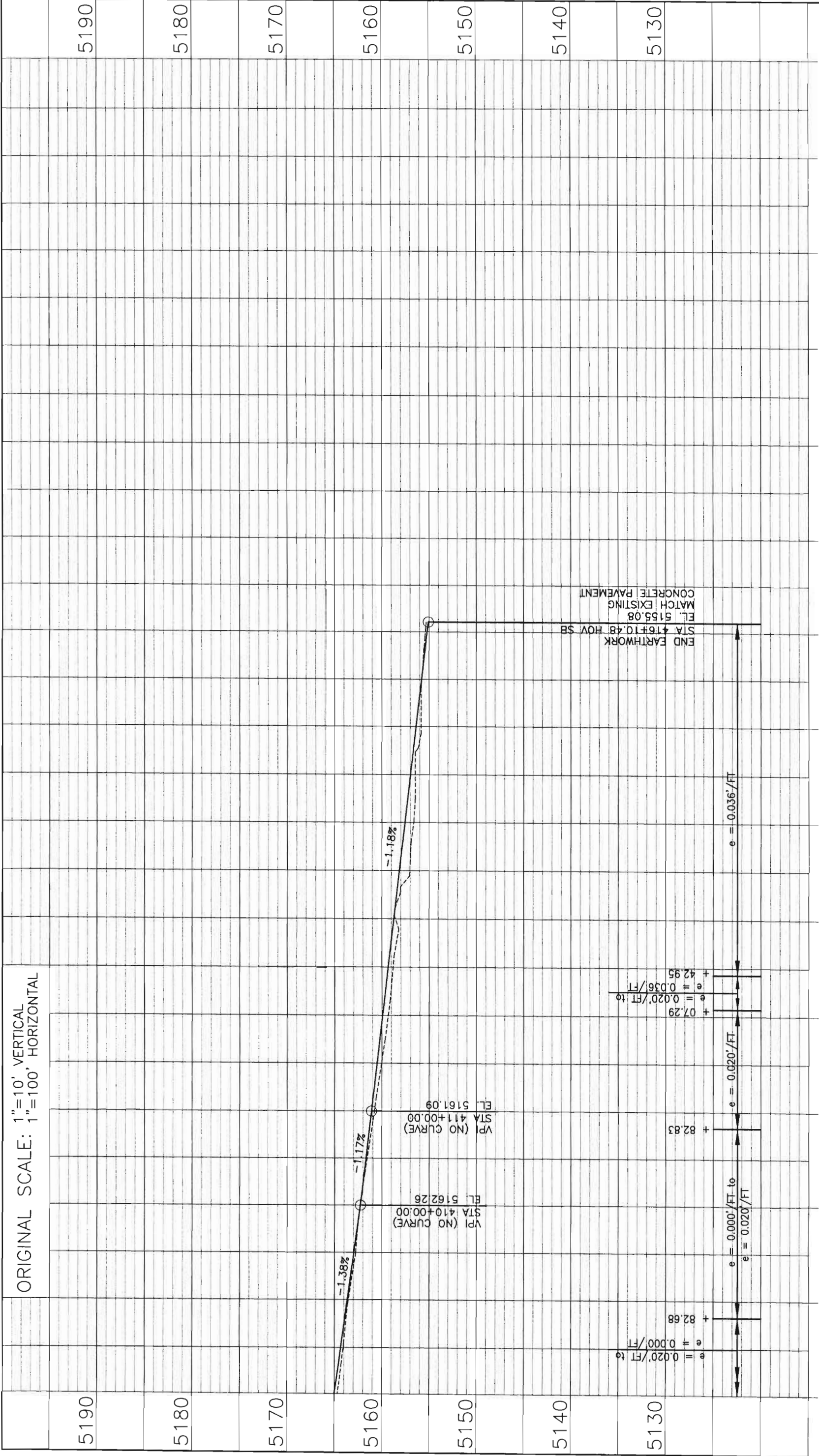
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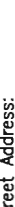


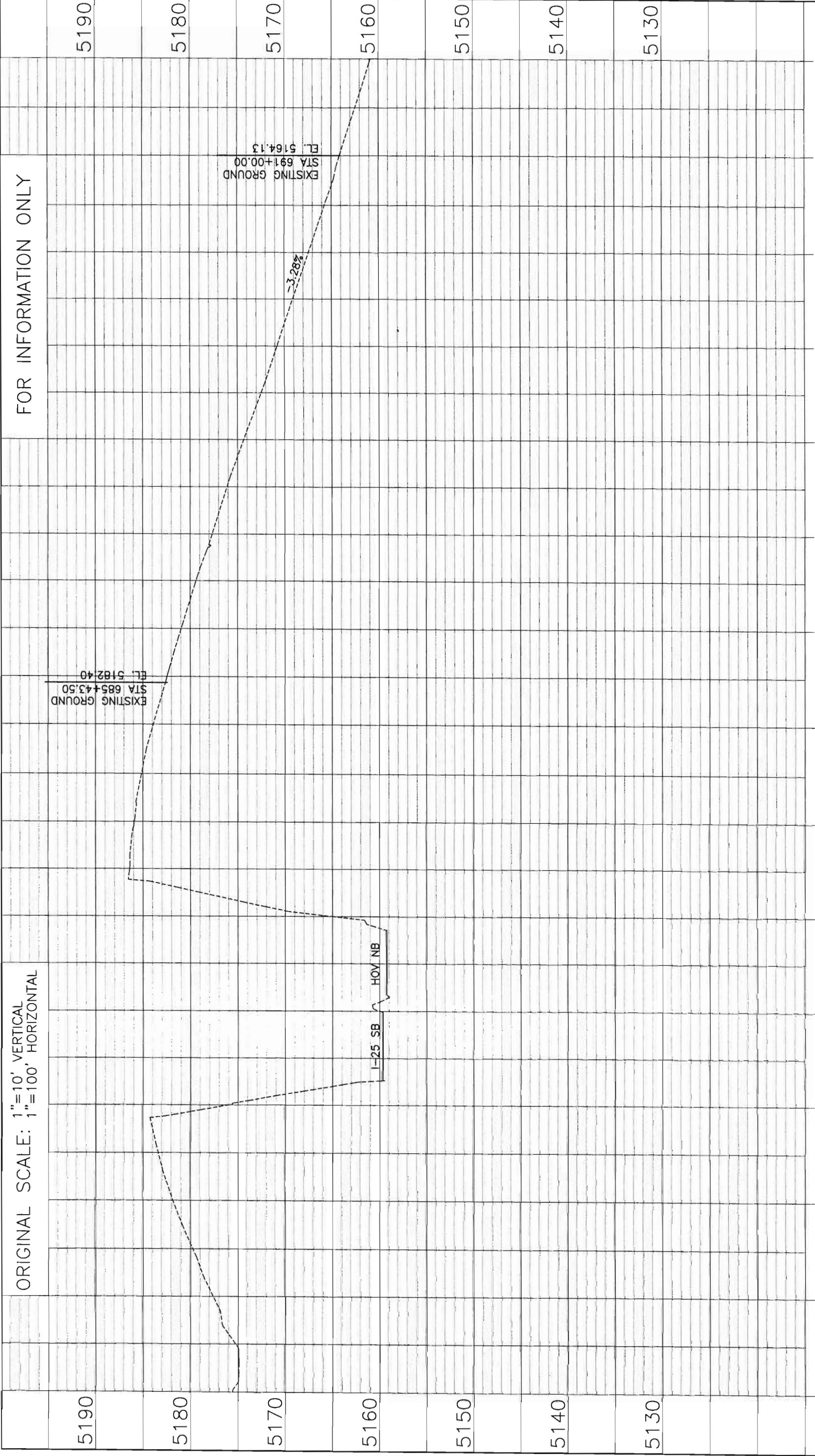
605+00			610+00			615+00		
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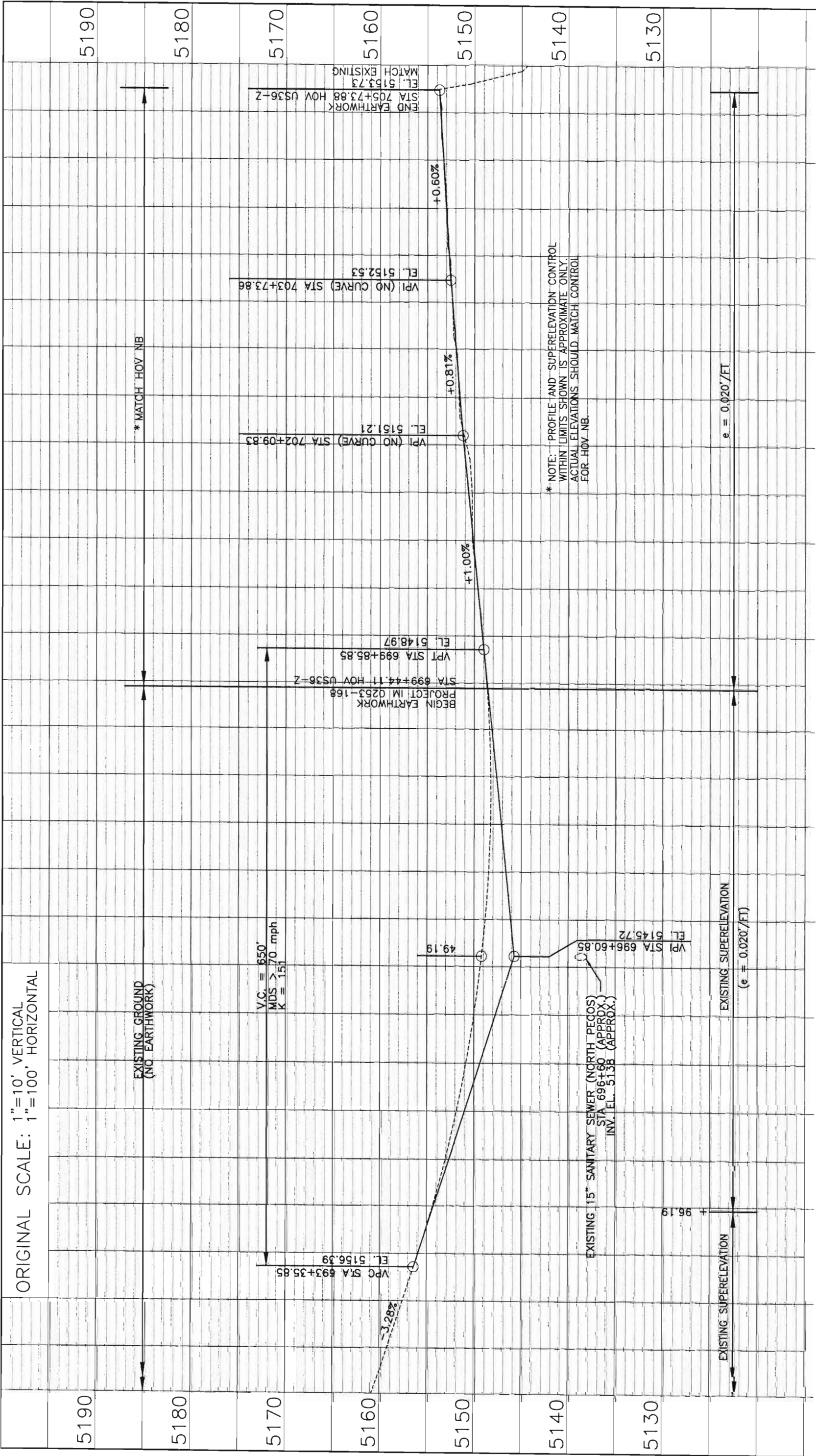
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Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		HOV SB PROFILE		Project No./Code	
Creation Date: 03/11/02		Initials: BMC		☐				 Street Address: 2000 South Holly St. Denver, CO 80222 Phone: 303.370.2040 FAX: 720.945.1028 Region 6 - North Engineering JCS				No Revisions:				IM 0253-168	
Last Modification Date: 04/15/03		Initials: BMC		☐								Revised:				13344	
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Computer File Information			Sheet Revisions		As Constructed		HOV US36-Z PROFILE		Project No./Code
Creation Date:	08/07/01	Initials:	BMC			No Revisions:			IM 0253-168
Last Modification Date:	08/07/01	Initials:	BMC						
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Drawing File Name:	HOVE_us36z1.dwg								
Acad Ver.:	R14	Scale:	1:100	Units:	ENGLISH	Void:		Sheet Subst:	Sheet Number 108



Computer File Information			Sheet Revisions			As Constructed		HOV US36-Z PROFILE		Project No./Code	
Creation Date: 08/08/01	Initials: BMC					No Revisions:		IM 0253-168		Project No./Code	
Last Modification Date: 08/14/01	Initials: BMC					Revised:		13344		IM 0253-168	
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Acad Ver.: R14	Scale: 1:100	Units: ENGLISH				Sheet Subsets:		BMC		109	

TABULATION OF STORM SEWER

[illegible]

* FOR INFORMATION ONLY.

Computer File Information			Sheet Revisions	
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Acad Ver	Scale:	Units	English	

Colorado Department of Transportation
 2000 S. Holly Street
 Denver, Co 80222
 Phone: (303) 370-2052
 FAX: (720) 945-1028
 JCS
 Region 6 - North Engineering

	As Constructed
No Revisions.	
Revised	
Void	

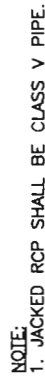
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Designer:	Designer	A. Christiansen	Structure Number
Detailer:	Detailer	A. Christiansen	Subset
Sheet Subset:	Sheet Subset:		

	es	1 of

Project No./Code	IM 0253-168
	13344
Sheet Number	110

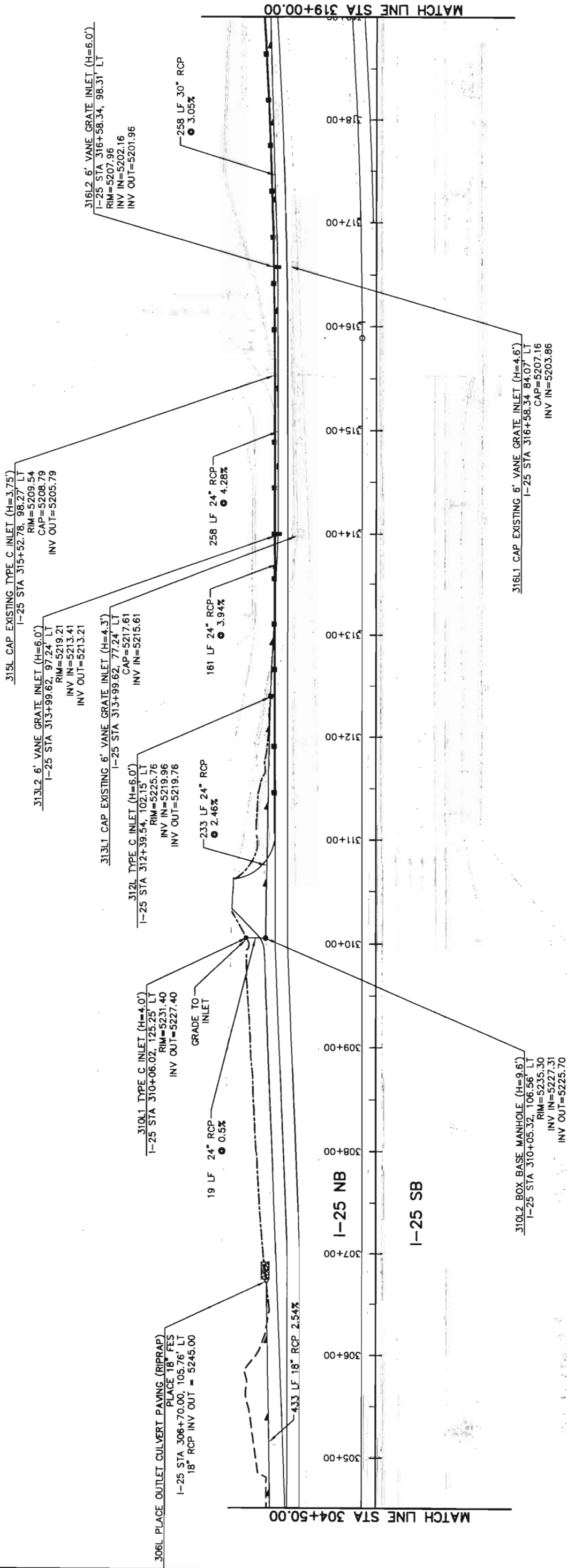
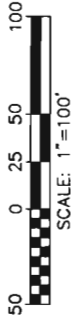
Turner Collie & Brader Inc.

339 Eighteenth Street, Suite 1500
Denver, Colorado 80202
Phone: 303-294-7177 FAX: 303-296-1124

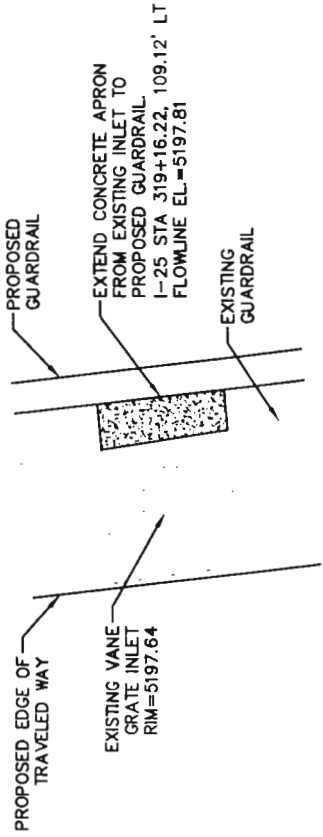


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Creation Date:	04/02/02	Initials:	AVMJ				No Revisions:			IM 0253-168	
Last Modification Date:	05/27/03	Initials:	AAC				Revised:		Designer: A. Christiansen	Structure Numbers	13344
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Drawing File Name:	SSPL0100								Sheet Subset:	Subset Sheets:	1 of 7
Acad Ver.	2000	Scale:	As Shown	Units:	English					Sheet Number	///



TurnerCollie&BradenInc. 998 Eighth Street, Suite 1500 Denver, Colorado 80202 Phone: 303-298-7117 FAX: 303-296-1124				I-25/HOV Drainage Plans				Project No./Code	
Colorado Department of Transportation DOT 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2052 Region 6- North Engineering				As Constructed		IM 0253-168		13344	
No Revisions:				Revised:		Structure Numbers		2 of 7	
Void:				JCS		A. McPherson		Sheet Number 112	
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Creation Date:	04/02/02	Initials:	AVMJ	(R-X)					
Last Modification Date:	05/28/03	Initials:	AAC	(R-X)					
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Drawing File Name:	SSPLO200			(R-X)					
Acad Ver:	2000	Scale:	As Shown	Units:	English				



3191.2 EXTEND VANE GRATE INLET CONCRETE APRON DETAIL

I-25 STA 319+16.22, 109.12' LT
NTS

3191.1 REMOVE 20' LF EXISTING 30" RCP
PLUG AND ABANDON EXISTING 30" RCP
I-25 STA 319+15.71, 103.33' LT

3191.2 EXTEND EXISTING 6" VANE GRATE INLET CONCRETE APRON
TIE 30" RCP TO EXISTING INLET
I-25 STA 319+16.22, 109.12' LT
RIM=5197.64
INV IN=5194.08
INV OUT=5194.04

3191.4 SLAB BASE MANHOLE (H=8.2')
I-25 STA 319+91.96, 12.95' LT
RIM=5197.50
INV IN=5189.50
INV OUT=5189.30

3221.1 CAP MANHOLE (H=6.5')
PLUG & ABANDON EXISTING 30" RCP AT INV IN(N)
PLUG & ABANDON EXISTING 30" RCP AT INV OUT(S)
I-25 STA 322+17.93, 53.59' LT
CAP=5185.00
RIM=5188.14
INV OUT=5181.64

268 LF 30" RCP
2.84%

231 LF 30" RCP
3.35%

8 LF 30" RCP
2.88%

28 LF 18" RCP
1.0%

3191.3 CAP EXISTING MANHOLE (H=6.9')
PLUG AND ABANDON EXISTING 30" RCP AT INV OUT(S)
I-25 STA 319+86.66, 18.96' LT
RIM=5196.63
CAP=5193.73
INV OUT(W)=5189.73

3221.2 SLAB BASE MANHOLE (H=6.8')
I-25 322+22.74, 26.00' LT
RIM=5188.16
INV IN (N)=5181.56
INV IN (E)=5181.56
INV OUT=5181.36

3241.1 SLAB BASE MANHOLE (H=8.6')
REMOVE EXISTING MANHOLE
PLUG & ABANDON EXISTING 30" RCP AT INV IN(N)
TIE IN EXISTING 18" RCP AT INV IN (E)
TIE IN EXISTING 33" RCP AT INV OUT(S)
REMOVE 8 LF EXISTING 30" RCP AT INV IN (N)
I-25 STA 324+78.66, 105.01' LT
RIM=5182.06
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I-25 NB

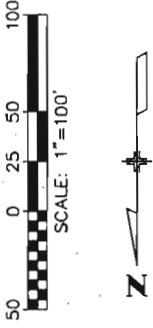
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I-25 SB

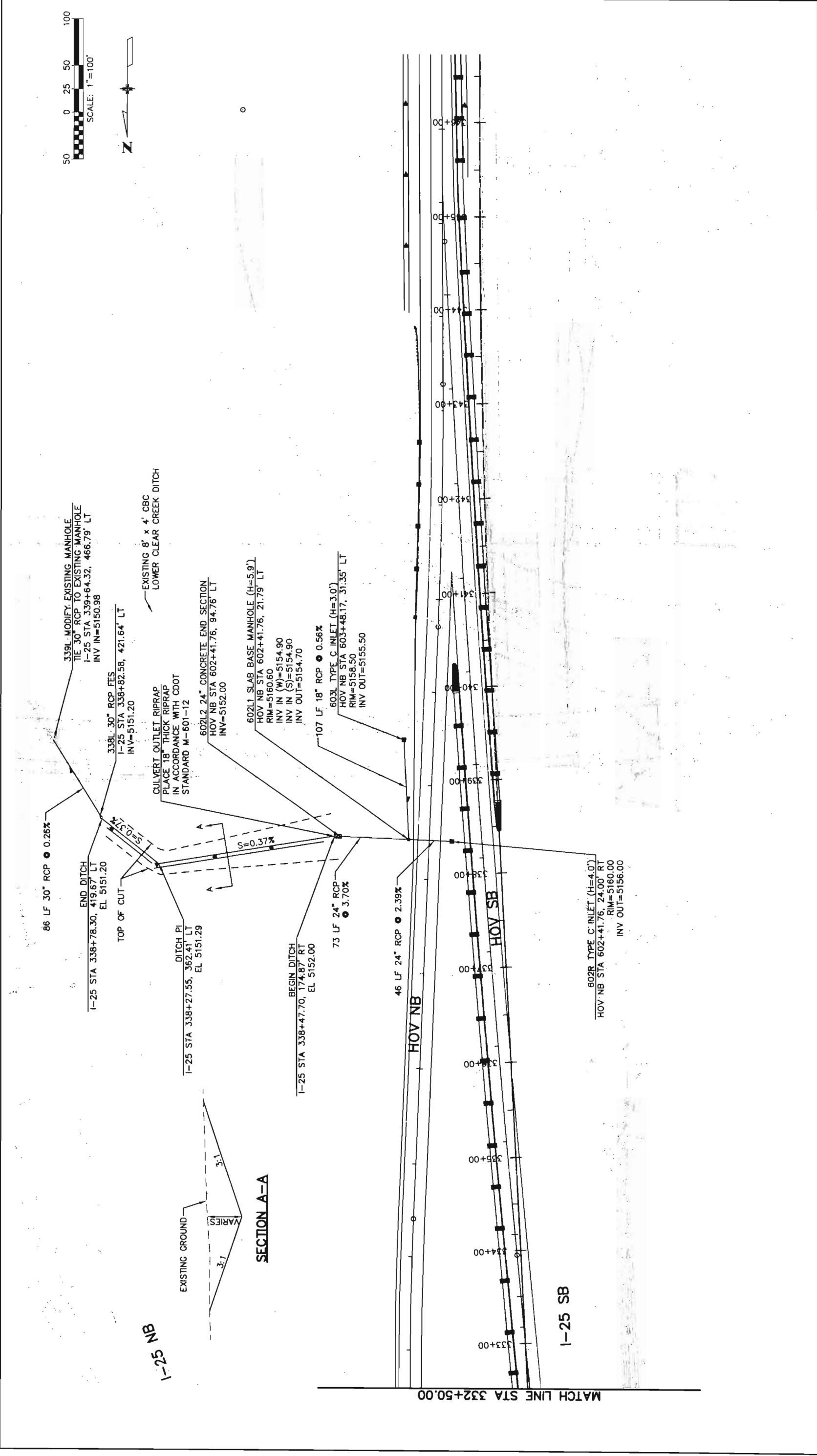
HOV SB

MATCH LINE STA 332+50.00

MATCH LINE STA 319+00.00



TurnerCollie&Braden Inc. 999 Eighth Street, Suite 1500 Denver, Colorado 80202 Phone: 303-298-7117 FAX: 303-296-1124				I-25/HOV Drainage Plans		Project No./Code IM 0253-168	
Colorado Department of Transportation 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2052 FAX:(720) 945-1028 Region 6- North Engineering JCS				As Constructed No Revisions: Revised: Void:		Designer: A. Christiansen Detailer: A. McPherson Sheet Subst: 3 of 7	
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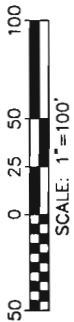


TurnerCollieBraden Inc. 999 Eighteenth Street, Suite 1500 Denver, Colorado 80202 Phone: 303-298-7117 FAX: 303-296-1124									
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Acad Ver.	2000	Scale:	As Shown	Units:	English	Sheet Subst:		4 of 7	Sheet Number 114



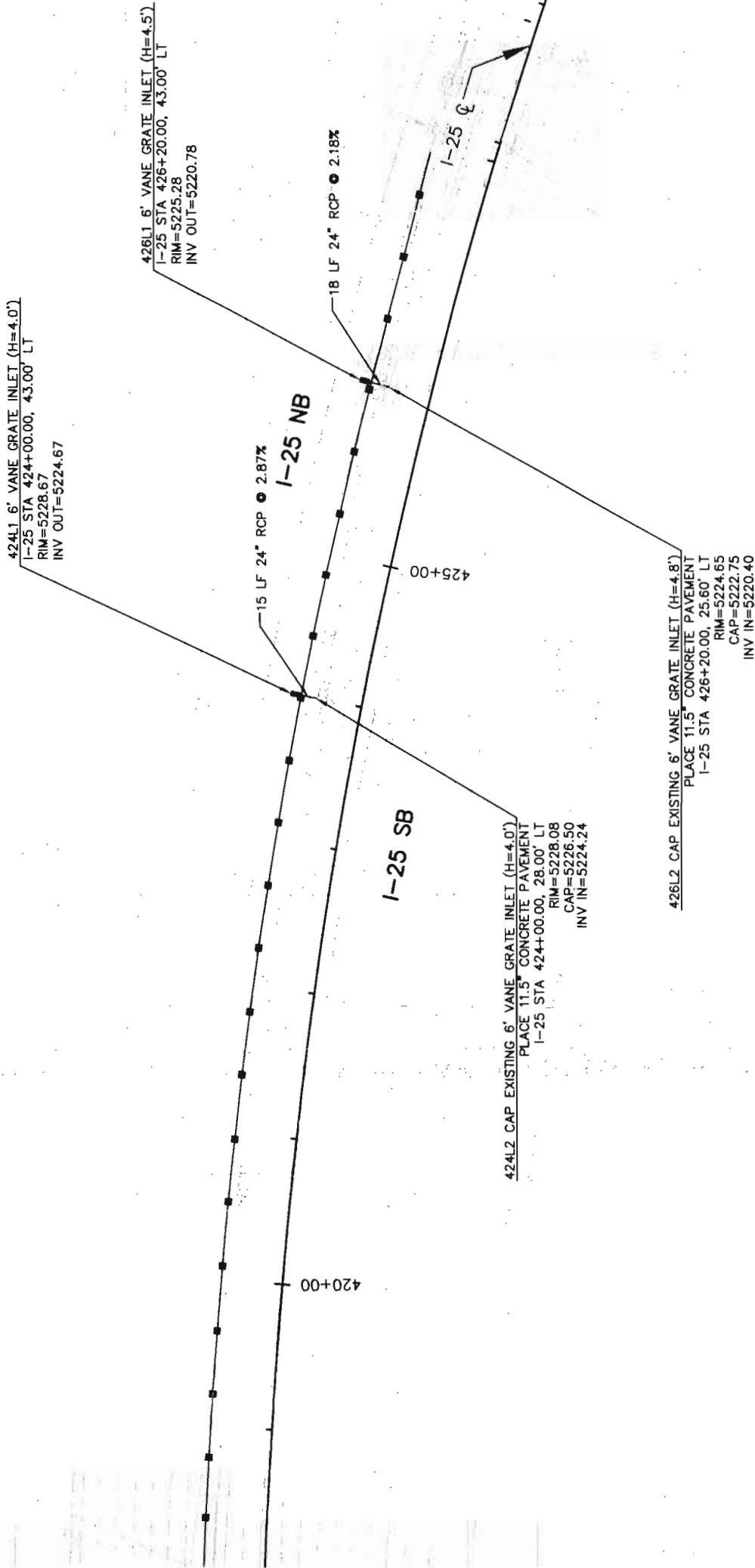
Turner Collie & Braden Inc.
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Denver, Colorado 80202
Phone: 303-298-7117 FAX: 303-296-1124

Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed			I-25/HOV Drainage Plans			Project No./Code	
Creation Date:	04/02/02	Initials:	AVMJ								No Revisions:				IM 0253-168	
Last Modification Date:	05/27/03	Initials:	AAC								Revised:				13344	
Full Path:	I:\085084110\DRAINAGE\DWG											Designer: A. Christiansen	Structure Numbers			
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						 Region 6- North Engineering JCS									Sheet Number 115	



NOTES:

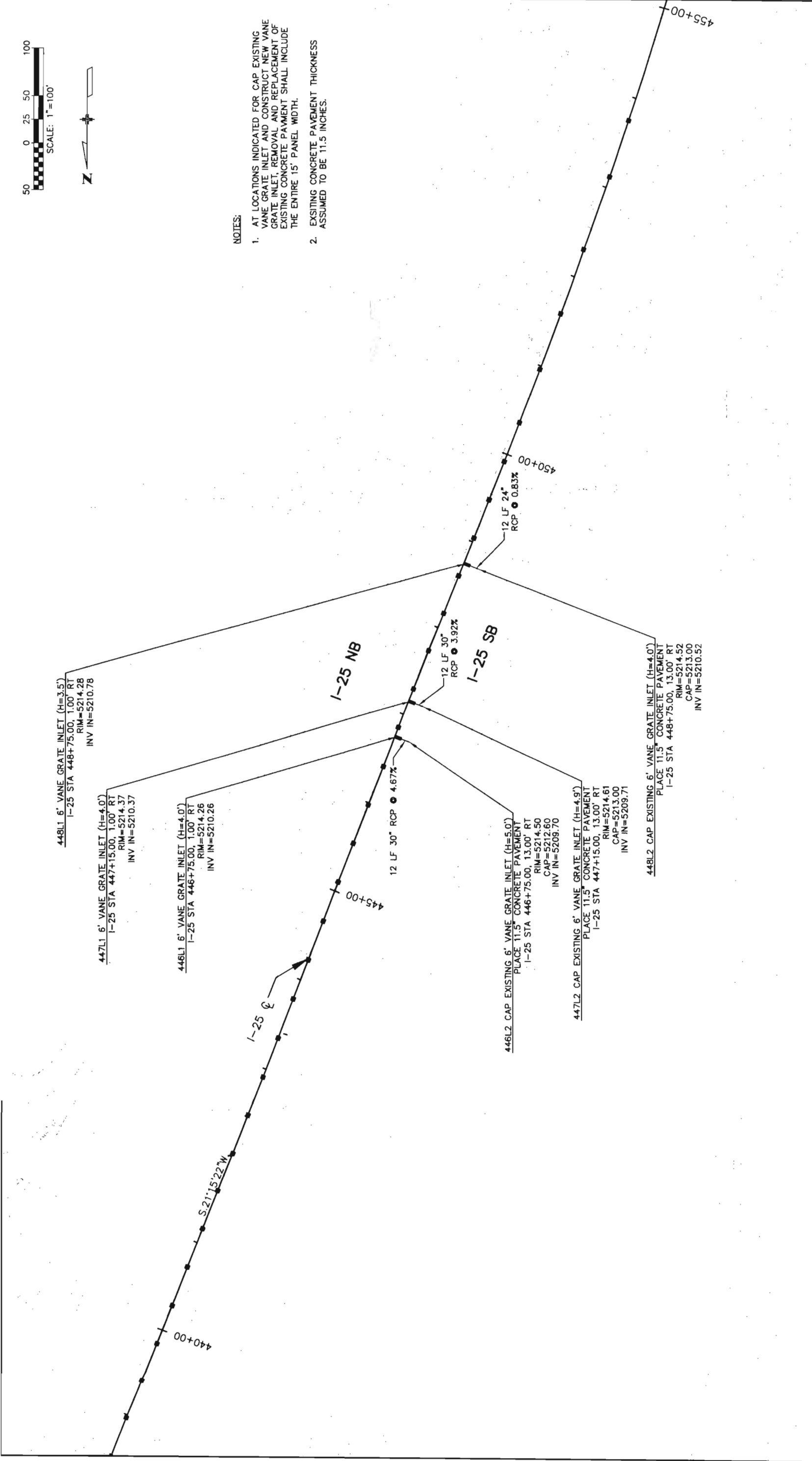
- 1. AT LOCATIONS INDICATED FOR CAP EXISTING VANE GRATE INLET AND CONSTRUCT NEW VANE GRATE INLET. REMOVAL AND REPLACEMENT OF EXISTING CONCRETE PAVEMENT SHALL INCLUDE THE ENTIRE 15' PANEL WIDTH.
- 2. EXISTING CONCRETE PAVEMENT THICKNESS ASSUMED TO BE 11.5 INCHES.



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Computer File Information			Sheet Revisions		As Constructed		I-25/HOV Drainage Plans		Project No./Code	
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Last Modification Date:	05/27/03	Initials: AAC	(R-X)		Revised:		Designer: A. Christiansen	Structure Numbers	13344	
Full Path:	I:\08504110\DRAINAGE\DWG						Detailer: A. McPherson			
Drawing File Name:	SSPLO600				Void:		Sheet Subset:	Subset Sheets:	6 of 7	Sheet Number 116
Acad Ver.	2000	Scale:	As Shown	Units:	English	Colorado Department of Transportation 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2052 FAX:(720) 945-1028 Region 6- North Engineering JCS				

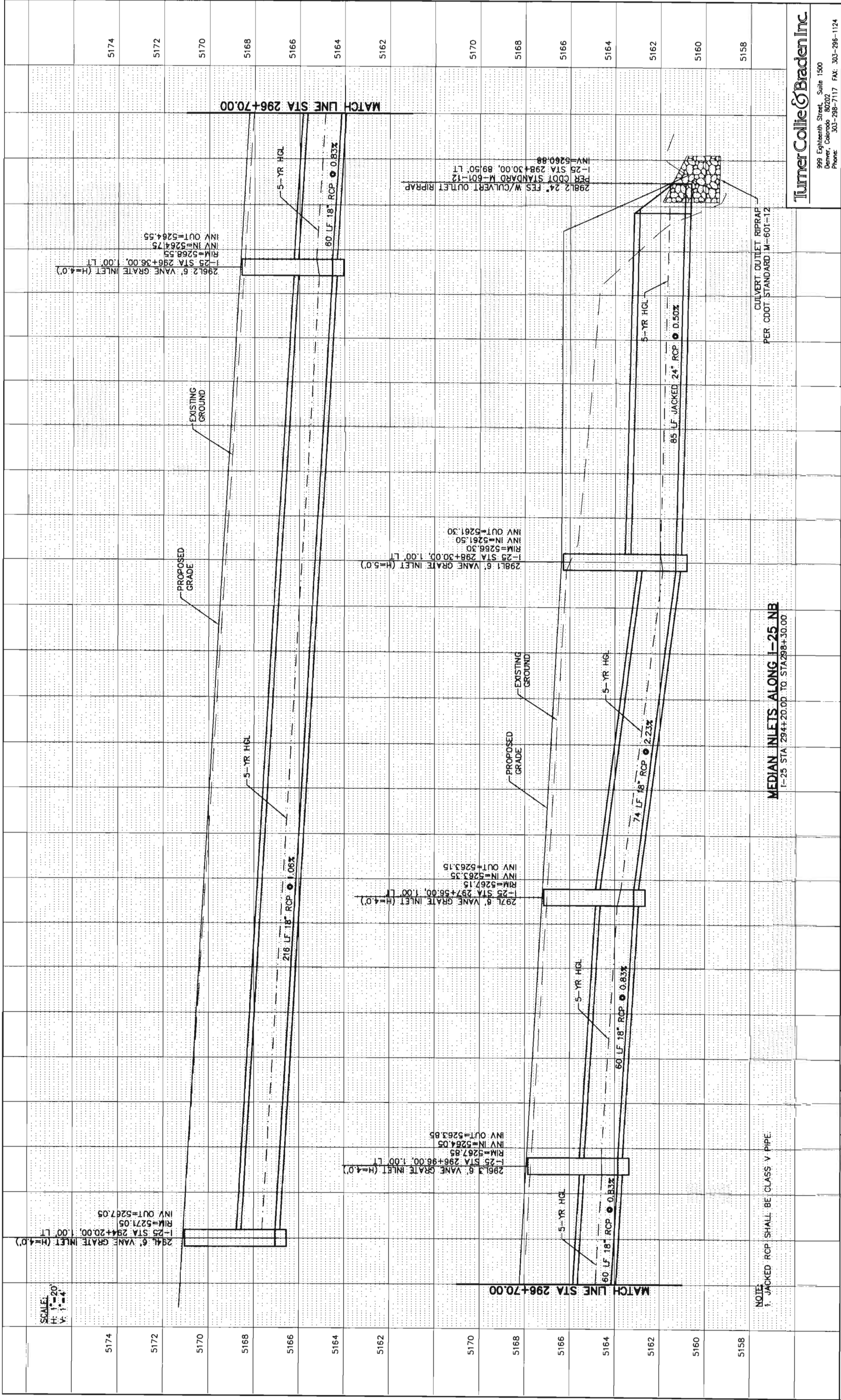


NOTE:
1. REMOVE AND REPLACE FULL 15' CONCRETE
PANEL(S) TO A DEPTH OF 11.5'.

Turner Collier & Braden Inc.

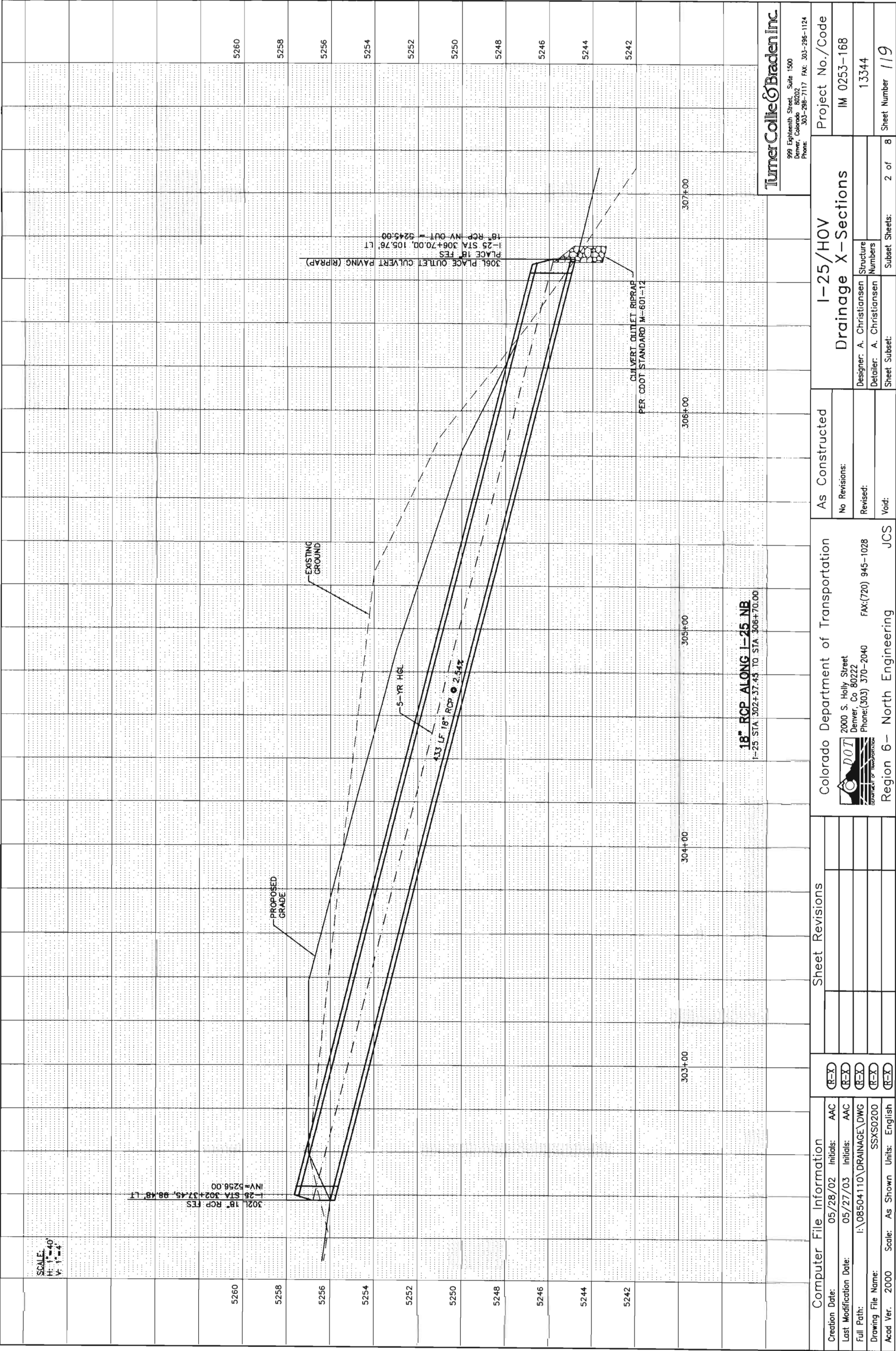
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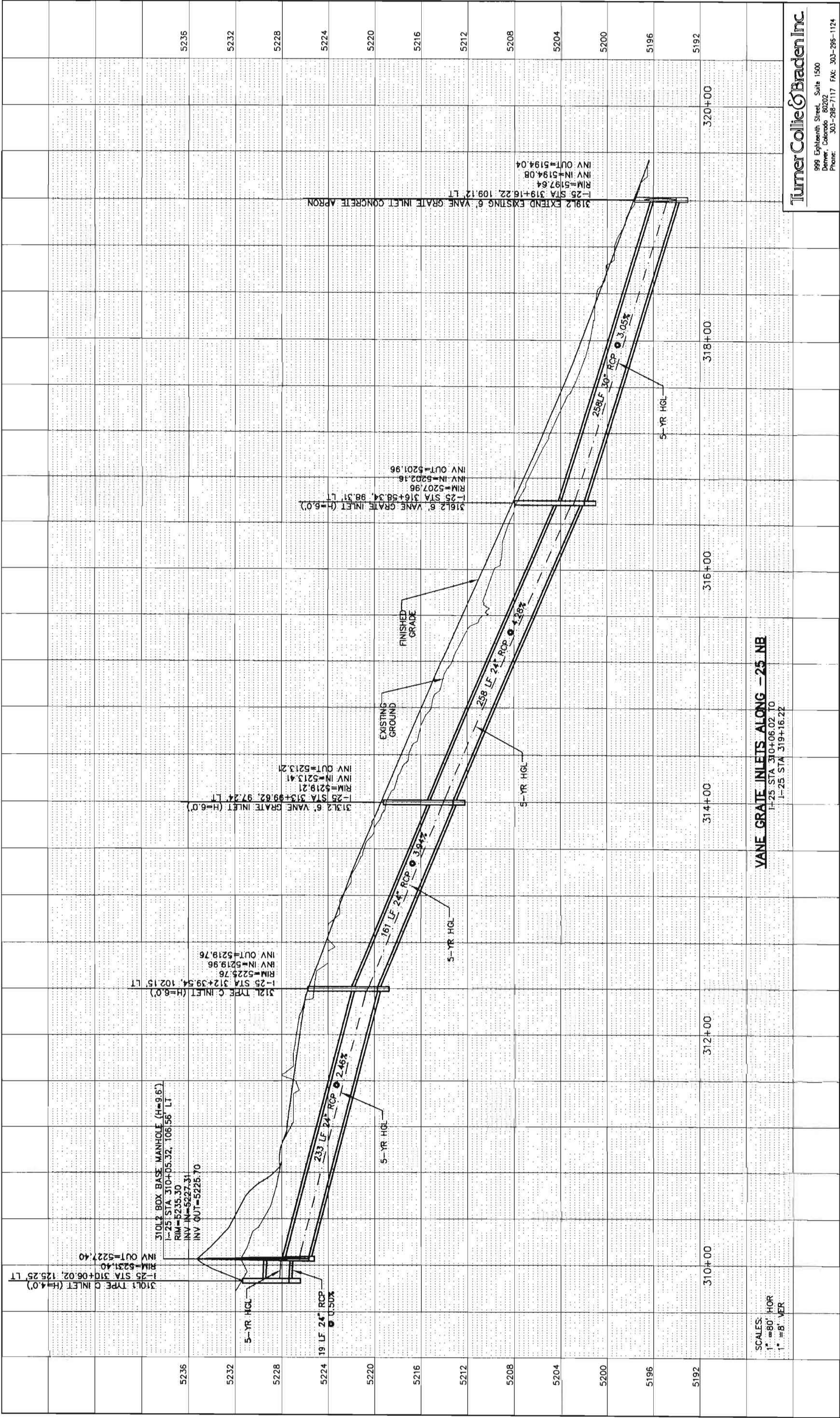
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Acad Ver.	2000	Scale: As Shown	Units: English	(R-X)						Sheet Number 117



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Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		I-25/HOV				Project No./Code	
Creation Date:		08/16/02		Initials:		AAC						No Revisions:		Drainage X-Sections				IM 0253- 168	
Last Modification Date:		05/27/03		Initials:		AAC						Revised:		Designer: A. Christiansen		Structure Numbers		13344	
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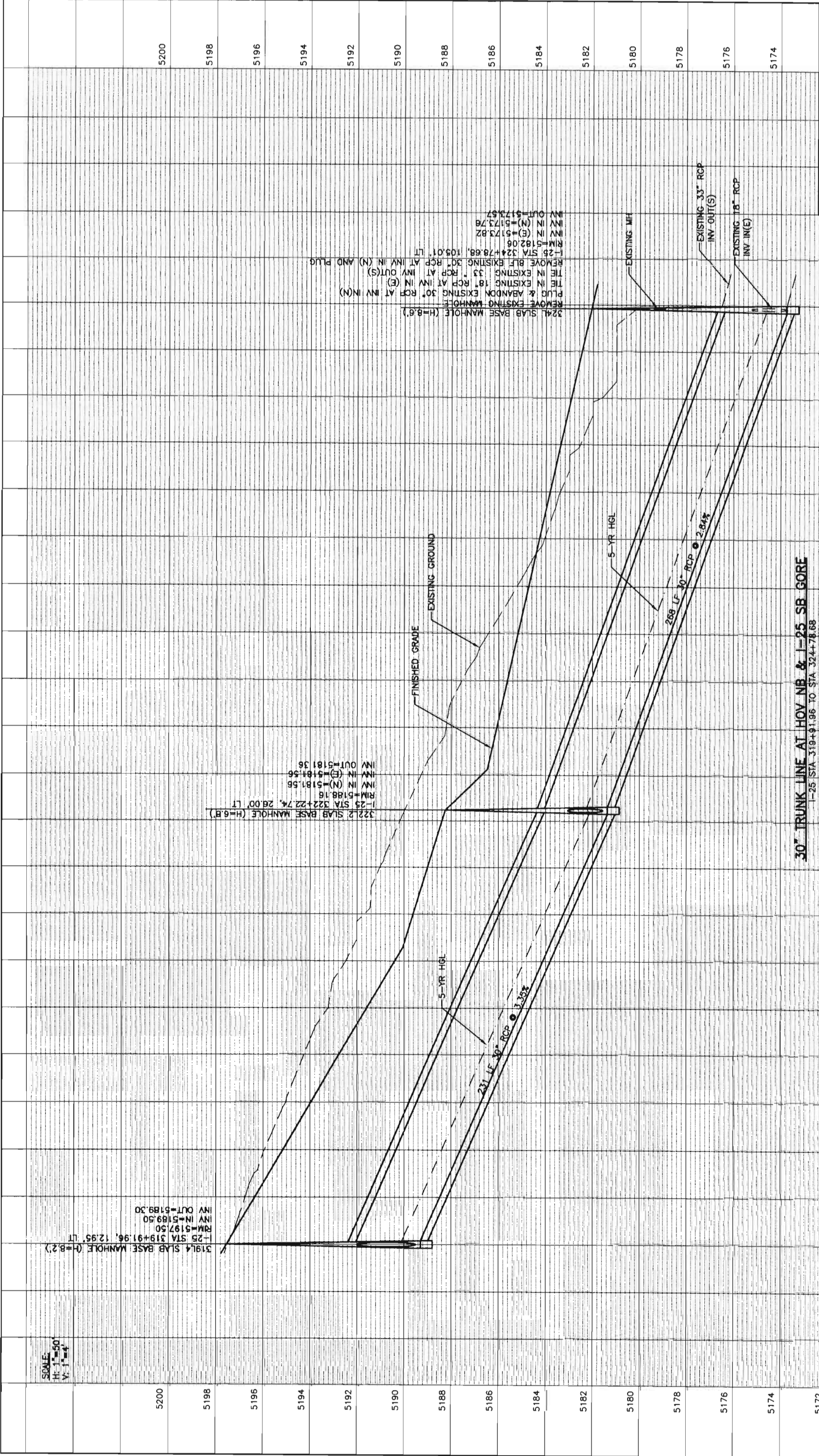




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Computer File Information		Sheet Revisions		As Constructed		I-25/HOV	
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Drawing File Name:	SSXS0300					Detailer:	A. McPherson
Acad Ver.	2000	Scale:	As Shown	Units:	English	Sheet Subst:	3 of 8
						Structure Numbers	Sheet Number
							120



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Project No./Code
IM 0253-168

Design: A. Christiansen
Detailer: M. Salek
Sheet Subst: 4 of 8

Sheet Number 12 /

As Constructed

No Revisions:

Revised:

Void:

Colorado Department of Transportation
2000 S. Holly Street
Denver, Co 80222
Phone: (303) 370-2040
FAX: (720) 945-1028

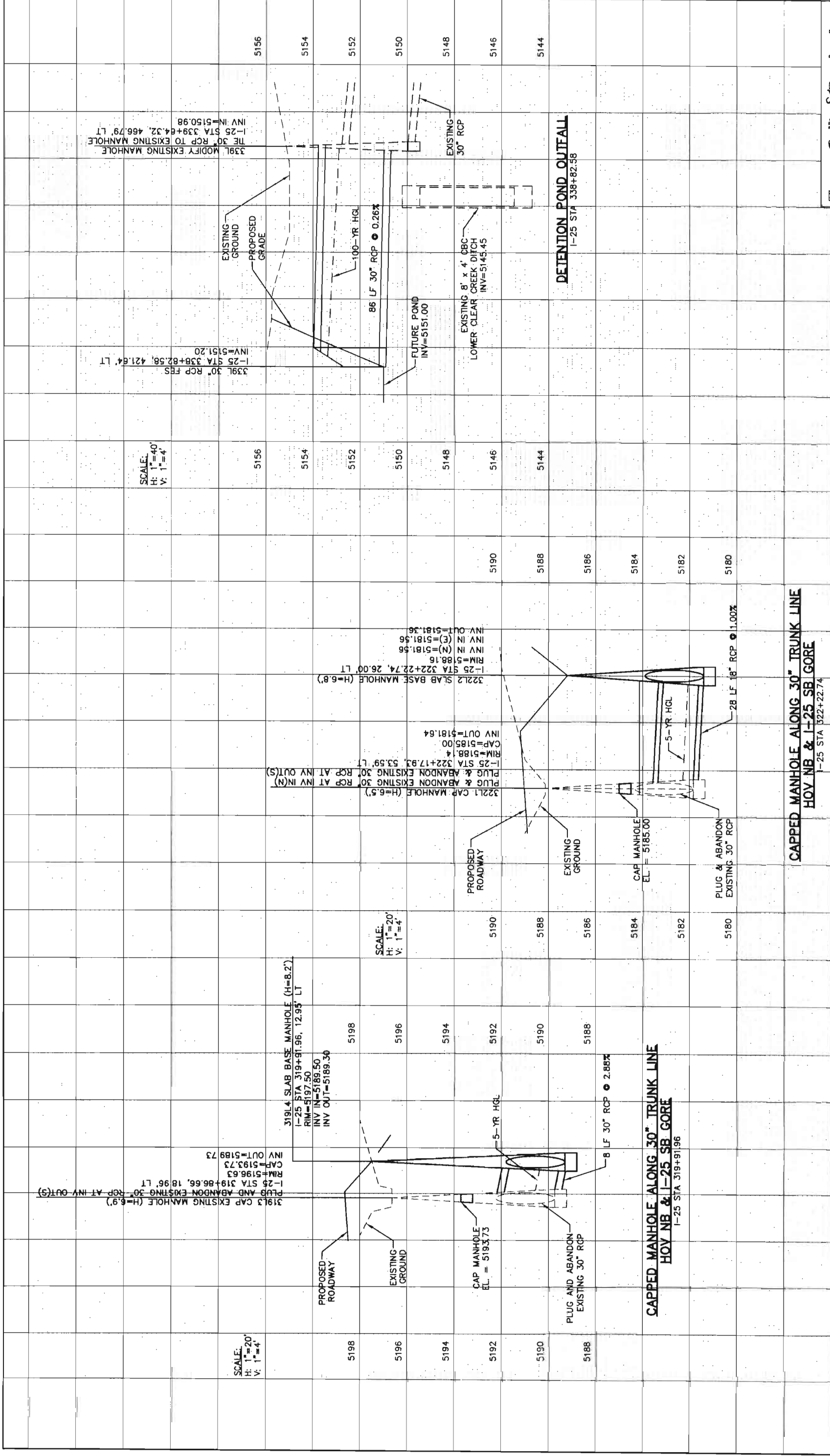

Region 6- North Engineering

JCS

Computer File Information
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Last Modification Date: 05/27/03 Initials: AAC
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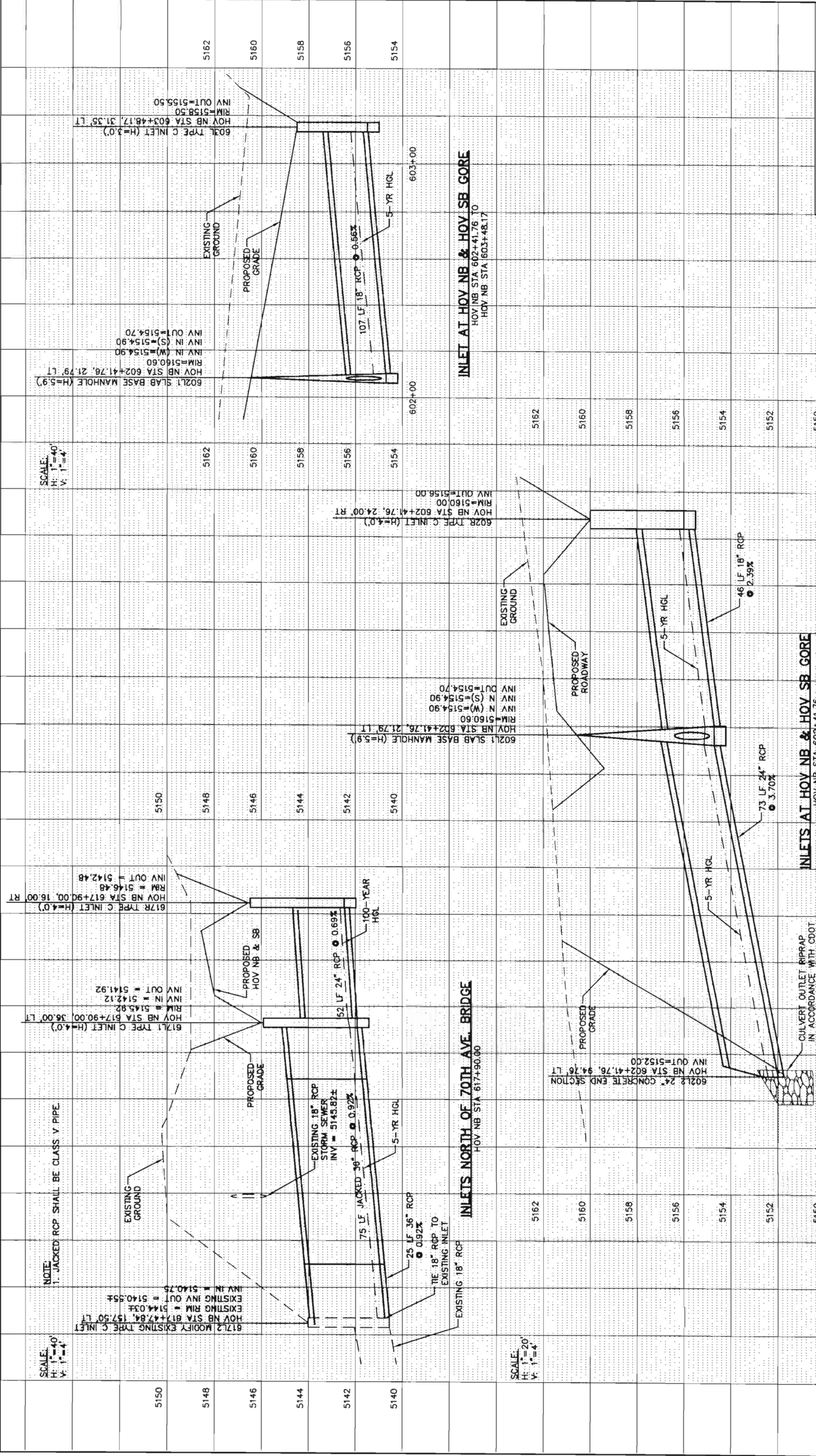
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Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed		I-25/HOV		Project No./Code	
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Last Modification Date:	05/21/03		Initials:	AAC				 DEPARTMENT OF TRANSPORTATION			Revised:		13344	
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Computer File Information

Creation Date: 08/16/02

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Last Modification Date: 05/27/03

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Colorado Department of Transportation

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FAX:(720) 945-1028

Region 6- North Engineering

JCS

As Constructed

No Revisions:

Revised:

Void:

I-25/HOV

Drainage X-Sections

Project No./Code

IM 0253-168

Designer: A. Christiansen

Structure Numbers

Detailer: A. McPherson

Sheet Subst:

Sheet Sheets: 6 of 8

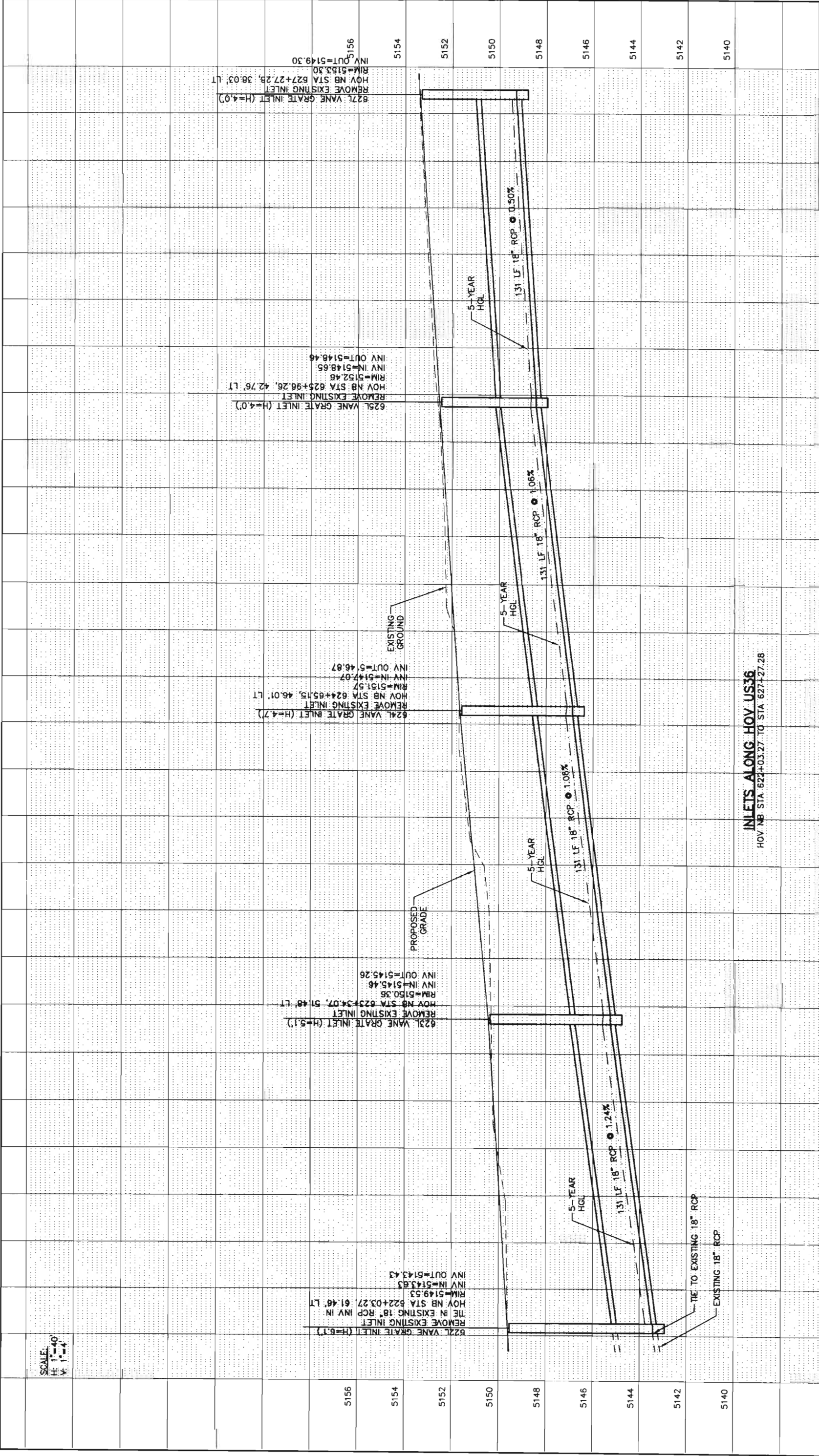
Sheet Number 123

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Computer File Information

Creation Date: 05/20/03 Initials: AAC

Last Modification Date: 05/28/03 Initials: AAC

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Acad Ver. 2000 Scale: As Shown Units: English

Sheet Revisions

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(R-X)

(R-X)

(R-X)

(R-X)

Colorado Department of Transportation



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FAX: (720) 945-1028

Region 6 – North Engineering

As Constructed

No Revisions:

Revised:

Void:

Project No./Code

IM 0253-168

Drainage X-Sections

Designer: A. Christiansen

Detailer: A. Christiansen

Structure Numbers

Sheet Subst:

7 of 8

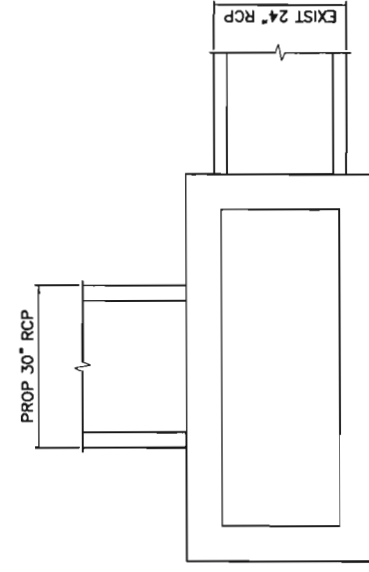
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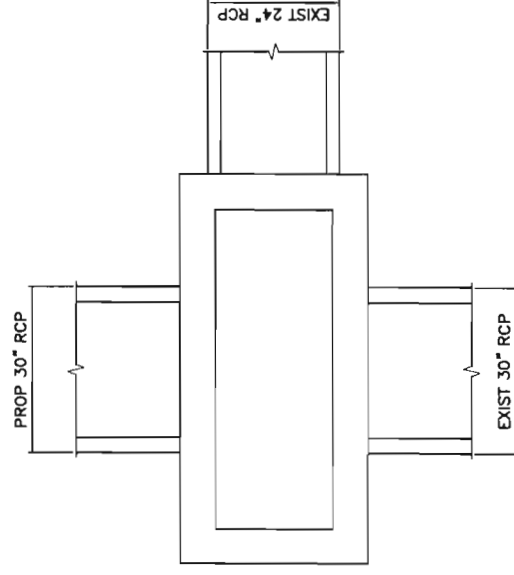
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NEW CAP SECTION

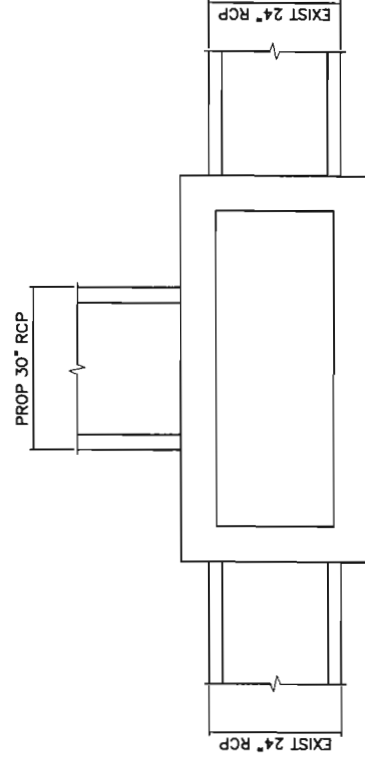
VANE GRATE INLETS



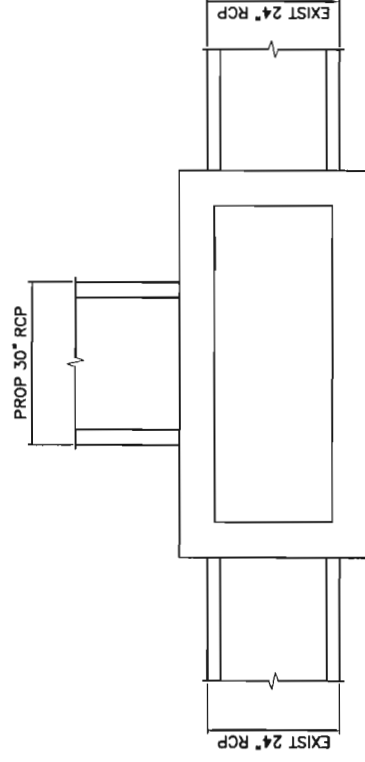
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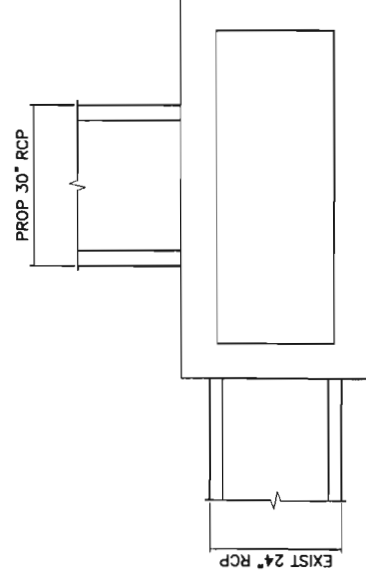
INLET 446L2 PLAN



INLET 447L2 PLAN



INLET 426L2 PLAN



INLET 448L2 PLAN

NOTES:

- 1) IF FIELD CONDITIONS DIFFER FROM DEPICTIONS IN THESE PLANS, THE ENGINEER SHOULD BE CONSULTED.
- 2) CONCRETE SHALL BE CLASS B WITH $f'c = 3000$ psi. GRADE 60 REINFORCING STEEL IS REQUIRED.
- 3) REFER TO DRAINAGE PLANS FOR LOCATIONS AND ADDITIONAL INFORMATION.
- 4) CARE SHALL BE EXERCISED DURING REMOVAL TO PRESERVE THE INTEGRITY OF EXISTING VERTICAL REBAR. EXISTING REBAR SHALL BE CLEANED AND FIELD BENT.
- 5) THE INVERT OF THE BOX SHALL BE SLOPED TO DRAIN TO AVOID SEDIMENT ACCUMULATION AND SHALL BE INCLUDED IN THE COST OF MODIFY INLET.

Revision Dates	(Preliminary Stage Only)
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Design						Detail						Quantities					
Designed By		INITIAL		DATE		Detailed By		INITIAL		DATE		Quantities By		Checked By			
Checked By						Checked By						Checked By					

Computer File Information			
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Last Modification Date:	5/27/03	Initials:	WMF
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Acad Ver.	R2000	Scale:	None
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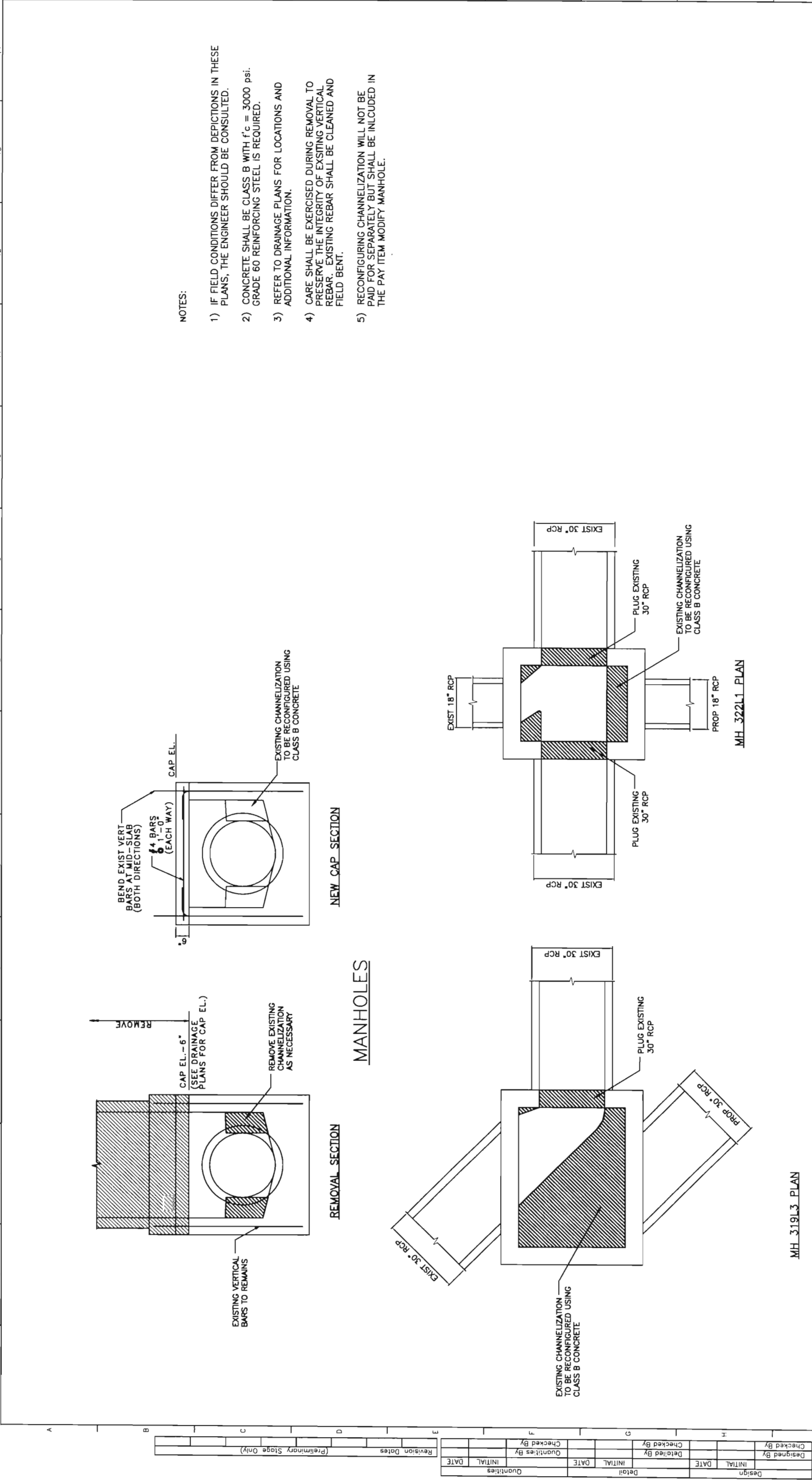
Colorado Department of Transportation
3333 N. Quebec Street
Suite 8400
Denver, CO 80229
Phone: (303) 287-8290 FAX: (303) 757-9053
Region 6 -- North Engineering JCS

As Constructed
No Revisions:
Revised:
Void:

Inlet Cap Details			Project No./Code
			IM 0253-168
Designer:	C. Agins	Structure Numbers	13344
Detailer:	C. Agins		
Sheet Subset:	-	Subset Sheets:	Sheet Number 126
			1 of 1

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NOTES:

- 1) IF FIELD CONDITIONS DIFFER FROM DEPICTIONS IN THESE PLANS, THE ENGINEER SHOULD BE CONSULTED.
- 2) CONCRETE SHALL BE CLASS B WITH f'c = 3000 psi. GRADE 60 REINFORCING STEEL IS REQUIRED.
- 3) REFER TO DRAINAGE PLANS FOR LOCATIONS AND ADDITIONAL INFORMATION.
- 4) CARE SHALL BE EXERCISED DURING REMOVAL TO PRESERVE THE INTEGRITY OF EXISTING VERTICAL REBAR. EXISTING REBAR SHALL BE CLEANED AND FIELD BENT.
- 5) RECONFIGURING CHANNELIZATION WILL NOT BE PAID FOR SEPARATELY BUT SHALL BE INCLUDED IN THE PAY ITEM MODIFY MANHOLE.

MANHOLES

MH 319L3 PLAN

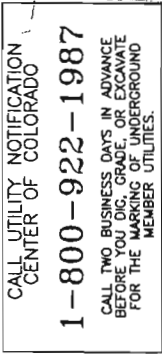
MH 322L1 PLAN

Turner Collie & Braden Inc.

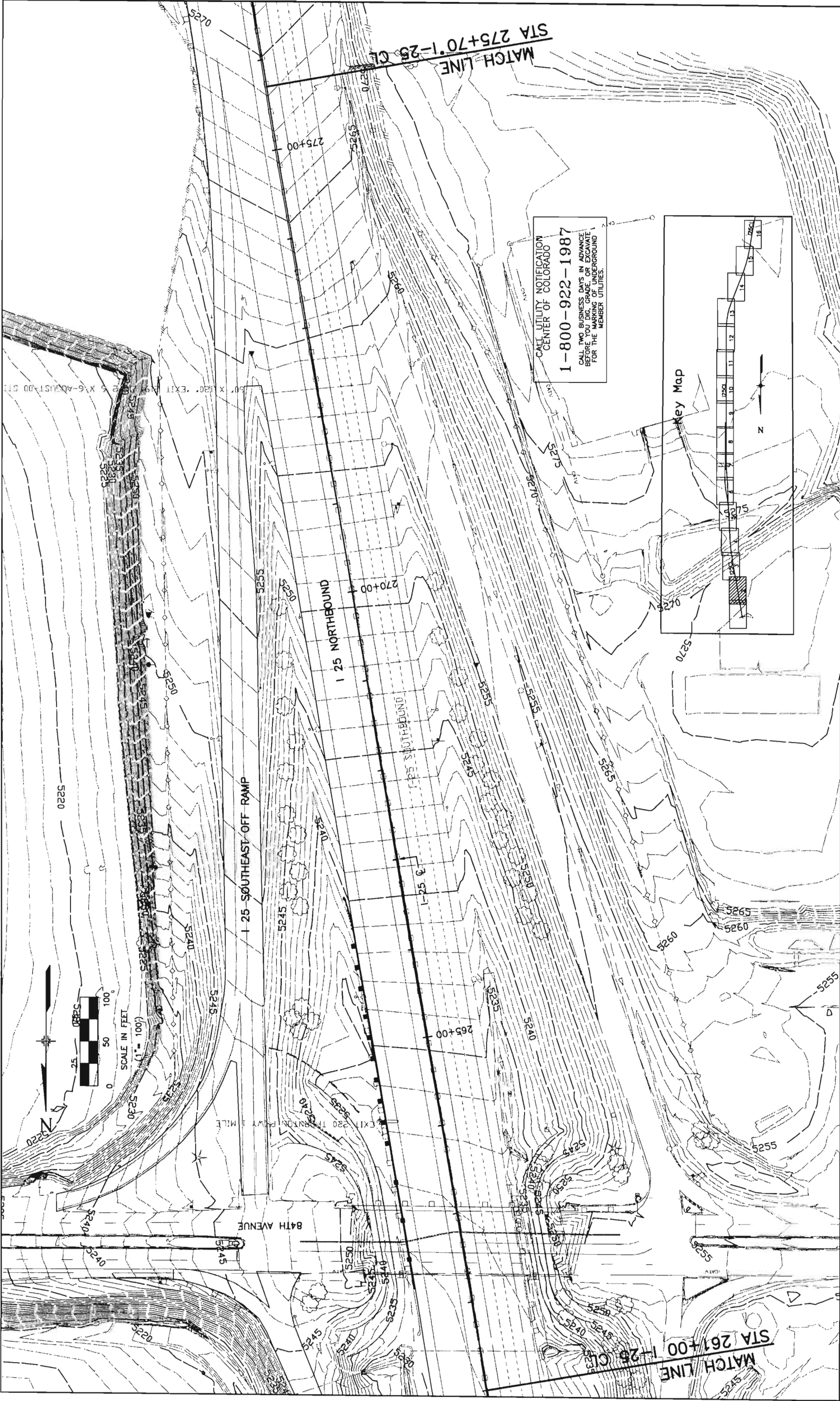
999 Eighteenth Street, Suite 1500
Denver, Colorado 80202
Phone: 303-298-7117 FAX: 303-298-1124

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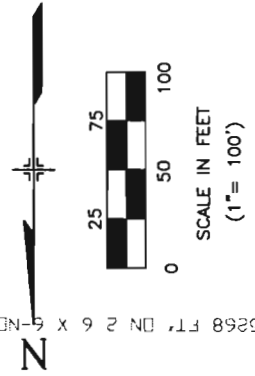
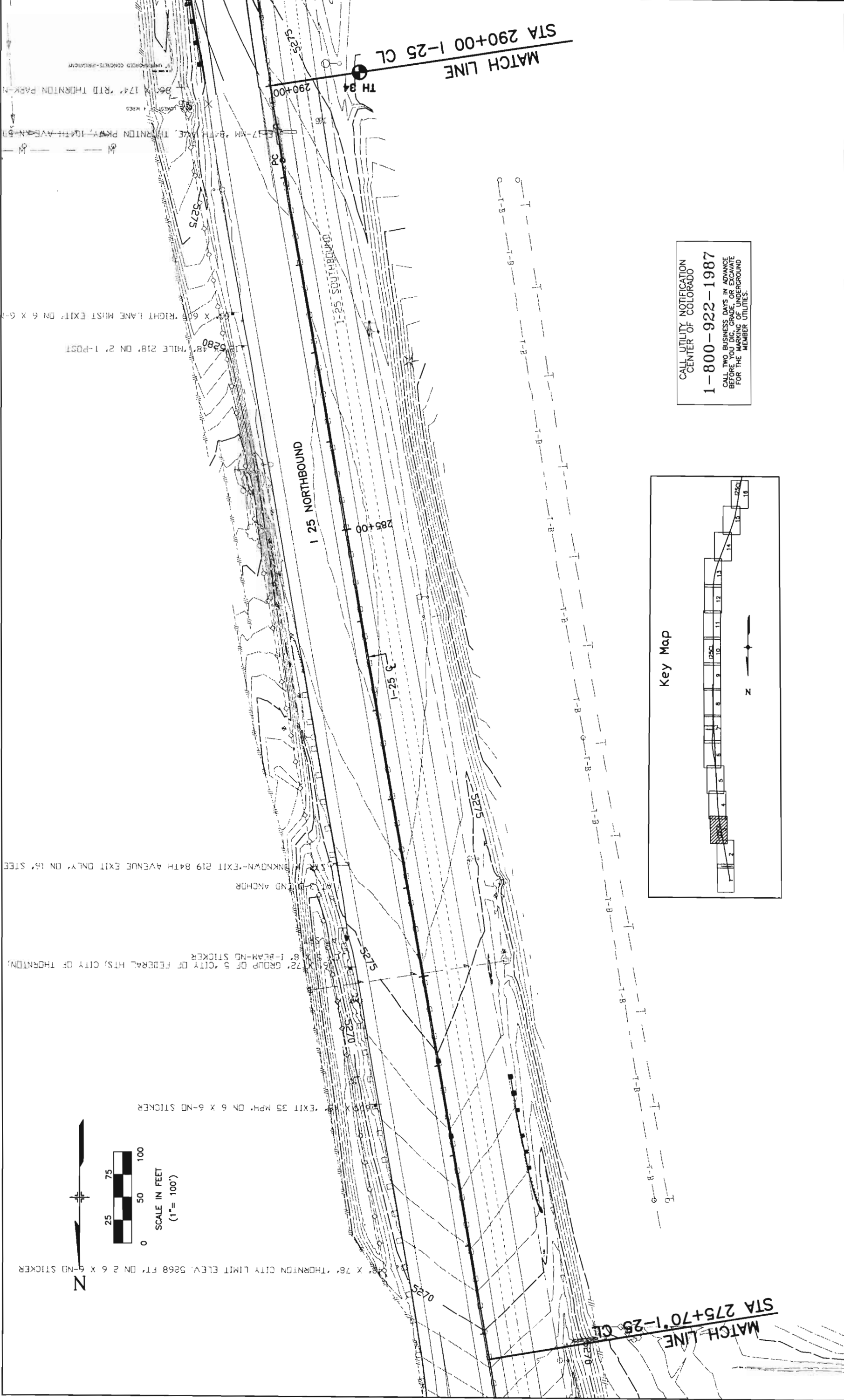
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Acad Ver.	R14	Scale:	NTS	Units:	English	Sheet Subst:	1 of 1	Sheet Number	128				



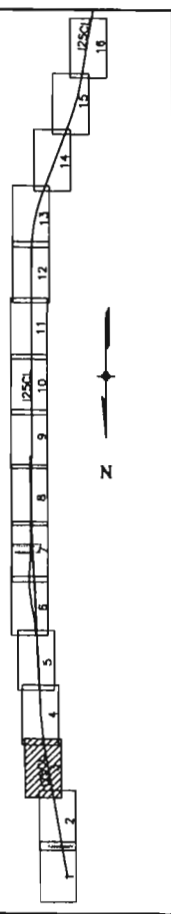
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Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GRADING PLAN		Project No./Code	
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Region 6- North Engineering				JCS							



Key Map

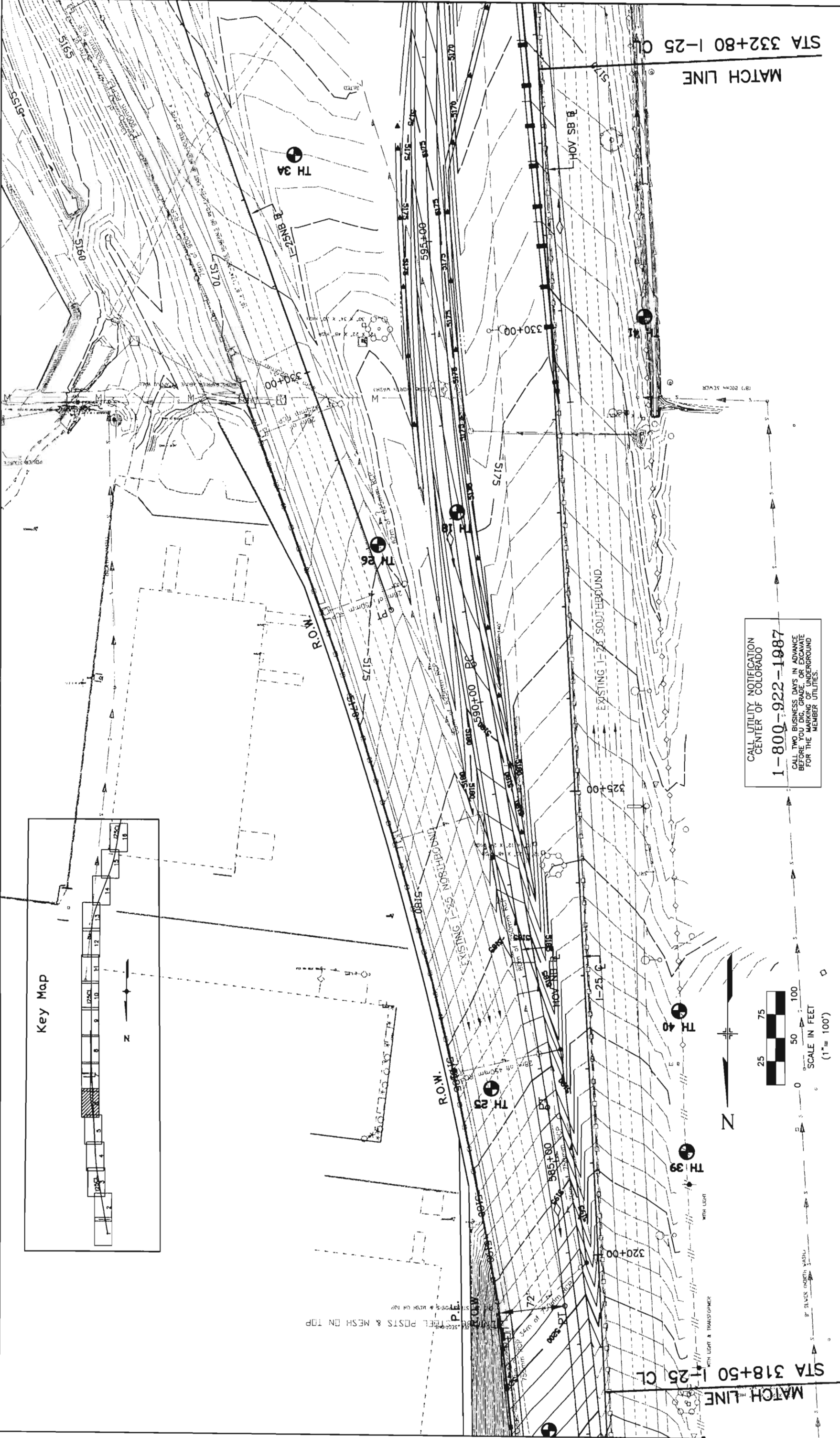


CALL UTILITY NOTIFICATION
CENTER OF COLORADO

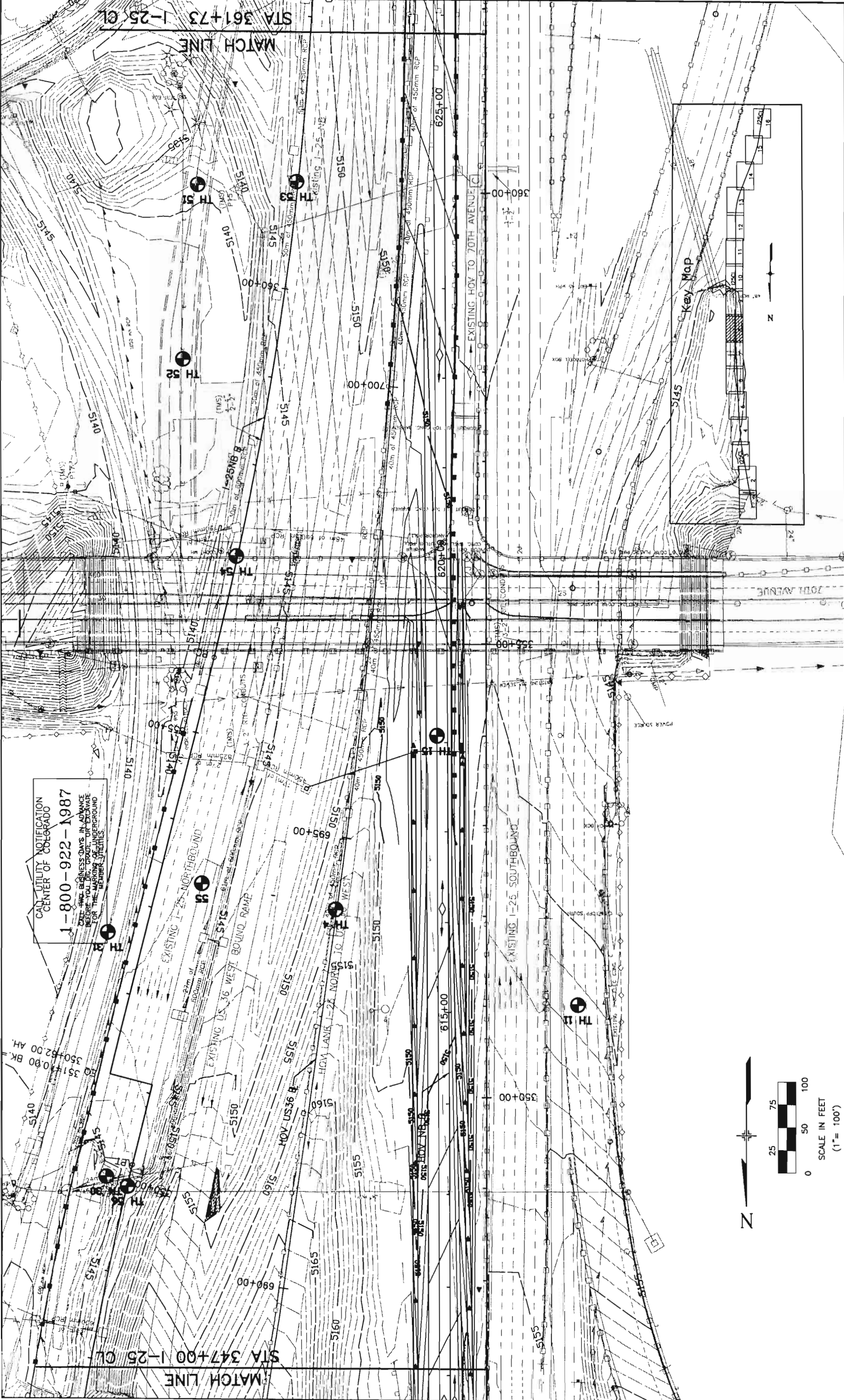
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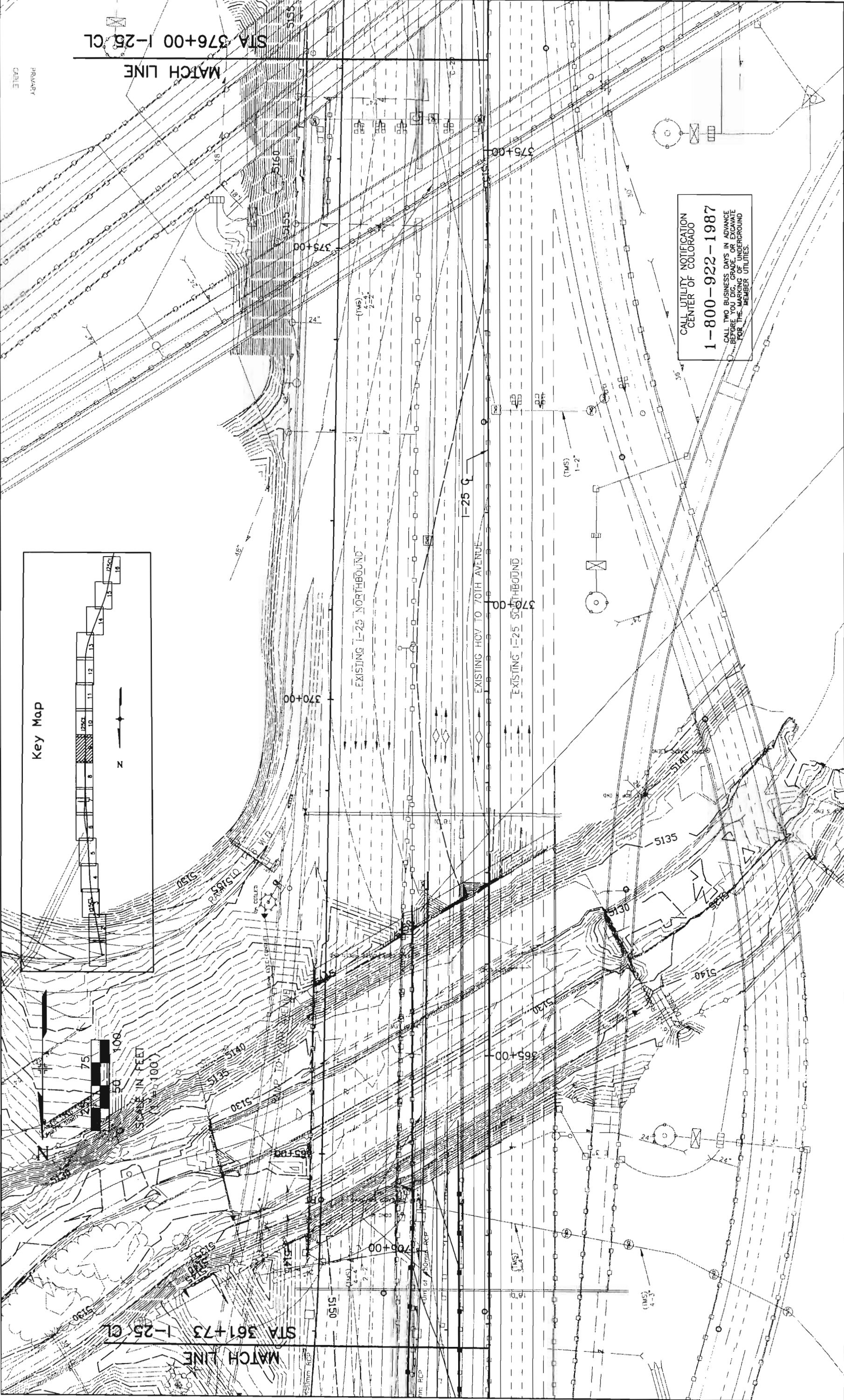
CALL TWO BUSINESS DAYS IN ADVANCE
BEFORE ANY CONSTRUCTION OR BEFORE
FOR THE MARKING OF UNDERGROUND
FOR THE MEMBER UTILITIES.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed	GRADING PLAN	Project No./Code
Creation Date:	03/30/01	Initials:	MH	 2000 S. Holly Street Denver, Co 80222 Phone:(303) 370-2049 FAX:(720) 945-1028	No Revisions:			
Last Modification Date:	6/19/01	Initials:	MH		Revised:			
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		(R-X)						



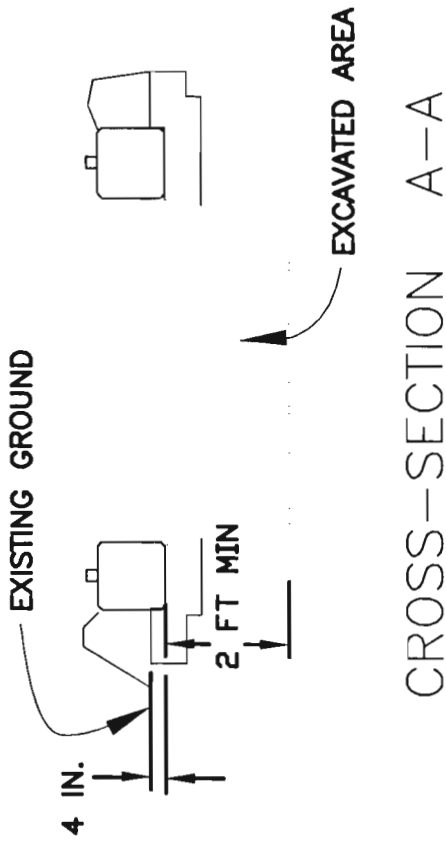
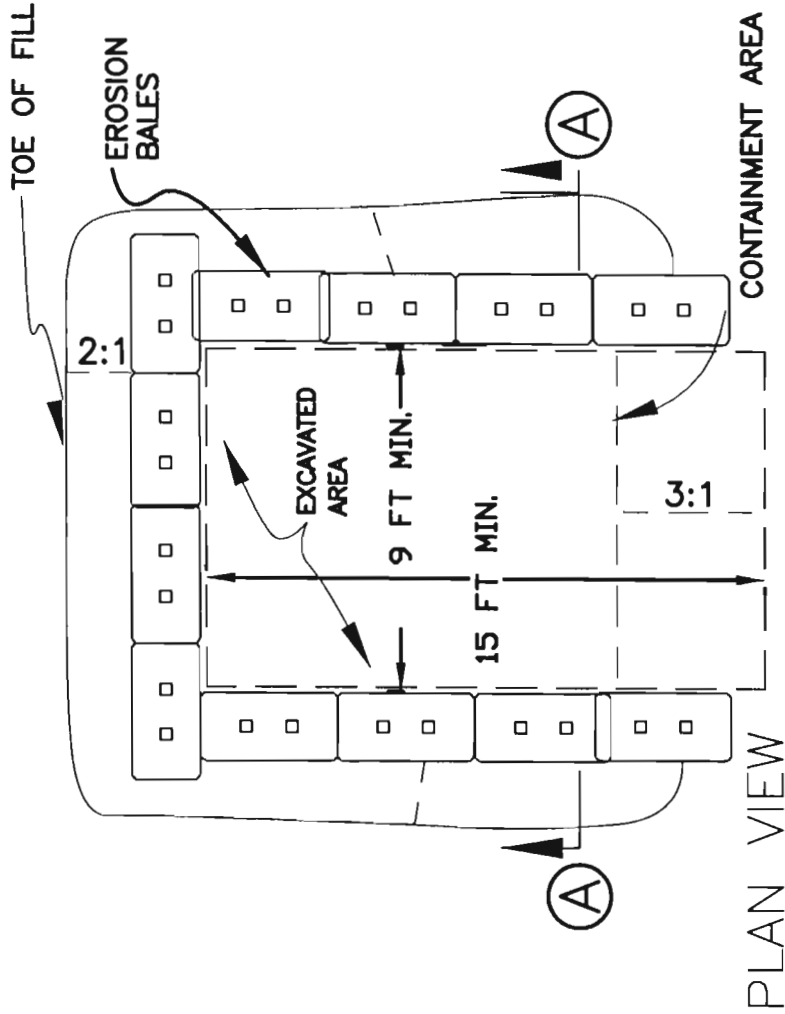
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Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		GRADING PLAN		Project No./Code	
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Last Modification Date:	6/19/01	Initials: MH										Revised:
Full Path:	C:\25HOV-FOR\Planview\Contour											
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							Region 6- North Engineering					JCS

CONCRETE WASHOUT STRUCTURE



208 CONCRETE WASHOUT STRUCTURE EACH NTS

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		CONCRETE WASH OUT STRUCTURE		Project No./Code	
Creation Date:	6/17/03	Initials:	MH			 CDOT DEPARTMENT OF TRANSPORTATION	No Revisions:		IM 0253-168		13344	
Last Modification Date:	6/17/03	Initials:	MH				Revised:		13344		13344	
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									13344		13344	
					Region 6--North Engineering		JCS				Sheet Number 139	

STORMWATER MANAGEMENT PLAN – ADDITIONAL INFORMATION

Estimated 5–Year Runoff Coefficient
Pre–construction: 0.49 Post–construction: 0.50

Existing data describing soil
or quality of discharge: NUNN CLAY LOAM

Existing vegetation: Native Grasses

Proposed sequence for major activities, location
of any other potential pollution source, areas
used for storage of building materials, soils
or wastes and location of any dedicated asphalt
or concrete batch plants: SEE WATER QUALITY AND
EROSION CONTROL SPECIFICATIONS, AND DOCUMENTS
SUBMITTED BY THE CONTRACTOR AT THE PRE CONSTRUCTION
CONFERENCE.

Site map and construction site
boundaries: SEE TITLE SHEET

Areas of cuts and fills and
areas of soil disturbance: SEE
PLAN AND PROFILE SHEETS AND
ROADWAY CROSS SECTIONS.

100–year Flood plain boundaries:
NOT APPLICABLE

Description of the construction activity,
estimate of the total site area
and of the area expected to undergo
excavation, and name of the receiving
water: SEE CDPS STORM WATER PERMIT
APPLICATION.

Contract Document location of erosion control and stormwater quality management measures
not referenced above nor included on the Stormwater Management Plan Sheet(s):

Surface waters:
NOT APPLICABLE

Materials handling and spill prevention:
SEE WATER QUALITY SPECIFICATION (107.25)

Inspection and maintenance: SEE EROSION
CONTROL SPECIFICATIONS (107.25 OR 208)

TOTAL EROSION CONTROL ITEMS & QUANTITY

PAY ITEM #	ITEM	QUANTITY/APPLICATION	ESTIMATED # OF APPLICATIONS	TOTAL QTY
203–01500	BLADING	100 HRS	2	200 HRS
203–01510	BACKHOE	40 HRS	1	40 HRS
203–02330	LABORER	100 HRS	2	200 HRS
208–00011	EROSION BALES (WEED FREE)	182 EACH	2	364 EACH
208–00020	SILT FENCE	1065 FEET	2	2130 FEET
208–00070	STABILIZED CONSTRUCTION ENTRANCE	4 EACH	2	8 EACH
208–00200	EROSION CONTROL SUPERVISOR	1 LUMP SUM	1	1 LUMP SUM
212–00006	TOTAL SEEDING (NATIVE)	4.9 ACRE	3	14.7 ACRE
213–00002	TOTAL MULCHING (WEED FREE HAY)	4.9 ACRE	5	24.5 ACRE
213–00061	MULCH TACKIFIER	735 LBS	3	2205 LBS
216–00041	SOIL RETENTION BLANKET (STRAW/COCONUT)	3168 SQUARE YARDS	2	6336 SQUARE YARDS
208–00055	RIGID INLET PROTECTION DEVICE	6 EACH	• 12	12 EACH
208–00045	CONCRETE WASHOUT STRUCTURE	4 EACH	1	4 EACH
213–00100	SOIL BINDER	4.9 ACRE	1	4.9 ACRE

• Rigid Inlet Protection will require 12 Filter Material Replacements during
Project Construction for a total of 72 Filters Required

SEEDING (NATIVE)

SEEDING PLAN

Soil preparation, fertilizer, topsoil, seeding, mulching (weed free) and mulch tackifier will be required for an estimated 4.9 acres (per application) of disturbed area within the right-of–way limits which are not surfaced. The following types and rates shall be used:

COMMON NAME	BOTANICAL NAME	LBS PLS/ACRE
Oats	Avena sativa	3.0
Scarlet globe mallow	Sphaeralcea coccinera	0.3
Western wheatgrass	Pascopyrum smithii v. arriba	6.0
Side oats grama	Bouteloua curtipendula v. voughn	3.0
Needle and thread	Stipa comata	2.0
Prairie coneflower	Ratibida columnaris	0.1
Blue grama	Bouteloua gracilis v. hachita	1.0
Buffalo grass	Buchloe dactyloides v. texoka	8.0
Gaillardia	Gaillardia aristata	1.0
Purple prairie clover	Petalostemum purpureum	0.5
Rabbitbrush	Chrysothamnus nauseosus	0.5
Woods rose	Rosa woodsii	1.0
Russet Buffaloberry	Shepherdia canadensis	0.5
Apache plume	Fallugia paradoxa	0.5
Little bluestem	Schizachyrium scoparium v. pastura	2.0
Thickspike wheatgrass	Elymus lanceolatus v. critana	6.0
* Winter wheat	Triticum aestivum	3.0
TOTAL		38.4

- For fall planting, substitute oats for winter wheat

SEEDING APPLICATION: Drill seed 0.25" – 0.5" into the topsoil. In areas not accessible to a drill, hand place at double the above rate and rake 0.25" – 0.5" into the topsoil.

MULCHING APPLICATION: Apply mulch tackifier per project special provision 213. Apply 2.0 tons Mulching (weed free) per acre and mechanically crimp into soil in combination with an organic mulch tackifier.

FERTILIZER	ANALYSIS %	LBS/ACRE AVAILABLE
NITROGEN	18	27
PHOSPHORUS	46	69

NOTES:

Prior to construction, an environmental review will be held in accordance to specification 208. Project will be subject to review and inspections by state and federal environmental agencies.

Disturbed surfaces shall be left in a roughened condition at all times during construction.

Placement of topsoil, seeding and mulching will not be done in a single operation, but shall be completed after each construction phase. Multiple mobilizations may be required for topsoil, seeding and mulching.

When disturbed area exceeds limits referenced in the standard special provision 208, during the summer when seeding is not allowed, apply 2.0 tons of mulching (weed free) per acre mechanically crimped into the soil. It is estimated that two(2) applications will be required and shall be included in the price of the work.

Prior to winter shutdown all completed slopes shall be top soiled, seeded and mulched, Incomplete slopes shall be mulched with 2.0 tons of mulching (weed free) per acre, mechanically crimped into the topsoil in combination with an organic mulch tackifier per Project Special 213.

Soil retention blankets (straw/coconut) are required on all slopes 3:1 or greater.

Soil retention blankets (straw/coconut) shall be placed in the flowlines of ditches and swales steeper than 2%.

Erosion control supervisor will be provided and duties performed as outlined in section 208 of the standard special provisions.

Concrete Truck Washouts shall be located central to all concrete operations. Signs to direct concrete trucks to the appropriate washout area shall be posted in the area of concrete operations. Signs shall be posted to identify each concrete truck washout. Washout locations shall be approved by the Engineer. It is estimated that 4 each of concrete washout structures shall be required.

No fertilizer shall be used adjacent to existing wetlands and wetland mitigation sites.

The contractor shall be responsible for seeding all areas disturbed outside the project limits at no additional charge to the project.

Computer File Information				Sheet Revisions		Colorado Department of Transportation		As Constructed		I–25/HOV		Project No./Code	
Creation Date:	03/29/02		Initials:	M&M				No Revisions:		Stormwater Management Plan		IM 0253–168	
Last Modification Date:	05/22/03		Initials:	AAC				Revised:		Designer: A. Christiansen		Structure Numbers	
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Drawing File Name:	ERNO00100						Void:		Sheet Subst:		1 of 7		
Acad Ver.	R14	Scale:	As Shown	Units:	English	Region 6–North Engineering		JCS		Sheet Number		140	



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RIGID INLET PROTECTION DEVICE QUANTITIES

INLET PROTECTION LOCATION	NUMBER OF DEVICES
I-25 STA 338+36.11	1
I-25 STA 339+47.39	1
I-25 STA 353+82.72	1
I-25 STA 353+82.72	1
I-25 STA 310+04.54	1
I-25 STA 315+54.61	1
TOTAL	6

SOIL RETENTION BLANKET (STRAW/COCONUT)

SOIL RETENTION BLANKET START LOCATION	END LOCATION	AREA
I-25 STA 290+00.00, LEFT	301+25.00	2368 SQ. YARDS
I-25 STA 303+00.00, LEFT	310+00.00	800 SQ. YARDS
TOTAL		**3168

** Single application quantities.

NOTES:

Stockpile areas will be designated by the Engineer. Silt fence shall be placed at the toe of all stockpiles and is included in the cost of the work.

Whenever sediment is transported onto a public road, the road shall be cleaned at the end of each day. Sediment shall be removed from roads by shoveling or sweeping and be transported to a controlled sediment disposal area. Street washing shall not be allowed until after sediment is removed in this manner. Storm sewer inlet protective measure shall be in place prior to the time of street washing. Work shall be paid for as 203 Blading and 203 Laborer hours.

Seeding Application: Slopes 3:1 or steeper shall be hand broadcast at double the above seed rate and raked 1/4" to 1/2" into the topsoil.

No fertilizer shall be used adjacent to existing wetlands, wetland mitigation sites or streams.

Swales shall be placed along proposed concrete pavement to collect sowedust and saw water, as directed by the engineer. Swales shall drain to low point for collection and disposal.

Concrete saw dust and saw water shall not be allowed to drain into storm drain system. Construction of swales shall be paid for as blading.

Removal of Concrete Saw Dust, Saw Water and Sediment Removal and Disposal shall be paid for as 203 Blading and 203 Laborer hours. It is estimated that 20 hours of blading and 20 hours of backhoe may be required for miscellaneous erosion control work as needed or directed the engineer. This work may include (but is not limited to): slope roughening, ditch grading, etc. The blading shall utilize motor graders with a horsepower rating of 120. The backhoe shall utilize a wheel loader with a horsepower rating of 90. This work shall not be measured and paid for separately, but shall be included in the cost of the work.

STABILIZED CONSTRUCTION ENTRANCE

STABILIZED CONSTRUCTION ENTRANCE LOCATION	NUMBER OF ENTRANCES
I-25 STA 290+00.00, LEFT	1
I-25 STA 314+00.00, LEFT	1
NB HOV STA 594+00.00, LEFT	1
NB HOV STA 591+00.00, RIGHT	1
TOTAL	**4

** Single application quantities.

SILT FENCE QUANTITIES

SILT FENCE START LOCATION	SILT FENCE LENGTH (ft)
I-25 STA 290+00.00	**1065
TOTAL	**1065

** Single application quantities.

CULVERT INLET PROTECTION QUANTITIES

INLET PROTECTION LOCATION	NUMBER OF WEED FREE BALES
I-25 STA 293+78.86	9
I-25 STA 297+77.11	9
I-25 STA 300+63.88	9
I-25 STA 338+78.30	9
US 36 STA 696+20.43	9
TOTAL	**45

• NOTE: For culverts open in the median use

the open inlet erosion bale filter

** Single application quantities

CHANNEL FLOW EROSION BALES

CHANNEL FLOW PROTECTION LOCATION	NUMBER OF WEED FREE BALES
FROM STA 303+00 TO 310+00 5 BALES EVERY 33 FEET	106
TOTAL	**106

** Single application quantities

The Stormwater Management Plan is a guide for generalized implementation of best management practices during construction as shown relative to the final alignment. The SWMP does not take into consideration any changes needed during phases or interim conditions, to accomplish the final alignment. The Contractor shall modify the storm water management plan and best management practices in the field, throughout the duration of all project stages, to fully contain sediment from leaving the project site and to prevent erosion throughout the project.

A thorough inspection of the stormwater management system shall be performed every 14 days and after any precipitation or snowmelt event that may have caused erosion. Periodic inspections shall also include inspecting equipment at leaks and reviewing equipment maintenance practices. All inspections and maintenance shall be documented by the Erosion Control Supervisor and made available to the Colorado Department of Health Upon request.

Seeding of disturbed areas shall occur immediately after grading is completed or at the direction of the engineer.

Existing topsoil may be "peeled" back into windrows, perpendicular to the slope to act as a stormwater management device (instead of silt fence) and shall be paid for as 208 silt fence.

Vehicle washing shall not be allowed on site.

Newly constructed inlets shall be protected immediately upon completion of inlet construction.

Due to drought conditions, use phased mulching on temporary slopes. All temporary slopes shall be mulched with 2 TONS of mulching(weed free) per acre, mechanically crimped into the topsoil in combination with an organic mulch tackifier per Project Special provision 213.

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Last Modification Date:	06/18/03	Initials:	AAC	☒ X	
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Drawing File Name:	ERDT0100			☒ X	
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Colorado Department of Transportation				As Constructed	
 2000 S. Holly Street Denver, CO 80222 Phone: (303) 370-2052 FAX: (720) 945-1028				No Revisions:	
Region 6-North Engineering JCS				Revised:	
				Void:	
I-25/HOV				Project No./Code	
Stormwater Management Plan				IM 0253-168	
Designer: A. Christiansen				Structure	13344
Detailer: M. Miller				Numbers	
Sheet Subset:				Subset Sheets:	2 of 7

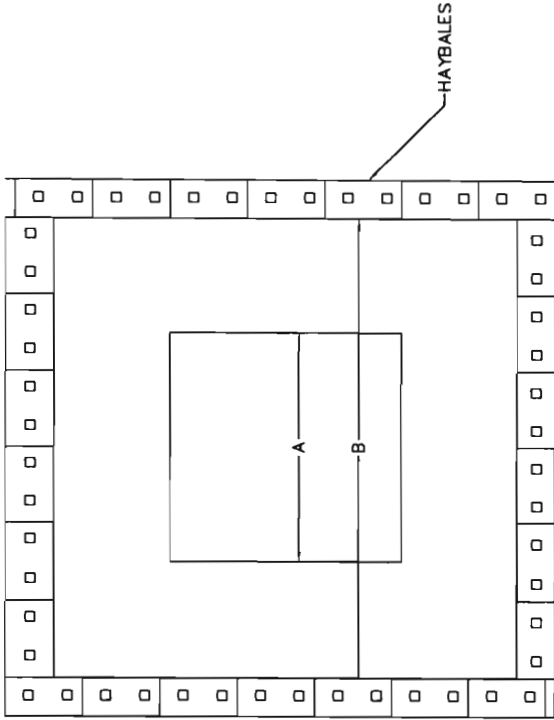
TurnerCollieBraden Inc.

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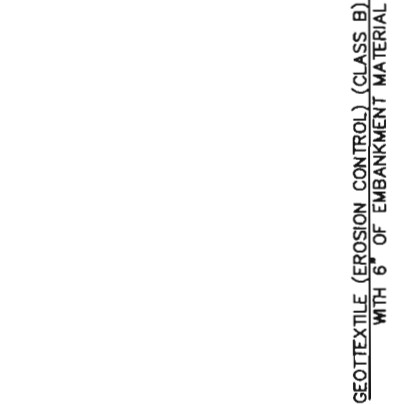
DIMENSIONS AND QUANTITIES FOR DEWATERING POND

A (ft)	B (ft)	# OF HAYBALES (EA)	GEOTEXTILE (SQ. YD.)	EMBANKMENT MATERIAL (CU. YD.)
18	30	32	60	10

ALL QUANTITIES ARE
FOR INFORMATION ONLY



PLAN



SECTION

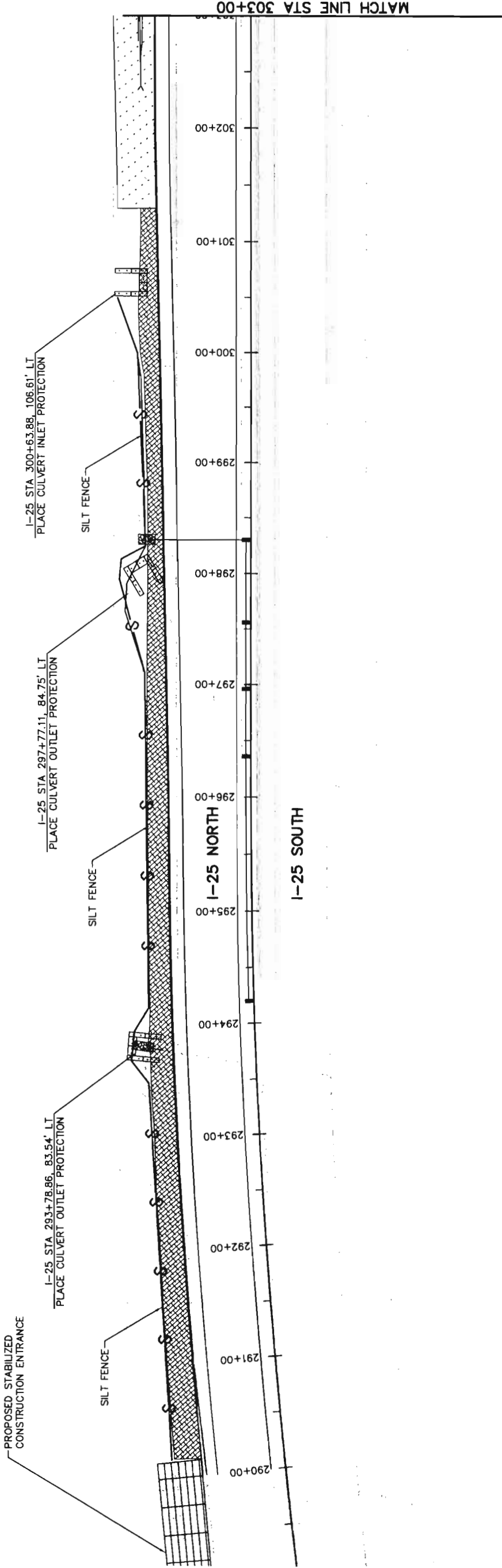
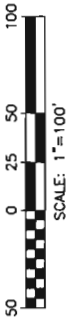
NOTES:

1. DEWATERING POND SHALL BE LOCATED SUCH THAT DEWATERING OPERATIONS FOR CAISSONS AT SIGN STRUCTURES AND HIGH MAST TOWERS WILL BE PUMPED TO AND RETAINED IN DEWATERING POND, OR PUMPED INTO A TANK TRUCK AND TRANSPORTED TO DEWATERING POND OR USED FOR DUST CONTROL.
2. QUANTITIES ARE FOR INFORMATION ONLY. DEWATERING PONDS SHALL BE PAID FOR AS BACKHOE HOURS AND EROSION BALES (WEED FREE).

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Computer File Information			Sheet Revisions		Colorado Department of Transportation			Dewatering Pond Detail		Project No./Code	
Creation Date:	6/04/03	Initials: WMF	(R-X)		DOT Department of Transportation Region 6 2000 S. Holly Street Denver, CO 80222 Phone: (303) 370-2052 FAX: (720) 945-1028 JCS			As Constructed		IM 0253-168	
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SILT FENCE

CULVERT INLET PROTECTION

RIGID INLET PROTECTION

EROSION BALES

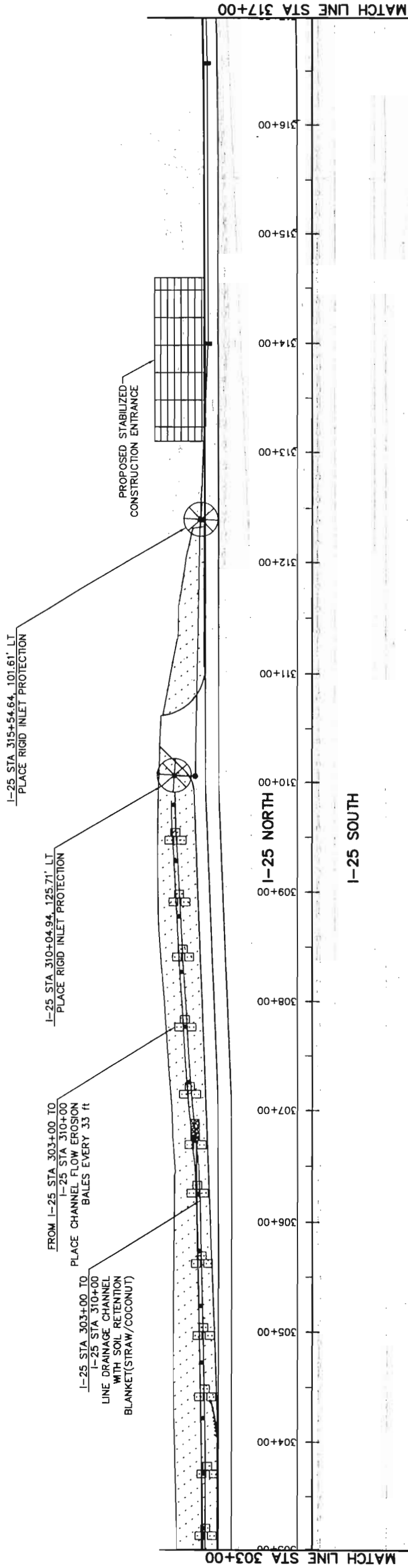
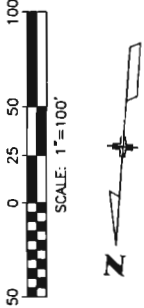
SEED AND MULCH

STABILIZED CONSTRUCTION ENTRANCE

SOIL RETENTION BLANKET (STRAW/COCONUT)

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Computer File Information				Sheet Revisions		Colorado Department of Transportation				As Constructed		I-25/HOV		Project No./Code			
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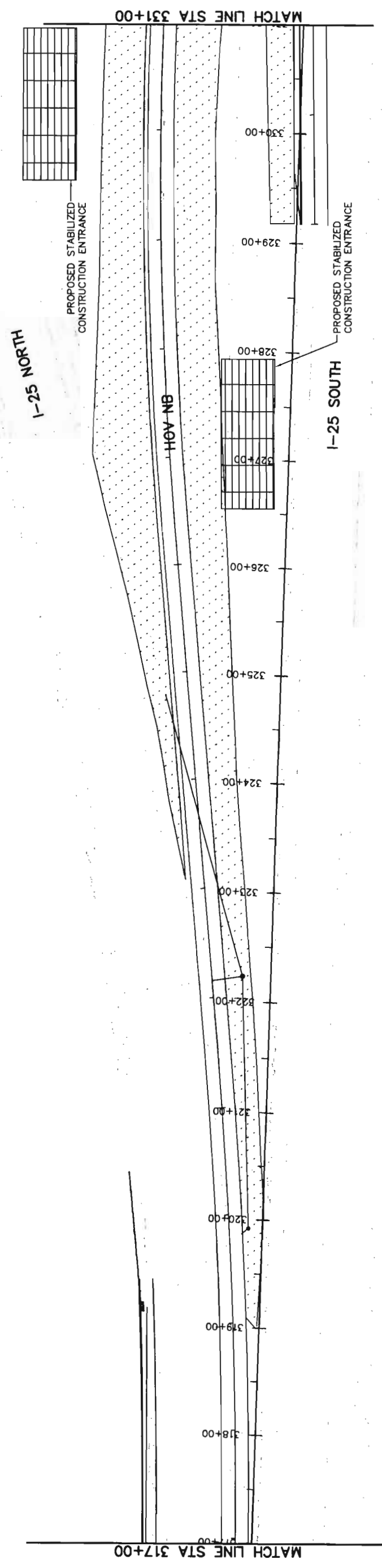
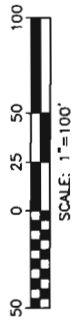


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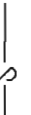
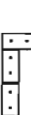
- SILT FENCE
- CULVERT INLET PROTECTION
- RIGID INLET PROTECTION
- EROSION BALES
- SEED AND MULCH
- STABILIZED CONSTRUCTION ENTRANCE
- SOIL RETENTION BLANKET (STRAW/COCONUT)

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995 Eighth St., Suite 1500
Denver, Colorado 80202
Phone: 303-298-7117 FAX: 303-296-1124

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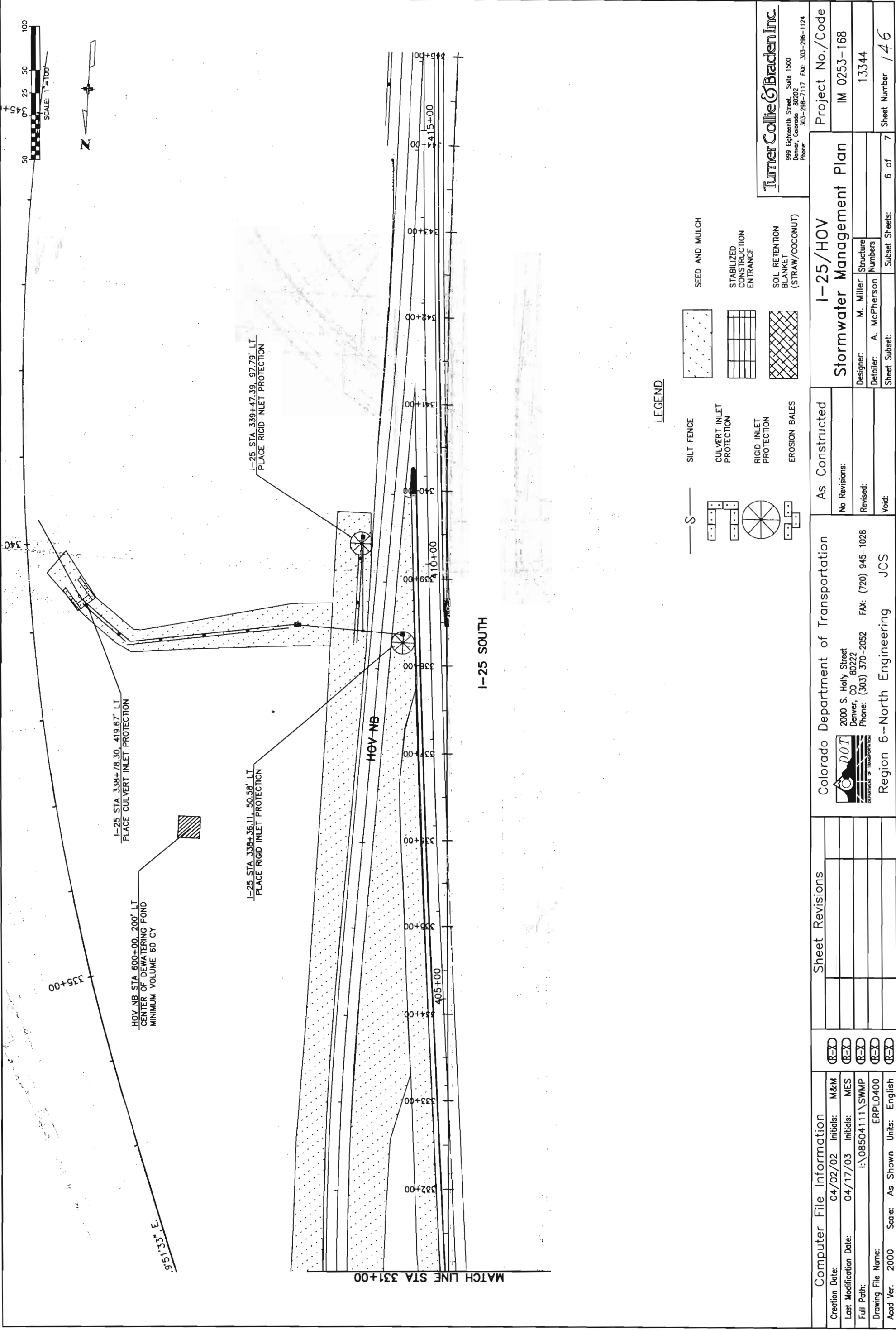


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		SILT FENCE		SEED AND MULCH
		CULVERT INLET PROTECTION		STABILIZED CONSTRUCTION ENTRANCE
		DROP INLET PROTECTION		SOIL RETENTION BLANKET (STRAW/COCONUT)
		EROSION BALES		

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Computer File Information				Sheet Revisions		Colorado Department of Transportation		I-25/HOV		Project No./Code	
Creation Date:	04/02/02	Initials:	M&M			 2000 S. Holly Street Denver, CO 80222 Phone: (303) 370-2052 FAX: (720) 945-1028 Region 6-North Engineering JCS	Stormwater Management Plan		IM 0253-168		
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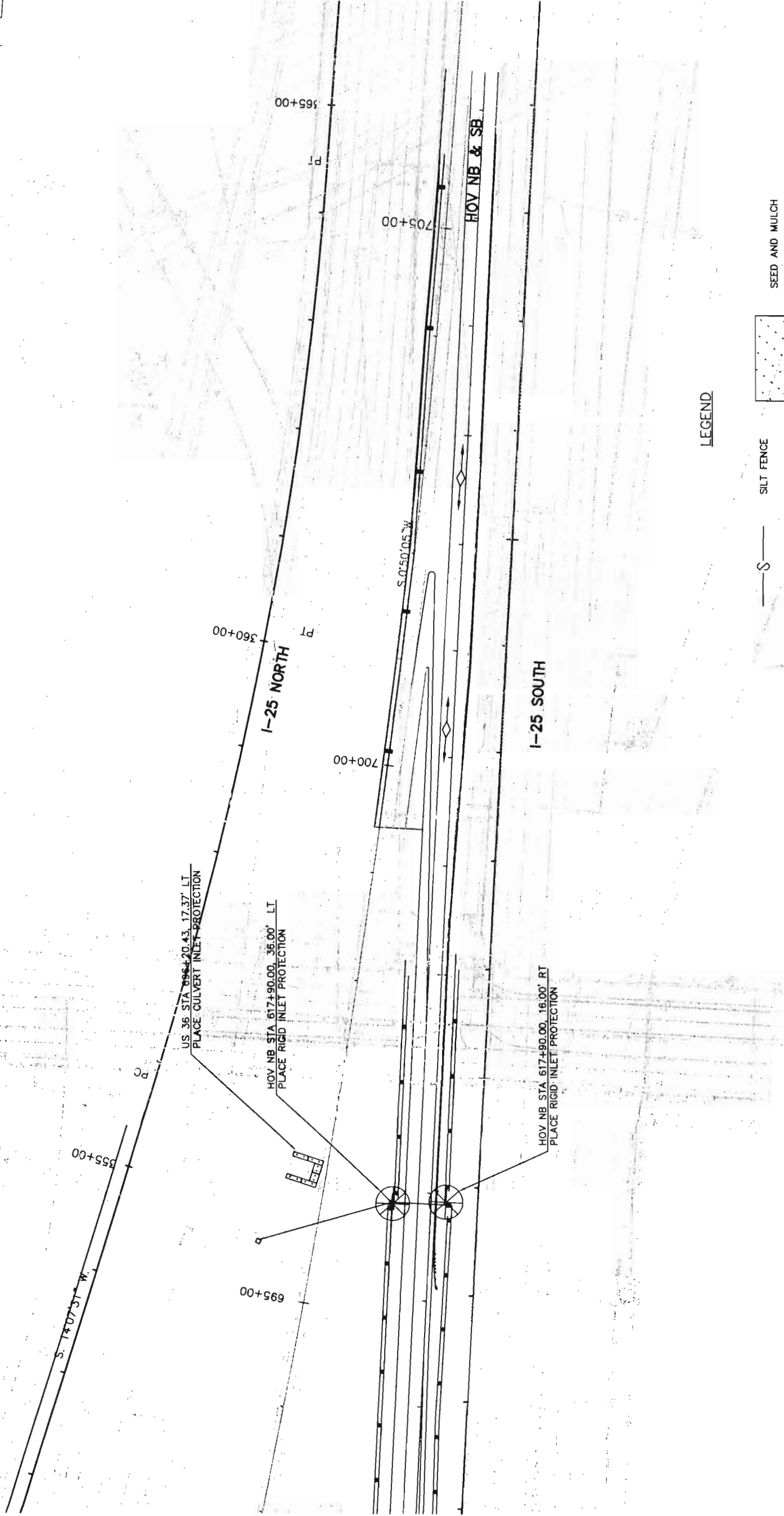
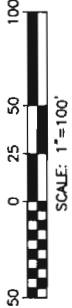


LEGEND

- SILT FENCE
- CULVERT INLET PROTECTION
- RIGID INLET PROTECTION
- EROSION BALES
- SEED AND MULCH
- STABILIZED CONSTRUCTION ENTRANCE
- SOIL RETENTION BLANKET (STRAW/COCONUT)

Turner Collie & Braden Inc.
999 Eighth Street, Suite 1500
Denver, Colorado 80202
Phone: 303-298-7117 FAX: 303-298-1124

Computer File Information			Sheet Revisions		As Constructed		I-25/HOV Stormwater Management Plan		Project No./Code
Creation Date:	04/02/02	Initials: M&M	☒		No Revisions:		Stormwater Management Plan		IM 0253-168
Last Modification Date:	04/17/03	Initials: MES	☒		Revised:		Designer: M. Miller	Structure Numbers	13344
Full Path:	I:\08504111\SWMP		☒		Void:		Detailer: A. McPherson	Sheet Subst:	6 of 7
Drawing File Name:	ERPL0400		☒						Sheet Number 146
Acad Ver.	2000	Scale: As Shown	Units: English						



LEGEND

- | | | | |
|--|--------------------------|--|--|
| | SILT FENCE | | SEED AND MULCH |
| | CULVERT INLET PROTECTION | | STABILIZED CONSTRUCTION ENTRANCE |
| | RIGID INLET PROTECTION | | SOIL RETENTION BLANKET (STRAW/COCONUT) |
| | EROSION BALES | | |

Turner Collie & Braden Inc.
999 Eglenth Street, Suite 1500
Denver, Colorado 80202
Phone: 303-298-7117 FAX: 303-298-1124

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		I-25/HOV		Project No./Code		
Creation Date:	04/02/02	Initials: M&M	(R-X)			2000 S. Holly Street Denver, CO 80222 Phone: (303) 370-2052 FAX: (720) 945-1028	Region 6-North Engineering JCS	No Revisions:	Stormwater Management Plan	IM 0253-168	Project No./Code		
Last Modification Date:	04/17/03	Initials: MES	(R-X)										
Full Path:	I:\08504111\SWMP		(R-X)										
Drawing File Name:	ERPL0500		(R-X)										
Acad Ver.	2000	Scale: As Shown	Units: English				Revised:			M. Miller Structure Numbers		13344	
							Detailer: A. McPherson						
							Sheet Subst:			Subset Sheets: 7 of 7			Sheet Number 147

CALCULITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL TWO BUSINESS DAYS IN ADVANCE
FOR THE MARKING OF UNDERGROUND
UTILITIES.

Computer File Information			
Last Modification Date:	1/8/03	Initials:	PK
Cross References:			
Full Path:	\\OJERAJ\PETER_KOZ\		
Drawing File Name:	SSRELOCATE.DWG		
Acad Ver:	2000	Scale:	Units: English

Sheet Revisions			

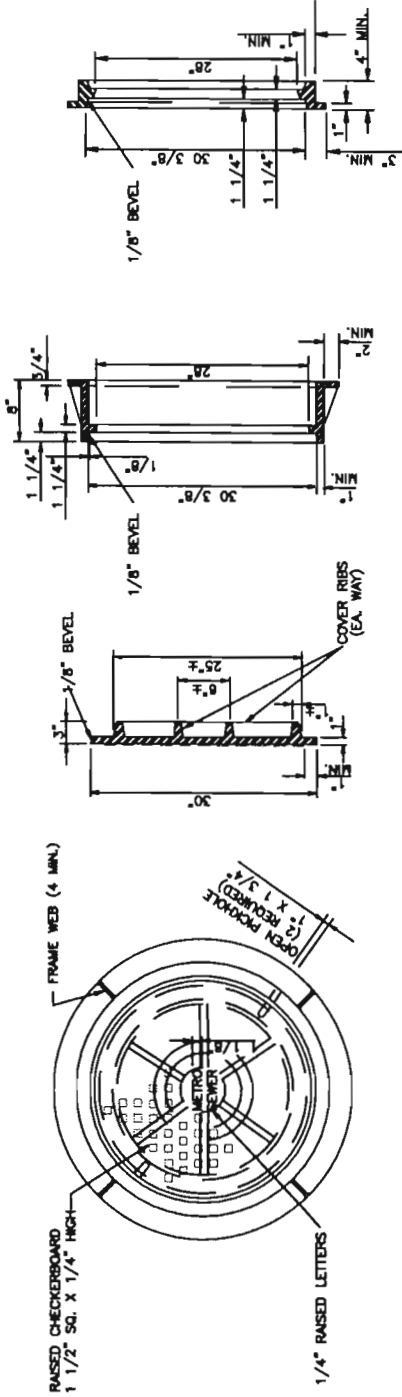


Colorado Department of Transportation
2000 South Holly Street
Denver, CO 80222
Phone: 303.370.2052 FAX: 720.945.1028
Region 6 - North Engineering RBM

MANHOLE SPECIAL DETAILS

Designer:	PK Structure Numbers
Detailer:	PK
Sheet Subset:	2 of 2

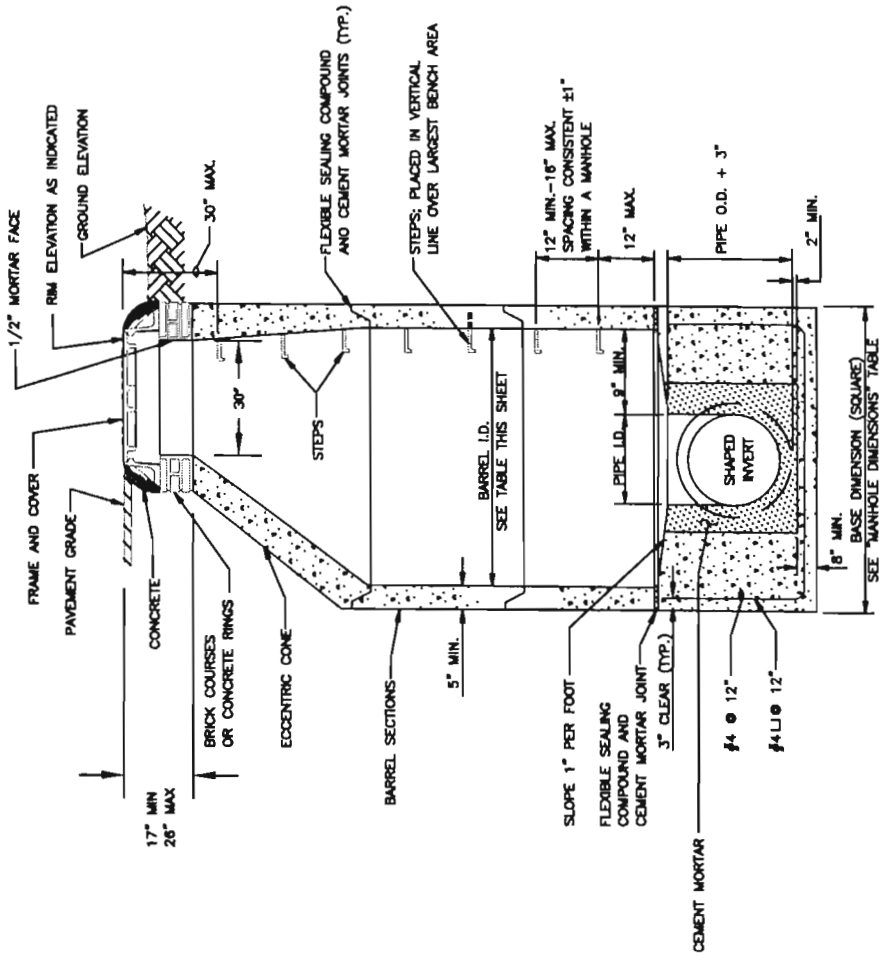
Project No./Code	0253-168
Sheet Number	13344
Sheet Number	149



PLAN VIEW COVER SECTION FRAME SECTION FLUSH FRAME SECTION

FRAME AND COVER DETAILS

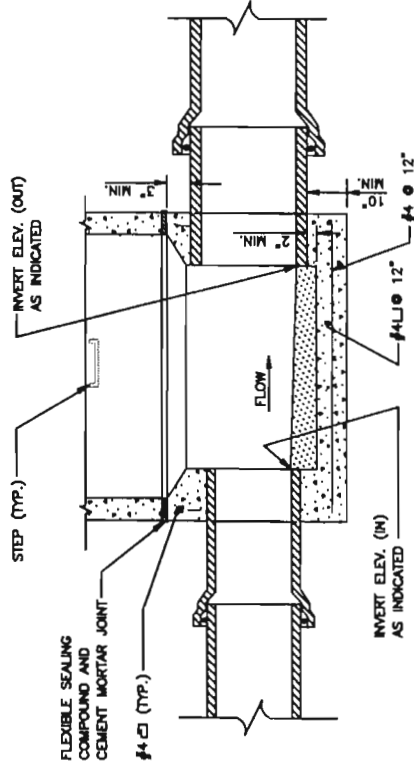
NOT TO SCALE



STANDARD MANHOLE

NOT TO SCALE

MANHOLE DIMENSIONS				
PIPE SIZE	DEFLECTION ANGLE	BARREL I.D.	BASE DIMENSION	BASE STYLE
<21"	ALL	4'	4'-10"	STD.



SECTION VIEW

NOT TO SCALE

TABULATION OF PAVEMENT MARKINGS

[illegible]

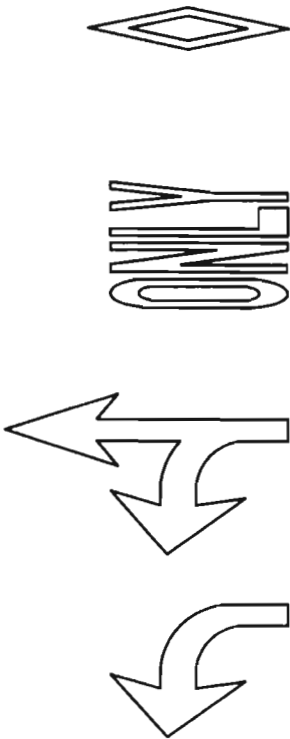
NOTES ::

1. FOR DETAILS OF PAVEMENT MARKING LINES AND LINE PLACEMENT, SEE STANDARD S-627-1
2. IT IS ESTIMATED THAT 1320 GAL OF PAVEMENT MARKING PAINT WILL BE NEEDED FOR TEMPORARY PAVEMENT MARKINGS.
THE QUANTITIES PROVIDED ARE SUFFICIENT FOR 12 APPLICATIONS DURING CONSTRUCTION.

WHITE:	1080 GAL
YELLOW:	240 GAL
3. CONTRACTOR SHALL MAINTAIN FULL COMPLIANCE PAVEMENT MARKING ON THE PROJECT AT ALL TIMES THROUGHOUT THE CONSTRUCTION PERIOD.
4. THE CONTRACTOR WILL BE RESPONSIBLE FOR THE INVENTORY OF EXISTING PAVEMENT MARKING AND RECORDING THEM SO THAT NEW MARKING CAN BE INSTALLED TO MATCH. A COPY OF THE EXISTING INVENTORY OF PAVEMENT MARKINGS SHALL BE PROVIDED TO THE PROJECT ENGINEER PRIOR TO PHASE CHANGES OR THE REMOVAL OF ANY EXISTING STRIPING.

* 5. TYPE C "CONTRAST TAPE" IS 7" OR 11" WIDE FOR SF CALCULATION AS NOTED ABOVE

SUMMARY OF PAVEMENT MARKING QUANTITIES						
COLOR	EPOXY (GAL.)	THERMOPLASTIC (SQ.FT.)	PREFORMED PLASTIC PAVEMENT MARKING (TYPE A) (SQ.FT.)	PREFORMED PLASTIC PAVEMENT MARKING (TYPE B) (SQ.FT.)		PREFORMED PLASTIC PAVEMENT MARKING (TYPE C) (SQ.FT.)
				(XS)	(WS)	
YELLOW	24	6082				
WHITE	153	10792	563	100	168	5687
TOTAL	177	16874	563	100	168	5687



Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		PAVEMENT MARKING TABULATION		Project No./Code	
Creation Date:	02/21/97	Initials:	PJN			No Revisions:				IM 0253-168	
Last Modification Date:	05/30/2003	Initials:	PJN			Revised:				13344	
Full Path:	025_H0V Project					Void:				Sheet Number 151	
Drawing File Name:	StripingTab.dwg					Designer:		PJN	Structure Numbers		
Scale:	NONE					Detailer:		PJN			
						Sheet Subset:			Subset	Sheet Number:	

TABULATION OF SIGNS

SIGN NO.	SIGN CODE	STATION	SIGN PANEL SIZE (IN)	BACK-GROUND COLOR	REMOVE GROUND SIGN PANEL (EACH)	RESET GROUND SIGN PANEL (EACH)	RESET SIGN PANEL (EACH)	NO. OF POSTS	LENGTH OF POST	STEEL SIGN POSTS			POST TYPE (LIN.FT.)					CONC FOOTING TYPE (EACH)							SIGN PANEL (SQ.FT.)								
										2" P	2.5" P1	2.5" P2	W6X15 BEAM	W8X18 BEAM	S3X5.7 BEAM	S3X7.5 BEAM	S4X7.7 BEAM	S4X9.5 BEAM	S5X10 BEAM	U-2	1	2	3	4	5	6	7	8	CLASS I	CLASS II	CLASS III		
1	SEE OVERHEAD SIGN TAB																																
2	48R2-1(55)	311+95	48 X 60	WHITE	1			1	10								10												20.00				
3	48W4-2R	317+90	48 X 48	YELLOW				1	12								12											16.00					
4	SPECIAL	308+00	48 X 60	WHITE				1	10								10											20.00					
5A	SPECIAL	310+00	48 X 12	WHITE				1	11								11											4.00					
5B	48W4-2L		48 X 48	YELLOW																										16.00			
6A	SPECIAL		48 X 12	WHITE																	11									4.00			
6B	48W9-2R	315+00	48 X 48	YELLOW				1	11																			16.00					
7	DELETED																																
8	DELETED																																
9	SEE OVERHEAD SIGN TAB																																
10	48W9-2L	323+00	48 X 48	YELLOW				1	10								10											16.00					
11	48W4-1L	324+00	48 X 48	YELLOW	1			1	13			13																16.00					
12	48W4-1R	332+50	48 X 48	YELLOW	1			1	13			13																16.00					
13	SPECIAL	325+70	48 X 60	WHITE				1	10								10											20.00					
14A	SPECIAL	327+20	48 X 72	WHITE				1	12								12											24.00					
14B	SPECIAL		48 X 18	WHITE																										6.00			
15A	SPECIAL		48 X 12	WHITE																	12									4.00			
15B	SPECIAL	338+90	48 X 48	GREEN																							16.00						
15C	36R5-1a		36 X 30	WHITE/RED																													
16	36R5-1a	338+90	36 X 30	WHITE/RED				1	9																			7.50					
17	48R4-7	340+50	48 X 60	WHITE				1	10								10											20.00			30.00		
18	SPECIAL	336+00	72 X 60	GREEN				2	12			24																					
19	SEE OVERHEAD SIGN TAB																																
20	SEE OVERHEAD SIGN TAB																																
21	36R5-1	340+55	36 X 36	WHITE/RED				1	10							10												9.00					
22	SEE OVERHEAD SIGN TAB																																
23	SEE OVERHEAD SIGN TAB																																
24	DELETED																																
25A	48W4-3L	358+80	48 X 48	YELLOW				2	13																			16.00					
25B	30M3-1a		30 X 12	BLUE																									2.50				
25C	36M1-1a(25)		36 X 36	BLUE																									9.00				
25D	21M6-2aL		21 X 15	BLUE											26														2.19				
25E	30M3-4a		30 X 12	WHITE																									2.50				
25F	36M1-4(36)		36 X 36	WHITE																									9.00				
25G	21M6-2aR		21 X 15	WHITE																									2.19				
26	DELETED																																
27	DELETED																																
28	DELETED																																
29	DELETED																																
30		364+50			1																												
31		365+90			1																												
32A	SPECIAL	366+30	48 X 12	WHITE																								4.00					
32B	48W-1R		48 X 48	YELLOW																								16.00					
32C	SPECIAL		48 X 12	WHITE	1																							4.00					
32D	SPECIAL		60 X 60	GREEN	1																									25.00			
33		373+90			1																												
34		374+20			1																												
PAGE SUB TOTALS=====					6	3						76				19	22	74		12								325.38	55.00				

NOTES: 1. POST LENGTHS ARE APPROXIMATE ONLY. EXACT LENGTHS TO BE DETERMINED BY THE ENGINEER.
2. LOCATION OF SIGNS ARE APPROXIMATE ONLY. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

Computer File Information

Creation Date: 08/01/2001

Initials: P/JN

Last Modification Date: 05/30/2003

Initials: P/JN

Full Path: 025_HOV Project

Drawing File Name: SignTab.dwg

Scale: NONE

Index of Revisions

Colorado Department of Transportation

Region 6 Traffic
2000 S HOLLY
Denver, CO 80222
Phone: 303-757-9511
FAX: 303-757-9907

As Constructed

No Revisions:

Revised:

Void:

TABULATION OF SIGNS

Project No./Code

IM 0253-168

Structure Numbers

13344

Sheet Subst: 1 OF 2

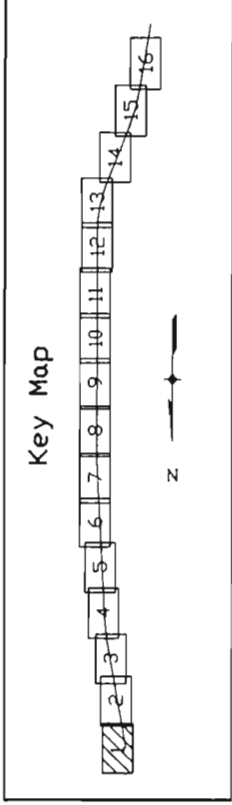
Sheet Number 152

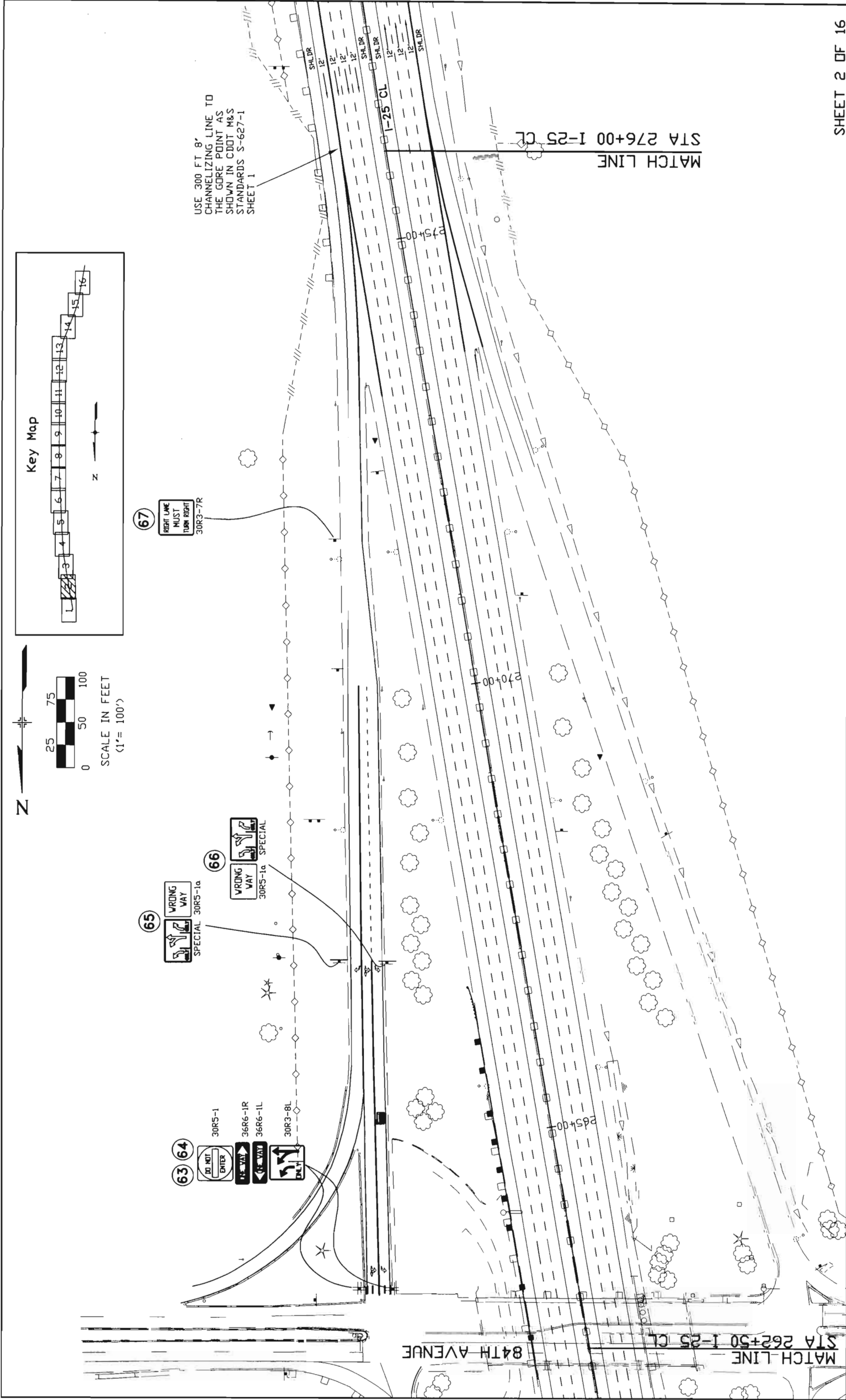
TABULATION OF SIGNS

SIGN NO.	SIGN CODE	STATION	SIGN PANEL SIZE (IN)	BACK-GROUND COLOR	REMOVE GROUND SIGN PANEL (EACH)	RESET GROUND SIGN PANEL (EACH)	RESET SIGN PANEL (EACH)	NO. OF POSTS	LENGTH OF POST	STEEL SIGN POSTS			POST TYPE (LIN.FT.)					CONC FOOTING TYPE (EACH)					SIGN PANEL (SQ.FT.)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
										2" P	2.5" P1	2.5" P2	W6X15 BEAM	W8X18 BEAM	S3X5.7 BEAM	S4X7.7 BEAM	S4X9.5 BEAM	S5X10 BEAM	U-2	1	2	3	4	5	6	7	8	CLASS I	CLASS II	CLASS III																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																				
35	SEE OVERHEAD SIGN TAB																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	

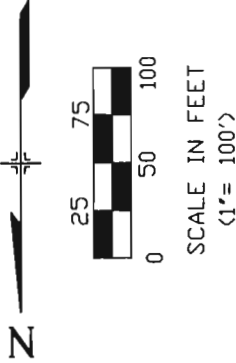
NOTES: 1. POST LENGTHS ARE APPROXIMATE ONLY. EXACT LENGTHS TO BE DETERMINED BY THE ENGINEER.
2. LOCATION OF SIGNS ARE APPROXIMATE ONLY. EXACT LOCATION TO BE DETERMINED BY THE ENGINEER.

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		TABULATION OF SIGNS		Project No./Code	
Creation Date:	08/01/2001	Initials:	PUN			No. Revisions:					IM 0253-168
Last Modification Date:	05/30/2003	Initials:	PUN			Revised:					13344
Full Path:	025_HOV Project					Designer:					
Drawing File Name:	SignTab.dwg					Detailer:					
Scale:	NONE					Sheet Subset: 2 OF 2					Sheet Number 153

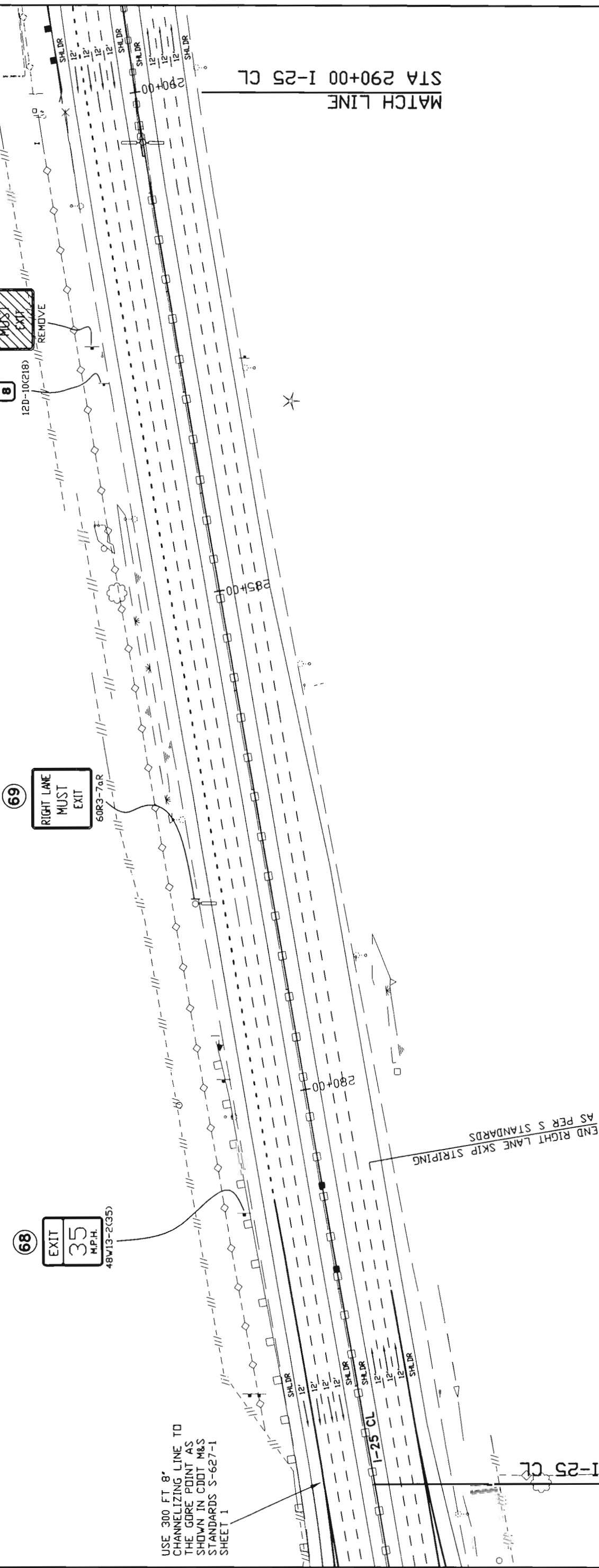




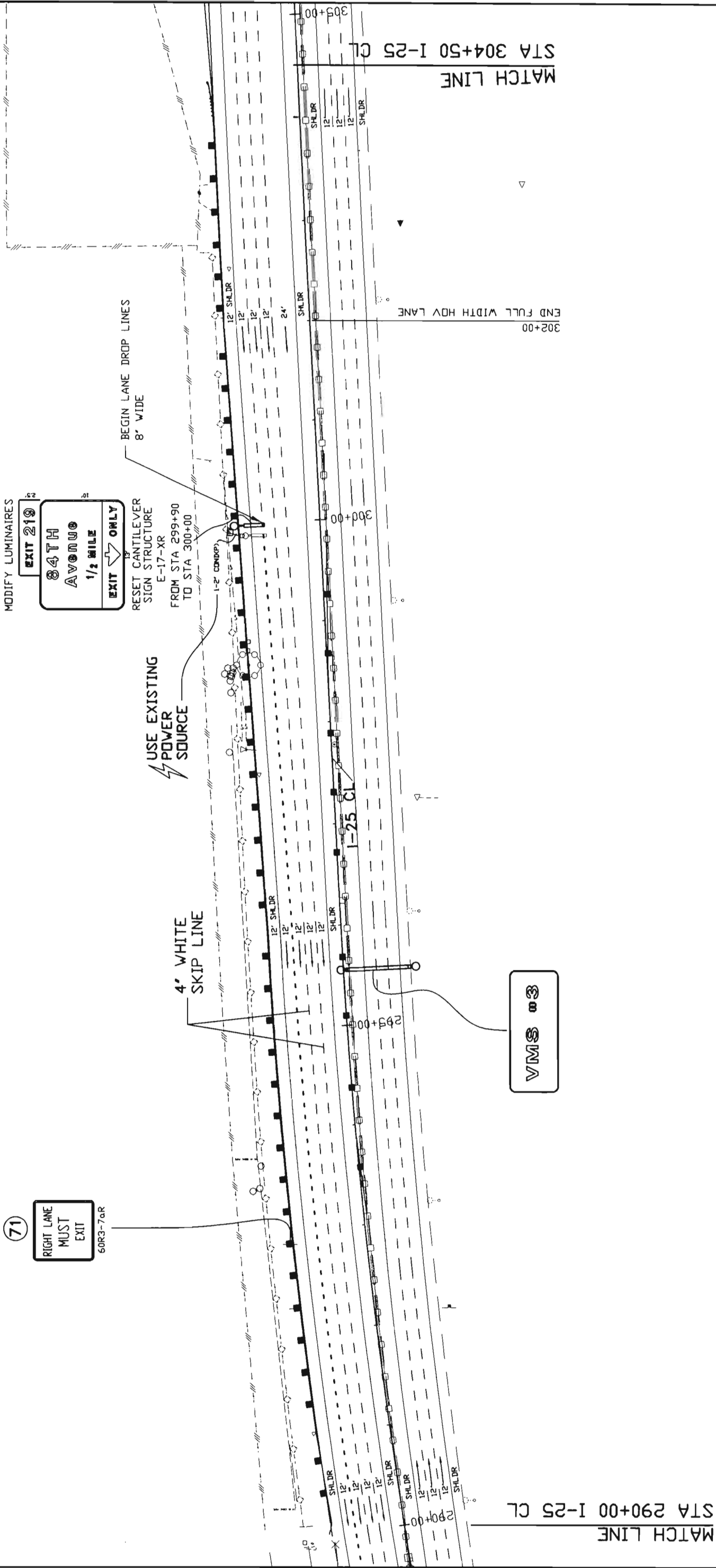
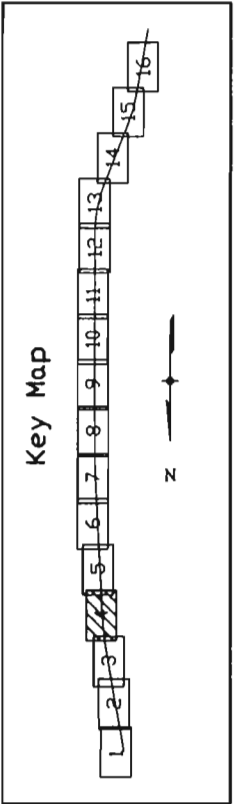
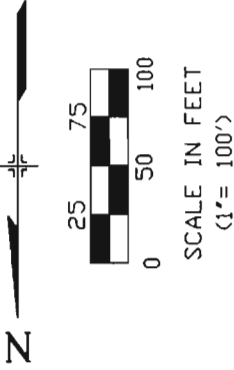
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Creation Date:	08/20/2001	Initials:	PJN			 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: 303-757-9511 FAX: 303-757-9907	No Revisions:		Designer: Detailer: Sheet Subset:		IM 0253-168		
Last Modification Date:	05/30/2003	Initials:	PJN										
Full Path:	HOV PROJECT												
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							Void:		Structure Numbers		13344		
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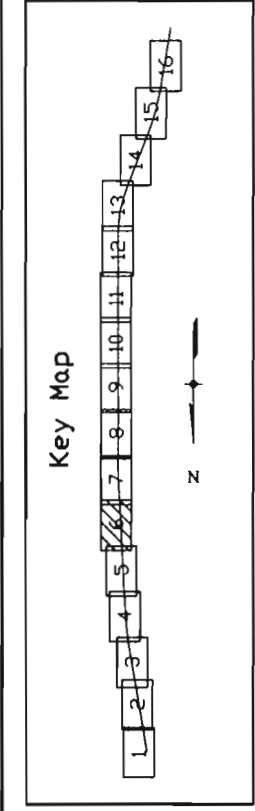
MODIFY LUMINAIRES



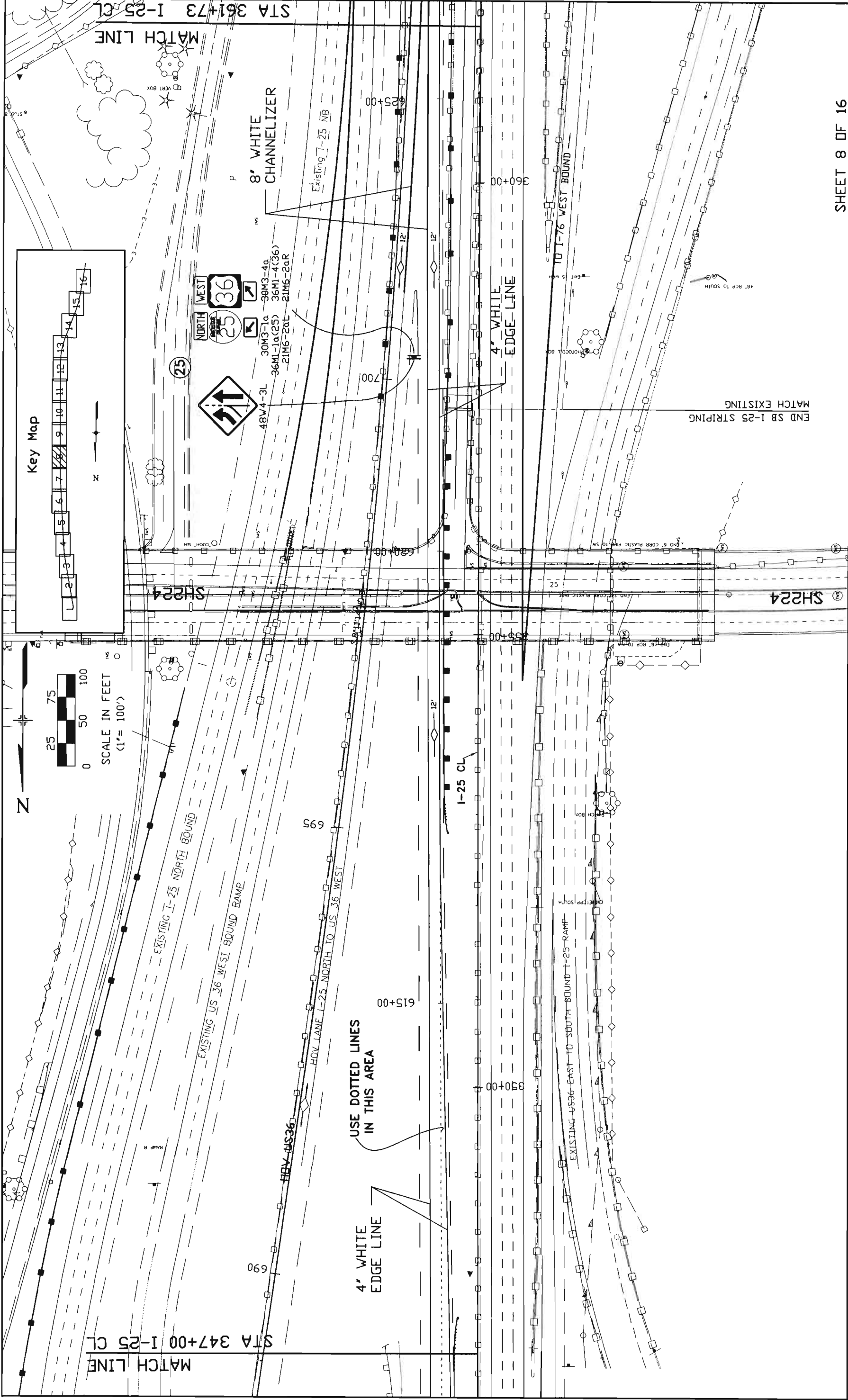
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Computer File Information			Index of Revisions		Colorado Department of Transportation			As Constructed		FINAL SIGNING AND STRIPING PLANS			Project No./Code		
Creation Date:	08/20/2001	Initials: PUN			 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: 303-757-9511 FAX: 303-757-9907			No Revisions:				IM 0253-168			
Last Modification Date:	05/30/2003	Initials: PUN						Revised:							
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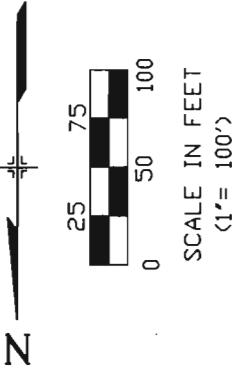
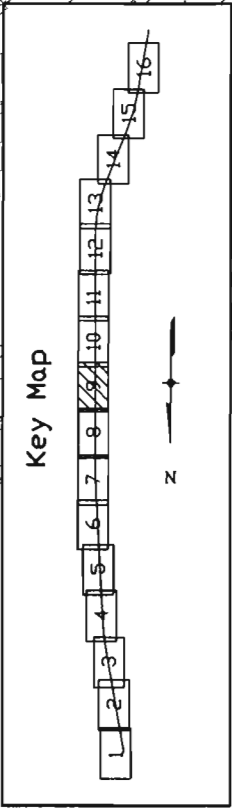
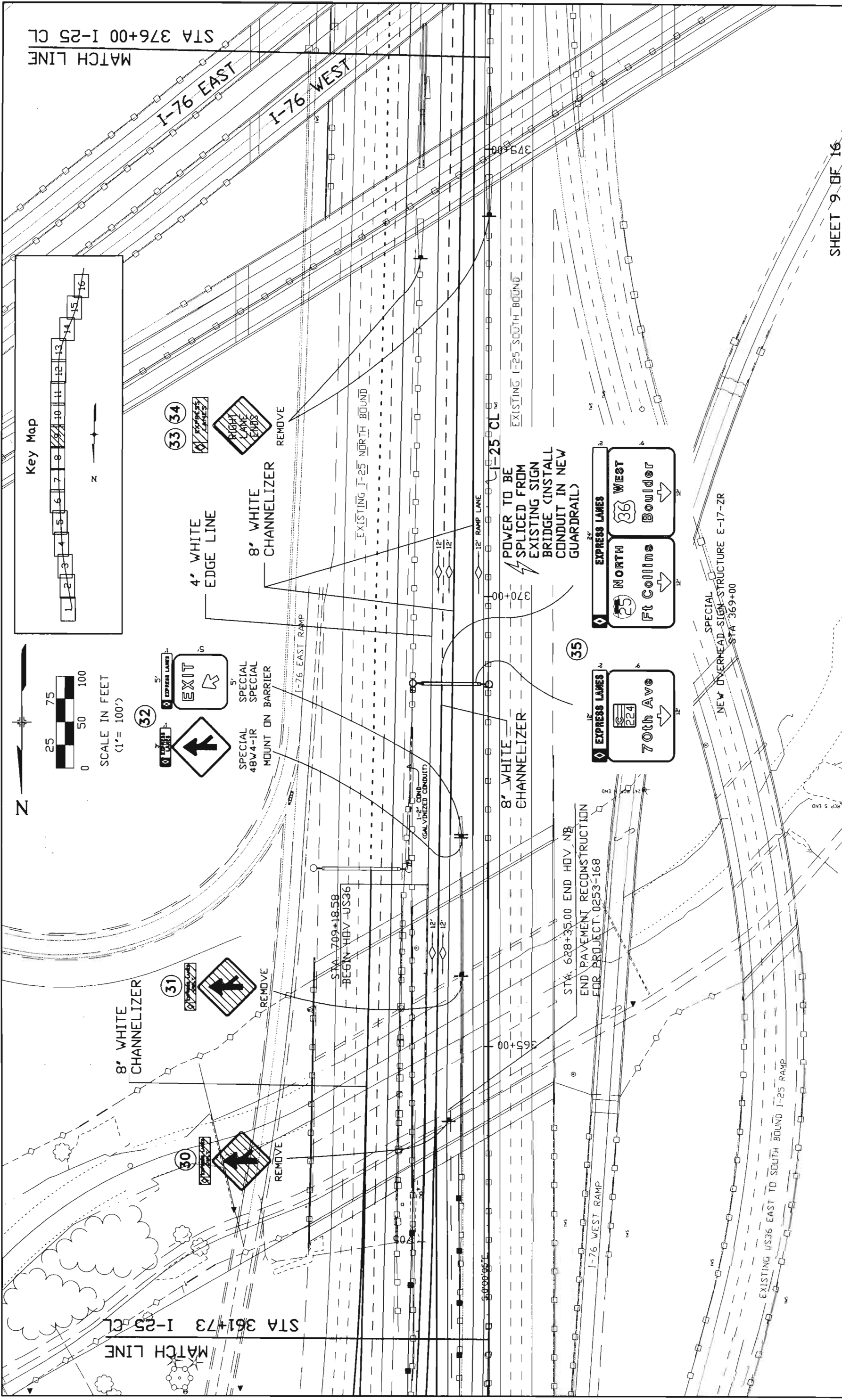


Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		FINAL SIGNING AND STRIPING PLANS		Project No./Code	
Creation Date:	08/20/2001	Initials:	PJN				No Revisions:			IM 0253-168	
Last Modification Date:	05/30/2003	Initials:	PJN								
Full Path:	HOV PROJECT								Designer:	Structure Numbers	13344
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Scale:	1:100								Sheet Subset:	Subset Sheet Number:	Sheet Number 161



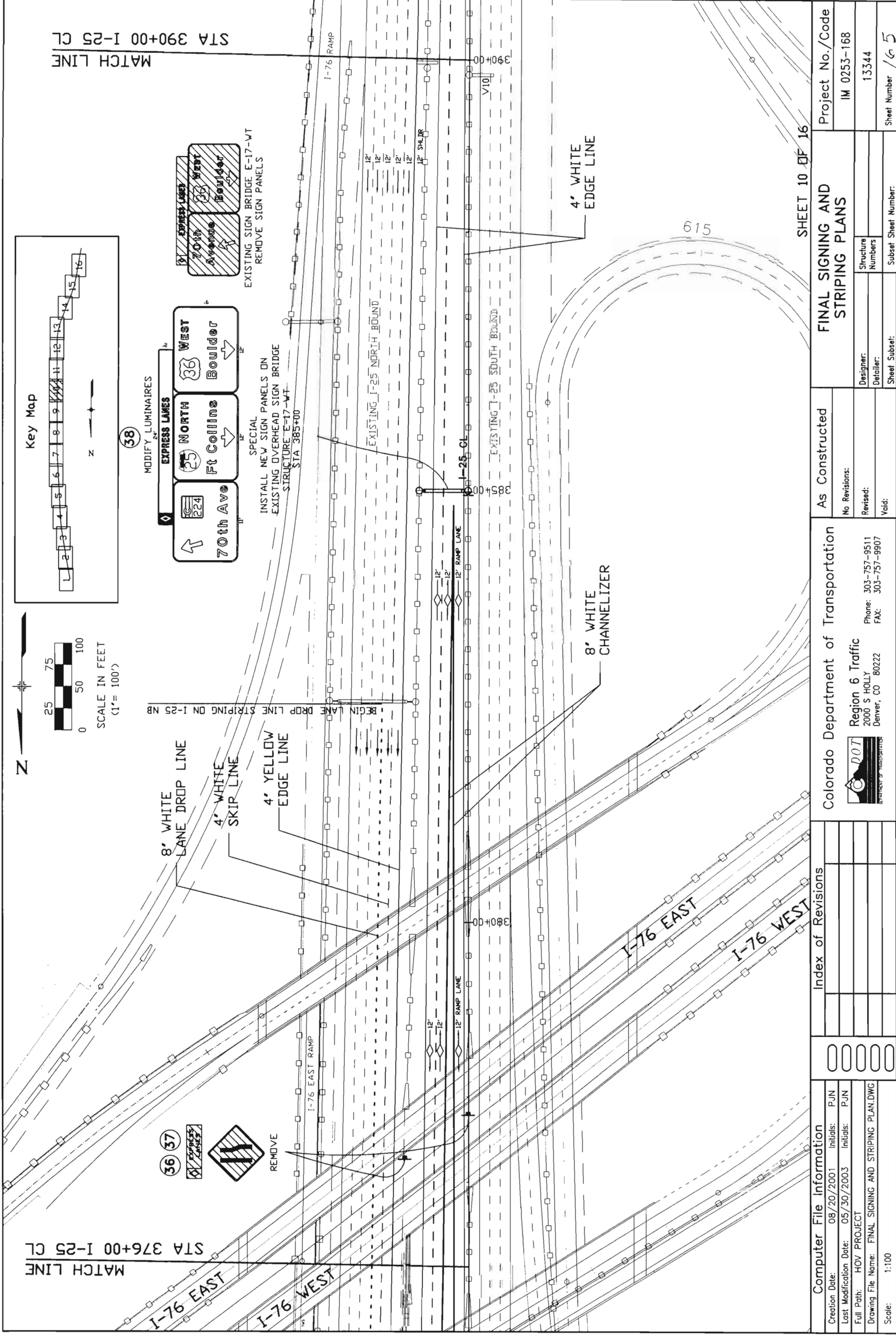
SHEET 8 OF 16

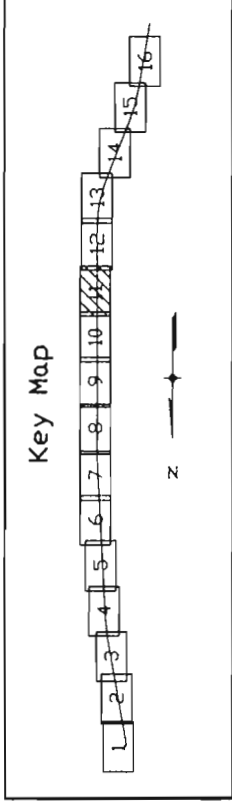
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Creation Date:	08/20/2001	Initials:											PUN	IM 0253-168
Last Modification Date:	05/30/2003	Initials:	PUN						No Revisions:					
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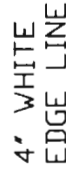
SHEET 9 OF 16

Computer File Information			Index of Revisions		As Constructed		FINAL SIGNING AND STRIPING PLANS		Project No./Code	
Creation Date:	08/20/2001	Initials: PUN				No Revisions:			IM 0253-168	
Last Modification Date:	05/30/2003	Initials: PUN								
Full Path:	HOV PROJECT						Designer:	Structure Numbers	13344	
Drawing File Name:	FINAL SIGNING AND STRIPING PLAN.DWG						Detailer:			
Scale:	1:100						Sheet Subset:	Subset Sheet Number:	Sheet Number	164

[illegible]



MATCH LINE



395+00

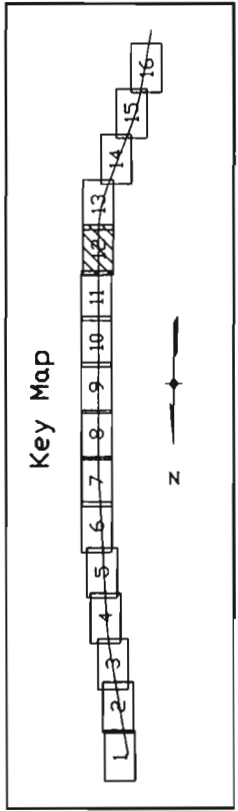
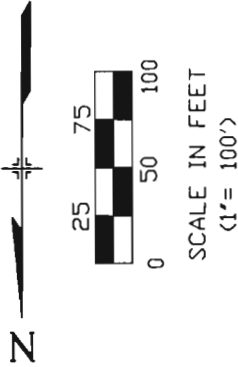
1-25-CL

EXPRESS LAMER

REMOVE FROM EXISTING VMS
SEE ITS SHEETS

SHEET 11 OF 16

Computer File Information		Index of Revisions		Colorado Department of Transportation		FINAL SIGNING AND STRIPING PLANS		Project No./Code	
Creation Date:	08/20/2001	Initials:	PJN						IM 0253-168
Last Modification Date:	05/30/2003	Initials:	PJN						
Full Path:	HOV PROJECT							Designer:	13344
Drawing File Name:	FINAL SIGNING AND STRIPING PLAN.DWG							Detailer:	
Scale:	1:100							Sheet Subst:	Sheet Number / 6



MATCH LINE
STA 404+50 I-25 CL

MATCH LINE
STA 419+00 I-25 CL

62ND AVENUE

EXISTING I-25 NORTH BOUND

EXISTING I-25 SOUTH BOUND

405+00
I-25 CL

419+00

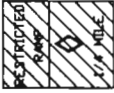
4' WHITE
SKIP LINE

4' YELLOW
EDGE LINE

4' YELLOW
EDGE LINE

REMOVE ALL
EXISTING STRIPING
IN THIS AREA
ASSOCIATED WITH
THE SOUTH BOUND
HOV ENTRANCE

40



REMOVE GROUND SIGN

41



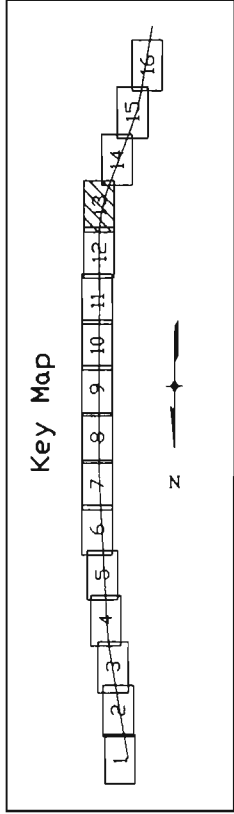
REMOVE SIGN PANELS

SHEET 12 OF 16

Computer File Information				Index of Revisions		Colorado Department of Transportation		As Constructed		FINAL SIGNING AND STRIPING PLANS		Project No./Code	
Creation Date:	08/20/2001	Initials:	PJN			 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: 303-757-9511 FAX: 303-757-9907		No Revisions:				IM 0253-168	
Last Modification Date:	05/30/2003	Initials:	PJN					Revised:		Designer:		13344	
Full Path:	HOV PROJECT							Void:		Detailer:		Sheet Number	
Drawing File Name:	FINAL SIGNING AND STRIPING PLAN.DWG									Subset Sheet Number:		167	
Scale:	1:100												

MATCH LINE
STA 419+00 I-25 CL

MATCH LINE
STA 433+00 I-25 CL



RAILROAD



REMOVE GROUND SIGN

4' WHITE SKIP LINE

4' YELLOW EDGE LINE

4' WHITE EDGE LINE

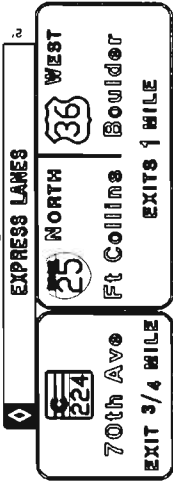
4' YELLOW EDGE LINE

4' WHITE EDGE LINE

4' YELLOW EDGE LINE

REMOVE ALL EXISTING STRIPING IN THIS AREA ASSOCIATED WITH THE SOUTH BOUND HOV ENTRANCE

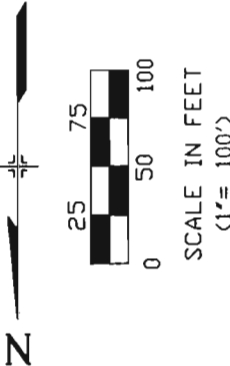
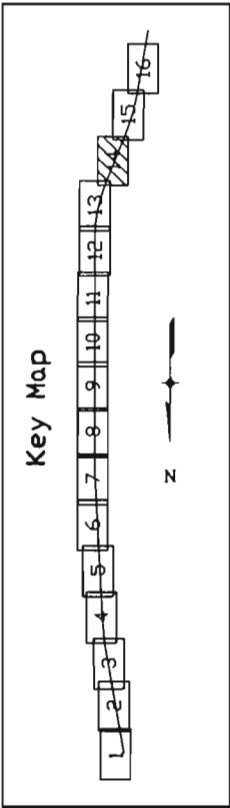
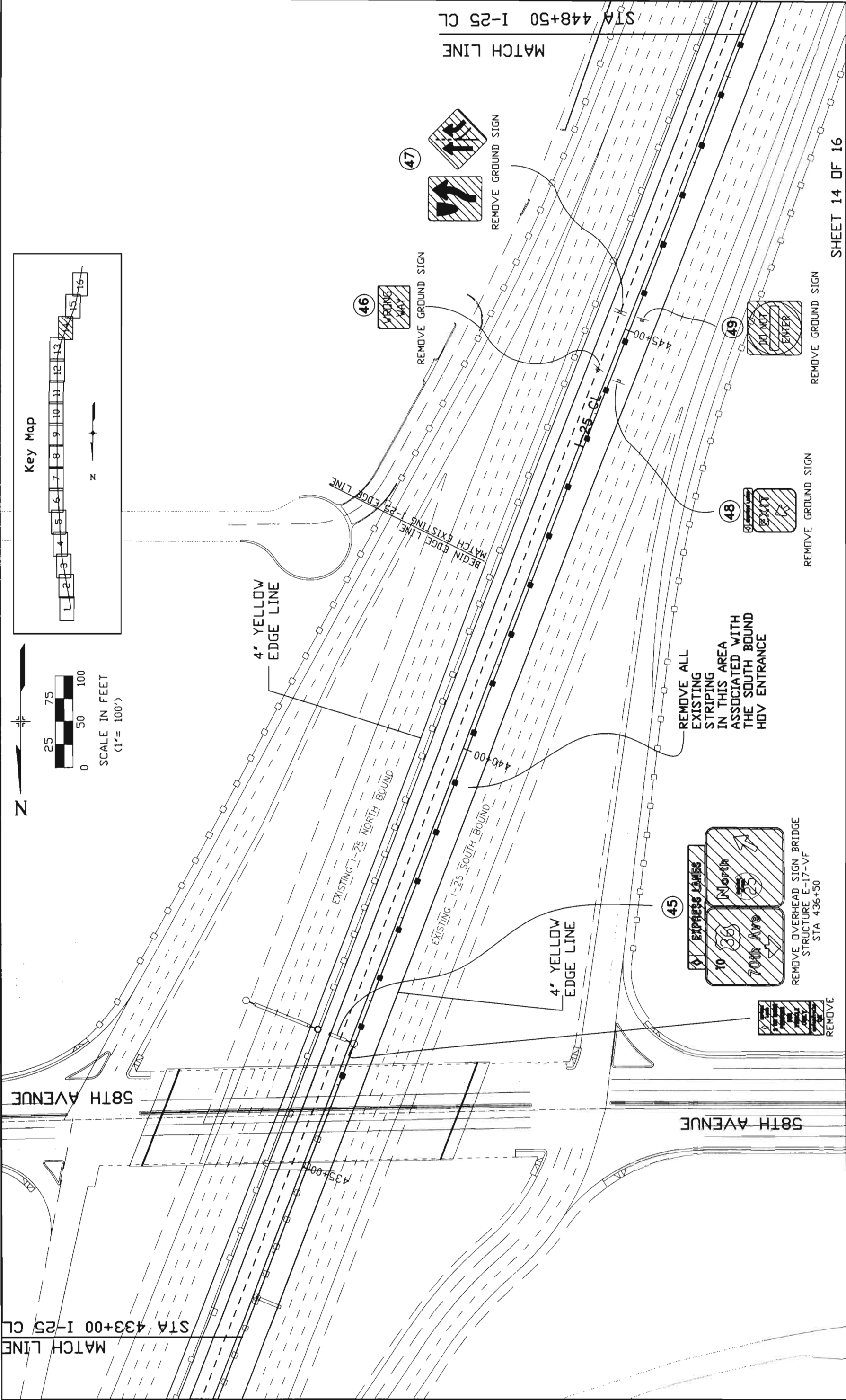
POWER TO BE SPLICED FROM EXISTING CAMERA STATION (INSTALL CONDUIT IN NEW GUARDRAIL)



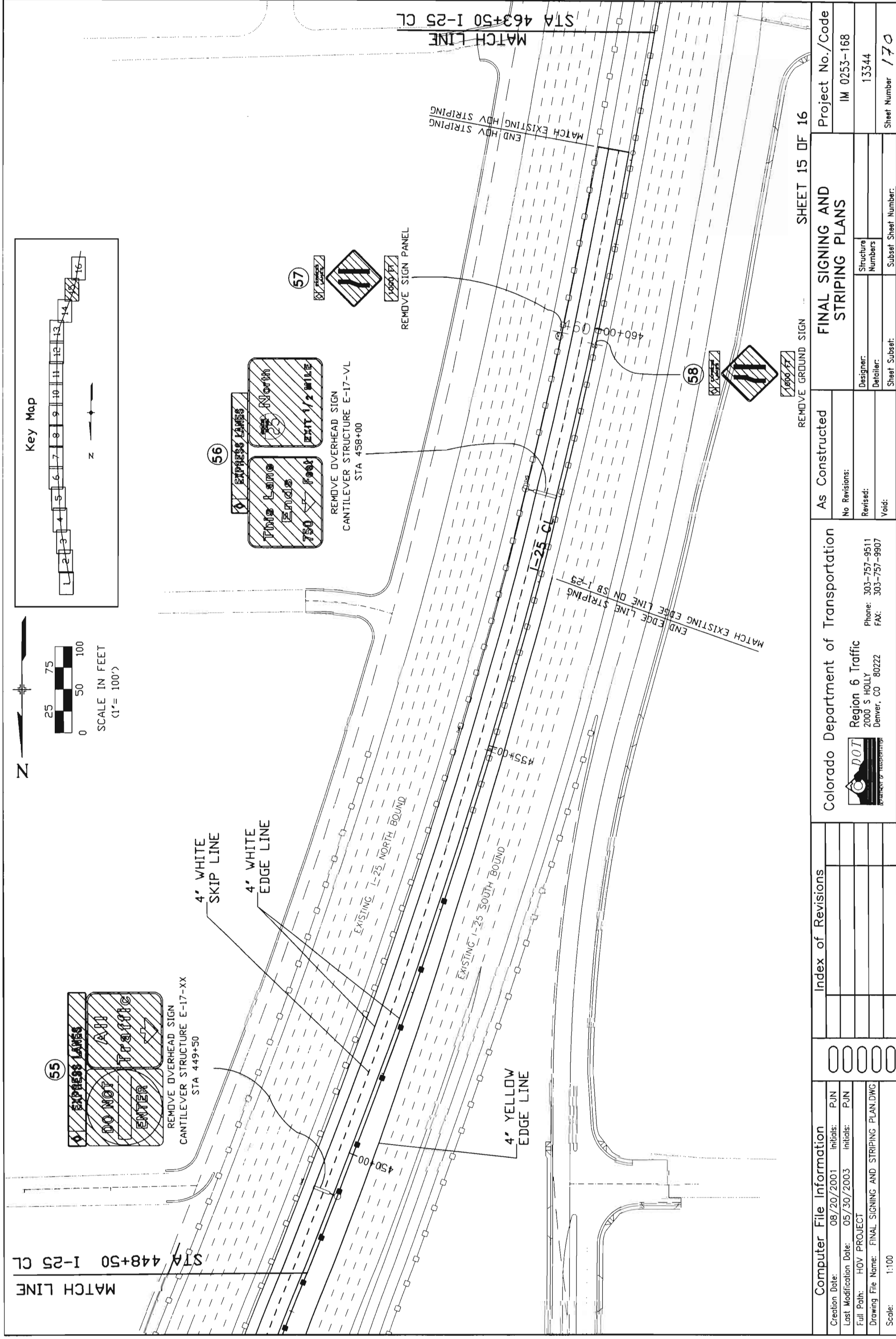
SPECIAL NEW OVERHEAD SIGN BRIDGE STRUCTURE E-17-ZQ STA 425+00

SHEET 13 OF 16

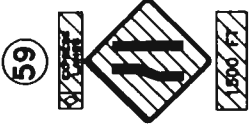
Computer File Information				Index of Revisions		Colorado Department of Transportation		FINAL SIGNING AND STRIPING PLANS		Project No./Code
Creation Date:	08/20/2001	Initials:	PJN			 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: 303-757-9511 FAX: 303-757-9907		As Constructed		IM 0253-168
Last Modification Date:	05/30/2003	Initials:	PJN							
Full Path:	HOV PROJECT									
Drawing File Name:	FINAL SIGNING AND STRIPING PLAN.DWG									
Scale:	1:100					Revised:		Designer:		Sheet Number
						Void:		Detailer:		13344
								Sheet Subset:		Sheet Number
										13344



Computer File Information				Index of Revisions		Colorado Department of Transportation  Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: 303-757-9511 FAX: 303-757-9907	As Constructed		FINAL SIGNING AND STRIPING PLANS		Project No./Code	
Creation Date:	08/20/2001	Initials:	PJN				No Revisions:				IM 0253-168	
Last Modification Date:	05/30/2003	Initials:	PJN				Revised:		Designer:		13344	
Full Path:	HOV PROJECT						Void:		Detailer:			
Drawing File Name:	FINAL SIGNING AND STRIPING PLAN.DWG						Sheet Subset:		Sheet Number		16-9	
Scale:	1:100							Subset Sheet Number:				



MATCH LINE
STA 463+50 I-25 CL



59

REMOVE SIGN PANEL

1500/17

REMOVE SIGN PANEL

EXISTING I-25 NORTH BOUND

EXISTING I-25 SOUTH BOUND

I-25 CL

470+00

475+00

61

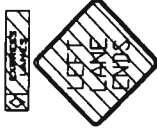


REMOVE GROUND SIGN

1500/17

REMOVE GROUND SIGN

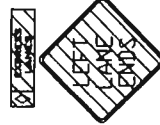
60



1500/17

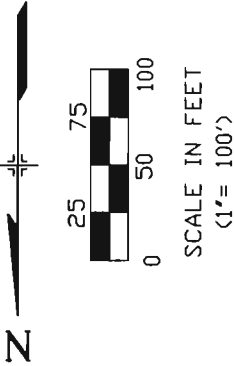
REMOVE GROUND SIGN

62

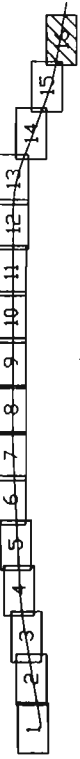


1500/17

REMOVE GROUND SIGN



Key Map



z

SHEET 16 OF 16

Computer File Information				Index of Revisions		Colorado Department of Transportation		As Constructed		FINAL SIGNING AND STRIPING PLANS		Project No./Code	
Creation Date:	08/20/2001	Initials:	PJN			 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: 303-757-9511 FAX: 303-757-9907		No Revisions:		Designer: Defailer:		IM 0253-168	
Last Modification Date:	05/30/2003	Initials:	PJN										
Full Path:	HOV PROJECT												
Drawing File Name:	FINAL SIGNING AND STRIPING PLAN.DWG												
Scale:	1:100					Sheet Number: 171		Sheet Subset:				Sheet Number 171	

SIGN NO1

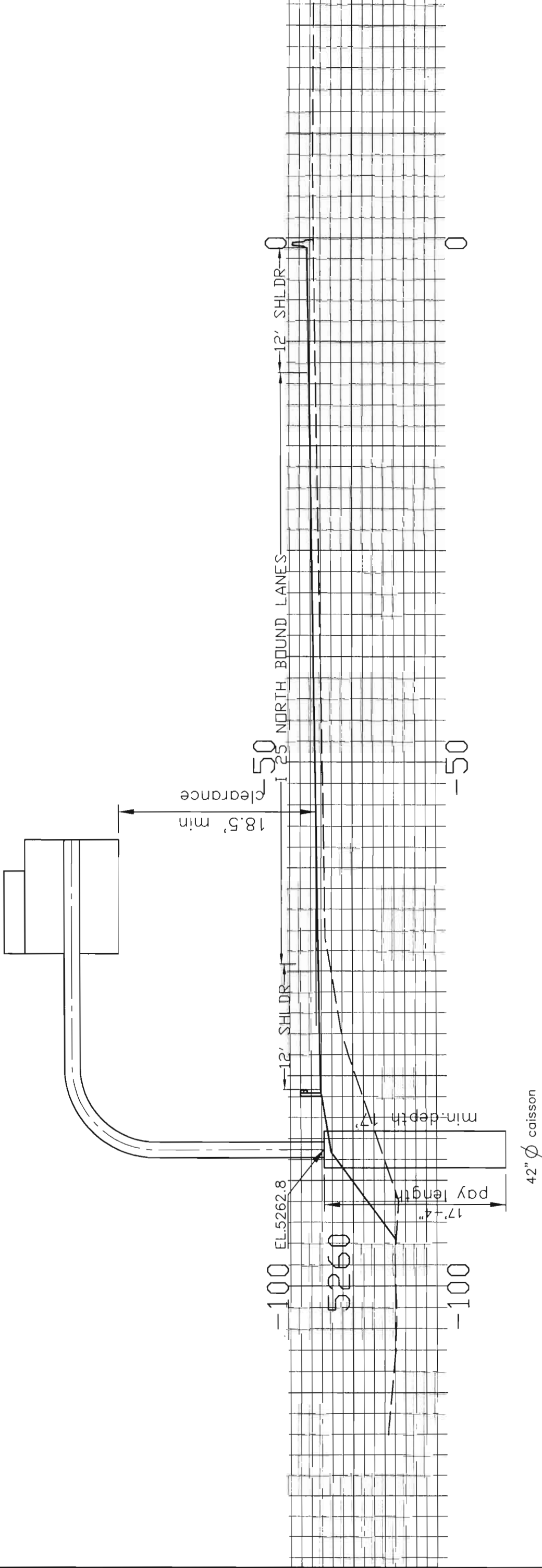
STATION300+00 (I25--NB)

STR NOE-17-XR

NOTE:

RESET STRUCTURE

FROM STA 299+90



Computer File Information				Index of Revisions		Colorado Department of Transportation				As Constructed				E-17-XR CANTILEVER CROSS SECTION				Project No./Code	
Creation Date:		04/26/02		Initials:		AK						No Revisions:				IM 0253-168			
Last Modification Date:		5/30/2003		Initials:		AK													
Full Path:		H0V Project										Revised:				13344			
Drawing File Name:		125sec30000_1.dwg										Void:							
Scale:		1" = 10' - 0" Verticle and Horizontal														Sheet Number / 72			



Region 6 Traffic

2000 S HOLLY

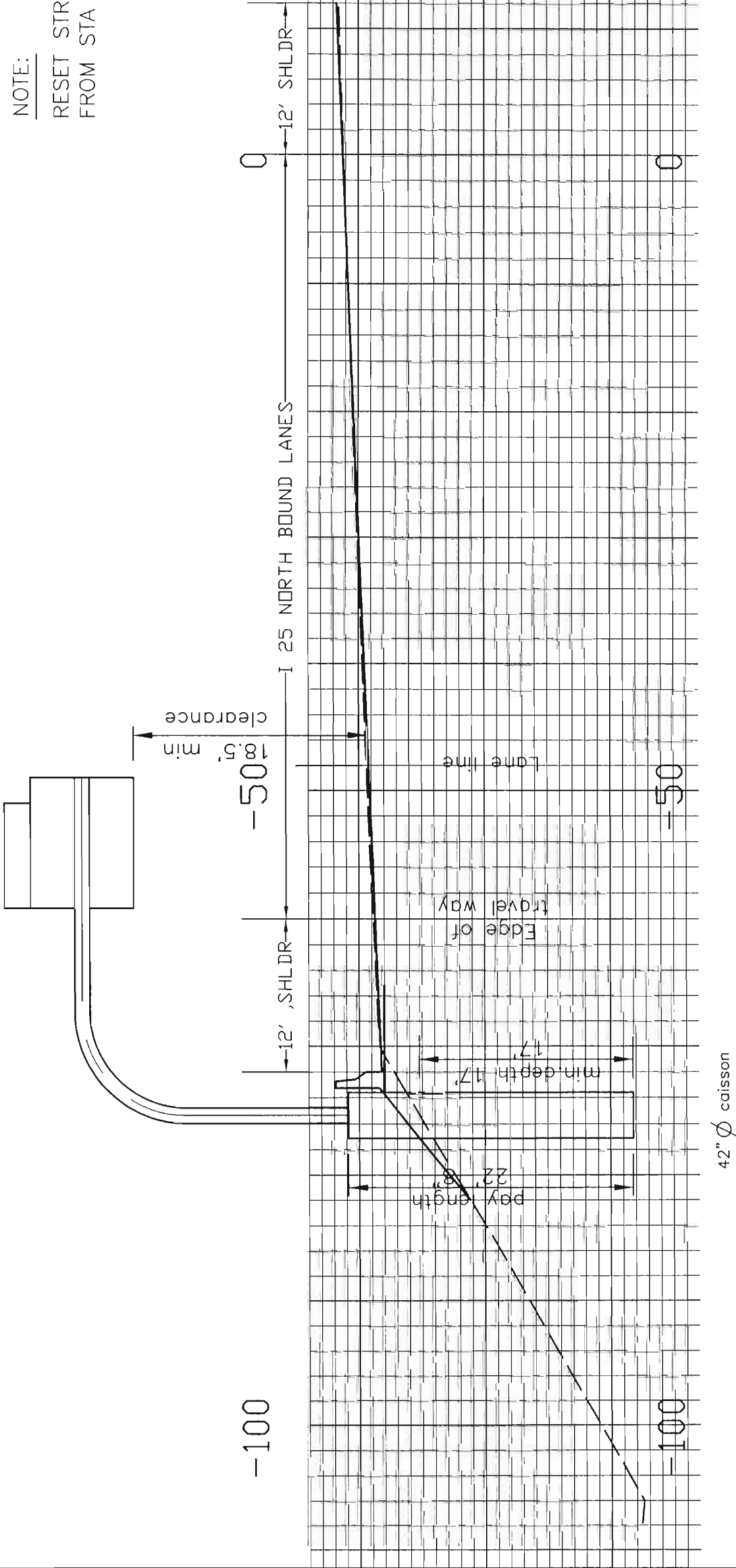
Denver, CO 80222

Phone: (303) 757-9511

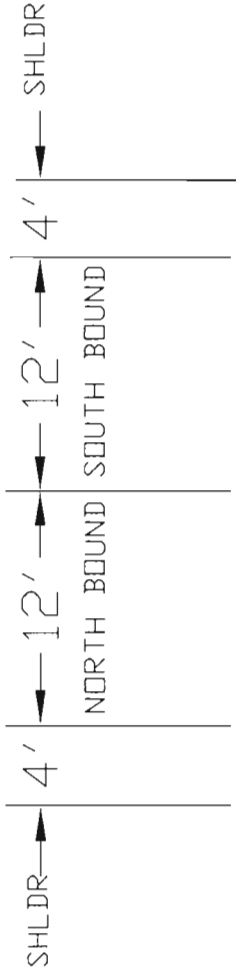
FAX: (303) 757-9907

SIGN NO 9
STATION 319+00
STR NO E-17-XS
POLE DIAMETER

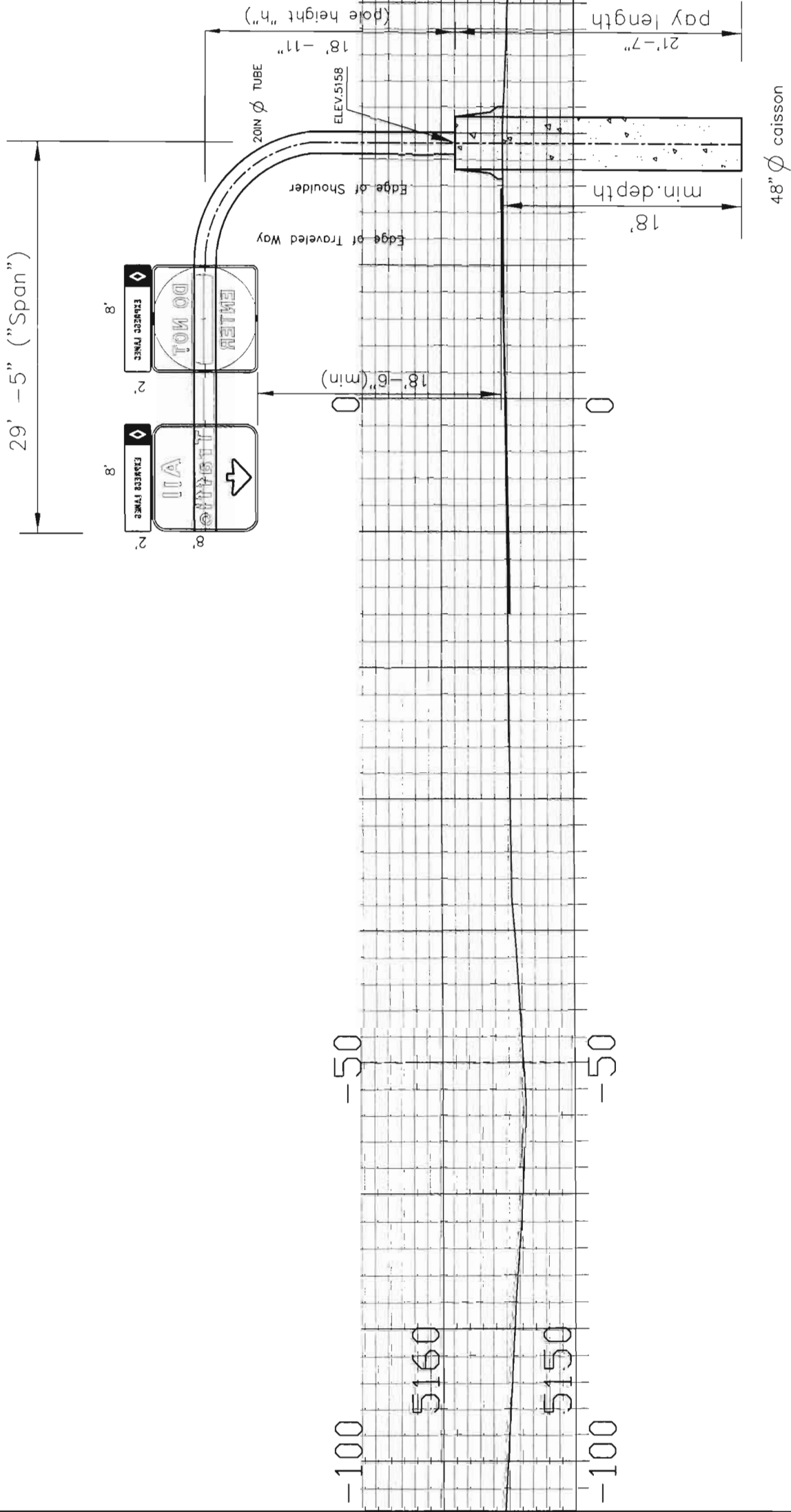
NOTE:
RESET STRUCTURE
FROM STA 311+95



Computer File Information				Index of Revisions				Colorado Department of Transportation				As Constructed		E-17-XS CANTILEVER CROSS SECTION				Project No./Code	
Creation Date:		04/26/02		Initials:		AK						No Revisions:				IM 0253-168			
Last Modification Date:		05/30/2003		Initials:		AK						Revised:				13344			
Full Path:		H0V Project										Designer:		AK		Structure Numbers			
Drawing File Name:		I25sect131900_1.dwg										Detailer:		AK		Sheet Number			
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												Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: (303) 757-9511 FAX: (303) 757-9907							

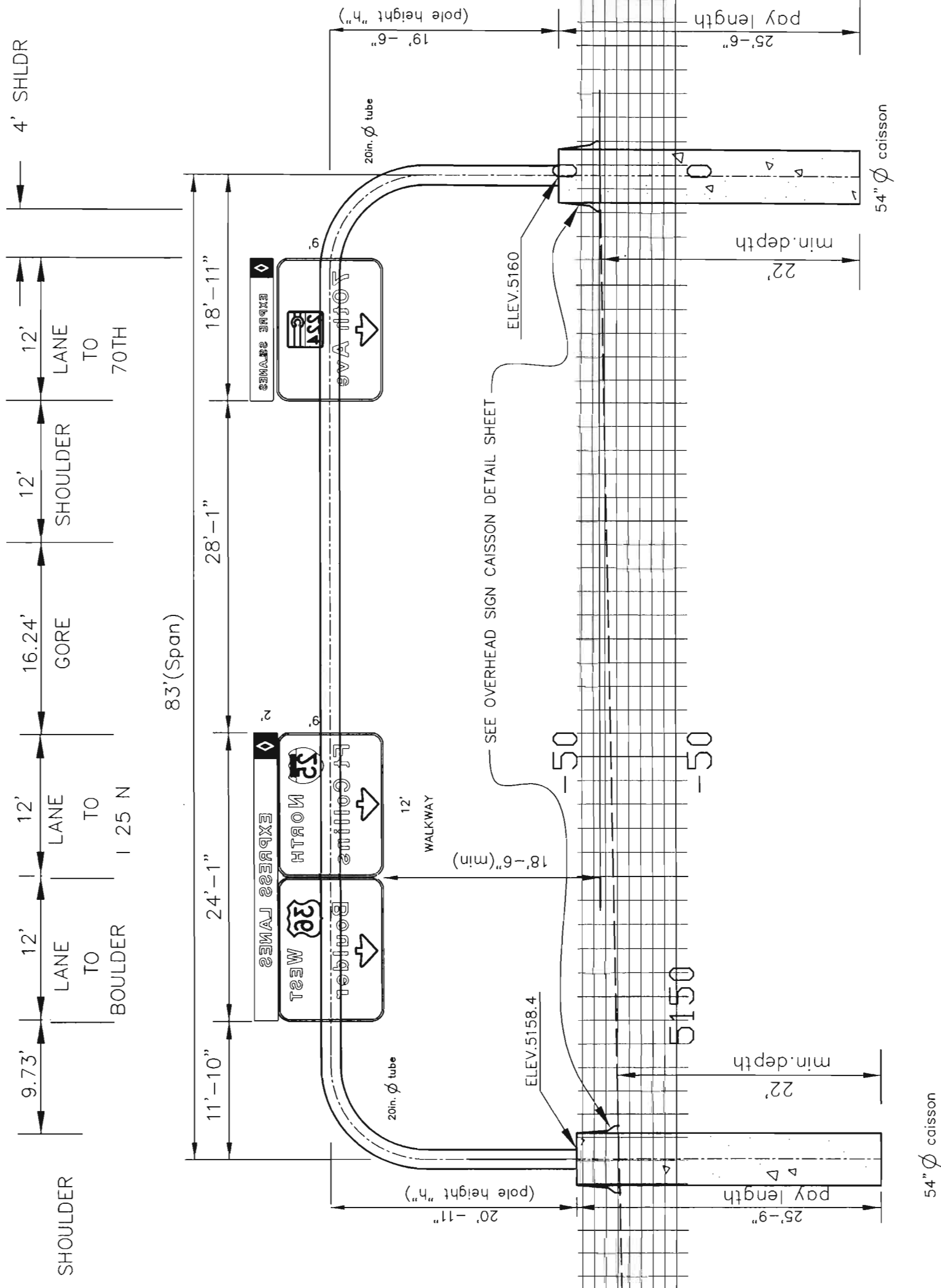


SIGN NO 22
STATION 345+43 (609+50)
STR NO E-17-ZS
POLE DIAMETER 20 IN



Computer File Information				Index of Revisions		Colorado Department of Transportation				As Constructed		E-17-ZS CANTILEVER CROSS SECTION				Project No./Code					
Creation Date:		02/03/01		Initials: AK						 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: (303) 757-9511 FAX: (303) 757-9907				No Revisions:				IM 0253-168		Project No./Code	
Last Modification Date:		05/30/2003		Initials: AK										Revised:				13344			
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Drawing File Name:		125sec60950_1.dwg												Void:				Sheet Subset:			
Scale:		1" = 10' - 0"		Vehicle and Horizontal												Subset Sheet Number:				Sheet Number	

SIGN NO	35
STATION	369+00
STR NO	E-17-ZR
POLE DIAMETER	20 IN



Computer File Information		Index of Revisions					
Creation Date:	04/05/01	Initials:	AK	☐			
Last Modification Date:	05/30/2003	Initials:	AK	☐			
Full Path:	HQV Project			☐			
Drawing File Name:	I25sect36900.dwg			☐			
Scale:	1" = 10' - 0" Vertical and Horizontal						

Colorado Department of Transportation



Region 6 Traffic
2000 S HOLLY
Denver, CO 80222

Phone: (303) 757-9511
FAX: (303) 757-9907

E-17-ZR BRIDGE CROSS SECTION

As Constructed

No Revisions:

Revised:

Void:

Designer: AK

Detailed: AK

Sheet Subset:

Structure Numbers

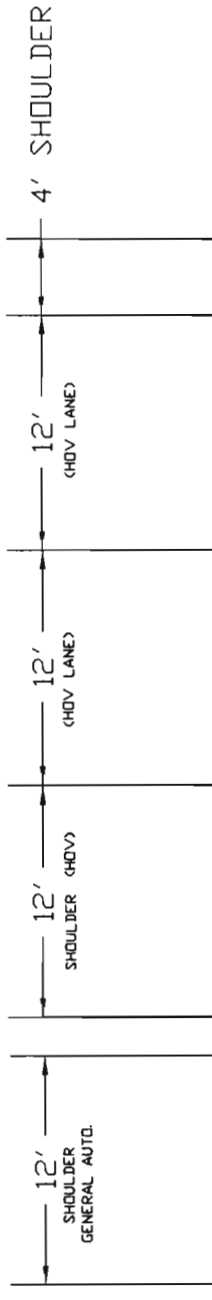
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Project No./Code

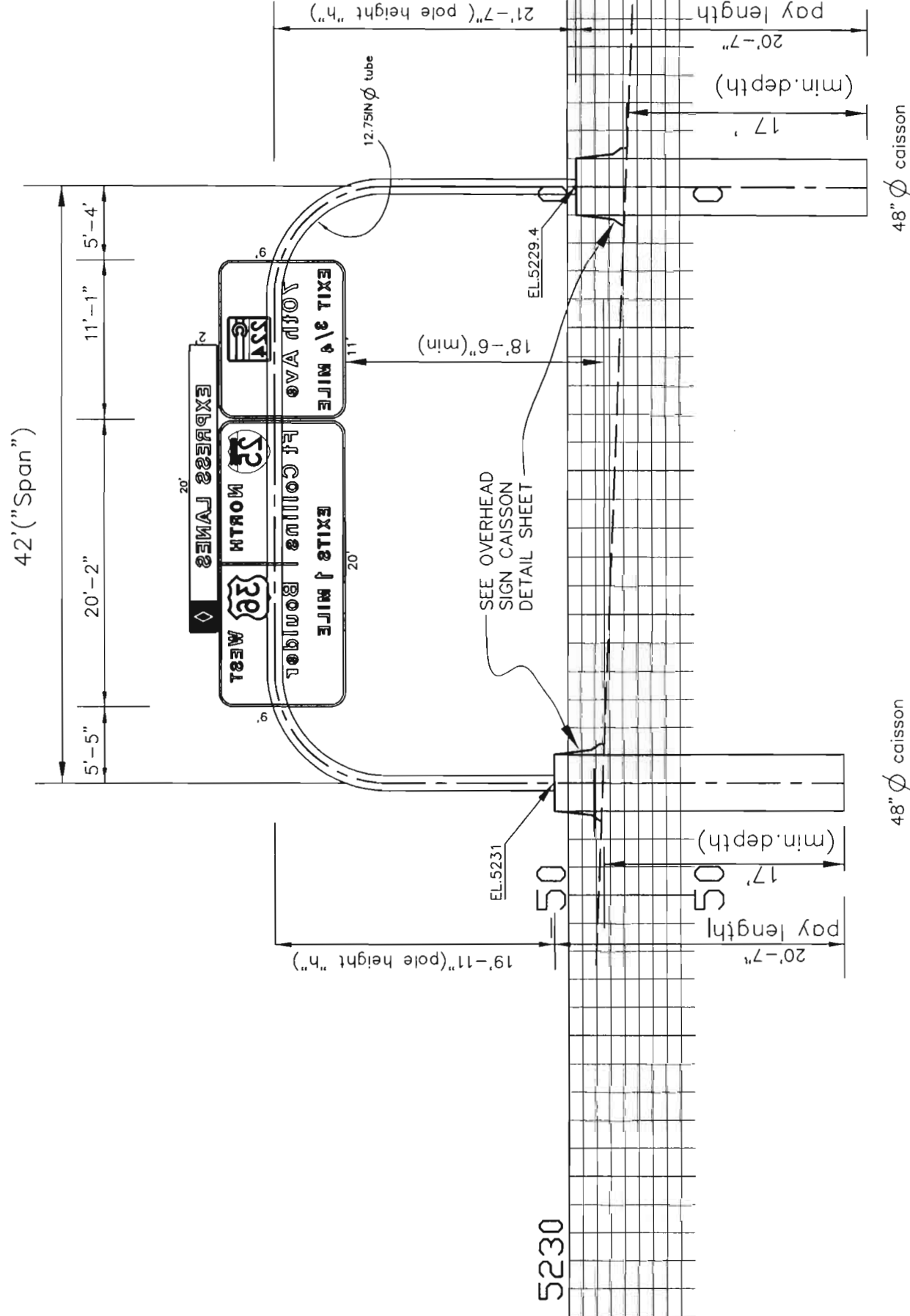
IM 0253-168

13344

Sheet Number / 75



SIGN NO	44
STATION	425+00
STR NO	E-17-ZQ
POLE DIAMETER	12.75 IN



Computer File Information					
Creation Date:	08/06/01	Initials:	AK		
Last Modification Date:	05/30/2003	Initials:	AK		
Full Path:	HQV Project				
Drawing File Name:	I25sect42500_1.dwg				
Scale:	1" = 10' - 0"	Vertical and Horizontal			

Index of Revisions	



Region 6 Traffic
2000 S HOLLY
Denver, CO 80222

Phone: (303) 757-9511
FAX: (303) 757-9907

As Constructed	
No Revisions:	
Revised:	
Void:	

E-17-ZQ BRIDGE CROSS SECTION			
Designer:	AK	Structure Numbers	
Detailed:	AK		
Sheet Subset:		Subset Sheet Number:	

Project No./Code
IM 0253-168
13344
Sheet Number 176

GENERAL NOTES

THE CONTRACTOR SHALL RESPONSIBLE FOR THE STABILITY OF THE STRUCTURE DURING CONSTRUCTION. DIMENSIONS CONTAINED IN THESE PLANS ARE CALCULATED FROM THE " AS CONSTRUCTED PLANS," (STRUCTURE NO. E-17-QM). THESE 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.

AS-CONSTRUCTED PLANS SHOW TWO 2" Ø CONDUITS EMBEDDED NEAR EDGE OF THE DECK. THE CONTRACTOR SHALL TAKE PRECAUTIONS TO AVOID DAMAGING THE CONDUITS.

ALL STRUCTURAL STEEL, BOLTS, NUTS, AND WASHERS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH THE SPECIFICATIONS.

PRIOR TO FABRICATION, SIX SETS OF SHOP DRAWINGS, WHICH COMPLY WITH THE REQUIREMENTS OF SECTION 105.02 OF THE STANDARD SPECIFICATIONS, SHALL BE SUBMITTED TO THE DEPARTMENT OF TRANSPORTATION. ONE SET SHALL BE SENT TO THE CDOT STAFF MATERIALS BRANCH MATERIALS INSPECTION UNIT 4340 E. LOUISIANA AVE., DENVER, CO 80222. ONE SET TO STAFF BRIDGE BRANCH, 4201 E. ARKANSAS AVE., DENVER, CO 80222. FOUR SETS SHALL BE SENT TO THE ENGINEER.

SUMMARY OF QUANTITIES

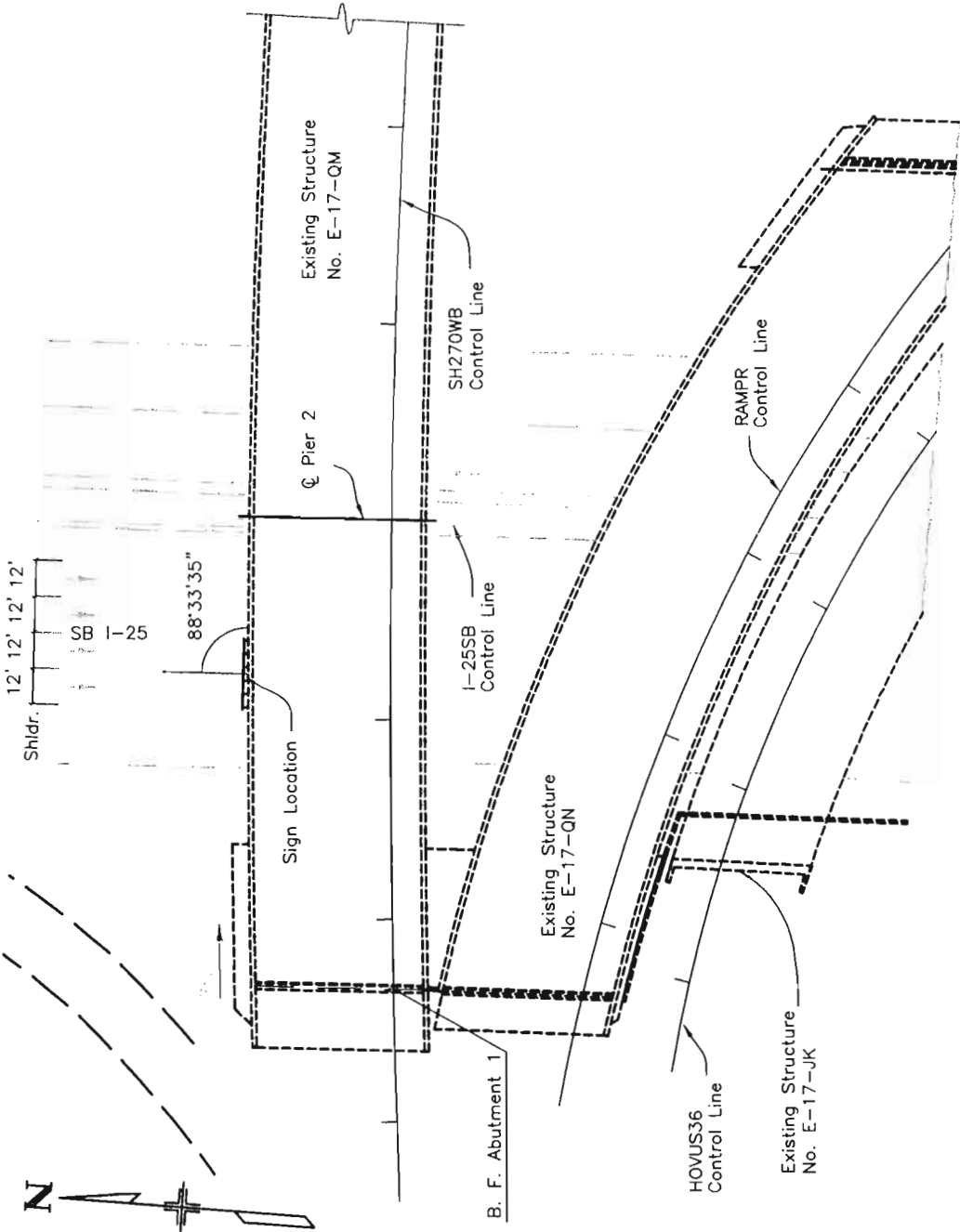
ITEM NO.	DESCRIPTION	UNIT	TOTAL
614	OVERPASS MOUNTED SIGN BRACKET	EACH	1

INDEX OF DRAWINGS

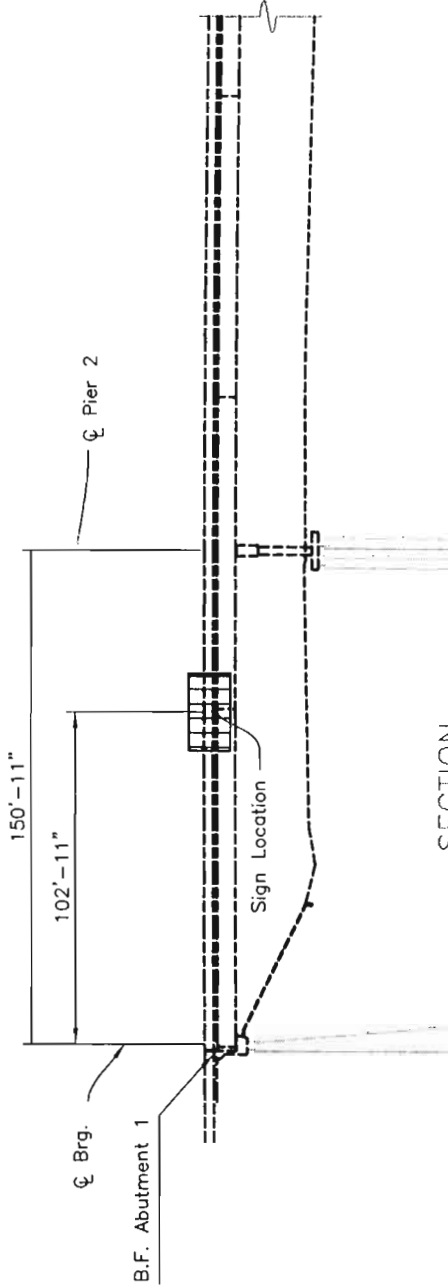
DWG. NO. B1 SIGN MOUNTING BRACKET ON STRUCTURE E-17-QM
DWG. NO. B2 SIGN MOUNTING BRACKET DETAILS

DESIGN DATA

AASHTO, 16th EDITION
DESIGN METHOD: WORKING STRESS DESIGN
WIND LOAD: 35 psf
STRUCTURAL STEEL: AASHTO M-183 (ASTM A-36)
Fy = 36,000 psi



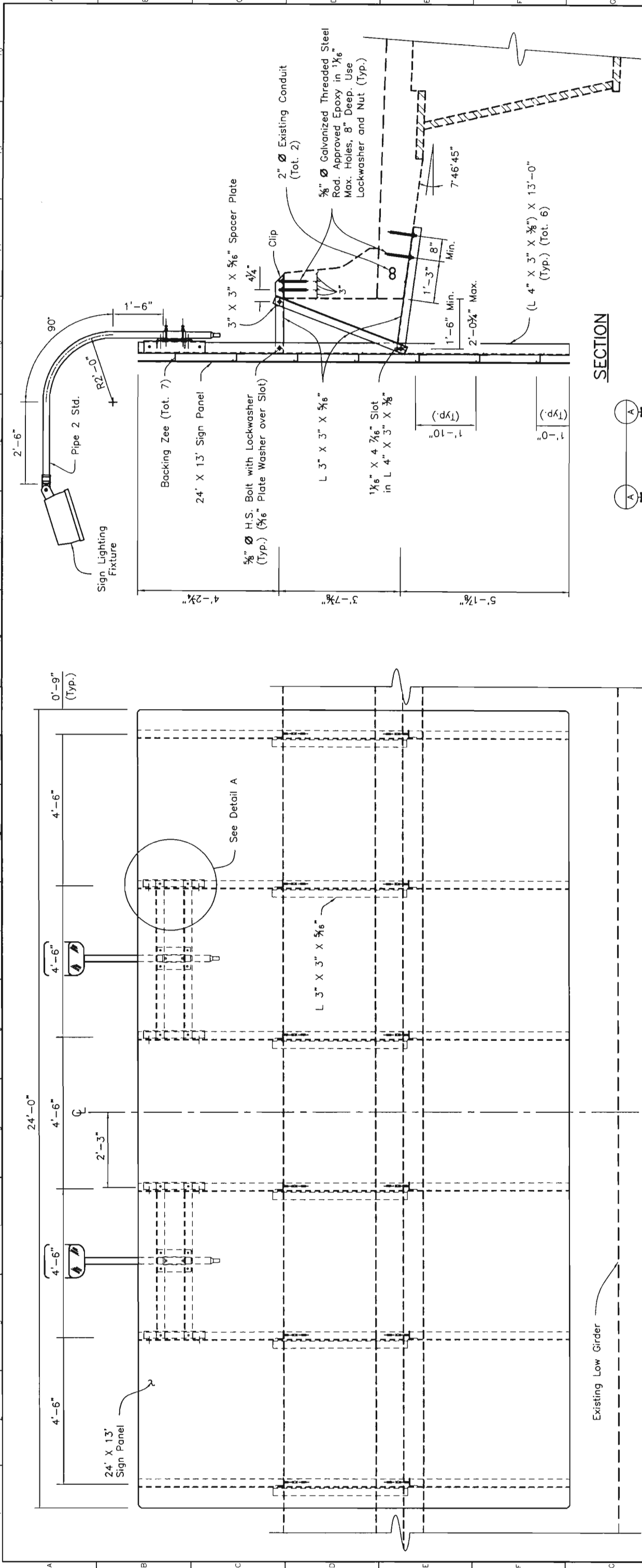
PLAN



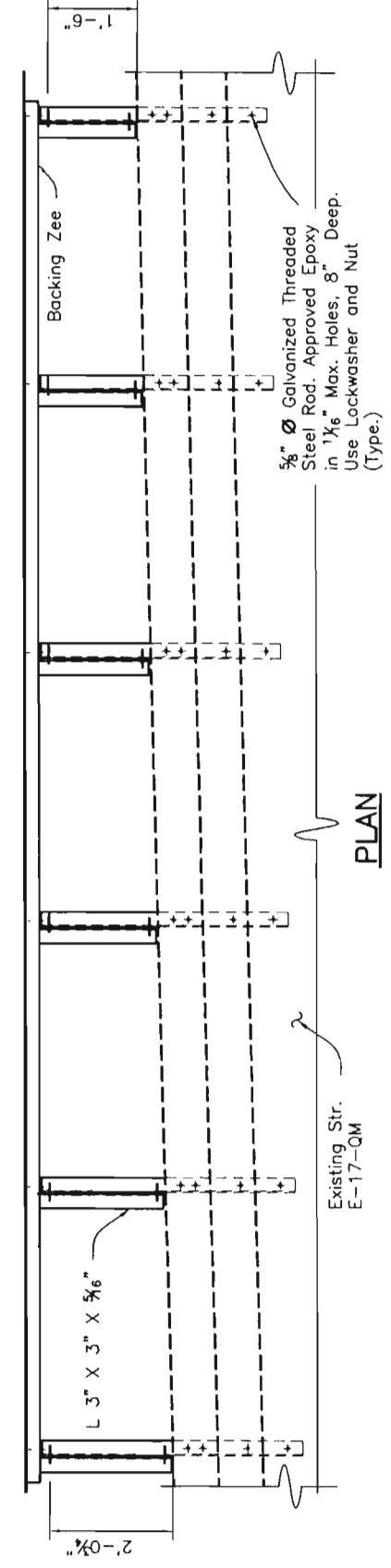
SECTION

Taken at SH270WB Control Line

Computer File Information				Sheet Revisions		 CDOT COLORADO DEPARTMENT OF TRANSPORTATION 4201 East Arkansas Avenue, Room 330 Denver, Colorado 80222-3400 Phone: 303-757-9352 FAX: 303-757-9197 Staff Bridge Branch	As Constructed		SIGN MOUNTING BRACKET ON STRUCTURE E-17-QM		Project No./Code
Creation Date:	04/01	Initials:	HB				No Revisions:			IM 0253-158	
Last Modification Date:	04/13/2003	Initials:	HB				Revised:	05/02			
Full Path:	C:\PROJECTS\						Designer:	H Bui	Structure Numbers	13344	
Drawing File Name:	Bracket-detail.dwg			Layout	1		Developer:	H Bui			
Acad Ver	V. 2000	Scale:	VARIABLES	Units:	English	Sheet Subst:	Bridge	Subset Sheets:	8 1 of 2	Sheet Number	177

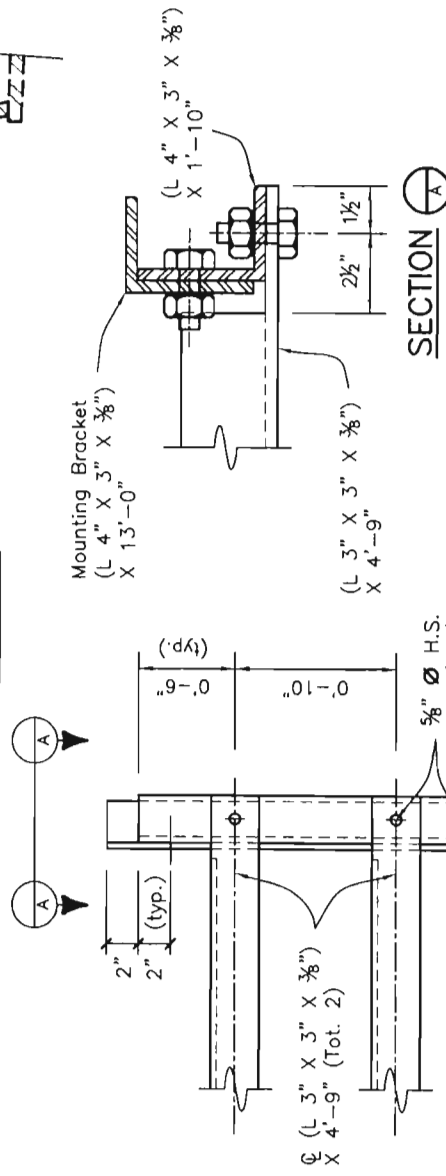


ELEVATION



PLAN

SECTION



SECTION A

NOTE:
For additional overhead lighting details on this structure, see the latest version Standard S-614-50.

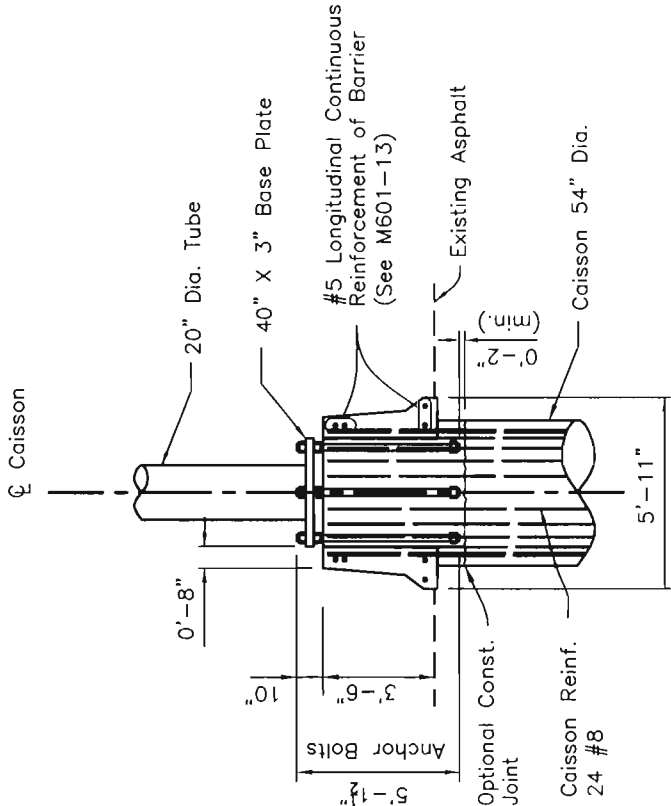
DETAIL A

Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed		SIGN MOUNTING BRACKET DETAILS		Project No./Code	
Creation Date:	04/01	Initials:	HB					 4201 East Arkansas Avenue, Room 330 Denver, Colorado 80222-3400 Phone: 303-757-9352 FAX: 303-757-9197 STAFF BRIDGE BRANCH	File Revisions:				IM 0253-168	
Last Modification Date:	04/15/2003	Initials:	HB						Revised:					
Full Path:	C:\PROJECTS\								Detailer:				13344	
Drawing File Name:	Bracket-detail.Dwg/Layout 2								Detailer:					
Acad Ver.	V 2000	Scale:	VARIES	Units:	English				Sheet Subset:		Bridge	Sheet Number	178	

NOTE:
For details of the Sign Bridges, see Standard S-614-50.

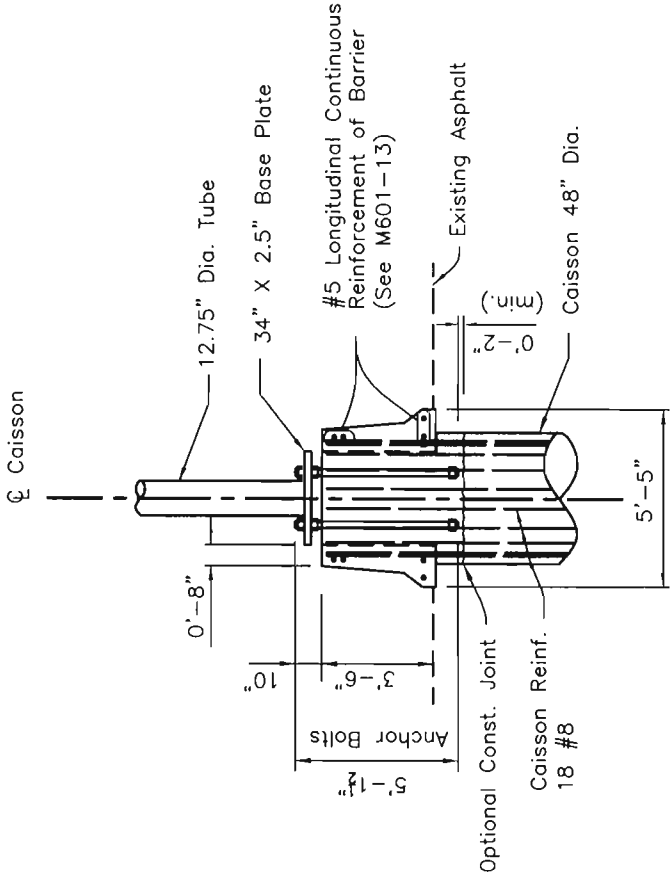
Revision Dates (Preliminary Stage Only)				

Design		Detail		Quantities	
Checked By	05/02	05/02	05/02	Checked By	05/02
Designed By	HB	05/02	05/02	Quantities By	HB
Lost Modification Date:	04/15/2003			Checked By	JIE



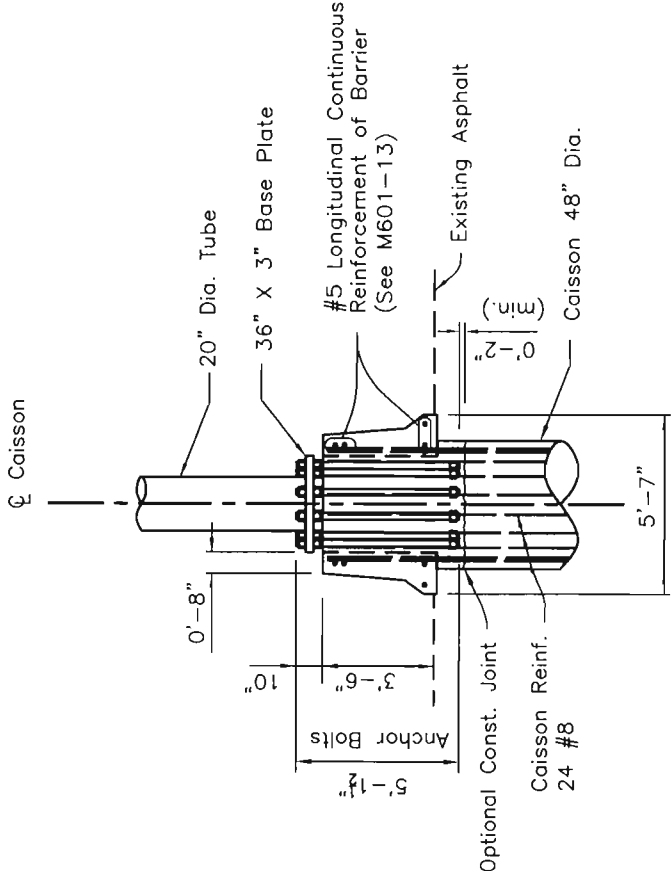
CROSS SECTION

Structure E-17-ZR



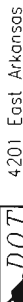
CROSS SECTION

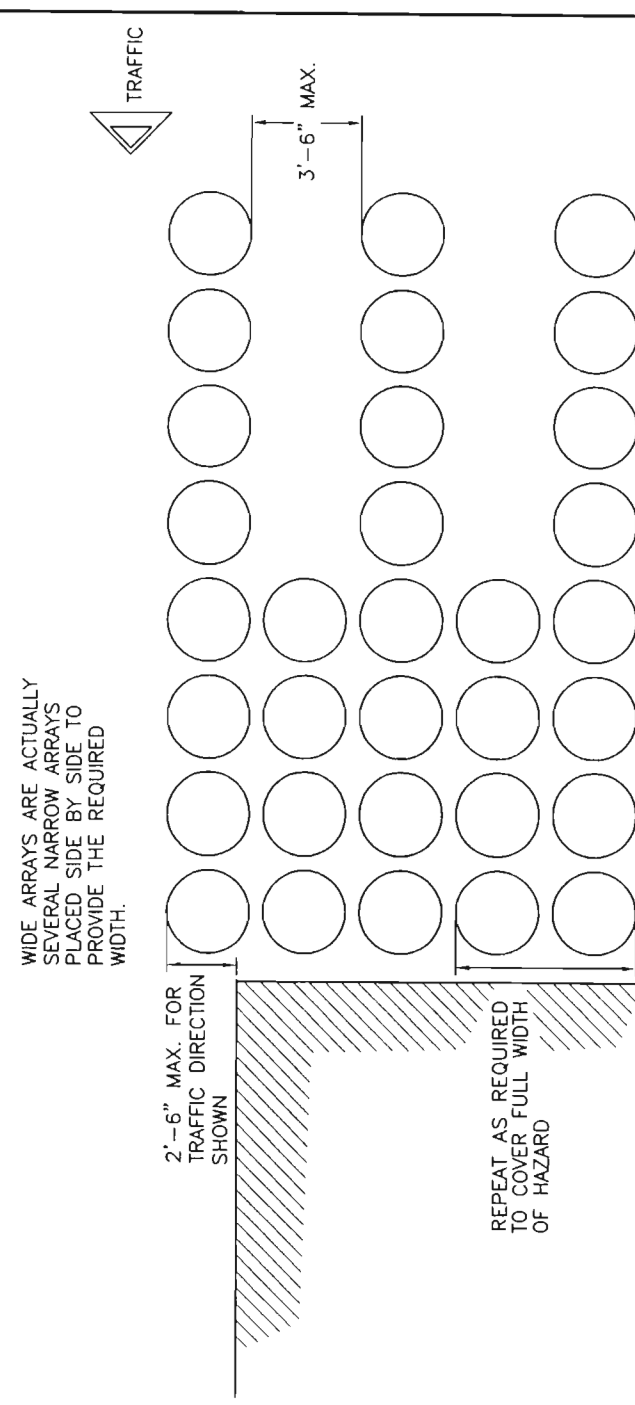
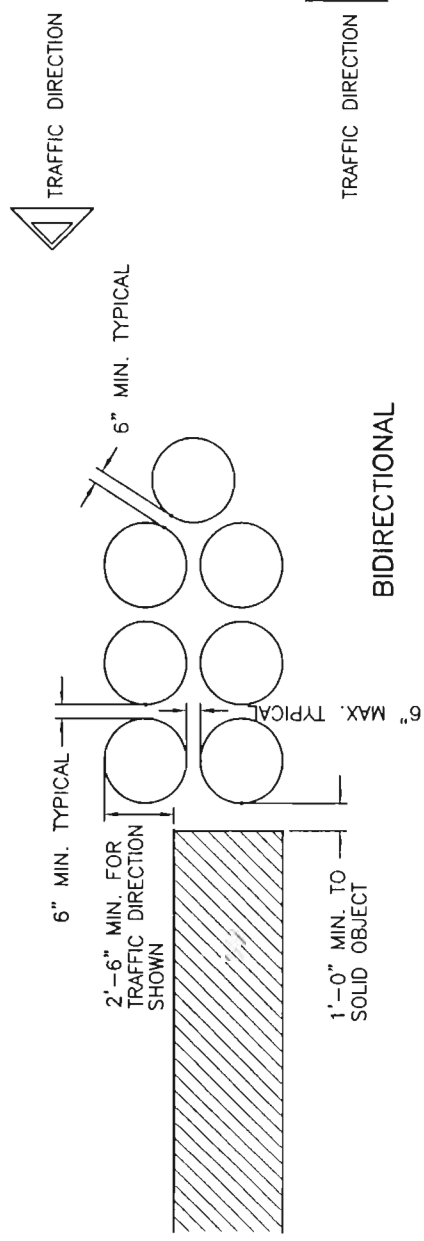
Structure E-17-ZQ



CROSS SECTION

Structure E-17-ZS

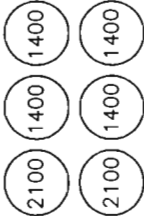
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Creation Date	05/02	Initials: HB				No Revisions:				IM 0253-168	
Lost Modification Date:	04/15/2003	Initials: HB				Revised:		Designer: H. Bui	Structure Numbers	13344	
Full Path:	C:\PROJECTS\							Detailer: H. Bui			
Drawing File Name:	Roll_caisson.Dwg					Void:		Sheet Subset: Bridge	Subset Sheets: B 2 of 2	Sheet Number 179	
Acad Ver.	V. 2000	Scale: VARIES									



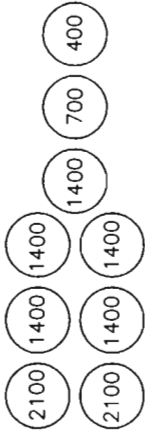
Single rows of modules are not recommended.

 Colorado Department of Transportation Staff Construction Standards Engineer 4201 E. Arkansas Denver, Colorado 80222 Phone: (303) 757-9083 FAX: (303) 757-9868	Computer File Information Creation Date: 04/20/98 Initials: W.R.S. Last Modification Date: 05/30/2003 Initials: L.T.A. Full Path: 025_HOV Project Drawing File Name: Sand Barrel Details D614-1.dwg Acad Ver. 2002 Scale: na Units: English		☐ ☐ ☐ ☐ ☐	Index of Revisions		As Constructed		SAND BARREL DETAIL 614-1		Project No./Code IM 0253-168
										Structure Numbers 13344
								Designer: Bill Schiebel Detailer: Louis Averis		Sheet Number 180
								Sheet Subset: 614-1 Subset Sheets: 1 of 2		

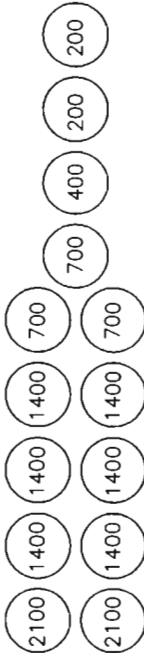
DESIGN VELOCITY 25 mph									
1800 lb. VEHICLE			500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		25.0		25.0					
1	2800	9.8	5.9	0.12	15.4	4.3	0.10		
2	2800	3.8	0.9	0.30	9.5	1.6	0.16		
3	4200	1.1	0.1	0.82	4.9	0.7	0.28		



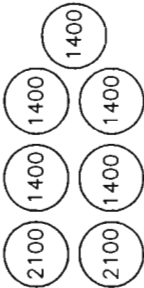
DESIGN VELOCITY 40 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		40.0		40.0					
1	400	32.7	5.9	0.06	36.8	2.8	0.05		
2	700	23.6	3.7	0.07	31.8	3.8	0.06		
3	1400	13.3	4.2	0.11	24.3	4.7	0.07		
4	2800	5.2	1.7	0.22	15.0	4.1	0.10		
5	2800	2.0	0.3	0.57	9.2	1.5	0.17		
6	4200	0.6	0.0	1.55	4.8	0.7	0.29		



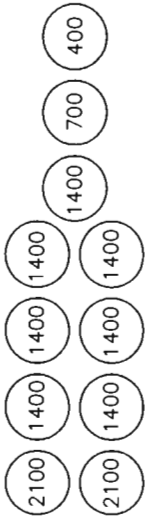
DESIGN VELOCITY 55 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		55.0		55.0					
1	200	49.5	6.4	0.04	52.7	2.8	0.04		
2	200	44.6	5.2	0.04	52.7	2.6	0.04		
3	400	36.5	7.3	0.05	50.4	4.4	0.04		
4	700	26.3	7.1	0.07	46.3	6.0	0.05		
5	1400	14.8	5.2	0.10	40.1	7.5	0.06		
6	2800	5.8	2.1	0.20	30.6	6.6	0.08		
7	2800	2.3	0.3	0.51	18.8	2.5	0.14		
8	2800	0.9	0.0	1.30	7.7	0.9	0.22		
9	4200	0.3	0.0	3.56	3.7	0.4	0.38		



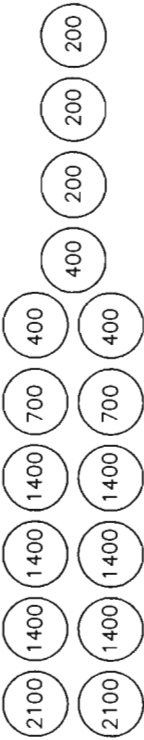
DESIGN VELOCITY 30 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		30.0		30.0					
1	1400	16.9	6.9	0.09	22.9	4.2	0.08		
2	2800	6.6	2.7	0.17	14.1	3.6	0.11		
3	2800	2.6	0.4	0.45	8.7	1.4	0.18		
4	4200	0.8	0.1	1.22	4.5	0.6	0.31		



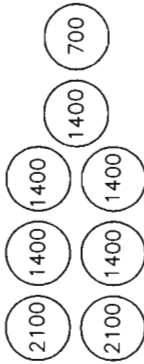
DESIGN VELOCITY 45 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		45.0		45.0					
1	400	36.8	7.5	0.05	41.3	2.8	0.05		
2	700	26.3	7.3	0.06	35.8	3.8	0.05		
3	1400	14.9	5.4	0.10	27.3	4.7	0.06		
4	2800	5.8	2.1	0.20	16.8	4.1	0.09		
5	2800	2.3	0.3	0.50	10.4	1.5	0.15		
6	2800	0.9	0.0	1.29	5.4	0.7	0.24		
7	4200	0.3	0.0	3.52	3.3	0.3	0.42		



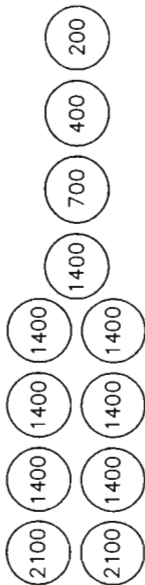
DESIGN VELOCITY 60 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		60.0		60.0					
1	200	54.0	7.6	0.04	57.5	3.3	0.03		
2	200	48.6	6.6	0.04	55.0	3.1	0.04		
3	200	43.8	5.0	0.04	52.7	2.8	0.04		
4	400	35.8	7.0	0.05	48.4	4.8	0.04		
5	800	24.8	7.4	0.07	41.1	7.3	0.05		
6	1400	13.9	4.7	0.11	31.3	7.9	0.06		
7	2800	5.5	2.7	0.21	19.3	6.8	0.08		
8	2800	2.1	0.3	0.54	11.9	2.6	0.13		
9	2800	0.8	0.0	1.38	7.3	1.0	0.21		
10	4200	0.3	0.0	3.77	3.8	0.4	0.37		



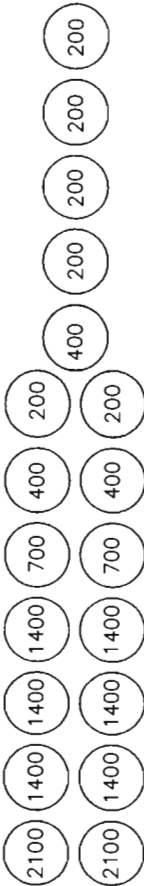
DESIGN VELOCITY 35 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		35.0		35.0					
1	700	25.2	6.6	0.07	30.3	3.4	0.06		
2	1400	14.2	4.8	0.10	23.1	4.3	0.08		
3	2800	5.5	1.9	0.21	14.2	3.7	0.11		
4	2800	2.2	0.3	0.53	8.8	1.4	0.18		
5	4200	0.7	0.0	1.45	4.5	0.6	0.31		



DESIGN VELOCITY 50 mph									
820 kg. VEHICLE			2000 kg. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		50.0		50.0					
1	200	45.0	5.3	0.04	47.9	2.3	0.04		
2	400	36.8	7.5	0.05	44.0	4.0	0.04		
3	700	26.5	7.3	0.06	38.1	5.4	0.05		
4	1400	14.9	5.4	0.10	29.0	6.7	0.06		
5	2800	5.8	2.1	0.20	17.9	5.8	0.09		
6	2800	2.3	0.3	0.50	11.0	2.2	0.15		
7	2800	0.9	0.0	1.29	6.8	0.8	0.23		
8	4200	0.3	0.0	3.52	3.5	0.4	0.40		



DESIGN VELOCITY 65 mph									
1800 lb. VEHICLE			4500 lb. VEHICLE						
SAND MASS	EXIT VEH	AVE G'S	IMPULSE	EXIT VEH	AVE G'S	IMPULSE			
ROW	(lbs)	(mph)	FOR ROW	(mph)	FOR ROW	TIME			
0		65.0		65.0					
1	200	58.5	8.9	0.03	62.3	3.9	0.03		
2	200	52.7	7.2	0.04	59.6	3.6	0.03		
3	200	47.4	5.9	0.04	57.1	3.3	0.04		
4	200	42.7	4.8	0.05	54.6	3.0	0.04		
5	400	34.9	6.7	0.05	50.2	5.2	0.04		
6	400	28.6	4.5	0.06	46.1	4.4	0.04		
7	800	19.8	4.7	0.08	39.1	6.6	0.05		
8	1400	11.1	3.0	0.13	29.8	7.1	0.06		
9	2800	4.4	1.2	0.26	18.4	6.1	0.08		
10	2800	1.7	0.2	0.68	11.3	2.3	0.14		
11	2800	0.7	0.0	1.73	7.0	0.9	0.22		
12	4200	0.2	0.0	4.72	3.6	0.4	0.39		



Colorado Department of Transportation

Staff Construction: Standards Engineer
4201 E. Arkansas
Denver, Colorado 80222
Phone: (303) 757-9083 FAX: (303) 757-9868

Creation Date: 04/20/98
Initials: W.R.S.

Lost Modification Date: 05/30/2003
Initials: L.T.A.

Full Path: 025_HOV Project

Drawing File Name: Sand Barrel Details D614-2.dwg

Acad Ver. 2002 Scale: na Units: English

Computer File Information

Index of Revisions

As Constructed

SAND BARREL DETAIL

614-2

Project No./Code
IM 0253-168

Structure
Numbers
13344

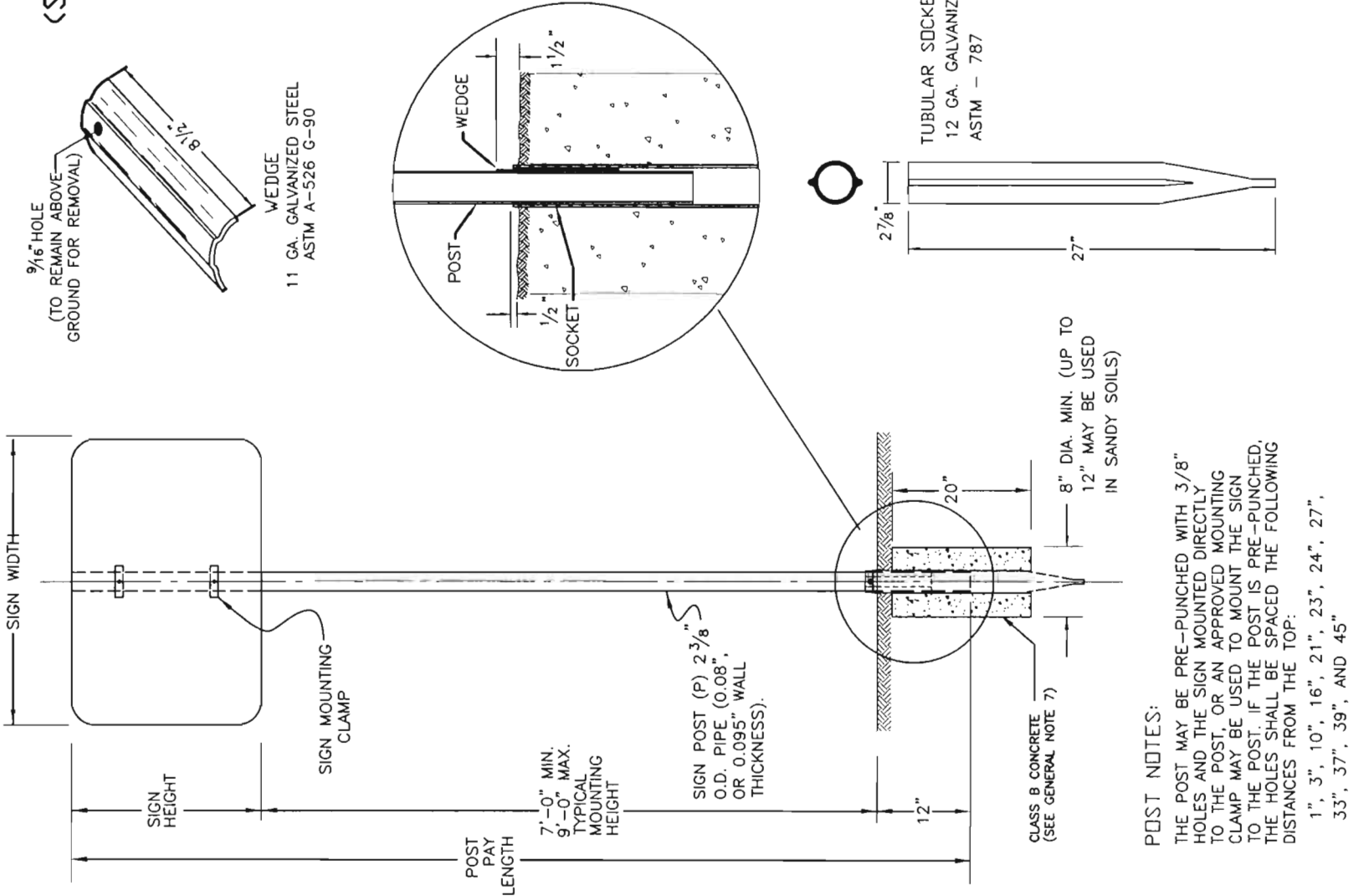
Designer: Bill Schiebel
Detailer: Louis Avgeris

Sheet Subset: 614-2
Subset Sheets: 2 of 2

Sheet Number
181

TUBULAR STEEL POSTS
(SOCKET SYSTEM)
(SINGLE OR DOUBLE POST)

SIGNPOST SELECTION GUIDE



SIGN WIDTH (FT) / MOUNTING HEIGHT (FT)																						
1		2		2.5		3		4		5		6		7		8		9				
7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9	7	8	9		

1	P	P	P	P	P	P	P	P	P	P	P											
2	P	P	P	P	P	P	P	P	P	P	P											
2.5	P	P	P	P	P	P	P	P	P	P	P											
3	P	P	P	P	P	P	P	P	P	P	P											
4	P	P	P	P	P	P	P	P	P	P	P											
5	***			P	P	P	P	P	P	P	P											
6	***			P	P	P	P	P	P	P	P											
7	***			2	2	2	2	2	2	2	2											

GENERAL NOTES:

- SIGN POSTS SHALL BE COLD FORMED STEEL WITH A MINIMUM YIELD STRENGTH OF 55 KSI. POST COLOR SHALL BE UNPAINTED GALVANIZED STEEL OR AS DIRECTED BY THE ENGINEER. (IN NATIONAL FOREST, FEDERAL STD COLOR 595 No. 20059 BROWN OR EQUIVALENT MAY BE USED. IN HIGH IMPACT AREAS, FEDERAL COLOR STD 595a No. 13655 YELLOW MAY BE USED.)
- STEEL TUBE SIGN SUPPORTS SHALL BE INSTALLED UNDER THE SUPERVISION OF AN ON-SITE INDIVIDUAL TRAINED BY THE MANUFACTURER OF THE SUPPORTS. PRIOR TO INSTALLATION OF THE SIGN SUPPORTS, THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER WRITTEN CERTIFICATION FROM THE MANUFACTURER THAT THE INDIVIDUAL SUPERVISING THE INSTALLATION HAS BEEN TRAINED TO PROPERLY INSTALL THE SUPPORTS. UPON COMPLETION OF SIGN SUPPORT INSTALLATION, THE CONTRACTOR SHALL SUBMIT WRITTEN CERTIFICATION, SIGNED BY THE TRAINED INSTALLER, THAT THE SUPPORTS WERE INSTALLED ACCORDING TO THE MANUFACTURER'S REQUIREMENTS.
- SIGNS AND POSTS SHALL INCLUDE THE FOOTING ALL HARDWARE NECESSARY FOR COMPLETE INSTALLATION. POST TYPE P SHALL BE PAID FOR AS 614 STEEL SIGN POST (2 INCH ROUND), LIN. FT.
- SIGNS BETWEEN 37" AND 60" WIDTH WITH ONE POST INSTALLATION REQUIRE T SIGN SUPPORT BRACKET IN ADDITION TO THE BACKING ZEE REQUIREMENTS.
- MULTIPLE SIGNS MAY USE THE U SIGN SUPPORT BRACKET.
- FOR BACKING ZEE REQUIREMENTS AND DETAILS, SEE COLORADO STANDARD PLANS S-614-3 AND S-614-4.
- CLASS B CONCRETE MAY BE SUBSTITUTED WITH A COMPARABLE PRODUCT THAT MEETS THE SPECIFICATIONS SHOWN IN TABLE 601-1 OF THE STANDARD SPECIFICATIONS.

*** SIZES NOT USED. REFER TO COLORADO STANDARD PLANS SECTION 614 FOR LARGER SIGN SUPPORTS.

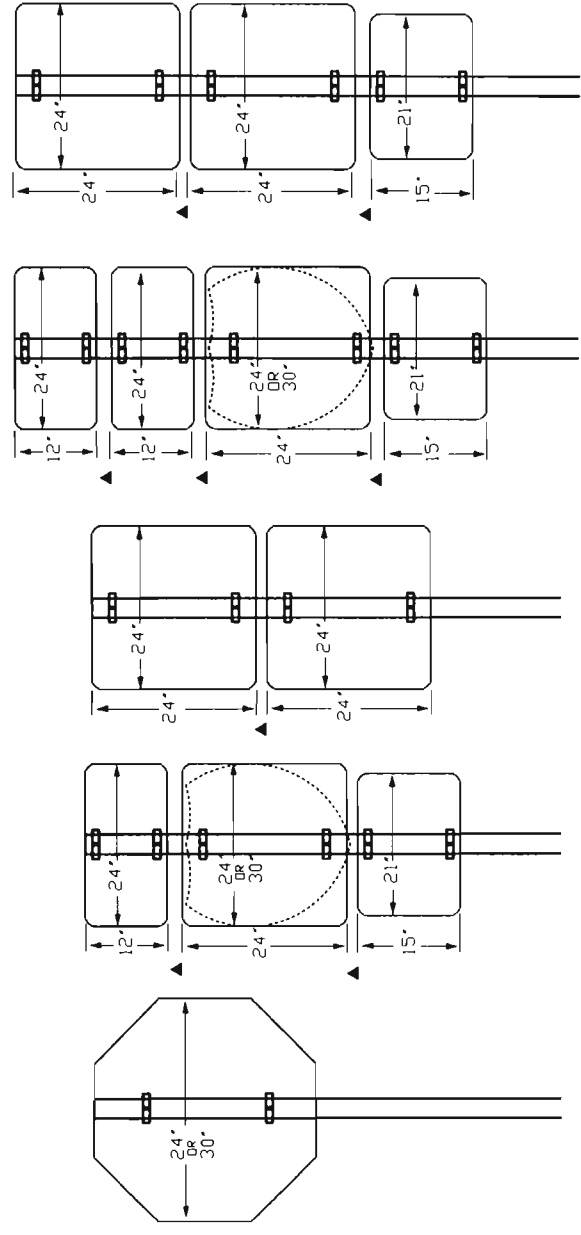
MAXIMUM ALLOWABLE MOMENT PER POST:
P (2', 2.375' DD) 1.46 KIP FT
P2 (2 1/2', 2.875' DD, SCHEDULE 80) 4.68 KIP FT

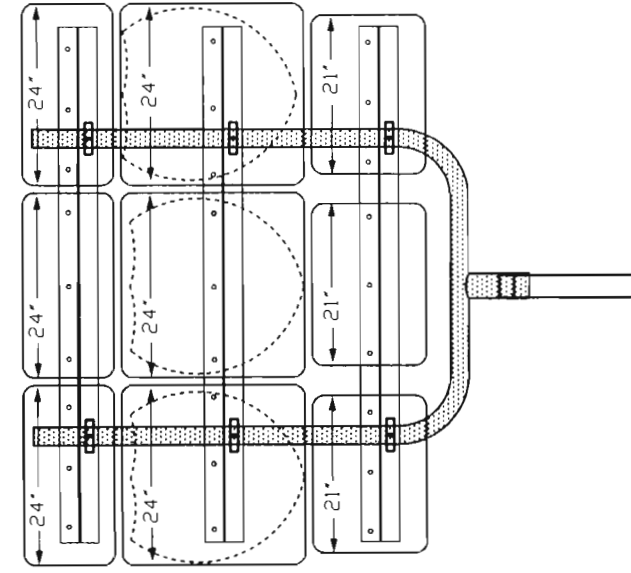
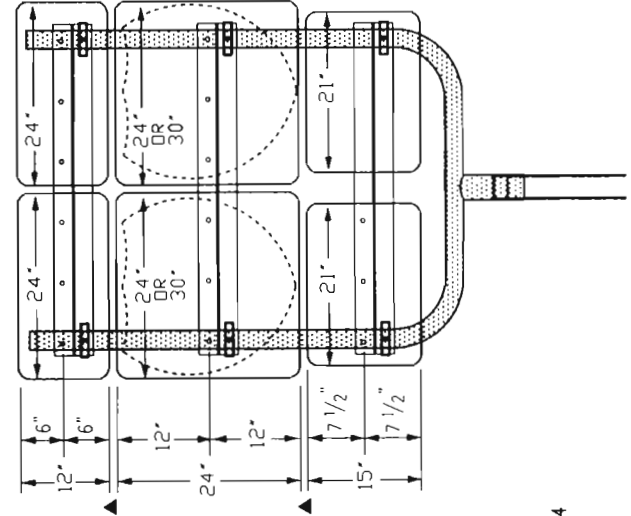
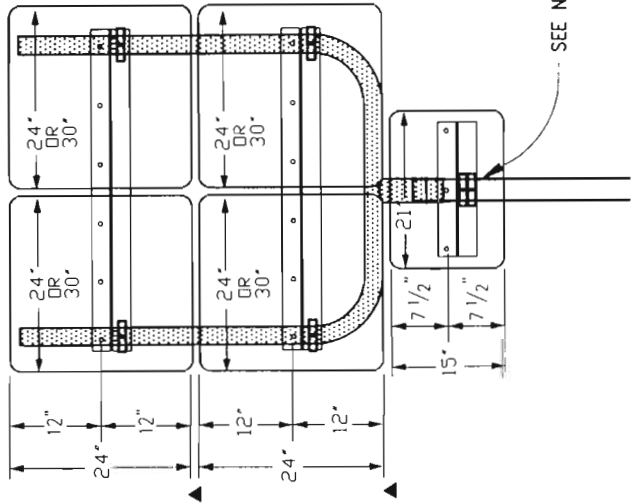
CHART NOTES:

- WIND LOAD DESIGN = 80 MPH.
- TYPICAL POST MOUNTING HEIGHTS FROM GROUND TO BOTTOM OF SIGN PANEL ARE 7, 8 OR 9 FEET.
- FOR SIGNS MOUNTED ON TWO POSTS, MINIMUM DISTANCE BETWEEN POSTS SHALL BE 2 FEET AND MAXIMUM DISTANCE SHALL BE 8 FEET. MAXIMUM DISTANCE FROM POST TO EDGE OF SIGN PANEL(S) SHALL BE 0 TO 4 INCHES. WHEN BACKING ZEES ARE USED, POSTS SHALL BE INSTALLED WITH A MINIMUM OF 2" FROM EDGE OF THE BACKING ZEE.

Path:	www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandard/
Drawing File Name:	P Post Details (11X17) Revised 28 Oct 2002 4 sheets
Acad Version:	R2002
Scale:	NA
Units:	English

Date:	Comments:
01/25/02	Deleted P1 Post Type
6/12/02	Changed Mounting Height Max from 10' to 9'
10/28/02	Added Concrete Footing, Updated General Notes

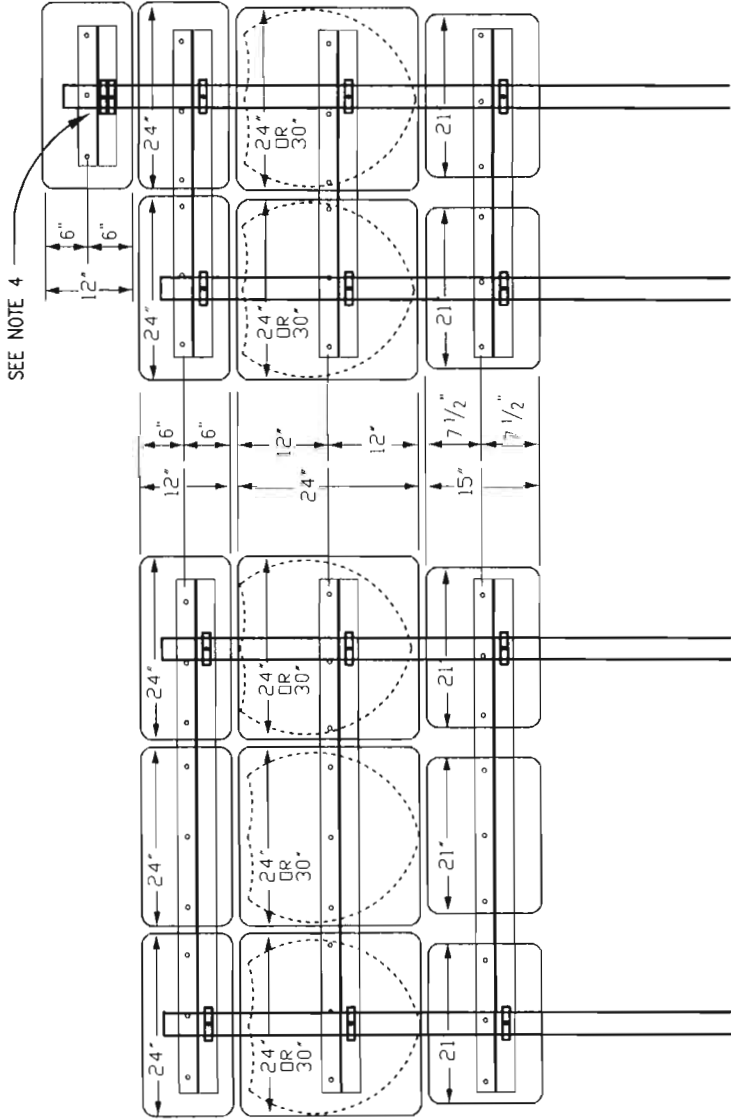
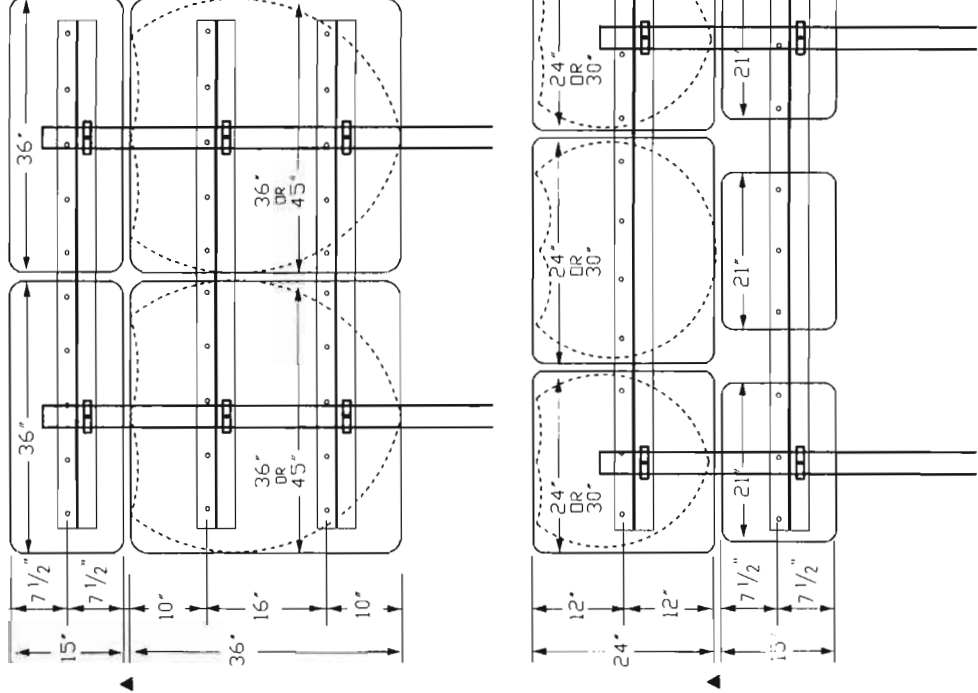




COMBINATIONS USING U-BRACKETS

PANEL WIDTHS	ZEE LENGTH
21"	15"
24"	18"
30"	24"
36"	30"
42"	36"
45"	39"
48"	42"
54"	48"
60"	54"
36" DIAMOND	22"
48" DIAMOND	36"
24" & 24"	43"
24" & 30"	49"
30" & 30"	55"
36" & 36"	67"
45" & 36"	76"
24" & 24" & 24"	68"
24" & 24" & 30"	74"
24" & 30" & 24"	74"
30" & 24" & 30"	80"
24" & 30" & 30"	80"
30" & 30" & 30"	86"

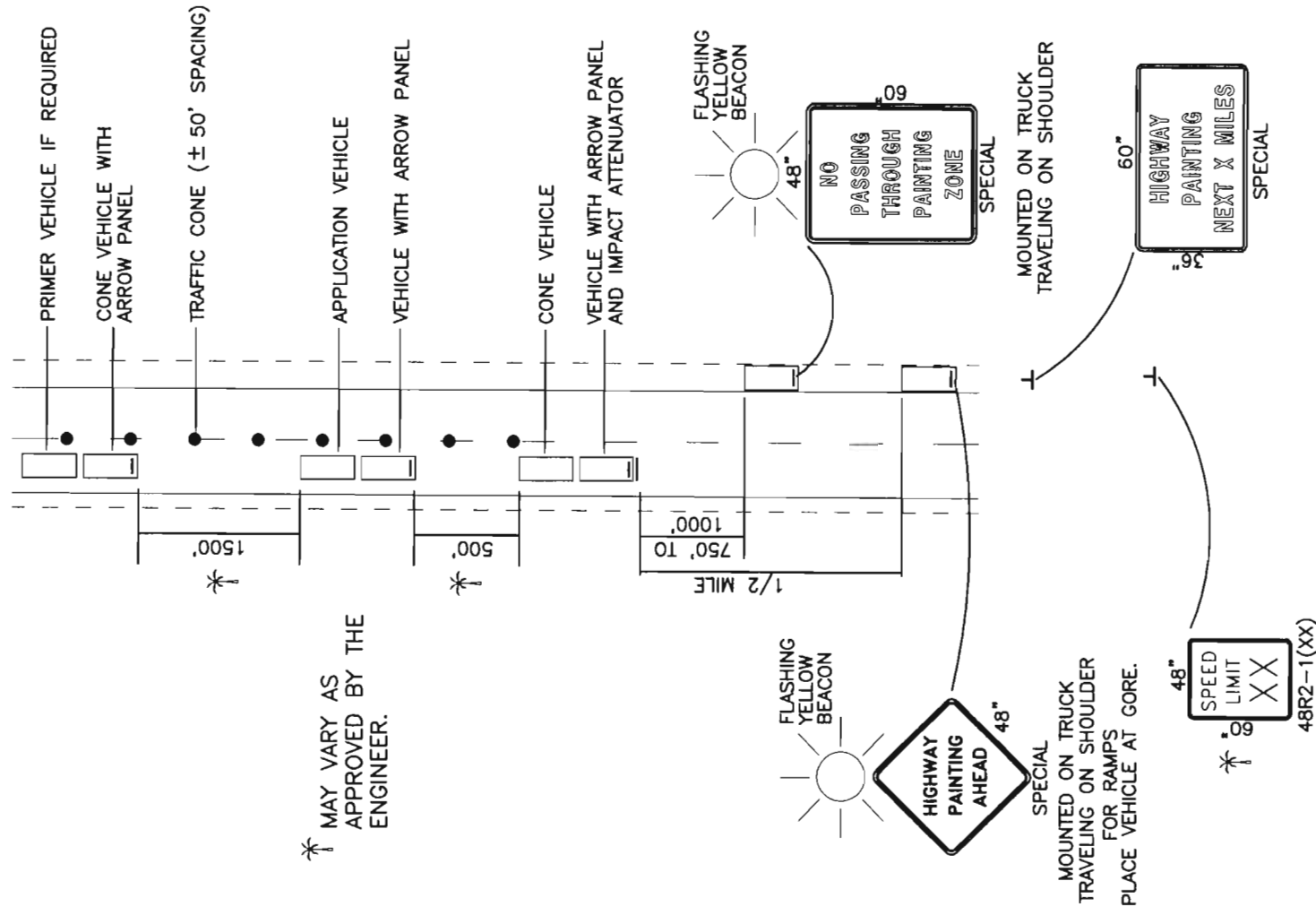
- NOTES:
- Z-BAR LENGTH SHALL BE 3" (+/- 1/2") SHORT OF THE EDGE OF THE SIGN OR ROW OF SIGNS ON BOTH SIDES. THE ACCOMPANYING TABLE GIVES THE Z-BAR LENGTH FOR MOST TYPICAL PANEL COMBINATIONS.
 - FIRST AND LAST HOLES SHALL BE 2" FROM EDGE OF Z-BAR. THE HOLES IN BETWEEN SHALL BE 6" TO 8" APART.
 - T AND U BRACKETS SHALL TERMINATE 2" TO 3" FROM EDGE OF SIGN PANEL. WHEN A ZEE IS CONNECTED TO A T-BRACKET, THEY SHALL BE THE SAME LENGTH EXCEPT WHEN THE ZEE MUST EXTEND BEYOND THE MAXIMUM LENGTH OF A T-BRACKET.
 - TWO MOUNTING CLAMPS ARE REQUIRED ON ZEES WHERE THERE IS ONLY ONE ZEE FOR THE PANEL AND THE ZEE IS ATTACHED TO ONLY ONE POST.
 - ZEES SHALL BE ATTACHED TO T-BRACKETS AND U-BRACKETS WITH U-BOLTS OR MOUNTING CLAMPS.
 - VERTICAL SPACING BETWEEN SIGN PANELS SHALL BE 1" MINIMUM TO 1 1/2" MAXIMUM.
 - IN SPECIAL CASES U-BRACKETS MAY BE USED TO MOUNT SIGNS THAT FACE DIFFERENT DIRECTIONS. THE ENGINEER SHALL DETERMINE THE ORIENTATION OF THE SIGN PANELS AND VERIFY THAT THE MAXIMUM ALLOWABLE WIND LOADS FOR THE POST ARE NOT EXCEEDED.



TWO-POST SIGN COMBINATIONS

CONSTRUCTION TRAFFIC CONTROL DEVICES FOR MOBILE PAVEMENT MARKING ZONE

MOBILE PAVEMENT MARKING ZONE



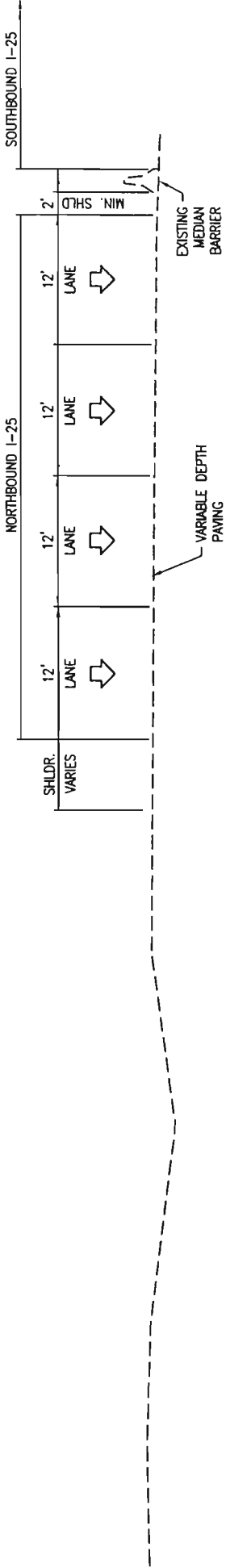
SIGN CODE	LEGEND	SIZE	PANEL SIZE			OTHER
			EACH			
			A	B	C	
SPECIAL	HIGHWAY/PAINTING/NEXT X MILES	60" X 36"		1		
SPECIAL	HIGHWAY/PAINTING/AHEAD	48" X 48"		1		
SPECIAL	NO/PASSING/THROUGH/PAINTING/ZONE	48" X 60"		1		
48R2-1	SPEED/LIMIT/XX	48" X 60"		1		
	SIGN TOTALS			** 4		
	FLASHING BEACON (PORTABLE)					**2 EA.
	FLASHING ARROW PANEL	(C TYPE)				**3 EA.
	TRAFFIC CONES	900				**300 EA.
	MOBILE PAVEMENT MARKING ZONE					5 DAYS

*** THESE ITEMS SHALL BE INCLUDED IN THE PAY ITEM "MOBILE PAVEMENT MARKING ZONE" AND WILL NOT BE PAID FOR SEPERATELY

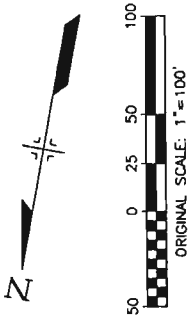
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Last Modification Date:	05/30/2003	Initials:	PJN																	
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Drawing File Name:	MPMZ.dwg																			
Scale:	NONE																			
Colorado Department of Transportation											As Constructed			MOBILE PAVEMENT MARKING					Project No./Code	
 Region 6 Traffic 2000 S. Holly Street Denver, CO 80222 DEPARTMENT OF TRANSPORTATION											No Revisions:								IM 0253-168	
											Revised:								13344	
											PAH								Structure Numbers	
											dWB								Detailer:	
											Valid:			Sheet Subst:					Sheet Number 126	
														Subset Sheet Number:						

Computer File Information				Sheet Revisions			
Creation Date:	05/01/01	Initials:	JDB	(R-X)			
Last Modification Date:	05/21/03	Initials:	BRG	(R-X)			
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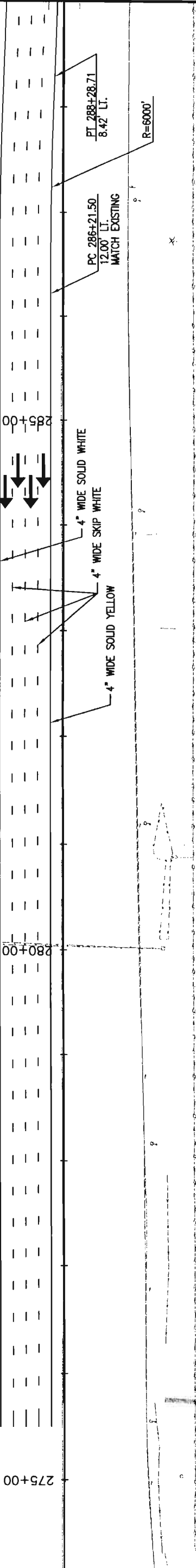
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HOV CONSTRUCTION ICP -- PHASE 1
STA. 281+90 TO STA. 290+00



MATCHLINE



LEGEND

- CONSTRUCTION AREA
- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW

PHASE 1 NARRATIVE

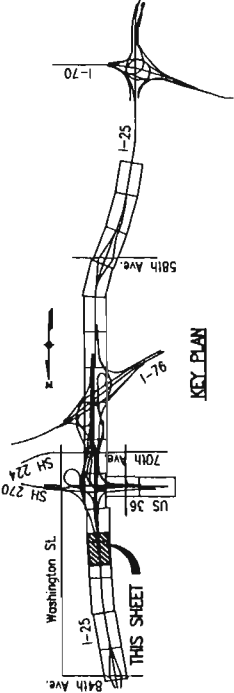
EXISTING NORTHBOUND I-25 TRAFFIC SHIFTED WEST TOWARD THE MEDIAN FOR EAST WIDENING AND SHOULDER WORK FROM STA. 290+00 TO STA. 319+00.

THE MAJORITY OF PAVEMENT AND UTILITY CONSTRUCTION FOR THE HOV EXTENSION IS COMPLETED DURING THIS PHASE EXCEPT FOR THE EXIT TO NORTHBOUND I-25.

START ITS CONSTRUCTION ALONG THE I-25 WEST SHOULDER.

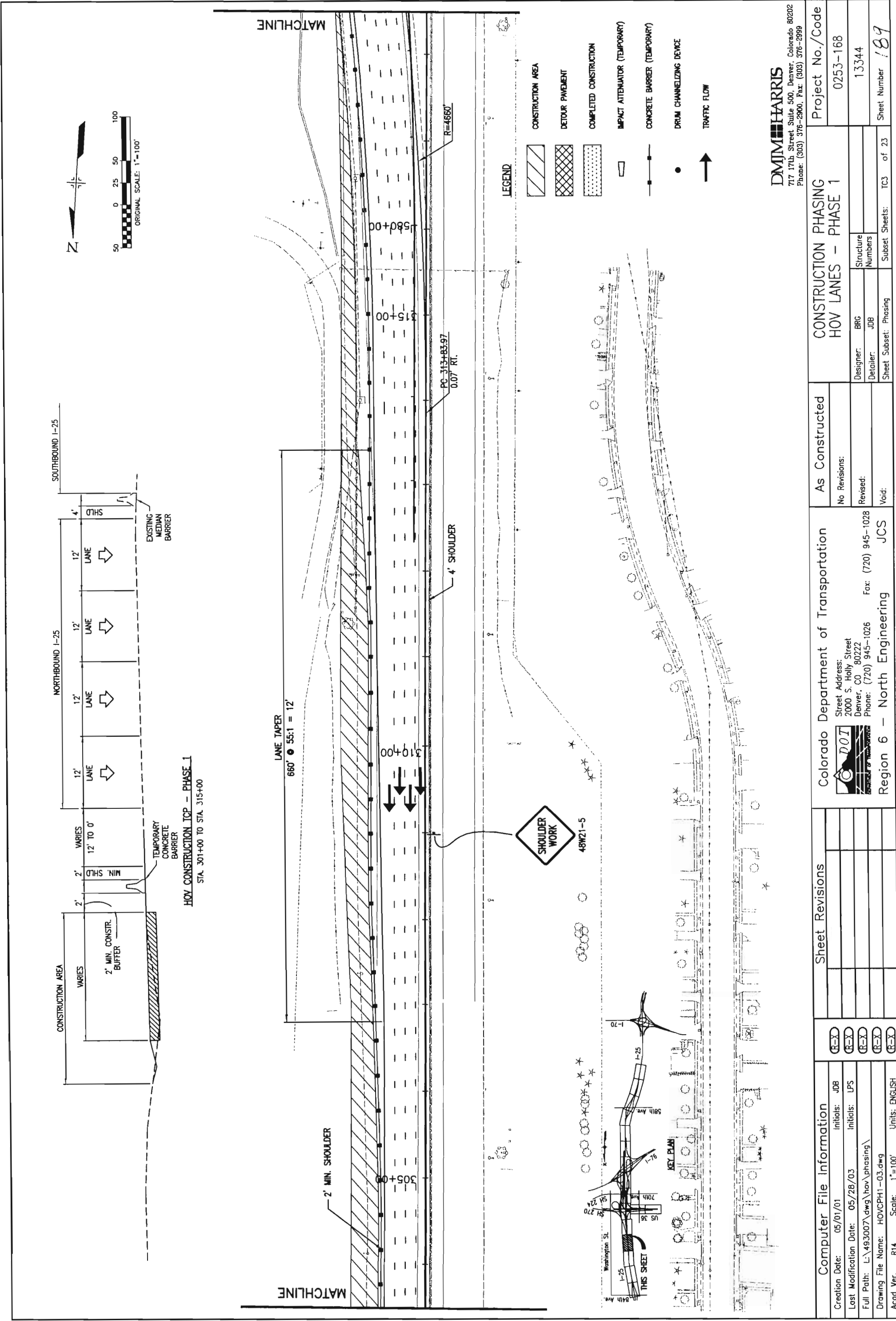
THE HOV LANE NEAR 70TH AVENUE IS SHIFTED EAST TO CONSTRUCT THE FIRST HALF OF THE CONCRETE PAVEMENT CONNECTION TO THE CLEAR CREEK STRUCTURE.

TEMPORARY HOV DETOUR CONSTRUCTED NEAR 70TH AVENUE FOR PHASE 2. THE NEW STORM SEWER ALONG THE SOUTHBOUND I-25 ENTRANCE TO THE HOV LANE MUST BE COMPLETED IN THIS PHASE.



DMJM HARRIS
717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999

CONSTRUCTION PHASING				Project No./Code			
HOV LANES -- PHASE 1				0253-168			
Designer: BRG		Structure Numbers		13344		Sheet Number	
Detailer: JDB		Subset Sheets: TC1		of 23		187	



DMJM HARRIS

717 17th Street, Suite 500, Denver, Colorado 80202

Phone: (303) 376-2900, Fax: (303) 376-2999

Project No./Code

0253-168

Designation

13344

Sheet Number

189

CONSTRUCTION PHASING

HOV LANES - PHASE 1

As Constructed

No Revisions:

Revised:

Void:

Colorado Department of Transportation

Street Address:
2000 S. Holly Street
Denver, CO 80222
Phone: (720) 945-1026 Fax: (720) 945-1028

Region 6 - North Engineering

JCS

Computer File Information

Creation Date: 05/01/01 Initials: JDB

Lost Modification Date: 05/28/03 Initials: LPS

Full Path: L:\493007\dwg\hov\phasing\

Drawing File Name: HOVCPH1-03.dwg

Acad Ver. R14 Scale: 1"=100' Units: ENGLISH

Sheet Revisions

Rev

Description

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Initial Construction

2

Final Construction

3

Final Construction

4

Final Construction

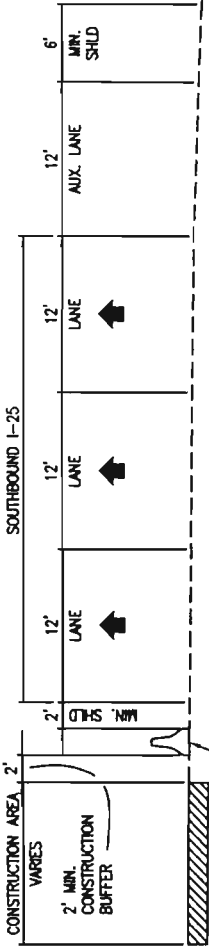
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Final Construction

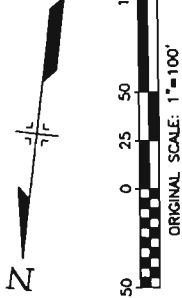
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HOV CONSTRUCTION TCP - PHASE 1
STA. 328+00 TO STA. 338+00



30:1 MIN. SHOULDER
TAPER RATE

PT 327+12.52
194.69' LT.
MATCH EXISTING

595+00

590+00

585+00

320+00

325+00

330+00

595+00

MATCHLINE

STA. 332+00
19.39' RT.
MATCH EXISTING

R=4660'

LANE SHIFT 12' TO 11' WIDTH
189' @ 60:1 = 3.15'

4" YELLOW
EDGE LINE

4" WHITE
EDGE LINE

4" WHITE
LANE LINE

2' MIN. SHOULDER

MATCHLINE



48W20-61L

LEGEND

CONSTRUCTION AREA

DETOUR PAVEMENT

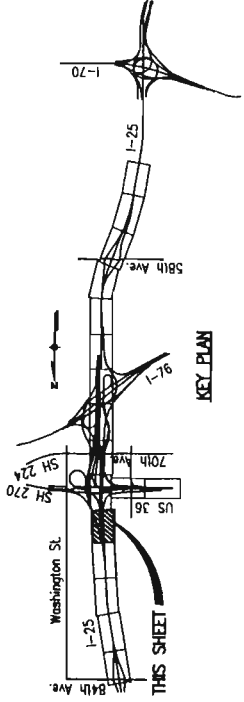
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IMPACT ATTENUATOR (TEMPORARY)

CONCRETE BARRIER (TEMPORARY)

DRUM CHANNELIZING DEVICE

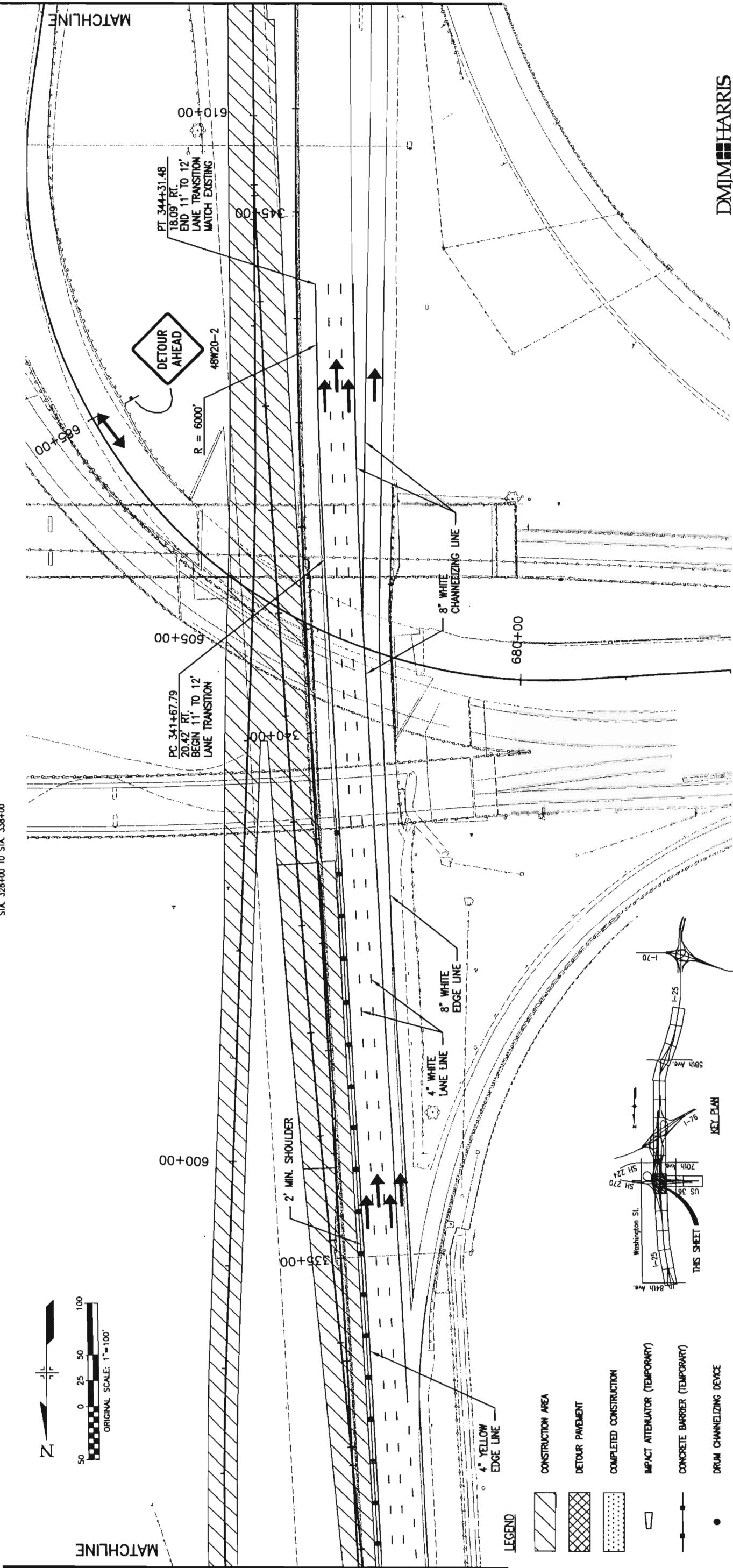
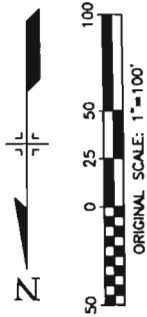
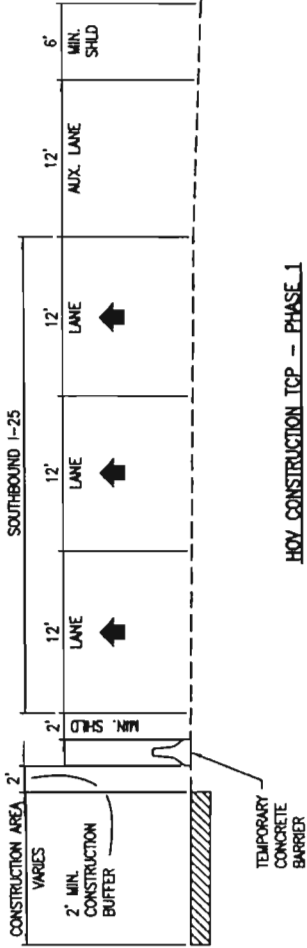
TRAFFIC FLOW



DMJM HARRIS

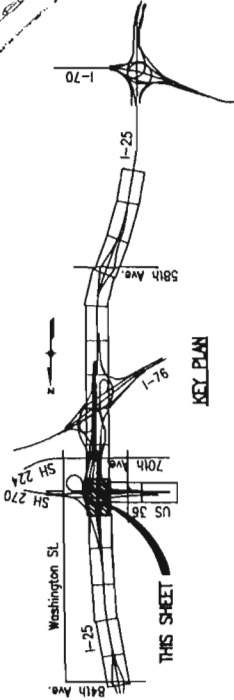
717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999

As Constructed				CONSTRUCTION PHASING HOV LANES - PHASE 1				Project No./Code	
No Revisions:				Design: BRG				0253-168	
Revised:				Detailer: JDB				13344	
Void:				Sheet Subset: Phasing				Sheet Number 1 of 23	



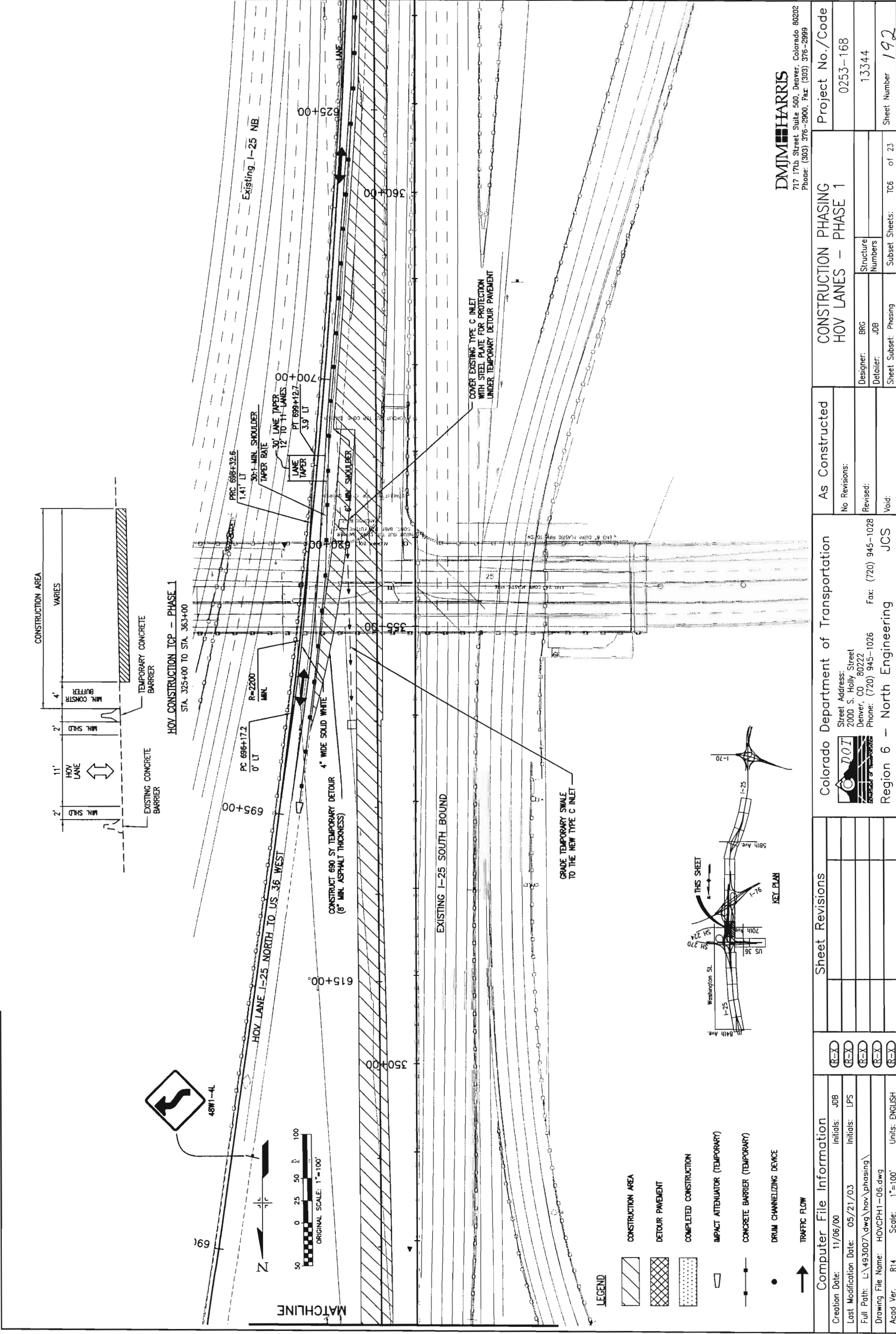
LEGEND

- CONSTRUCTION AREA
- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW

4" YELLOW EDGE LINE4" WHITE LANE LINE8" WHITE EDGE LINE8" WHITE CHANNELIZING LINE

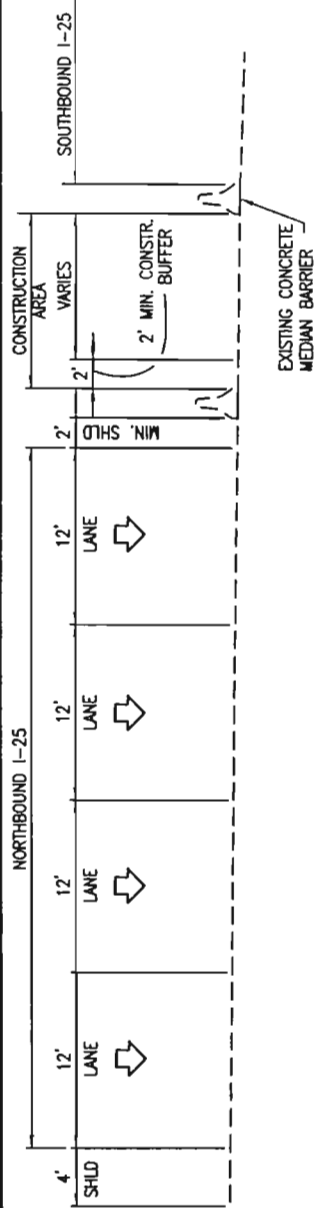
DMJM HARRIS
717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999

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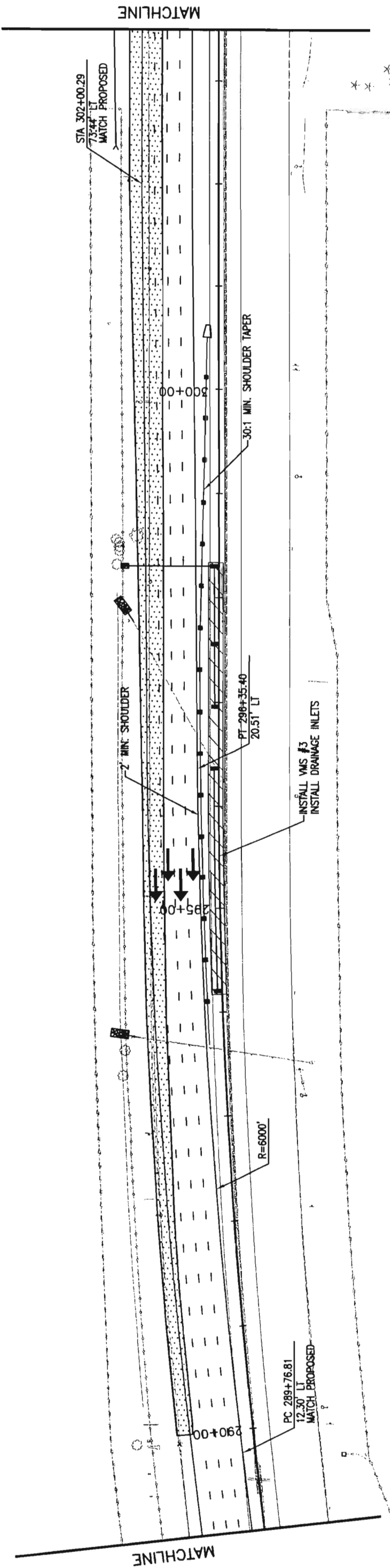
DMJM HARRIS
717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999

Computer File Information			Sheet Revisions		Colorado Department of Transportation			As Constructed		CONSTRUCTION PHASING HOV LANES - PHASE 1		Project No./Code	
Creation Date:	11/06/00		Initials:	JDB					No Revisions:			0253-168	
Last Modification Date:	05/21/03		Initials:	LPS								13344	
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Drawing File Name:	HOVCPH1-06.dwg								Void:		Sheet Subst: Phasing	Subst Sheets: TC6 of 23	
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HOV CONSTRUCTION TCP - PHASE 2

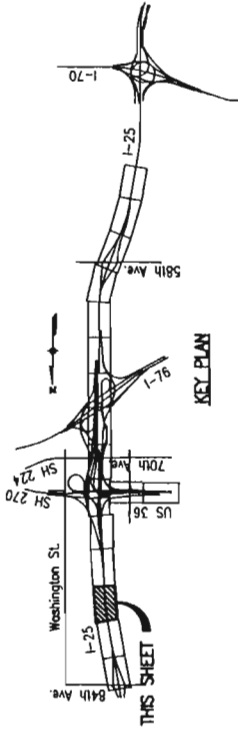
STA 290+00 TO STA 310+70



16:55 XREF = OPKEP5H LEGEND XTOPOG PHHOV TS_HOV CDOTPE HOV-ALIGN DRAIN-HOV

LEGEND

- CONSTRUCTION AREA
- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW

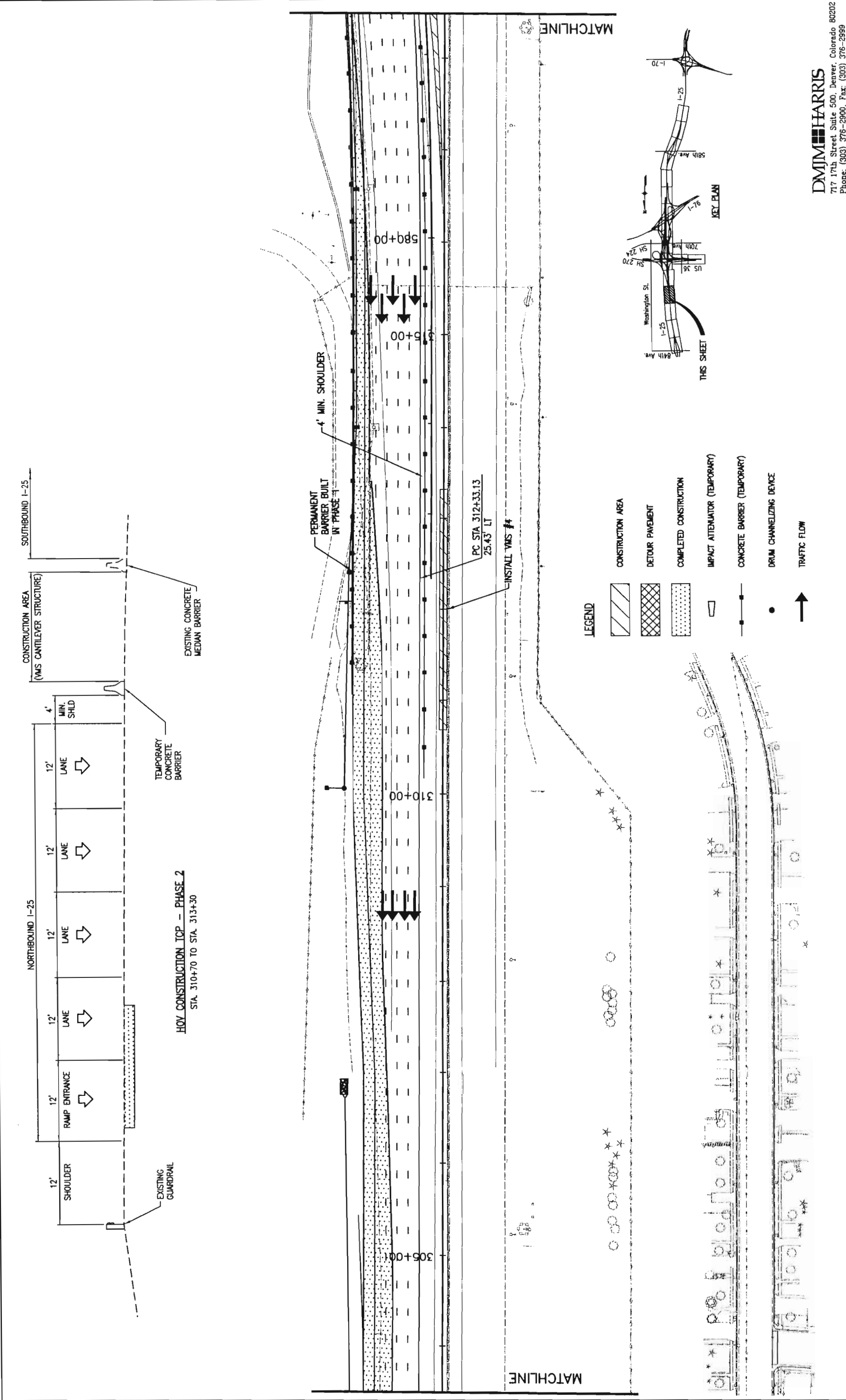


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Computer File Information			Sheet Revisions		Colorado Department of Transportation			As Constructed		CONSTRUCTION PHASING HOV LANES – PHASE 2		Project No./Code	
Creation Date:	Initials:	JDB											
Last Modification Date: 05/21/03					 Street Address: 2000 S. Holly Street Denver, CO 80222 Phone: (720) 945-1026 Fax: (720) 945-1028			No Revisions:		Structure Numbers		13344	
Full Path: L:\493007\dwg\hov\phasing\								Revised:					
Drawing File Name: HOVCPH2-03.dwg								Void:		Sheet Subset: Phasing		Sheet Number	
Acad Ver: R14 Scale: 1"=100'								Region 6 – North Engineering			JCS		TC9 of 23

16:56 XREF = CPKEY5H LEGEND XTOP06 PHASING TS_HOV CDOTPE HOV-ALIGN DRAIN-HOV



LEGEND

- CONSTRUCTION AREA
- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW

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Phone: (303) 376-2900, Fax: (303) 376-2999

Computer File Information		Sheet Revisions		Colorado Department of Transportation		CONSTRUCTION PHASING		Project No./Code	
Creation Date:	05/01/01	Initials:	JOB	 Street Address: 2000 S. Holly Street Denver, CO 80222 Phone: (720) 945-1026 Fax: (720) 945-1028	Region 6 - North Engineering	HOV LANES - PHASE 2		0253-168	
Last Modification Date:	05/21/03	Initials:	JOB			Designer: BRG		13344	
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Computer File Information

Creation Date:	11/06/00	Initials:	JDB
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(R-X)
(R-X)
(R-X)
(R-X)
(R-X)

Sheet Revisions

Colorado Department of Transportation



Street Address:
2000 S. Holly Street
Denver, CO 80222
Phone: (720) 945-1026
Fax: (720) 945-1028

Region 6 - North Engineering

As Constructed

No Revisions:

Revised:

Void:

CONSTRUCTION PHASING
HOV LANES - PHASE 2

Designer:	BRG	Structure	
Detailer:	JDB	Numbers	
Sheet Subser:	Design		

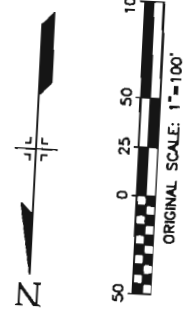
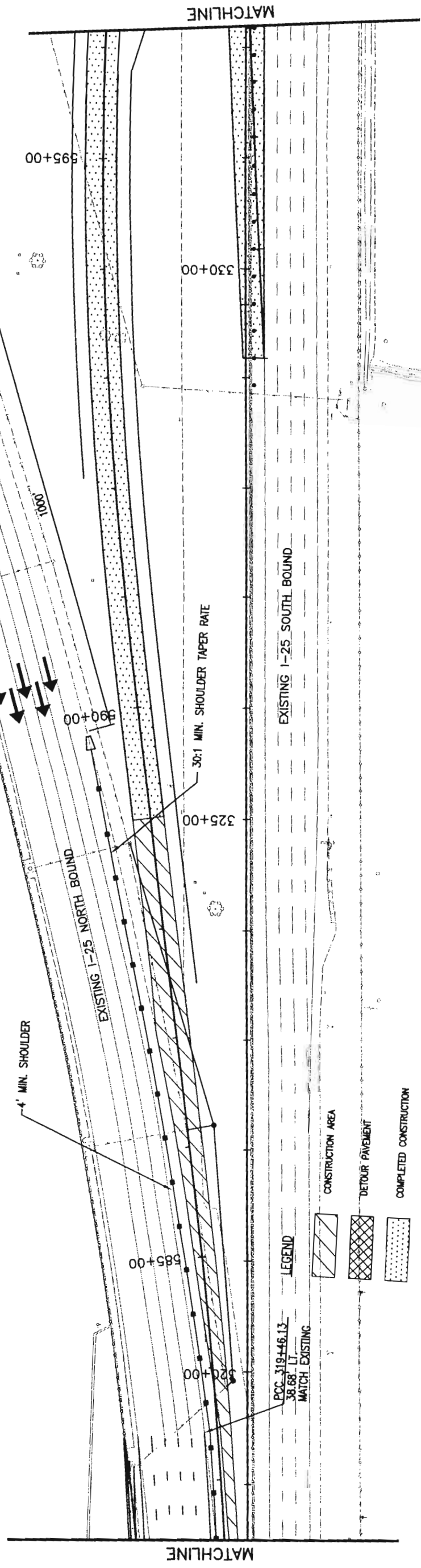
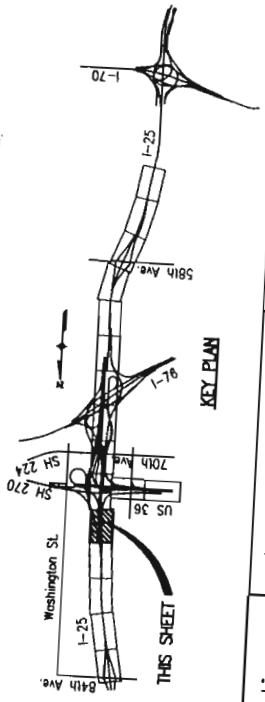
Project No./Code

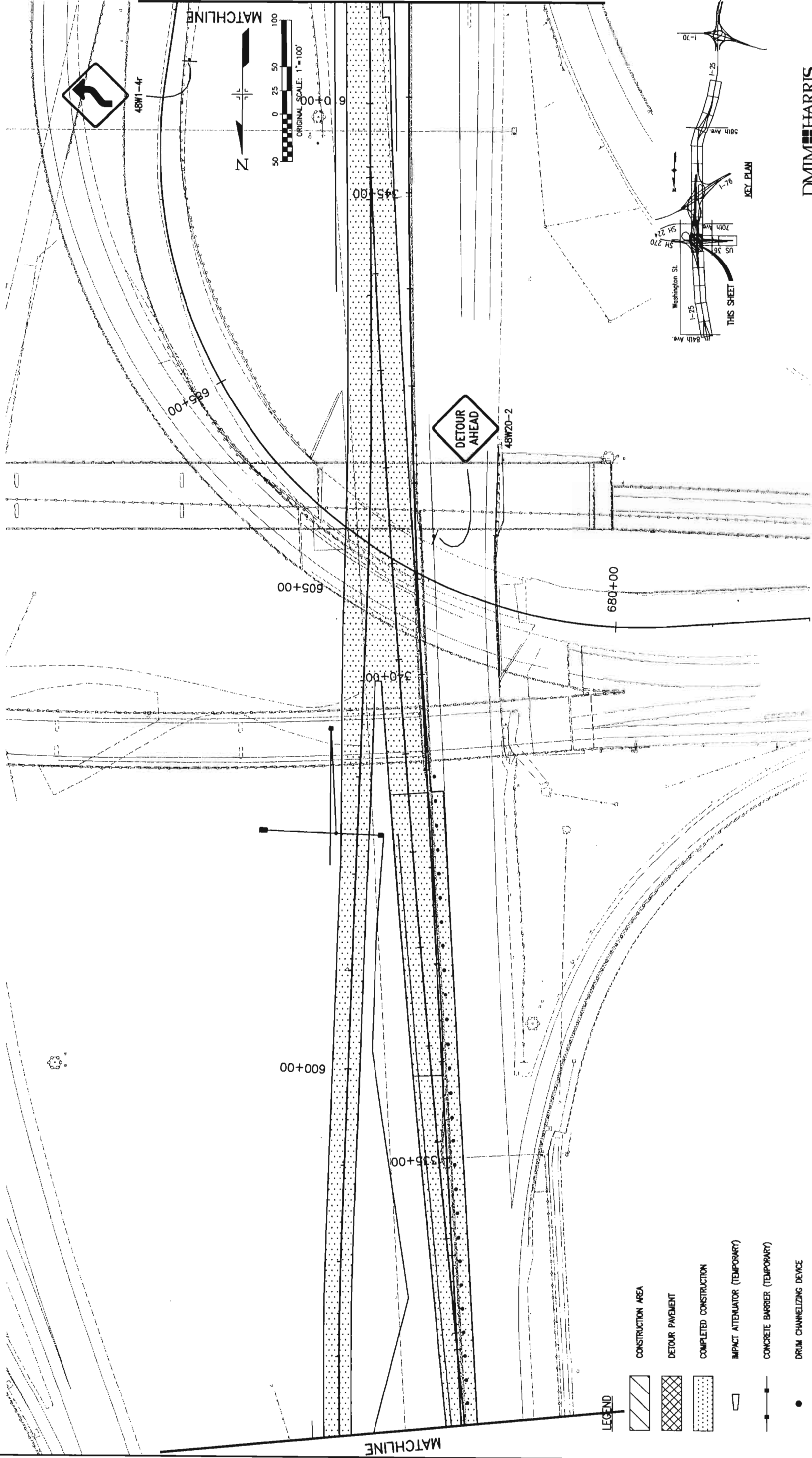
0253-168

13344

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717 17th Street, Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999





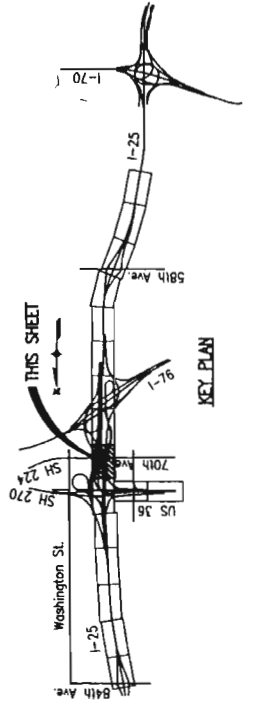
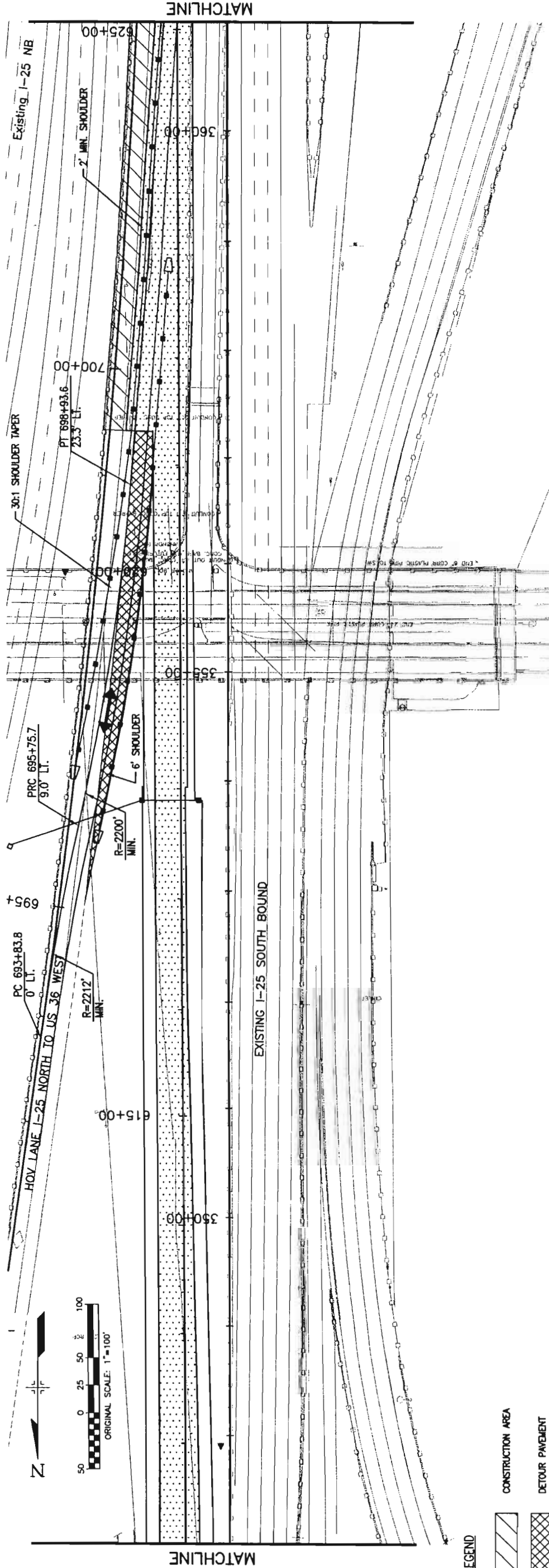
DMJM HARRIS
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Phone: (303) 376-2900, Fax: (303) 376-2999

Computer File Information			Sheet Revisions		Colorado Department of Transportation		CONSTRUCTION PHASING HOV LANES - PHASE 2		Project No./Code	
Creation Date:	11/06/00	Initials:	JDB			 Street Address: 2000 S. Holly Street Denver, CO 80222 Phone: (720) 945-1026 Fax: (720) 945-1028 Region 6 - North Engineering JCS	As Constructed		13344	
Last Modification Date:	05/21/03	Initials:	LPS				No Revisions:			
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Drawing File Name:	HOVCPH2-06.dwg						Void:			
Acad Ver.	R14	Scale:	1"=100'	Units:	ENGLISH		Sheet Subset: Phasing	Structure Numbers		
							Sheet Sheets:	TC12 of 23	Sheet Number	198



HOV LANE
STA. 698+30

HOV LANE
STA. 699+42.67 TO STA. 705+76.89



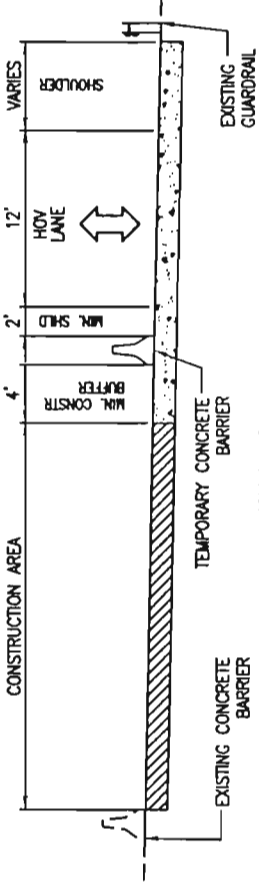
LEGEND

- CONSTRUCTION AREA
- DETOUR PAVEMENT
- COMPLETED CONSTRUCTION
- IMPACT ATTENUATOR (TEMPORARY)
- CONCRETE BARRIER (TEMPORARY)
- DRUM CHANNELIZING DEVICE
- TRAFFIC FLOW

Computer File Information				Sheet Revisions		Colorado Department of Transportation				As Constructed		CONSTRUCTION PHASING HOV LANES – PHASE 2				Project No./Code		
Creation Date:		11/06/00		JDB				 Street Address: 2000 S. Holly Street Denver, CO 80222 Phone: (720) 945-1026 Fax: (720) 945-1028	Region 6 – North Engineering JCS				No Revisions:		CONSTRUCTION PHASING HOV LANES – PHASE 2		0253-168	
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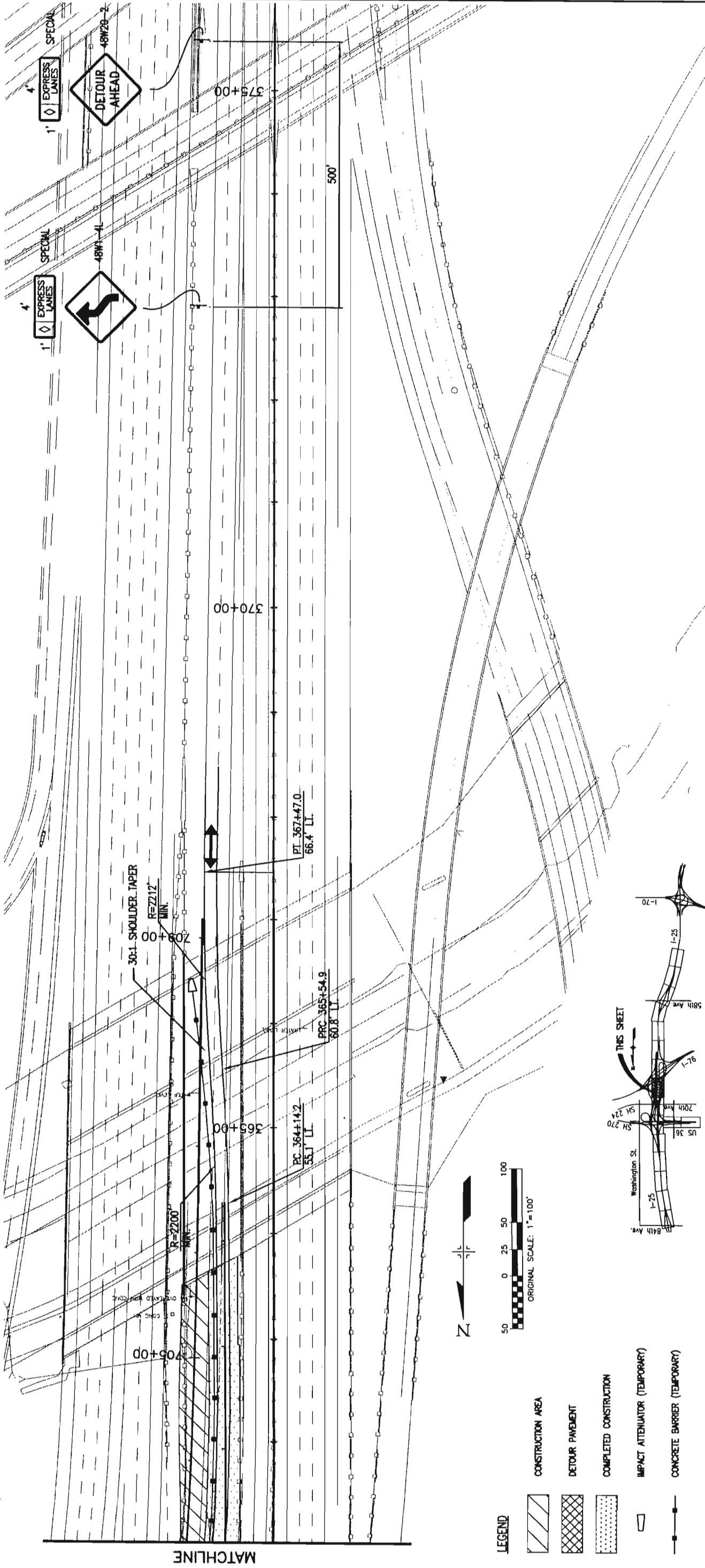
DMJM HARRIS
717 17th Street Suite 500, Denver, Colorado 80202
Phone: (303) 376-2900, Fax: (303) 376-2999

12:55 XREF CPKEYP5H LEGEND XTOPOG PHHOV CDOTTPO CDOTPE TS_HOV HOV-AUGN



STA. 699+42.67 TO STA. 705+76.89

HOV LANE



LEGEND



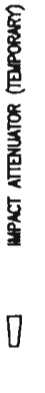
CONSTRUCTION AREA



DETOUR PAVEMENT



COMPLETED CONSTRUCTION



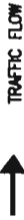
IMPACT ATTENUATOR (TEMPORARY)



CONCRETE BARRIER (TEMPORARY)



DRUM CHANNELIZING DEVICE



TRAFFIC FLOW

Computer File Information

Creation Date:	11/06/00	Initials:	JDB
Last Modification Date:	05/28/03	Initials:	LPS
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Sheet Revisions

Colorado Department of Transportation



Street Address:
2000 S. Holly Street
Denver, CO 80222
Phone: (720) 945-1026 Fax: (720) 945-1028

Region 6 - North Engineering

JCS

As Constructed

No Revisions:	
Revised:	
Void:	

CONSTRUCTION PHASING
HOV LANES - PHASE 2

Designer:	BRG	Structure	
Detailer:	JDB	Numbers	
Sheet Subset: Phasing		Sheet Sheets:	TC14 of 23

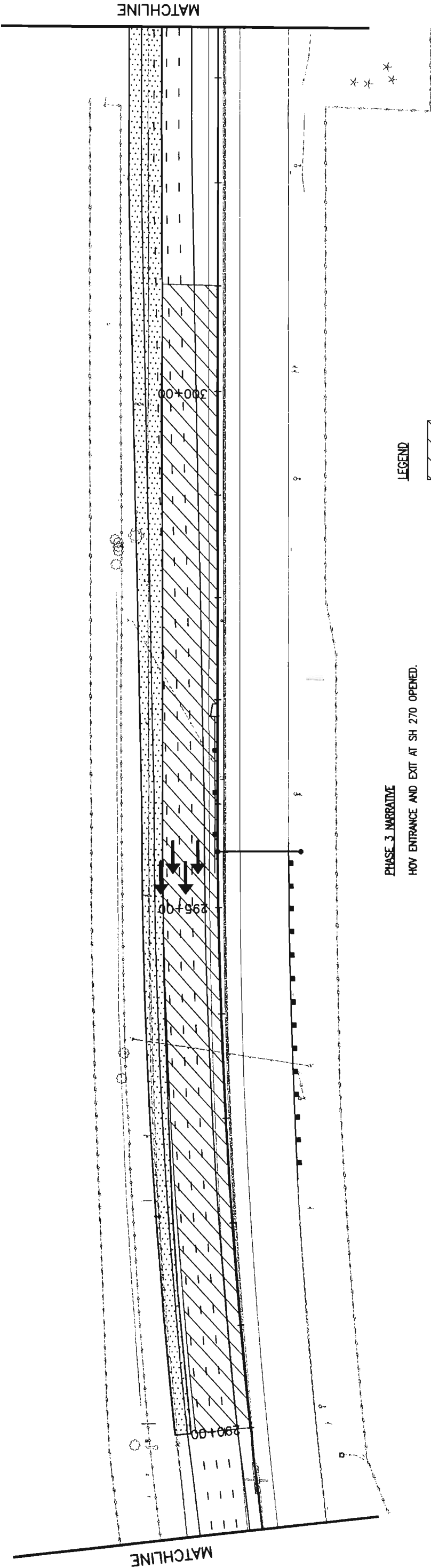
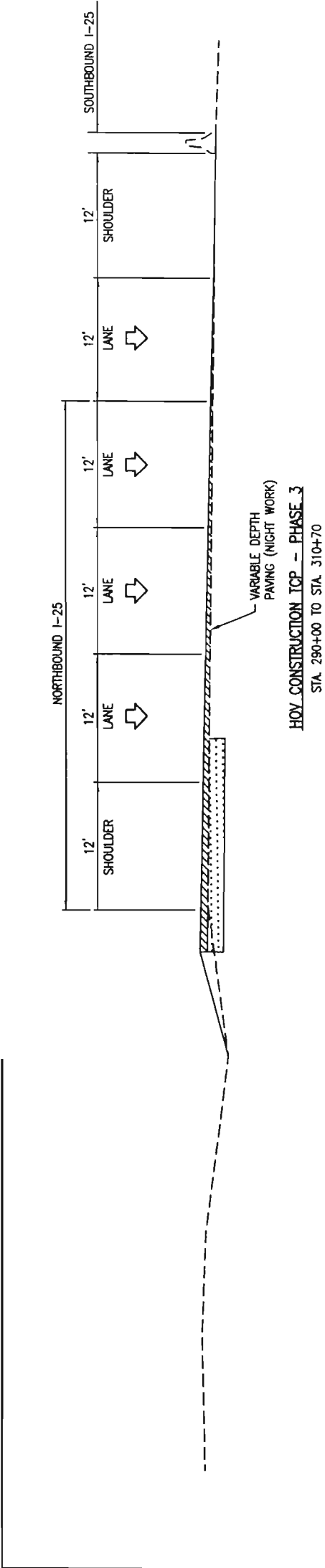
Project No./Code

0253-168

Sheet Number 200



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PHASE 3 NARRATIVE

HOV ENTRANCE AND EXIT AT SH 270 OPENED.

HOV ENTRANCE AND EXIT AT 58TH AVENUE CLOSED.

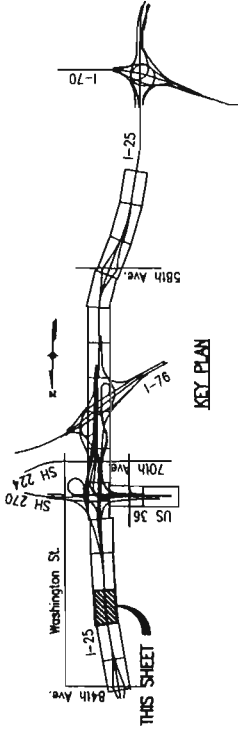
HOV LANE SHIFTED WEST NEAR 58TH AVENUE FOR STORM INLET RELOCATION. BARRIER REMOVAL AND CONSTRUCTION TO CLOSE THE EXISTING EXIT TO NORTHBOUND I-25.

THE TEMPORARY DETOUR IS REMOVED NEAR 70TH AVENUE AND DRAINAGE WORK COMPLETED.

NORTHBOUND I-25 IS SHIFTED TO ITS PROPOSED LOCATION

FULL WIDTH VARIABLE DEPTH PAVING AT NIGHT FOR THE NORTHBOUND I-25 CROSS SLOPE ADJUSTMENT FROM STA. 290+00 TO 301+00.

NORTHBOUND I-25 OVERLAY FROM STA. 255+51.47 TO 290+00.

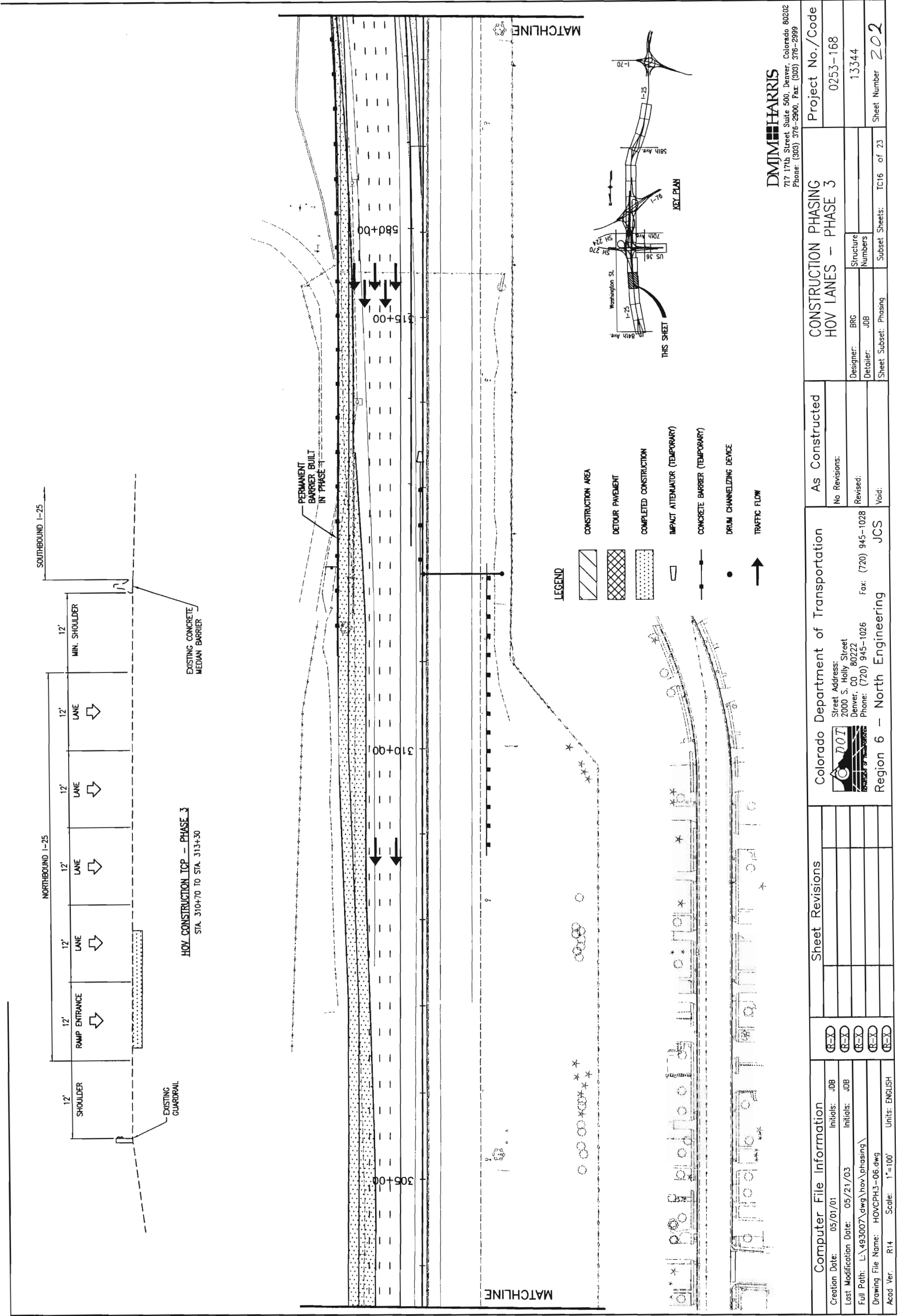


TRAFFIC FLOW



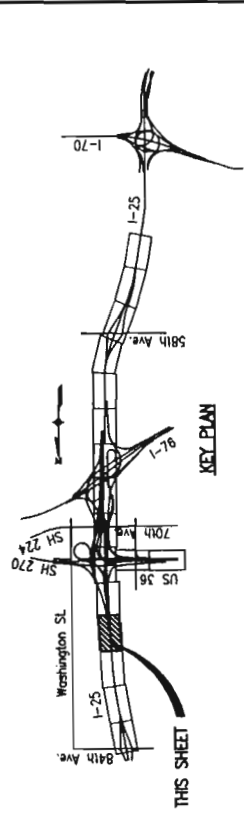
DMJM HARRIS
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Phone: (303) 376-2900, Fax: (303) 376-2999

Computer File Information			Sheet Revisions		Colorado Department of Transportation			As Constructed		CONSTRUCTION PHASING			Project No./Code	
Creation Date:	05/01/01	Initials: JDB			 Street Address: 2000 S. Holly Street Denver, CO 80222 Phone: (720) 945-1026 Fax: (720) 945-1028	Region 6 - North Engineering	JCS	No Revisions:		HOV LANES - PHASE 3			0253-168	
Last Modification Date:	05/21/03	Initials: JDB						Revised:		Designer: BRG			13344	
Full Path:	L:\493007\dwg\hov\phasing\							Void:		Detailer: JDB			Structure Numbers	
Drawing File Name:	HOVCPH3-05.dwg									Sheet Subset: Phasing			Sheet Number	
Acad Ver.	R14	Scale: 1"=100'								Sheet Sheets: TC15 of 23			201	



17:27 XREF = CPKEYPSH														
LEGEND														
XTOPOG														
PHASING														
TS_HOV														
CDOTPE														
HOV-ALIGN														
DRAIN-HOV														

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Phone: (303) 376-2900, Fax: (303) 376-2999



LEGEND
CONSTRUCTION AREA
DETOUR PAVEMENT
COMPLETED CONSTRUCTION
IMPACT ATTENUATOR (TEMPORARY)
CONCRETE BARRIER (TEMPORARY)
DRUM CHANNELIZING DEVICE
TRAFFIC FLOW

HOV CONSTRUCTION TOP - PHASE 3
STA. 310+70 TO STA. 313+30

NORTHBOUND I-25
SOUTHBOUND I-25

SHOULDER
RAMP ENTRANCE
LANE
LANE
LANE
MIN. SHOULDER
EXISTING GUARDRAIL
EXISTING CONCRETE MEDIAN BARRIER

PERMANENT BARRIER BUILT IN PHASE 1

MATCHLINE

MATCHLINE

17:39 XREF = CPKPY5H LEGEND XTOPOG PHHOV CDOTPO TS_HOV CDOTPE HOV-ALIGN

LEGEND

- 

CONSTRUCTION AREA
- 

DETOUR PAVEMENT
- 

COMPLETED CONSTRUCTION
- 

IMPACT ATTENUATOR (TEMPORARY)
- 

CONCRETE BARRIER (TEMPORARY)
- 

DRUM CHANNELIZING DEVICE
- 

TRAFFIC FLOW

Computer File Information		
Creation Date:	11/06/00	Initials: JDB
Last Modification Date:	05/21/03	Initials: LPS
Full Path:	L:\493007\dwg\hov\phasing\	
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Acad Ver.	R14	Scale: 1"=100' Units: ENGLISH

Sheet Revisions	
	(R-X)
	(R-X)
	(R-X)
	(R-X)
	(R-X)

Colorado Department of Transportation



Street Address:
2000 S. Holly Street
Denver, CO 80222
Phone: (720) 945-1026 Fax: (720) 945-1028
Region 6 – North Engineering JCS

As Constructed

No Revisions:	
Revised:	
Void:	

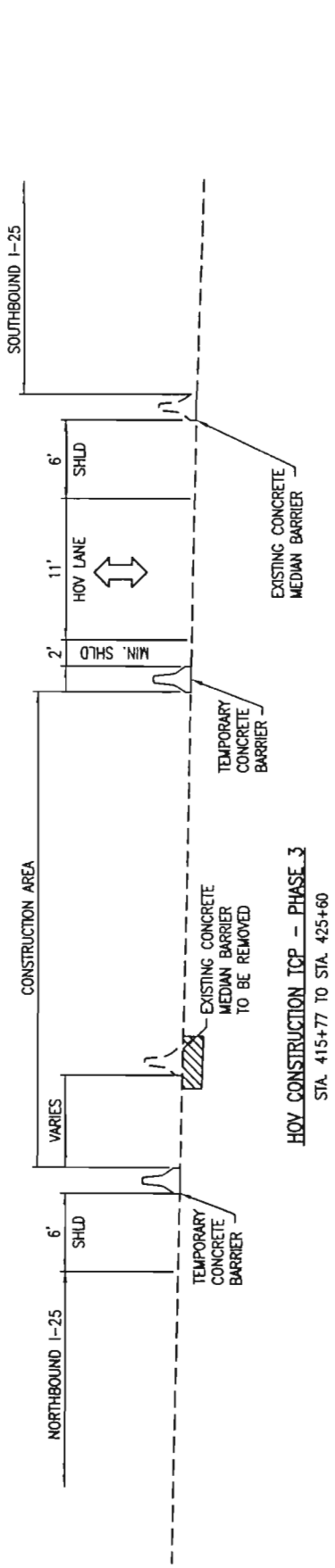
CONSTRUCTION PHASING
HOV LANES – PHASE 3

Designer: BRG	Structure Numbers
Detailer: JDB	
Sheet Subset: Phasing	Subset Sheets: TC18 of 23

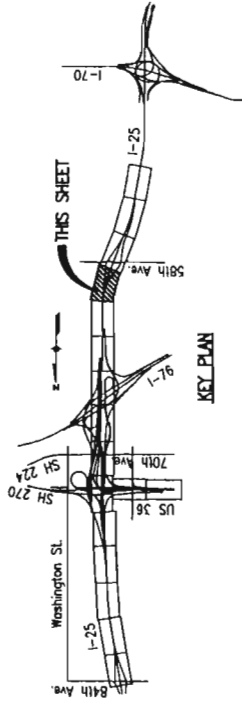
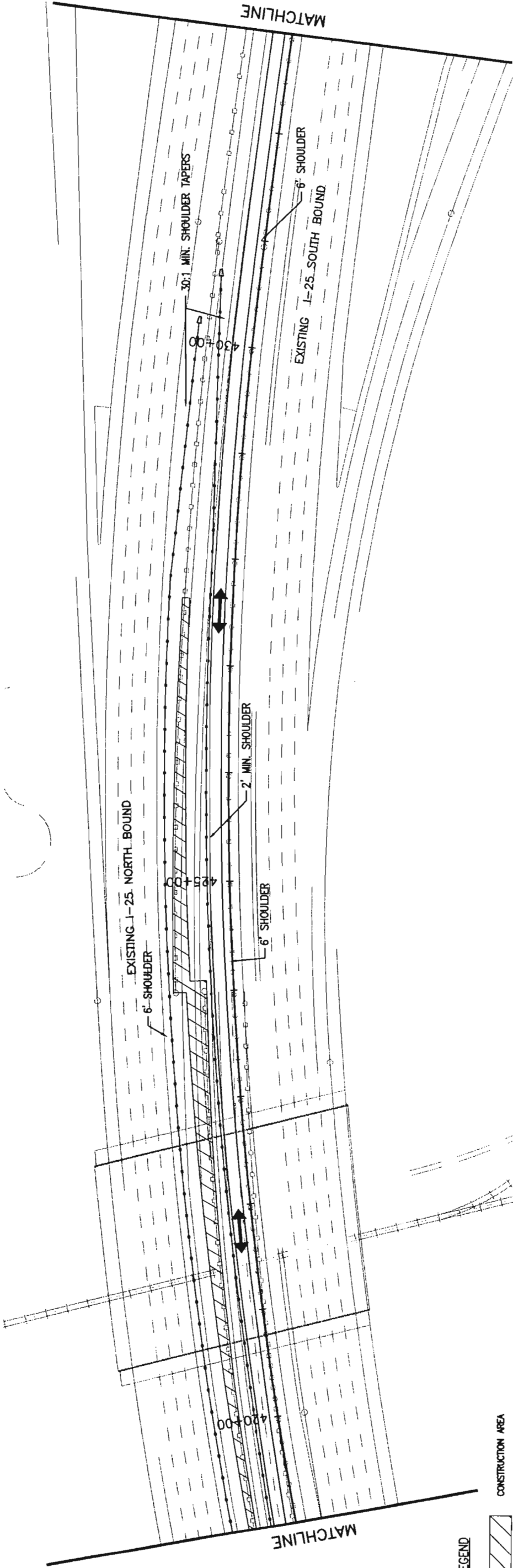
Project No./Code	0253-168
	13344
Sheet Number	204

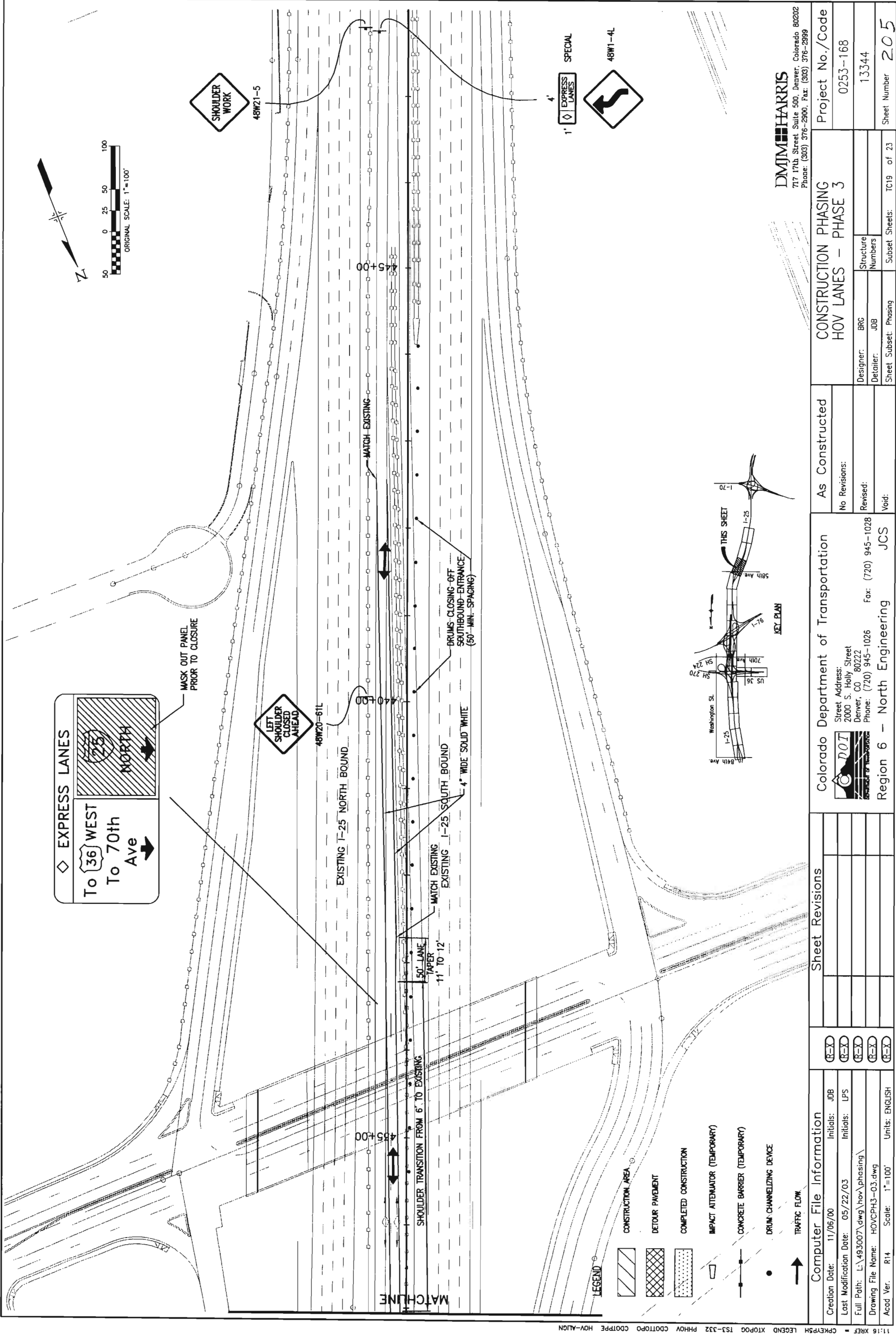
DMJM HARRIS

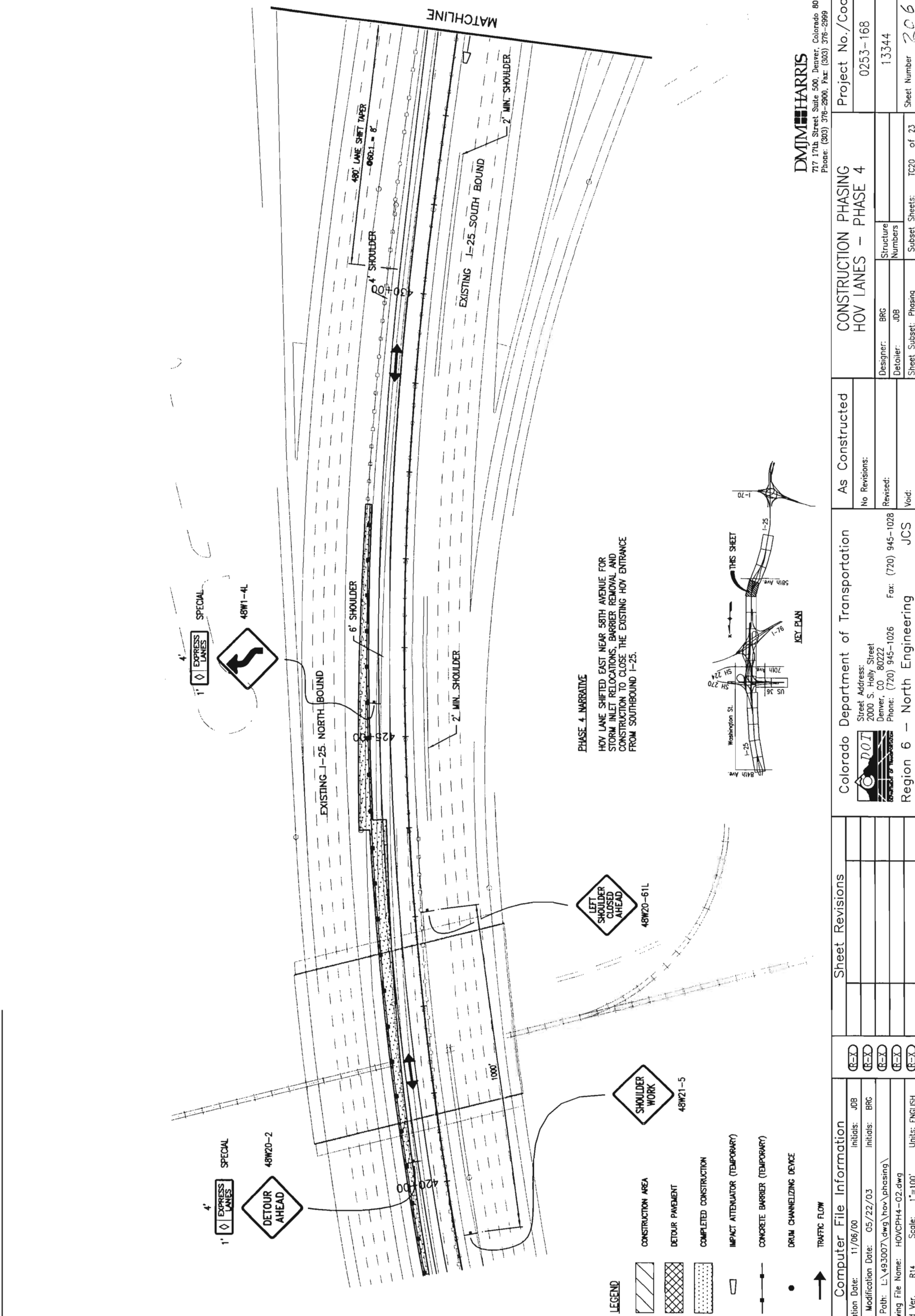
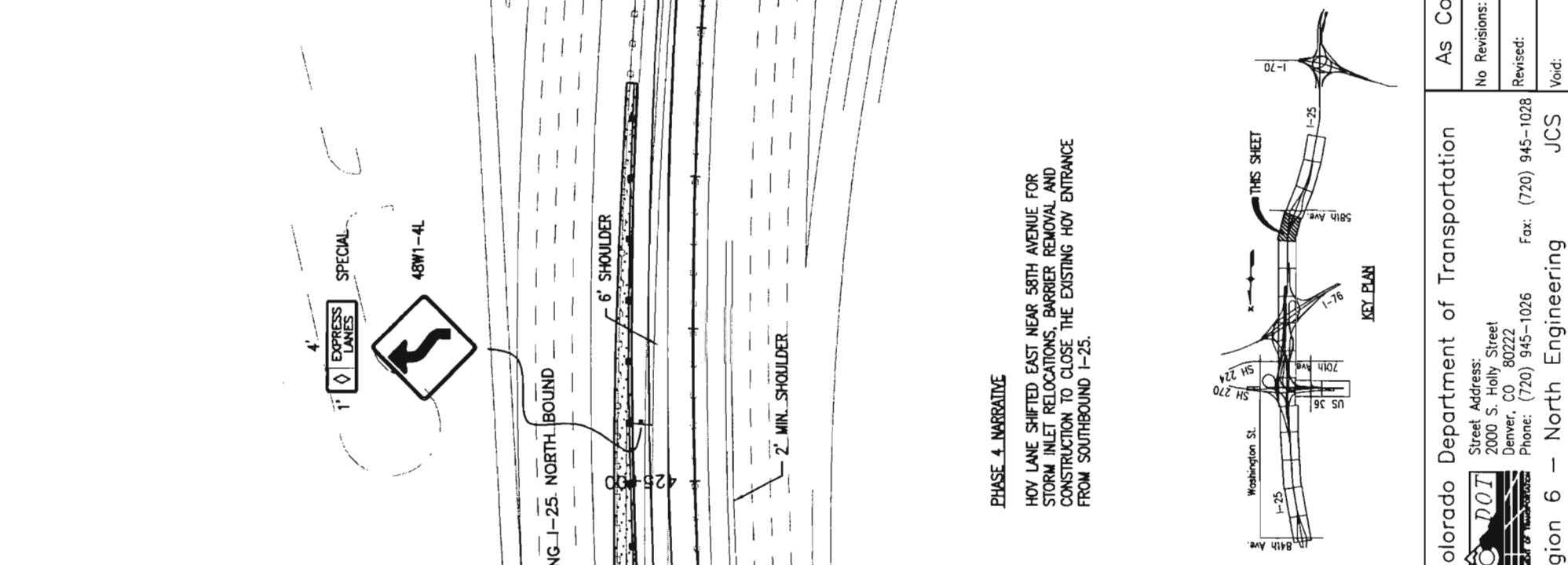
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HOV CONSTRUCTION TCP – PHASE 3
STA. 415+77 TO STA. 425+60





[illegible]

4' EXPRESS LANES SPECIAL

DETOUR AHEAD

48W20-2

SHOULDER WORK

48W21-5

LEGEND

CONSTRUCTION AREA

DETOUR PAVEMENT

COMPLETED CONSTRUCTION

IMPACT ATTENUATOR (TEMPORARY)

CONCRETE BARRIER (TEMPORARY)

DRUM CHANNELIZING DEVICE

TRAFFIC FLOW

1" = 100'

Computer File Information

Creation Date:	11/06/00	Initials:	JDB
Last Modification Date:	05/22/03	Initials:	BRG
Full Path:	L:\493007\dwg\hov\phasing\		
Drawing File Name:	HOVCPH4-02.dwg		
Acad Ver.	R14	Scale:	"=100'
Units:	ENGLISH		

The drawing shows a mechanical part with a cross-section. The main body is cylindrical with a central bore. The bore has a diameter of 1.70. The part has a total length of 1.00. The drawing includes a detailed view of a threaded section with a diameter of 0.50 and a thread pitch of 0.25. The drawing is labeled 'As Constructed' and 'Revisions:'. The drawing is dated 1-70.

480' LANE SHIFT AREA
- 480.1 = 8'

4' SHOULDER

EXISTING I-25 SOUTH BOUND

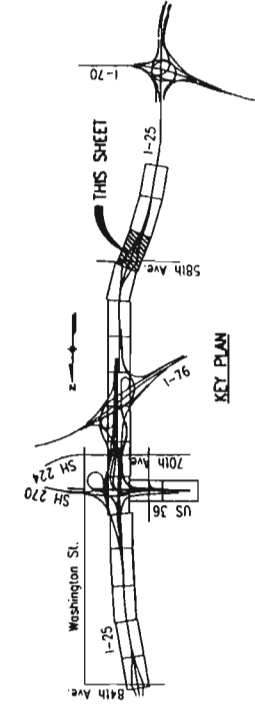
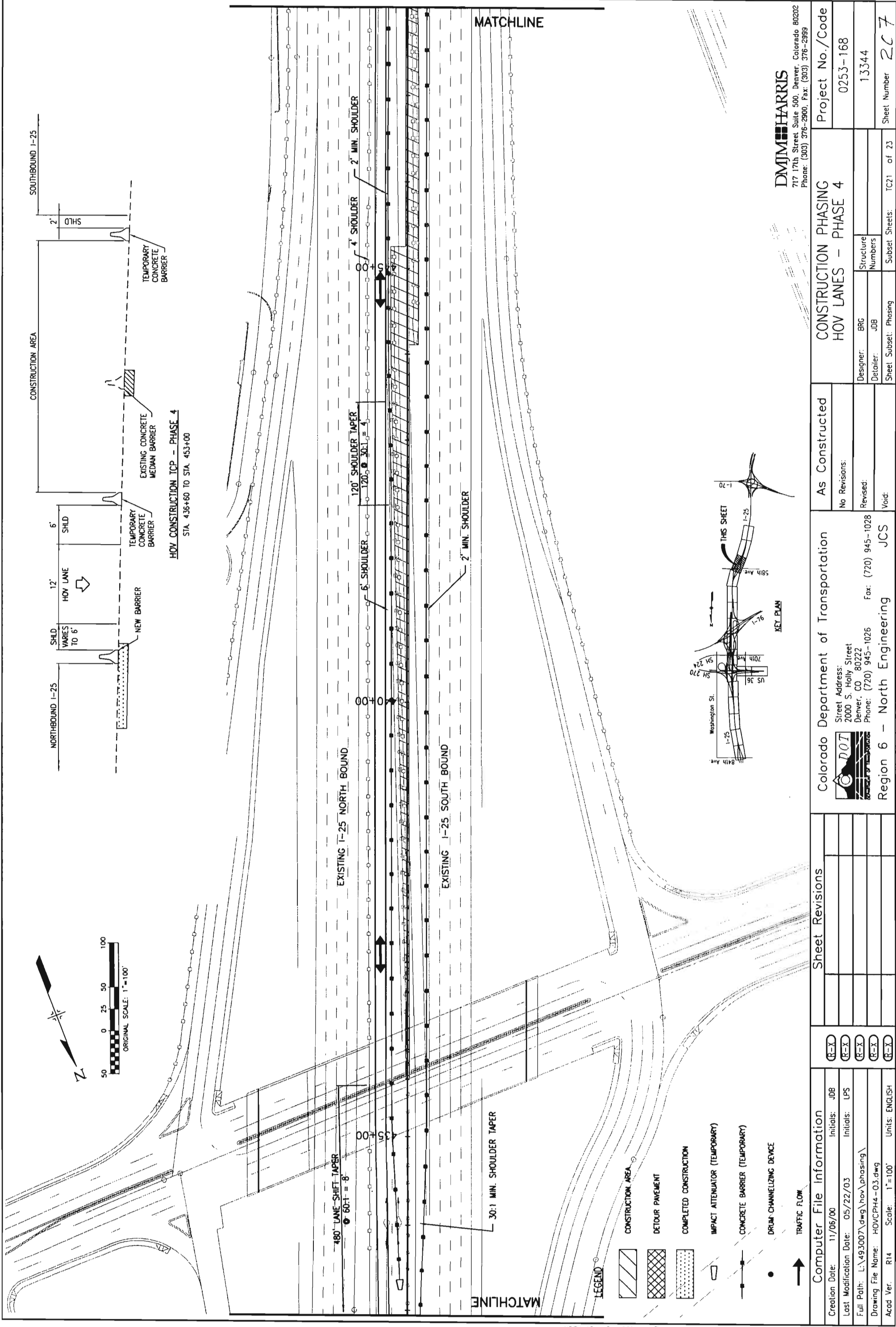
CONSTRUCTION PHASING
HOV LANES - PHASE 4

DMJM
717 17th Street
Phone: (303) 370-1111

Designer: BRG	Structure Numbers
Detailer: JDB	Subset Sheets: TC20 of 23

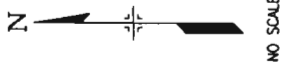
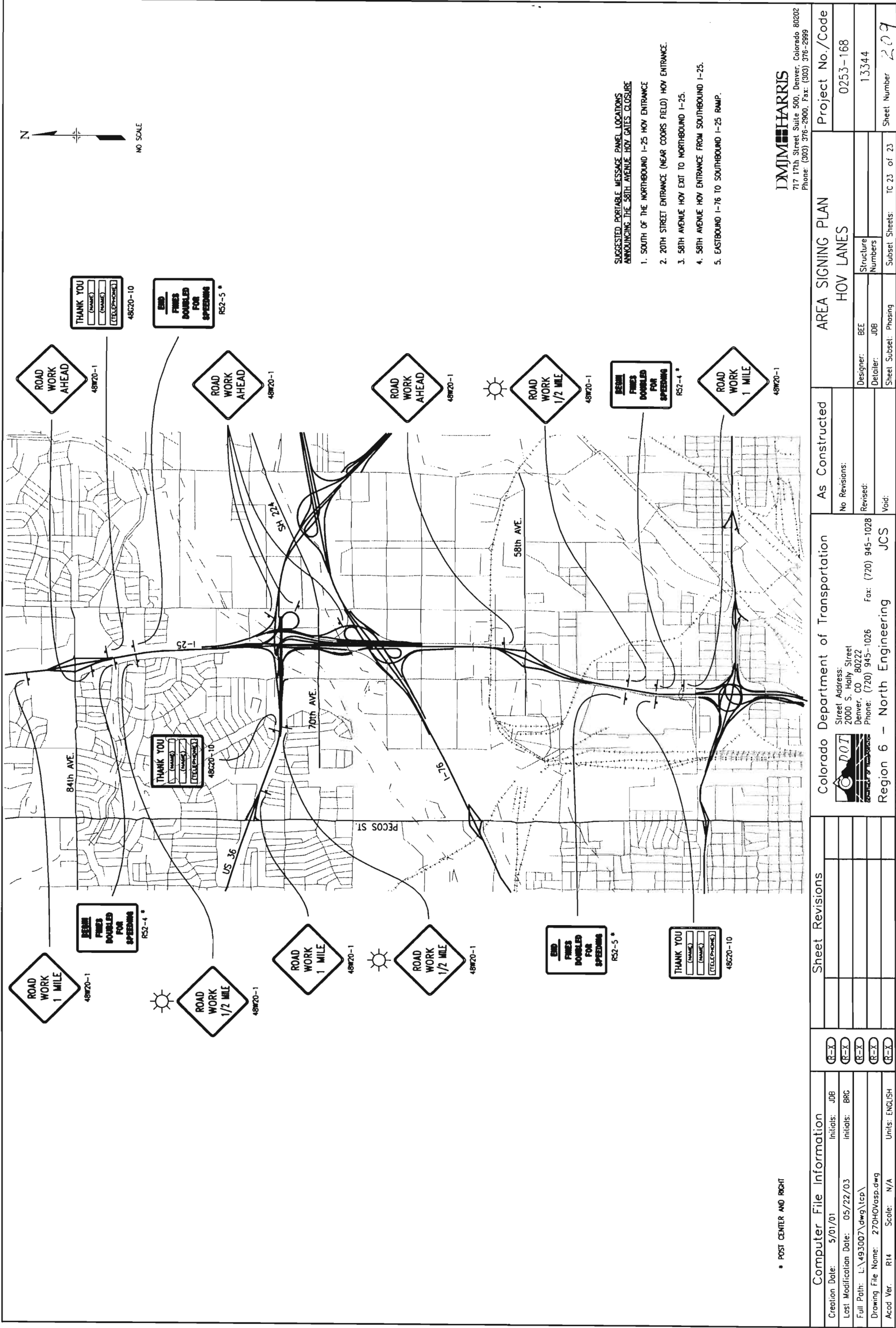
Diagram illustrating a road intersection layout. The diagram shows a road with a lane shift taper, a matchline, and a shoulder. Key features include:

- LANE SHIFT TAPER**: A section of the road with a width of $600:1 = 8'$.
- MATCHLINE**: A line indicating the end of the current section and the start of the next.
- SHOULDER**: A section of the road with a width of $2'$ MIN. SHOULDER.
- IND**: A label indicating the intersection point.



- LEGEND**
- CONSTRUCTION AREA
 - DETOUR PAVEMENT
 - COMPLETED CONSTRUCTION
 - IMPACT ATTENUATOR (TEMPORARY)
 - CONCRETE BARRIER (TEMPORARY)
 - DRUM CHANNELIZING DEVICE
 - TRAFFIC FLOW

Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed		CONSTRUCTION PHASING		Project No./Code		
Creation Date:	11/06/00		Initials:		JDB							HOV LANES - PHASE 4		0253-168	
Last Modification Date:	05/22/03		Initials:		LPS										
Full Path:	L:\493007\dwg\hov\phasing\						Street Address:			Designer:		Structure		13344	
Drawing File Name:	HOVCPH4-03.dwg						Denver, CO 80222			Detailer:		JDB			
Acad Ver.	R14						Phone: (720) 945-1026			Revised:					
Scale:	1"=100'						Fax: (720) 945-1028			Void:					
Units:	ENGLISH						Region 6 - North Engineering					Sheet Subset: Phasing		Sheet Number 207	
						JCS					TC21 of 23				



THANK YOU
[NAME]
[NAME]
[TELEPHONE]

48W20-10

END
FINES
DOUBLED
FOR
SPEEDING
RS2-5 *

ROAD
WORK
AHEAD
48W20-1

48W20-1

ROAD
WORK
AHEAD
48W20-1

48W20-1



ROAD
WORK
1/2 MILE
48W20-1

48W20-1

BEGIN
FINES
DOUBLED
FOR
SPEEDING
RS2-4 *

ROAD
WORK
1 MILE
48W20-1

48W20-1

THANK YOU
[NAME]
[NAME]
[TELEPHONE]

48C20-10

BEGIN
FINES
DOUBLED
FOR
SPEEDING
RS2-4 *

RS2-4 *



ROAD
WORK
1/2 MILE
48W20-1

48W20-1

ROAD
WORK
1 MILE
48W20-1

48W20-1



ROAD
WORK
1/2 MILE
48W20-1

48W20-1

END
FINES
DOUBLED
FOR
SPEEDING
RS2-5 *

RS2-5 *

THANK YOU
[NAME]
[NAME]
[TELEPHONE]

48C20-10

* POST CENTER AND RIGHT

DMJM HARRIS

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Phone: (303) 376-2900, Fax: (303) 376-2999

SUGGESTED PORTABLE MESSAGE PANEL LOCATIONS
ANNOUNCING THE 58TH AVENUE HOV GATES CLOSURE

1. SOUTH OF THE NORTHBOUND I-25 HOV ENTRANCE
2. 20TH STREET ENTRANCE (NEAR COORS FIELD) HOV ENTRANCE
3. 58TH AVENUE HOV EXIT TO NORTHBOUND I-25
4. 58TH AVENUE HOV ENTRANCE FROM SOUTHBOUND I-25
5. EASTBOUND I-76 TO SOUTHBOUND I-25 RAMP

Computer File Information		
Creation Date:	5/01/01	Initials: JDB
Last Modification Date:	05/22/03	Initials: BRG
Full Path:	L:\493007\dwg\tcp\	
Drawing File Name:	270HOVasp.dwg	
Acad Ver.	R14	Scale: N/A Units: ENGLISH

Sheet Revisions	

Colorado Department of Transportation



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Denver, CO 80222
Phone: (720) 945-1026 Fax: (720) 945-1028

Region 6 - North Engineering JCS

As Constructed
No Revisions:
Revised:
Void:

AREA SIGNING PLAN		Project No./Code
HOV LANES		0253-168
Designer: BEE	Structure Numbers	13344
Detailer: JDB		
Sheet Subset: Phasing	TC 23 of 23	Sheet Number 209

1. HOV GATES and THEIR CABINETS SHALL BE DELIVERED TO REGION 6 TRAFFIC AT 2000 S HOLLY ST TO STEVE SPERRY AT 303 757-9511.

2. EACH MANHOLE SHALL HAVE A 100' COIL OF BACKBONE FIBER AND A 25' COIL OF LATERAL FIBER. EACH PULL BOX (SPECIAL) SHALL HAVE A 50' COIL OF BACKBONE FIBER OR A 25' COIL OF LATERAL FIBER.

3. NEW TYPE 3 GUARDRAIL FOR THE CCTV's SHALL BE 10' OFF THE EDGE OF PAVEMENT WHEN POSSIBLE.

4. EACH GATE SHALL INCLUDE AN EXTRA 35' ARM AND AN EXTRA ROADWAY BUMPER. ALL WORK TO CONSTRUCT HOV GATE PAD SHALL BE INCLUDED WITH THE CONCRETE PAVING QUANTITIES.

5. ALL LABOR AND MATERIALS REQUIRED TO WIRE EACH I.T.S. DEVICE TO FULL OPERATION SHALL BE INCLUDED WITH ITS RESPECTIVE I.T.S. DEVICE.

6. ALL ELECTRICAL CONDUIT AND FIBER OPTIC INSTALLATION SHALL BE PER THE PROJECT SPECIFICATIONS, PROJECT STANDARDS AND THE FIBER OPTIC MANUFACTURERS RECOMMENDATIONS

7. TRENCHES CALLING FOR FIVE (5) CONDUITS INCLUDE ONE EXTRA ORANGE CONDUIT FOR FIBER OPTIC LATERAL TO A DEVICE. MOST LATERALS ARE 2-2 INCH CONDUITS AND ARE AN ORANGE FOR FIBER AND A RED FOR POWER. ORANGE CONDUIT= FIBER BLACK CONDUIT= LOOP/COPPER WIRE OR SPARE RED CONDUIT= POWER GRAY CONDUIT= SPARE

8. EACH VMS SHALL INCLUDE A 170E CONTROLLER. THE CONTROLLER SHALL BE GROUND MOUNTED. THE CABINET SHALL INCLUDE EVERYTHING TO OPERATE THE VMS AND SHALL BE PAID AS A TRAFFIC SIGNAL CONTROLLER CABINET.

9. PREFORMED LOOP WIRE IS PAID PER LINEAR FEET OF PREFORMED CONDUIT AND SHALL INCLUDE FOUR (4) WRAPS OF WIRE.

10. ALL SAW CUT LOOPS SHALL BE CUT TO A VALVE BOX (INCLUDED WITH LOOP WIRE) IN THE PAVED SHOULDER. A CONDUIT SHALL CARRY THE LOOP WIRE TO THE NEAREST PULL BOX IN THE UNPAVED AREA AS PER THE PLAN SHEETS. LOOP WIRE IS PAID PER LINEAR FEET AND IS PAID TO THE VALVE BOX. LOOP WIRE AND ALL OTHER WIRE IS INCLUDED WITH THE CONDUIT ONCE IT ENTERS THE CONDUIT. SAW CUT LOOPS FOR 6'x6' LOOPS SHALL BE WRAPPED THREE (3) TIMES

11. CONTROLLERS SHALL INCLUDE (2) 334 AND (1) 332 CABINET AND SHALL BE (3) 170E's.

12. QUANTITIES INCLUDE TRANSCEIVERS FOR FIELD DEVICES AND NODE BLDG 2.

13. CONTRACTOR SHALL FIELD VERIFY THAT CCTV's #1-4 ARE IN A CLEAR LINE OF SIGHT FOR THEIR RESPECTED VMS's #1-4.

14. CCTV POLE SHALL INCLUDE A POLE MOUNTED 30"x30" ACCESS CONTROL CABINET

15. SPLICING SHALL ONLY BE ALLOWED IN TMS MANHOLES AND AT SPLICE POINTS SHOWN ON THE PLANS UNLESS OTHERWISE APPROVED BY REGION 6 ITS.

16. CONTRACTOR SHALL CONTACT CDOT REGION 6 ENVIRONMENTAL AT 303-757-9372 TO DISCUSS THE PROJECT'S AVOIDANCE AND PROTECTION OF WETLANDS AND PRAIRIE DOGS PRIOR TO ANY TRENCHING OR BORING OF CONDUIT OR ANY DEVICE.

17. ALL STATIONING NORTH OF 84th Ave ON ITS SHEETS WAS APPROXIMATED.

18. PROJECT ENGINEER SHALL CONTACT CDOT's TRAFFIC OPERATIONS CENTER ANYTIME THE EXISTING VMS ON 84TH AVE BRIDGE NEEDS TO BE USED. TRAFFIC OPERATIONS CENTER - (303)-512-5830

19. LOCATION OF EACH ITS DEVICES SHALL BE APPROVED BY R6 ITS. (303)-757-9029

ITEM NO.	ITEM	UNIT	ITS TOTALS
202-00805	REMOVAL OF OVERHEAD SIGN STRUCTURE	EACH	2
202-01040	REMOVAL OF HOV GATE	EACH	10
210-00475	RESET CLOSED CIRCUIT TELEVISION POLE	EACH	1
210-04011	ADJUST MANHOLE (SPECIAL)	EACH	3
503-00030	DRILLED CAISSON (30 INCH)	LIN. FT.	40
503-00054	DRILLED CAISSON (54 INCH)	LIN. FT.	228
604-39050	MANHOLE (TMS)	EACH	13
606-00301	GUARDRAIL TYPE 3 (6-3 POST SPACING)	LIN. FT.	880.5
606-00710	GUARDRAIL TYPE 7 (STYLE CA)	LIN. FT.	315
606-01340	END ANCHORAGE TYPE 3D	EACH	4
606-01370	END ANCHORAGE TYPE 3G	EACH	3
606-02001	END ANCHORAGE (Slotted Rail Terminal)	EACH	7
607-60630	HOV GATE	EACH	10
612-15000	INSTALL MARKER	EACH	50
613-00201	2 INCH ELECTRICAL CONDUIT (JACKED)	LIN. FT.	40,000
613-01200	2 INCH ELECTRICAL CONDUIT (PLASTIC)	LIN. FT.	77,000
613-07034	PULL BOX (SPECIAL) (24"x36"x18")	EACH	35
613-32400	LIGHT STANDARD STEEL (40 FOOT)	EACH	1
613-40000	CONCRETE FOUNDATION PAD	EACH	1
614-00012	SIGN PANEL (Class II)	SQ FT	272
614-10120	VARIABLE MESSAGE SIGN	EACH	4
614-42400	MONOTUBE OVERHEAD SIGN BRIDGE (24 Inch Diameter)	EACH	4
614-72855	TRAFFIC SIGNAL CONTROLLER CABINET	EACH	4
614-72871	LOOP DETECTOR WIRE (PREFAB) SPECIAL	LIN. FT.	140
614-72875	LOOP DETECTOR WIRE	LIN. FT.	1875
614-72878	TRAFFIC SIGNAL VEHICLE DETECTOR AMPLIFIER (LOOP TYPE) (4 CHANNEL)	EACH	9
614-86240	TRAFFIC SIGNAL CONTROLLER (TYPE 170)	EACH	3
614-87020	OPTICAL TRANSCEIVER	EACH	13
614-87028	VIDEO OPTICAL TRANSCEIVER	EACH	12
614-87320	CLOSED CIRCUIT TELEVISION	EACH	6
614-87325	CLOSED CIRCUIT TELEVISION POLE	EACH	3
614-87350	TEST FIBER OPTIC CABLE	LS	1
614-87406	FIBER OPTIC CABLE (SINGLE MODE) (6 STRANDS)	LIN. FT.	7800
614-87496	FIBER OPTIC CABLE (SINGLE MODE) (96 STRANDS)	LIN. FT.	22,000
614-87498	FIBER OPTIC CABLE (SINGLE MODE) (144 STRANDS)	LIN. FT.	3500

Computer File Information

Creation Date:09/25/01Initials:JKS

Last Modification Date:6-1-03Initials:JKS

Full Path:SUMMARY SHEET.Dwg

Acad Ver.2002Scale:Units:English

Sheet Revisions

Colorado Department of Transportation



2000 South Holly Street
Denver, Colorado 80222
Phone: 303 757 9511
FAX: 303 757 9907

Region 6 Traffic - ITS

As Constructed

No Revisions:

Revised:

Void:

ITS Summary Sheet

Designer:JKS
Detailer:JKS

Sheet Subset:ITS

Subst Sheet:Subst Sheets:

Project No./Code

IM 0253-168

13344

Sheet Number210

SUMMARY OF ITS BID ITEMS

COMMUNICATIONS EQUIPMENT		
Item No.	Description	Unit
202-00805	Removal of Overhead Sign Structure	EACH
Remove VMS		
Remove VMS Structure		
Remove Pole Mounted Cabinet		
Remove Pole Bolts to Surface of Barrier		
Deliver Salvageable to R6 /Disposal of Remaining		
202-01040	Removal of HOV Gate and Cabinets	EACH
Removal of 2 Existing Cabinets		
210-00475	Reset CCTV Pole	EACH
Remove top 1' of Existing Foundation and Bury		

VARIABLE MESSAGE SIGN		
Item No.	Description	Unit
614-10120	Variable Message Sign	EACH
Fiber Optic Interconnect Unit		
ALL WIRING		
Wiring to Ground Mounted Cabinet		
Resetting 170 Controller from sign to ground Cabinet		
503-00054	Drilled Caisson (54 Inch)	Lin Ft
Steel Cage		
Force Account	Power Source	LS

COMMUNICATIONS INFRASTRUCTURE		
Item No.	Description	Unit
613-00201	2 Inch Electrical Conduit (Jacked)	Lin Ft
Pull Rope		
12 Gauge Tracer Wire		
613-01200	2 Inch Electrical Conduit (Plastic)	Lin Ft
Pull Rope		
12 Gauge Tracer Wire		
614-xxxxxx	Fiber Optic Cable (Single-Mode) (All Strands)	Lin Ft
Fiber Optic Splice Closure and All Splicing		
Fiber Optic Pre-Connectorized Cables		
614-87350	Test Fiber Optic Cable	LS
604-39050	Manhole (TMS)	EACH
Cable Innerduct		
613-07034	Pullbox (Special)	EACH

AUTOMATIC TRAFFIC RECORDING STATIONS		
Item No.	Description	Unit
614-72871	Loop Detector Wire (Prefab) Special	Lin Ft
Preformed 1/2" conduit		
Valve Box		
614-72875	Loop Detector Wire	Lin Ft
Valve Box		
614-72878	Traffic Signal Vehicle Detector Amplifier (Loop Type)(4 Channel)	EACH
614-86240	Traffic Signal Controller (Type 170)	EACH
Model 334 Controller Cabinet		
Model 332 Controller Cabinet and Foundation at HOV		
ALL WIRING		

COMMUNICATIONS EQUIPMENT		
Item No.	Description	Unit
614-87020	Optical Transceiver	EACH
614-87028	Video Optical Transceiver	EACH

HOV GATES SYSTEM		
Item No.	Description	Unit
607-60630	HOV Gate	EACH
Extra 35' Gate Arm		
ALL WIRING		
Flashing Red Barrier Mounted Gate Lights		
Force Account	Power Source	FA

CLOSED CIRCUIT TELEVISION		
Item No.	Description	Unit
614-87320	Closed Circuit Television	EACH
Fiber Optic Interconnect Unit		
CCTV Camera and ALL WIRING		
CCTV Lens & Environmental Cover		
CCTV Aerial Terminal		
CCTV Controller		
Wire and ALL WIRING		
614-87028	Video Optical Transceiver	EACH
614-87325	Closed Circuit Television Pole	EACH
Pole Mounted Access Cabinet		
503-00030	Drilled Caisson (30 Inch)	Lin Ft
Force Account	Power Source	FA

NOTE: ITEMS SHOWN IN THE TABLES LISTED BELOW THE RESPECTED BID ITEM ARE SHOWN FOR INFORMATION ONLY AND ARE PAID FOR UNDER THE RESPECTIVE BID ITEM. SEE PROJECT SPECIAL PROVISIONS.

Computer File Information			Sheet Revisions		Colorado Department of Transportation  2000 South Holly Street Denver, CO 80222 Phone: 757-9511 FAX: 757-9907 Region 6- Traffic ITS AI	As Constructed	ITS		Project No.
Creation Date:	2-1-02	Initials:	JKS	ITEMS			IM 0253-168		
Last Modification Date:	6-1-03	Initials:	JKS						
Full Path:	C:\USERDATA\PROJECTS								
Drawing File Name:	BIDITEMTAB.DWG								
Acad Ver.	2002	Scale:	SCALE	Units:ENGLISH	Sheet Subset:	Sheet Subst:	Sheet Subst:	Sheet Number	211

TABULATION OF MISCELLANEOUS ITS QUANTITIES

LOCATION	GUARDRAIL TYPE 3 (6-3 POST SPACING)	GUARDRAIL TYPE 7 (STYLE CA)	END ANCHORAGE TYPE 3D	END ANCHORAGE TYPE 3G	END ANCHORAGE (SLOTTED RAIL TERMINAL)	COMMENTS
	LIN FT	LIN FT	EACH	EACH	EACH	
530+16, 66' RT					1	WMS #1
530+16, 60 RT - 530+48, 66' RT	31.5					.
530+48, 66' RT				1		.
530+48, 60 RT - 532+03, 66' RT		155				.
269+59, 65' RT					1	CCTV #2
269+59, 65 RT - 269+91, 65' RT	31.5					.
269+91, 65' RT				1		.
269+91, 65 RT - 271+26, 65' RT		140				.
269+49, 115' RT					1	CCTV #2
269+49, 115 RT - 271+26, 94' RT	140					.
271+26, 94' RT			1			.
277+67, 76' RT					1	WMS #2
277+67, 76' RT - 278+29, 76' RT	62.5					.
278+29, 76' RT - 278+41, 76' RT	12.5			1		.
278+41, 76' RT - 278+61, 76' RT		20				
287+46, 83' RT					1	CCTV #3
287+46, 63 RT - 289+73, 83' RT	190					.
289+73, 83' RT			1			.
293+98, 73' RT					1	WMS #3
293+98, 73' RT - 295+73, 73' RT	175					.
295+73, 73' RT			1			.
309+83, 77' RT					1	WMS #4
309+83, 77 RT - 312+20, 77' RT	237.5					.
312+20, 77' RT			1			.
SHEET TOTAL	880.5	315	4	3	7	

Computer File Information		Sheet Revisions		Colorado Department of Transportation		ITS		Project No.	
Creation Date:	5-20-02	Initials:	KP			As Constructed		IM 0253-168	
Last Modification Date:	4-1-03	Initials:	JKS			No Revisions:			
Full Path:						Revised:		JKS Structure Numbers	
Drawing File Name:	TAB2.DWG					Void:		KP	
Acad Ver.	2002	Scale:	UNITS			Sheet Subset:		13344	
						Subsets:		212	

TABULATION OF ITS SIGNS

NOTES FOR ITS SIGNS

1. SEE CDOT M & S STANDARD FOR CLASS II SIGNS, POLE MOUNTED SIGNS AND FOR PANEL BACKING ZEE REQUIREMENTS
2. VMS BRIDGES SHALL HAVE THE STRUCTURE NUMBER STENCILED ON THE STRUCTURE POST. FOR DETAILS SEE "STRUCTURE NUMBER INSTALLATION"
3. THE CONTRACTOR SHALL NOTIFY XCEL -- ELECTRIC 48 HOURS PRIOR TO REMOVAL SIGN STRUCTURE
CONTACT CHERI WEERS AT 303-571-2505
4. SEE PROJECT STANDARD FOR SPECIAL VMS MOUNTING BRACKET

SIGN NO.	STATION	SIGN PANEL SIZE	BACK-GROUND COLOR	SIGN CODE	REMOVE SIGN STR	RESET SIGN STR	POLE DIAMETER	STRUCTURE TYPE	FRAME SIZE	STRUCTURE NUMBER	SIGN PANEL CLASS II (SQ. FT.)	SIGN PANEL CLASS III (SQ. FT.)	CAISSON			COMMENTS
													DEPTH	PAY LENGTH 48" 54" 42"		
S1	531+83	18x2	WHITE	SPECIAL			24"	BRIDGE	73'-3"	E-17-AAH	36		24/24	53'		
S2a		4x6	WHITE	SPECIAL							24					
S2b		4x2	WHITE	SPECIAL							8					
S3	278+65	18x2	WHITE	SPECIAL			24"	BRIDGE	81'-3"	E-17-AAG	36		24/24	57'		
S4a		4x6	WHITE	SPECIAL							24					
S4b		4x2	WHITE	SPECIAL							8					
S5	295+50	18x2	WHITE	SPECIAL			24"	BRIDGE	81'-3"	E-17-AAF	36		24/24	61'		
S6a		4x6	WHITE	SPECIAL							24					
S6b		4x2	WHITE	SPECIAL							8					
S7	312+00	18x2	WHITE	SPECIAL			24"	BRIDGE	93'-3"	E-17-AAE	36		24/24	57'		
S8a		4x6	WHITE	SPECIAL							24					
S8b		4x2	WHITE	SPECIAL							8					
V9	360+25				1											*Includes removal/delivery of VMS
V10	391+00				1*											REMAIN IN PLACE/TREX
V11	at 58th Ave															*Includes removal/delivery of VMS
V12	at 58th Ave				1*											
PROJECT TOTALS															228	

Computer File Information			Index of Revisions			Colorado Department of Transportation			As Constructed			TABULATION OF ITS SIGNS			Project No./Code		
Creation Date: 5-9-02			Initials: JKS									No Revisions:			IM 0253-168		
Last Modification Date: 6-1-03			Initials: JKS														
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Scale: NONE																	
 Region 6 Traffic 2000 S HOLLY Denver, CO 80222 Phone: (303) 757-9511 FAX: (303) 757-9907						Designer: JKS			Structure Numbers								
						Detailer: JKS											
						Sheet Subst:						Subset Sheet Number:					
												Sheet Number			213		

DEVICE	Station	
CCTV No. 0	SB I-25 Sta 551+83	(Install at the top of the NB I-25 Off ramp) to Thornton Parkway on existing pole. Contractor shall use existing cabinet)
CCTV No. 1	SB I-25 Sta 527+83	(Install 1785' N of 88th Ave behind) (Existing Guardrail on new CCTV Pole)
VMS No. 1	SB I-25 Sta 531+83	(On New Sign Bridge)
CCTV No. 2	SB I-25 Sta 271+00	(On reset CCTV Pole)
VMS No. 2	SB I-25 Sta 278+65	(On New Sign Bridge)
CCTV No. 3	SB I-25 Sta 289+50	(On new CCTV Pole)
VMS No. 3	SB I-25 Sta 295+50	(On New Sign Bridge)
CCTV No. 4	SB I-25 Sta 307+50	(On new CCTV Pole)
VMS No. 4	SB I-25 Sta 312+00	(On New Sign Bridge)
HOV Gates	SB I-25 HOV Sta 403+20 to 417+20	INSTALL 10 HOV Gates and all Related equipment
CCTV No. 5	SB I-25 Sta 343+75	(On new Light Standard Pole) (See Project Detail Sheet)
ITS Sign No. V9	SB I-25 Sta 390+00	REMOVE (Structure & VMS)
ITS Sign No. V10	SB I-25 Sta 403+00	REMAIN IN PLACE Turned over to TREX Once Gates are Closed Remove Express Lane Sign Panel
ITS Sign No. V11	SB I-25 Sta 312+00	REMOVE (Structure & VMS) (Just North of 58th Ave)
HOV Gates	SB I-25 Sta 437+50 to 451+00	REMOVE 10 HOV Gates and all Related equipment

Computer File Information			Sheet Revisions		
Creation Date:	5-9-02	Initials: JKS			
Last Modification Date:	6-1-03	Initials: JKS			
Full Path:					
Drawing File Name:	VMSSTATUS				
Acad Ver.	2002	Scale:	NOTTOSCALE	Units:	



Colorado Department of Transportation

2000 SO HOLLY ST.
ROOM 200
DENVER, COLORADO 80222
Phone: 303-757-9511 FAX: 303-757-9053

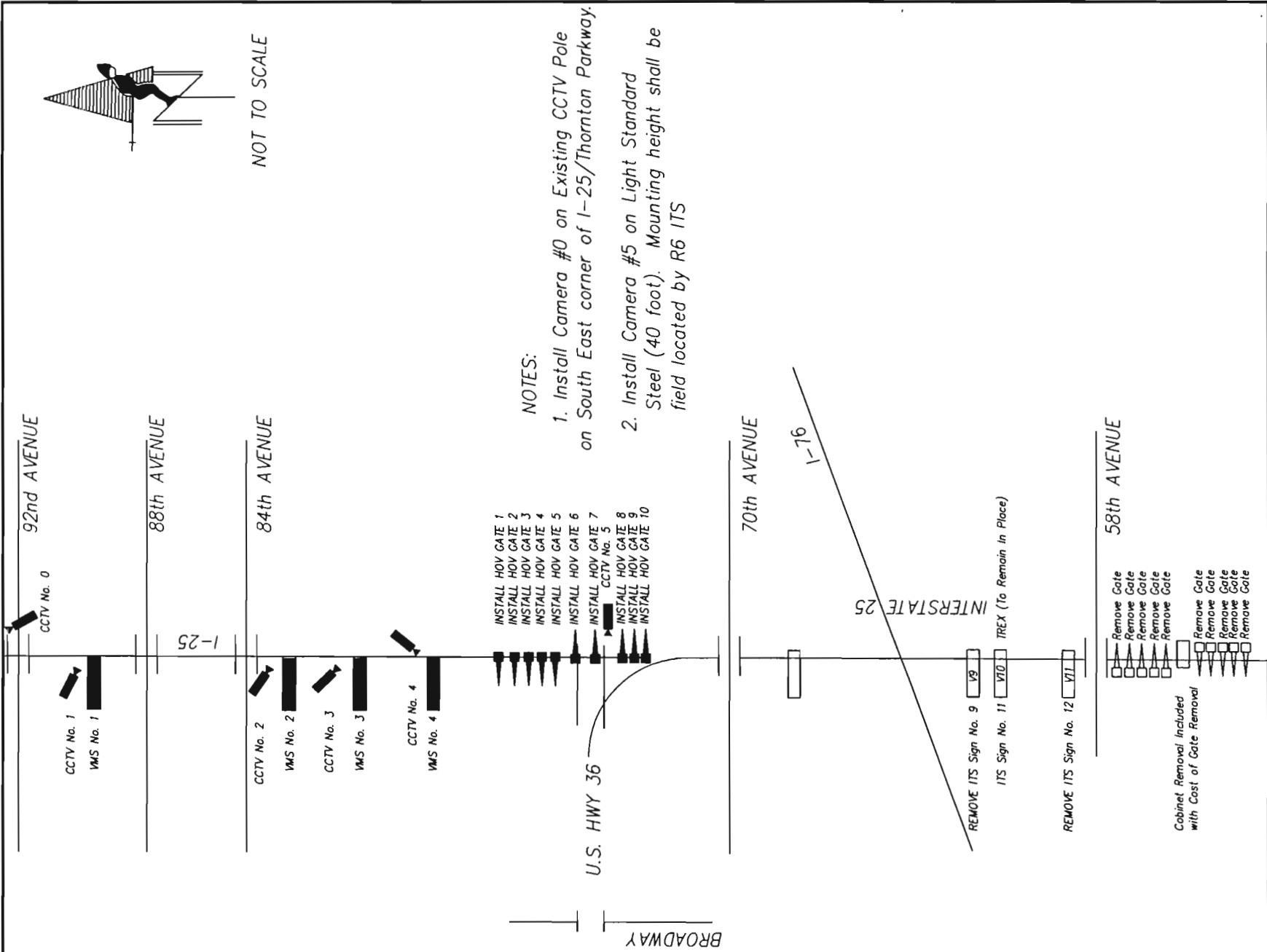
Region 6 — ITS

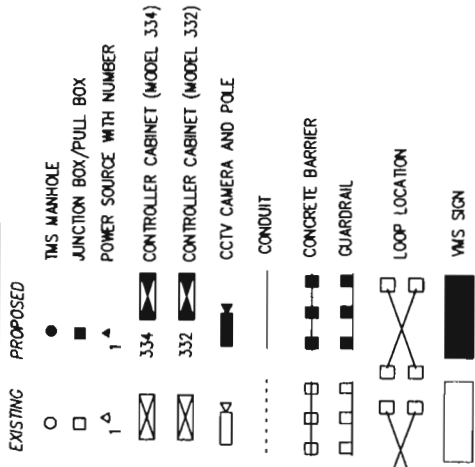
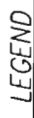
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As Constructed
No Revisions:
Revised:
Void:

HOV GATES AND VMS SUMMARY	
Designer:	JKS
Detailer:	JKS
Sheet Subset:	
Sheet Sheets:	

Project No.
IM 0253-168
13344
Sheet Number
214

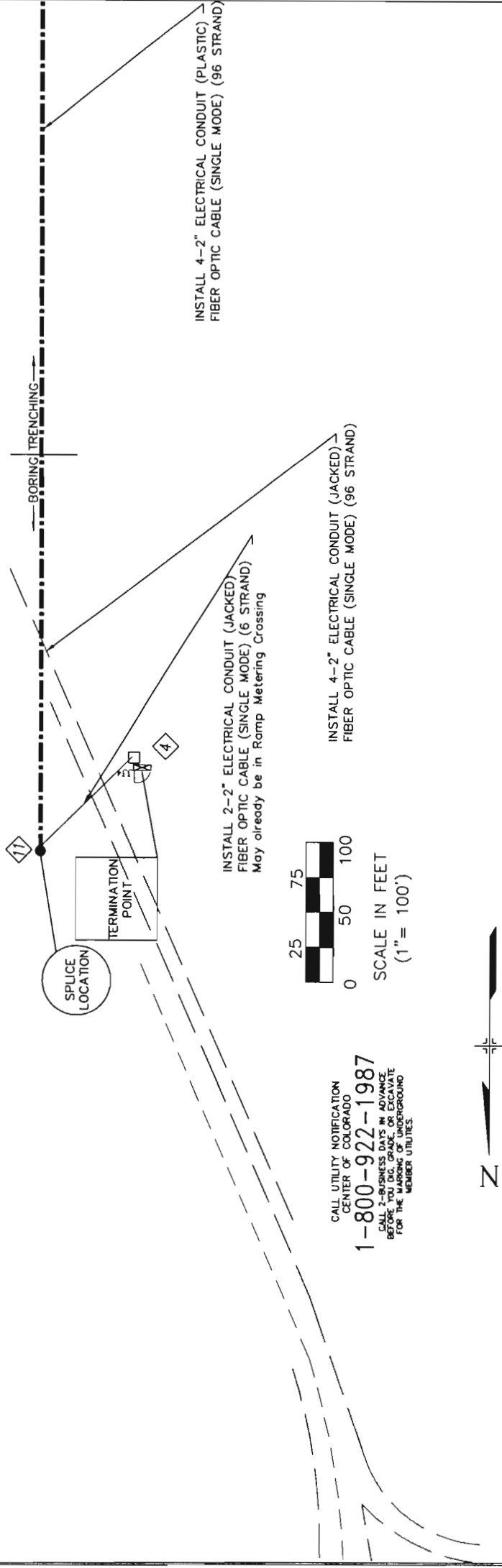
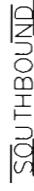




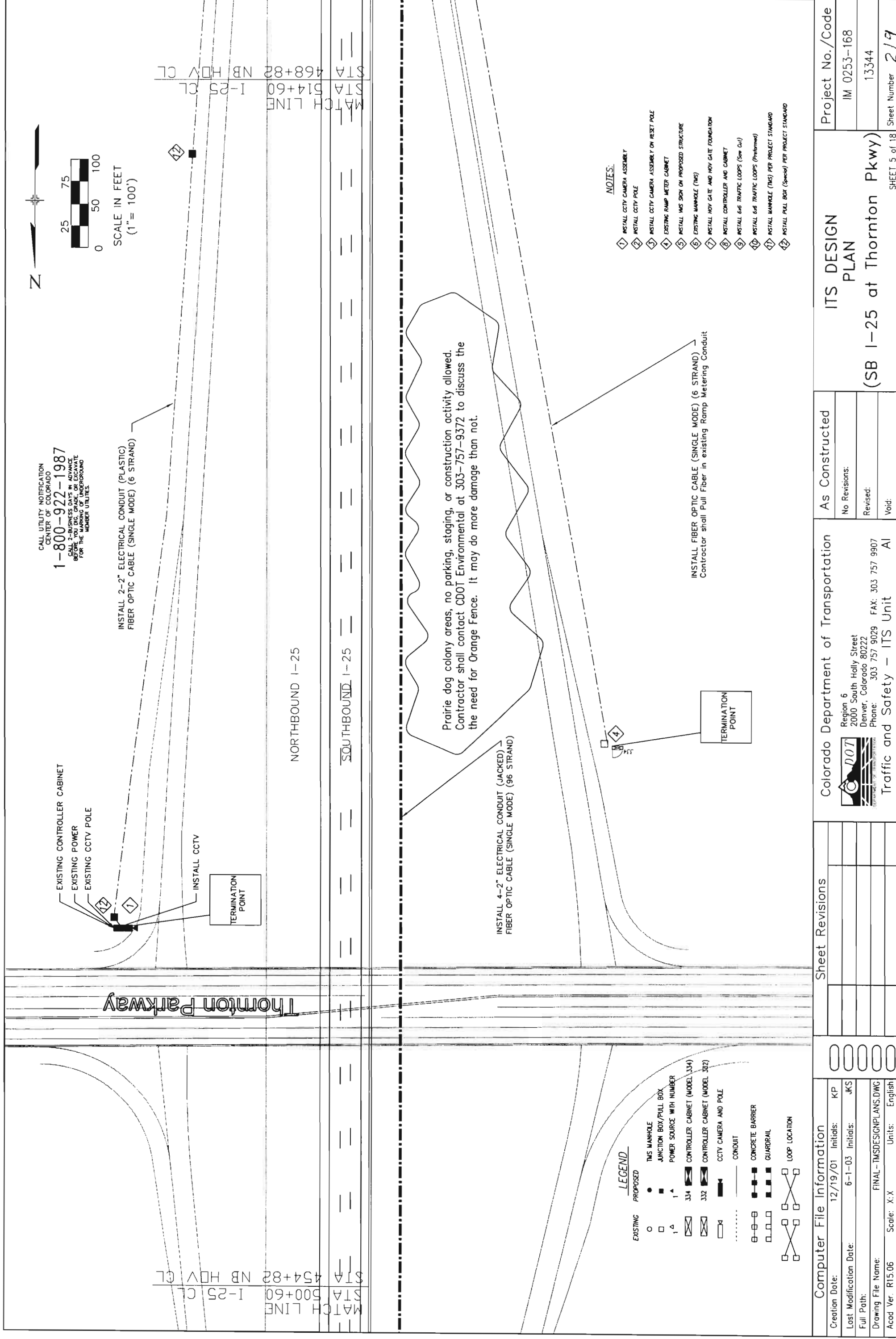
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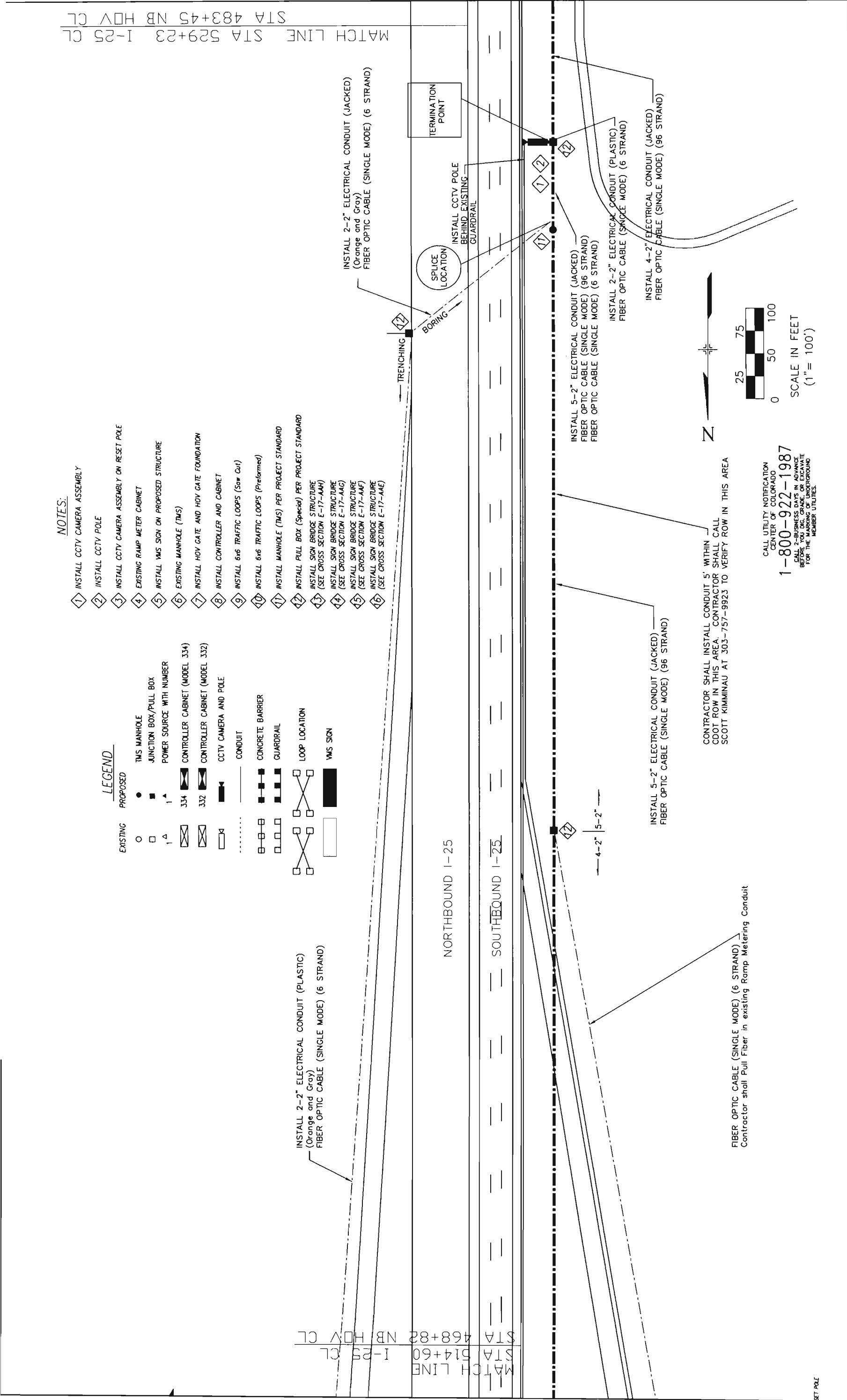
1. INSTALL CCTV CAMERA ASSEMBLY
2. INSTALL CCTV POLE
3. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
4. EXISTING RAMP METER CABINET
5. INSTALL VMS SIGN ON PROPOSED STRUCTURE
6. EXISTING MANHOLE (TMS)
7. INSTALL HOV GATE AND HOV GATE FOUNDATION
8. INSTALL CONTROLLER AND CABINET
9. INSTALL 6x6 TRAFFIC LOOPS (Saw Cut)
10. INSTALL 6x6 TRAFFIC LOOPS (Preformed)
11. INSTALL MANHOLE (TMS) PER PROJECT STANDARD
12. INSTALL PULL BOX (Special) PER PROJECT STANDARD

MATCH LINE	STA 458+60	1-25 CL
	STA 412+82	NB HWY CL



Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed			ITS DESIGN PLAN (SB I-25 at 104th Ave)			Project No./Code		
Creation Date: 12/19/01 Initials: KP						 Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303 757 9907 Traffic and Safety – ITS Unit AI			No Revisions:			IM 0253-168 13344 Sheet Number 215 SHEET 1 of 18					
Lost Modification Date: 6-1-03 Initials: JKS																	
Full Path:																	
Drawing File Name: FINAL – TMSDESIGNPLANS.DWG																	
Acad Ver. RT5.06 Scale: X:X Units: English																	





NOTES:

- 1

INSTALL CCTV CAMERA ASSEMBLY
- 2

INSTALL CCTV POLE
- 3

INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
- 4

EXISTING RAMP METER CABINET
- 5

INSTALL VMS SIGN ON PROPOSED STRUCTURE
- 6

EXISTING MANHOLE (TMS)
- 7

INSTALL HOV GATE AND HOV GATE FOUNDATION
- 8

INSTALL CONTROLLER AND CABINET
- 9

INSTALL 6x6 TRAFFIC LOOPS (Saw Cut)
- 10

INSTALL 6x6 TRAFFIC LOOPS (Preformed)
- 11

INSTALL MANHOLE (TMS) PER PROJECT STANDARD
- 12

INSTALL PULL BOX (Special) PER PROJECT STANDARD
- 13

INSTALL SIGN BRIDGE STRUCTURE
(SEE CROSS SECTION E-17-AAH)
- 14

INSTALL SIGN BRIDGE STRUCTURE
(SEE CROSS SECTION E-17-AAG)
- 15

INSTALL SIGN BRIDGE STRUCTURE
(SEE CROSS SECTION E-17-AAF)
- 16

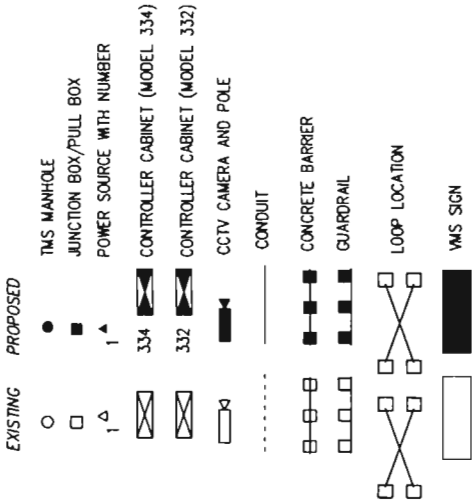
INSTALL SIGN BRIDGE STRUCTURE
(SEE CROSS SECTION E-17-AAE)



STA 530+48 TO STA 532+03, RT
REQ'D ~ 155 LF GUARDRAIL TYPE 7
WITH ONE END ANCHORAGE
31.5 LF GUARDRAIL TYPE 3, AND
ONE END ANCHORAGE
(SLOTTED RAIL TERMINAL)

MATCH LINE STA 529+23 I-25 CL
STA 483+45 NB HOV CL

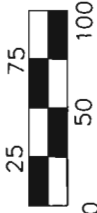
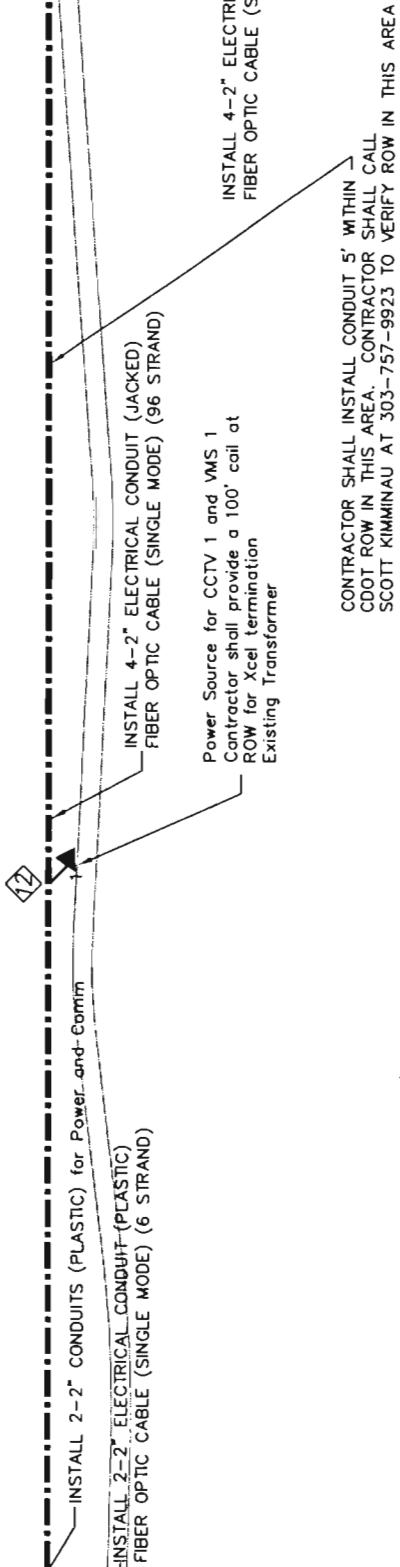
LEGEND



PT 542+72.80 BK =
233+17.30 AH
STATION EQUATION

NORTHBOUND I-25

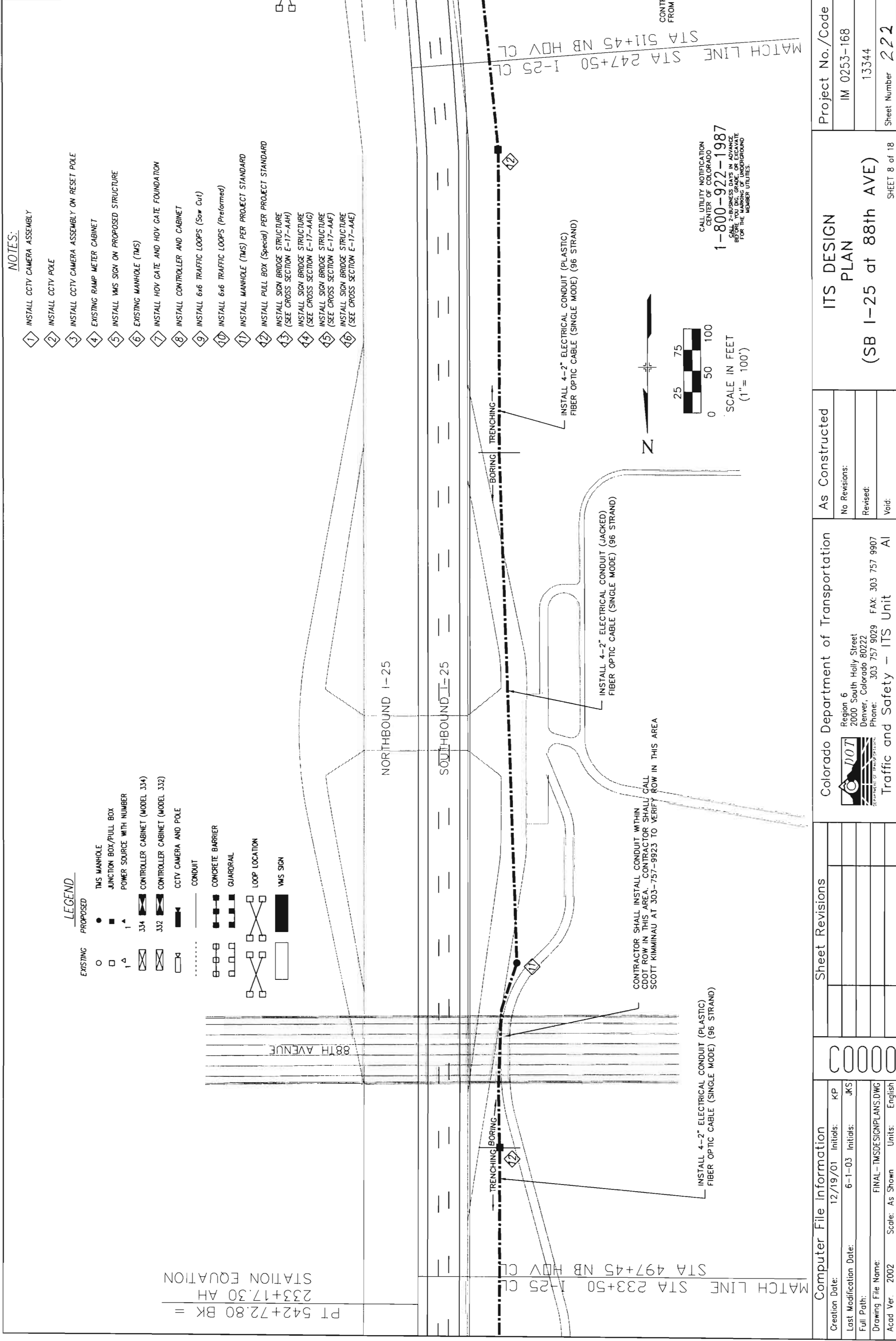
SOUTHBOUND I-25



SCALE IN FEET
(1" = 100')

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		ITS DESIGN PLAN		Project No./Code	
Creation Date:		12/19/01	Initials:	KP					No Revisions:		IM 0253-168	
Last Modification Date:		6-1-03		Initials:	JKS				Revised:		13344	
Full Path:												
Drawing File Name:		FINAL-TMSDESIGNPLANS.DWG										
Acad Ver.		2002	Scale:	X: X	Units:	English	Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303 757 9907 Traffic and Safety - ITS Unit AI		Void:		SHEET 7 of 18	



LEGEND

EXISTING	PROPOSED

NORTHBOUND I-25

SOUTHBOUND I-25

NOTES:

1. INSTALL CCTV CAMERA ASSEMBLY
2. INSTALL CCTV POLE
3. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
4. EXISTING RAMP METER CABINET
5. INSTALL VMS SIGN ON PROPOSED STRUCTURE
6. EXISTING MANHOLE (TMS)
7. INSTALL HOV GATE AND HOV GATE FOUNDATION
8. INSTALL CONTROLLER AND CABINET
9. INSTALL 6x6 TRAFFIC LOOPS (Saw Cut)
10. INSTALL 6x6 TRAFFIC LOOPS (Preformed)
11. INSTALL MANHOLE (TMS) PER PROJECT STANDARD
12. INSTALL PULL BOX (Special) PER PROJECT STANDARD
13. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAH)
14. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAG)
15. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAF)
16. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAE)

INSTALL 4-2" ELECTRICAL CONDUIT (PLASTIC)
FIBER OPTIC CABLE (SINGLE MODE) (96 STRAND)

EXISTING CCTV POLE
TO BE RELOCATED

Power Source for NB ATR
Contractor shall provide a 40' coil at
ROW for Xcel termination
Existing Transformer

INSTALL 4-2" ELECTRICAL CONDUIT (JACKED)
FIBER OPTIC CABLE (SINGLE MODE) (96 STRAND)

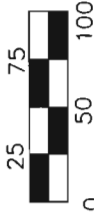
INSTALL 4-2" ELECTRICAL CONDUIT (PLASTIC)
FIBER OPTIC CABLE (SINGLE MODE) (96 STRAND)

INSTALL 3-2" ELECTRICAL CONDUIT (JACKED)
FIBER OPTIC CABLE (SINGLE MODE) (6 STRAND)

INSTALL 2-2" ELECTRICAL CONDUIT (JACKED)
FIBER OPTIC CABLE (SINGLE MODE) (6 STRAND)

TERMINATION
POINT

Existing VMS



SCALE IN FEET
(1"= 100')

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2 BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

Computer File Information

Creation Date:	12/19/01	Initials:	KP
Last Modification Date:	6-1-03	Initials:	JKS
Full Path:	FINAL - TMSDESIGNPLANS.DWG		
Drawing File Name:	2002	Scale:	X:X
Acad Ver.	2002	Units:	English

Sheet Revisions

Colorado Department of Transportation



Region 6
2000 South Holly Street
Denver, Colorado 80222
Phone: 303 757 9029 FAX: 303 757 9907
Traffic and Safety - ITS Unit

Project No./Code
IM 0253-168
13344
Sheet Number 223

As Constructed

No Revisions:	
Revised:	
Void:	

ITS DESIGN
PLAN

(SB I-25 at 84th AVE)

LEGEND

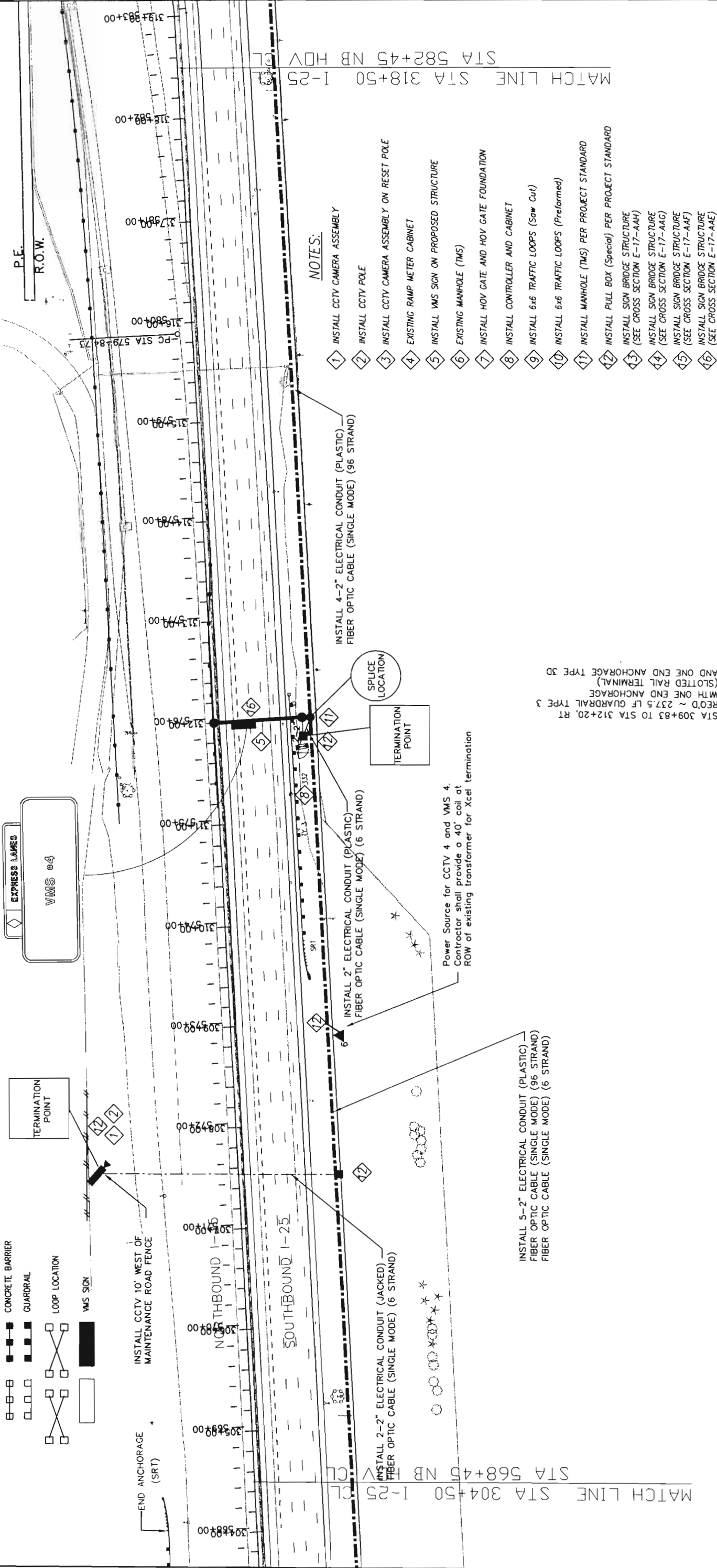
- EXISTING

PROPOSED
- TMS MANHOLE
 - JUNCTION BOX/PULL BOX
 - POWER SOURCE WITH NUMBER
 - 334 CONTROLLER CABINET (MODEL 334)
 - 332 CONTROLLER CABINET (MODEL 332)
 - CCTV CAMERA AND POLE
 - CONDUIT
 - CONCRETE BARRIER
 - GUARDRAIL
 - LOOP LOCATION
 - VMS SIGN



SCALE IN FEET
(1" = 100')

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL BUSINESS LINES IN ADVANCE
BEFORE YOU DIG GRAVE OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.



NOTES:

1. INSTALL CCTV CAMERA ASSEMBLY
2. INSTALL CCTV POLE
3. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
4. EXISTING RAMP METER CABINET
5. INSTALL VMS SIGN ON PROPOSED STRUCTURE
6. EXISTING MANHOLE (TMS)
7. INSTALL HOV GATE AND HOV GATE FOUNDATION
8. INSTALL CONTROLLER AND CABINET
9. INSTALL 6x6 TRAFFIC LOOPS (Saw Cut)
10. INSTALL 6x6 TRAFFIC LOOPS (Preformed)
11. INSTALL MANHOLE (TMS) PER PROJECT STANDARD
12. INSTALL PULL BOX (Special) PER PROJECT STANDARD
13. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAH)
14. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAG)
15. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAF)
16. INSTALL SIGN BRIDGE STRUCTURE (SEE CROSS SECTION E-17-AAE)

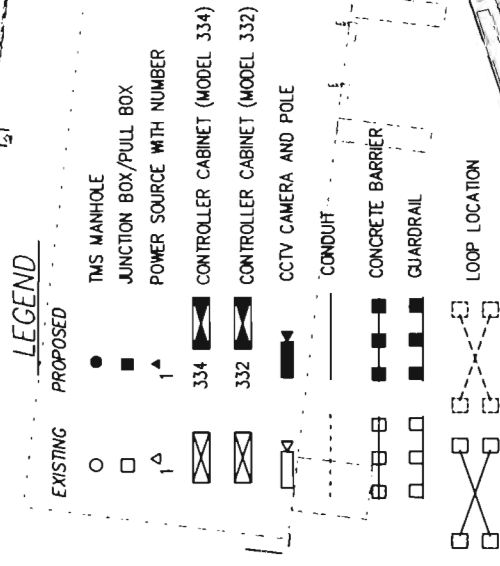
STA 309+83 TO STA 312+20, RT
READ ~ 237.5 LF GUARDRAIL TYPE 3
WITH ONE END ANCHORAGE
(SLOTTED RAIL TERMINAL)
AND ONE END ANCHORAGE TYPE 3D

Power Source for CCTV 4 and VMS 4.
Contractor shall provide a 40' coil at
ROW of existing transformer for Xcel termination

Computer File Information			Sheet Revisions			Colorado Department of Transportation		As Constructed	ITS DESIGN PLAN		Project No./Code
Creation Date:	12/19/01	Initials: KP				Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303 757 9907 Traffic and Safety - ITS Unit		No Revisions:	PLAN		IM 0253-168
Last Modification Date:	6-1-03	Initials: JKS						Revised:	(SB 1-25)		13344
Full Path:	FINAL-TMSDESIGNPLANS.DWG							Void:			Sheet Number 207
Drawing File Name:											
Acad Ver.	2002	Scale: X: X									SHEET 13 of 18

- NOTES:

- 1 INSTALL CCTV CAMERA ASSEMBLY
- 2 INSTALL CCTV POLE
- 3 INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
- 4 EXISTING RAMP METER CABINET
- 5 INSTALL VMS SIGN ON PROPOSED STRUCTURE
- 6 EXISTING MANHOLE (TMS)
- 7 INSTALL HOV GATE AND HOV GATE FOUNDATION
- 8 INSTALL CONTROLLER AND CABINET
- 9 INSTALL 6x6 TRAFFIC LOOPS (Saw Cut)
- 10 INSTALL 6x6 TRAFFIC LOOPS (Preformed)
- 11 INSTALL MANHOLE (TMS) PER PROJECT STANDARD
- 12 INSTALL PULL BOX (Special) PER PROJECT STANDARD



INSTALL 4-2" ELECTRICAL CONDUIT (PLASTIC)
FIBER OPTIC CABLE (SINGLE MODE) (144 STRAND)
Behind Barrier in Grade-NOT IN BARRIER

Install 2-2" Electrical Conduits
in between Barrier that sweep
up into Gate Light

STA. 400+00 HOV SB
3' LT, BEGIN 50' TRANSITION
PAID AS GUARDRAIL TYPE 7
(STYLE CD-H.O.V)(SPECIAL)

 $\Delta^2 \text{ Al } \text{CaF}_2 \cdot \text{CDOT } 140^\circ$

2. 66" MERGING FROM RIGHT SYMBOL

THE SOUTH BOUND

Previous Sheet / 14

WITH LIGHT

N

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.

4-2 ELECTRICAL CONDUIT (JACKED)
FIBER OPTIC CABLE (SINGLE MODE) (144 STRAND)

2025 JUL 08 PM 08

67-24 Existing Strands

SPLICE

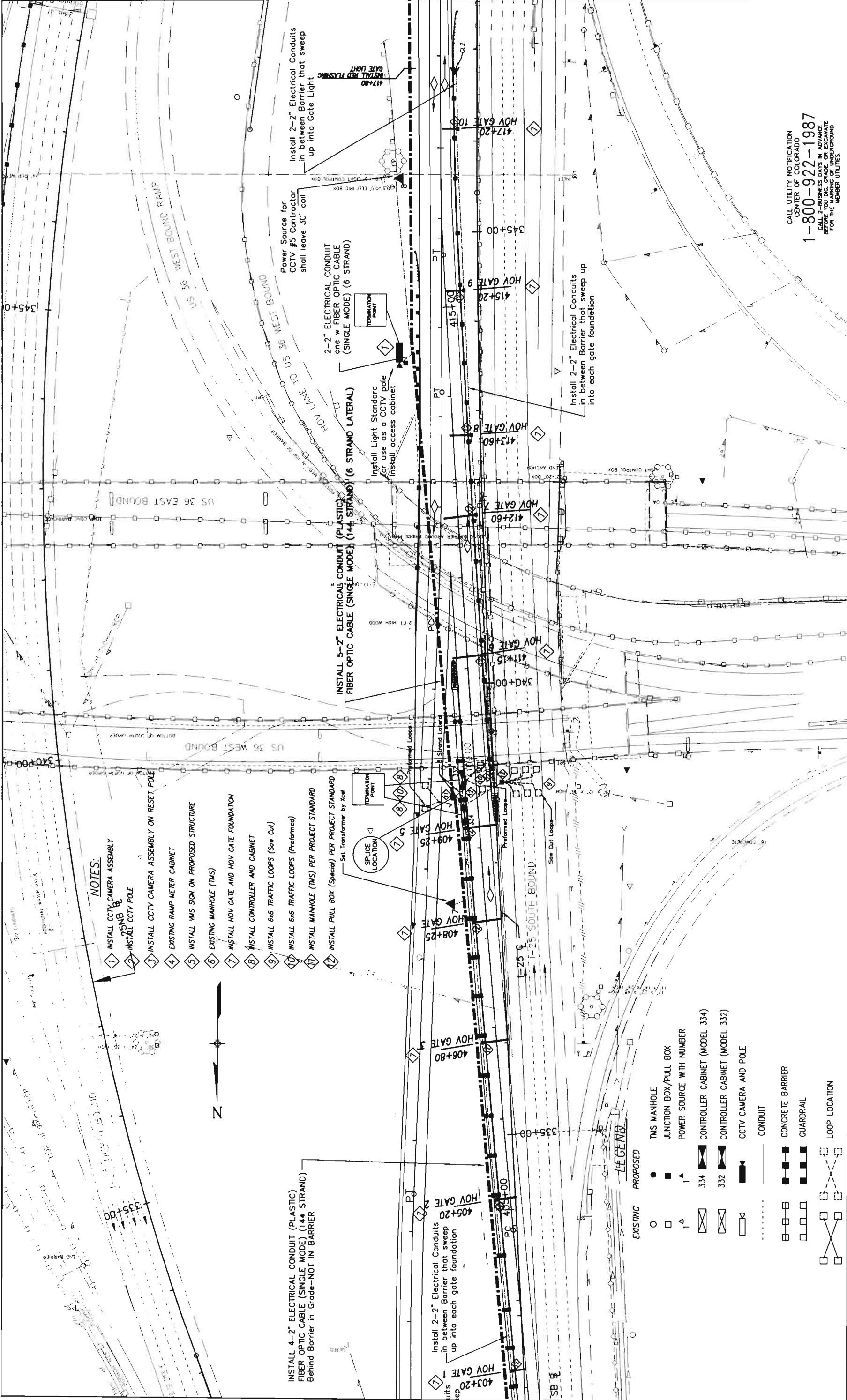
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Acad Ver.	2002	Scale:	1"=100'
		Units:	English

	Sheet Revisions
00000	


Colorado Department of Transportation
 Region 6
 2000 South Holly Street
 Denver, Colorado 80222
 Phone: 303 757 9029 FAX: 303 757 9907
 Traffic and Safety – ITS Unit AI

As Constructed
No Revisions:
Revised:
Void:

ITS DESIGN PLAN (SB 1-25 at HOV Gates)	Project No./Code
	IM 0253-168
	13344
	Sheet Number 229



- NOTES:**
- 1. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
 - 2. INSTALL CCTV POLE
 - 3. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE
 - 4. EXISTING RAMP METER CABINET
 - 5. INSTALL WMS SIGN ON PROPOSED STRUCTURE
 - 6. EXISTING MANHOLE (TMS)
 - 7. INSTALL HOV GATE AND HOV GATE FOUNDATION
 - 8. INSTALL CONTROLLER AND CABINET
 - 9. INSTALL 6x6 TRAFFIC LOOPS (See Cut)
 - 10. INSTALL 6x6 TRAFFIC LOOPS (Preformed)
 - 11. INSTALL MANHOLE (TMS) PER PROJECT STANDARD
 - 12. INSTALL PULL BOX (Special) PER PROJECT STANDARD

LEGEND

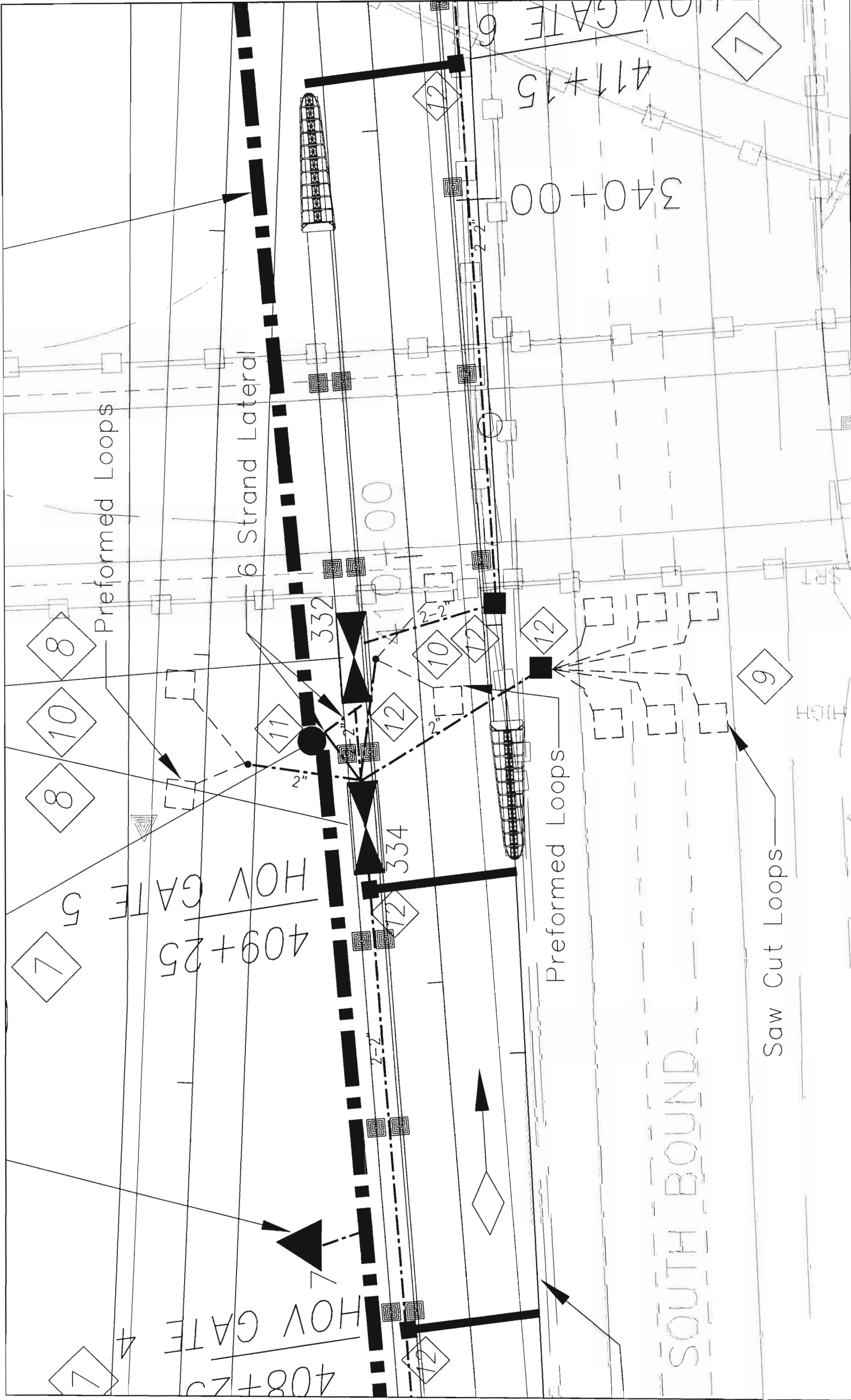
	TMS MANHOLE
	JUNCTION BOX/PULL BOX
	POWER SOURCE WITH NUMBER
	334 CONTROLLER CABINET (MODEL 334)
	332 CONTROLLER CABINET (MODEL 332)
	CCTV CAMERA AND POLE
	CONDUIT
	CONCRETE BARRIER
	GUARDRAIL
	LOOP LOCATION

PROPOSED

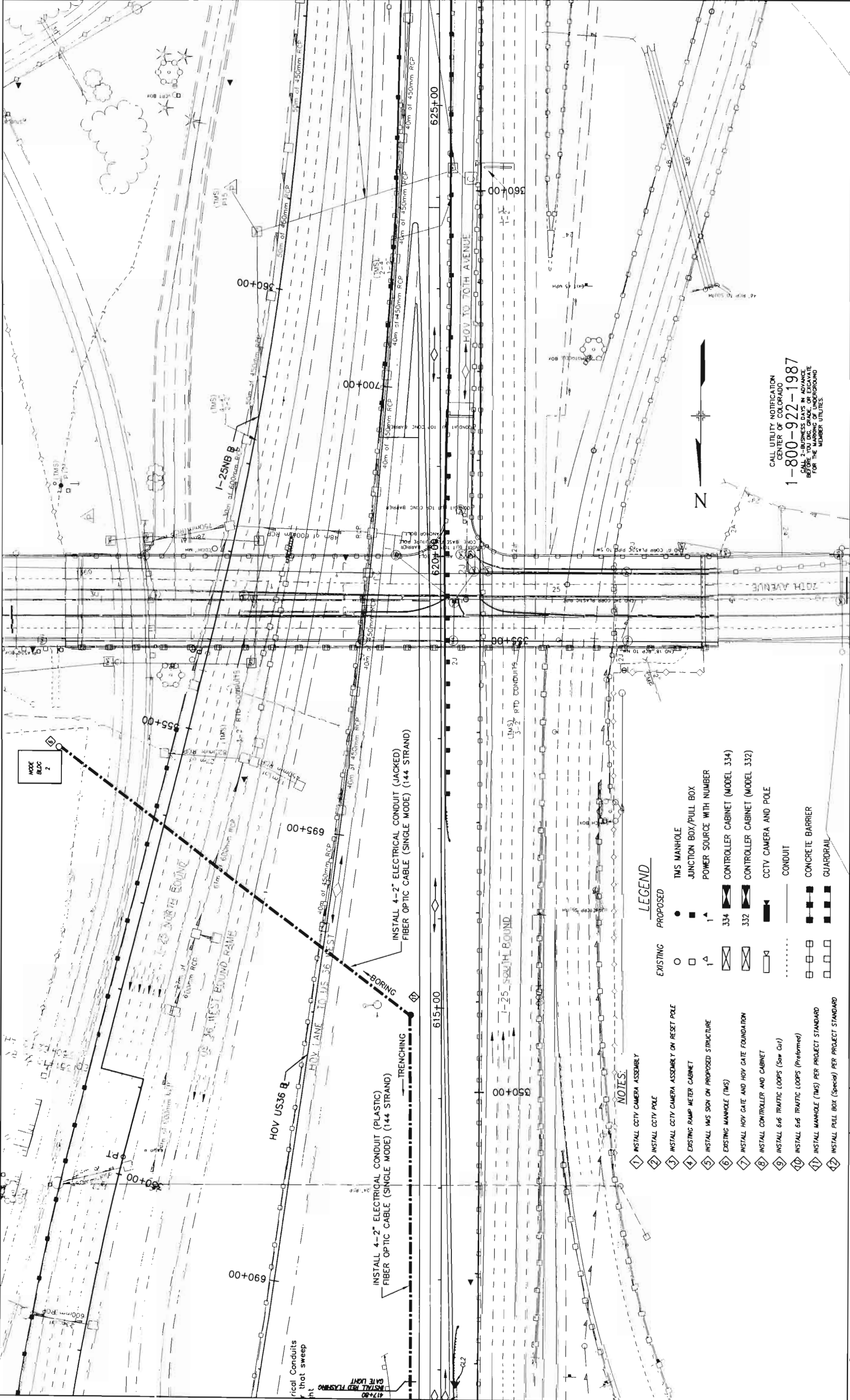
EXISTING

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
UTILITY LOCATIONS.

Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed		ITS DESIGN PLAN		Project No./Code		
Creation Date:	1-9-02	Initials: JKS				 REGIONAL OFFICE OF TRAFFIC AND SAFETY	Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303 757 9907		No Revisions:		(SB 1-25 at US 36)		IM 0253-168		
Last Modification Date:	6-1-03	Initials: JKS							Revised:				13344		
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Acad Ver.	2002	Scale: 1"=100'					Traffic and Safety - ITS Unit		AI				Sheet Number 230		
					Units: English							SHEET 16 of 18			



Computer File Information				Sheet Revisions		Colorado Department of Transportation  Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303 757 9907 Traffic and Safety – ITS Unit AI	As Constructed	HOV GATE CONTROLLER/ ATR AREA DETAILED (I-25 at HOV Gates)		Project No./Code	
Creation Date:	3-13-02	Initials:	JKS		No Revisions:			IM 0253-168			
Last Modification Date:	6-1-03	Initials:	JKS		Revised:			13344			
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Acad Ver.	2002	Scale:	None	Units:	English				Sheet Number	231	
										SHEET 17 of 18	

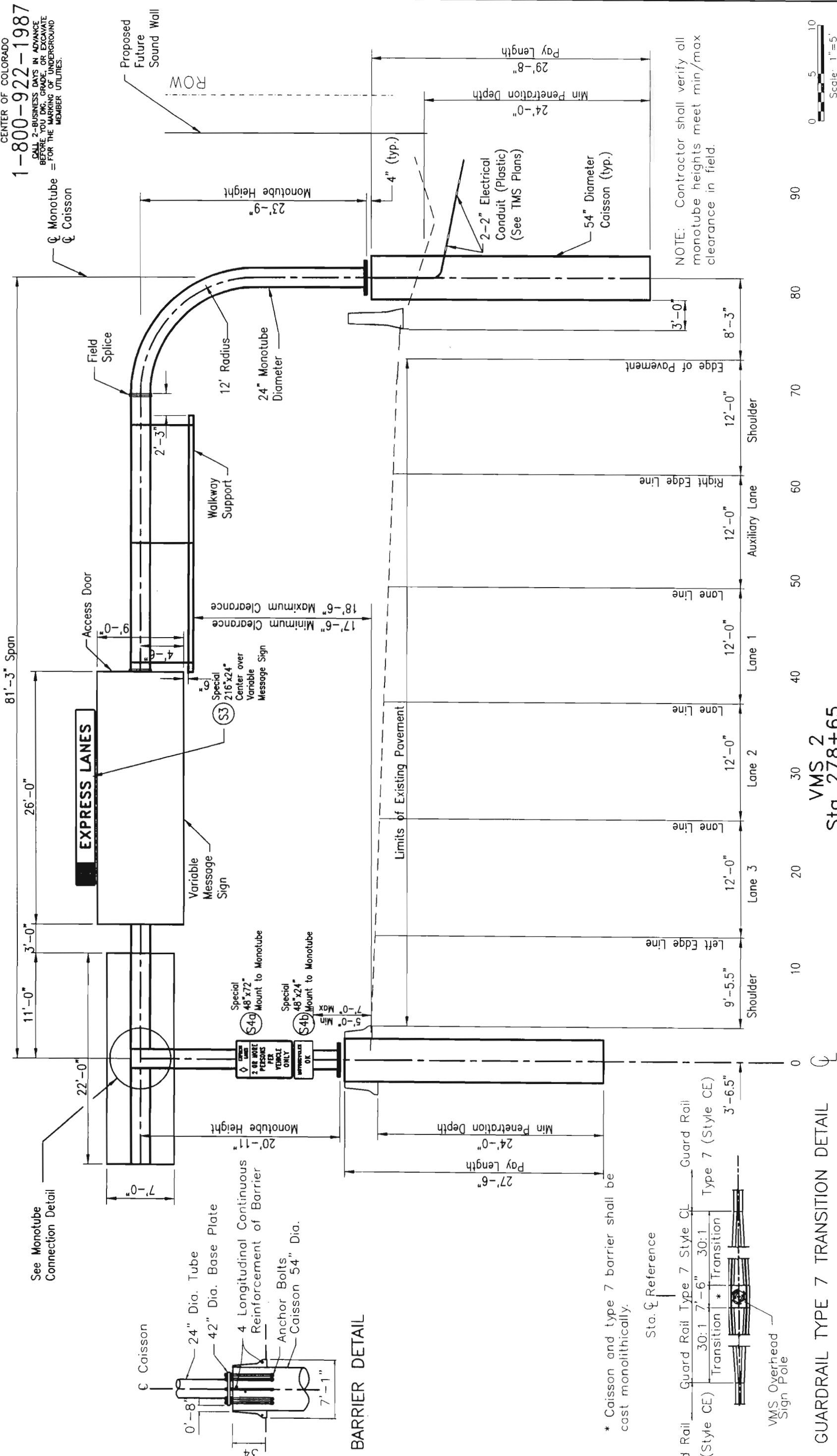


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Last Modification Date:	6-1-03	Initials:	JKS									Revised:		(I-25,HOV NB, HOV SB)		13344	
Full Path:	I25HOV-FOR\Planview\Proposed-Roadway											Void:				SHEET 18 of 18	
Drawing File Name:	JllisFinalProposed-Roadway.DWG															Sheet Number	
Acod Ver.	2002	Scale:	1"=100'													232	

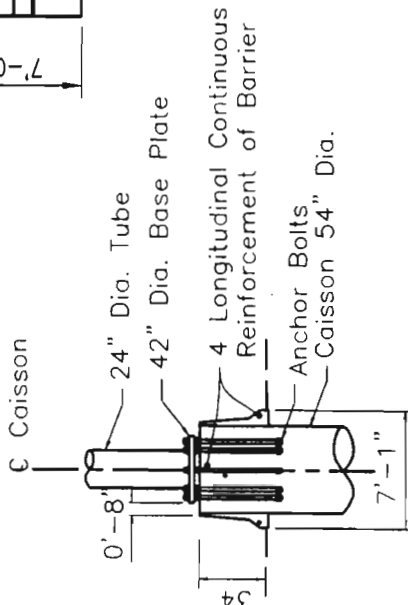
CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
UTILITY LOCATIONS.

- LEGEND**
- | | EXISTING | PROPOSED |
|--|----------|----------|
| 1. INSTALL CCTV CAMERA ASSEMBLY | ○ | ● |
| 2. INSTALL CCTV POLE | □ | ■ |
| 3. INSTALL CCTV CAMERA ASSEMBLY ON RESET POLE | □ | ■ |
| 4. EXISTING RAMP METER CABINET | □ | ■ |
| 5. INSTALL W/S SIGN ON PROPOSED STRUCTURE | □ | ■ |
| 6. EXISTING MANHOLE (TMS) | □ | ■ |
| 7. INSTALL HOV GATE AND HOV GATE FOUNDATION | □ | ■ |
| 8. INSTALL CONTROLLER AND CABINET | □ | ■ |
| 9. INSTALL 6x6 TRAFFIC LOOPS (See CUI) | □ | ■ |
| 10. INSTALL 6x6 TRAFFIC LOOPS (Performed) | □ | ■ |
| 11. INSTALL MANHOLE (TMS) PER PROJECT STANDARD | □ | ■ |
| 12. INSTALL PULL BOX (Spec'd) PER PROJECT STANDARD | □ | ■ |
- LEGEND**
- | | |
|------------------------------------|----|
| TMS MANHOLE | ○ |
| JUNCTION BOX/PULL BOX | □ |
| POWER SOURCE WITH NUMBER | 1" |
| 334 CONTROLLER CABINET (MODEL 334) | □ |
| 332 CONTROLLER CABINET (MODEL 332) | □ |
| CCTV CAMERA AND POLE | □ |
| CONDUIT | — |
| CONCRETE BARRIER | □ |
| GUARDRAIL | □ |

CALL UTILITY NOTIFICATION
CENTER OF COLORADO
1-800-922-1987
CALL 2-BUSINESS DAYS IN ADVANCE
BEFORE YOU DIG, GRADE, OR EXCAVATE
FOR THE MARKING OF UNDERGROUND
MEMBER UTILITIES.



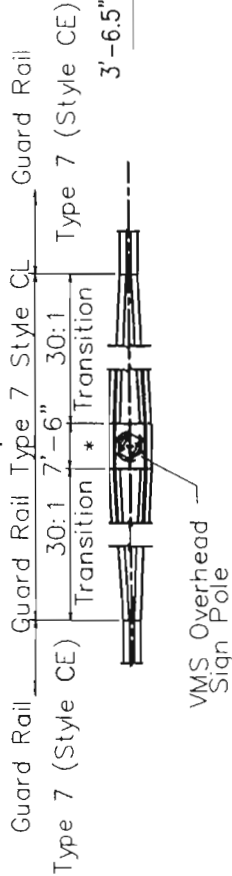
See Monotube
Connection Detail



BARRIER DETAIL

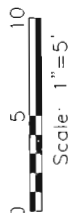
* Caisson and type 7 barrier shall be
cast monolithically.

Sta. $\bar{C}$ Reference



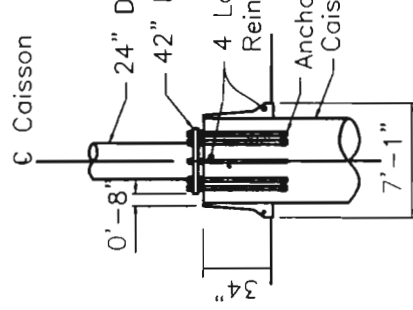
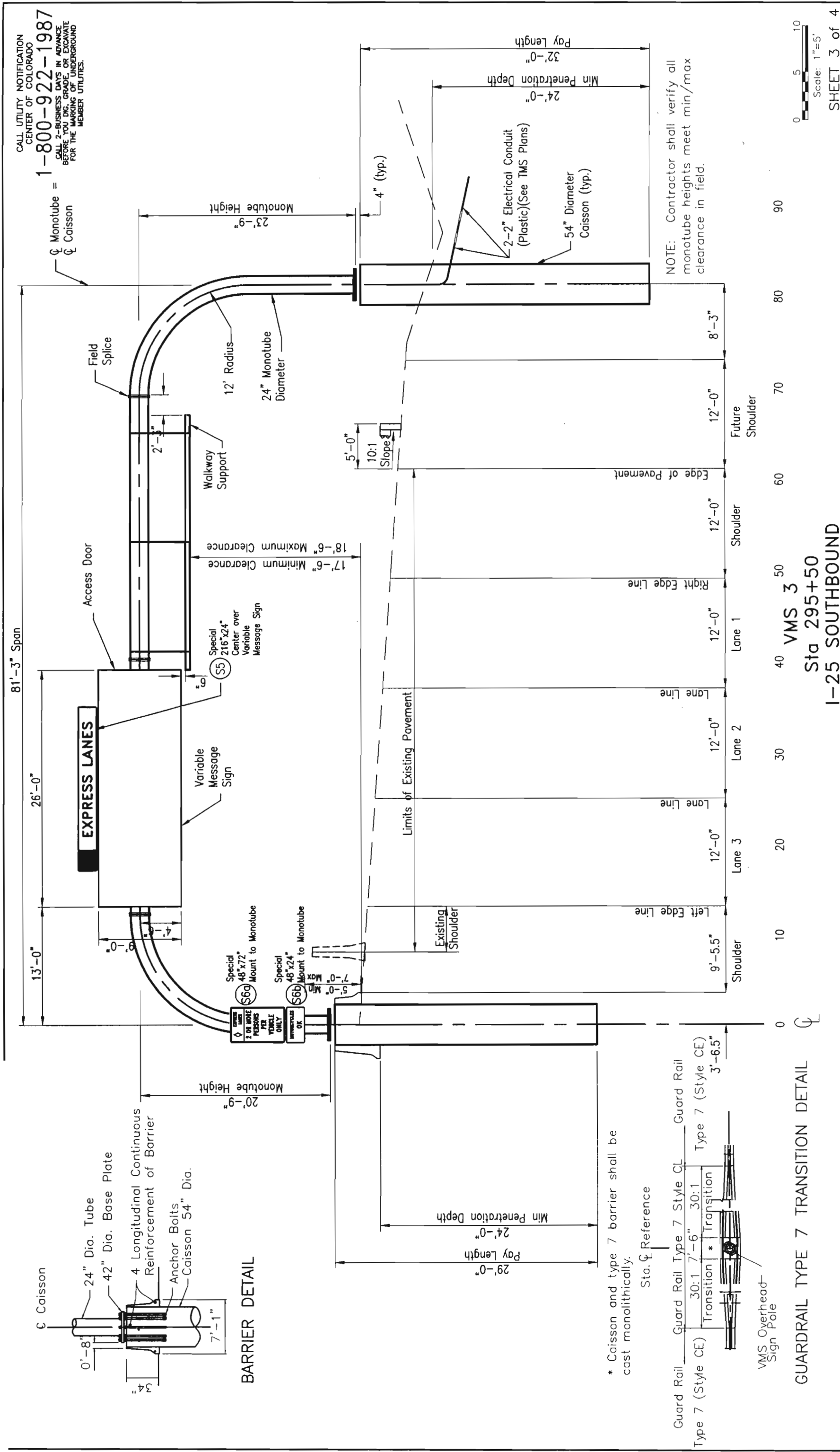
GUARDRAIL TYPE 7 TRANSITION DETAIL

VMS 2
Sta 278+65
I-25 SOUTHBOUND



NOTE: Contractor shall verify all
monotube heights meet min/max
clearance in field.

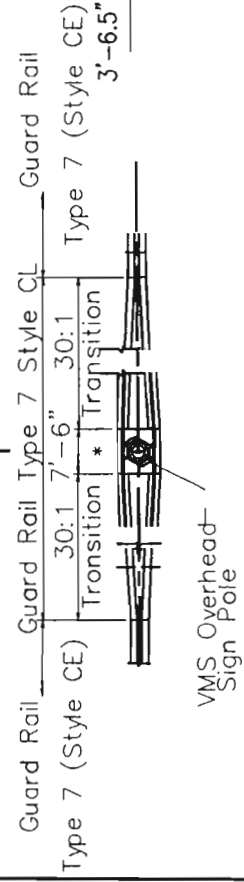
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Creation Date:	Initials: CMS	/	/	 2000 S. Holly Street Denver, CO 80222 Phone: (303) 757-9511 Fax: (303) 757-9907		No Revisions:	/	E-17-AAG BRIDGE CROSS SECTION	
Last Modification Date: 11/15/02	10:15 Initials: CMS	/	/			Revised:	/		
Full Path: SEE SHEET MARGIN		/	/			Void:	/		
Drawing File Name: VMS2_STA27865.DWG		/	/	Region 6-Traffic AI				IM 0253-168	
Acad Ver. R15.06	Scale: 1"=5'	/	/					13344	
		/	/					Sheet Number 234	



BARRIER DETAIL

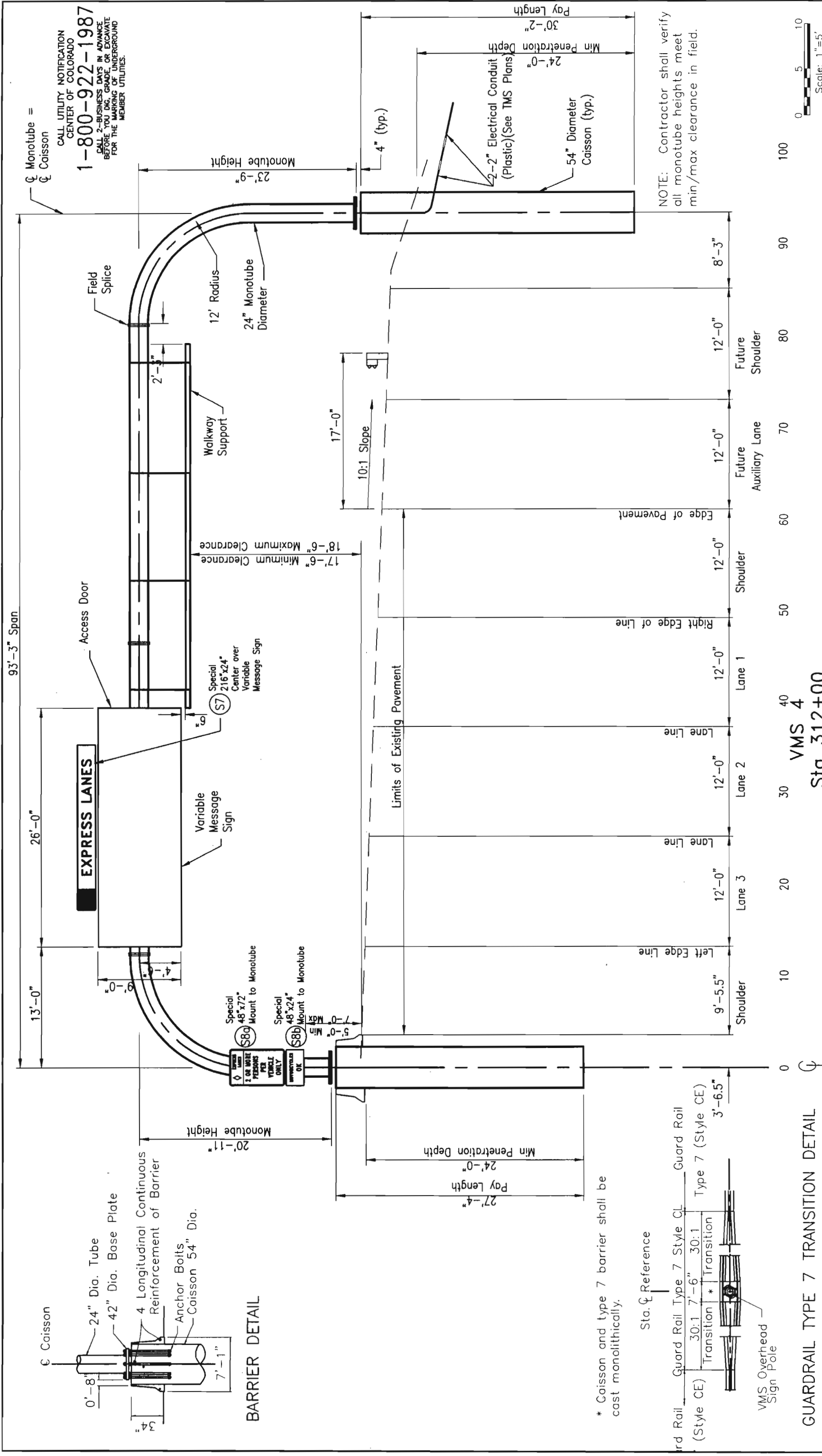
* Caisson and type 7 barrier shall be cast monolithically.

Sta. & Reference



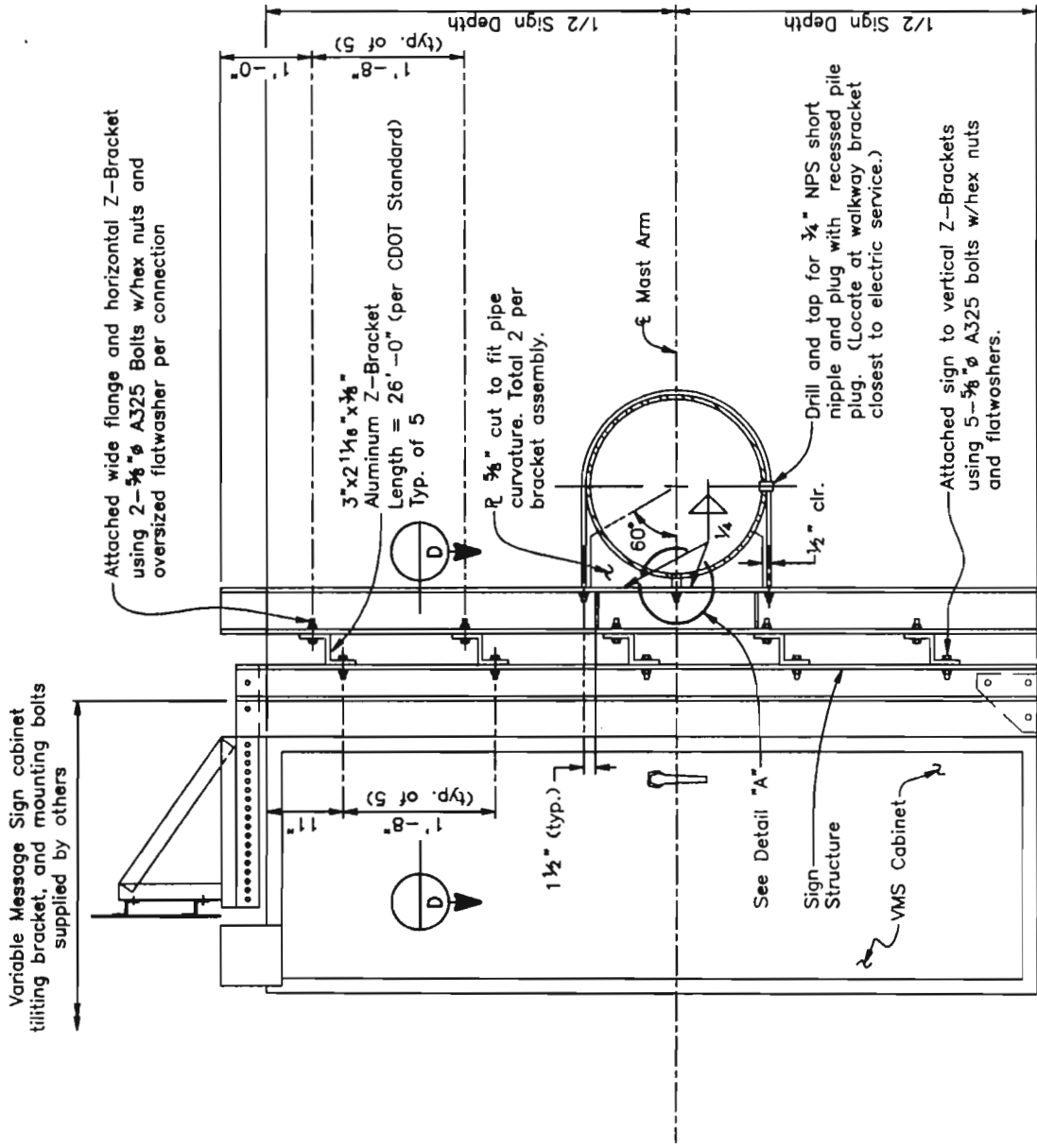
GUARDRAIL TYPE 7 TRANSITION DETAIL

Computer File Information			Sheet Revisions			As Constructed			E-17-AAF BRIDGE CROSS SECTION			Project No./Code	
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Last Modification Date:	05/27/03	Initials: KL		/	/		Revised:	/					/
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Drawing File Name:	VMS3_STA29550.DWG												
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							Colorado Department of Transportation						
							 2000 S. Holly Street Denver, CO 80222 Phone: (303) 757-9511 Fax: (303) 757-9907						
							Region 6-Traffic AI						

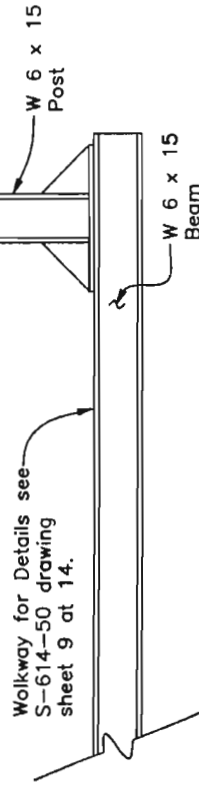
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Computer File Information		Sheet Revisions		Colorado Department of Transportation		Project No./Code	
Creation Date:	11/17/01	Initials:	KP	 2000 S. Holly Street Denver, CO 80222 Phone: (303) 757-9511 FAX: (303) 757-9907	E-17-AAE BRIDGE CROSS SECTION		
Last Modification Date:	05/27/03	Initials:	KL				
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BRW a URS Corporation Company				1225 17TH ST., SUITE 200 DENVER, CO 80202 303-293-8080 PHONE 303-293-8585 FAX		No Revisions: / / Revised: / / Void: / /	

Variable Message Sign cabinet
tilting bracket, and mounting bolts
supplied by others

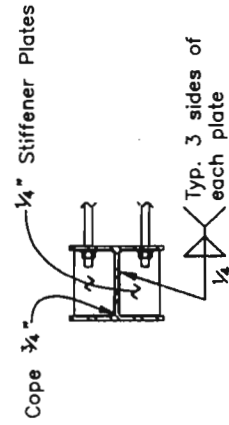


Walkway for Details see
S-614-50 drawing
sheet 9 at 14.

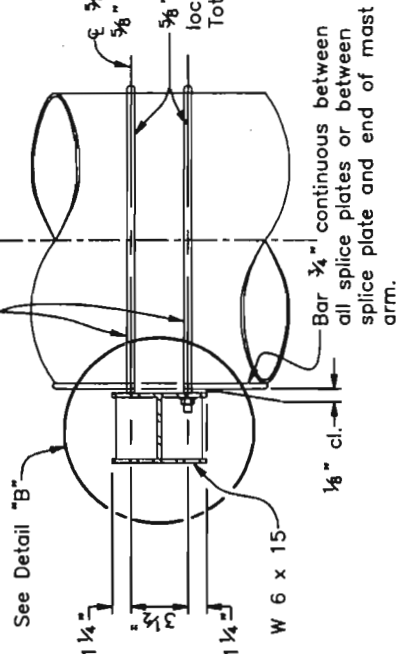


VARIABLE SIGN MOUNTING BRACKET

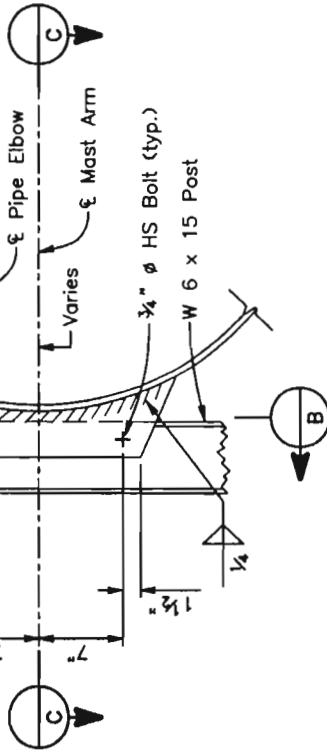
- NOTES:
- For additional details & information see CDOT M & S drawing S-614-XX Sheet 1 thru 14.
 - For static sign mounting bracket see sheet 6 of 9.



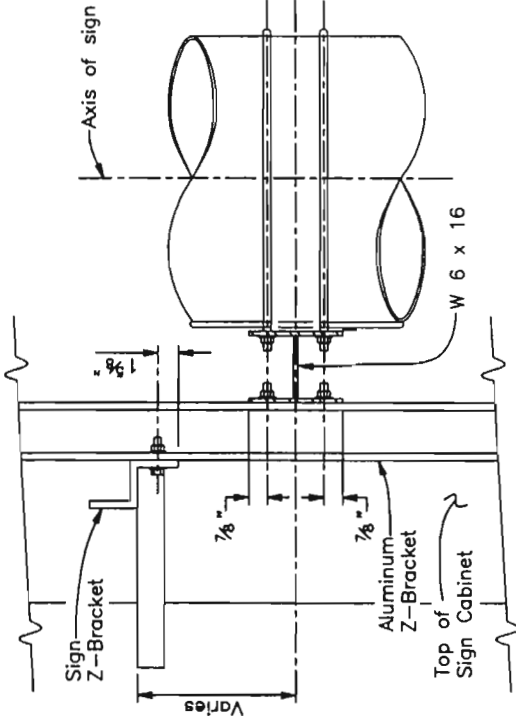
DETAIL B



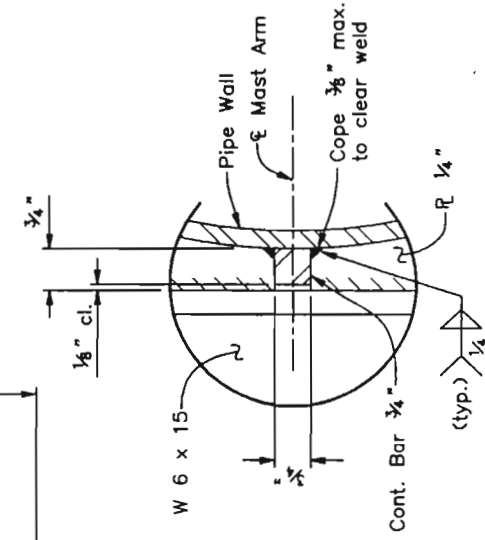
SECTION A



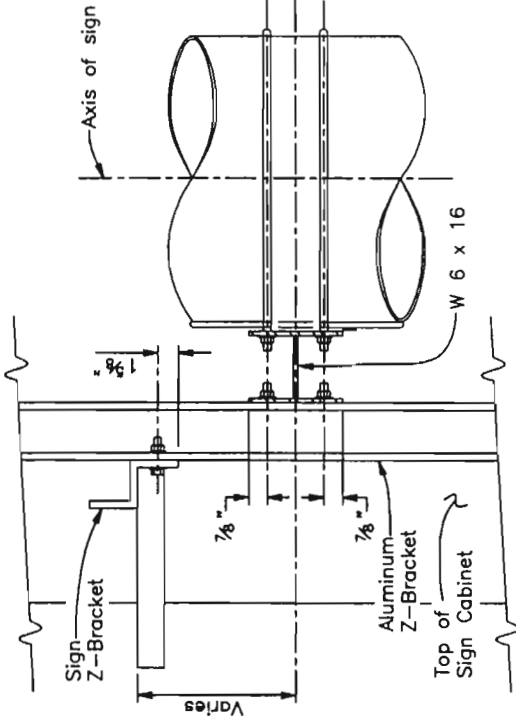
DETAIL C



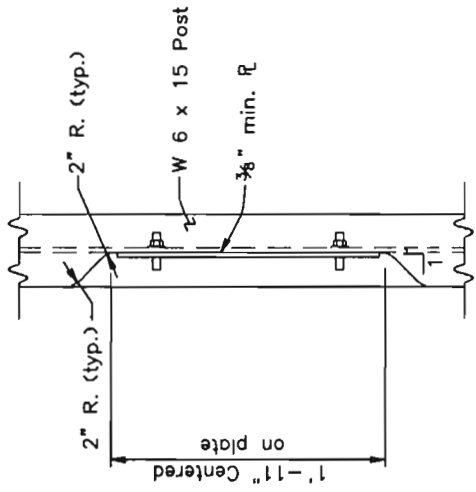
DETAIL A



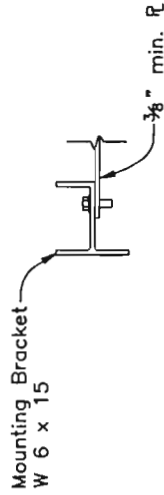
SECTION D



SECTION B

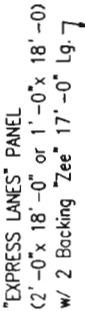


SECTION C



Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		MONOTUBE OVERHEAD SIGN		Project No./Code	
Creation Date:	04/12/02	Initials:CMS		 2000 S. Holly Street Denver, CO 80222 Phone: (303) 757-9511 Fax: (303) 757-9907		No Revisions:	/ /	SIGN		IM 0253-168	
Last Modification Date:	04/15/02	18:08	Initials:CMS			Revised:	/ /				
Full Path:	SEE SHEET MARGIN					Void:	/ /				
Drawing File Name:	LTD02.DWG										
Acad Ver.	2002	Scale:	VARIABLE	Units:	English	Region 6-Traffic		AI		Sheet Subst:	
				1225 17TH ST., SUITE 200 DENVER, CO 80202 303-293-8080 PHONE 303-293-8585 FAX		Designer: MJJ Detailer: CMS		Structure Numbers		Sheet Number 237	

Revision Dates									(Preliminary Stage Only)



MOUNTING BRACKET DETAIL



Note: 2'-0" x 18'-0" Express Panel shown
1'-0" x 18'-0" Similar.

1. The Contractor Shall coordinate with Sign Manufacturer on all Dimensions Prior to Fabrication of Mounting Brackets.

2. See **M & S Standard Sheets S-614-4 (3 Sheets) Class II Signs Sheet Aluminum Panels** Additional Sign Panel Details.
3. All Structural Steel for Mounting Bracket shall conform to ASTM - A36 and Section 509 of the Standard Specification.
4. All High Strength Bolts, Nuts and washers shall conform to the Specification of ASTM A-325.
5. All Structural Steel Shall be Galvanized in Accordance with Section 509 of the Standard Specification.

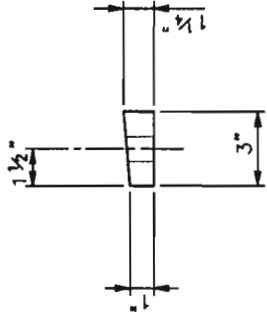


MOUNTING BRACKET

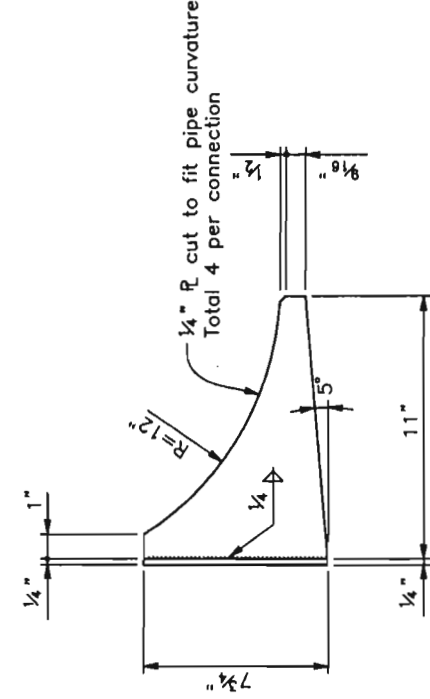


WaterProofing Note: Prior to attaching Mounting Bracket to top of VSM Sign, apply 1" Bead of Silicone Sealant (Dow Corning TRADE-MATE II or approved Equal) around Bolt Holes. Apply Sealant According to Manufacturer recommendations.

Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		STATIC SIGN MOUNTING BRACKET		Project No./Code	
Creation Date: 09-26-2001	Initials: MJJ			 1225 17TH ST., SUITE 200 DENVER, CO 80202 303-293-8080 PHONE 303-293-8585 FAX BRW a URS Corporation Company		No Revisions:				IM 0253-168	
Last Modification Date:	Initials:					Revised:				13344	
Full Path: I:\transportation\item_project\Structure\cdotvsm						Void:					
Drawing File Name: VMSBRACKET.DWG						Designer: M. Jolinsky		Structure Numbers			
Acad Ver. 2000	Scale: Varies			Detailer: M. Jolinsky		Sheet Subset:		Sheet Subsets: 1 of 1		Sheet Number 238	



DETAIL



SECTION 



1. For General Notes, see CDOT Standard Plan No. S-614-50 sheet no. 1 of 14.
2. For VMS Layout, see sheet 2.

Sheet Number 239

SPECIFICATIONS
DESIGN: "Standard specifications for structural supports for highway signs, luminaires and traffic signals", American Association of State Highway and Transportation officials (2001 AASHTO).

Subsection 17.4, signs in the staff bridge branch bridge design manual.

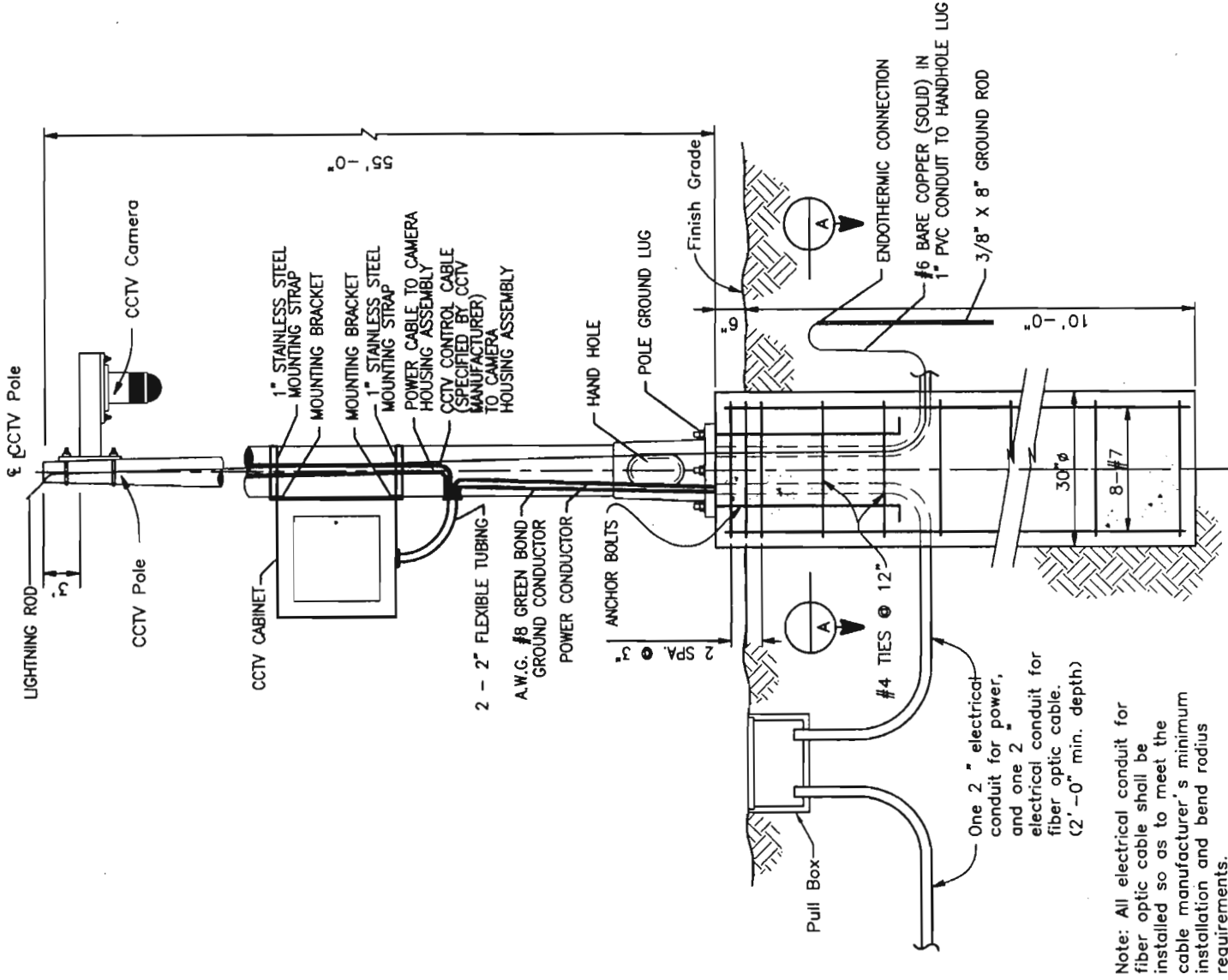
Construction: CDOT Standard Specifications, these standards sheets and the project plans.

Wind Loading: 100 mph velocity with gust speed of 30%

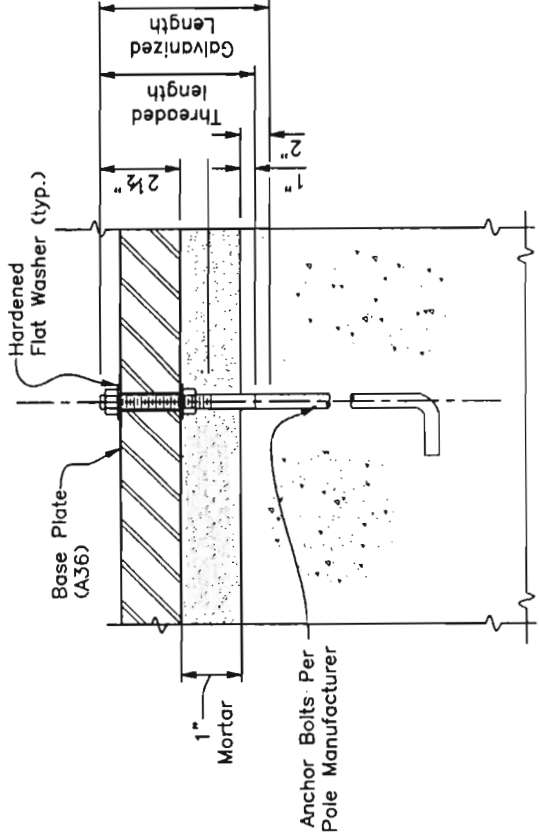
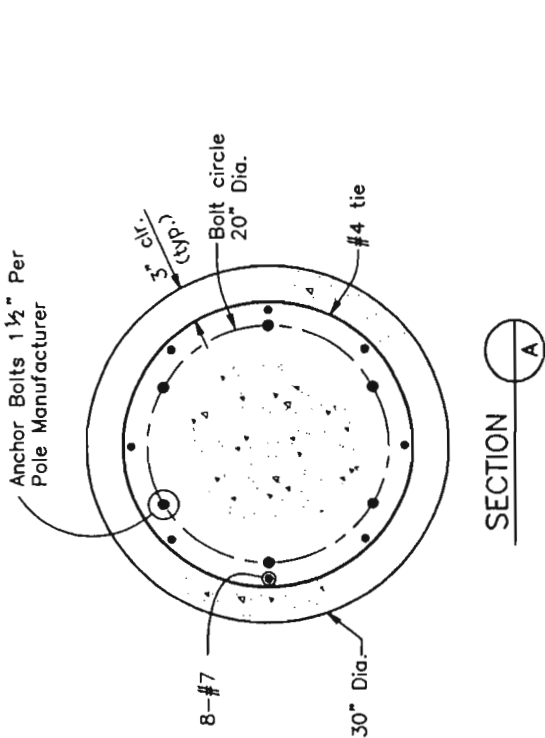
GENERAL NOTES

1. CCTV Pole shall be design per section 614 of the standard specification.
2. All concrete shall be class BZ. Reinforced steel $F_y = 60,000$ PSI, caisson foundations shall be completed at least 7 days before sign structures are erected thereon.
3. Structures shall be grounded in accordance with applicable electrical codes.
4. Prior to fabrication six sets of shop drawings which comply with the requirements of section 105.02 of the standard specifications shall be submitted to project engineer.
5. Hot Dip galvanization shall be per ASTM A123.

CAMERA NUMBER	LOCATION	OFFSET FROM OUTSIDE EDGE OF PAVEMENT
CCTV	SE CORNER OF I 25 AND THORNTON PKWY	LF ON EXISTING POLE
CCTV # 1	1785' NORTH OF 88TH AVE CENTER	13' RT
CCTV # 2	840' SOUTH OF 84TH AVE CENTER	13' RT
CCTV # 3	2685' SOUTH OF 84TH AVE CENTER	16' RT
CCTV # 4	3185' NORTH OF EB US 36 CENTER	16' LT



ELEVATION
GROUND MOUNTED CCTV

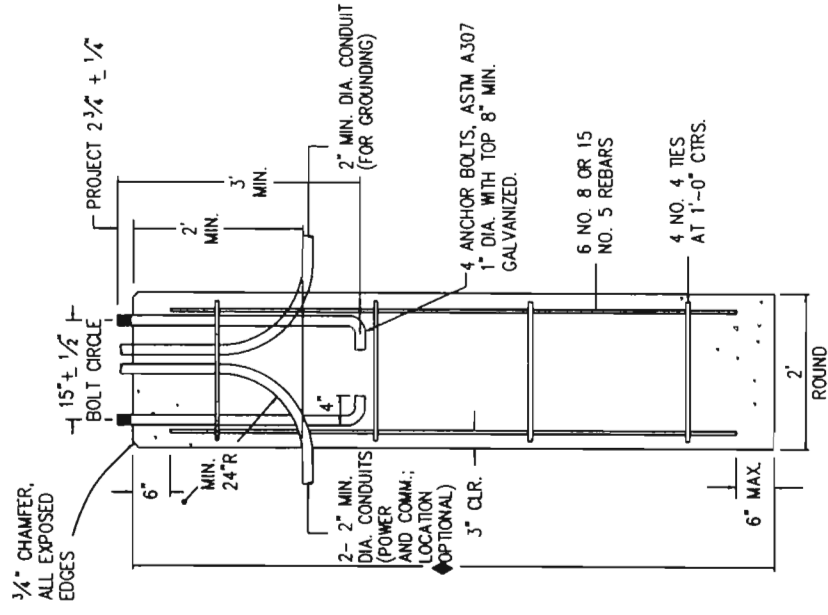


Computer File Information			Sheet Revisions			Colorado Department of Transportation			As Constructed			CCTV POLE & FOUNDATION			Project No./Code	
Creation Date: 04/12/02			Initials:CMS			1225 17TH ST., SUITE 200 DENVER, CO 80202			No Revisions: / /						IM 0253-168	
Last Modification Date: 05/21/02			Initials:CMS			303-293-8080 PHONE 303-293-8585 FAX			Revised: / /			Designer: MJJ Detailer: CMS			13344	
Full Path: SEE SHEET MARGIN						a URS Corporation Company			Void: / /			Sheet Subst: . of .			Sheet Number 240	
Drawing File Name: LTDT01.DWG																
Acad Ver. 2002			Scale: VARIES													
Units: English																

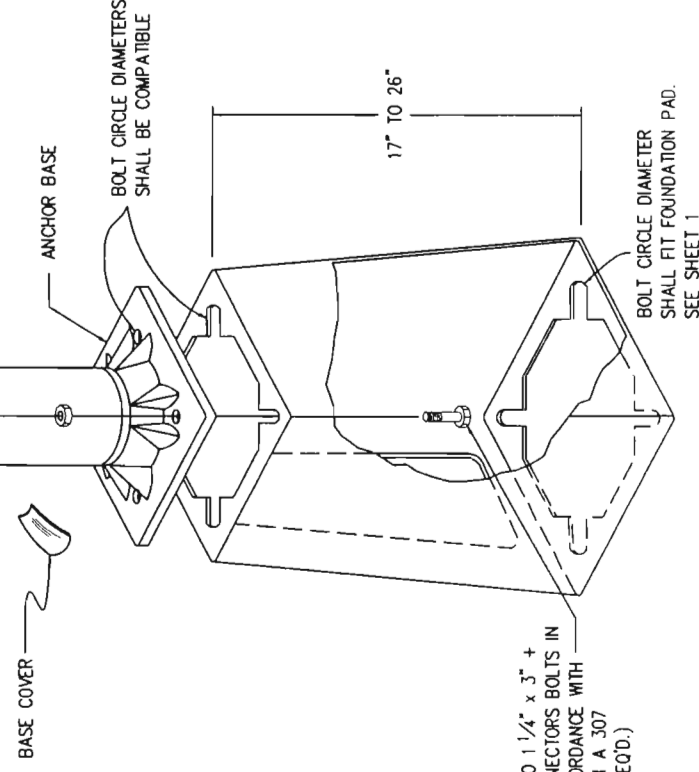
GENERAL NOTES

- ◆ 1. FOUNDATION SHALL BE 7 FT. FOR ROUND POLES AND 8 FT. FOR SQUARE POLES.
 2. FOUNDATION PAD DEPTH IS BASED ON A MAXIMUM POLE HEIGHT OF 40 FT. AND ON STIFF CLAY WITH $N > 8$ OR MEDIUM SAND WITH $N > 15$ PER ASTM D 1586 STANDARD PENETRATION TEST.
 3. INFRINGEMENT ON PATENT SHALL BE THE CONTRACTOR'S RESPONSIBILITY, IN ACCORDANCE WITH SUBSECTION 107.03.
 4. TRANSFORMER BASES MAY BE OMITTED AND POLES MOUNTED DIRECTLY ON THE FOUNDATION PAD, BUT ONLY WHERE DESIGNATED ON THE PLANS.
 5. ALL TRANSFORMER BASES SHALL MEET THE BREAKAWAY REQUIREMENTS STATED IN THE LATEST EDITION OF AASHTO "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS."
 6. LIGHT STANDARD FOUNDATIONS MAY BE PRECAST CONCRETE, CAST IN PLACE CONCRETE, OR SCREW-IN GALVANIZED STEEL FOUNDATION.
 7. EACH LIGHT STANDARD SHALL BE WIRED WITH A BREAKAWAY FUSED CONNECTOR AND BE GROUNDED AS STATED IN THE SPECIFICATIONS.
 8. LIGHT STANDARD SHALL NOT BE PLACED IN DITCHES OR OTHER LOW AREAS. WHEN ISLAND OR CUT SLOPE RECESS IS REQUIRED FOR LIGHT STANDARD INSTALLATION, THE COST OF EXCAVATION SHALL BE INCLUDED IN THE WORK. EMBANKMENT SHALL BE COMPACTED IN ACCORDANCE WITH SECTION 203.
 9. THE PHYSICAL SHAPES OF THE POLE CAPS, BRACKETS, AND CONCRETE PULL BOXES, ARE TO BE CONSIDERED APPROXIMATE AS SHOWN.
 10. ALL NUTS, BOLTS, STUDS, AND WASHERS, SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M 232 (ASTM A 153).
 11. CONCRETE SHALL BE CLASS B.
- S
- ① THE TYPE OF BASE USED SHALL BE THE TRANSFORMER BASE.

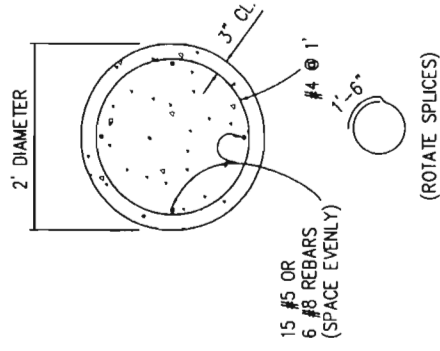
CAMERA NUMBER	LOCATION	OFFSET FROM OUTSIDE EDGE OF PAVEMENT
CCTV # 5	200' SOUTH OF WB US 36 CENTER	16' RT



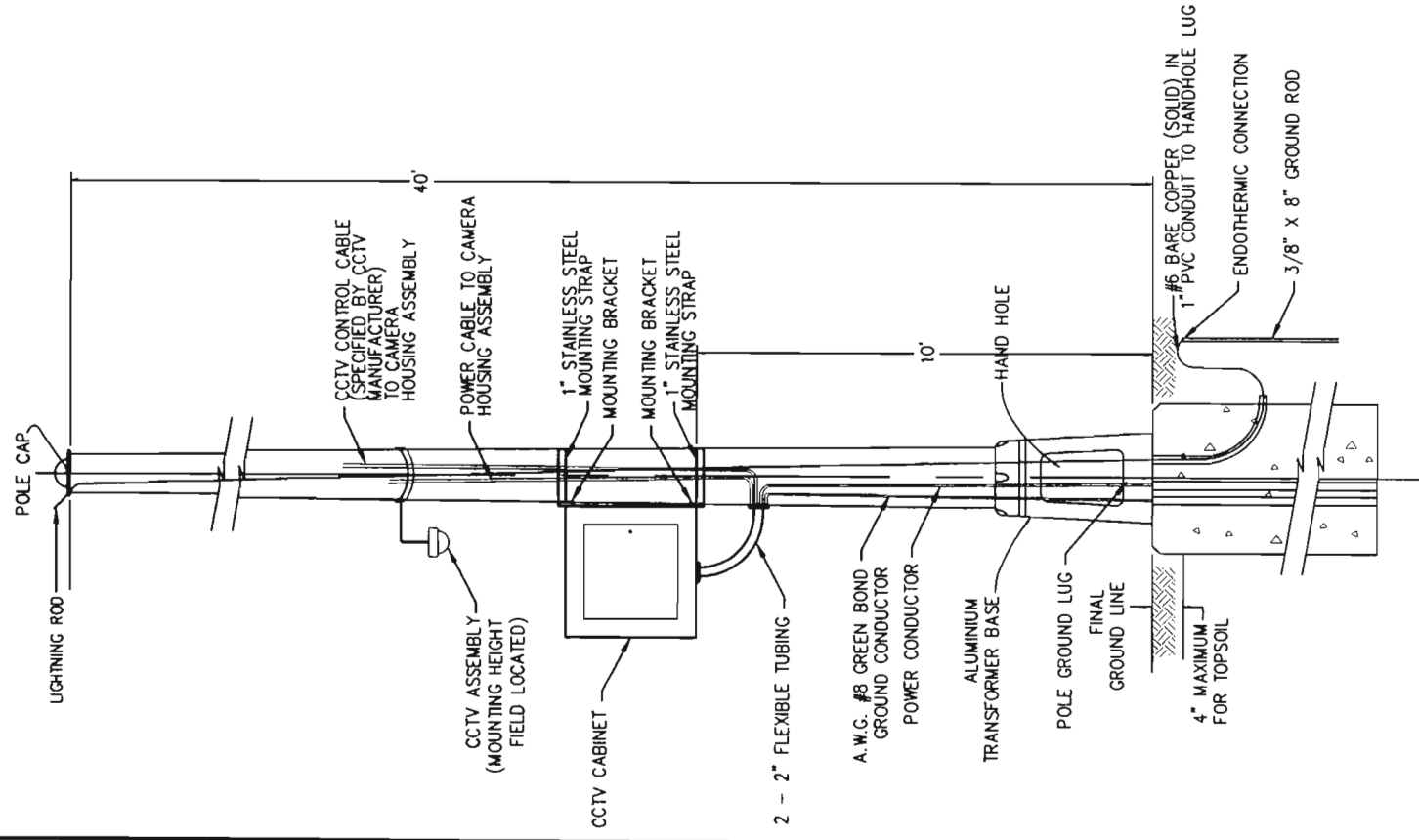
TYPICAL CONCRETE FOUNDATION PAD



TYPICAL
DETAIL OF TRANSFORMER BASE ①

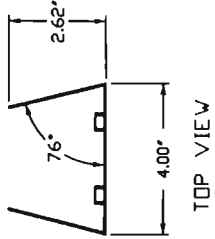


FOUNDATION
TYPICAL SECTION

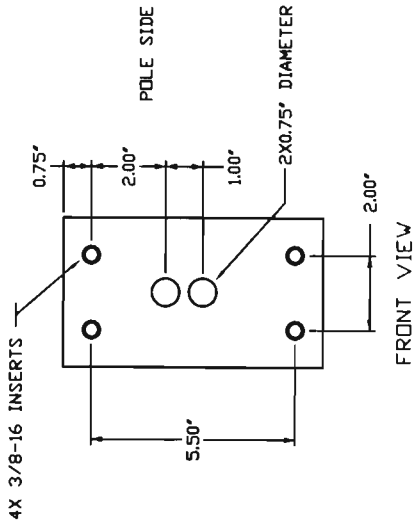


ELEVATION
LIGHT POLE MOUNTED CCTV

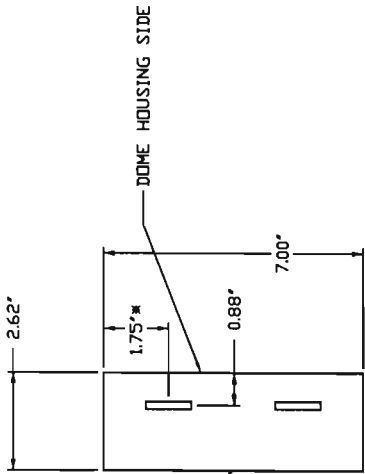
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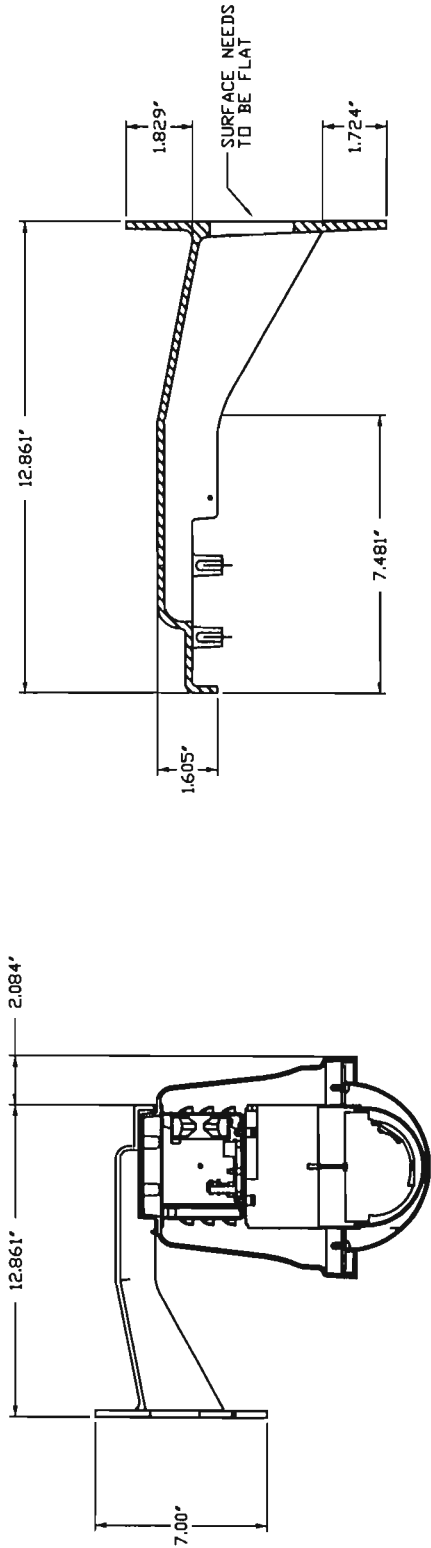
TOP VIEW



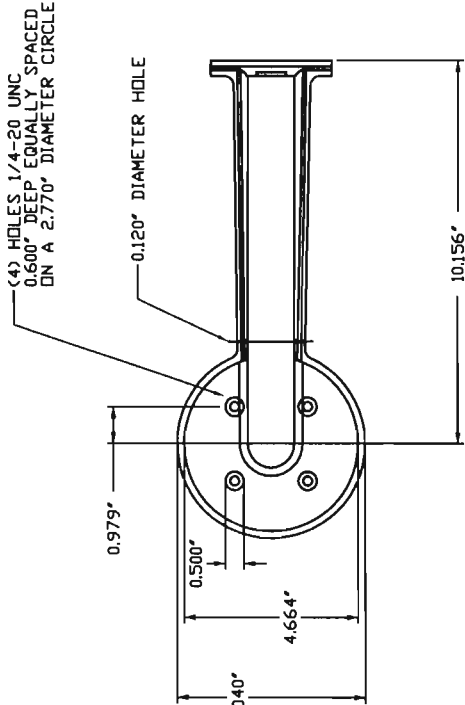
FRONT VIEW



SIDE VIEW



POD7CW OUTDOOR DOME HOUSING



VIDEOALARM POLE MOUNT ADAPTER
MODEL NO. PPM3



PANASONIC OUTDOOR DOME HOUSING MODEL NO. POD7CW



TO CCTV POLE

PANASONIC DOME CAMERA
MODEL NO. WV-CS854A

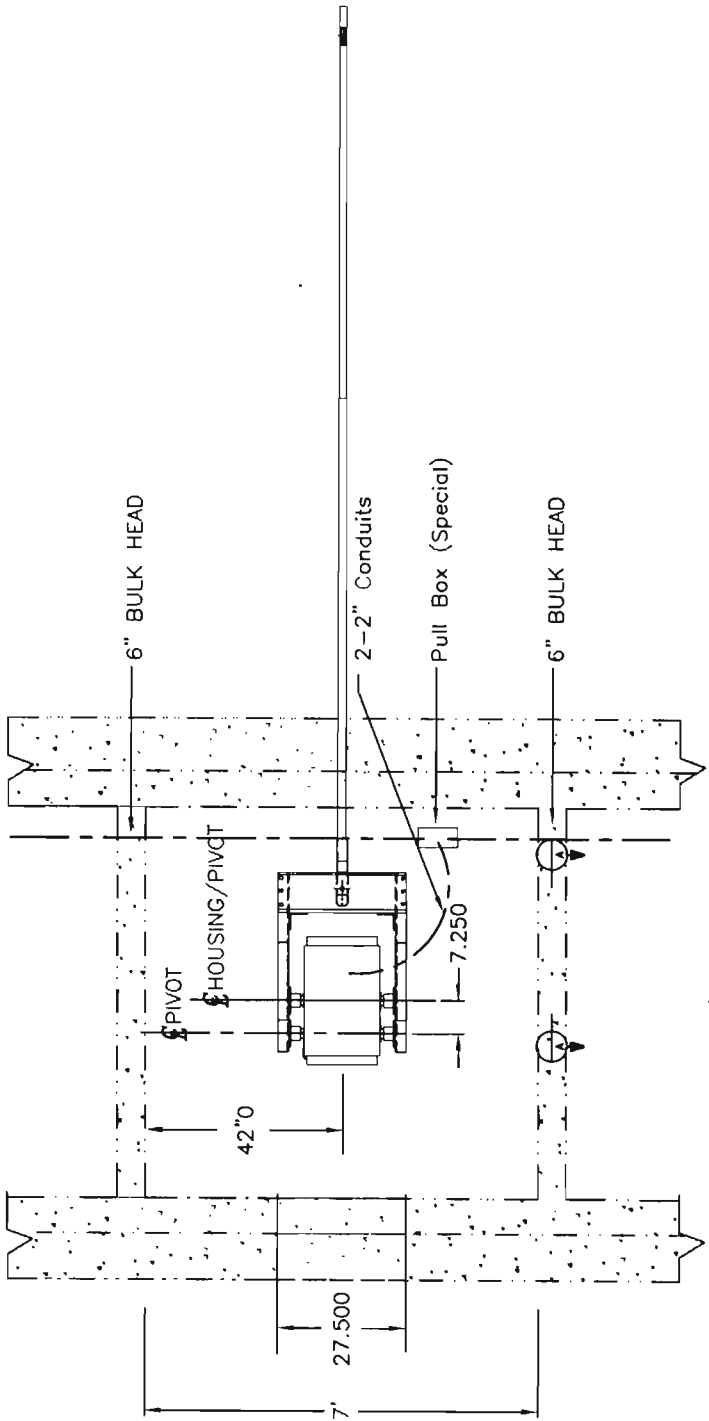
FASTEN POLE MOUNT ADAPTER TO POLE USING METAL BANDS THRU THESE SLOTS. THE CLAMPING SYSTEM SHALL BE "BAND-IT" OR EQUIVALENTS WITH TYPE 201 STAINLESS STEEL BANDS C. THICKNESS X WIDTH) AND BUCKLES.

POD7CW POLE MOUNT DETAIL

ASSEMBLY DETAIL

★ DIMENSION APPROXIMATE

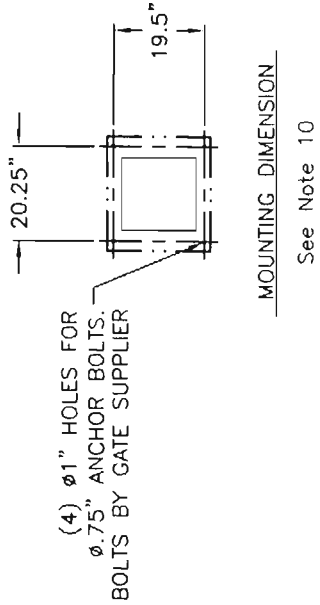
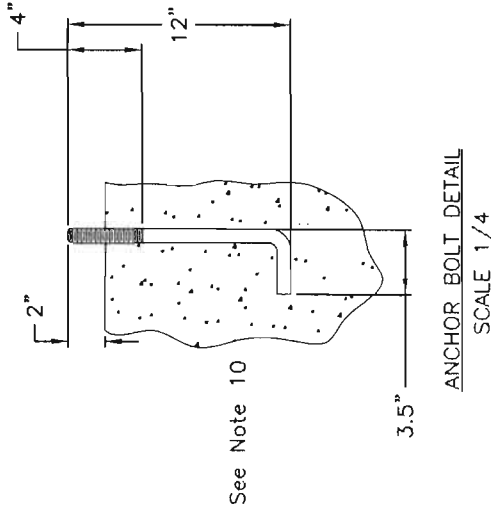
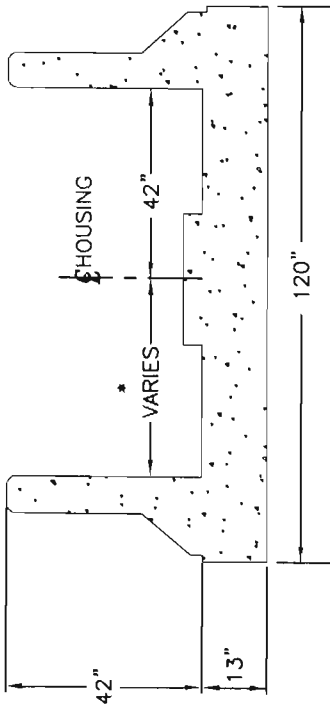
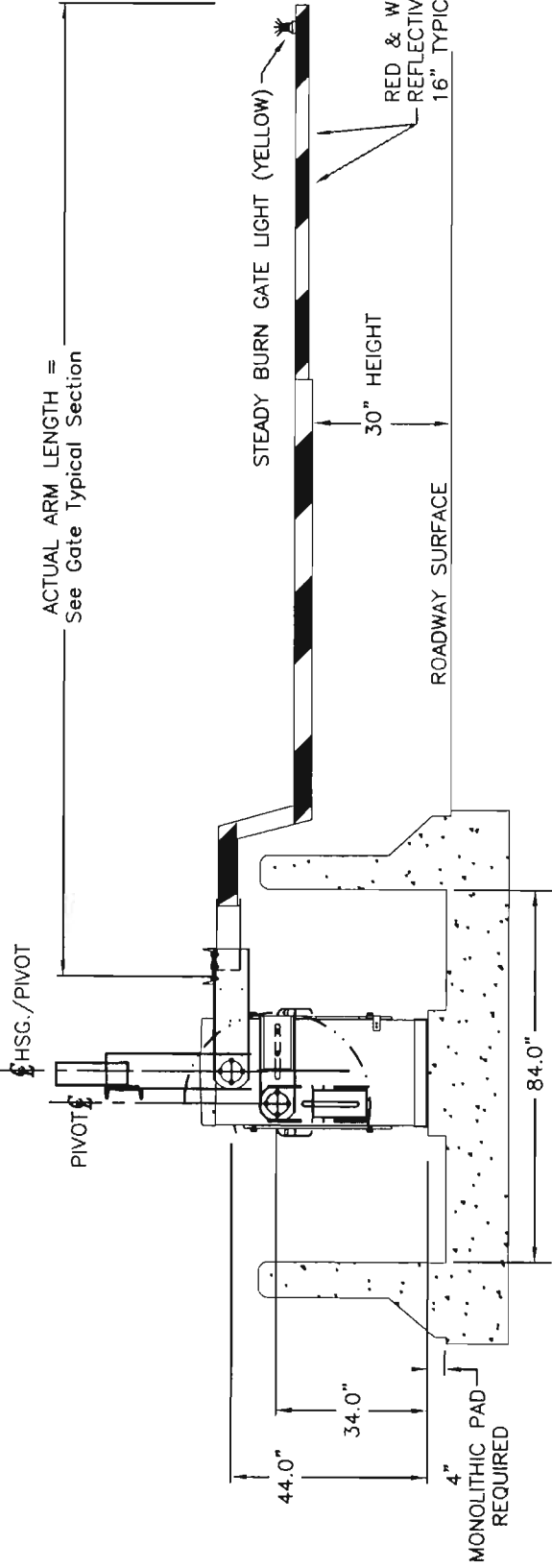
Computer File Information				Sheet Revisions		As Constructed		CLOSED CIRCUIT TELEVISION CAMERA		Project No./Code	
Creation Date:	09/25/01	Initials:	JKS			No Revisions:		Designer: JKS Detailer: JKS Sheet Subset: ITS Traffic Sheet Number: JKS Structure Numbers: JKS		IM 0253-168	
Last Modification Date:	3-29-02	Initials:	JKS			Revised:					
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Drawing File Name:	CctvMount									Sheet Number 242	
Acad Ver.	2002	Scale:	Units: English								



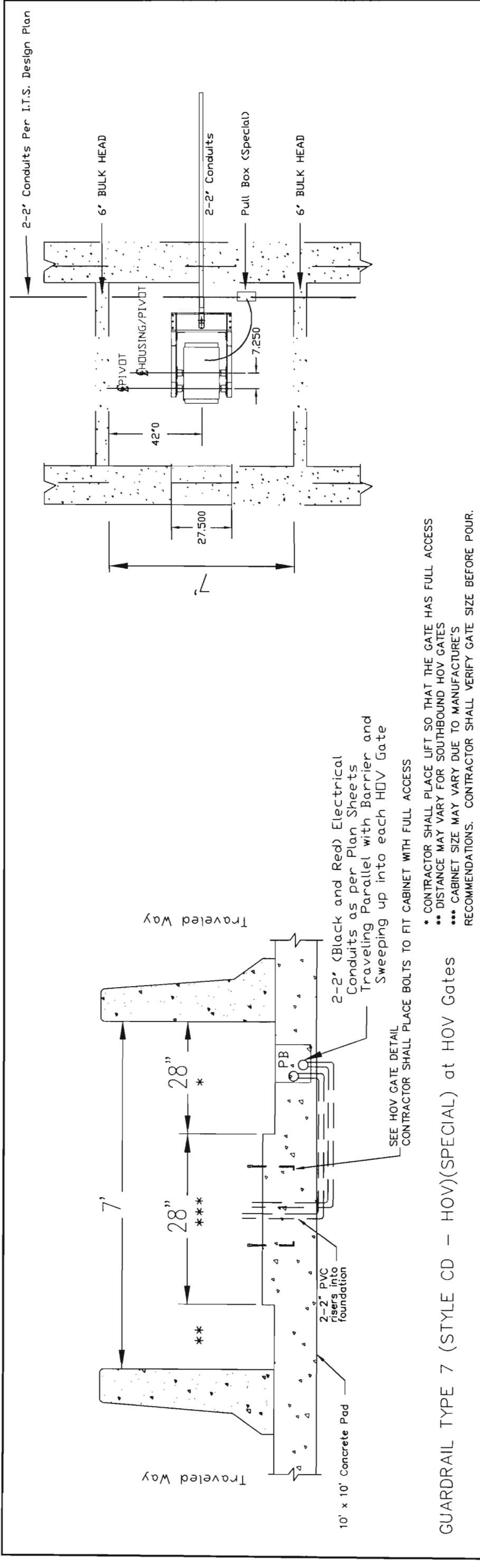
NOTES:

1. CONTRACTOR TO VERIFY ALL DIMENSIONS. FACTORY CANNOT ASSUME ALTERATION COSTS AFTER FINAL SUBMITTAL DRAWINGS HAVE BEEN APPROVED.
2. HOUSING TO BE ALUMINUM.
3. SIDE ARM CHANNELS AND COUNTERWEIGHTS (12 x 24) TO BE HOT DIP GALVANIZED. NOTCH CTWTS TO CLEAR PARAPET. SHORT CTWT SIDE ARM CHANNELS REQUIRED TO CLEAR PARAPET.
4. PADLOCK BY CONTRACTOR.
5. ANCHOR BOLTS & TEMPLATE SUPPLIED BY MANUFACTURER.
6. CONTRACTOR SHALL POUR 4" LIFT AND PAD MONOLITHIC OR FOLLOW MANUFACTURER'S RECOMMENDATIONS.
7. CONCRETE PAD AND LIFT SHALL BE PAID AS 412-CONCRETE PAVEMENT
8. CONCRETE BARRIER AND BULK HEADS SHALL BE INCLUDED WITH HOV BARRIER.
9. RED AND WHITE REFLECTIVE SHEETING SHALL BE INCLUDED WITH THE GATE.
10. ALL BOLT AND BOLT PATTERN REFERENCES MAY CHANGE WITH THE MANUFACTURE'S RECOMMENDATIONS.

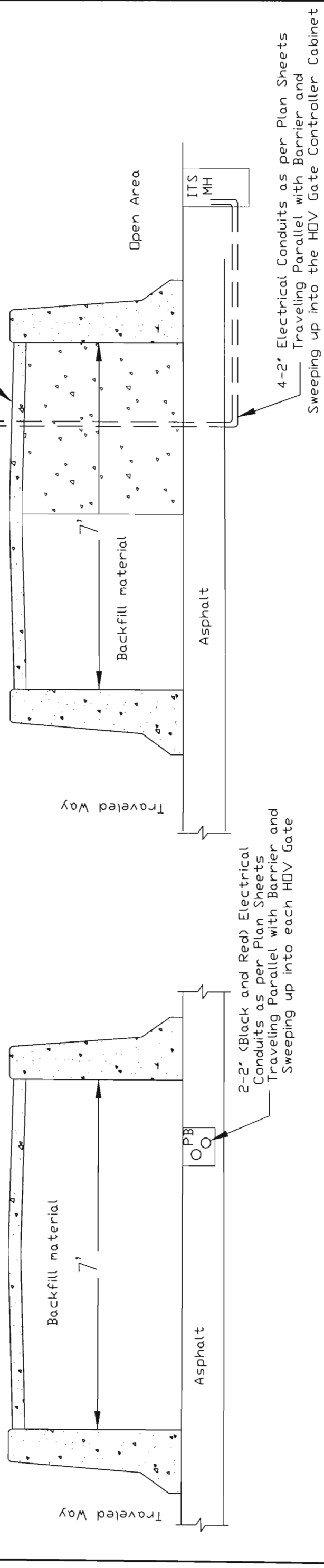
* DIMENSION VARIES FOR GATES 6-10 DUE TO EXISTING TYPE 4 BARRIER.



Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		HOV GATE DETAILS		Project No./Code	
Creation Date:	1-9-02 Initials: JKS			 2000 S. Holly Street Denver, Co 80222 Phone: (303) 757-9511 FAX: (303) 757-9907	Region 6- ITS	No Revisions:		IM 0253-168	13344	Sheet Number 244	
Last Modification Date:	6-1-03 Initials: JKS					Revised:					
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Drawing File Name:	GateBandB					AI					



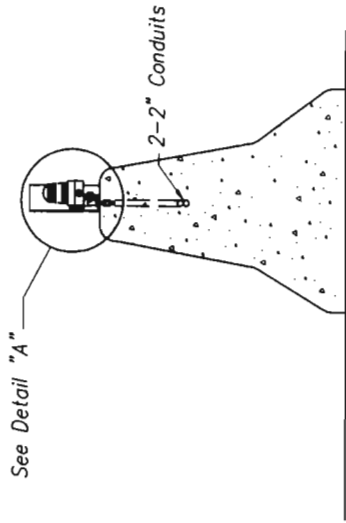
GUARDRAIL TYPE 7 (STYLE CD - HOV)(SPECIAL) at HOV Gates



GUARDRAIL TYPE 7 (STYLE CD - HOV)(SPECIAL)
Conduit Detail

GUARDRAIL TYPE 7 (STYLE CD - HOV)(SPECIAL)
Conduit and Manhole detailed only for the HOV Gate Cabinet (See ITS Plan 17 of 18)

Computer File Information			Sheet Revisions		As Constructed		I.T.S. CONDUIT DETAIL IN BARRIER		Project No.	
Creation Date:	Initials:				No Revisions:				IM 0253-168	
Last Modification Date:	Initials:				Revised:				13344	
Full Path:	C:\USERDATA\PROJECTS				Void:				Sheet Number	245
Drawing File Name:	GATEDetail								Sheet Subsets:	
Acad Ver:	Scale:	Units:								



SECTION A-A



GATE LIGHT DETAIL

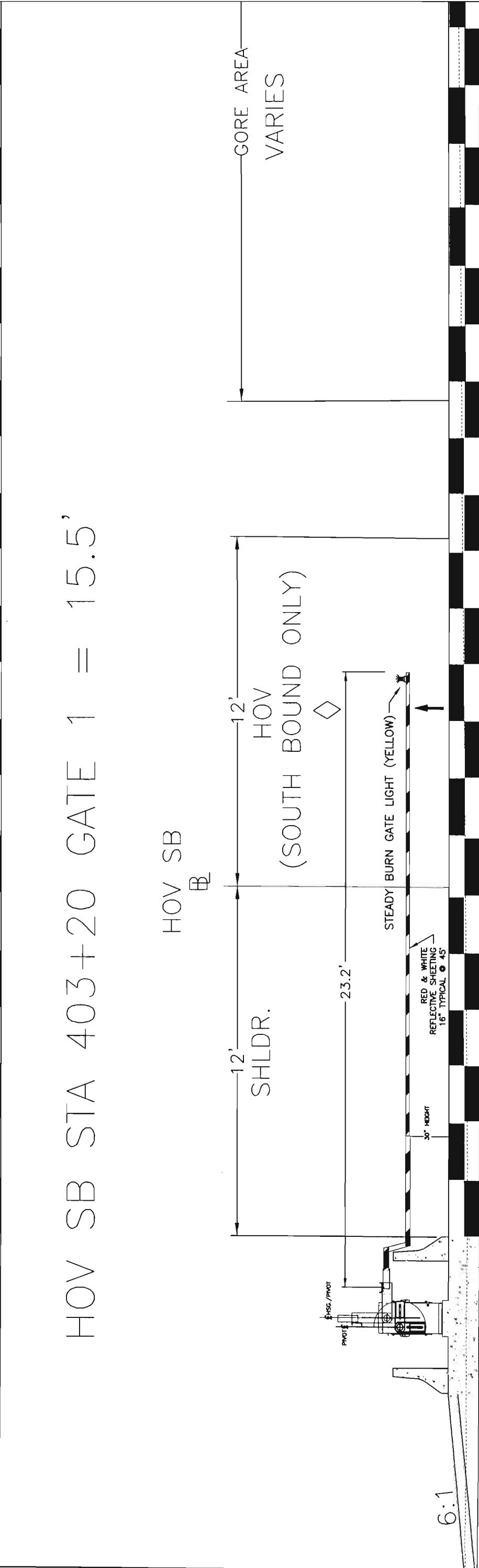
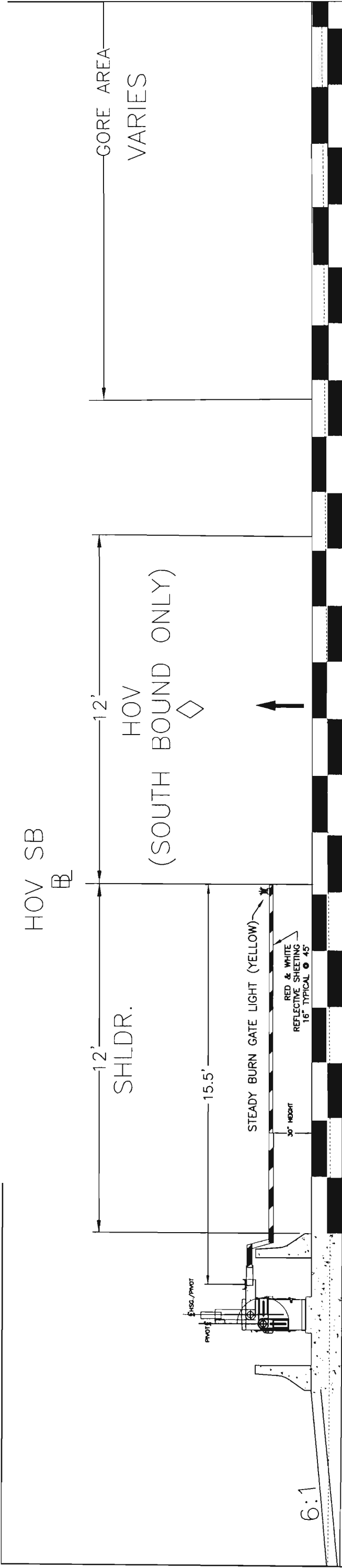
NOT TO SCALE

DETAIL A

NOTES:

1. The light shield shall be manufactured from 6mm aluminum sheet conforming to the specifications.
2. The light shield shall be painted black with an approved paint or black anodized after all bends and welds have been completed.
3. Gate Lights shall be included with the cost of the HOV Gate.

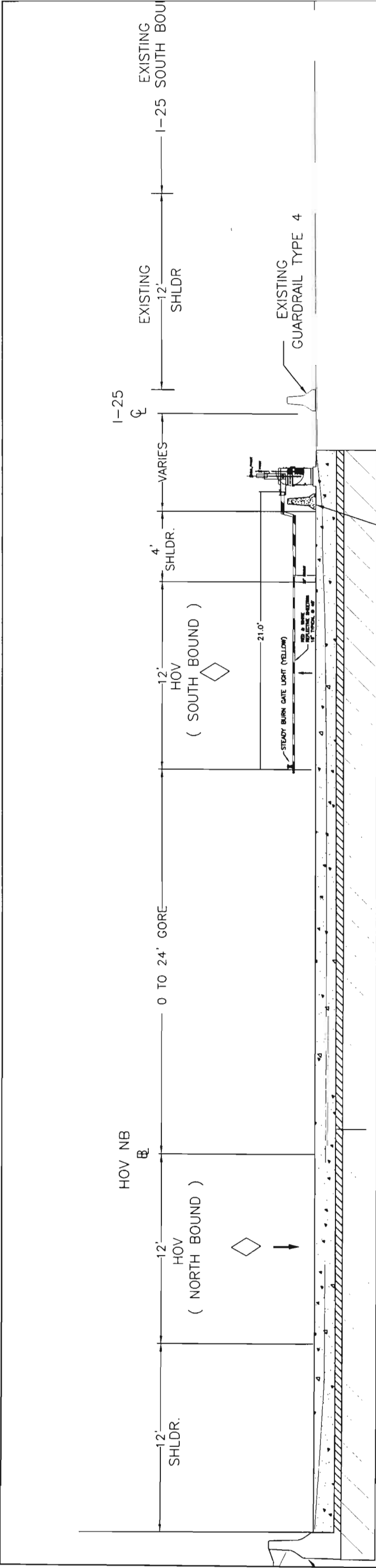
Computer File Information		Sheet Revisions		Colorado Department of Transportation		As Constructed		GATE LIGHT DETAIL		Project No.	
Creation Date:	2-20-02	JKS					No Revisions:			IM 0253-168	
Last Modification Date:		JKS								13344	
Full Path:	C:\USERDATA\PROJECTS							Revised:	JKS Structure Numbers		
Drawing File Name:	GATEDetail							Void:	JKS		
Acad Ver.	2002	Units:							Sheet Subset:	Sheet Number	246
									Sheets:		



HOV SB STA 403+20 GATE 1 = 15.5'

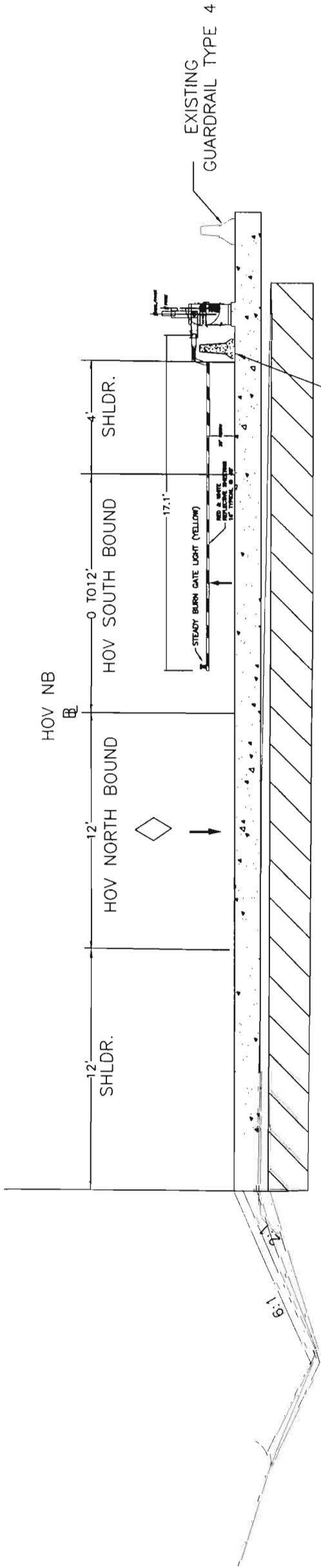
HOV SB STA 405+20 GATE 2 = 23.2'

Computer File Information				Sheet Revisions		Colorado Department of Transportation		As Constructed		TYPICAL SECTIONS		Project No./Code	
Creation Date:	2-4-02	Initials:	JKS			 2000 S. Holly St. Denver, Co 80222 Phone:(303) 757-9511 FAX:(303) 757-9907	Region 6-- Traffic ITS	No Revisions:		SB HOV GATES		IM 0253-168	
Last Modification Date:	6-1-03	Initials:	JKS					Revised:		Designer: JKS		13344	
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Drawing File Name:	JillsHovtypsec1.dwg											247	



HOV SB STA 415+20 GATE 9 = 21.0'

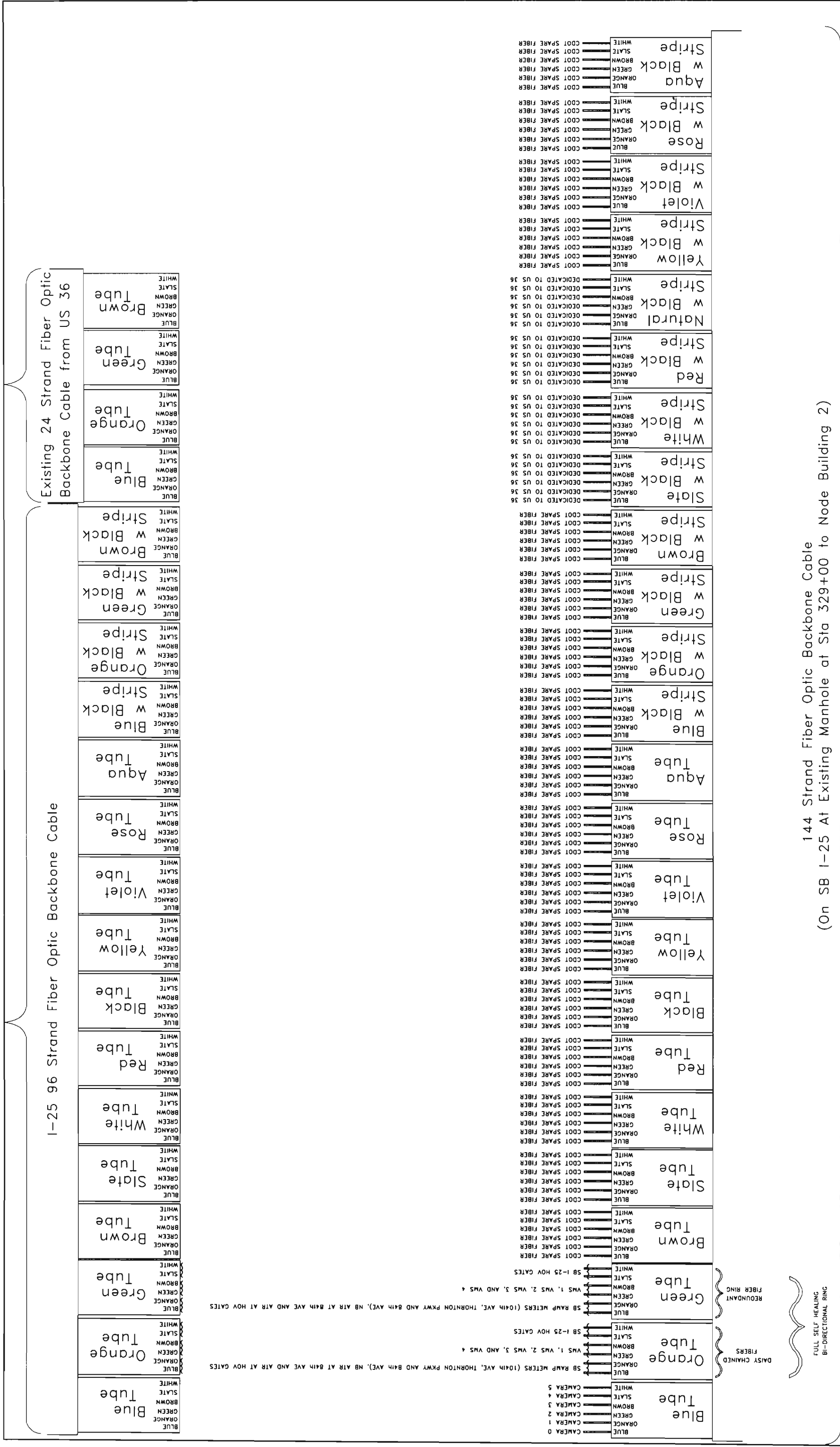
GUARDRAIL TYPE 7 (CC-HOV)



HOV SB STA 417+20 GATE 10 = 17.1'

GUARDRAIL TYPE 7 (CC-HOV)

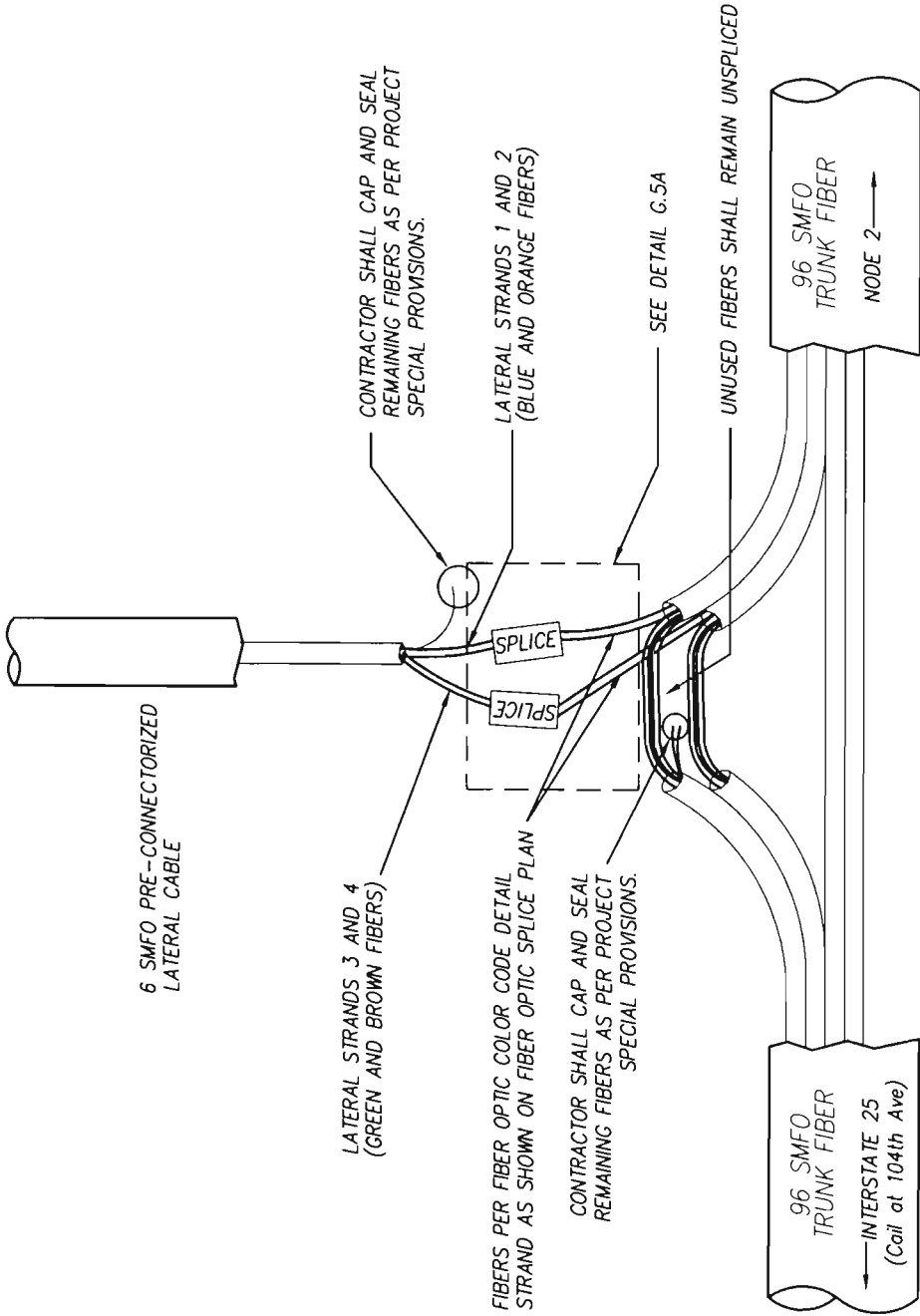
Computer File Information			Sheet Revisions		Colorado Department of Transportation  2000 S. Holly St. Denver, Co 80222 Phone: (303) 757-9511 FAX: (303) 757-9907 Region 6 — ITS AI	As Constructed		TYPICAL SECTIONS		Project No./Code	
Creation Date:	2-4-02	Initials: JKS				No Revisions:		NB HOV GATES		IM 0253-168	
Last Modification Date:	6-1-03	Initials: JKS							Designer:	JKS	13344
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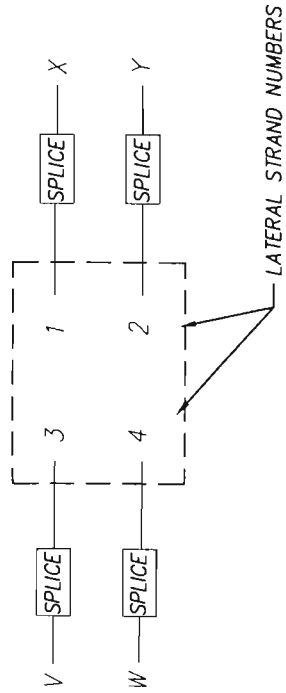
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Creation Date:	2-1-02					No Revisions:			IM 0253-168
Last Modification Date:	6-1-03					Revised:			
Full Path:						Void:			
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Acad Ver:	2002						Detailer: JKS		
Drawing Scale:	NTS						Sheet Subset:	Subset Sheet Number	Sheet Number 252

RAMP METER AT 104th Ave – END OF LOOP SPLICE
VMS 1 – END OF LOOP SPLICE
SB 125 HOV GATE – END OF LOOP SPLICE

(NOT TO SCALE)
SPLICE CLOSURE REQUIRED



DETAIL G.5A



GENERAL NOTES:

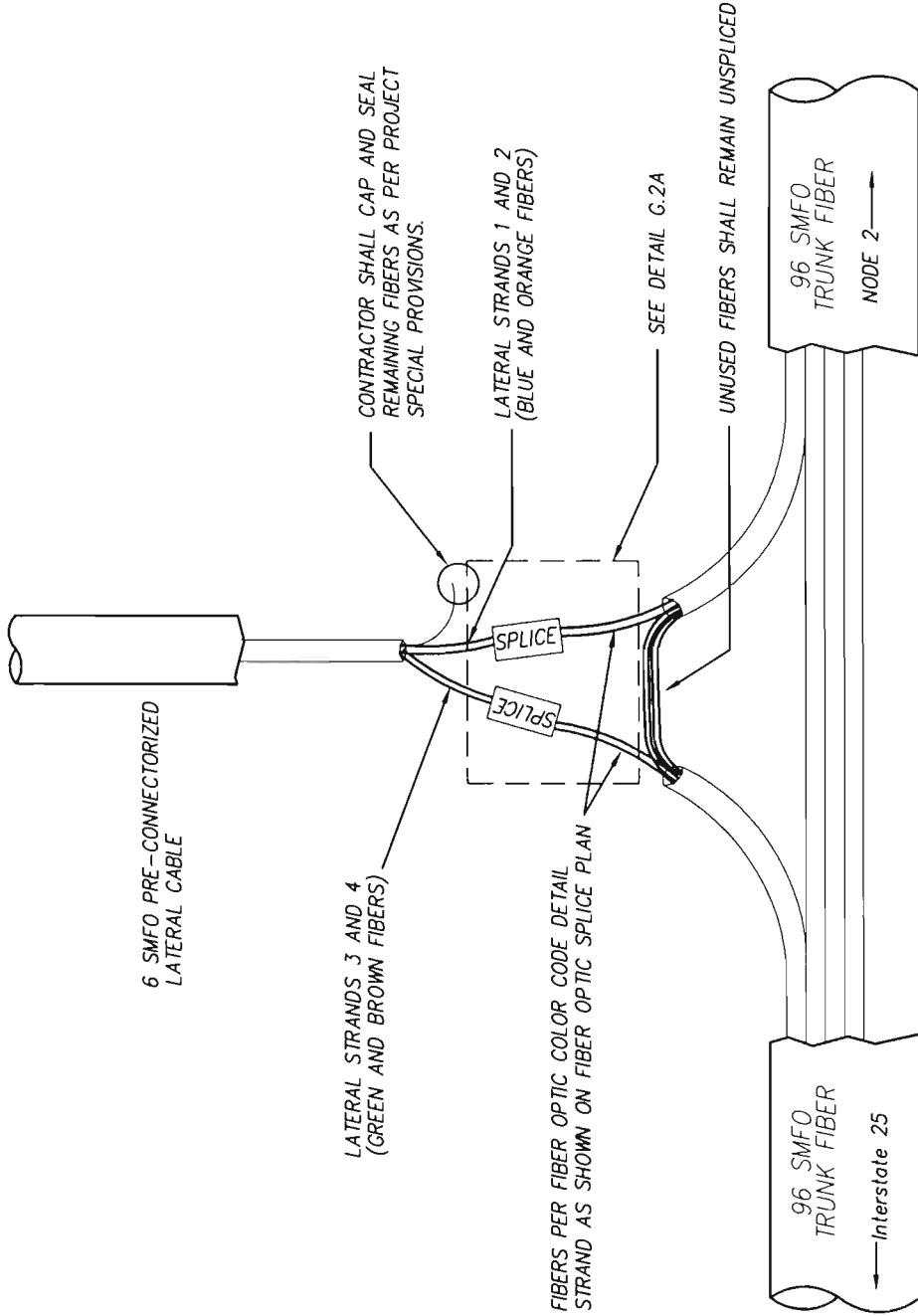
1. CONTRACTOR SHALL VERIFY TUBE AND FIBER COLORS PRIOR TO SPLICING.
2. ENGINEER MUST APPROVE THE ACTUAL COLOR SCHEME USED ON ALL FIBERS.

NOTE:
V, W, AND Y DENOTE STRANDS ON 96 or 144 SMFO TRUNK FIBER AS SHOWN ON FIBER OPTIC SPLICE PLAN

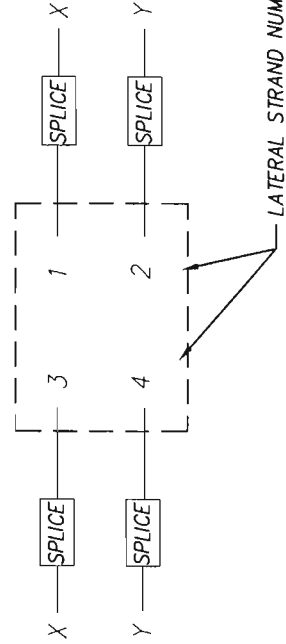
X AND Y DENOTE "IN" STRANDS
V AND W DENOTE "OUT" STRANDS

VMS, ATR, RAMP METERING (EXCEPT END OF LOOP)

(NOT TO SCALE)
SPLICE CLOSURE REQUIRED



DETAIL G.2A



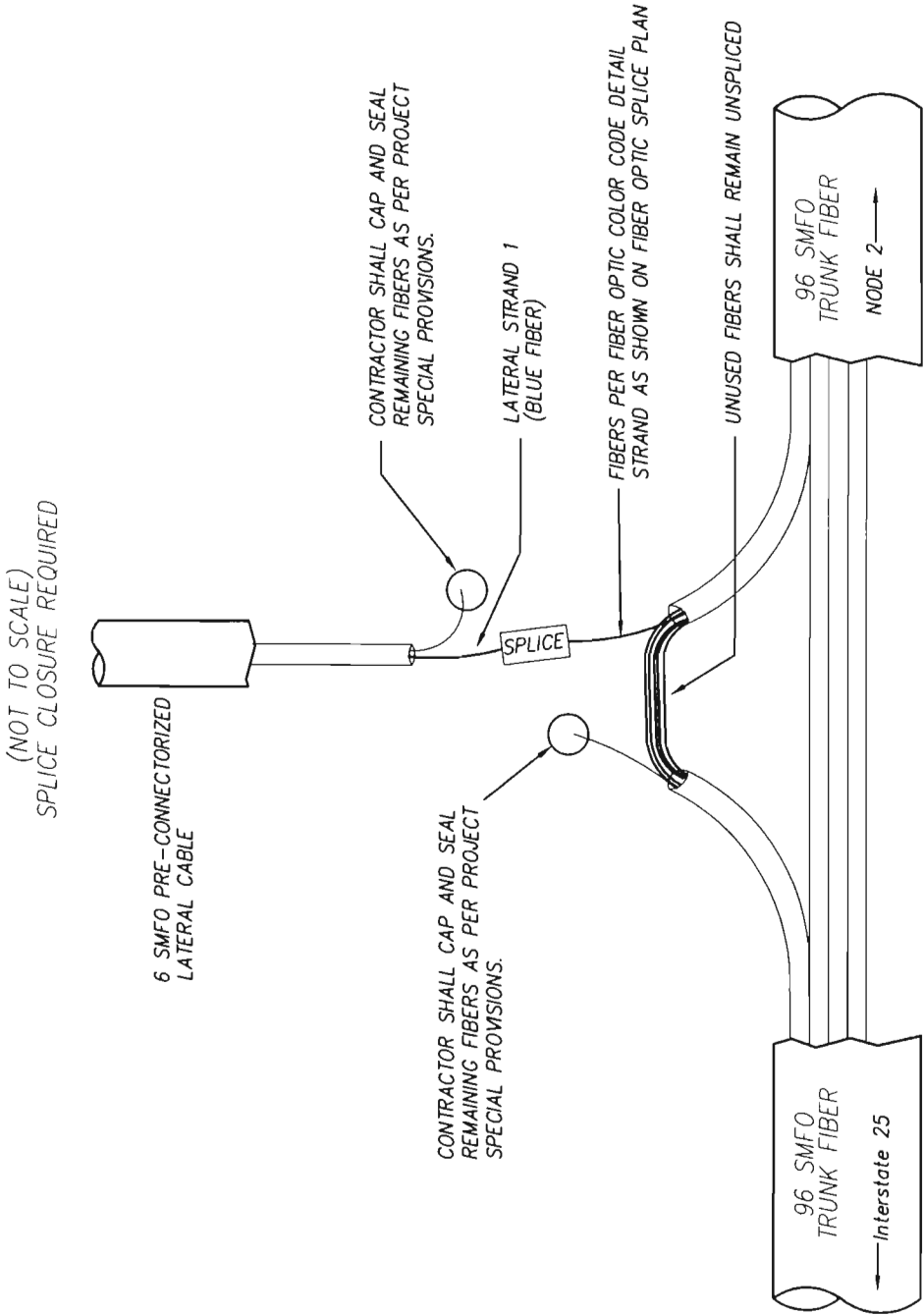
GENERAL NOTES:

1. CONTRACTOR SHALL VERIFY TUBE AND FIBER COLORS PRIOR TO SPLICING.
2. ENGINEER MUST APPROVE THE ACTUAL COLOR SCHEME USED ON ALL FIBERS.

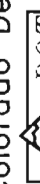
NOTE:
X AND Y DENOTE STRANDS ON 96 SMFO TRUNK FIBER AS SHOWN ON FIBER OPTIC SPLICE PLAN

Computer File Information				Index of Revisions		Colorado Department of Transportation				As Constructed		Project Standard Splicing Detail 1				Project No./Code					
Creation Date:	5/12/2003	Initials:	WJKjr																		
Last Modification Date:	6-1-03	Initials:	JKS			 Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303-757-9907 CREATING A BETTER COLORADO Traffic and Safety – ITS Unit AI				No Revisions:		Revised:		Void:		IM 0253-168		13344		Sheet Number 253	
Full Polh:																					
Drawing File Name:	Splice End of Loop.dwg																				
Scale:	NA	Units:	English																		

CCTV LATERAL SPLICE

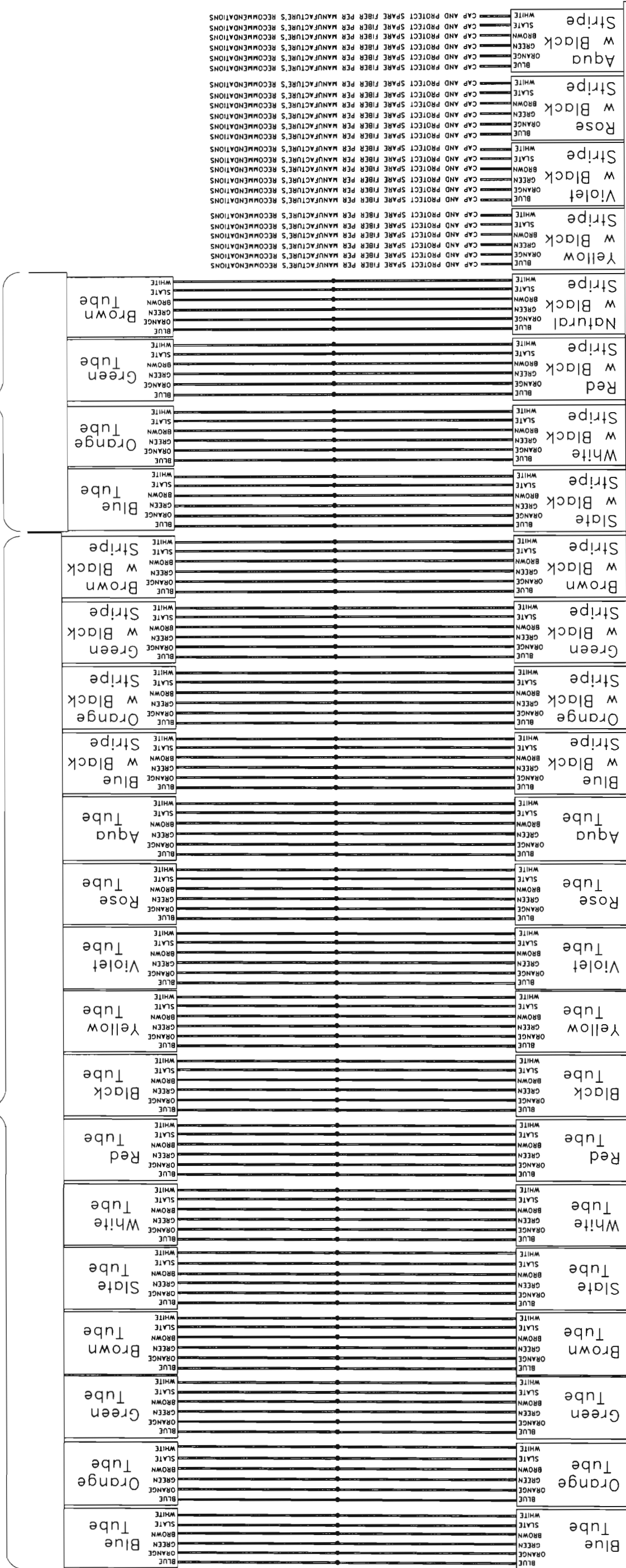


- GENERAL NOTES:
1. CONTRACTOR SHALL VERIFY TUBE AND FIBER COLORS PRIOR TO SPLICING.
 2. ENGINEER MUST APPROVE THE ACTUAL COLOR SCHEME USED ON ALL FIBERS.

Computer File Information				Index of Revisions		Colorado Department of Transportation				As Constructed		Project Standard				Project No./Code	
Creation Date:	5/12/2003		Initials:			WJKjr		 Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303-757-9907 TRAFFIC AND SAFETY DIVISION				No Revisions:		Splicing Detail 2			
Last Modification Date:	6-1-03		Initials:	JKS		Revised:						Designer: WJKjr		Structure Numbers		13344	
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Drawing File Name:	Splice End of Loop.dwg					Void:											
Scale:	NA		Units:		English		Traffic and Safety – ITS Unit AI										

96 Strand Fiber Optic Backbone Cable
(On SB 1-25 At Existing Manhole at Sta 329+00)

Existing 24 Strand Fiber Optic Backbone Cable
in existing Manhole at Sta 329+00



144 Strand Fiber Optic Backbone Cable
(On SB I-25 At Existing Manhole at Sta 329+00)

- = SPLICE BY CONTRACTOR (INCLUDED WITH THE COST OF THE FIBER)

Computer File Information				Index of Revisions		Colorado Department of Transportation		As Constructed	Project Standard Splicing Detail 3		Project No./Code
Creation Date:	2-1-02	Initials: JKS						No Revisions:			IM 0253-168
Last Modification Date:	6-1-03	Initials:						Revised:			
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Acad Ver:	2002							Sheet Subset:	Subset Sheet Number:		Sheet Number 255
2000 South Holly Street Denver, CO 80222 Phone: 757-9511 FAX: 757-9907 Region 6 - Traffic ITS AI											

PATCH PANEL DETAIL X.1

CCTV CABINET PATCH DIAGRAM				
FIBER		BUNDLE COLOR	A SIDE	PATCH NUMBER
No.	COLOR			
1	BLUE	BLUE	STRAND X	1
2	ORANGE	BLUE		2
3	GREEN	BLUE		3
4	BROWN	BLUE		4
5	SLATE	BLUE		5
6	WHITE	BLUE		6

PATCH PANEL DETAIL X.2

VMS / GATE / ATR CABINET PATCH DIAGRAM				
FIBER		BUNDLE COLOR	A SIDE (to BB of Lat)	PATCH NUMBER
No.	COLOR			
1	BLUE	BLUE	STRAND X IN	1
2	ORANGE	BLUE	STRAND Y IN	2
3	GREEN	BLUE	STRAND X OUT	3
4	BROWN	BLUE	STRAND Y OUT	4
5	SLATE	BLUE		5
6	WHITE	BLUE		6

NOTE:
X AND Y DENOTE STRANDS ON 96 SMFO TRUNK
FIBER AS SHOWN ON FIBER OPTIC SPLICE PLAN

NOTES:

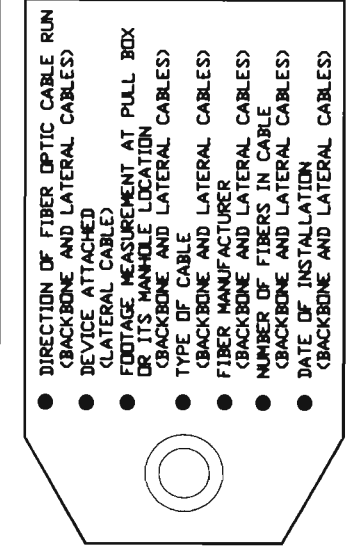
1. ALL FIBERS MUST BE LANDED IN A PATCH PANEL IN NODE BLDG 2.
PATCH PANELS ARE INCLUDE IN THE COST OF FIBER.
2. BOTH SIDES OF THE PATCH PANELS MUST ACCEPT ST CONNECTORS.
3. ALL ST CONNECTORS IN THE FIELD CABINETS SHALL BE CERAMIC. NO COMPOSITE OR PLASTIC CONNECTORS ARE ALLOWED.

PATCH PANEL DETAIL IN NODE 2

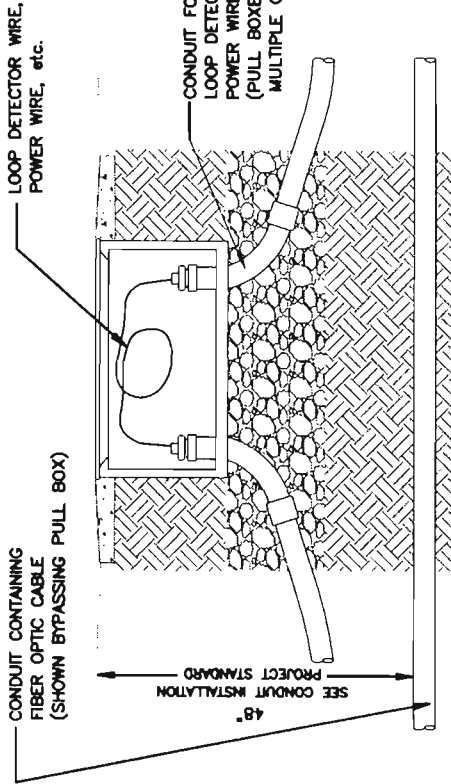
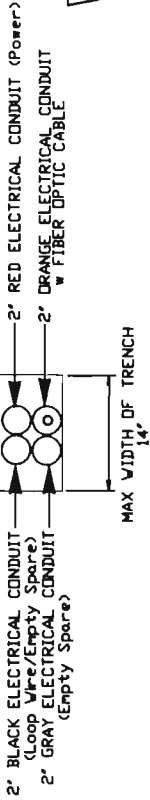
TMS BUILDING 2 – PATCH DIAGRAM
144 SMFO FIBER (INTERSTATE 25)

BUNDLE COLOR	FIBER		A SIDE (From the field)	PATCH NUMBER	B SIDE (To Transceiver)
	No.	COLOR			
BLUE	1	BLUE	CCTV No. 0	1	CCTV VOIR 0
BLUE	2	ORANGE	CCTV No. 1	2	CCTV VOIR 1
BLUE	3	GREEN	CCTV No. 2	3	CCTV VOIR 2
BLUE	4	BROWN	CCTV No. 3	4	CCTV VOIR 3
BLUE	5	SLATE	CCTV No. 4	5	CCTV VOIR 4
BLUE	6	WHITE	CCTV No. 5	6	CCTV VOIR 5
ORANGE	7	BLUE	RAMP METER RING(1) (Tx)	7	RAMP METER OTR 1 (Rx)
ORANGE	8	ORANGE	RAMP METER RING(1) (Rx)	8	RAMP METER OTR 1 (Tx)
ORANGE	9	GREEN	VMS RING (1) (Tx)	9	VMS OTR 1 (Rx)
ORANGE	10	BROWN	VMS RING (1) (Rx)	10	VMS OTR 1 (Tx)
ORANGE	11	SLATE	GATE RING (1) (Tx)	11	GATE OTR 1 (Rx)
ORANGE	12	WHITE	GATE RING (1) (Rx)	12	GATE OTR 1 (Tx)
GREEN	13	BLUE	RAMP METER RING(2) (Tx)	13	RAMP METER OTR 2 (Rx)
GREEN	14	ORANGE	RAMP METER RING(2) (Rx)	14	RAMP METER OTR 2 (Tx)
GREEN	15	GREEN	VMS RING (2) (Tx)	15	VMS OTR 2 (Rx)
GREEN	16	BROWN	VMS RING (2) (Rx)	16	VMS OTR 2 (Tx)
GREEN	17	SLATE	GATE RING (2) (Tx)	17	GATE OTR 2 (Rx)
GREEN	18	WHITE	GATE RING (2) (Rx)	18	GATE OTR 2 (Tx)
BROWN	19	BLUE	SPARE TERMINATED	19	SPARE TERMINATED
BROWN	20	ORANGE		20	
BROWN	21	GREEN		21	
BROWN	22	BROWN		22	
BROWN	23	SLATE		23	
BROWN	24	WHITE		24	
SLATE	25	BLUE		25	
SLATE	26	ORANGE		26	
SLATE	27	GREEN		27	
SLATE	28	BROWN		28	
SLATE	29	SLATE		29	
SLATE	30	WHITE		30	
WHITE	31	BLUE		31	
WHITE	32	ORANGE		32	
WHITE	33	GREEN		33	
WHITE	34	BROWN		34	
WHITE	35	SLATE		35	
WHITE	36	WHITE		36	
RED	37	BLUE		37	
RED	38	ORANGE		38	
RED	39	GREEN		39	
RED	40	BROWN		40	
RED	41	SLATE		41	
RED	42	WHITE		42	
BLACK	43	BLUE		43	
BLACK	44	ORANGE		44	
BLACK	45	GREEN		45	
BLACK	46	BROWN			
BLACK	47	SLATE			
BLACK	48	WHITE			

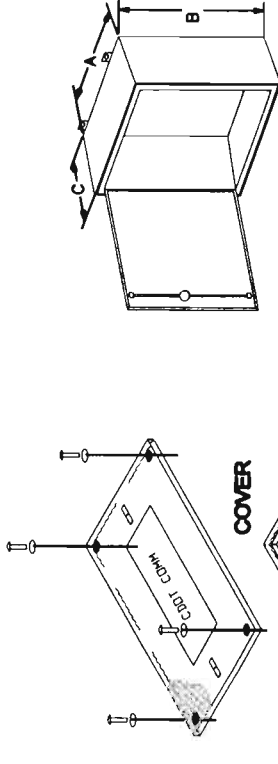
Computer File Information			Sheet Revisions		As Constructed		PATCH PANEL		Project No.	
Creation Date:	2-1-02	Initials: JKS			No Revisions:		IM 0253-168			
Last Modification Date:	6-1-03	Initials: JKS			Revised:		13344			
Full Path:	C:\USERDATA\PROJECTS				Designer:		JKS Structure Numbers			
Drawing File Name:	PATCH\PANEL.DWG				Detailer:		JKS			
Acad Ver.	2002	Scale:	NTS	Units:ENGLISH	Void:		Sheet Subset:		Sheet Number	
									256	



FIBER CABLE LABEL
TO BE ATTACHED TO EACH FIBER OPTIC CABLE
LOCATED IN ALL PULL BOX (SPECIAL) AND ITS MANHOLES



CONDUIT BYPASS DETAIL



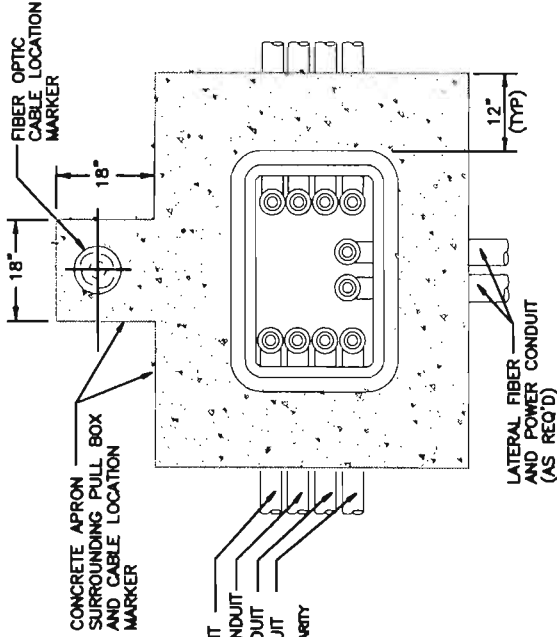
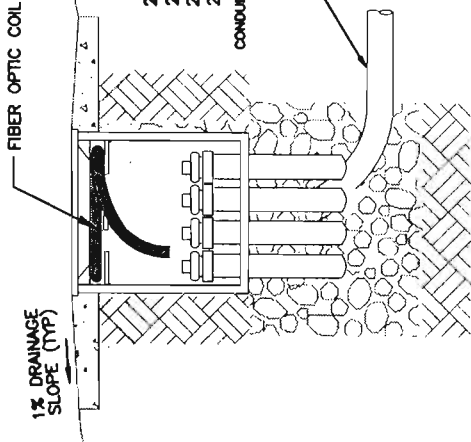
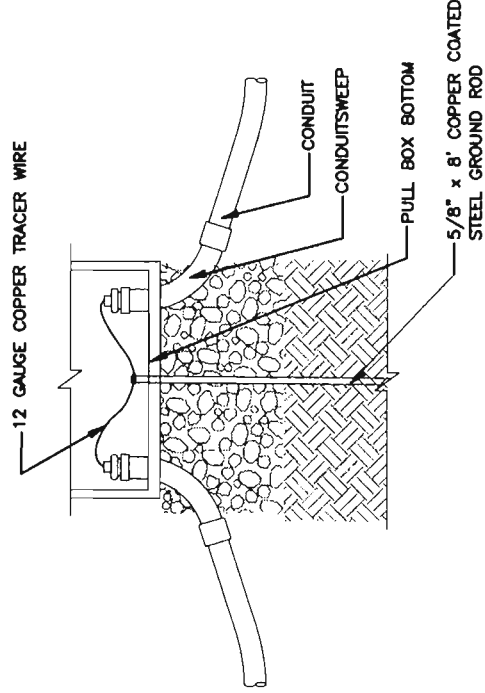
**SURFACE MOUNTED TYPE
WEATHER TIGHT WITH LOCK**

PULL BOX (SPECIAL) TYPE	MINIMUM DIMENSIONS (Inches)		
	A	B	C
PULL BOX (SPECIAL) - (Small Size)	24	36	18
PULL BOX (SPECIAL) - (Large Size)	36	48	18
PULL BOX (SPECIAL) - (Surface Mounted)	24	24	8

PULL BOX (SPECIAL) DIMENSIONS

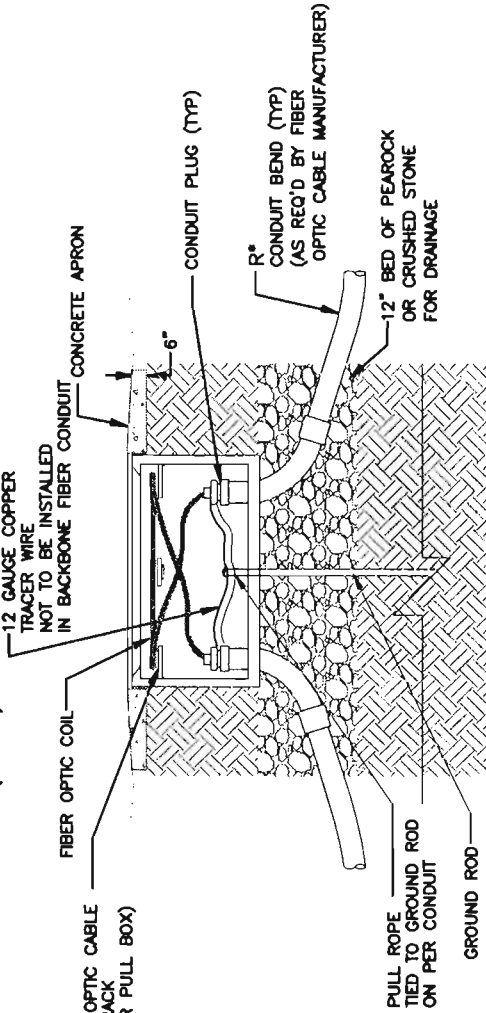
Computer File Information		Index of Revisions	
Creation Date:	5/12/2003	Initials: WJKjr	
Last Modification Date:	5/12/2003	Initials: WJKjr	
Full Path:			
Drawing File Name:	Pull Box (Special) Standard.DWG		
Scale:	NA	Units: English	

GROUNDING DETAIL



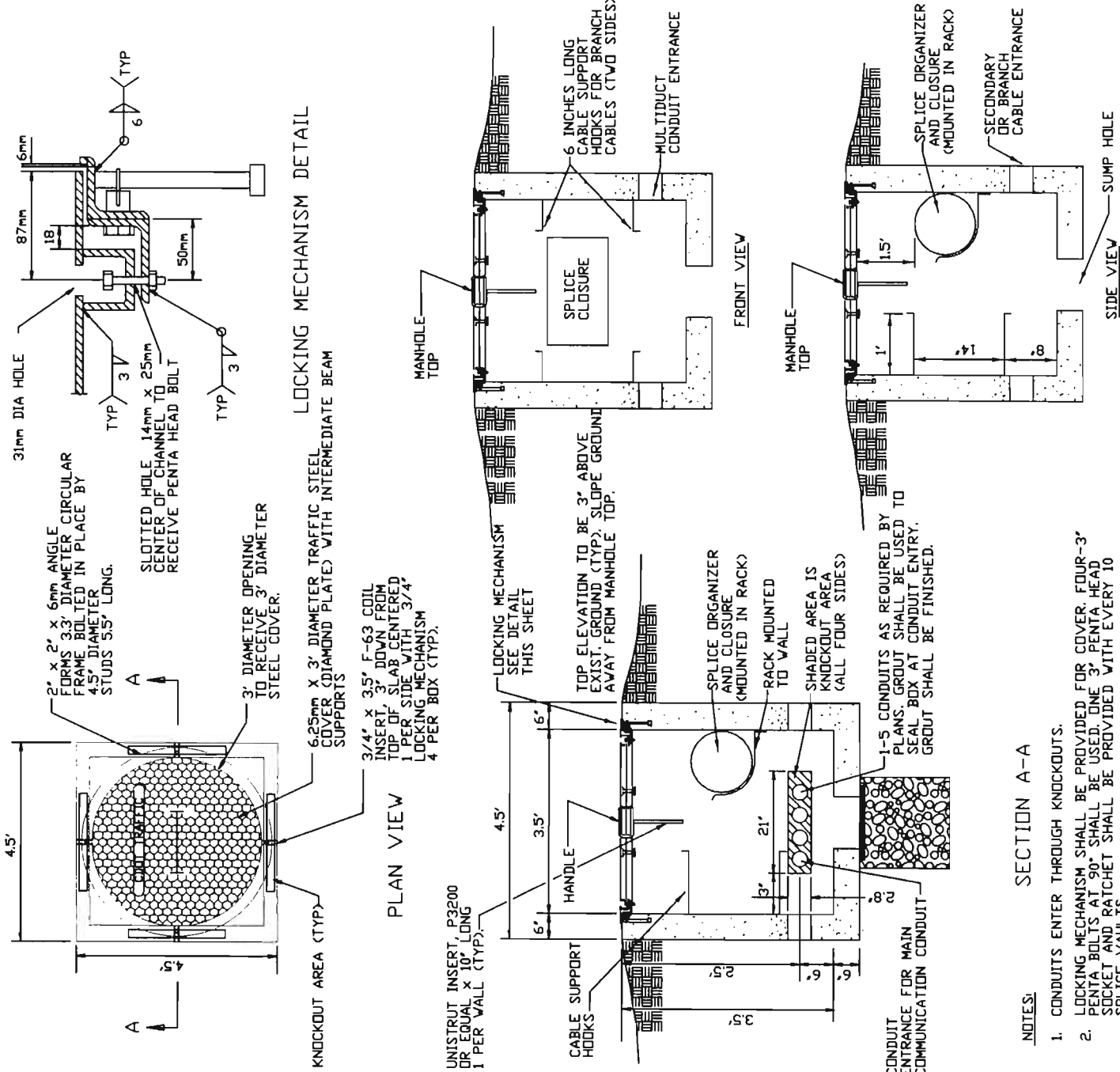
PULL BOX (SPECIAL) INSTALLATION

- * CONDUIT BEND NOTES:
1. MINIMUM RADIUS "R" MUST NOT BE LESS THAN 32"
 2. MINIMUM SWEEP MUST NOT BE GREATER THAN 90 DEGREES



PULL BOX NOTES:

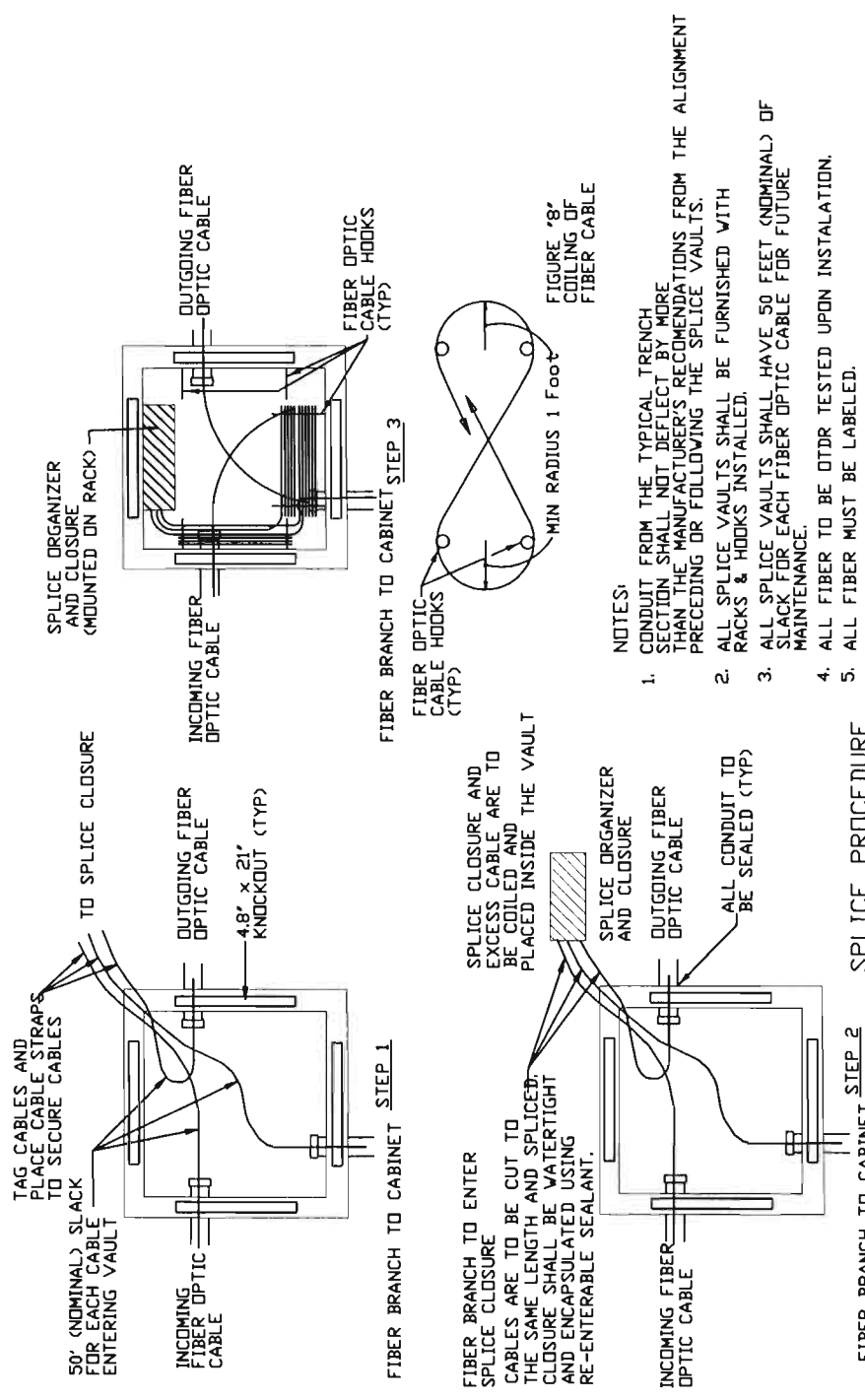
1. CONDUIT CENTERLINE SHALL BE ALIGNED WITHIN THE PULL BOX TO FACILITATE FIBER OPTIC CABLE PULLING.
2. CONDUIT PLUGS SHALL BE INSTALLED IN ALL CONDUITS, BOTH WITH AND WITHOUT WIRE OR CABLE AND SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM.
3. TRACER WIRE AND PULL ROPE SHALL BE INCLUDED IN THE COST OF ELECTRICAL CONDUIT ITEM.
4. ALL PULL BOX TYPES SHALL BE PAID FOR UNDER THE ITEM 614 PULL BOX (SPECIAL), AND SHALL BE SIZED AS TABULATED AND SHOWN IN THE PLANS.
5. PULL BOXES SHALL HAVE 12" WIDE X 6" DEEP CONCRETE APRONS SLOPED AWAY FROM PULL BOX OPENING. THE COST OF THE CONCRETE APRON SHALL BE PAID FOR AS PART OF PULL BOX (SPECIAL) ITEM.
6. CONCRETE FOOTING SUPPORT FOR LOCATION MARKERS AT PULL BOX LOCATIONS ARE PAID FOR AS PART OF PULL BOX (SPECIAL) AND SHALL BE POURED MONOLITHICALLY WITH CONCRETE APRON.
7. FIBER OPTIC CABLE COILS WITHIN PULL BOXES SHALL BE TIED TO EACH CABLE RACK WITH PLASTIC CABLE TIES. CAUTION SHALL BE TAKEN TO COIL THE FIBER CABLE PER MANUFACTURER'S RECOMMENDATIONS.
8. ALL WORK TO INSTALL PULL BOX (SPECIAL) SHALL INCLUDE BUT NOT BE LIMITED TO SAW CUTTING OF PAVEMENT, REMOVAL OF PAVEMENT, CONCRETE, EARTHWORK AND SHALL BE PAID FOR AS PART OF PULL BOX (SPECIAL).



TYPICAL MANHOLE (TRAFFIC)
FIBER OPTIC SPLICER VAULT

SECTION A-A

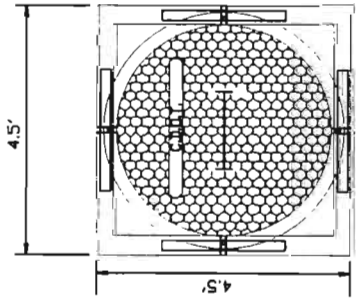
- NOTES:
1. CONDUITS ENTER THROUGH KNOCKOUTS.
 2. LOCKING MECHANISM SHALL BE PROVIDED FOR COVER, FOUR-3" PENTA BOLTS AT 90° SHALL BE USED, ONE 3" PENTA HEAD SOCKET AND RATCHET SHALL BE PROVIDED WITH EVERY 10 SPLICER VAULTS.
 3. REFER TO CDDT STANDARDS FOR MANHOLE STRUCTURE DETAILS. STRUCTURE BOTTOM TYPE P WITH 3.5' SQUARE STRUCTURE (ALTERNATE B 2 PIECE COVER ~ 3' Foot OPENING)
 4. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF ALL HOOKS, RACKS, FASTENERS, ANCHORS, AND STRAPS FOR USE INSIDE SPLICER VAULTS TO BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
 5. MANHOLES MUST BE SQUARE. MANHOLE COVERS MUST BE CIRCULAR.



- NOTES:
1. CONDUIT FROM THE TYPICAL TRENCH SECTION SHALL NOT DEFLECT BY MORE THAN THE MANUFACTURER'S RECOMMENDATIONS FROM THE ALIGNMENT PRECEDING OR FOLLOWING THE SPLICER VAULTS.
 2. ALL SPLICER VAULTS SHALL BE FURNISHED WITH RACKS & HOOKS INSTALLED.
 3. ALL SPLICER VAULTS SHALL HAVE 50 FEET (NOMINAL) OF SLACK FOR EACH FIBER OPTIC CABLE FOR FUTURE MAINTENANCE.
 4. ALL FIBER TO BE OTDR TESTED UPON INSTALLATION.
 5. ALL FIBER MUST BE LABELED.

SPLICER PROCEDURE

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		Project Standard		Project No./Code	
Creation Date:	Initials:			 Traffic and Safety, ITS Unit 2000 South Holly Street, Room 200 Denver, CO 80222 Phone: 757-9511 FAX: 757-9907 R6 - Traffic ITS		No Revisions:		ITS Manhole		IM 0253-168	
Last Modification Date:	Initials:										
Full Path:	C:/Userdata/Project										
Drawing File Name:	ITS Manhole.DWG										
Acad Ver: 2002	Not to Scale			Designer: JKS Revised: Void:		Structure Numbers Detailer: JKS Sheet Subset:		Sheet Steel Number:		13344	
				AI						Sheet Number 258	



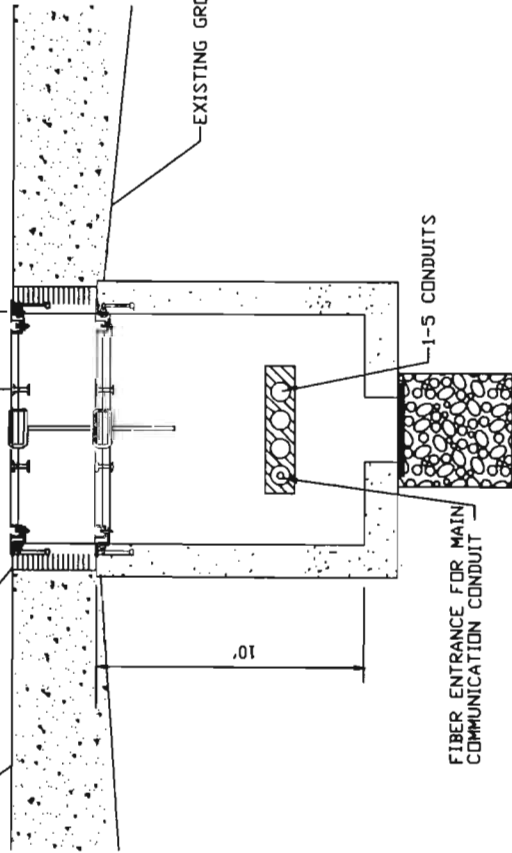
PLAN VIEW

PROPOSED WALL

PROPOSED PAVEMENT

ADD MANHOLE RINGS
(By Contractor)

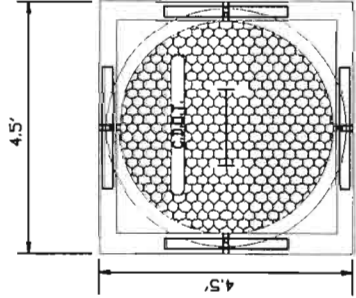
METAL SAFETY-SHAPED SLEEVE NOTCHED OUT
OF BARRIER TO ALLOW ACCESS TO MANHOLE
(By Contractor)



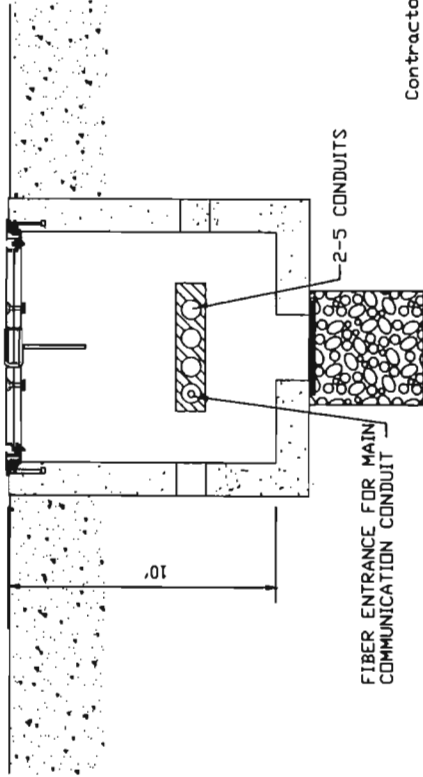
SIDE VIEW

STATION 360+20

- NOTES:
1. ADD APPROXIMATELY 12 INCHES OF RINGS UP TO THE HEIGHT OF THE NEW SURFACE.
 2. ADJUST MANHOLE SHALL INCLUDE A METAL ACCESS SLEEVE TO ALLOW FOR FUTURE MAINTNANCE.



PLAN VIEW



SIDE VIEW

FRONT VIEW

STATION 424+00 & 444+25

- NOTES:
1. CONDUITS ENTER THROUGH KNOCKOUTS. ONE CONDUIT CARRIES BACKBONE FIBER, BUT ALL CONDUITS SHALL BE CARRIED THROUGH THE MANHOLE IN A WATERTIGHT FASHION.
 2. CONTRACTOR SHALL KNOCK OUT AREA AROUND EACH CONDUIT IN ORDER TO PROVIDE A 100 PERCENT WATERPROOF SEAL. EACH CONDUIT SHALL BE RAN THROUGH WITH A SLIT DUCT THAT SHALL BE SEALED TO WATERPROOF BEFORE AROUNDING THE MANHOLE.
 3. CONTRACTOR SHALL FOLLOW OSHA'S RECOMMENDATIONS FOR ENTERING CONFINED AREAS. CONTRACTOR MAY EXPERIENCE WATER IN EXISTING MANHOLES. CONTRACTOR SHALL FOLLOW OSHA'S AND PROJECT'S RECOMMENDED DEWATERING PROCEDURES.

Computer File Information	
Creation Date:	Initials:
Last Modification Date: 6-1-03	Initials: JKS
Full Path: C:/Userdata/Project	
Drawing File Name: ITS Manhole.DWG	
Acad Ver: 2002	Not to Scale

Index of Revisions	

Colorado Department of Transportation



Traffic and Safety, ITS Unit
2000 South Holly Street, Room 200
Denver, CO 80222
Phone: 757-9511 FAX: 757-9907

R6 - Traffic ITS

As Constructed		Project Standard			
		Adjust Manhole (Special)			
No Revisions:					
Revised:		Designer: JKS	Structure Numbers		
Void:		Detailer: JKS			
		Sheet Subset:	Subset Sheet Number:		

LEGEND

FIBER OPTIC CABLE MARKER WITH INFORMATION LABEL	
	PULL BOX
	MANHOLE
	CONDUIT - (NUMBER AND SIZE AS SHOWN IN PLANS)
	CDOT ELECTRICAL UTILITY LOCATION MARKER
	CDOT TELEPHONE UTILITY LOCATION MARKER

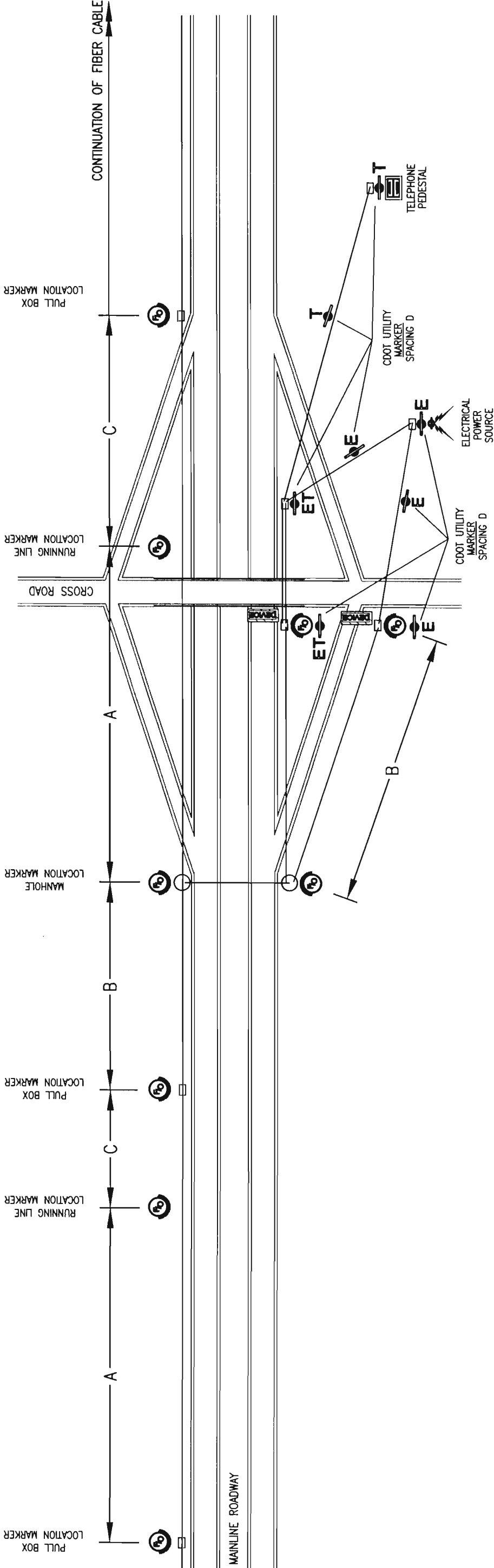
LOCATION MARKER SPACING

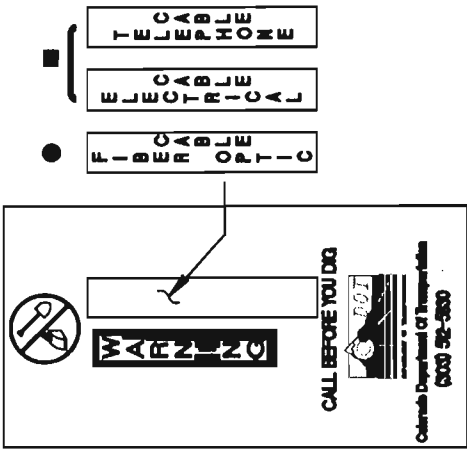
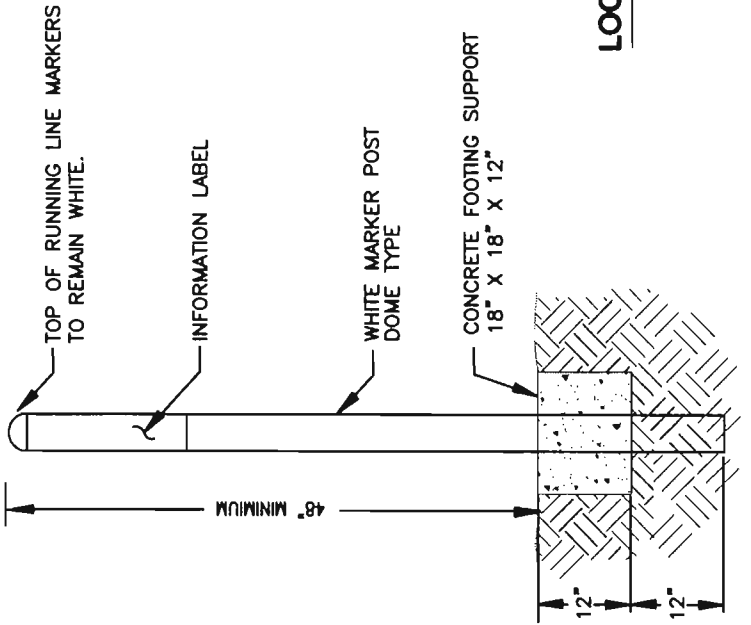
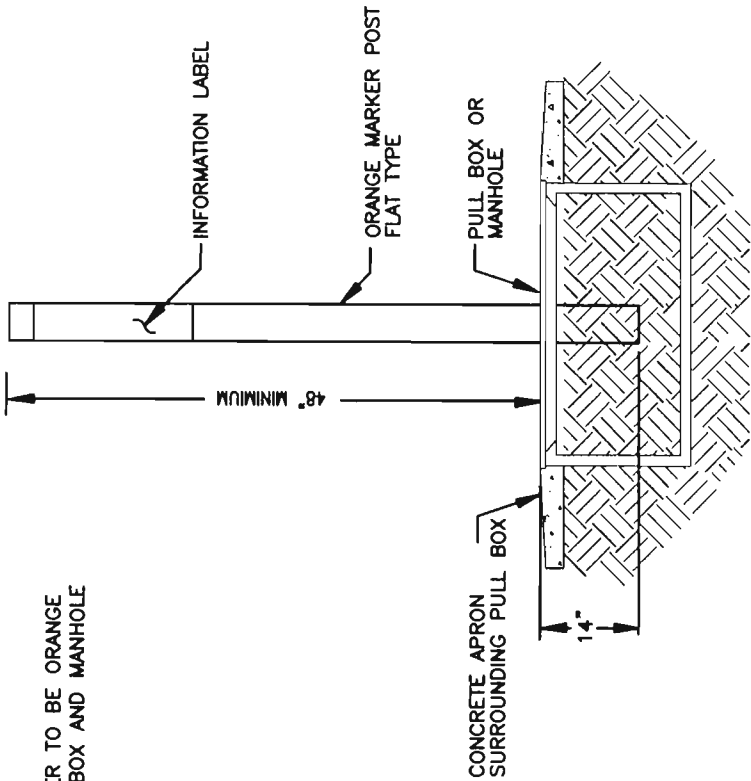
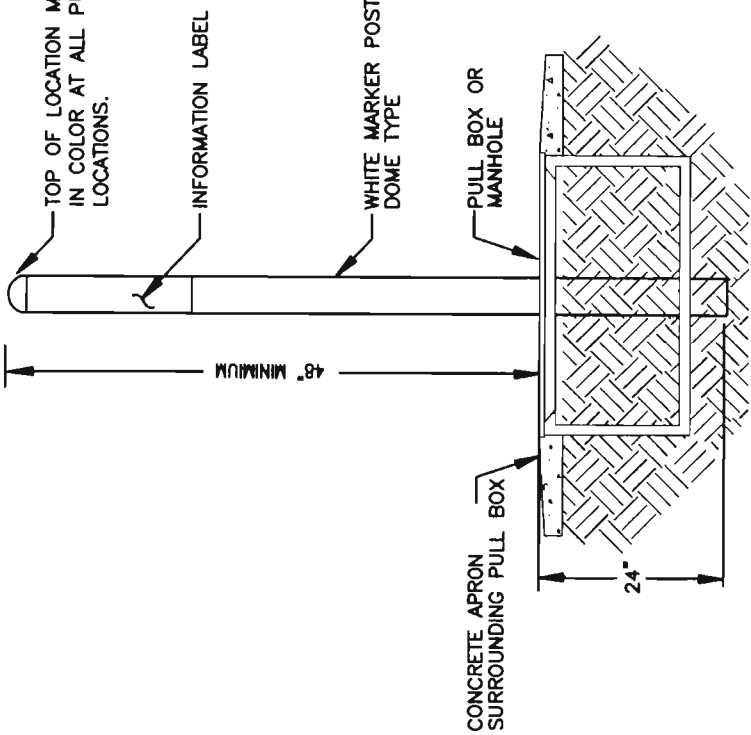
MEASUREMENT	DESCRIPTION	DISTANCE (FEET)
A	RUNNING LINE MARKER SPACING	1000
B	HANDHOLE MARKER SPACING	< 1000
C	ADDITIONAL RUNNING LINE MARKER SPACING	C-A-B (WHERE REQUIRED) < 1000
D	UTILITY MARKER SPACING	*

* UTILITY LOCATION MARKERS TO BE INSTALLED AT BEGINNING AND END OF UTILITY CONDUIT. IF DISTANCE IS GREATER THAN 800', AN ADDITIONAL MARKER SHALL BE INSTALLED AT THE MID POINT OF CONDUIT RUN.

LOCATION MARKER INSTALLATION NOTES:

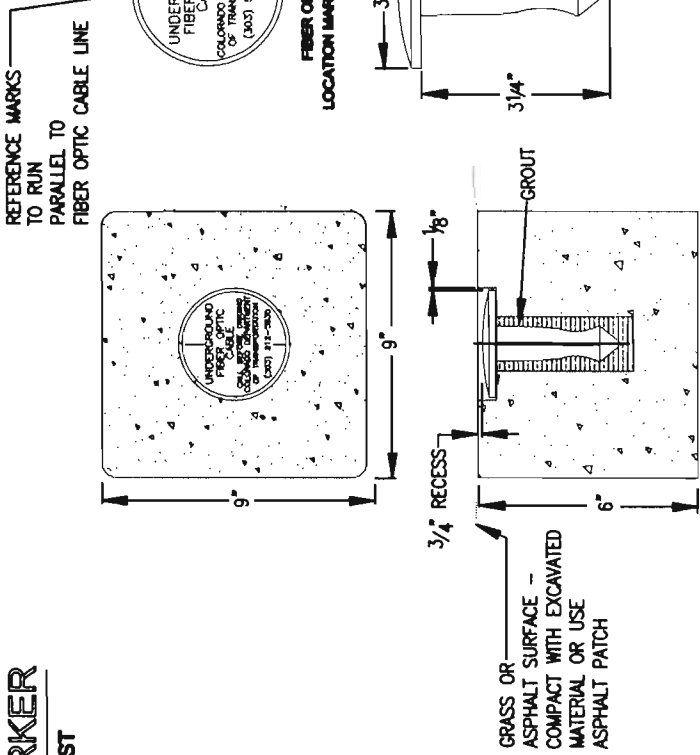
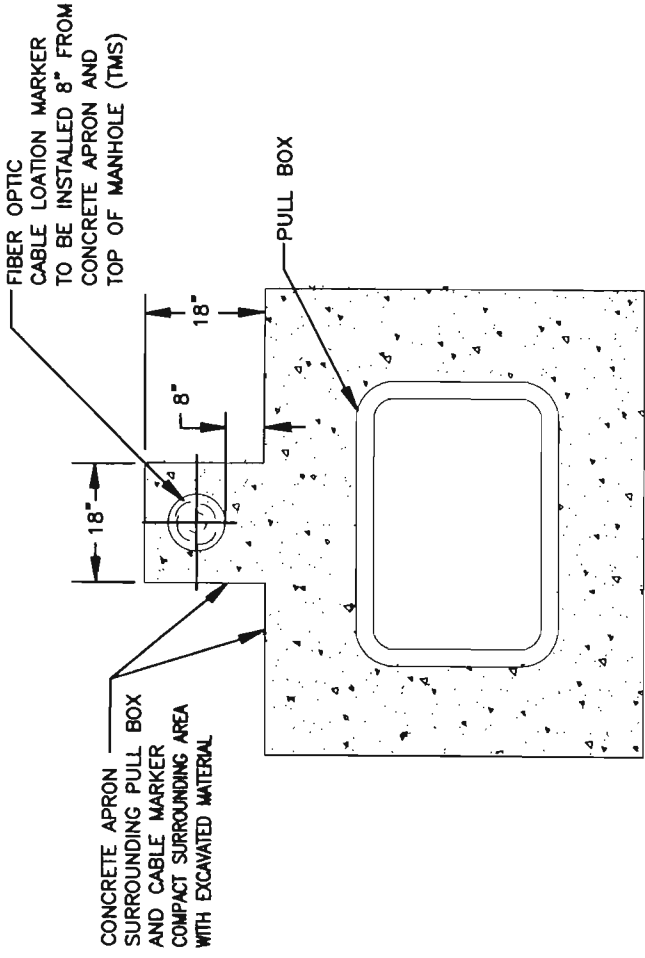
1. AREA AROUND LOCATION MARKER INSTALLATION SHALL BE RETURNED TO EXISTING GRADE AND CONDITION.
2. LOCATION MARKERS SHALL BE INSTALLED AT EACH PULL BOX AND MANHOLE ALONG BOTH THE BACKBONE AND LATERAL FIBER OPTIC CABLE RUNS THROUGHOUT THE PROJECT. ADDITIONAL MARKERS SHALL BE INSTALLED ALONG THE RUNNING LINE.
3. UTILITY LOCATION MARKERS SHALL BE INSTALLED AT BOTH THE UTILITY CONNECTION HOOK-UP PULL BOX AND THE EQUIPMENT PULL BOX OR MANHOLE AT PROJECT DEVICE. ADDITIONAL MARKERS SHALL BE INSTALLED AT MID LOCATIONS ALONG THE UTILITY LINE AS SHOWN ON THE PLANS.
4. CONCRETE FOOTING SUPPORT FOR LOCATION MARKERS AT PULL BOX LOCATIONS SHALL BE INCLUDED IN THE COST OF EACH PULL BOX (SPECIAL) SHOWN IN THE PROJECT. CONCRETE LOCATION MARKER SUPPORT FOUNDATION AND CONCRETE PULL BOX APRON SHALL BE POURED MONOLITHICALLY.
5. CONCRETE FOOTING SUPPORTS FOR RUNNING LINE MARKERS ARE TO BE INCLUDED IN INSTALL MARKER ITEM.
6. UTILITY MARKERS SHALL BE INSTALLED PER THE MANUFACTURER'S RECOMMENDATIONS. CONCRETE SUPPORT FOUNDATIONS SHALL NOT BE REQUIRED FOR UTILITY LOCATION MARKERS.
7. LANDSCAPE LOCATION MARKERS SHALL BE INSTALLED IN LANDSCAPE AREAS AND AREAS SUCH AS PARKING LOTS WHICH COULD HAVE VEHICULAR TRAFFIC.
8. THE CONTRACTOR SHALL PROVIDE THE PROJECT ENGINEER AN AS-BUILT DRAWING SHOWING THE INSTALLED LOCATIONS OF ALL MARKER TYPES.





LOCATION MARKER INFORMATION LABEL
LABEL WITH CDOT CONTACT INFORMATION
BLACK LETTERING ON ORANGE BACKGROUND
● FOR FIBER OPTIC DOME MARKERS
■ FOR CDOT UTILITY FLAT MARKERS

**RUNNING LINE
LOCATION MARKER**
3" x 6" DOME TYPE POST



**PULL BOX AND MANHOLE
LOCATION MARKER**
3" x 6" DOME TYPE POST

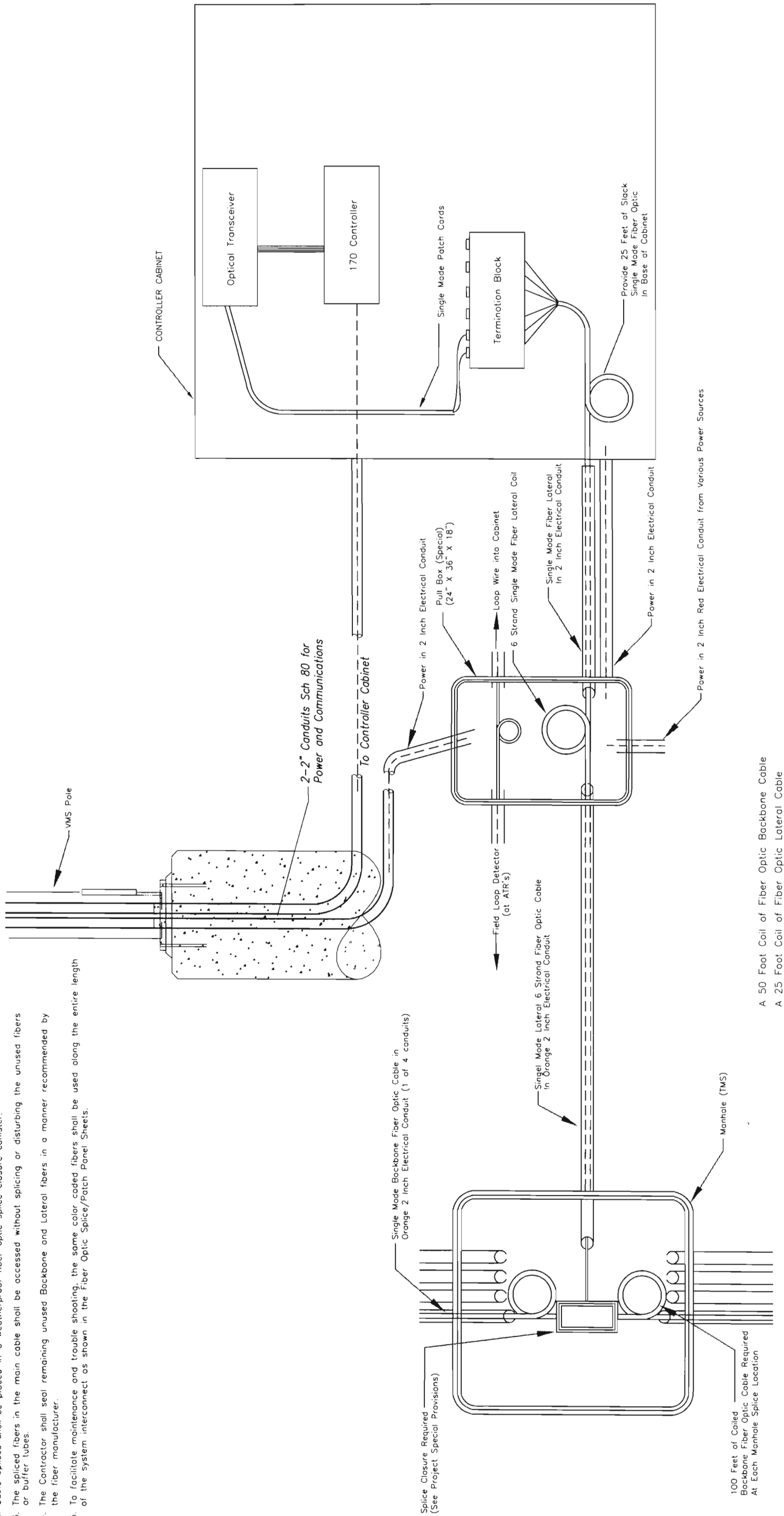
**CDOT UTILITY
LOCATION MARKER**
3 1/2" X 62" FLAT TYPE POST
ELECTRICAL POWER RUNNING LINES AND
TELEPHONE RUNNING LINES

LANDSCAPE LOCATION MARKER
BRASS SURVEY MONUMENT USED AS FIBER OPTIC CABLE MARKER
WITH CONCRETE FOOTING SUPPORT

Computer File Information			Index of Revisions		Colorado Department of Transportation			As Constructed		Project Standard			Project No./Code	
Creation Date:	5/12/2003	Initials: WJKir			 Region 6 2000 South Holly Street Denver, Colorado 80222 Phone: 303 757 9029 FAX: 303-757-9907 Traffic and Safety - ITS Unit	No Revisions:	Revised:	Void:	Fiber Optic /		Utility Location Marker		IM 0253-168	
Last Modification Date:	5/12/2003	Initials: WJKir							Designer: WJKir		Structure Numbers			
Full Path:									Detailer: WJKir					
Drawing File Name:	Pull Box (Special) Standard.DWG								Sheet Subset:		Sheet Number			
Scale:	NA	Units: English							Sheet Subset:		Sheet Number			
AI													261	

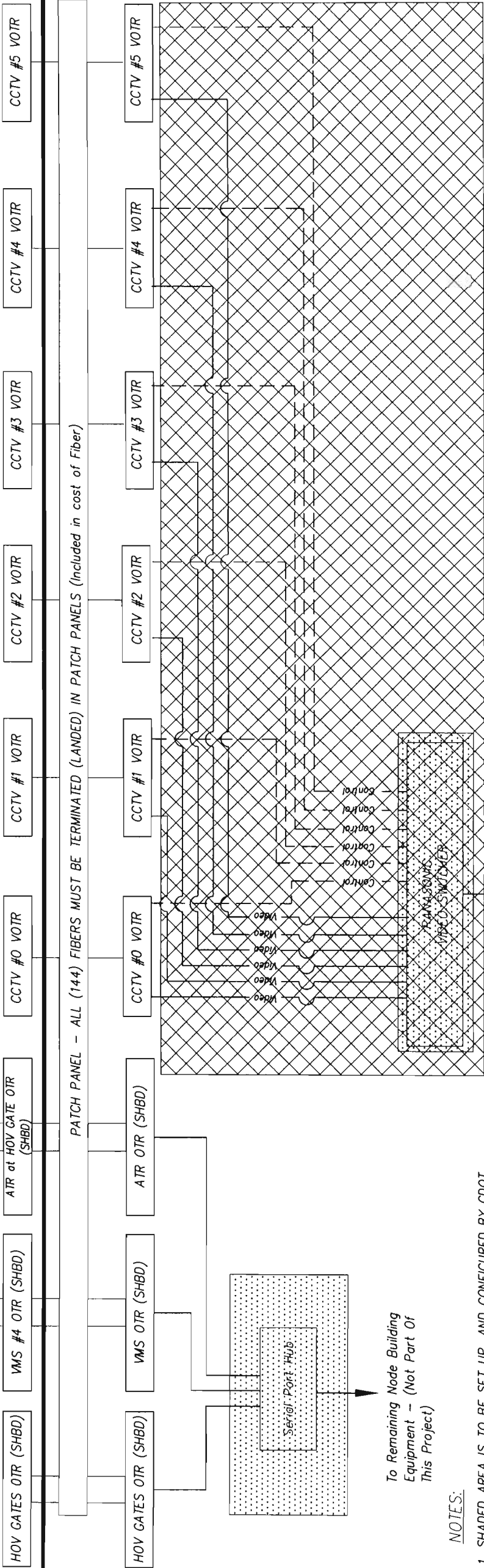
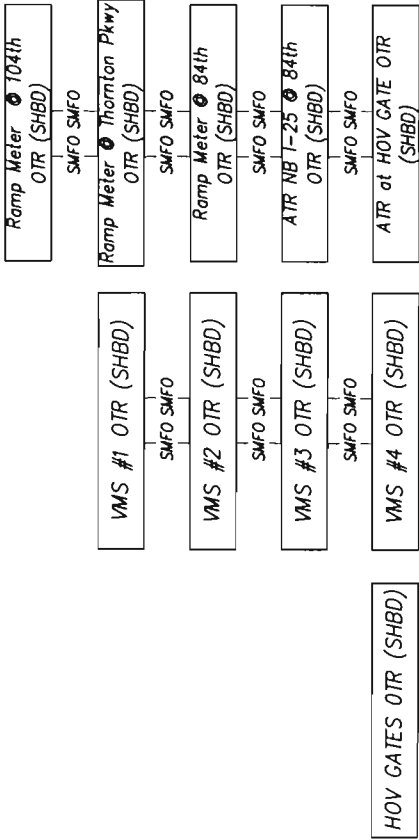
NOTES:

- 1. Where noted in the plans, Single Mode Fiber Optic Cable, (both Backbone and Lateral), shall be spliced in the manner shown. Additional splicing will not be allowed unless approved by the Engineer. In no case shall splicing cause the total optical signal attenuation to exceed the power budget specified by the fiber optic unit equipment.
- 2. Cable splices shall be placed in a weatherproof fiber optic splice closure canister.
- 3. The spliced fibers in the main cable shall be accessed without splicing or disturbing the unused fibers or buffer tubes.
- 4. The Contractor shall seal remaining unused Backbone and Lateral fibers in a manner recommended by the fiber manufacturer.
- 5. To facilitate maintenance and trouble shooting, the same color coded fibers shall be used along the entire length of the system interconnect as shown in the Fiber Optic Splice/Patch Panel Sheets.



A 50 Foot Coil of Fiber Optic Backbone Cable
A 25 Foot Coil of Fiber Optic Lateral Cable

Computer File Information			Sheet Revisions		Colorado Department of Transportation		As Constructed		BACKBONE FIBER OPTIC		Project No.	
Creation Date:	2-02-02	Initials: JKS			 CDOT Department of Transportation	2000 S. Holly Street Denver, Co 80222 Phone:(303) 757-9511 FAX:(303) 757-9907	No Revisions:	SPLICING DETAIL at VMS's and ATR's	Designer: JKS Detailer: JKS	IM 0253-168	13344	Sheet Number 262
Last Modification Date:	5-9-02	Initials: JKS										
Full Path:	C:\USERDATA\PROJECTS											
Drawing File Name:	FINALFIBERSPLICING.DWG											
Acad Ver.	2002	Scale:			Region 6- Traffic ITS		AI		Void:		Sheet Subset:	



- NOTES:
- 1. SHADED AREA IS TO BE SET UP, AND CONFIGURED BY CDOT.
 - 2. CONTRACTOR SHALL CONTACT STEVE SPERRY AT 303-757-9511 FOR ACCESS TO THE NODE BUILDING.
 - 3. ALL EQUIPMENT NOT SHOWN IS NOT PART OF THIS PROJECT.
 - 4. THE CONTRACTOR SHALL FURNISH AND INSTALL ALL DEVICES AND MATERIALS SHOWN OUTSIDE OF HATCHED AREAS INCLUDING BUT NOT LIMITED TO:

- VIDEO OPTICAL TRANSCEIVERS
 - OPTICAL TRANSCEIVERS
 - PATCH PANEL (FOR 144 FIBERS)
 - PATCH CABLES
 - CABLING FROM OPTICAL TRANSCEIVERS TO SERIAL PORT DEVICE
5. CDOT TO PROVIDE AND INSTALL ALL CONNECTION AND CABLING FOR VIDEO AND CONTROL FROM VIDEO OPTICAL TRANSCEIVER RACK TO VIDEO SWITCHER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL EQUIPMENT AND SIGNAL PATHS. (BOTH VIDEO AND DATA) FROM THE FIELD TO THE NODE BUILDING. THIS INCLUDES ALL FIELD EQUIPMENT, WIRING, CABLING AND FIBER OPTICS.

LEGEND

OTR = OPTICAL TRANSCEIVER

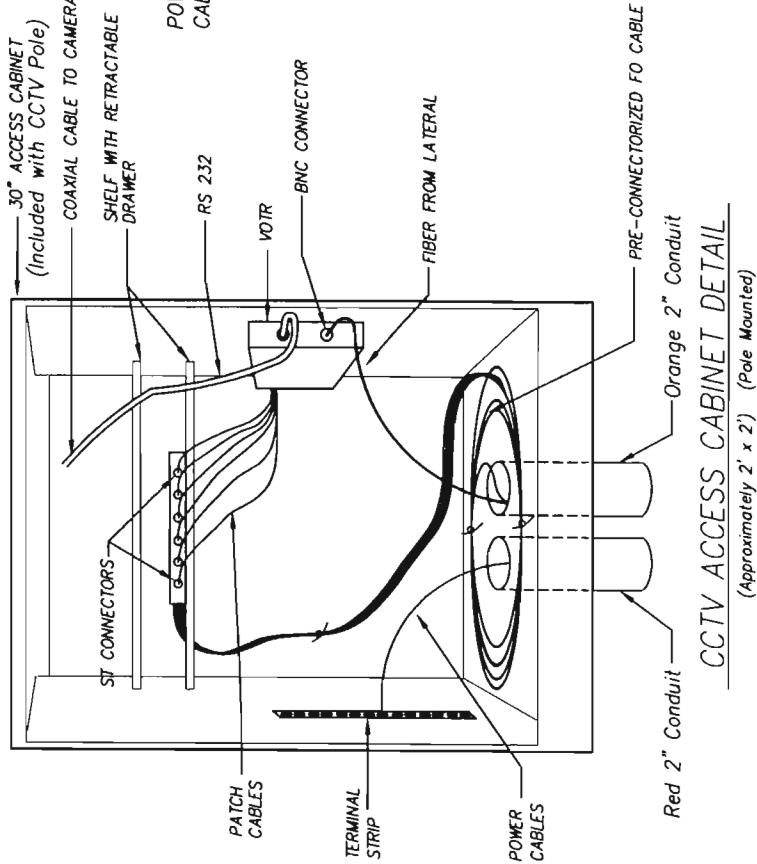
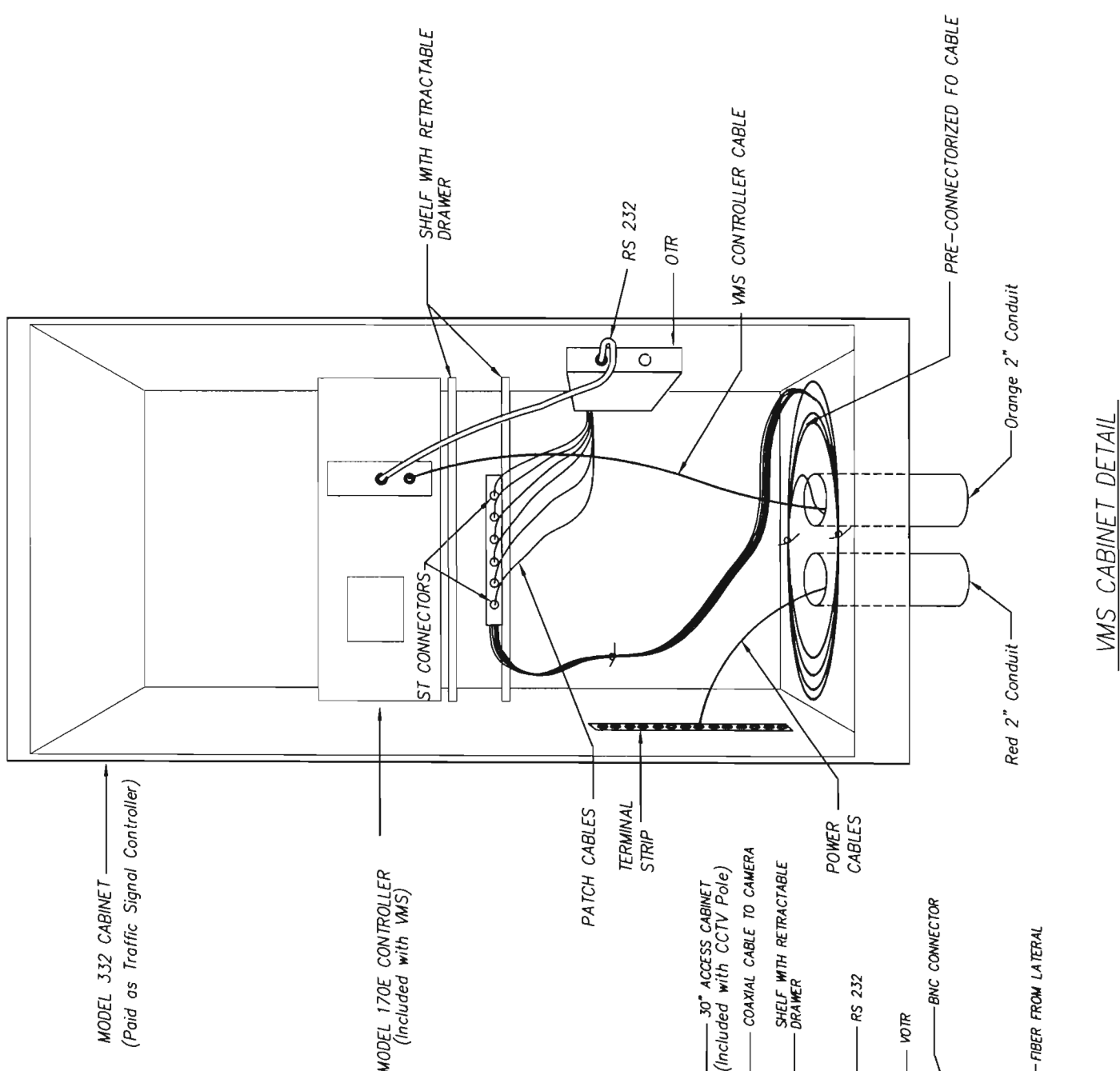
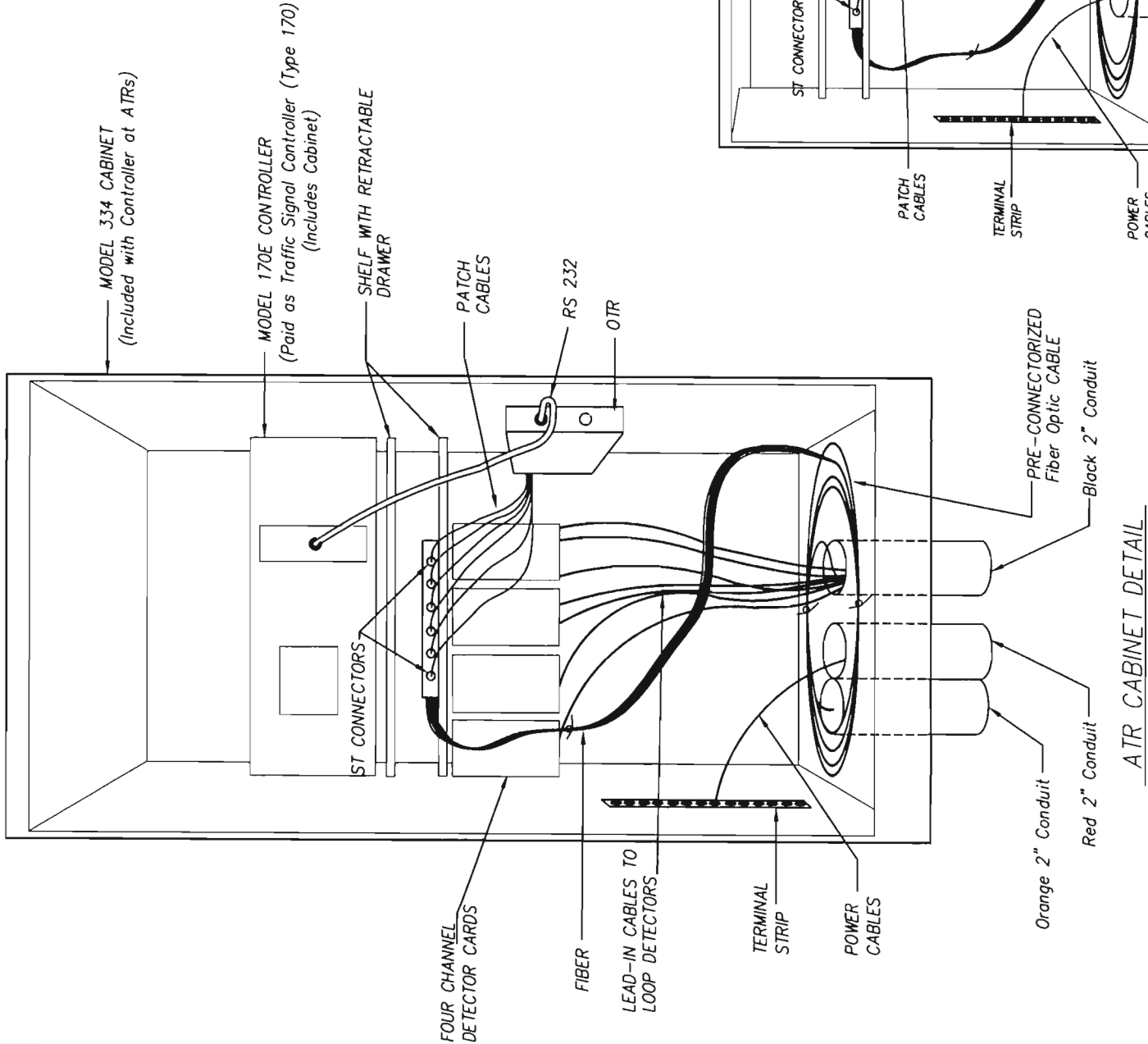
VOTR = VIDEO OPTICAL TRANSCEIVER

SHBD = SELF-HEALING BI-DIRECTIONAL

CDOT's RESPONSIBILITY FOR HOOK-UP

EXISTING EQUIPMENT

Computer File Information			Sheet Revisions		As Constructed		TMS NODE BUILDING 2		Project No.	
Creation Date:	2-2-02	Initials: JKS			No Revisions:		WIRING DETAILS		IM 0253-168	
Last Modification Date:		Initials: JKS			Revised:		Designer:	JKS	Structure Numbers	13344
Full Path:	SCOTTJK\USERDATA\1-25GATERELOCATION				Void:		Detailer:	JKS	Sheet Subst:	Sheet Number
Drawing File Name:	NODE2INSIDE									264
Acad Ver.	2002	Scale:								

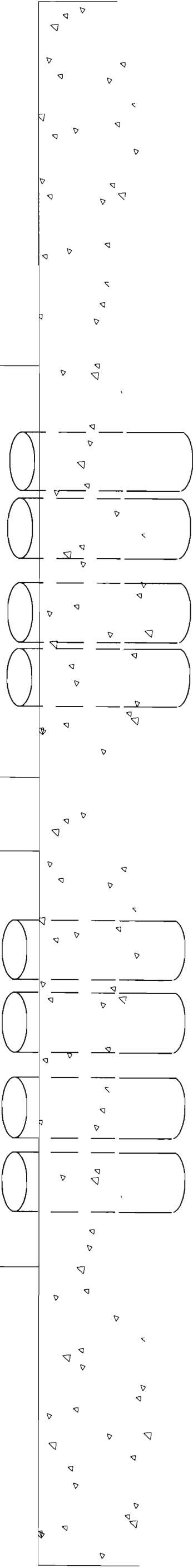
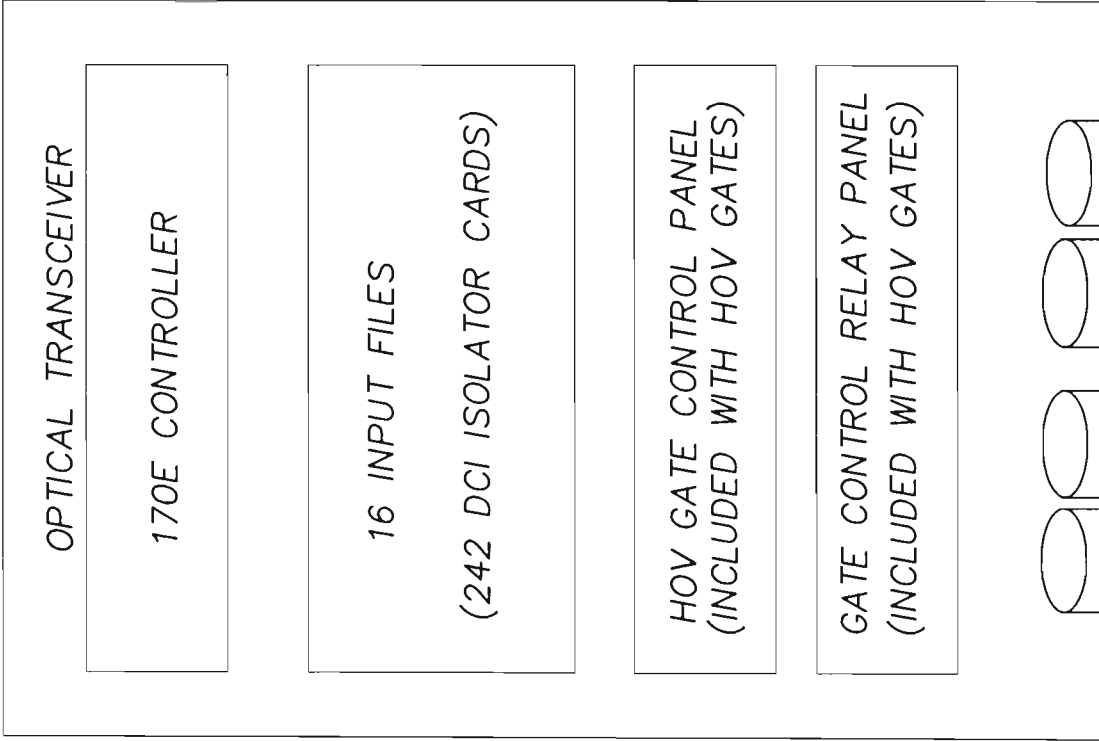
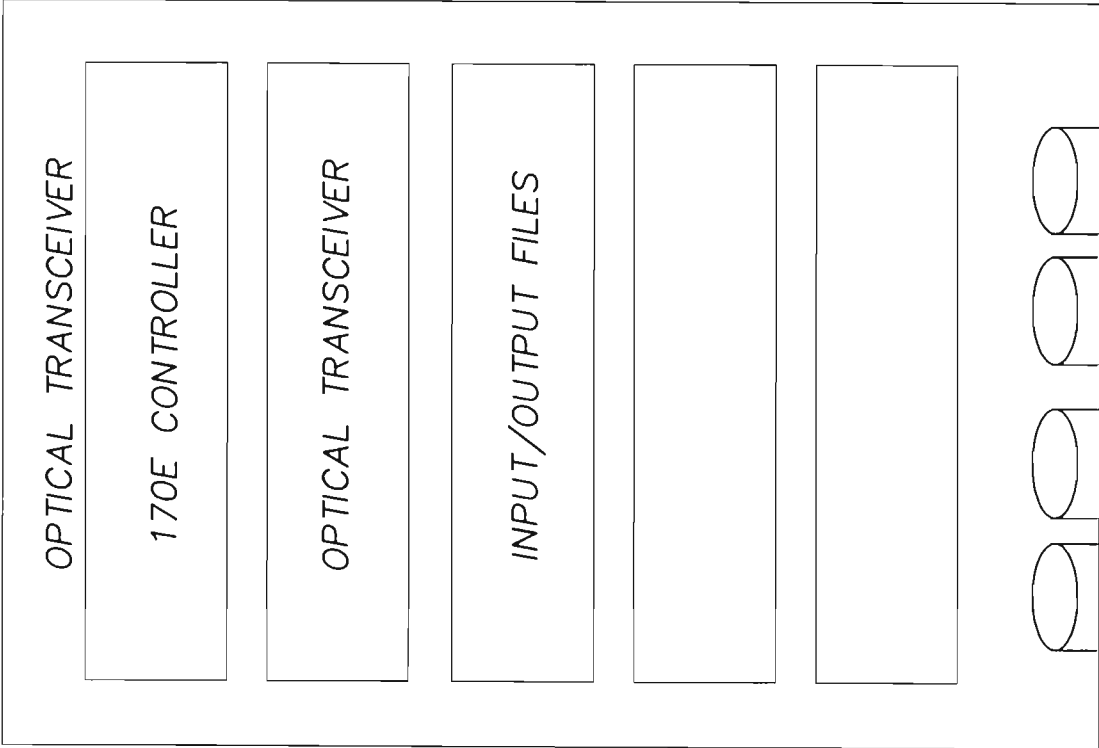


Computer File Information				Sheet Revisions		Colorado Department of Transportation				As Constructed		FIELD CONTROLLER CABINET DETAILS				Project No.	
Creation Date:	3-20-02	Initials:	JKS			ROOM 200 2000 SO HOLLY ST. DENVER, COLORADO 80222 Phone: 303-757-9511 FAX: 303-757-9907 DOT Department of Transportation Region Number 6-ITS AI				No Revisions:		Designer: JKS				IM 0253-168	
Last Modification Date:	4-1-03	Initials:	JKS							Revised:		Detailer: JKS				13344	
Full Path:	C:\USERDATA\PROJECTS									Void:						Sheet Number	
Drawing File Name:	CabinetSplicing															265	
Acad Ver.	2002	Scale:	Units:									Sheet Sheets:					

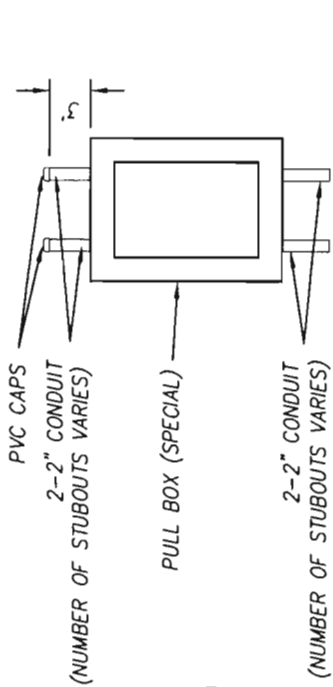
BARRIER MOUNTED CABINETS AT HOV GATES

CABINET 334 INCLUDED
WITH THE 170 CONTROLLER

CABINET 332 INCLUDED
WITH THE 170 CONTROLLER



Computer File Information			Sheet Revisions		Colorado Department of Transportation ROOM 212 2000 SO HOLLY ST DENVER, COLORADO 80222 Phone: 303-757-9511 FAX: 303-757-9907  Region Number 6	As Constructed	CONTROLLER CABINETS AT HOV GATES		Project No.
Creation Date:	2-2-02	Initials: JKS							
Last Modification Date:		Initials: JKS							
Full Path:	C:\Userdata\Projects								
Drawing File Name:	Cabinet170								
Acad Ver.	2002	Scale:					Designer: JKS Detailer: JKS	Subset Sheets:	Sheet Number 266



Technical drawings of a wall assembly, including a front elevation, a side elevation, and a detail view (VIEW A).

Front Elevation: Shows a wall section with a total height of 2.5'. The wall is composed of a main body and a base. The base is labeled "1" Minimum". The wall is supported by a "Barrier". The wall is shown with a "Varies" dimension for the base. The wall is shown with a "1" Minimum" dimension for the base.

Side Elevation: Shows a wall section with a total height of 2'. The wall is composed of a main body and a base. The base is labeled "1.5'". The wall is supported by a "Barrier". The wall is shown with a "Varies" dimension for the base. The wall is shown with a "1" Minimum" dimension for the base.

Detail View (VIEW A): Shows a cross-section of the wall assembly. The wall is composed of a main body and a base. The base is labeled "1" Minimum". The wall is supported by a "Barrier". The wall is shown with a "Varies" dimension for the base. The wall is shown with a "1" Minimum" dimension for the base.

Material Specifications:

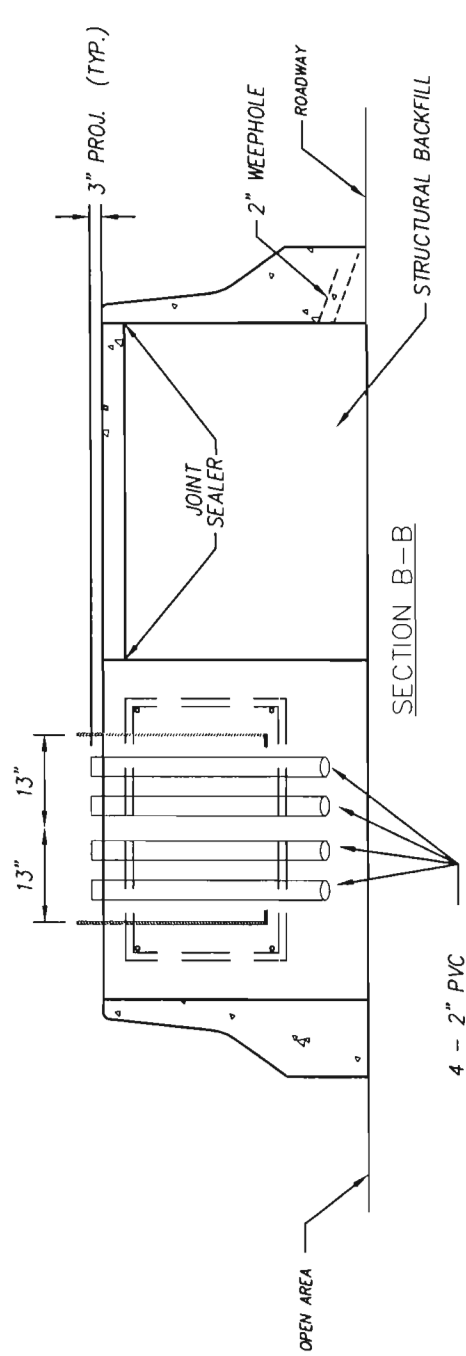
- 20mm x 1.5' ANCHOR BOLTS
- RADIUS 1' MINIMUM

- NOTES:

THIS SHEET FOR INFORMATION ONLY
CONTRACTOR SHALL BUILD FOUNDATION TO FIT CABINET

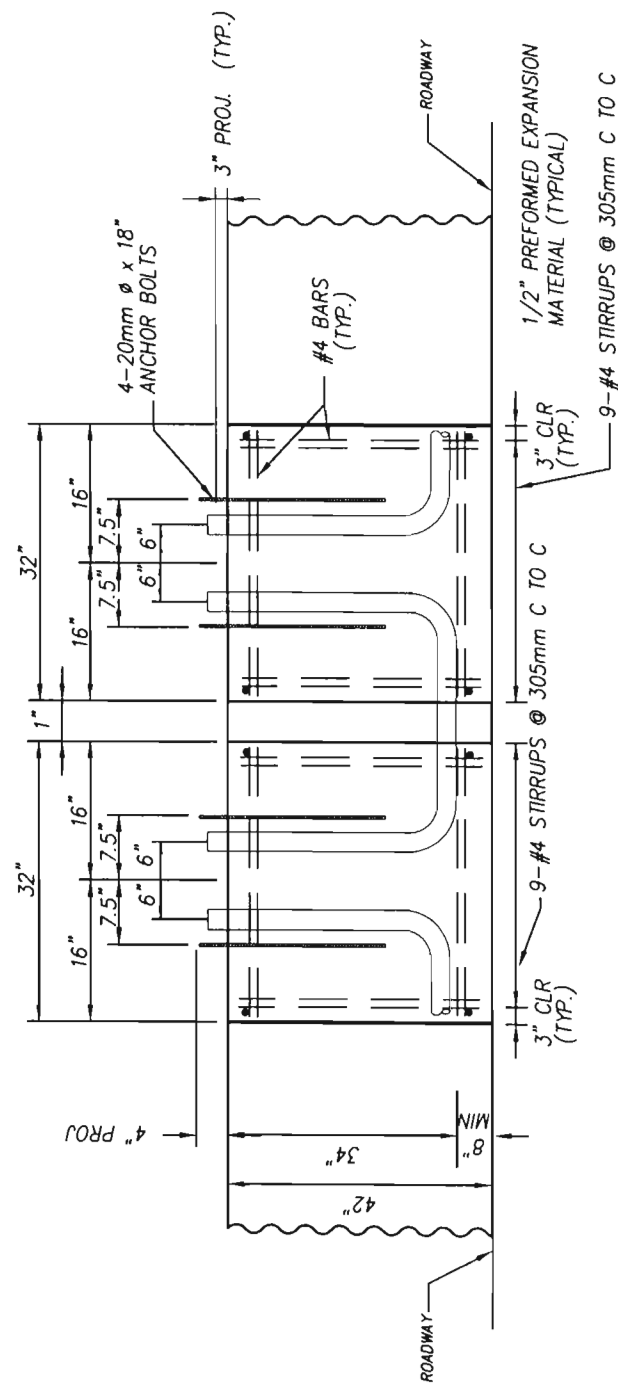
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Creation Date:	3-20-02	Initials:	JKS	mm/dd/yy		ROOM 287	No Revisions:	mm/dd/yy		IM 0253-168	
Last Modification Date:		Initials:	JKS	mm/dd/yy		2000 SO HOLLY ST					
Full Path:	C:\UserData\Projects			mm/dd/yy		DENVER, COLORADO 80222	Revised:	mm/dd/yy		13344	
Drawing File Name:	BarrierMountedCabinetDetail			mm/dd/yy		Phone: 303-757-9397	Designer:	JKS	Structure Numbers		
Acad Ver.	2002	Scale:	NO SCALE	Units:	METRIC	FAX: 303-757-9053	Detailer:	JKS			
				mm/dd/yy		Region Number 6	Void:	mm/dd/yy	Sheet Subsets:	Sheet Number 267	

Edge Line of Traveled Way



THIS SHEET FOR INFORMATION ONLY
CONTRACTOR SHALL BUILD FOUNDATION TO FIT CABINET

ALL REINFORCEMENT AND MATERIAL TO BUILD A CABINET FOUNDATION SHALL BE INCLUDED WITH THE COST OF THE 170 CONTROLLER

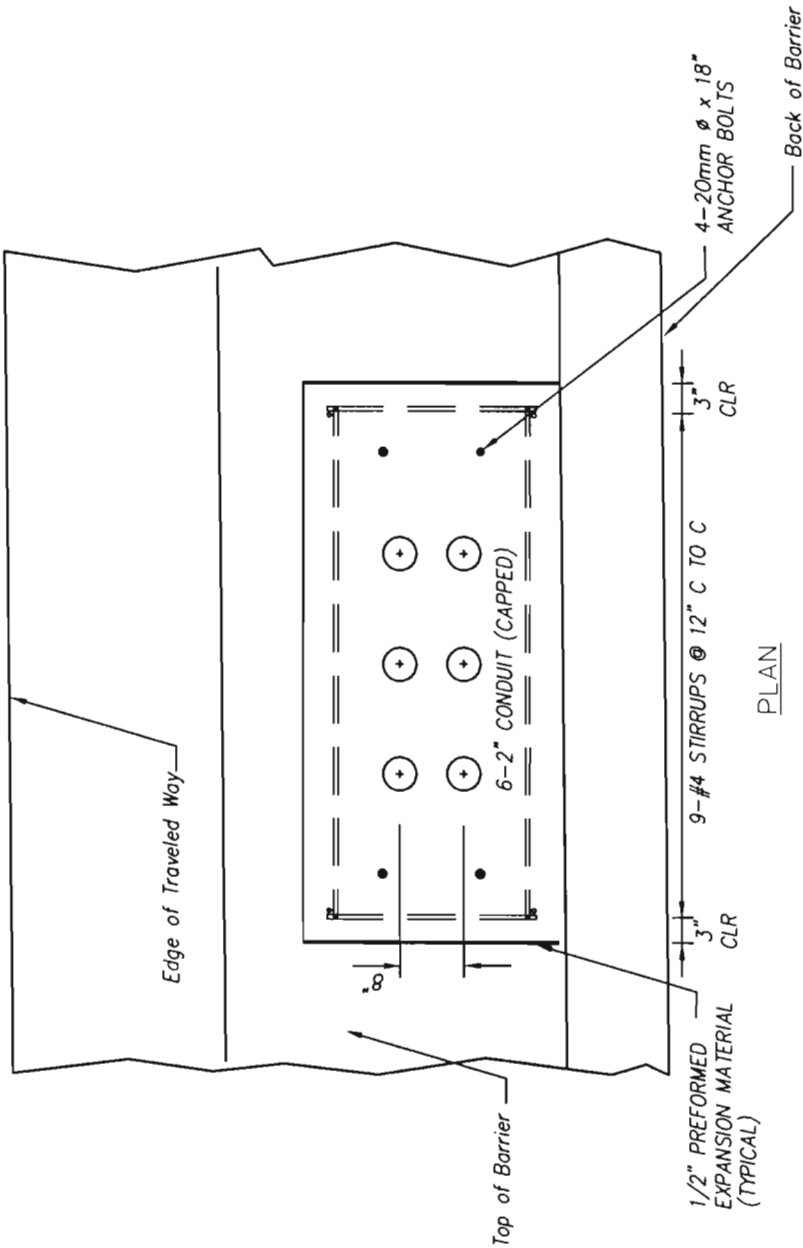


SECTION A-A

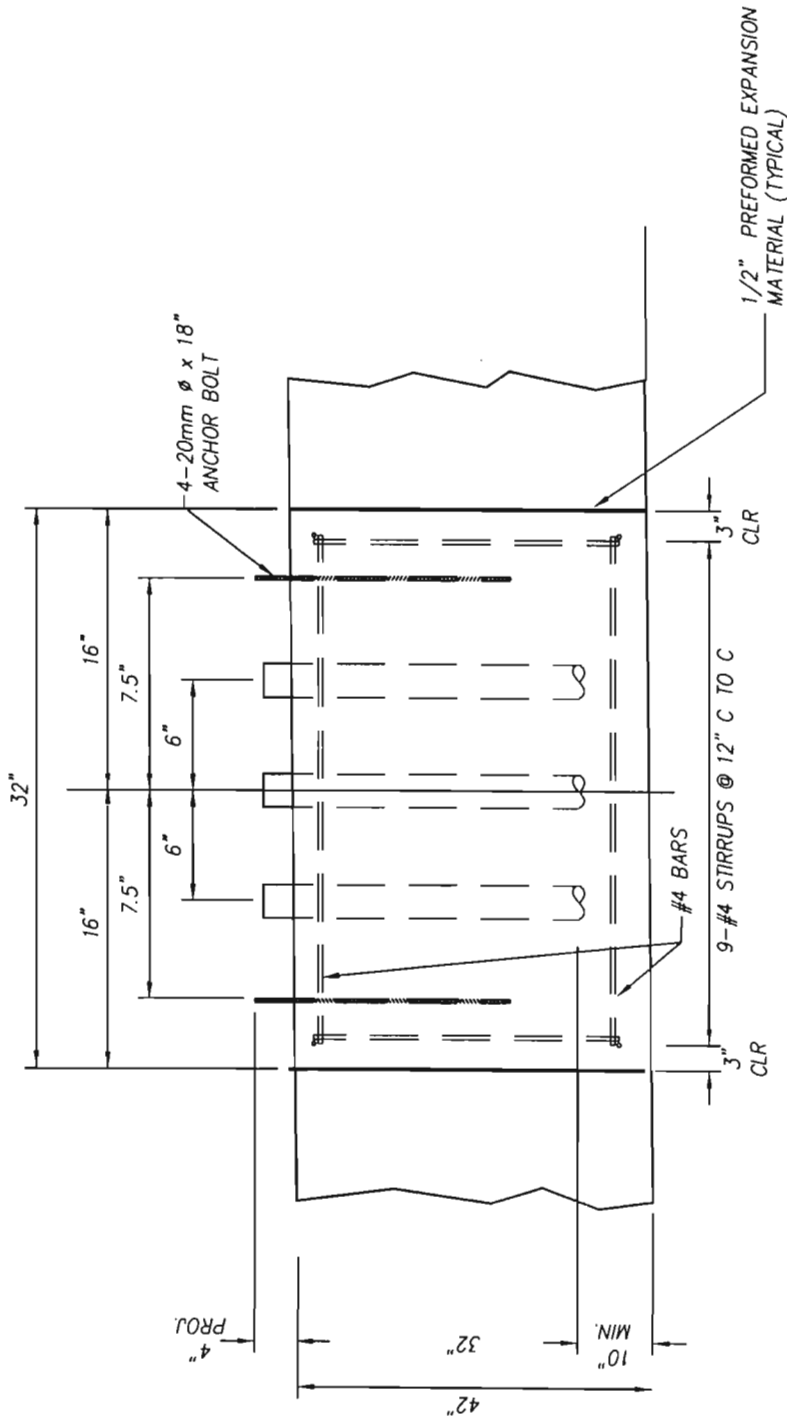
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ALL REINFORCEMENT AND MATERIAL TO BUILD A CABINET FOUNDATION SHALL BE INCLUDED WITH THE COST OF THE 170 CONTROLLER

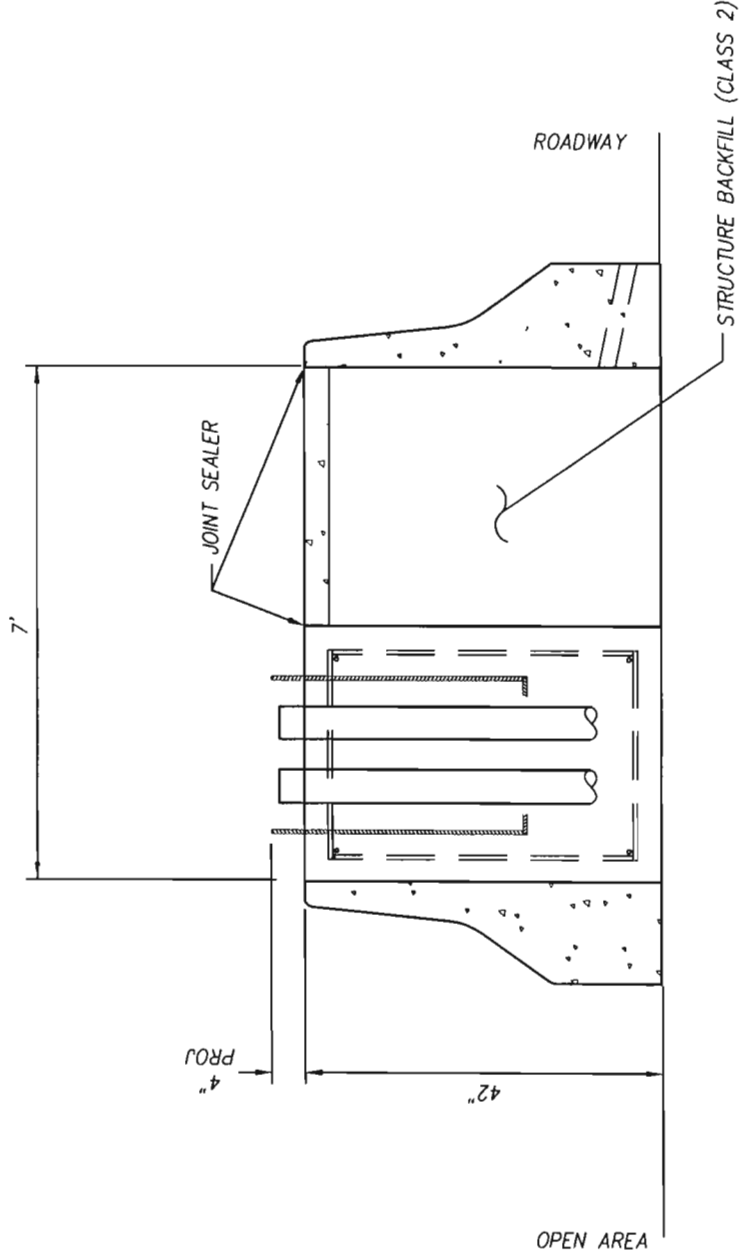
THIS SHEET FOR INFORMATION ONLY
CONTRACTOR SHALL BUILD FOUNDATION TO FIT CABINET



PLAN



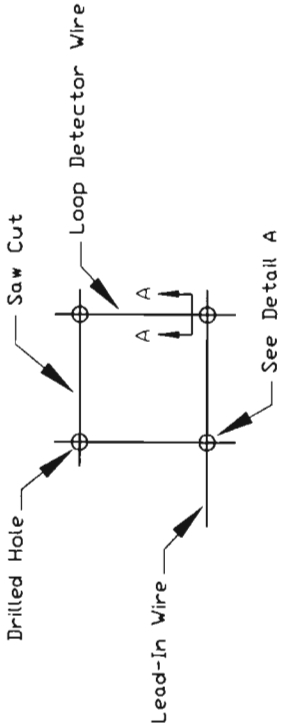
SECTION A-A



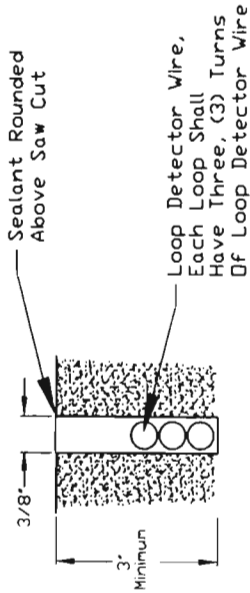
SECTION B-B

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed		BARRIER MOUNTED MODEL 332 CABINET FOUNDATION DETAIL				Project No.	
Creation Date:		3-20-02		Initials:		JKS						No Revisions:						IM 0253-168	
Last Modification Date:		5-9-02		Initials:		JKS						Revised:		Designer:		JKS		13344	
Full Path:		USERDATA/ITSPROJECTS										Detailer:		JKS					
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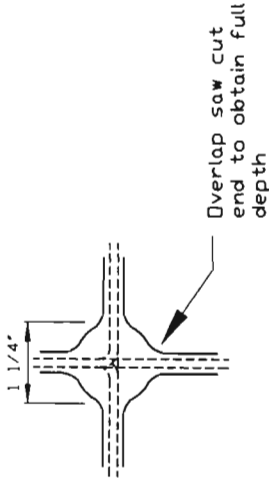
LOOP GEOMETRICS AND INSTALLATION



VEHICLE DETECTOR LOOP DETAIL



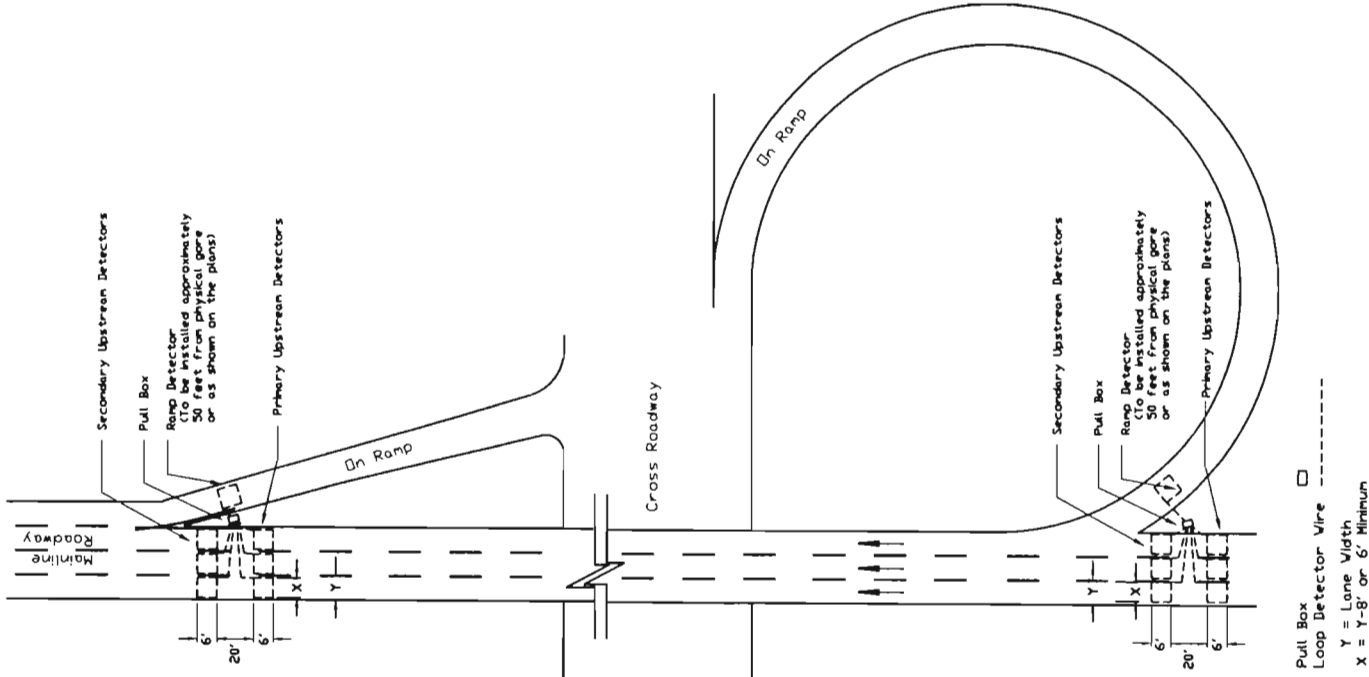
SECTION A-A



DETAIL A

VEHICLE DETECTOR LOOP SAW CUT DETAILS

(For use with vinyl tubing
encased loop detector wire)

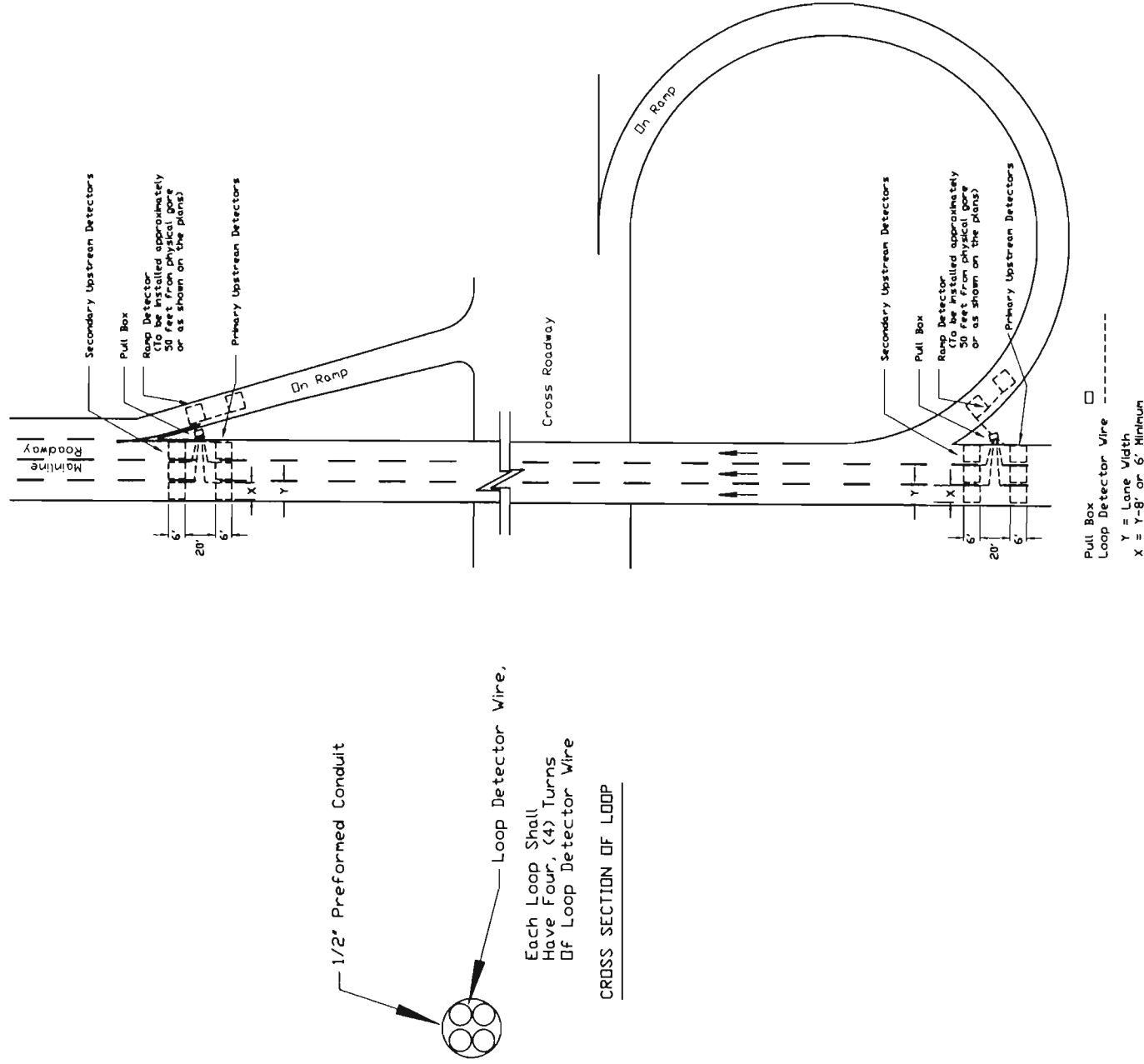


1. All detector loops shall measure as a 6' X 6' square (within 1/2" tolerance).
2. All detector loops shall be centered in the traffic lane.
3. All detector loop slots shall be cut to a minimum depth of 3"
4. Before installation of the wire, all slots shall be cleaned of debris using compressed air or water and the surface of the roadway and slots shall be dried by the use of compressed air.
5. All loops shall include three (3) turns of loop detector wire. The wires shall be sealed at the bottom of the saw slot.
6. No more than SIX (6) loop detector wires shall be placed in a saw slot leading to the edge of roadway.
7. No splices of the detector wire shall be allowed in the saw slots. All loops shall have continuous runs of detector wire throughout the pavement.
8. All lead-in wire shall be continuous to the controller cabinet.
9. All loop and loop lead-in wires shall be clearly labeled in each roadside pull box.
10. Prior to the sealing of the saw slots and drill holes, an Inductance and leakage test shall be performed. Loop inductance shall measure between 20 and 2500 microhenries. Leakage resistance will be greater than or equal to 100 megohms. Measurements outside of these specifications will be cause for immediate loop wire replacement.
11. Conduit for lead-in wire off the pavement surface shall be buried at a minimum depth of 3".
12. Loop sets (two loops in a series) within a single lane shall be separated by 20' resulting in a distance of 26' from leading edge to leading edge (within 1/2" tolerance)
13. For new asphalt surfaces, slots shall be saw cut and detector wire installed prior to laying of the final lift of pavement. For new concrete pavement, preformed loops shall be used, see Project Plan Sheets, Project Standards and Project Special Provisions.
14. All saw cut corners shall be rounded using a 1 1/4" hole saw drilled to a minimum depth of 4". No 45 degree angled corners will be accepted.
15. The minimum saw cut slot width shall be 3/8".
16. All saw slots and drill holes shall be sealed using an approved loop sealant. Excess sealant shall be removed to avoid unnecessary high spots.
17. Pull boxes shall contain an additional 2' of loop detector wire and lead-in wire.
18. Some electrical conduit trenches shown on this sheet shall contain multiple conduits for the separation of electrical power, loop wire and fiber optic cable. See project plan sheets for exact number and location of conduit runs.
19. Power wiring, loop detector wire and fiber optic cable shall be each installed in a separate conduit as shown on the project plans unless otherwise directed by the Engineer.
20. See Project Plan Sheets for locations of mainline and ramp vehicle loop detectors and ATR equipment at each ramp location within the project limits.
21. No water Valve Pull boxes shall be used on the Interstate.

ROADWAY INSTALLATION IN EXISTING PAVEMENT DETAILS

Computer File Information			Index of Revisions		Colorado Department of Transportation		As Constructed		Project Standard			Project No./Code	
Creation Date:	7/10/00	Initials: WJK/r			 Region 6 2000 South Holly Street Denver, CO 80222 Phone: 757-9511 FAX: 757-9907	Automatic Traffic Recorder	No Revisions:					IM 0253-168	
Last Modification Date:	5-9-02	Initials: JKS						Revised:		Designer:		13344	
Full Path:									Detailer:				
Drawing File Name:	ATR Asphalt_Standard.dwg									Sheet Subset:			
Acad Ver: 2002		Units: English								Sheet Subset Number:			
					Traffic and Safety - ITS Unit				Sheet Number			270	

LOOP GEOMETRICS AND INSTALLATION



1. All detector loops shall measure as a 6' X 6' square (within 1/2" tolerance).
2. All detector loops shall be centered in the traffic lane.
3. All loops shall include four (4) turns of loop detector wire.
4. No more than four (4) loop detector wires shall be placed in a conduit.
5. No splices of the detector wire shall be allowed in the loop. All loops shall have continuous runs of detector wire throughout the pavement.
6. All lead-in wire shall be continuous to the controller cabinet.
7. All loop and loop lead-in wires shall be clearly labeled in each roadside pull box.
8. An Inductance and leakage test shall be performed. Loop inductance shall measure between 20 and 2500 millihenries. Resistance shall be greater than or equal to 100 ohms. Measurements outside of these specifications will be cause for immediate loop wire replacement.
9. Conduit for lead-in wire off the pavement surface shall be buried at a minimum depth of 3 feet.
10. Loop sets (two loops in a series) within a single lane shall be separated by 20' resulting in a distance of 26' from leading edge to leading edge (within 1/2" tolerance)
11. For new concrete pavement, preformed loops shall be used. See Project Plan Sheets, Project Standards and Project Special Provisions.
12. Pull boxes shall contain an additional 2' of loop detector wire and lead-in wire.
13. Some electrical conduit trenches shown on this sheet shall contain multiple conduits for the separation of electrical power, loop wire and fiber optic cable. See project plan sheets for exact number and location of conduit runs.
14. Power wiring, loop detector wire and fiber optic cable shall be each installed in a separate conduit as shown on the project plans unless otherwise directed by the Engineer.
15. See Project Plan Sheets for locations of mainline and ramp vehicle loop detectors and AIR equipment at each ramp location within the project limits.
16. No Water Valve Pull Boxes shall be used on the Mainline Interstate.

ROADWAY INSTALLATION IN PROPOSED "NEW" CONCRETE PAVEMENT DETAILS

Computer File Information		Index of Revisions		Colorado Department of Transportation		As Constructed		Project Standard		Project No./Code	
Creation Date:	1-9-02	Initials:	JKS			 Region 6 2000 South Holly Street Denver, CO 80222 Phone: 757-9511 FAX: 757-9907	No Revisions:	Automatic Traffic Recorder			IM 0253-168
Last Modification Date:	5-9-02	Initials:	JKS				Revised:				13344
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Acad Ver:	2002						Void:				
Units: English						Traffic and Safety - ITS Unit		Sheet Subset:		Sheet Number	
						AI		Subset		271	

TABULATION OF LIGHTING QUANTITIES

STATION / LOCATION	613--LUMINAIRE 400 WATT HPS		613--LUMINAIRE 1000 WATT HPS		LIGHT STANDARD STEEL HIGH MAST 120 FOOT		LIGHT STANDARD STEEL 40 FOOT		HIGH MAST FOUNDATION DRILLED CAISSON 48 INCHES		CONCRETE FOUNDATION PAD		RESET LIGHT STANDARD 40 FOOT		SECONDARY SERVICE PEDESTAL		RESET ** SECONDARY SERVICE PEDESTAL		LIGHTING CONTROL CENTER		RESET ** LIGHTING CONTROL CENTER		LOWERING DEVICE		RESET ** LOWERING DEVICE		ELECTRICAL CONDUIT 2 INCHES PVC		ELECTRICAL CONDUIT 3 INCHES GRC		ELECTRICAL WIRING	
	EA.		EA.		EA.		EA.		Lin. Ft		EA.		EA.		EA.		EA.		EA.		EA.		EA.		Lin. Ft		Lin. Ft		Lin. Ft		EA.	
I-25 CL																																
STA. 292 + 9.1, 92 L												1																				
STA. 295 + 11.5, 92 L												1																				
STA. 298 + 21.6, 81 L								1				1																				
STA. 301 + 17.88 L								1				1																				
STA. 304 + 10.3, 90 L												1																				
STA. 307 + 36, 90 L												1																				
STA. 311 + 06, 118 L										20								1 **														
I-76 CL																																
STA. 414 + 37.5, 119 R			4			1				20						1															900	
STA. 420 + 2.3, 119 R										20								1 **													1500	
GRAND TOTAL	3		4		1		3		60		6		2		3		1		2 **		1		2 **					1000		2400		L.S.

* NOTE: THE COST OF THE CONDUIT TO RESET THE LIGHT STANDARDS IS INCLUDED IN THE COST OF THE RESET LIGHT STANDARDS.
** NOTE: FOR INFORMATION ONLY. COST OF RESETTING THE SECONDARY SERVICE PEDESTAL, LOWERING DEVICES, AND LIGHTING CONTROL CENTER ARE INCLUDED IN PAY ITEM RESET LIGHT STANDARD STEEL (120 FOOT). RELOCATION TO BE DETERMINED BY THE PROJECT ENGINEER AND XCEL ENERGY IN THE FIELD.

LEGEND



Existing Light Standard to Remain

Existing Light Standard to be Removed

Relocated Light Standard

New Light Standard

New High Mast Tower Light Standard

Existing High Mast Tower Light Standard to Remain

Existing High Mast Tower Light Standard to be Relocated



Existing High Mast Tower Light Standard in relocated position.

High Mast Lighting Tower Control Cabinet

Service Pedestal

Electrical Pull Box

Feeder Size Callout

Detail Note Designation

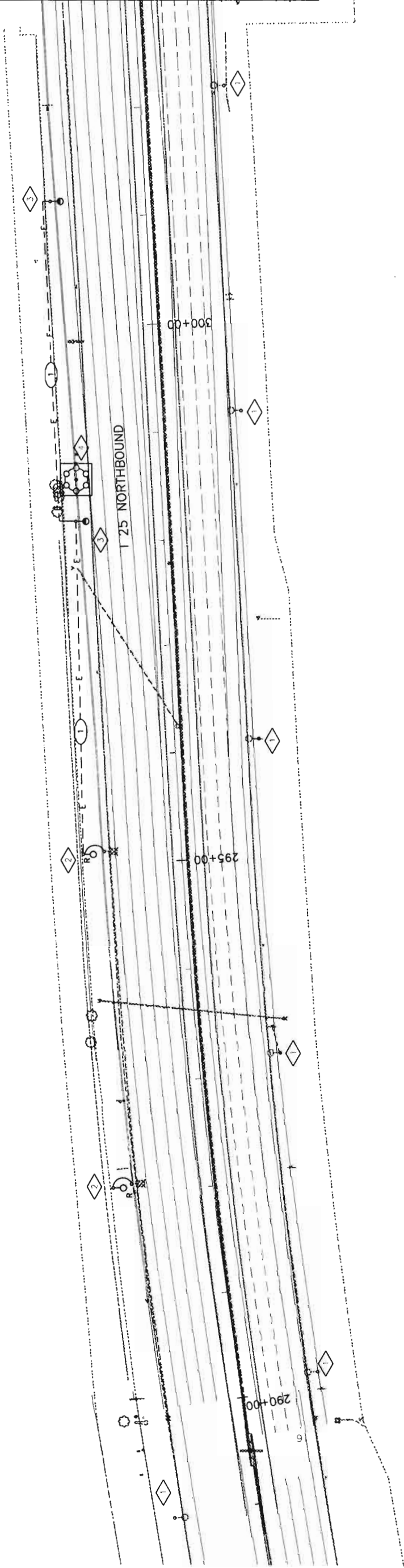
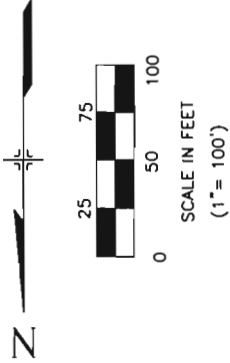
Detail Reference Designation

The Szynskie Group



Professional Engineering & Lighting Design
10401 S. Parker Road Suite 225, Aurora, CO 80014
303.739.4521, 10.30.528.4521

Computer File Information				Sheet Revisions				As Constructed				TABULATION SHEET				Project No./Code				
Creation Date:	05/27/03	Initials:	KAT					No Revisions:				IM 0253-168								
Last Modification Date:	05/27/03	Initials:	KAT					Revised:				Designer:	K. Thorpe	Structure Numbers		13344				
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Drawing File Name:	LTIA0001.dwg																			
Acad Ver: R2002	Scale:	NO	SCALE	Units:	ENGLISH															



DETAIL NOTES

- 1 EXISTING POLE MOUNTED LUMINAIRE TO REMAIN. MAINTAIN EXISTING CIRCUITRY FEEDING LUMINAIRE.
- 2 REWORK AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION. COST OF CONDUIT INCLUDED IN RESET LIGHT STANDARD. MAINTAIN EXISTING CIRCUITRY TO LUMINAIRE.
- 3 PROVIDE CONCRETE FOUNDATION PAD, LIGHT STANDARD AND LUMINAIRE TO MATCH THE EXISTING IN STYLE AND MANUFACTURER. CONNECT NEW LUMINAIRE TO EXISTING CIRCUIT FEEDING EXISTING POLE MOUNTED LUMINAIRES LOCATED IN THIS AREA AS SHOWN.
- 4 RESET HIGH MAST LIGHT STANDARD TO I-76 AS SHOWN ON SHEET E4.
- 5 RESET EXISTING HIGH MAST LIGHT STANDARD, CONTROL CABINET, AND SERVICE PEDESTAL AS SHOWN. REWORK AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION. REFER TO DETAIL 2 SHEET E5 FOR ADDITIONAL INFORMATION REGARDING HIGH MAST CLEARANCES, SERVICE PEDESTAL LOCATIONS AND CONTROL CABINET LOCATIONS.
- 6 PROVIDE NEW HIGH MAST LIGHT STANDARD AS SHOWN. REFER TO SHEET E5 FOR FIXTURE SPECIFICATIONS, ORIENTATION, AND POLE HEIGHT.
- 7 RESET EXISTING HIGH MAST LIGHT STANDARD FROM I-25. REFER TO SHEET E3 AND E5 FOR ADDITIONAL INFORMATION. THE ELECTRICAL CONTRACTOR SHALL RECONFIGURE AND RE-AIM THE FIXTURE HEADS AS SHOWN IN THE DIAGRAM ON SHEET E5. RE-AIMING OF THE FIXTURE HEADS SHALL BE INCLUDED IN THE PAY ITEM 210 RESET STEEL LIGHT STANDARD 120 FOOT.

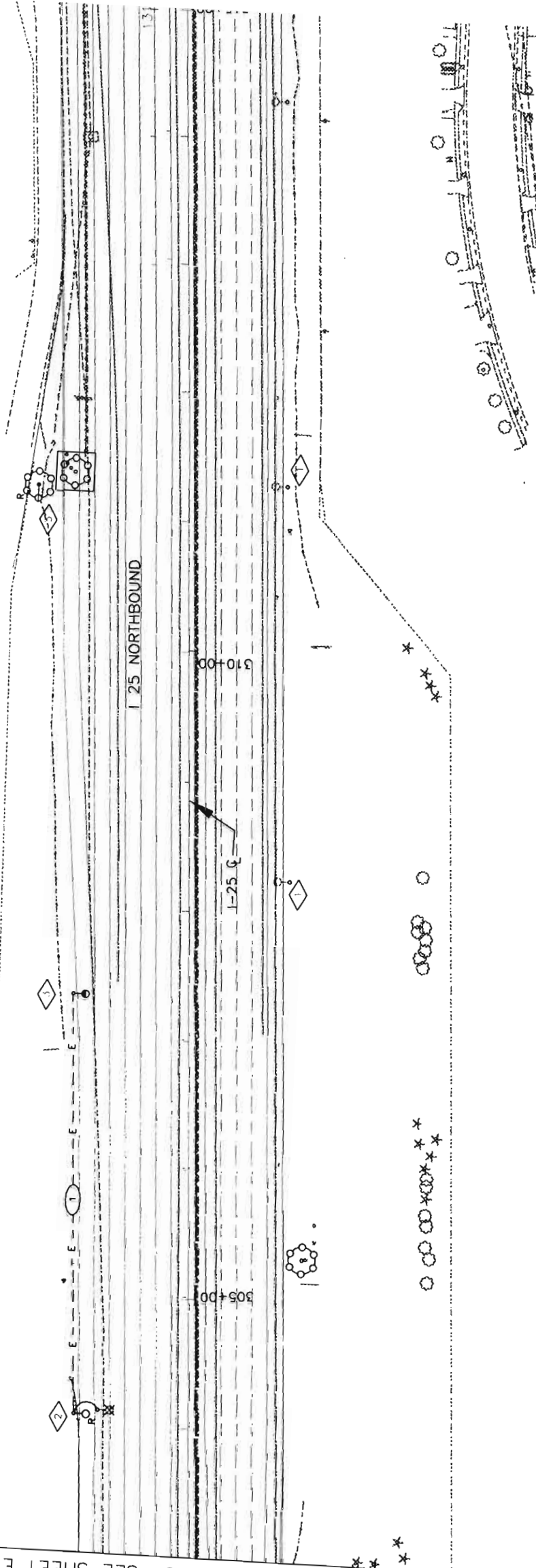
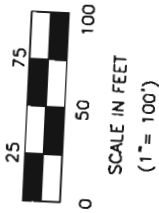
FEEDER SCHEDULE

- 1 (2 #8 CU THWN & 1 #10 CU GND) 1" C.



Computer File Information			Sheet Revisions		As Constructed		LIGHTING PLAN			Project No./Code			
Creation Date:	05/27/03	Initials: KAT			No Revisions:		Colorado Department of Transportation 2000 S. Holly Street Denver, CO 80222 Phone: (720)-945-1026 FAX: (720) 945-1028  Region 6—North Engineering JCS			IM 0253-168			
Last Modification Date:	05/27/03	Initials: KAT			Revised:					Designer: K. Thorpe		13344	
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MATCHLINE STA. 303+00 SEE SHEET E2 FOR CONTINUATION



DETAIL NOTES

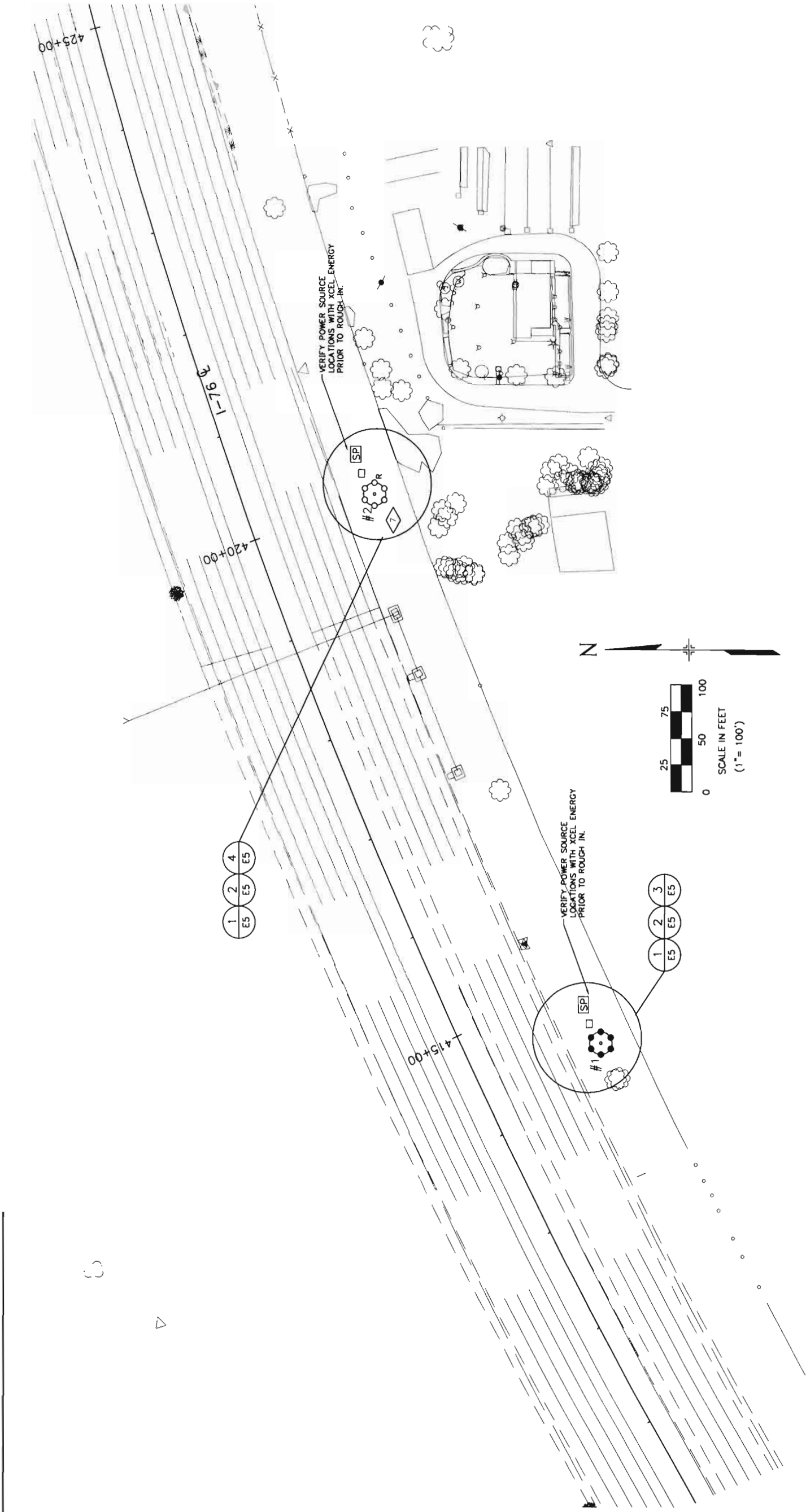
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- 2. REMARK AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION. COST OF CONDUIT INCLUDED IN RESET LIGHT STANDARD. MAINTAIN EXISTING CIRCUITRY TO LUMINAIRE.
- 3. PROVIDE CONCRETE FOUNDATION PAD, LIGHT STANDARD AND LUMINAIRE TO MATCH THE EXISTING IN STYLE AND MANUFACTURER. CONNECT NEW LUMINAIRE TO EXISTING CIRCUIT FEEDING EXISTING POLE MOUNTED LUMINAIRE LOCATED IN THIS AREA AS SHOWN.
- 4. RESET HIGH MAST LIGHT STANDARD TO 1-76 AS SHOWN ON SHEET E4.
- 5. RESET EXISTING HIGH MAST LIGHT STANDARD. CONTROL CABINET, AND SERVICE PEDESTAL AS SHOWN. REMARK AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION. REFER TO DETAIL 2 SHEET E5 FOR ADDITIONAL INFORMATION REGARDING HIGH MAST CLEARANCES, SERVICE PEDESTAL LOCATIONS AND CONTROL CABINET LOCATIONS.
- 6. PROVIDE NEW HIGH MAST LIGHT STANDARD AS SHOWN. REFER TO SHEET E5 FOR FIXTURE SPECIFICATIONS, ORIENTATION, AND POLE HEIGHT.
- 7. RESET EXISTING HIGH MAST LIGHT STANDARD FROM 1-25. REFER TO SHEET E3 AND E5 FOR ADDITIONAL INFORMATION. THE ELECTRICAL CONTRACTOR SHALL RECONFIGURE AND RE-AIM THE FIXTURE HEADS AS SHOWN IN THE DIAGRAM ON SHEET E5. RE-AIMING OF THE FIXTURE HEADS SHALL BE INCLUDED IN THE PAY ITEM 210 RESET STEEL LIGHT STANDARD 120 FOOT.

FEEDER SCHEDULE

- 1 (2 #8 CU THWN & 1 #10 CU GND) 1" C.

Computer File Information				Sheet Revisions				Colorado Department of Transportation				As Constructed				LIGHTING PLAN				Project No./Code			
Creation Date:		05/27/03		Initials:		KAT												IM 0253-168					
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The Szynskie Group
Professional Engineering & Lighting Design
The Szynskie Group, Inc. 2811 South, CO 80014
303.733.1111



DETAIL NOTES

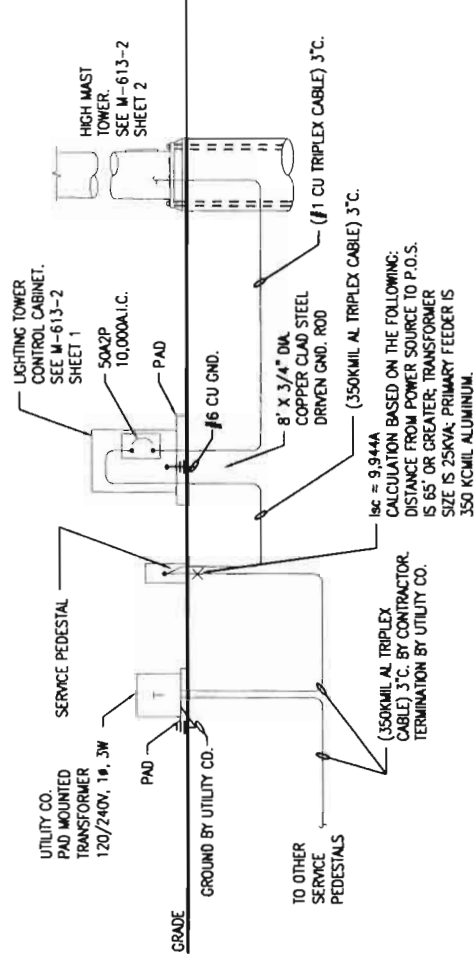
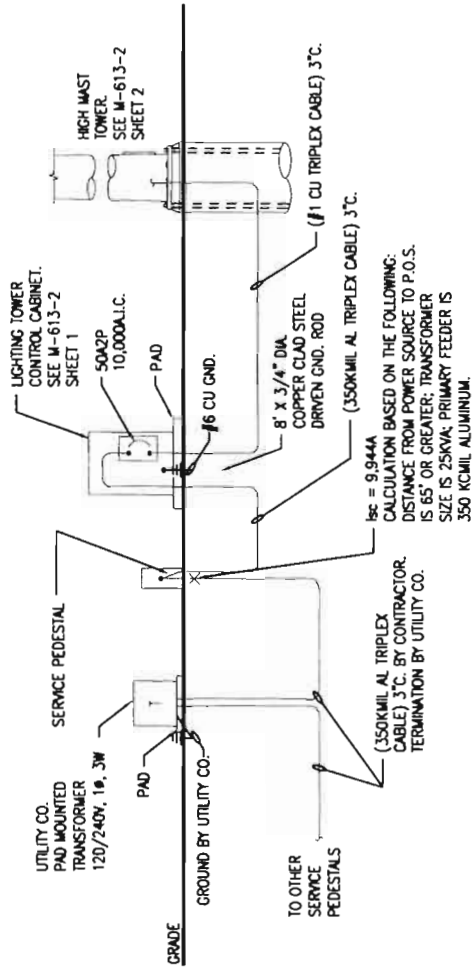
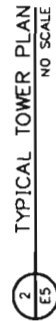
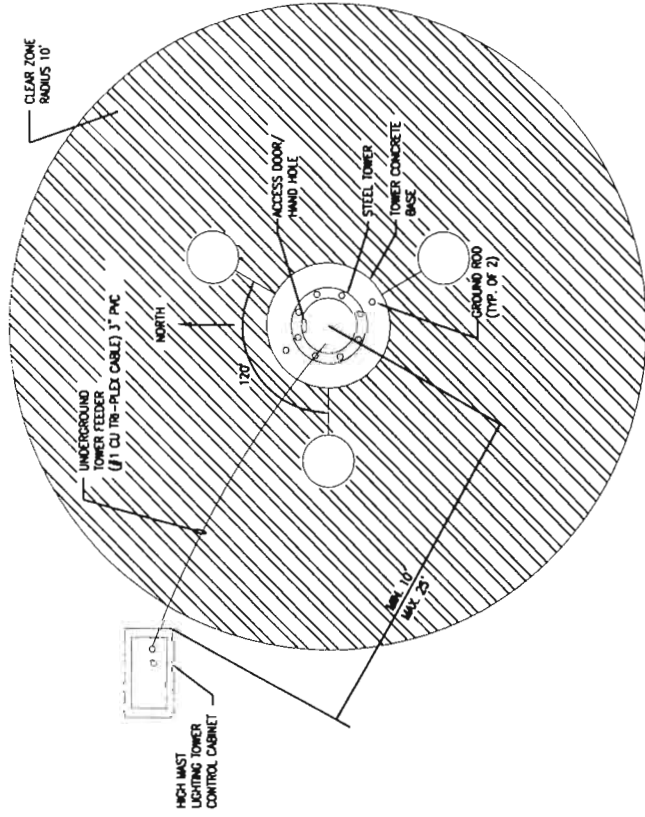
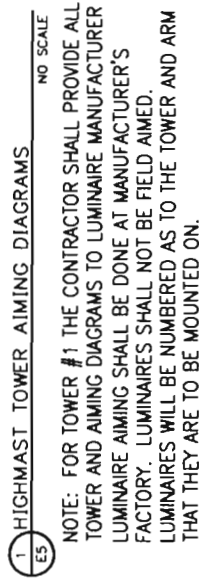
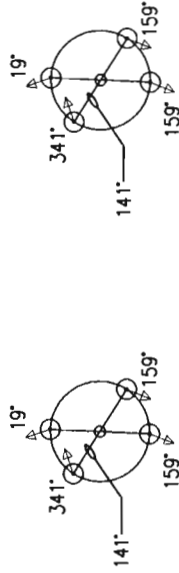
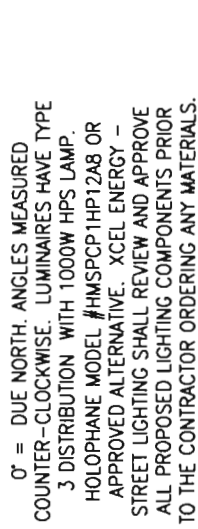
- 1 EXISTING POLE MOUNTED LUMINAIRE TO REMAIN. MAINTAIN EXISTING CIRCUITRY FEEDING LUMINAIRE.
- 2 REWORK AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION. COST OF CONDUIT INCLUDED IN RESET LIGHT STANDARD. MAINTAIN EXISTING CIRCUITRY TO LUMINAIRE.
- 3 PROVIDE CONCRETE FOUNDATION PAD, LIGHT STANDARD AND LUMINAIRE TO MATCH THE EXISTING IN STYLE AND MANUFACTURER. CONNECT NEW LUMINAIRE TO EXISTING CIRCUIT FEEDING EXISTING POLE MOUNTED LUMINAIRE LOCATED IN THIS AREA AS SHOWN.
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- 5 RESET EXISTING HIGH MAST LIGHT STANDARD, CONTROL CABINET, AND SERVICE PEDESTAL AS SHOWN. REWORK AND EXTEND EXISTING CONDUIT AND WIRING TO NEW LOCATION. REFER TO DETAIL 2 SHEET E5 FOR ADDITIONAL INFORMATION REGARDING HIGH MAST CLEARANCES, SERVICE PEDESTAL LOCATIONS AND CONTROL CABINET LOCATIONS.
- 6 PROVIDE NEW HIGH MAST LIGHT STANDARD AS SHOWN. REFER TO SHEET E5 FOR FIXTURE SPECIFICATIONS, ORIENTATION, AND POLE HEIGHT.
- 7 RESET EXISTING HIGH MAST LIGHT STANDARD FROM 1-25. REFER TO SHEET E3 AND E5 FOR ADDITIONAL INFORMATION. THE ELECTRICAL CONTRACTOR SHALL RECONFIGURE AND RE-AIM THE FIXTURE HEADS AS SHOWN IN THE DIAGRAM ON SHEET E5. RE-AIMING OF THE FIXTURE HEADS SHALL BE INCLUDED IN THE PAY ITEM 210 RESET STEEL LIGHT STANDARD 120 FOOT.

FEEDER SCHEDULE

- 1 (2 #8 CU THWN & 1 #10 CU GND) 1'c.

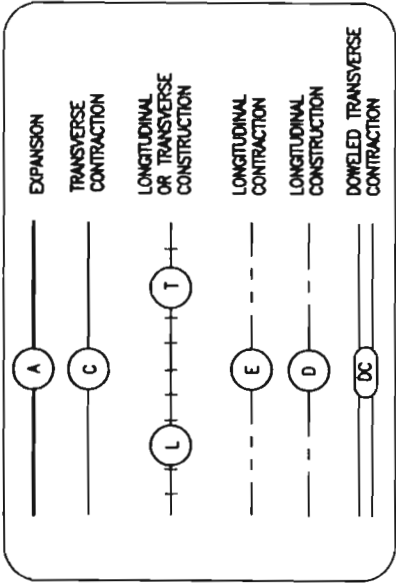


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Creation Date:	05/27/03	Initials: KAT					No Revisions:				IM 0253-168	
Last Modification Date:	05/27/03	Initials: KAT					Revised:		Designer: K. Thorpe	Structure Numbers	13344	
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Acad Ver. R2002	Scale: 1"=100'											



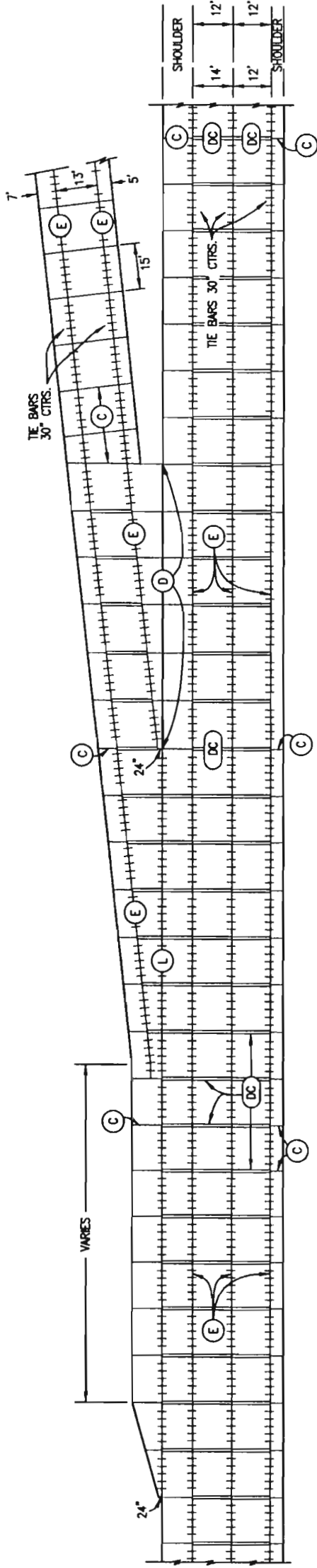
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Last Modification Date:	05/27/03	Initials:	KAT			Phone: (720)-945-1026 FAX: (720) 945-1028	Revised:		Designer: K. Thorpe Detailer: K. Thorpe	13344	
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Acad Ver. R2002	Scale:	NO	SCALE			Region 6-North Engineering	Void:			E5	of 5
						JCS					277

JOINT LEGEND

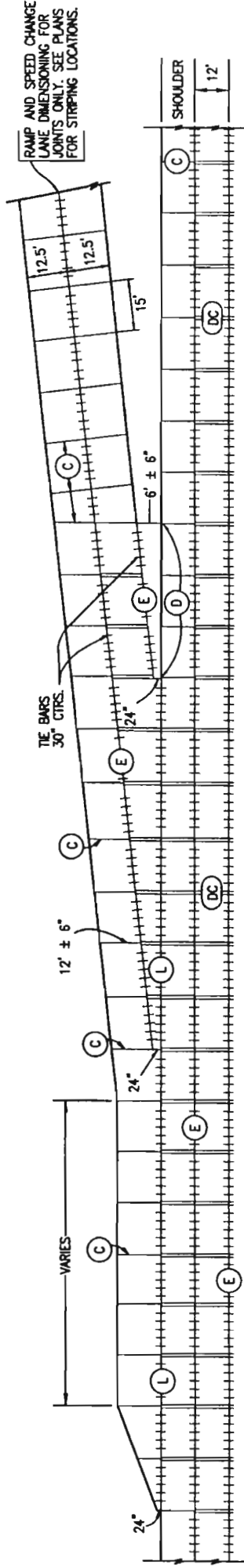


GENERAL NOTES

1. THIS STANDARD PLAN DOES NOT APPLY TO THIN CONCRETE OVERLAYS (WHITETOPPING).
2. LOCATE ① JOINT AT A ③ JOINT OR A MINIMUM OF 2 FEET FROM A ③ JOINT.
3. THIS JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER. 14 FOOT SLABS SHALL BE CONSTRUCTED ONLY WHERE DESIGNATED ON THE PLANS.
4. WHEN A CONTINUOUS WIDTH OF PAVEMENT IS POURED WIDER THAN 40 FEET, THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNTIED ⑥ JOINT.
5. ON 4 LANE DIVIDED HIGHWAYS, THE 2 LANE DIRECTIONAL PAVEMENT AND BOTH SHOULDERS SHALL BE PLACED WITH ⑥ LONGITUDINAL SAWED CONTRACTION JOINTS.
6. ON VARIABLE WIDTH SLABS, THE 2 FOOT OR 4 FOOT END OF SLAB WIDTH DIMENSION MAY VARY ±6 INCHES.
7. ① TO BE USED WHEN TRAFFIC LANE IS ADDED SEPARATELY OR FOR TAPERS OR SPEED CHANGE LANES. ALTERNATIVE LONGITUDINAL JOINT LOCATIONS AT SPEED CHANGE LANE MAY BE USED IF APPROVED.

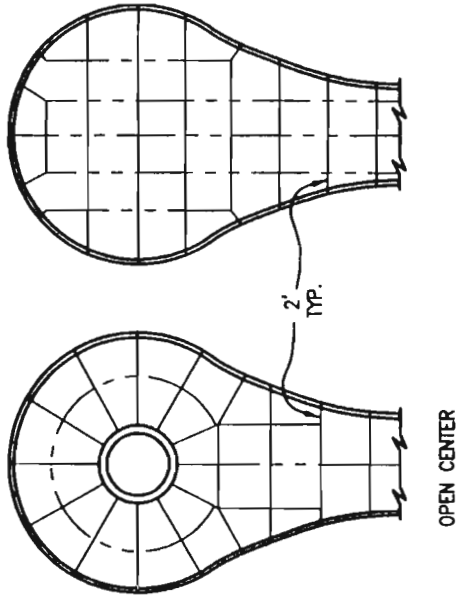


MULTI-LANE WITH ACCELERATION AND DECELERATION LANES AND CONCRETE SHOULDERS



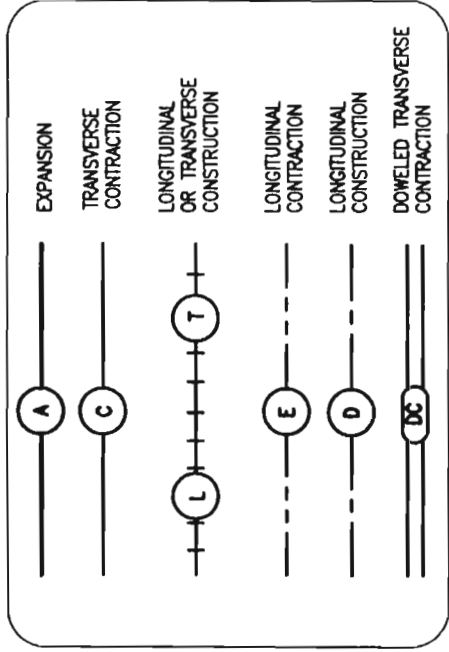
OPTIONAL LONGITUDINAL JOINT IN CENTER FOR SINGLE LANE ACCELERATION AND DECELERATION LANE

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4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 FAX: (303) 757-9820		Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MSStandards/		Date:		Comments:		M-412-1	
		Drawing File Name: 412010205.dwg		12/20/02		Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.			
Project Development Branch		Acad Version: R14 Scale: NA Units: English						Sheet No. 2 of 5	
SRJ								Issued By: Project Development Branch December 20, 2002	



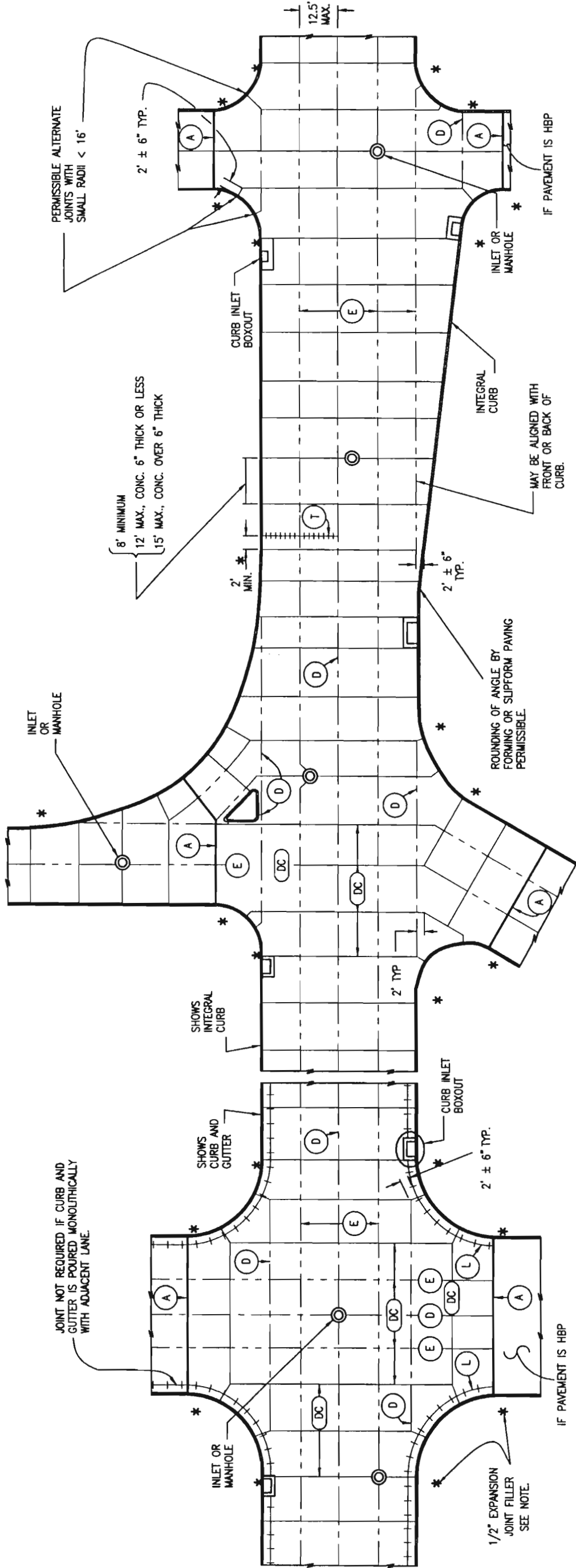
CUL-DE-SAC

JOINT LEGEND



GENERAL NOTES

1. THIS STANDARD DOES NOT APPLY TO THIN CONCRETE OVERLAYS (WHITE TOPPING).
2. THIS TYPICAL JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER.
3. LONGITUDINAL JOINTS SHALL COINCIDE WITH LANE MARKINGS WHEN POSSIBLE, AND HAVE MAXIMUM SPACING OF 12.5 FT. (15 FT. PERMITTED WITH MONOLITHIC CURB AND GUTTER).
4. CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE OF PAVEMENT AND EXTEND THROUGH THE CURB OR CURB AND GUTTER.
5. PLACE 1/2 IN. MIN. EXPANSION JOINT FILLER IN TOP 6 IN. OF CURB JOINT AT INTERSECTION RETURN RADIUS POINTS.
6. THE CONTRACTOR SHALL, UNLESS OTHERWISE SHOWN ON THE PLANS, SELECT AND USE A BOND BREAKER AT INLETS, MANHOLES AND SIMILAR SIZE STRUCTURES. SMALLER STRUCTURES SUCH AS VALVE AND MONUMENT BOXES SHALL NOT REQUIRE A BOND BREAKER.
7. TRANSVERSE JOINTS SHALL BE LOCATED AT THE CENTER OF CIRCULAR MANHOLES AND INLETS. NO TRANSVERSE JOINT SHALL PASS WITHIN 4 FT. OF A MANHOLE.
8. WHERE A LONGITUDINAL JOINT WOULD PASS LESS THAN 1 FT. FROM A CAST-IN PAVEMENT MANHOLE OR SIMILAR SIZE STRUCTURE, A TYPICAL 2 FT. RADIAL JOINT, AS SHOWN IN THE DETAILS, SHALL BE USED.
9. LOCATE (T) JOINT AT (C) JOINT OR 2 FT. MIN FROM (C)
10. WHEN A CONTINUOUS WIDTH AT PAVEMENT IS POURED WIDER THAN 40 FT., THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNIFIED (D) JOINT.



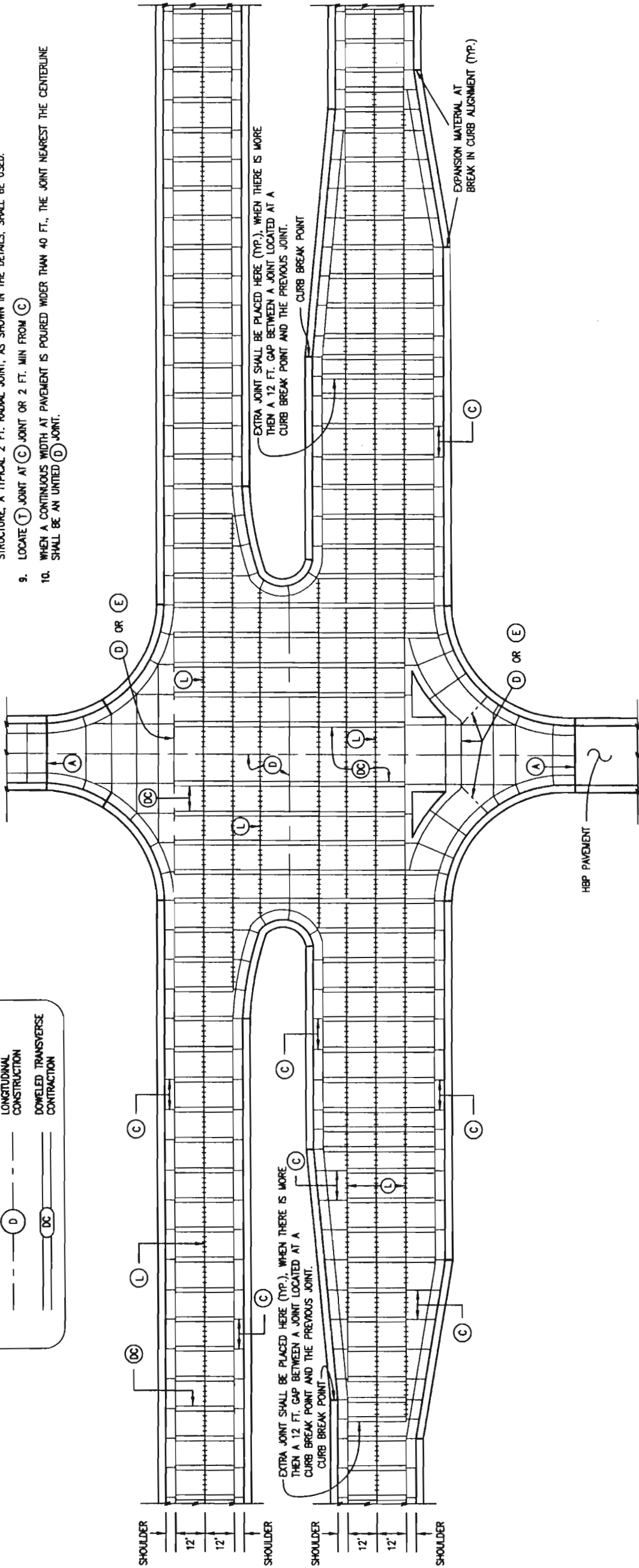
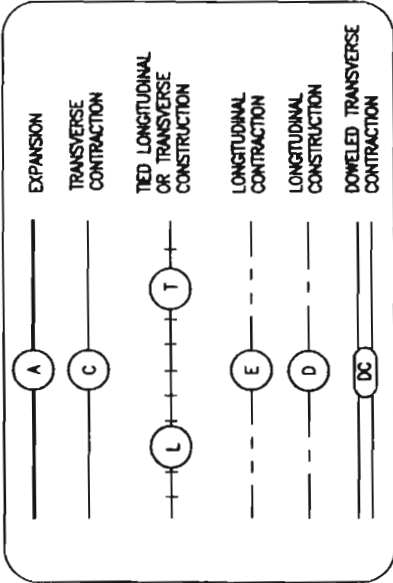
TYPICAL CURBED PAVEMENT JOINT LAYOUT

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 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 FAX: (303) 757-9820 Project Development Branch			Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MSStandards/		Date:	Comments:	PAVEMENT JOINTS	
			Drawing File Name: 412010305.dwg		12/20/02	Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.		
SRJ			Acad Version: R14 Scale: NA Units: English				Sheet No. 3 of 5	
Project Development Branch			Issued By: Project Development Branch October 1, 2000					

GENERAL NOTES

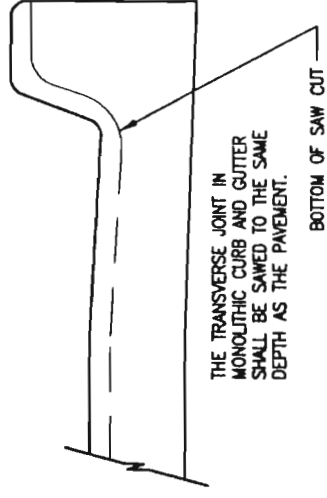
- THIS STANDARD DOES NOT APPLY TO CONCRETE OVERLAYS LESS THAN 6 FT. THICK (WHITETOPPING).
- THIS TYPICAL JOINT LAYOUT IS INTENDED TO BE USED AS A STANDARD FOR THE JOINT LAYOUT FOR THE PROJECT. IF THE CONTRACTOR PROPOSES VARIATIONS FROM THIS STANDARD OR THE PROJECT HAS UNUSUAL OR IRREGULAR CONDITIONS NOT COVERED HEREIN, THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT LAYOUT FOR APPROVAL BY THE ENGINEER.
- LONGITUDINAL JOINTS SHALL COINCIDE WITH LANE MARKINGS WHEN POSSIBLE, AND HAVE MAXIMUM SPACING OF 12.5 FT. (15 FT. PERMITTED WITH MONOLITHIC CURB AND GUTTER).
- CONSTRUCT TRANSVERSE JOINTS PERPENDICULAR TO THE CENTERLINE OF PAVEMENT AND EXTEND THROUGH THE CURB OR CURB AND GUTTER.
- PLACE 1/2 IN. MIN. EXPANSION JOINT FILLER IN TOP 6 IN. OF CURB JOINT AT INTERSECTION RETURN RADIUS POINTS.
- THE CONTRACTOR SHALL, UNLESS OTHERWISE SHOWN ON THE PLANS, SELECT AND USE A BOND BREAKER AT INLETS, MANHOLES AND SIMILAR SIZE STRUCTURES. SMALLER STRUCTURES SUCH AS VALVE AND MONUMENT BOXES SHALL NOT REQUIRE A BOND BREAKER.
- TRANSVERSE JOINTS SHALL BE LOCATED AT THE CENTER OF CIRCULAR MANHOLES AND INLETS. NO TRANSVERSE JOINT SHALL PASS WITHIN 4 FT. OF A MANHOLE.
- WHERE A LONGITUDINAL JOINT WOULD PASS LESS THAN 1 FT. FROM A CAST-IN PAVEMENT MANHOLE OR SIMILAR SIZE STRUCTURE, A TYPICAL 2 FT. RADIAL JOINT, AS SHOWN IN THE DETAILS, SHALL BE USED.
- LOCATE (T) JOINT AT (C) JOINT OR 2 FT. MIN FROM (C)
- WHEN A CONTINUOUS WIDTH AT PAVEMENT IS POURED WIDER THAN 40 FT., THE JOINT NEAREST THE CENTERLINE SHALL BE AN UNTIED (D) JOINT.

JOINT LEGEND



MULTI-LANE INTERSECTION WITH SPEED CHANGE LANE AND CONCRETE SHOULDERS

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		Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MSStandards/		Date:	Comments:	Added Accel/Decel Detail Sheet, Multi-lane Intersection Sheet, and Joint Details.		M-412-1	
		Drawing File Name: 412010405.dwg		12/20/02					
		Acad Version: R14 Scale: NA Units: English				Issued By: Project Development Branch December 20, 2002		Sheet No. 4 of 5	



A cross-sectional diagram of a preformed joint sealant application. It shows a concrete wall with a horizontal joint. A preformed joint material is embedded in the joint. A silicone sealant is applied over the joint material. Dimensions are indicated: 1 1/2" for the total height of the sealant application, 1/4" for the thickness of the preformed joint material, and 3/4" for the thickness of the silicone sealant. The sealant is applied 1/4" below the surface of the concrete wall.

**TRANSVERSE
CONTRACTION JOINT**
(TRANSVERSE WEAKENED
PLANE JOINT)

[illegible]

A schematic diagram of a typical spray mount assembly. It shows a cylindrical component with a mesh screen inside. A label 'BOND BREAKER' points to the top edge of the mesh. Another label 'LESS THAN 12"' points to the height of the mesh. A label 'TYPICAL SPRAY MOUNT' points to the cylindrical body. On the right, there are two circular components labeled 'D OR E' and 'C'. Arrows indicate the flow of material from the spray mount into the components.

Figure 1 is a cross-sectional diagram of the Integral Curb. It shows a curb with a grid of drainage openings. The curb is labeled 'INTEGRAL CURB'. Dimensions are indicated: a 12" MIN depth for the curb, a 12" MIN width for the curb, and a 12" MIN width for the curb. Labels A, B, C, and D are used to identify specific components or dimensions.

JOINT SEALANT

3/16"

3/4" MIN.

3/8"

BACKER ROD

T/3

**RIGID WELDED
ASSEMBLY**

SEAL AT
CONSTRUCTION JOINT

▲ SHALL BE 0.4T FOR LONGITUDINAL JOINTS
ALONG SLABS 14 FEET OR GREATER IN WIDTH

Diagram of a tapered pile with a bond breaker and inlet manhole. Labels include: (SEE JOINT (, 1/4" RECESS, INLET (, MANHOLE, BOND BREAKER, 4:1 TAPER TO MEET STRUCTURE, and T.

BOND BREAKER SHALL BE COMPOSED OF PLASTIC SHEET, BUILDING PAPER OR OTHER APPROVED MATERIAL TO PREVENT BONDING.

OR LONGER.

8" MIN. APRON

1/4" RECESS

INLET OR MANHOLE

4:1 TAPER TO MEET APRON

12" MIN

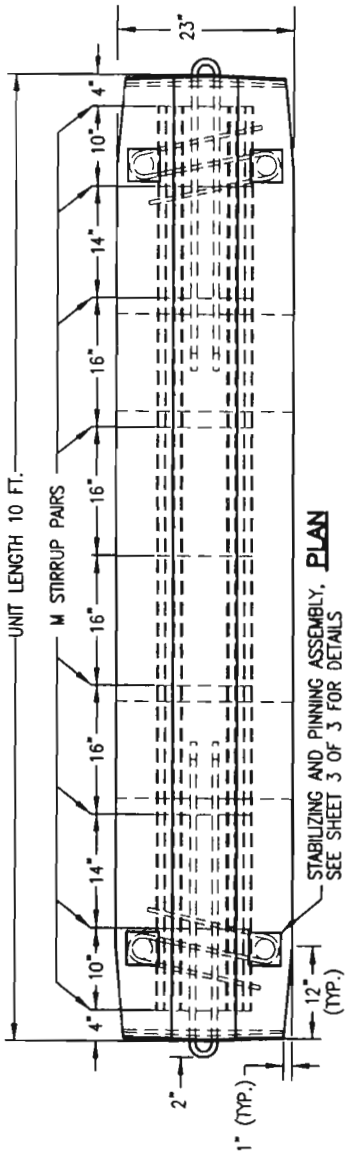
(SEE JOINT (A) DETAIL)

1. PAVEMENT THICKNESS (T), SHALL BE AS CALLED FOR IN THE PLANS.

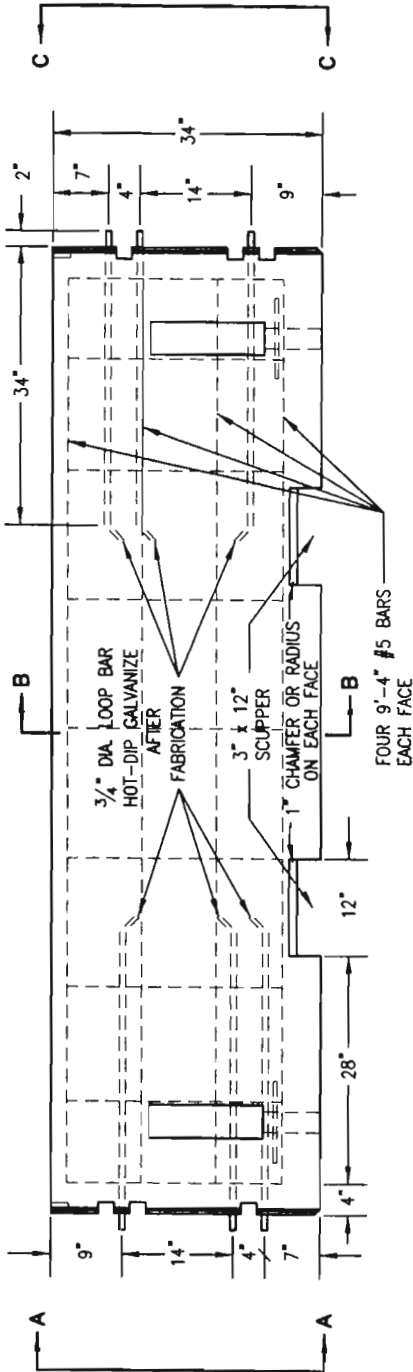
PAVEMENT THICKNESS (T)	TIE BAR SIZE	DOWELL BAR DIAMETER
$T < 8$ IN.	No. 4	1 IN.
$8 \text{ IN.} \leq T \leq 10$ IN.	No. 5	1.25 IN.
$10 \text{ IN.} > T \leq 15$ IN.	No. 6	1.50 IN.

GENERAL NOTES

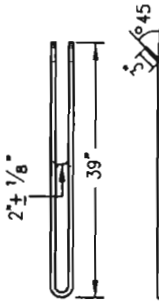
- ALL METAL REINFORCEMENT SHALL BE 2 IN. CLEAR OF NEAREST FACE OF CONCRETE UNLESS OTHERWISE SHOWN.
- CONCRETE SHALL BE CLASS B OR D.
- FOR TEMPORARY INSTALLATIONS, A MINIMUM 4 FT. DISTANCE SHALL EXIST FROM THE CENTERLINE OF THE CONCRETE BARRIER TO ANY OBSTRUCTIONS BEHIND IT.
IN TEMPORARY INSTALLATIONS WITH LESS THAN A 4 FT. MINIMUM DISTANCE, STABILIZATION PINS SHALL BE USED ON EACH BARRIER UNIT ADJACENT TO, AND WITHIN 10 FT. OF BOTH SIDES OF THE OBSTRUCTION.
SEE SHEET 3 OF 3 FOR STABILIZATION PINNING DETAILS.
- CLEAR ZONE DISTANCE REQUIREMENTS SHALL BE CALCULATED AS SPECIFIED IN THE LATEST EDITION OF THE "ROADSIDE DESIGN GUIDE".
- STABILIZATION PINS SHALL BE USED TO ANCHOR EACH 10 FT. UNIT IN ALL PERMANENT INSTALLATIONS. SEE SHEET 3 OF 3 FOR STABILIZATION PINNING DETAILS.
- ALL PERMANENT INSTALLATIONS REQUIRE END ANCHORAGES. SEE SHEET M-606-13, 1 OF 4 FOR ANCHORAGE DETAILS.
- THE MONTH AND YEAR THE PRECAST TYPE 7 CONCRETE BARRIER WAS MANUFACTURED SHALL BE MOLDED INTO ONE END OF EACH 10 FT. BARRIER UNIT.
- APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS AND GROUTING OF SCUPPERS.
- WHEN HYDRAULIC ANALYSIS ALLOWS, SCUPPERS MAY NOT BE NEEDED ON:
A. MEDIAN INSTALLATION WITH INLET DRAINAGE.
B. SHOULDER BARRIER ON HIGH EDGE OF A SUPERELEVATED SHOULDER.
C. MEDIAN BARRIER ON A CREST VERTICAL CURVE.
D. PERMANENT BARRIER, IF SPECIFIED ON PLANS.
- ALL INCIDENTAL WORK AND MATERIALS SUCH AS CONNECTING PINS, ANCHORS BOLTS, GROUT, EXCAVATION FOR END ANCHORAGE, ETC. SHALL BE INCLUDED IN THE COST OF THE BARRIER.



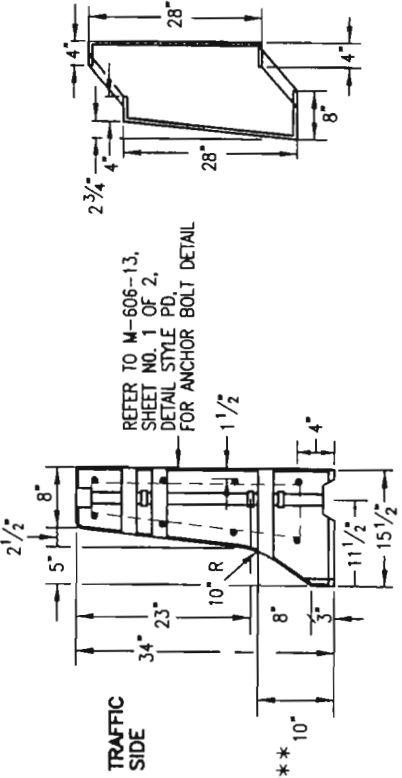
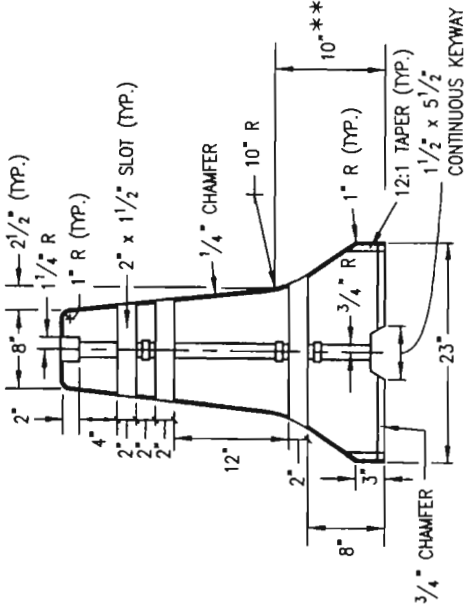
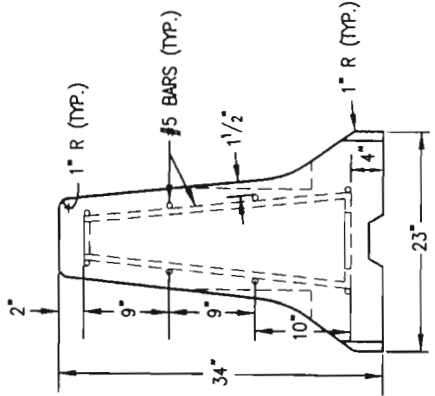
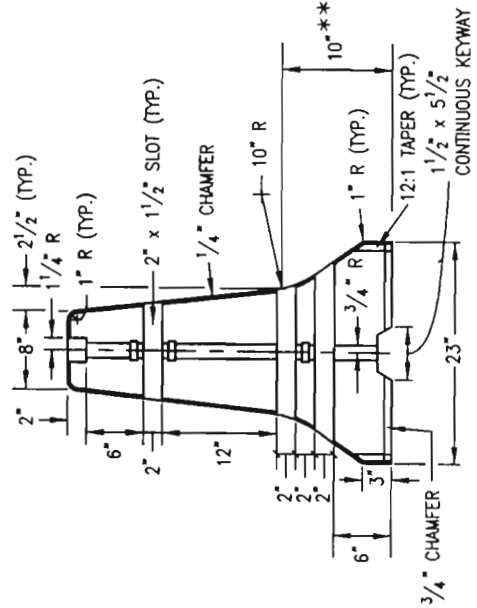
STIRRUP "M" #5 REBAR



LOOP BENDING DETAIL (ASTM A36)

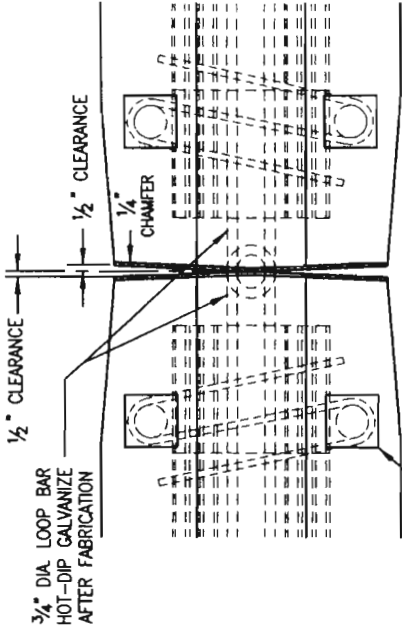


ELEVATION BARRIER



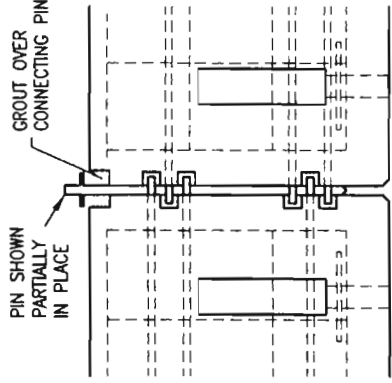
** DIMENSIONS MARKED ARE TO THE INTERSECTION POINT OF THE BARRIER SLOPES. CONSTRUCT THE 10 IN. RADIUS TO PROVIDE A SMOOTH TRANSITION BETWEEN THE SLOPES.

 Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 FAX: (303) 757-9820 Project Development Branch SRJ		Computer File Information		Standard Plan Revised		PRECAST TYPE 7 CONCRETE BARRIER		STANDARD PLAN NO.			
		Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MSStandards/									
		Drawing File Name: 6060140103.dwg		Date:						M-606-14	
				Comments:							
		Acad Version: R14 Scale: NA Units: English						Issued By: Project Development Branch July 02, 2002			

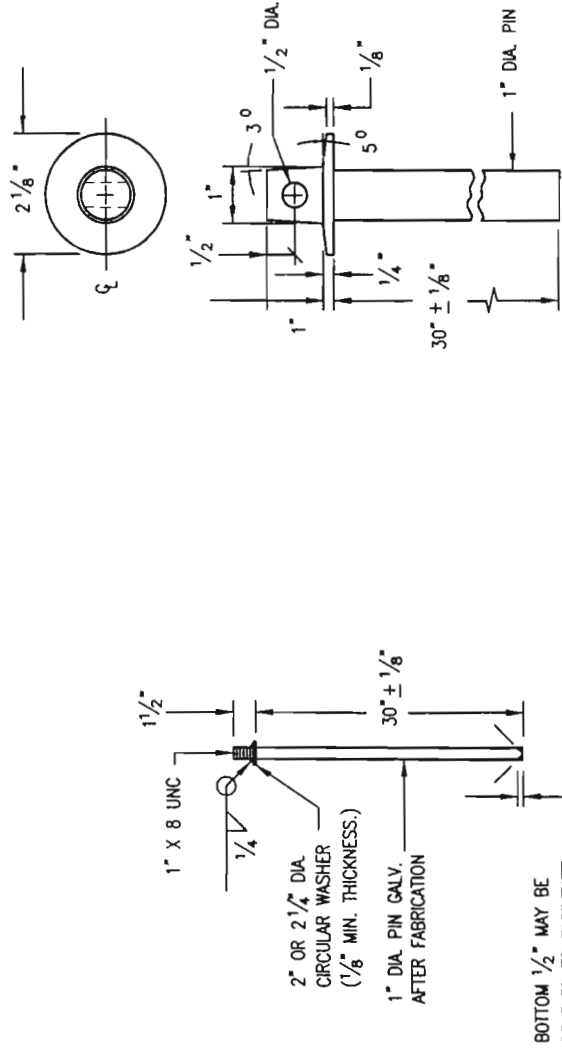


PINNING ASSEMBLY,
SEE SHEET 3 OF 3 FOR DETAILS

FOR DETAILS NOT SHOWN,
SEE SECTION VIEWS A-A, B-B, AND C-C
ON SHEET 1 OF 3



FOR DETAILS NOT SHOWN,
SEE SECTION VIEWS A-A, B-B, AND C-C
ON SHEET 1 OF 3

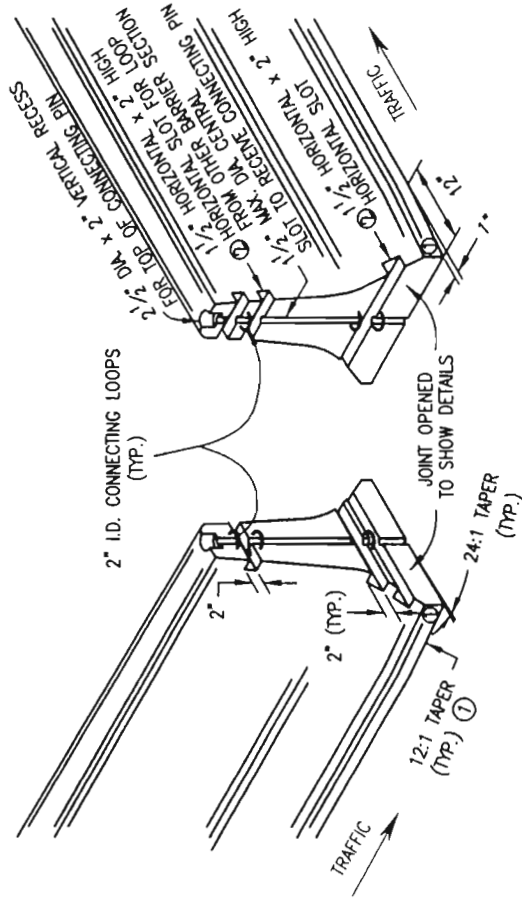


BOTTOM $1\frac{1}{2}$ " MAY BE
BEVELED TO FACILITATE
PLACEMENT

ALTERNATE
PIN DETAIL

PIN NOTES

1. WASHERS SHALL BE FORCED AS AN INTEGRAL PART OF THE PIN, OR SHALL BE WELDED AS SHOWN.
2. PINS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION.
3. IF AN ALTERNATIVE TOP CONFIGURATION IS USED FOR LIFTING, THE LIFTING PIN SHALL BE PROVIDED. PINS MUST CONFORM TO CRITICAL DIMENSIONS (PIN LENGTH DIAMETER).
4. PINS SHALL CONFORM TO ASTM A449.
5. APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS, AND GROUTING OF SCUPPERS.
6. JOINTS BETWEEN CAST-IN-PLACE GUARDRAIL TYPE 7 AND PERMANENT INSTALLATION PRECAST TYPE 7 CONCRETE BARRIER, SHALL INCLUDE ALL REGRESSES AND LOOPS IN THE CAST-IN-PLACE END, ALONG WITH THE PIN TO COMPLETE THE TYPICAL PRECAST TYPE 7 CONCRETE BARRIER JOINT.



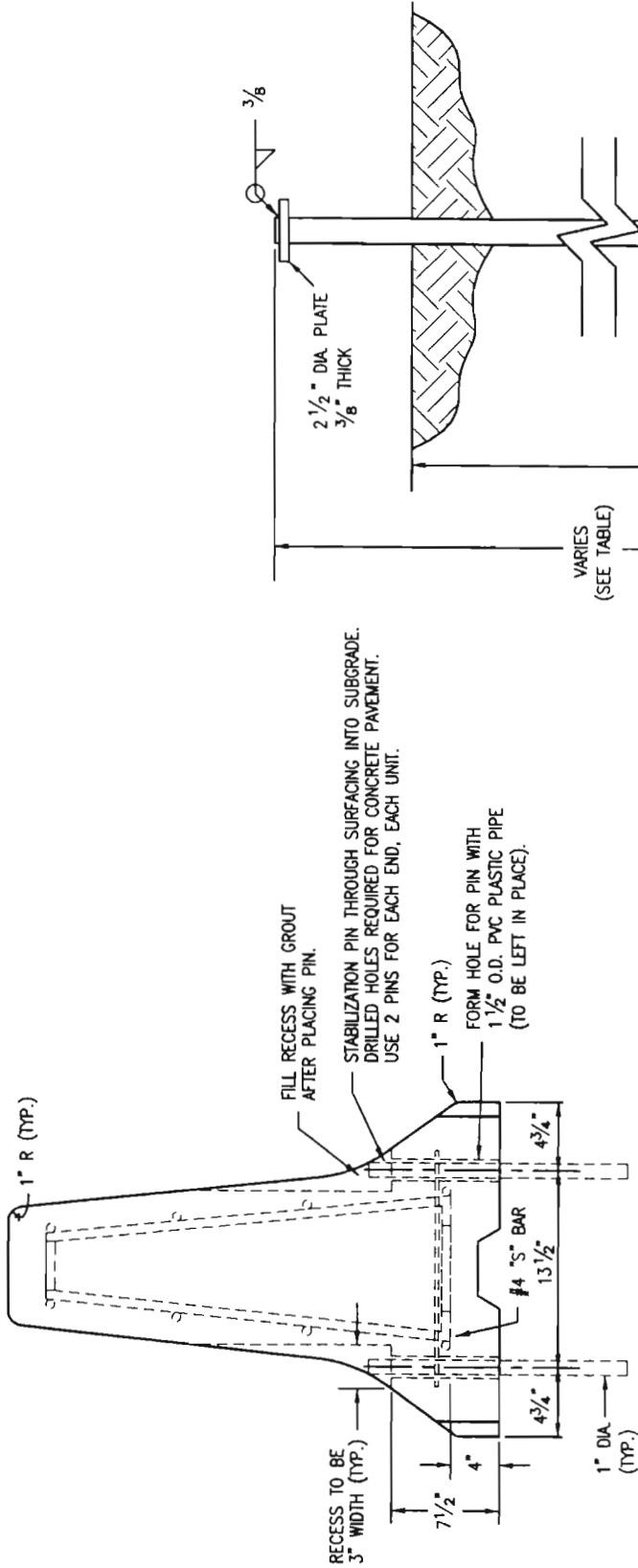
- JOINT STYLE**
- ① A 1 INCH BY 12 INCH TAPER WILL BE REQUIRED AT THE BOTTOM OF ALL FOUR CORNERS OF BARRIER SECTIONS TO ELIMINATE SNAGGING OF SNOW PLOW BLADES. THE TAPER WILL BE OPTIONAL ON PERMANENT INSTALLATIONS.
- ② THE HORIZONTAL SLOTS SHALL BE 1 ½ INCH (HORIZONTAL) AT THE CENTER OF THE BARRIER AND MAY DECREASE HORIZONTALLY AT THE EDGE OF THE BARRIER DUE TO THE (24:1) TAPER.

DETAILS FOR PIN AND LOOP CONNECTION

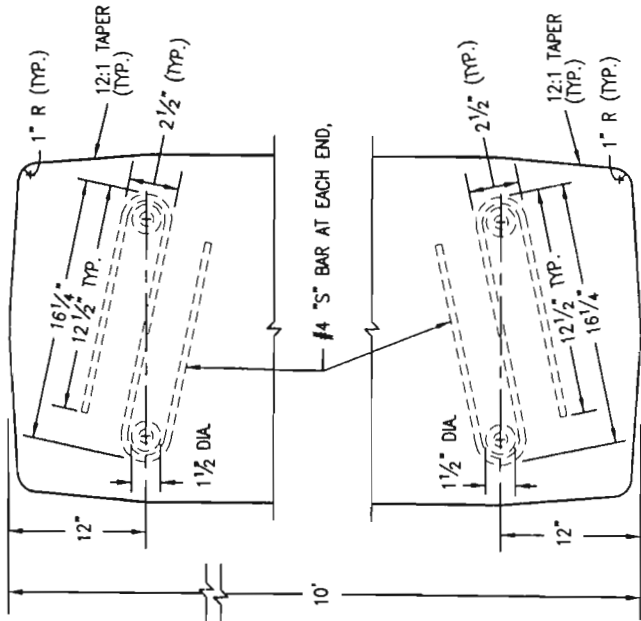
 Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9083 FAX: (303) 757-9820		Computer File Information Path: www.dot.state.co.us/DevelopProjects/DesignSupport/MSStandards/ Drawing File Name: 6060140203.dwg		Standard Plan Revised Date: _____ Comments: _____		PRECAST TYPE 7 CONCRETE BARRIER		STANDARD PLAN NO. M-606-14	
Project Development Branch SRJ		Acad Version: R14 Scale: NA Units: English						Issued By: Project Development Branch July 02, 2002 Sheet No. 2 of 3	

GENERAL NOTES

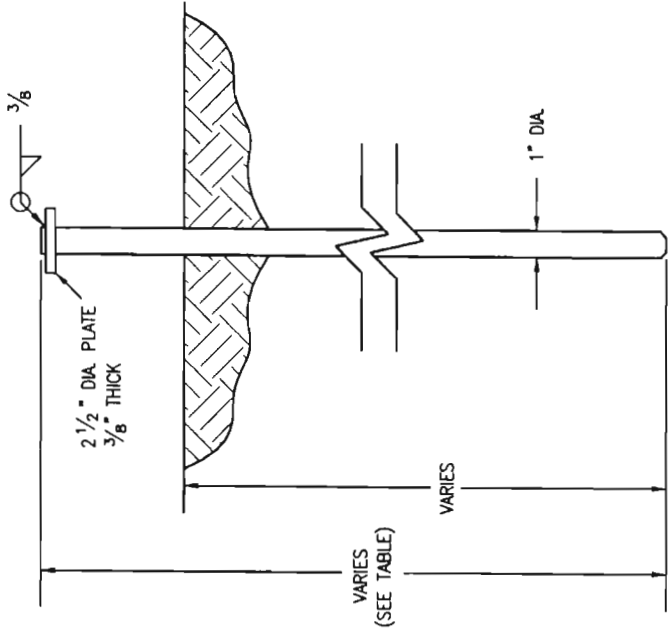
1. SEE SHEET 1 OF 3 FOR REINFORCEMENT AND OTHER DETAILS NOT SHOWN HERE.
2. PERMANENT PRECAST BARRIER USED TO REPLACE OTHER CONCRETE BARRIERS, SHALL BE IN NEW CONDITION, UNDAMAGED, WITH NO REPAIRS.
3. FOR TEMPORARY INSTALLATIONS, A MINIMUM 4 FT. CLEAR ZONE MUST EXIST FROM THE CENTERLINE OF THE CONCRETE BARRIER TO ANY OBSTRUCTIONS BEHIND IT. IN TEMPORARY INSTALLATIONS WITH LESS THEN A 4 FT. MINIMUM CLEAR ZONE, STABILIZATION PINS SHALL BE USED ON EACH BARRIER UNIT ADJACENT TO, AND WITHIN 10 FT. OF BOTH SIDES OF THE OBSTRUCTION.
4. FOR TERMINAL ANCHORING OF THE PERMANENT INSTALLATION OF PRECAST TYPE 7 CONCRETE BARRIER, SEE THE END ANCHORAGE DETAIL ON SHEET M-606-13, 1 OF 4.
5. APPROVED NON-SHRINK GROUT SHALL BE USED FOR GROUTING OVER ALL PINS AND GROUTING OF SCUPPERS.



ELEVATION VIEW WITH PINS



PLAN VIEW OF S BAR ENDS



STABILIZATION PIN
(ASTM A 36 STEEL)

TABLE OF STABILIZATION PIN LENGTHS

ROAD SURFACE	LENGTH
CONCRETE	2 FT. - 6 IN.
HBP	3 FT.
SOIL	3 FT. - 6 IN.

DETAILS FOR STABILIZATION OF PERMANENT
OR TEMPORARY PINNED PRECAST TYPE 7 CONCRETE BARRIER

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Project Development Branch

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Drawing File Name: 6060140303.dwg

Acad Version: R14 Scale: NA Units: English

Standard Plan Revised

Date: Comments:

PRECAST TYPE 7
CONCRETE BARRIER

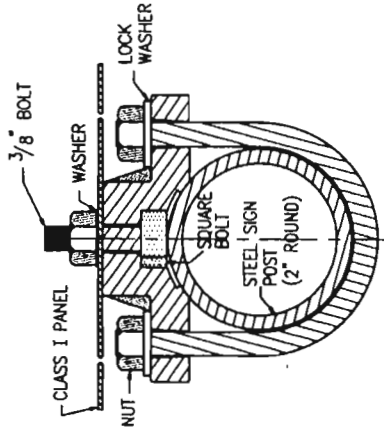
Issued By: Project Development Branch July 02, 2002

STANDARD PLAN NO.

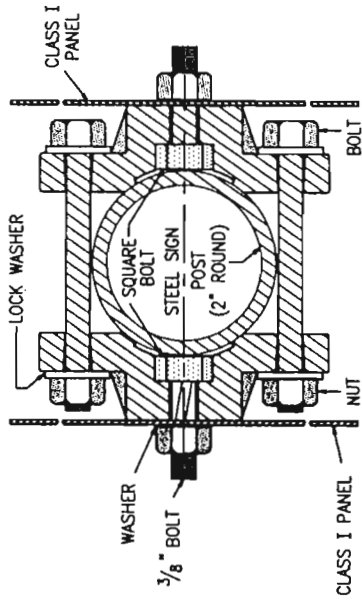
M-606-14

Sheet No. 3 of 3

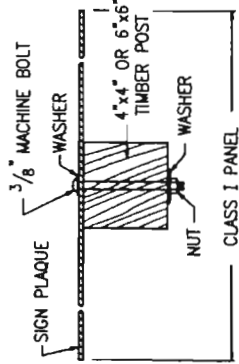
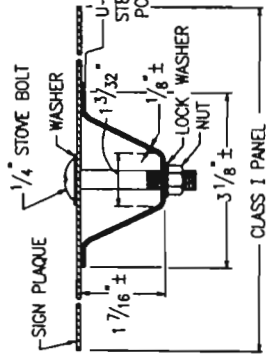
TYPICAL SINGLE BRACKET



TYPICAL BACK TO BACK

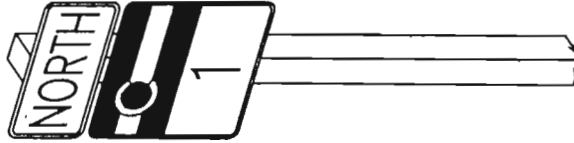
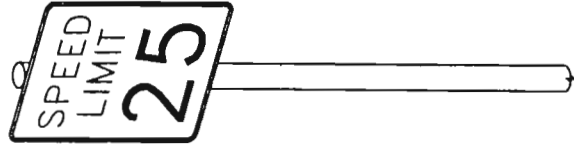
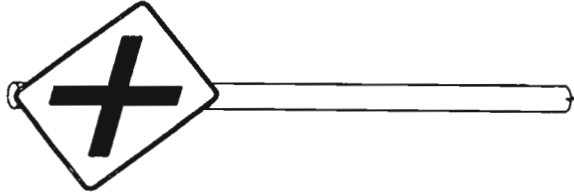
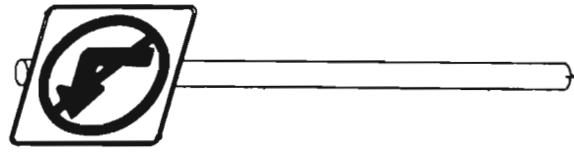
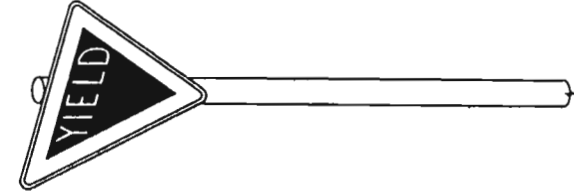
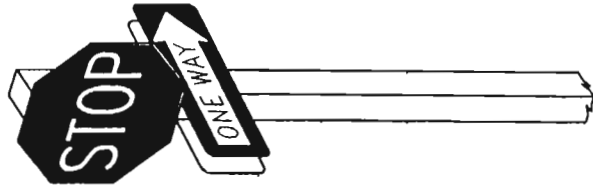


TYPICAL ROUND STEEL POLE SECTION



TYPICAL U-2 POST SECTION

TYPICAL TIMBER POST SECTION



TYPICAL CLASS I GROUND SIGN INSTALLATIONS

GENERAL NOTES

1. ALL CLASS I SIGN PANELS SHALL BE SINGLE SHEET ALUMINUM, 0.100" MINIMUM THICKNESS AND SHALL BE FASTENED DIRECTLY TO THE POST.
2. CLASS I SIGN PANELS SHALL BE FASTENED TO THE U-2 POST WITH 2-1/4" STOVE BOLTS AND TO TIMBER POSTS WITH 2-3/8" MACHINE BOLTS. SEE STANDARD PLANS "TYPICAL POLE MOUNT INSTALLATION" AND "TYPICAL MULTI-SIGN INSTALLATIONS" FOR EXCEPTIONS.
3. A WASHER SHALL BE PLACED BETWEEN THE BOLT HEAD AND THE FACE OF THE SIGN PANEL. A WASHER WHICH HAS A MINIMUM 2 1/2 IN/2 BEARING SURFACE MINUS THE HOLE SHALL BE PLACED UNDER THE NUT ON THE BACK OF A TIMBER POST.
4. BOLTS, NUTS AND WASHERS SHALL BE GALVANIZED OR CADMIUM PLATED.
5. ALL SIGNS SHALL BE FABRICATED USING RETROREFLECTIVE SHEETING CONFORMING TO ASTM D4956. THE TYPE SHALL BE AS DESCRIBED IN THE STANDARD SPECIFICATIONS AND/OR AS SHOWN ON THE PLANS.
6. FOR SIGN PLACEMENT SEE "TYPICAL GROUND SIGN PLACEMENT" STANDARD.
7. "U" SHAPE STEEL POSTS SHALL BE A UNIFORM FLANGED CHANNEL SECTION MADE FROM HOT ROLLED STRUCTURAL STEEL, RE-ROLLED RAIL STEEL, OR NEW BILLET STEEL HAVING A MINIMUM YIELD STRENGTH OF AT LEAST 30,000 PSI, AND A MINIMUM TENSILE STRENGTH OF AT LEAST 50,000 PSI. "U" SHAPE POSTS SHALL WEIGH 2 LBS/FT. EXCEPT THAT A MILL TOLERANCE OF MINUS 3 1/2 % OF THE WEIGHT OF ANY ONE POST WILL BE ALLOWED. "U" SHAPE POSTS SHALL HAVE 5/16" HOLES DRILLED OR PUNCHED ON 1" OR 2" CENTERS FOR THE TOP 4 FEET OF THE POST AS A MINIMUM, WITH THE FIRST HOLE 1 1/2" FROM THE TOP OF THE POST. COLOR OF POSTS SHALL BE INTERSTATE GREEN.
8. FOR ADDITIONAL INFORMATION, REFER TO "TABULATION OF SIGNS". TIMBER POSTS SHALL BE 4" X 4" OR 6" X 6" AS NOTED THEREIN AND SHALL CONFORM TO STANDARD DRESSED (S&S) SIZES.
9. VERTICAL SPACING BETWEEN PANELS ON THE SAME POST SHALL BE 1" MINIMUM TO 1 1/2" MAXIMUM.

Colorado Department of Transportation



4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9436 FAX: (303) 757-9219

Safety & Traffic Engineering Branch KA

Computer File Information

Path: www.dot.state.co.us/S_Standards/s_standard_2000/

Drawing File Name: S614020101.dwg

Acad Version: R2000 Scale: NA Units: English

Standard Plan Revised

Date: 08/22/02
Comments: Eliminated fiber washers. All washers metal.

CLASS I
GROUND SIGN
INSTALLATIONS

Issued By: Traffic Engineering Unit October 1, 2000

STANDARD PLAN NO.

S-614-2

Sheet No. 1 of 1

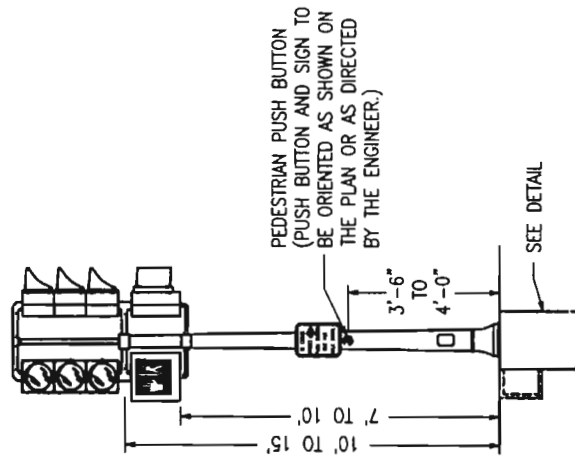
-SPAN WIRE AND PEDESTAL DETAILS-

GENERAL NOTES

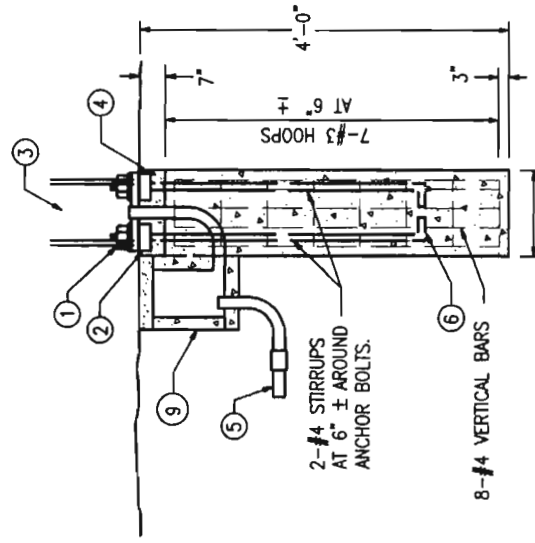
1. TRAFFIC SIGNAL POLES SHALL BE DESIGNED TO MEET THE REQUIREMENTS OUTLINED IN THE "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", PUBLISHED BY ASHTO, FOR A WIND VELOCITY OF 90 MPH.
2. SPAN WIRE POLES SHALL BE FABRICATED OF STEEL WITH A MINIMUM DIAMETER OF 12", A MINIMUM YIELD STRENGTH OF 35 KSI AND A MINIMUM WEIGHT PER LINEAR FOOT OF 49.56 LBS. POLES SHALL BE INSTALLED SO THAT THEY WILL BE PLUMB WHEN DEFLECTED BY THE INSTALLED LOAD.
3. ALL STEEL PEDESTAL POLE MEMBERS SHALL BE HOT DIPPED GALVANIZED ACCORDING TO ASTM A123 EQUIVALENT TO 2 OZ. PER SQUARE FOOT INSIDE AND OUT. STEEL SPAN WIRE POLES SHALL BE PAINTED AS DIRECTED.
4. SPAN WIRE SHALL BE STRUNG TAUT SO NO MORE THAN 5% SAG IS ENCOUNTERED WHEN SIGNAL HEADS ARE INSTALLED.
5. THE ITEM TRAFFIC SIGNAL-LIGHT SPAN WIRE POLE SHALL INCLUDE THE EXTENSION OF THE POLE AND THE ARM FOR THE MOUNTING OF THE LUMINAIRE.
6. SIGNAL FACES SUSPENDED OVER ROADWAY SHOULD BE APPROXIMATELY THE SAME LEVEL ABOVE ROADWAY GRADE.
7. MOUNTING HARDWARE FOR EACH TRAFFIC SIGNAL WILL BE FURNISHED BY THE MANUFACTURER, INCLUDING POLE PLATES FOR SIDE POLE MOUNTING.
8. SERVICE ENTRANCE FITTINGS SHALL BE 3 IN. GALVANIZED, THREADED NO. WRG.
9. LUMINAIRE ARMS SHALL BE EQUIPPED WITH A STANDARD 2 IN. SUPTFITTER.
10. PEDESTAL TYPE POLES FOR TOP MOUNTED SIGNAL OR CONTROL CABINET SHALL BE 4 IN. IN DIA. AND SHALL HAVE A FRANGIBLE BASE.
11. ALL POLES, PEDESTALS AND CABINETS SHALL BE PLACED A MINIMUM OF 2 FEET OFF THE ROADWAY MEASURED FROM THE EDGE OF SHOULDER OR FACE OF CURB.
12. CONCRETE SHALL BE CLASS BZ.

FOOTING NOTES

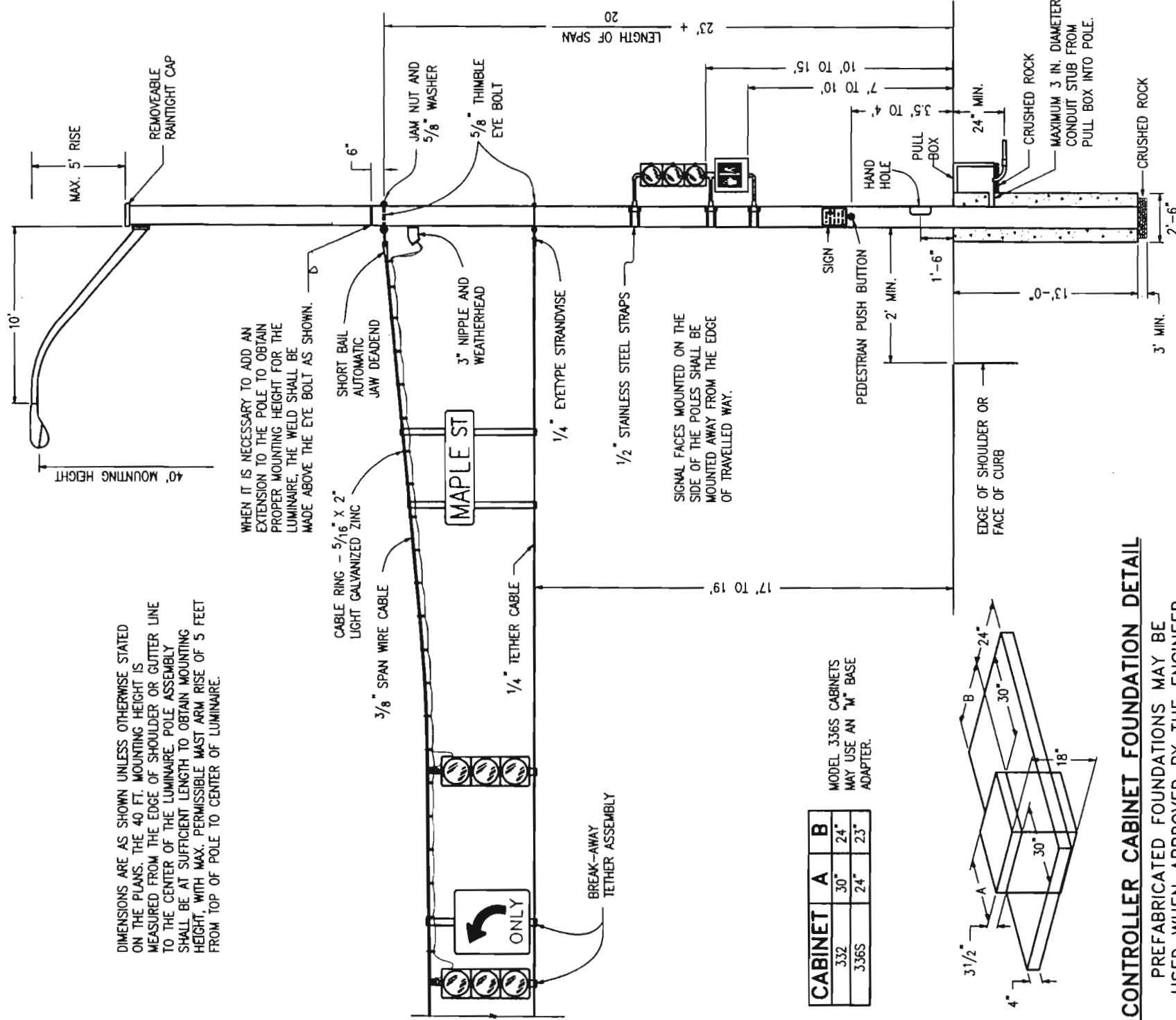
- ① HEX NUTS
- ② SQUARE NUTS
- ③ HAND HOLE SHALL BE PROVIDED
- ④ 4 IN. MIN. NON-SHRINKABLE GROUT OVER ROUGH FOUNDATION
- ⑤ RIGID CONDUIT (24 IN. MIN. DEPTH, 30 IN. MIN. DEPTH UNDER ROADWAY)
CONDUIT STUB FROM PULL BOX TO POLE SHALL BE 3 IN. DIAMETER.
- ⑥ INSTALL ANCHOR BOLTS (FURNISHED WITH POLE) PER MANUFACTURER'S TEMPLATE PRINT (FURNISHED WITH ORDER)
- ⑦ MINIMUM OVERLAP OF 12 IN.
- ⑧ 1-1/2 IN. CLEARANCE FOR HOOPS
- ⑨ PULL BOX



PEDESTAL POLE INSTALLATION



**PEDESTAL
POLE FOOTING**



CONTROLLER CABINET FOUNDATION DETAIL

PREFABRICATED FOUNDATIONS MAY BE USED WHEN APPROVED BY THE ENGINEER. TOP OF FOUNDATION SHOULD PROTRUDE NO MORE THAN 4 IN. ABOVE THE FINISHED GRADE.

CABINET	A	B
332	30"	24"
336S	24"	23"

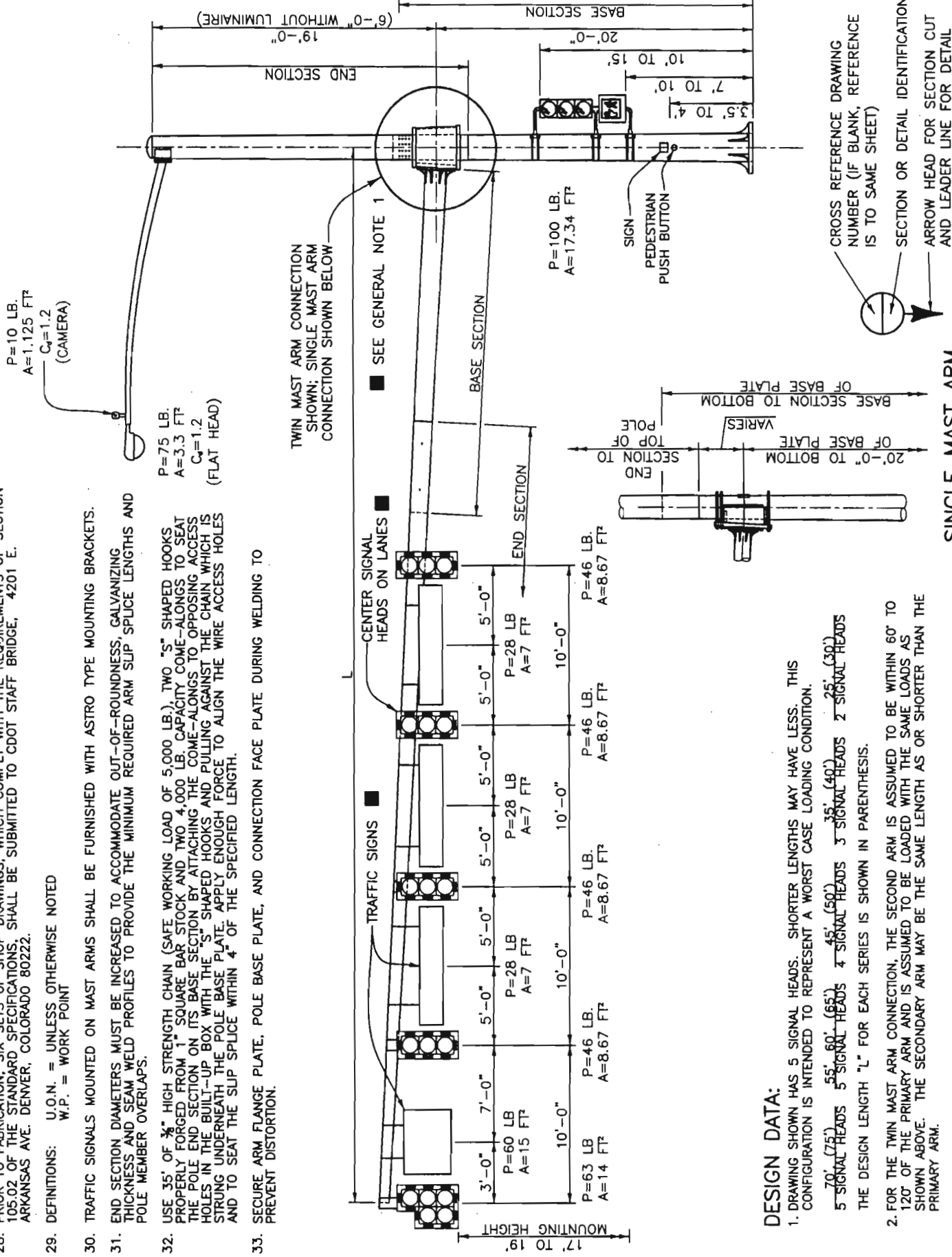
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219		Computer File Information Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards Drawing File Name: S614400107.dwg (Staff Bridge, RLO)	Standard Plan Revised Date: _____ Comments: _____	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS	STANDARD PLAN NO. S-614-40	Sheet No. 1 of 7
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GENERAL NOTES:

1. REFER TO ROADWAY PLANS FOR THE ACTUAL CONFIGURATION AND LOCATION OF TRAFFIC SIGNAL HEADS AND SIGNS.
2. ALL POLES AND ARMS SHALL BE FABRICATED WITH ASTM A572 GRADE 65 STEEL.
3. ALL POLES AND ARMS SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A500, A501, OR A595.
4. ALL POLES AND ARMS SHALL BE ROUND OR DODECAGONAL TUBES.
5. ALL POLE AND ARM DIAMETERS TAPER 0.14 IN/FT.
6. ALL POLES AND ARMS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123.
7. POLE AND MAST ARM SPLICES SHALL BE MECHANICALLY FORCED TOGETHER FOR A SNUG FIT.
8. BLIND BOLTS SHALL BE A307 GRADE A STEEL AND ARE NOT REQUIRED FOR MULTISIDED POLES. MECHANICAL ALTERNATIVES TO BLIND BOLTS UTILIZING FRICTION, KEYS, INTERLOCKING TEETH OR A COMBINATION THEREOF TO PREVENT THE BUILT-UP BOX FROM TWISTING ON THE POLE MAY BE USED AS APPROVED BY CDOT STAFF BRIDGE.
9. ALL MAST ARMS MORE THAN 40 FT IN LENGTH SHALL BE TWO PIECE CONSTRUCTION TO LIMIT ARM WEIGHTS.
10. GALVANIZED ASTM A325 H.S. BOLTS SHALL BE USED FOR ATTACHING LUMINAIRE AND MAST ARMS. A LUBRICATED TIGHTENING TORQUE OF 178 FT-LBS FOR 3/4" DIAMETER BOLTS, 395 FT-LBS FOR 1 INCH DIAMETER BOLTS AND 1300 FT-LBS FOR 1 1/2" INCH DIAMETER BOLTS SHALL BE USED TO TIGHTEN ALL H.S. BOLTS. MAST ARMS SHALL BE TEMPORARILY SUPPORTED TO TAKE LOAD OFF OF FIELD CONNECTIONS WHILE BOLTS ARE TIGHTENED IN ORDER TO FIRMLY SEAT THE FLANGE PLATE. BOLTS SHALL BE SEQUENTIALLY TIGHTENED, ASSUMING 12 BOLTS AND A CLOCK FACE, THE TIGHTENING SEQUENCE WOULD BE 12, 6, 1, 7, ETC. THIS PROCESS SHALL BE CONTINUED UNTIL NO LOOSE BOLTS ARE FOUND AFTER ALL BOLTS HAVE BEEN INITIALLY TIGHTENED.
11. CAST POLE END CAP TO BE SECURED IN PLACE WITH 3 SET SCREWS.
12. ALL SIGNAL HEADS, SIGNS, AND HARDWARE SHALL BE FIELD POSITIONED.
13. ACCESSORIES TO BE HOT DIP GALVANIZED IN ACCORDANCE WITH ASTM A153.
14. ALL PLATES AND STIFFENERS SHALL BE FABRICATED WITH ASTM A36 STEEL AND SHALL COMPLY WITH THE DIMENSIONAL TOLERANCES SPECIFIED IN ASTM A6.
15. LEVELING CONCRETE SHALL BE 3000 PSI AIR ENTRAINED CONCRETE VIBRATED IN PLACE BELOW THE POLE BASE PLATE.
16. THE DESIGNS HEREIN ASSUME THAT SIGNALS ARE INSTALLED WITHIN THE ROADWAY PRISM WITH THE FOLLOWING SOIL PARAMETERS:
SOIL DENSITY $\gamma = 110 \text{ LB./CU.FT.}$
SOIL COHESION $c = 750 \text{ LB./SQ.FT.}$ FOR MEDIUM STIFF COHESIVE SOIL
SOIL ϕ ANGLE $= 30^\circ$ FOR MEDIUM DENSE COHESIONLESS SOIL
SF = 1.5 FOR TORSIONAL RESISTANCE AND 3.0 FOR FLEXURAL RESISTANCE
17. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:
(A) SIGNALS WILL NOT BE INSTALLED WITHIN THE ROADWAY PRISM.
(B) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.
(C) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.
(D) THE FOUNDATION SOILS ARE NOT HOMOGENEOUS.
(E) FIRM BEDROCK IS ENCOUNTERED.
18. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH.
19. CAISSONS SHALL BE CONSTRUCTED WITH CLASS BZ CONCRETE IN ACCORDANCE WITH SECTION 503 OF THE STANDARD SPECIFICATIONS.
20. CAISSON CONCRETE SHALL CURE AT LEAST 7 DAYS PRIOR TO THE SIGNAL STRUCTURE INSTALLATION.
21. U-BOLTS AND ANCHOR BOLTS SHALL BE FABRICATED WITH AASHTO M314-90 GRADE 55 STEEL.
22. ANCHOR BOLTS SHALL BE FABRICATED WITH HEAVY HEX NUTS AND FLAT WASHERS. THREAD UPPER 12 INCHES AND GALVANIZE UPPER 13 INCHES OF THE ANCHOR BOLTS. FIELD WELDING OF ANCHOR BOLTS TO REBAR DURING ERECTION WILL NOT BE ALLOWED. ANCHOR BOLTS SHALL BE SET WITH A STEEL TEMPLATE UNTIL THE CONCRETE HAS CURED AT LEAST TWO DAYS. THE ANCHOR BOLTS SHALL BE TIGHTENED USING THE TURN-OF-NUT METHOD. THE BOLTS SHALL FIRST BE TIGHTENED TO SNUG TIGHT, WHICH IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE UPPER AND LOWER NUTS ARE IN FIRM CONTACT WITH THE BASE PLATE. WITH MAST ARMS FREE TO DEFLECT, THE UPPER AND LOWER NUTS SHALL THEN EACH BE ROTATED AN ADDITIONAL X_2 TURN ($30^\circ \pm 5^\circ$) WITH A SLUGGING WRENCH.
23. WELDING OF STEEL SHALL CONFORM TO THE REQUIREMENTS OF ANSI/AWS D1.1. ALL AREAS TO BE WELDED SHALL BE GROUND TO BRIGHT METAL. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED. ALL CIRCUMFERENTIAL AND STIFFENER WELDS SHALL BE NON-DESTRUCTIVELY TESTED USING THE ENHANCED MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH SUBSECTION 509.18 (d) OF THE STANDARD SPECIFICATIONS. THE ACCEPTANCE CRITERIA IS STATED IN TABLE 6.1 OF ANSI/AWS D1.1. ALL LONGITUDINAL WELDS WITHIN 6 INCHES OF FULL PENETRATION CIRCUMFERENTIAL GROOVE WELDS SHALL BE FULL PENETRATION GROOVE WELDS AND SHALL BE INSPECTED AS SPECIFIED ABOVE. MAXIMUM WELD UNDERCUT SHALL BE 0.01 INCHES.

—MAST ARM SIGNAL GENERAL NOTES/ELEVATION—

24. ALL ELECTRICAL CONNECTIONS TO THE SIGNALS SHALL BE GROUNDED IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
25. TRAFFIC SIGNAL STRUCTURES HAVE BEEN DESIGNED IN ACCORDANCE WITH THE AASHTO STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS LUMINAIRES, AND TRAFFIC SIGNALS, FOURTH EDITION, 2001.
26. A DESIGN WIND VELOCITY OF 100 MPH AND ONE 12' LANE FOR TRUCK INDUCED GUST LOADING HAVE BEEN USED FOR THE DESIGNS HEREIN.
27. CERTIFIED MILL TEST REPORTS INCLUDING CHARPY V-NOTCH TEST RESULTS, WELD INSPECTION REPORTS AND ENHANCED MAGNETIC PARTICLE TEST REPORTS SHALL BE SUBMITTED TO CDOT STAFF BRIDGE, 4201 E. ARKANSAS AVE. DENVER, COLORADO 80222 AS SOON AS THEY BECOME AVAILABLE.
28. PRIOR TO FABRICATION, SIX SETS OF SHOP DRAWINGS, WHICH COMPLY WITH THE REQUIREMENTS OF SECTION 105.02 OF THE STANDARD SPECIFICATIONS, SHALL BE SUBMITTED TO CDOT STAFF BRIDGE, 4201 E. ARKANSAS AVE. DENVER, COLORADO 80222.
29. DEFINITIONS: U.O.N. = UNLESS OTHERWISE NOTED
W.P. = WORK POINT
30. TRAFFIC SIGNALS MOUNTED ON MAST ARMS SHALL BE FURNISHED WITH ASTRO TYPE MOUNTING BRACKETS.
31. END SECTION DIAMETERS MUST BE INCREASED TO ACCOMMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES TO PROVIDE THE MINIMUM REQUIRED ARM SLIP SPLICE LENGTHS AND POLE MEMBER OVERLAPS.
32. USE 35' OF 3/4" HIGH STRENGTH CHAIN (SAFE WORKING LOAD OF 5,000 LB.), TWO "S" SHAPED HOOKS PROPERLY FORGED FROM 1" SQUARE BAR STOCK AND TWO 4,000 LB. CAPACITY COME-ALONGS TO SEAT THE POLE END SECTION ON ITS BASE SECTION BY ATTACHING THE COME-ALONGS TO OPPOSING ACCESS HOLES IN THE BUILT-UP BOX WITH THE "S" SHAPED HOOKS AND PULLING AGAINST THE CHAIN WHICH IS STRUNG UNDERNEATH THE POLE BASE PLATE. APPLY ENOUGH FORCE TO ALIGN THE WIRE ACCESS HOLES AND TO SEAT THE SLIP SPLICE WITHIN 4" OF THE SPECIFIED LENGTH.
33. SECURE ARM FLANGE PLATE, POLE BASE PLATE, AND CONNECTION FACE PLATE DURING WELDING TO PREVENT DISTORTION.



OPTIONAL MULTI-SIDED POLE
OR MAST ARM

* BASE SECTION LENGTH INCLUDES THE SPLICE LENGTH AS PER THE "WAST ARM SLIP SPLICE DETAIL" BELOW.
◆ SEE GENERAL NOTE 31 ON SHEET 2 OF 7.

- ◆ SEE GENERAL NOTE 31 ON SHEET 2 OF 7.
- END WELD $\frac{1}{4}$ " SHORT OF PLATE EDGE AND BOLT HOLES.



PROVIDED "C" HOOK AT POLE
END AND BUILT-UP BOX
FOR WIRING AND HANDLING

SECTION 56

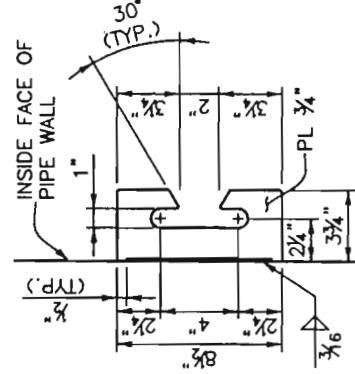


MAST ARM SLIP SPLICE DETAIL



"C" HOOK DETAIL

BREAK ALL
CORNERS AND
EDGES $\frac{1}{8}$ "



STIFFENER

Technical drawings of a simple arm X plate. The top view (left) shows a rectangular plate with a central circular hole. Dimensions include a top plate thickness of $\frac{1}{16}$ " and a bottom plate thickness of $\frac{1}{16}$ ". A section line A-A is indicated. The bottom view (right) shows the plate from below, with a central circular hole and a section line C-C. A dimension of $\frac{1}{16}$ " is shown for the bottom plate thickness. A section line B-B is also indicated. The drawings are labeled with 'SECTION A-A', 'SECTION C-C', and 'SECTION B-B'.

BOI
E

Diagram illustrating the end section and bottom plates of a dome structure. The diagram shows a cross-section of the dome with a curved surface and a flat base. Key components labeled include:

- END SECTION
- POLE WALL
- POINT OF TANGENCY AT END OF GUSSET PLATE
- SECTION A (Circular detail view)

END SECTION ♦

END SECTION ♦

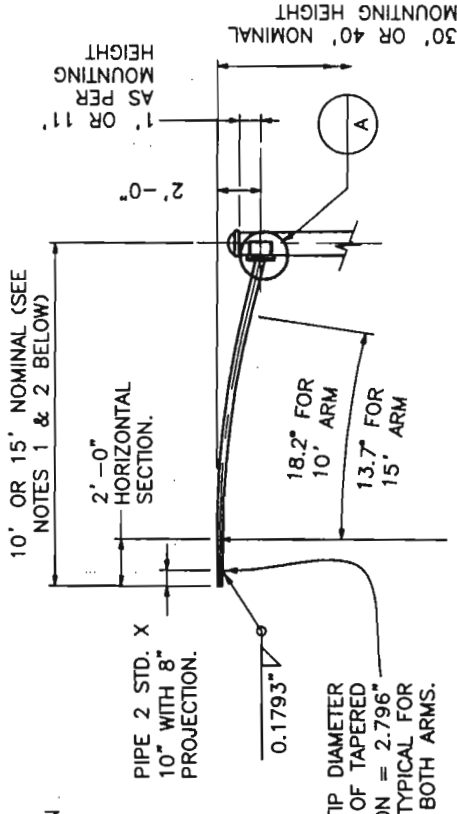
SECTION DATA

BOI
E

Diagram illustrating the end section and bottom plates of a dome structure. The diagram shows a cross-section of the dome with a curved surface and a flat base. Key components labeled include:

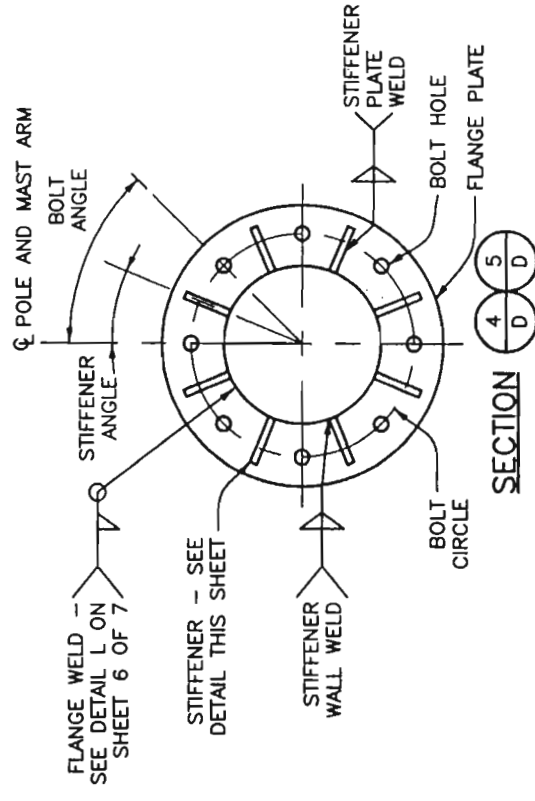
- END SECTION
- POLE WALL
- POINT OF TANGENCY AT END OF GUSSET PLATE
- SECTION A (Circular detail view)

10' OR 15' NOMINAL (SEE
NOTES 1 & 2 BELOW)



R = 12' FOR 10' ARM AND
40' FOR 15' ARM

- 10' LUMINAIRE ARM SHAFT; WALL THICKNESS = 0.1793"; LINEAR TAPE = 0.14 IN./FT.; DIAMETER AT ARM SIMPLEX PLATE = 4.066".
- 15' LUMINAIRE ARM SHAFT; WALL THICKNESS = 0.1793"; LINEAR TAPE = 0.14 IN./FT.; DIAMETER AT ARM SIMPLEX PLATE = 4.679".

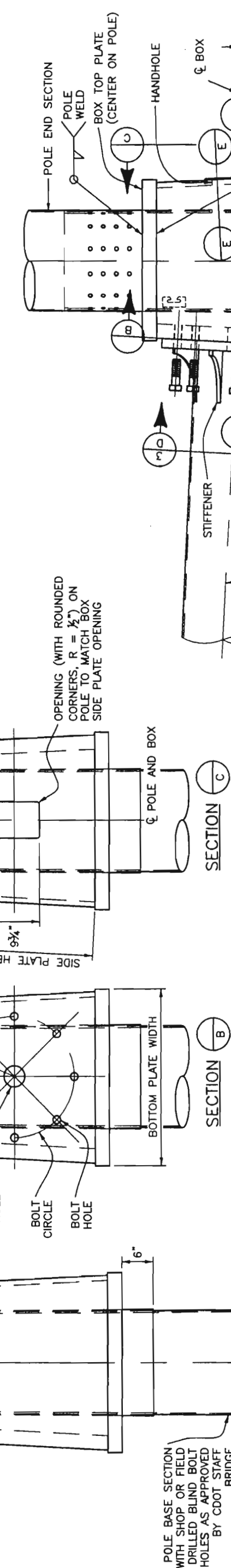
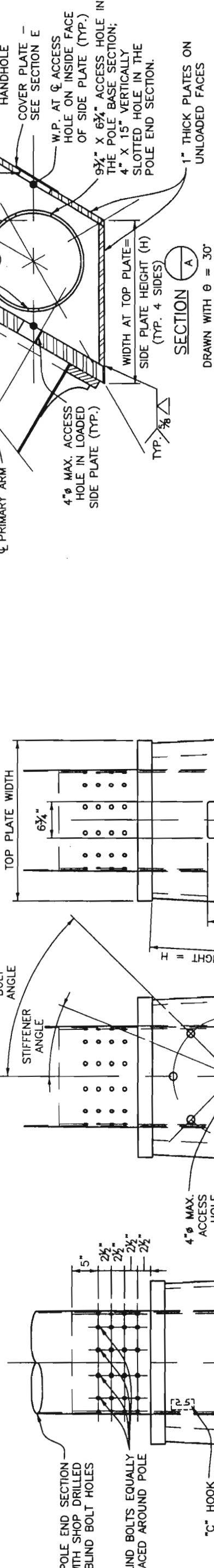


(BOLTS NOT SHOWN FOR CLARITY)

-TWIN MAST ARM SIGNAL DETAILS-

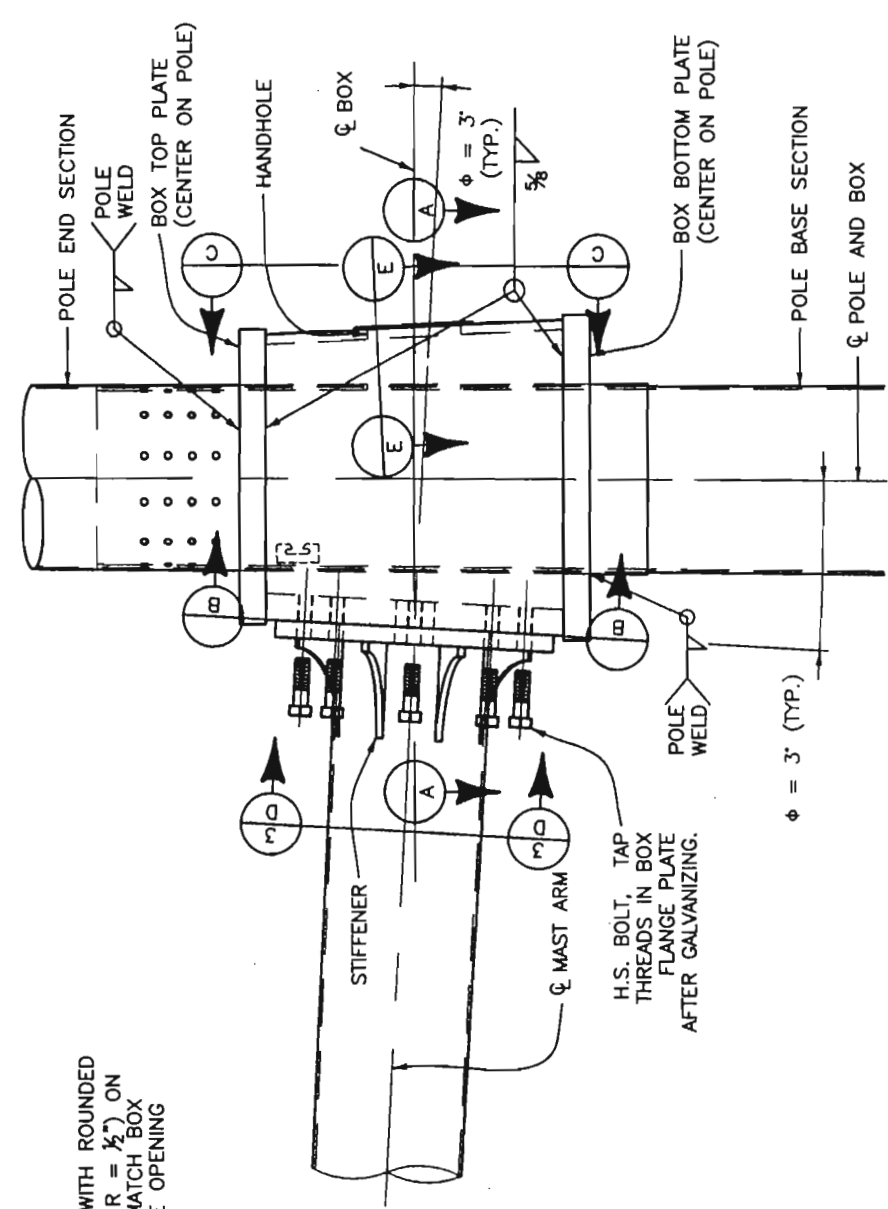
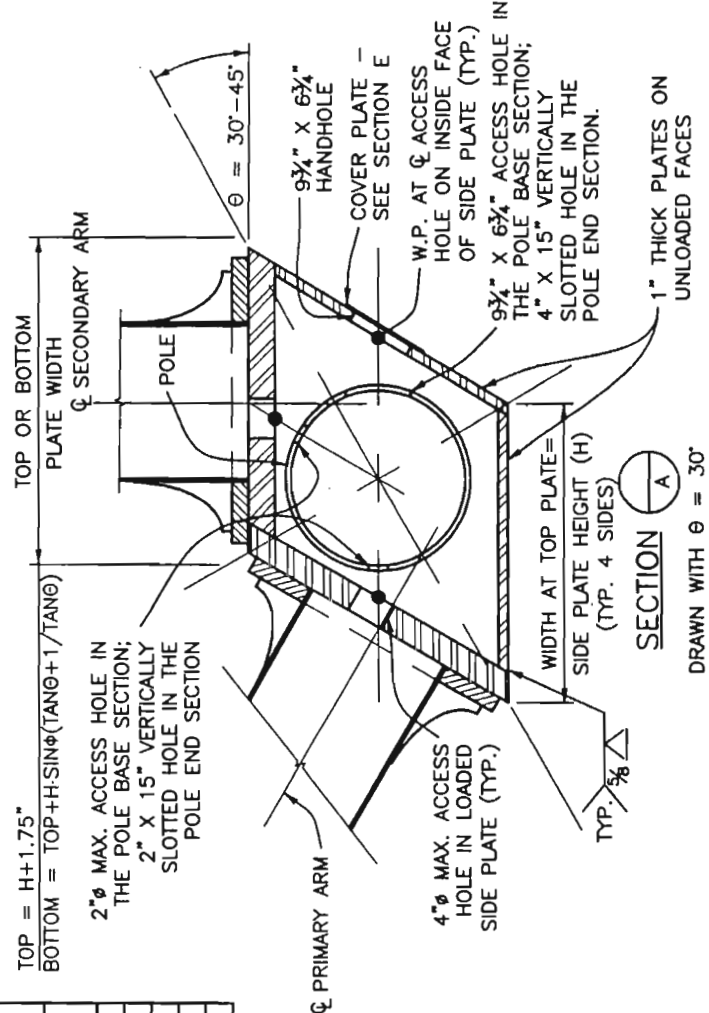
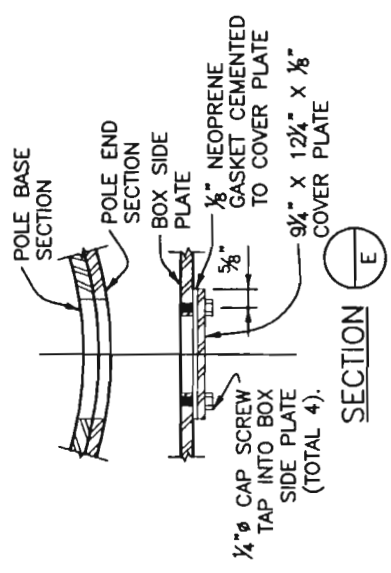
MAST ARM LENGTH (FT.)	BLIND BOLT DATA			BUILT-UP BOX DATA *				POLE DATA				
	NO. OF	DIA. (IN.)	BOLTS PER ROW	SIDE PLATE		TOP PLATE	BOTTOM PLATE	BASE SECTION		END SECTION WITH LUMINAIRE		
				H (IN.)	WIDTH FOR $\theta = 45^\circ$ (IN.)			LENGTH (FT.)	TOP ϕ (IN.)	BOTTOM ϕ (IN.)	THK. (IN.)	LENGTH (FT.)
30	24	0.75	6	4	1.50	0.1875	22	23.75	26.053	26.053	26.053	20.54
40	30	0.75	6	5	2.00	0.1875	25	26.75	29.367	29.367	29.367	20.71
50	36	0.75	12	3	2.50	0.1875	26	27.75	30.471	30.471	30.471	20.79
65	48	0.75	12	4	2.75	0.1875	31	32.75	35.995	35.995	35.995	21.02
75	60	0.75	12	5	3.00	0.1875	33	34.75	38.204	38.204	38.204	21.12

* USE LARGER ARM IN A DOUBLE ARM SIGNAL TO DETERMINE PLATE THICKNESS AND DIMENSIONS.
♦ SEE GENERAL NOTE 31 ON SHEET 2 OF 7.



FOR 8 BOLTS AND $\theta < 45^\circ$, ROTATE FLANGE FOR SECONDARY ARM 22.5° TO AVOID BOLT INTERFERENCE PROBLEMS.

POLE END SECTION SLIP CONNECTION DETAIL
(SEE GENERAL NOTE 8 ON SHEET 2 OF 7 REGARDING THE NEED FOR BLIND BOLTS)



MAST ARM CONNECTION DETAIL

MAST ARM LENGTH (FT.)	FACE PLATE DATA				STOP BAR DATA		SIDE PLATE DATA		WASHER DATA		U-BOLT DATA		
	FACE PLATE HEIGHTS		THICKNESS OF FACE PLATE		BAR LENGTH (L _{BAR}) (IN.)	THICKNESS OF SIDE PLATE (T _{SP}) (IN.)	EAR HEIGHT (H _{EAR}) (IN.)	LENGTH OF WASHER (L _{WASHER}) (IN.)	WIDTH OF WASHER (W _{WASHER}) (IN.)	BOLT SPACING (S _{BOLT}) (IN.)	DIAMETER OF U-BOLT (D _{U-BOLT}) (IN.)	BEND RADIUS U-BOLT (A) (IN.)	BEND RADIUS U-BOLT (B) (IN.)
	TOP (H _{TOP} XIN.)	BOTTOM (H _{BOTTOM} XIN.)	TOTAL (H _{FACE} XIN.)	ENDS (W _E) (IN.)									
30	17.19	14.81	32.00	14.48	20.00	47.74	2.000	18.000	0.875	1.000	3.75	5.09	5.23
40	17.94	15.44	33.38	17.49	23.00	51.87	2.000	19.000	1.000	1.125	3.75	6.58	6.73
50	20.44	17.69	38.13	21.01	24.00	122.33	2.188	23.000	1.000	1.375	3.75	8.13	8.31
65	24.09	20.59	44.69	25.36	29.00	137.98	2.406	28.000	1.125	1.500	4.50	10.05	10.26
75	26.00	22.50	48.50	28.19	31.00	210.16	2.625	31.000	1.125	1.625	4.50	11.23	11.46

MAST ARM LENGTH (FT.)	POLE DATA								SADDLE DATA
	BASE SECTION *				END SECTION WITH LUMINAIRE ♦				
	LENGTH (FT.)	TOP Ø (IN.)	BOTTOM Ø (IN.)	THK. (IN.)	LENGTH (FT.)	TOP Ø (IN.)	BOTTOM Ø (IN.)	THK. (IN.)	
30	24.55	8.79	12.23	0.3125	15.57	7.25	9.43	0.2391	1.375
40	24.96	11.49	14.98	0.3125	15.51	10.00	12.17	0.2391	1.375
50	25.54	14.40	17.98	0.3125	15.30	13.00	15.14	0.2391	1.375
65	26.30	18.05	21.73	0.3125	14.99	16.75	18.85	0.2391	1.500
75	26.74	20.24	23.98	0.3125	14.83	19.00	21.07	0.2391	1.625

• BEND RADIUS MEASURED TO THE Ø OF EACH U-BOLT. INCREASE RADIUS AS NEEDED TO ACCOMMODATE OUT-OF-ROUNDNESS, GALVANIZING THICKNESS AND SEAM WELD PROFILES.

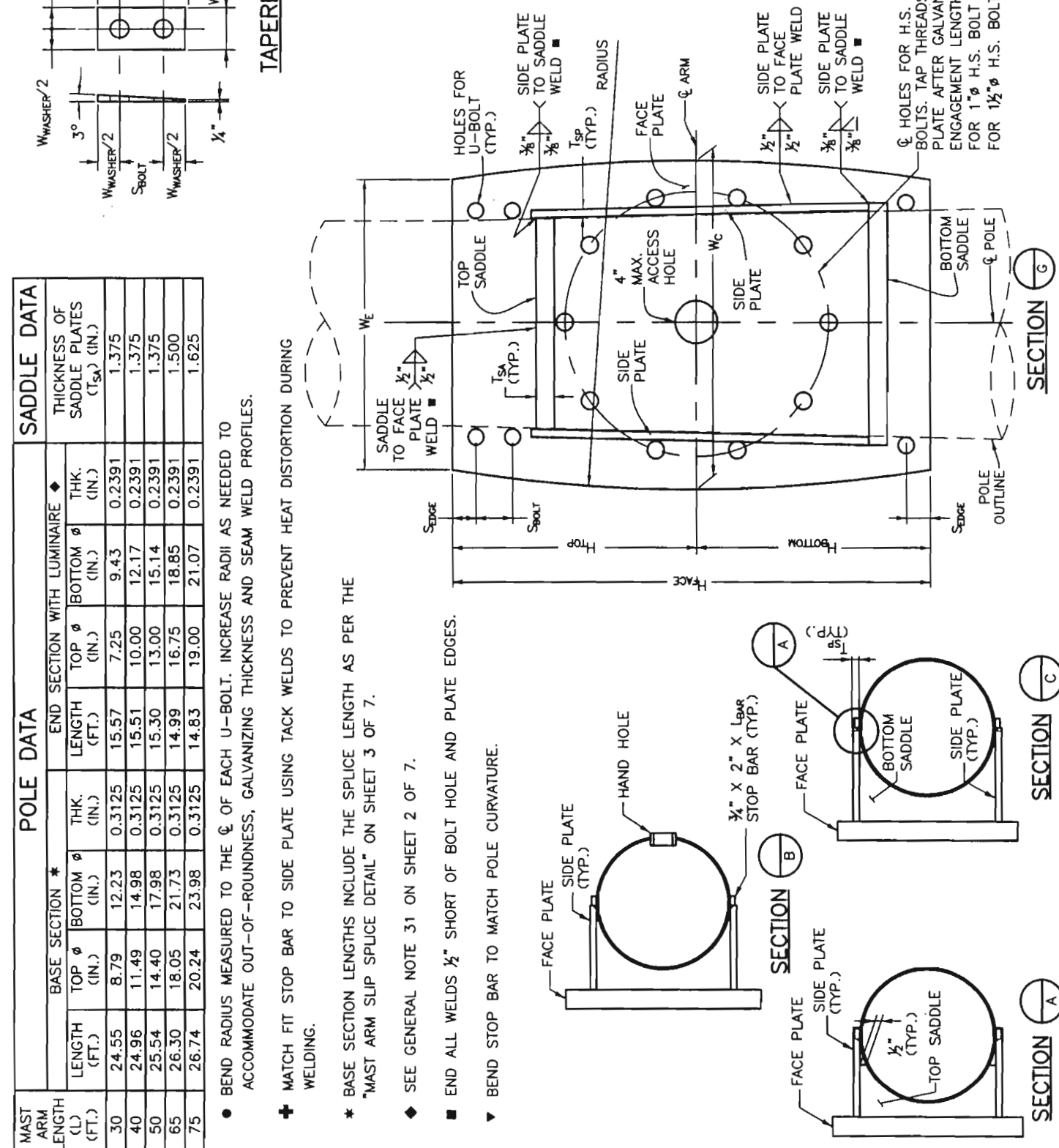
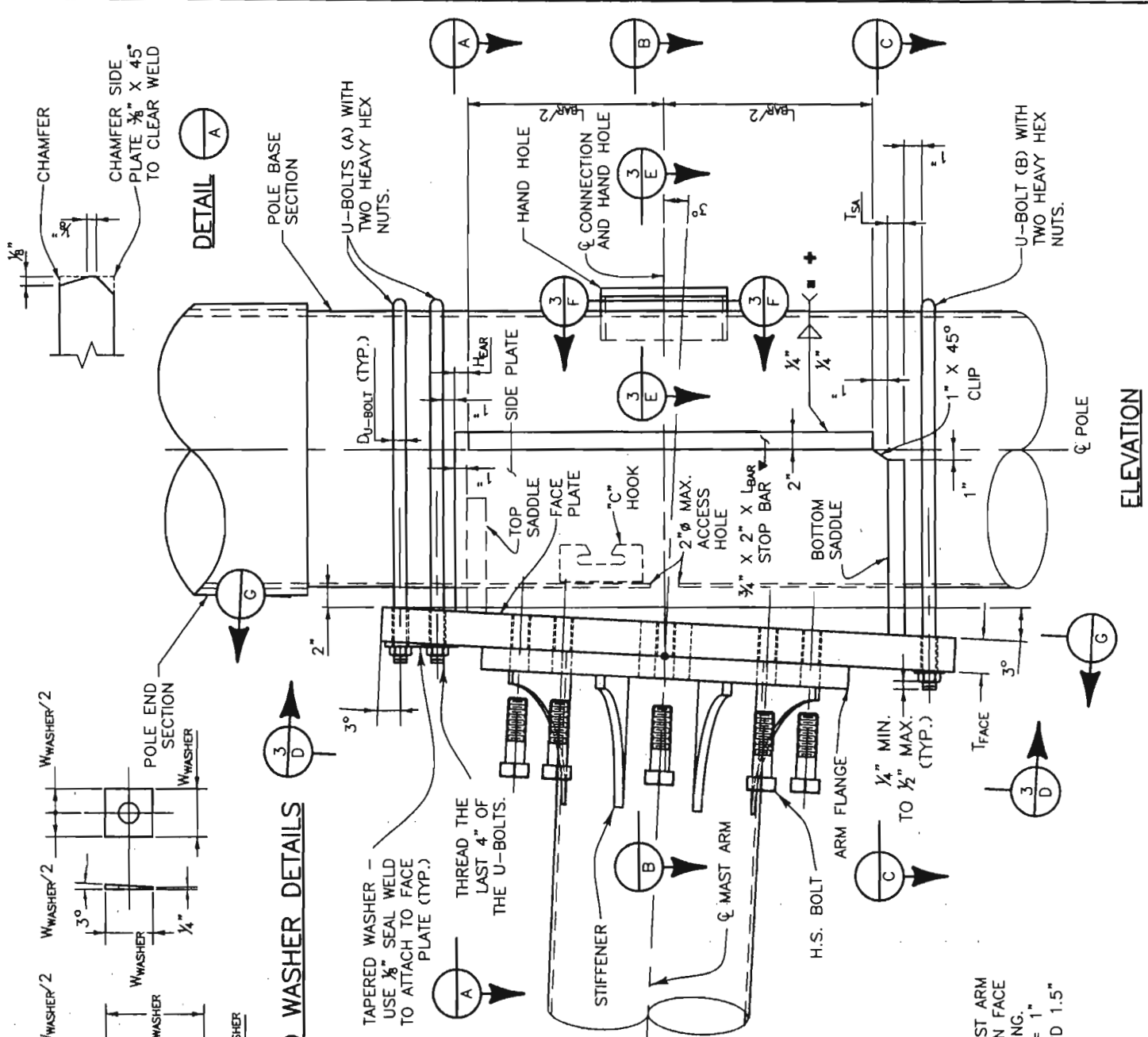
✚ MATCH FIT STOP BAR TO SIDE PLATE USING TACK WELDS TO PREVENT HEAT DISTORTION DURING WELDING.

★ BASE SECTION LENGTHS INCLUDE THE SPLICE LENGTH AS PER THE "MAST ARM SLIP SPLICE DETAIL" ON SHEET 3 OF 7.

◆ SEE GENERAL NOTE 31 ON SHEET 2 OF 7.

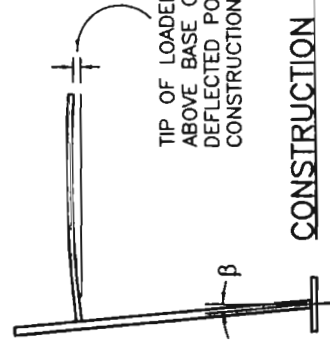
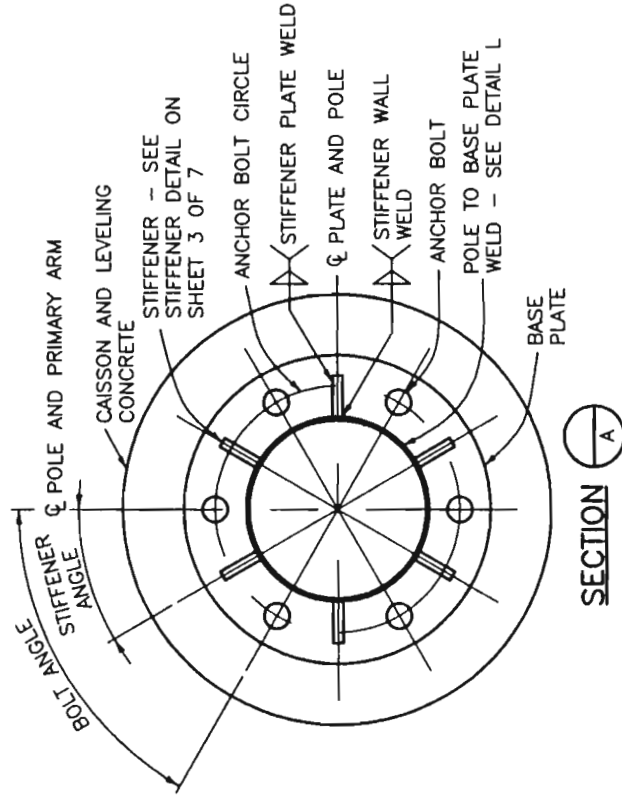
■ END ALL WELDS 1/2" SHORT OF BOLT HOLE AND PLATE EDGES.

▼ BEND STOP BAR TO MATCH POLE CURVATURE.



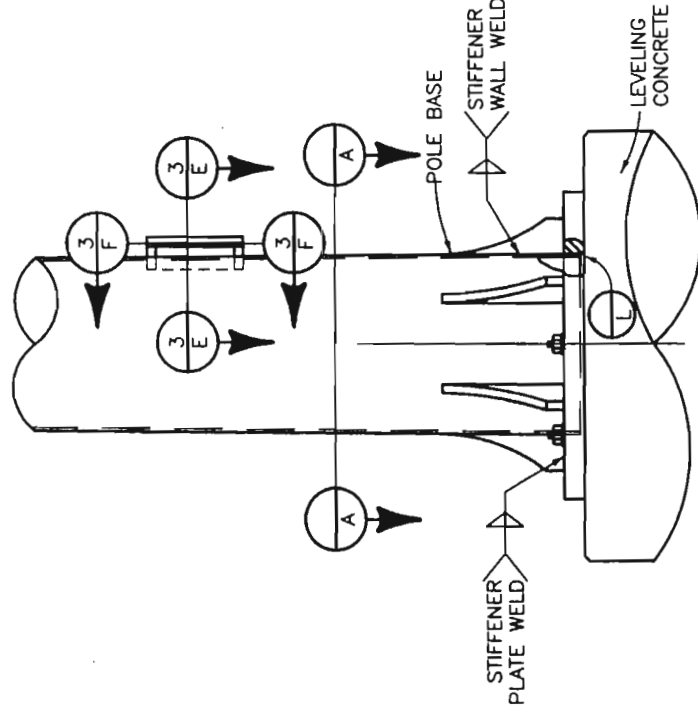
-MAST ARM SIGNAL FOUNDATION DETAILS-

MAST ARM LENGTH (FT.)	POLE BASE CONNECTION DATA														CAISSON DATA							
	STIFFENER						ANCHOR BOLT															
	NO. OF	THK. (IN.)	WIDTH (IN.)	HEIGHT (IN.)	RADIUS (IN.)	ANGLE	WALL WELD (IN.)	PLATE WELD (IN.)	DIA. (IN.)	THK. (IN.)	NO. OF	DIA. (IN.)	LENGTH (IN.)	CIRCLE DIA. (IN.)	HOLE DIA. (IN.)	ANGLE	PROJECTION (IN.)	DIA. (IN.)	DEPTH (D) (FT.)	PAY LGTH (L) (FT.)	V BARS SIZE	TOTAL
30	6	0.75	5.0	10	10.600	30.0°	0.25	0.625	24	2.25	6	2.0	63	17.75	2.25	60.0°	11.25	36	12	13	#9	11
40	6	0.75	5.5	11	11.841	30.0°	0.25	0.625	27	2.50	6	2.0	63	21.00	2.25	60.0°	11.50	36	14	15	#9	11
50	6	0.75	6.5	13	14.327	30.0°	0.25	0.625	32	2.75	6	2.0	63	25.00	2.25	60.0°	11.75	42	16	17	#9	14
65	6	0.75	8.0	16	18.063	30.0°	0.25	0.625	39	3.00	6	2.5	63	30.25	2.75	60.0°	12.50	48	20	21	#9	18
75	6	0.75	8.5	17	19.309	30.0°	0.25	0.625	42	3.25	6	2.5	63	33.00	2.75	60.0°	12.75	54	20	21	#9	23

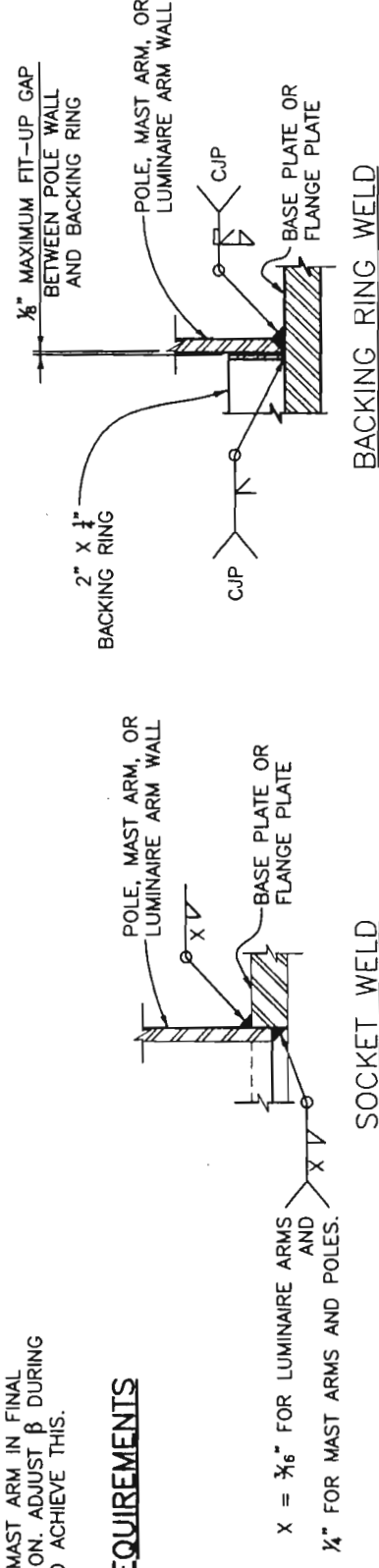


CONSTRUCTION REQUIREMENTS

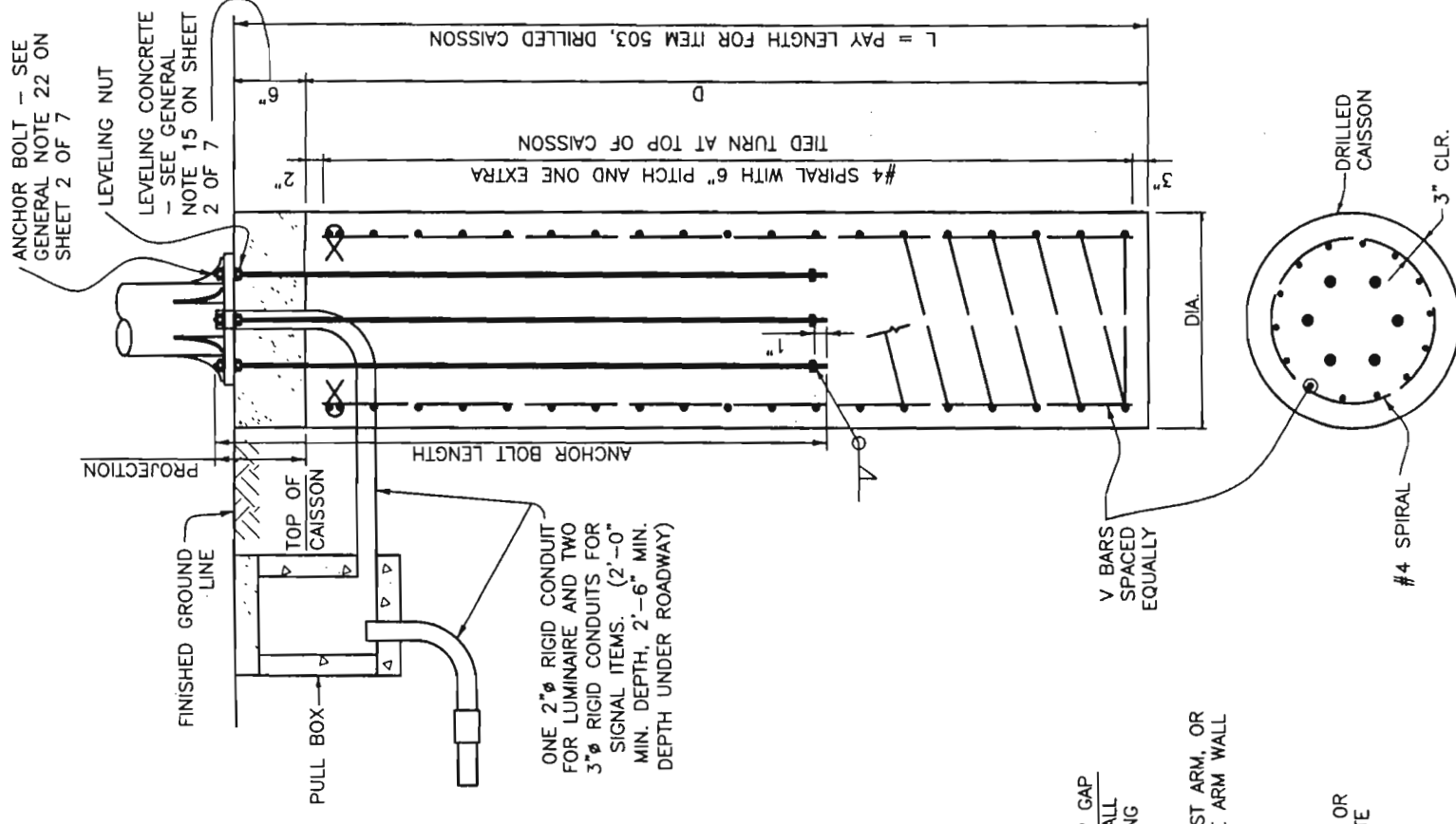
TIP OF LOADED MAST ARM MUST BE ABOVE BASE OF MAST ARM IN FINAL DEFLECTED POSITION. ADJUST β DURING CONSTRUCTION TO ACHIEVE THIS.



BASE PLATE DETAIL



DETAIL



TRAFFIC SIGNAL
POLE CAISSON

 Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219		Computer File Information Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards Drawing File Name: S614400607.dwg (Staff Bridge, RLO)	Standard Plan Revised Date: 12/20/01 Comments: General Revision General Revision	TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS	STANDARD PLAN NO. S-614-40	S-614-40
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STANDARD LOOP

WIRING AND CONNECTION TABLE

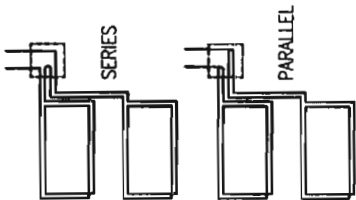
NO. OF LOOPS	WIDTH OF LOOP (FEET)															
	6	8	10	12	14	16	18	20	22	24-36	40+					
1	4	3	3	3	3	3	3	3	2	2	2					
2	3S	3S	3S	3P	2S	2S	2S	2S	2S	2S	2P					
3	3S	3S	2S	2S	3SP	3SP	3SP	3SP	2SP	2SP	2P					
4	3SP	3SP	3SP	3SP	3SP	3SP	3SP	2SP	2SP	2SP	2SP					

Turns per loop and type connection (S = series, P = parallel)

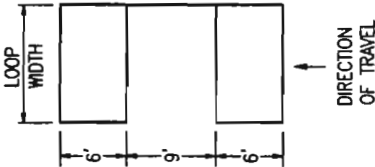
LOOP INSTALLATION PROCEDURE

- Cut slots in pavement to 3 in. minimum depth.
- Clean and dry slots with oil-free compressed air.
- One continuous length of 14/10c, RHW, USE, XLPE, RHWN or THWN wire shall be used for each loop from signal base or pull box around the loop with the number of turns specified and back to the signal base or pull box. Loop wire shall be duct type.
- Use a blunt, non-metallic instrument to push wire into slot. Do not coil leads.
- Connect detector and test loop.
- Seal slots as specified.

WIRE CONFIGURATION

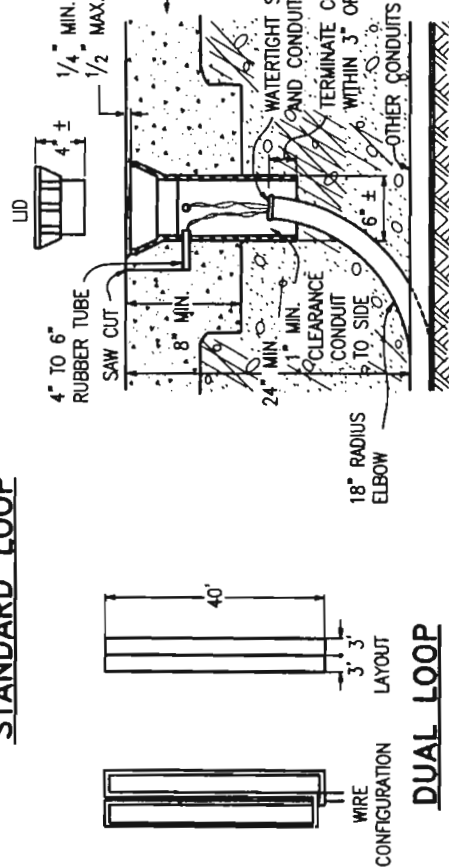


LAYOUT

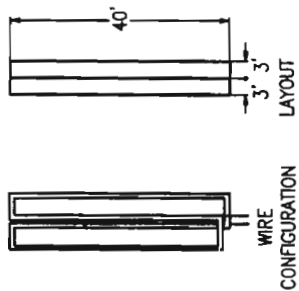


STANDARD LOOP

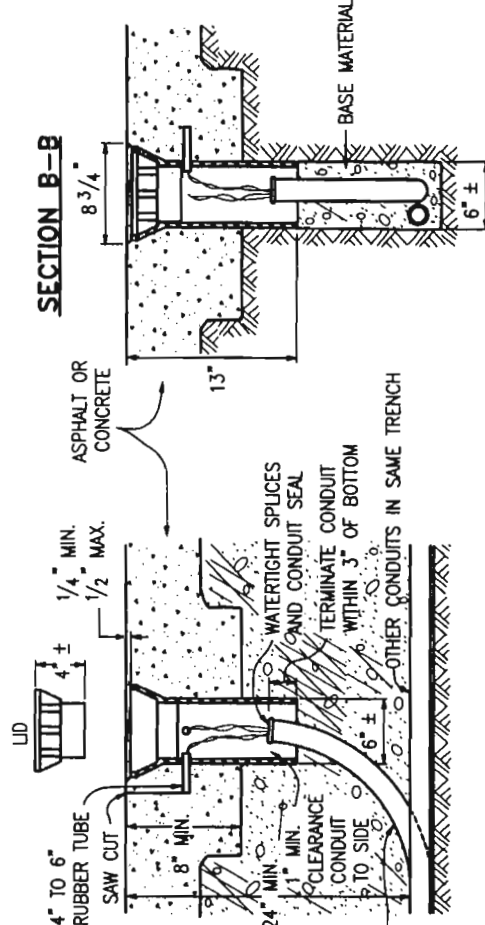
SECTION A-A



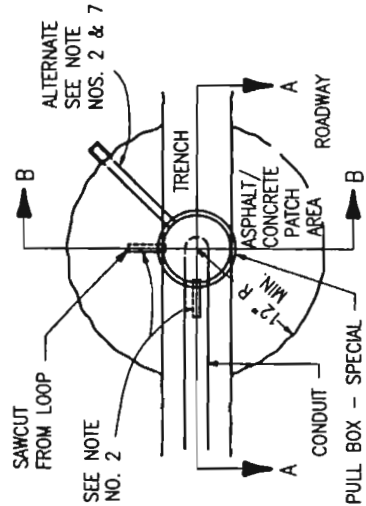
DUAL LOOP



SECTION B-B



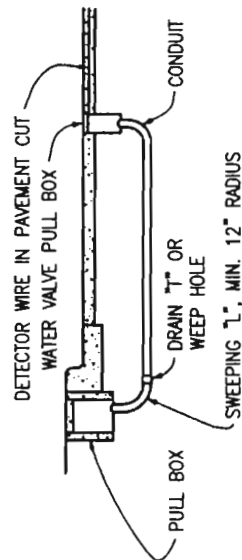
TOP VIEW



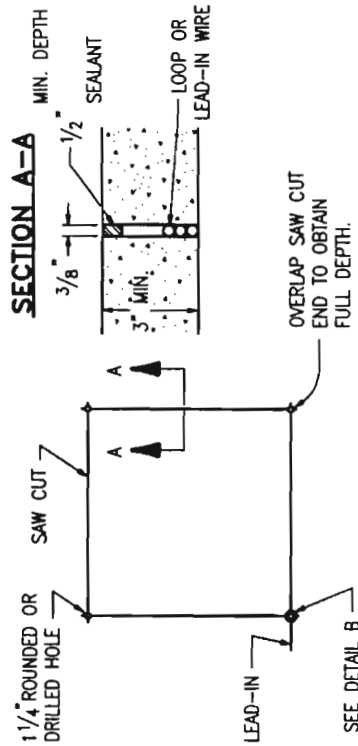
PULL BOX - SPECIAL NOTES:

- Pull box-special shall be a water valve stem type pull box made of cast iron or steel. The pull box itself shall have capability of accepting riser rings for future overlays. The lid shall have the word "TRAFFIC" printed on it.
- Pull boxes shall have 3/4 in. to 1 in. diameter holes drilled or torched 3 in. from top to accept a 4 in. to 6 in. long rubber tube (3/4 in. garden hose). The number of holes shall be as per plans or as directed by the engineer.
- Care shall be taken during backfill compaction to prevent collapse of the tubes.
- A minimum 2 feet of slack is to be provided on both feed and loop wires so that all testing and splicing can be done outside the pull box.
- Pull box lid is to be sealed water tight by caulking.
- Pull box is to be located in an area of the street not heavily traveled, if possible, and a minimum of 12 in. from the concrete gutter pan.
- If hot asphalt is not available, a concrete ring (12 in. minimum radius and 8 in. minimum depth) may be allowed by the engineer. If concrete is allowed, the rubber tube must be extended beyond the concrete to the asphalt joint.
- All work listed above for installation of pull boxes shall not be paid for separately, but shall be included in the price of conduit.

PULL BOX - SPECIAL FOR LOOP DETECTOR WIRE



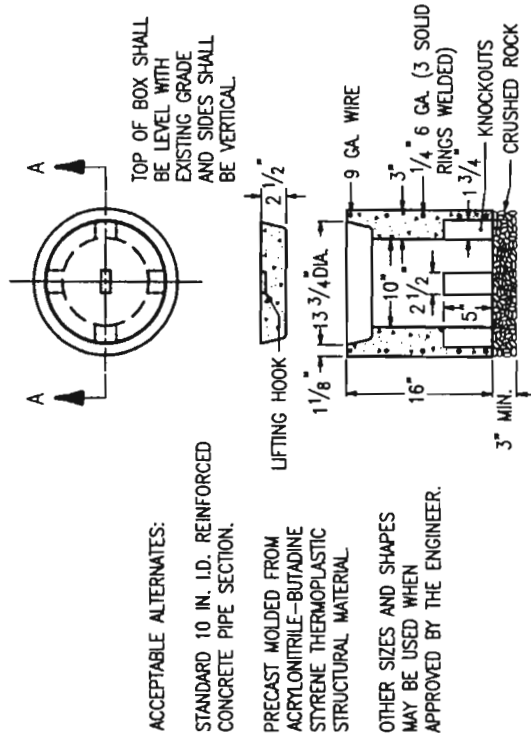
LOOP DETECTOR LEAD-IN



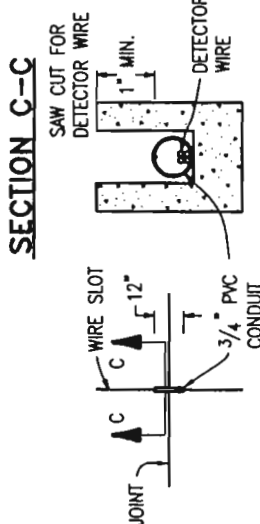
VEHICLE DETECTOR LOOP SAW CUT DETAILS

(FOR USE WITH VINYL TUBING ENCASED LOOP DETECTOR WIRE)

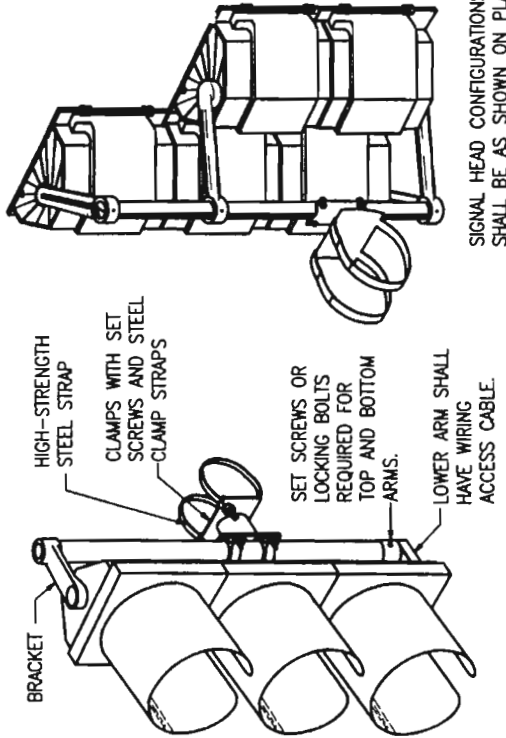
SECTION A-A



DETECTOR WIRE ACROSS BRIDGE JOINTS



ASTRO-TYPE MOUNTING BRACKET



Colorado Department of Transportation

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Safety & Traffic Engineering Branch KA

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards
Drawing File Name: S614400707.dwg (Staff Bridge, RLO)
Acad Version: R15.0 Scale: NA Units: English

Standard Plan Revised

Date: _____
Comments: _____

TYPICAL TRAFFIC SIGNAL INSTALLATION DETAILS

STANDARD PLAN NO.

S-614-40

GENERAL NOTES

1. BARS, PLATES, AND SHAPES SHALL BE STRUCTURAL STEEL CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION: A 36.
2. HIGH-STRENGTH STEEL BOLTS, NUTS AND WASHERS SHALL CONFORM TO THE SPECIFICATIONS OF ASTM DESIGNATION: A 325. ALL OTHER BOLTS AND NUTS SHALL CONFORM TO THE SPECIFICATIONS OF ASTM DESIGNATION: A 307. SUCH BOLTS SHALL BE FURNISHED WITH COMMERCIAL QUALITY WASHERS.
3. PIPE POSTS SHALL BE WELDED OR SEAMLESS STEEL PIPE CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION: A 53, GRADE B. AT THE OPTION OF THE CONTRACTOR, POSTS MAY BE FABRICATED FROM STRUCTURAL STEEL CONFORMING TO THE SPECIFICATIONS OF ASTM DESIGNATION: A36. ANCHOR BOLTS SHALL BE MADE FROM STEEL BAR CONFORMING TO ASTM A 314-90 WITH 55,000 PSI MIN. YIELD STRESS AND 75,000 PSI MIN. TENSILE STRENGTH.
4. SIGN STRUCTURES SHALL BE CONSTRUCTED TRUE TO DIMENSIONS, SHALL BE FREE FROM KINKS, TWISTS OR BENDS, AND SHALL BE UNIFORM IN APPEARANCE. THE COMPLETED SECTIONS SHALL BE ASSEMBLED IN THE SHOP AND SHALL BE CHECKED FOR STRAIGHTNESS, ALIGNMENT, AND DIMENSION. ANY VARIATIONS SHALL BE CORRECTED TO THE SATISFACTION OF THE ENGINEER.
5. MAST ARMS SHALL BE TEMPORARILY SUPPORTED TO TAKE ALL LOAD OFF OF THE FIELD SPLICES WHILE BOLTS ARE BEING TIGHTENED IN ORDER TO FIRMLY SEAT THE FLANGE PLATES.
6. POSTS FOR TUBULAR SIGN STRUCTURES SHALL BE FORMED TO THE RADII SHOWN ON THE PLANS BY HEAT TREATMENT OR BY FABRICATION TO SUCH RADII BY METHODS WHICH WILL NOT CRIMP OR BUCKLE THE INTERIOR RADIUS OF THE PIPE BEND.
7. CLIPS, EYES, OR REMOVABLE BRACKETS SHALL BE AFFIXED TO ALL POSTS AND MAST ARMS, AS NECESSARY, TO SECURE THE SIGN DURING SHIPPING AND FOR LIFTING AND MOVING DURING ERECTION. THIS IS TO PREVENT DAMAGE TO THE FINISHED GALVANIZED OR PAINTED SURFACES. BRACKETS ON TUBULAR SIGN STRUCTURES SHALL BE REMOVED AFTER ERECTION. DETAILS OF SUCH DEVICES SHALL BE SHOWN ON THE SHOP DRAWINGS.
8. HIGH-STRENGTH BOLTED CONNECTIONS, WHERE SHOWN ON THE PLANS, SHALL CONFORM TO THE PROVISIONS OF 509.28. CONNECTIONS USING HIGH-STRENGTH BOLTS. ASSEMBLY OF HIGH-STRENGTH BOLTED CONNECTIONS FOR SIGN STRUCTURES MAY BE PERFORMED WITH GALVANIZING OR PAINT ON THE CONTACT SURFACES.
9. BOLTS WITH DIAMETERS EXCEEDING BY UP TO 1/8 INCH THE DIAMETER OF THE BOLTS SHOWN ON THE PLANS MAY BE USED, PROVIDED THAT REQUIRED CLEARANCES AND EDGE DISTANCES ARE NOT REDUCED BELOW THAT REQUIRED FOR THE LARGER BOLT.
10. FOR STATIC SIGNS, WALKWAYS SHALL ONLY BE LOCATED IN FRONT OF AND BETWEEN SIGN PANELS. DO NOT LOCATE WALKWAYS UNDER ANY OTHER PORTIONS OF SIGN STRUCTURE WHICH DO NOT HAVE SIGN PANELS. FOR DYNAMIC SIGNS, WALKWAYS SHALL LEAD UP TO THE CABINET ACCESS DOOR AND IN FRONT OF THE CABINET AS SPECIFIED ON THE SIGN X-SECTION SHEETS IN THE ROADWAY PLANS.
11. ALL SIGN STRUCTURES SHALL BE FABRICATED INTO THE LARGEST PRACTICAL SECTIONS PRIOR TO GALVANIZING. SPLICE LOCATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL AND THE CONTRACTOR SHALL NOT COMMENCE FABRICATION UNTIL SUCH SPLICE LOCATIONS ARE APPROVED.

12. WELDING OF STEEL SHALL CONFORM TO THE REQUIREMENTS OF AWS D1.1. ALL AREAS TO BE WELDED SHALL BE GROUND TO BRIGHT METAL. NO BUTT WELD SPLICES WILL BE PERMITTED. ALL WELDING AND REQUIRED TESTING SHALL BE COMPLETE BEFORE ANY MATERIAL IS GALVANIZED. ALL CIRCUMFERENTIAL AND STIFFENER WELDS SHALL BE NON-DESTRUCTIVELY TESTED USING THE ENHANCED MAGNETIC PARTICLE METHOD IN ACCORDANCE WITH SUBSECTION 509.18(d). THE ACCEPTANCE CRITERIA ARE STATED IN TABLE 6.1 OF ANSI/AWS D1.1. ALL LONGITUDINAL WELDS WITHIN 6" OF FULL-PENETRATION CIRCUMFERENTIAL GROOVE WELDS SHALL BE FULL PENETRATION GROOVE WELDS AND SHALL BE INSPECTED AS SPECIFIED ABOVE. MAXIMUM WELD UNDERCUT SHALL BE 0.01".
13. ALL TUBE MEMBERS SHALL BE HOT-DIP GALVANIZED AS PER ASTM A123. WALKWAY GRATINGS, WALKWAY BRACKETS, CUTTERS, SAFETY RAILINGS, STEEL MOUNTINGS FOR LIGHT FIXTURES, AND ALL NUTS, BOLTS, AND WASHERS FOR SIGN STRUCTURES SHALL BE GALVANIZED AFTER FABRICATION AS PER ASTM A123 OR ASTM A153, AS APPROPRIATE, AND SHALL NOT BE PAINTED.
14. ALL CONCRETE SHALL BE CLASS BZ. REINFORCING STEEL: $F_y = 60,000$ PSI. CAISSON FOUNDATIONS SHALL BE COMPLETED AT LEAST 7 DAYS BEFORE SIGN STRUCTURES ARE ERECTED THEREON.
15. STRUCTURES SHALL BE GROUNDING IN ACCORDANCE WITH APPLICABLE ELECTRICAL CODES.
16. SHEETS IN THE INDEX MARKED WITH A ■ PROVIDE INSTRUCTIONS TO DESIGNERS FOR THEIR USE IN THE PREPARATION OF THE SIGN X-SECTION SHEETS IN THE ROADWAY PLANS.
17. NPS = NOMINAL PIPE SIZE; O.D. = OUTSIDE DIAMETER.
18. PRIOR TO FABRICATION, SIX SETS OF SHOP DRAWINGS, WHICH COMPLY WITH THE REQUIREMENTS OF SECTION 105.02 OF THE STANDARD SPECIFICATIONS, SHALL BE SUBMITTED TO CDOT STAFF BRIDGE, 4201 E. ARKANSAS AVE. DENVER, COLORADO 80222.
19. INSTALL STRUCTURE IDENTIFICATION PANEL IN ACCORDANCE WITH M AND S STANDARD M-614-12 USING TWO 1/2" WIDE STAINLESS STEEL BANDS AND STANDARD STEEL FLARED LEG BRACKETS WITH HEX HEAD BOLTS (BAND - IT D315 OR EQUIVALENT).
20. CAISSON AND SURVEY WORK SHALL BE PAID FOR IN ACCORDANCE WITH BID ITEMS 503 AND 625 RESPECTIVELY.

NOTES
SPECIFICATIONS:
DESIGN: "STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (1994 AASHTO), (STATIC SIGNS ONLY)
"STANDARD SPECIFICATIONS FOR STRUCTURAL SUPPORTS FOR HIGHWAY SIGNS, LUMINAIRES AND TRAFFIC SIGNALS", AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (2001 AASHTO), (DYNAMIC SIGNS ONLY)
"FATIGUE-RESISTANT DESIGN OF CANTILEVERED SIGNAL, SIGN AND LIGHT SUPPORTS", NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 412, 1998. (STATIC SIGNS ONLY)
SUBSECTION 17.4, SIGNS, IN THE STAFF BRIDGE BRANCH DESIGN MANUAL

CONSTRUCTION: CDOT STANDARD SPECIFICATIONS, THESE STANDARD SHEETS AND THE PROJECT PLANS.

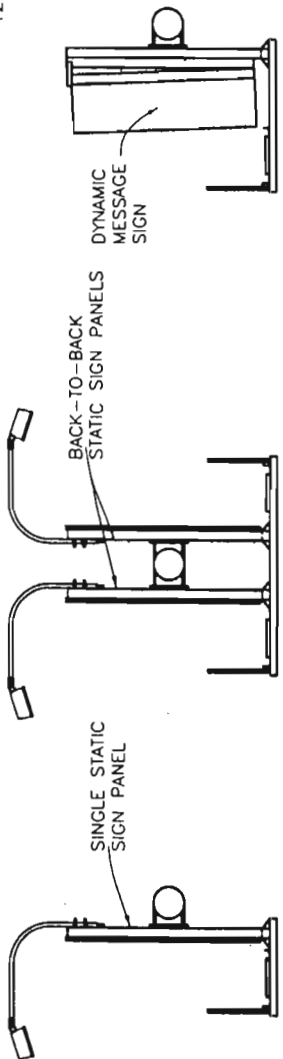
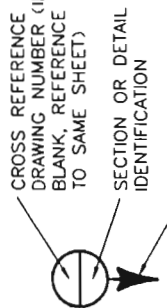
WIND LOADING: 80, 90 OR 100 MPH VELOCITY (STATIC SIGNS ONLY).
100 MPH VELOCITY (DYNAMIC SIGNS ONLY).

OVERHEAD SIGN X-SECTION SHEETS) SHALL SHOW

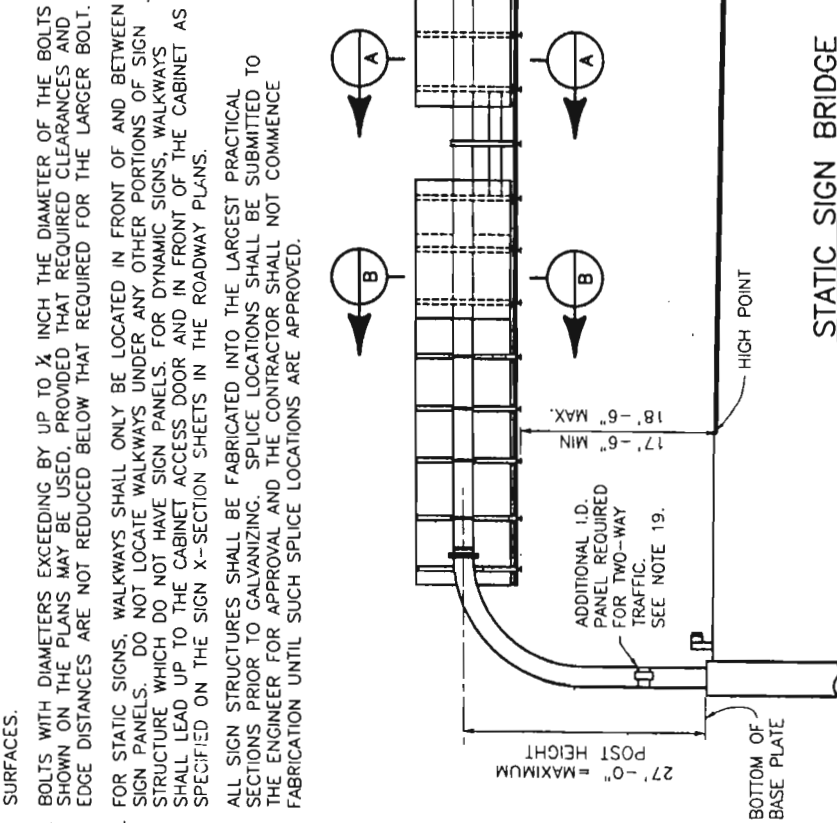
1. SIGN STRUCTURE LOCATION (HIGHWAY, STATION AND DIRECTION)
2. LENGTH OF STRUCTURE SPAN
3. PANEL SIZE AND LOCATION ON STRUCTURE
4. POST HEIGHT(S) FROM TOP OF CAISSON TO ̵ ARM TUBE
5. CAISSON DIAMETER AND MINIMUM EMBEDMENT
6. TOP OF CAISSON ELEVATION
7. CAISSON PAY LENGTH
8. NEED FOR WALKWAY AND LOCATION
9. NEED FOR LIGHTING AND PHOTOELECTRIC CELL LOCATION
10. LANE LINE LOCATION(S) IF STRUCTURE IS OVER TRAFFIC
11. AS CONSTRUCTED BLOCK
12. DESIGN WIND SPEED.

INDEX

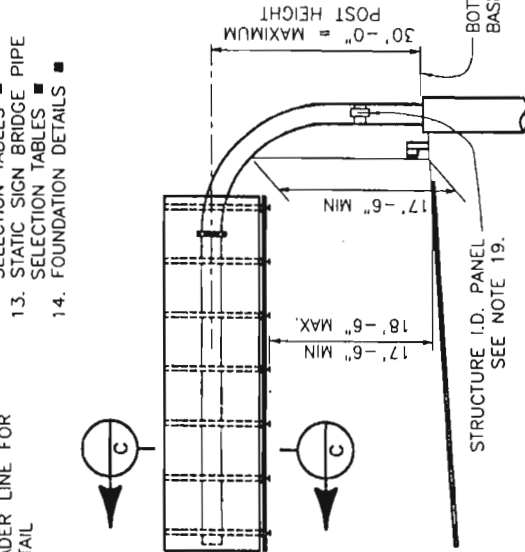
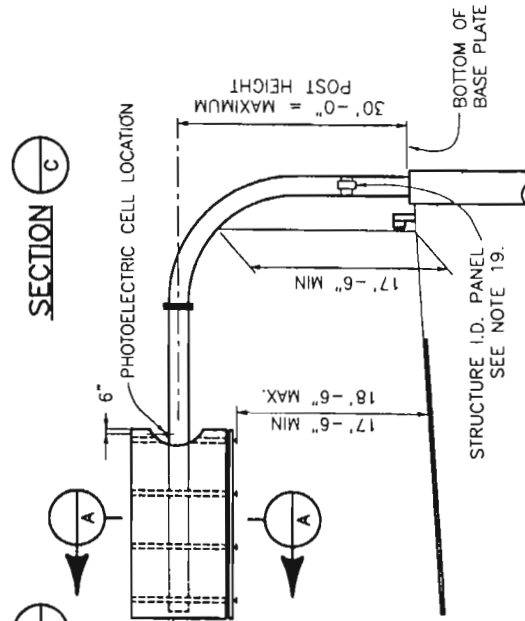
1. STATIC/DYNAMIC SIGN NOTES
2. STATIC/DYNAMIC CANTILEVERS
3. STATIC SIGN BRIDGE
4. STATIC SIGN MOUNTING BRACKETS
5. DYNAMIC SIGN MOUNTING BRACKETS
6. MISCELLANEOUS MONOTUBE DETAILS
7. BASE PLATE/ANCHOR BOLT DETAILS
8. STATIC SIGN WALKWAY DETAILS
9. DYNAMIC SIGN WALKWAY DETAILS
10. MISCELLANEOUS WALKWAY DETAILS
11. STATIC SIGN LIGHTING DETAILS
12. STATIC CANTILEVER SIGN PIPE SELECTION TABLES ■
13. STATIC SIGN BRIDGE PIPE SELECTION TABLES ■
14. FOUNDATION DETAILS ■



STATIC SIGN BRIDGE



STATIC CANTILEVER SIGN



DYNAMIC CANTILEVER SIGN
(VARIABLE MESSAGE SIGN)

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Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSstandards
Drawing File Name: S614500114.dwg (Staff Bridge, RLO)
Acad Version: 15.0 Scale: NA Units: English

Standard Plan Revised

Date: 11/07/00
Comments: Revised Note 14
General Revision
Miscellaneous Revision

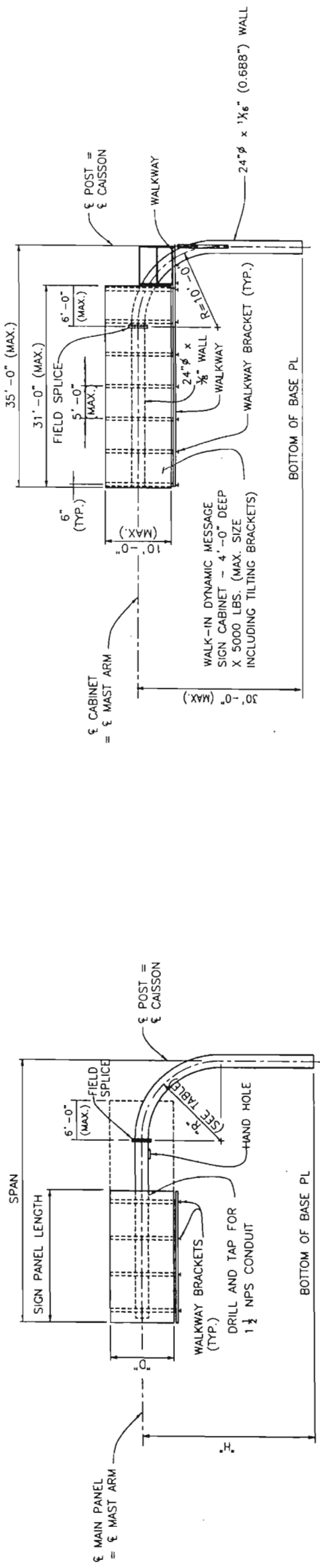
MONOTUBE
OVERHEAD SIGNS

Issued By: Project Development Branch October 2000

STANDARD PLAN NO.

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Sheet No. 1 of 14



STATIC CANTILEVER

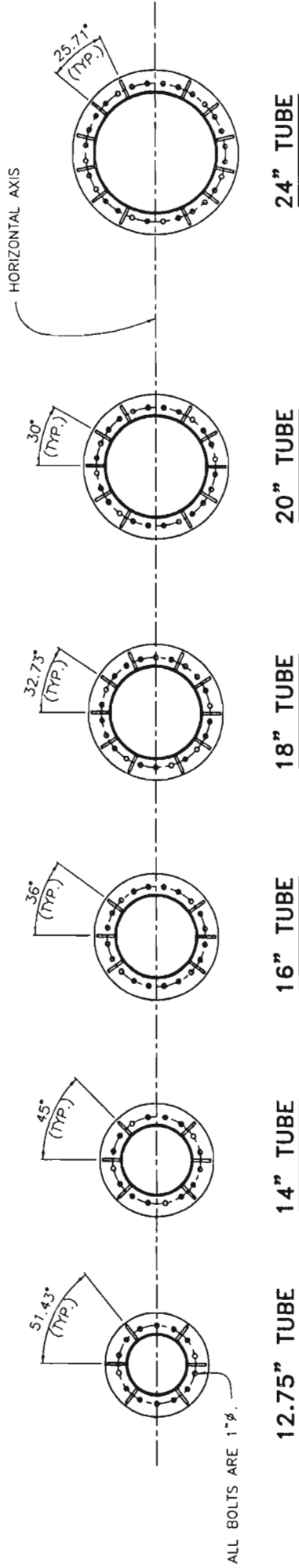
STATIC CANTILEVER NOTES

1. THE MAXIMUM SIGN PANEL OVERLAP ONTO ELBOW SHALL NOT EXCEED 6' - 0" FROM THE FIELD SPLICE.
2. WHEN SEVERAL SIGN PANELS ARE TO BE INSTALLED WITH A SPACE BETWEEN THE PANELS, THE SPACE SHALL BE AS SMALL AS POSSIBLE AND 2' - 0" MAXIMUM.
3. ALL POSTS BETWEEN BASE PLATE AND FIELD SPLICE SHALL HAVE A TUBE WALL THICKNESS OF $\frac{1}{2}$ ". ALL MAST ARMS SHALL HAVE A TUBE WALL THICKNESS OF $\frac{3}{8}$ ".
4. DURING SIGN ERECTION, THE POST SHALL BE ALIGNED BY USING THE LEVELING NUTS TO MAKE THE SIGN PANEL LEVEL.
5. FIELD SPLICE DETAILS ARE FOR BOTH CANTILEVER SIGNS AND SIGN BRIDGES. SEE SHEET 6 FOR ADDITIONAL FIELD SPLICE INFORMATION.

DYNAMIC CANTILEVER

DYNAMIC CANTILEVER NOTES

1. THE MAXIMUM CABINET OVERLAP ONTO ELBOW SHALL NOT EXCEED 6"-0" FROM THE FIELD SPICE.
2. ALL POSTS BETWEEN BASE PLATE AND FIELD "SPICE SHALL HAVE A TUBE WALL THICKNESS OF $\frac{1}{16}"$ (0.688"). ALL MAST ARMS SHALL HAVE A TUBE WALL THICKNESS OF $\frac{3}{8}"$.
3. DURING SIGN ERECTION, THE POST SHALL BE ALIGNED BY USING THE LEVELING NUTS TO MAKE THE SIGN PANEL LEVEL.
4. FIELD SPICE DETAILS ARE FOR BOTH CANTILEVER SIGNS AND SIGN BRIDGES. SEE SHEET 6 FOR ADDITIONAL FIELD "SPICE INFORMATION.



FIELD SPLICE DETAILS

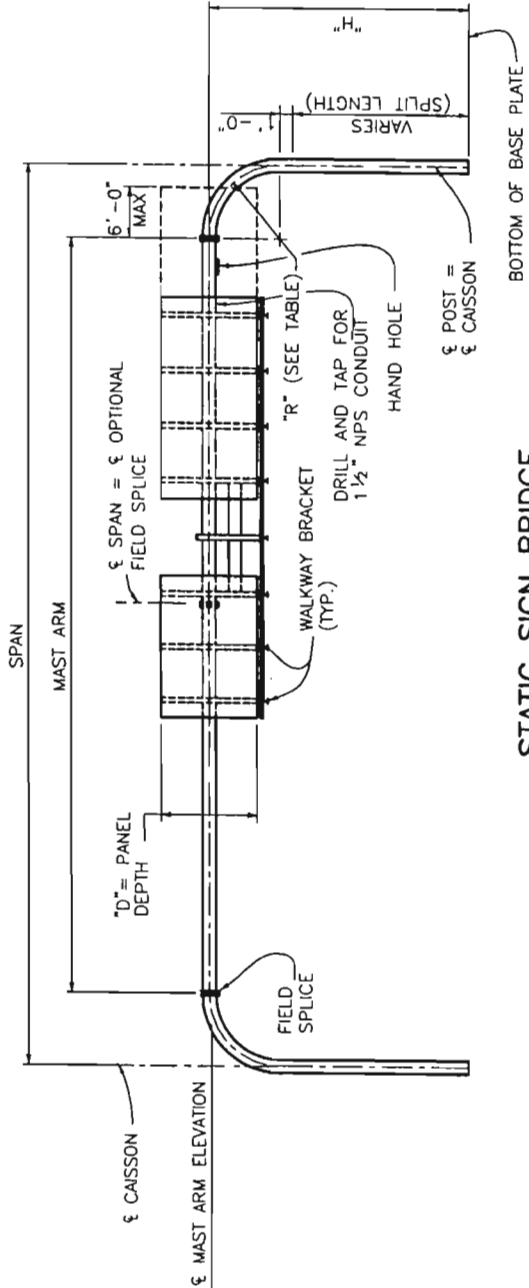
STIFFENERS SHALL BE LOCATED ON BOTH SIDES OF THE FIELD SPLICE.

PIPE POST	
PIPE OD (IN.)	"R" (FT.)
12.75	8
14	8
16	8
18	8
20	8
24	10

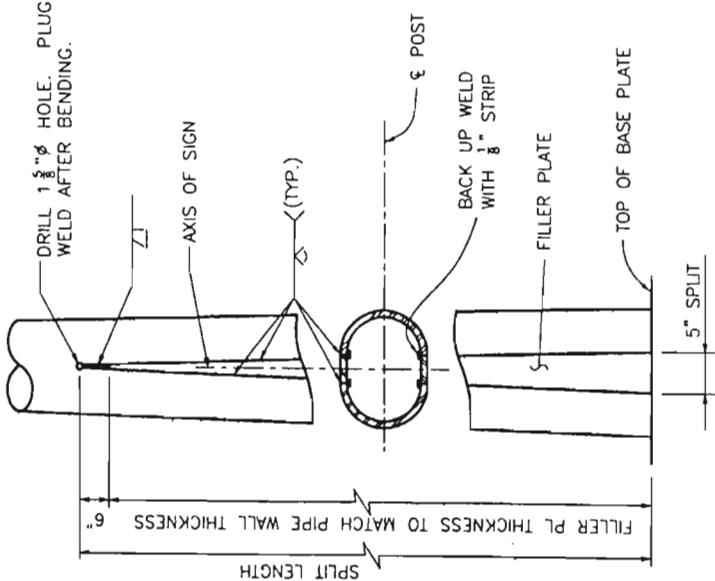
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219		Computer File Information Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards Drawing File Name: 5614500214.dwg (Slaff Bridge, RLO)		Standard Plan Revised Date: 7/13/01 Comments: General Revision		MONOTUBE OVERHEAD SIGNS		STANDARD PLAN NO. S-614-50	
Safety and Traffic Engineering Branch KA				Acad Version: 15.0 Scale: NA Units: English		Issued By: Traffic Engineering Unit		Sheet No. 2 of 14	
						October 2000			

NOTES

1. THE MAXIMUM SIGN PANEL OVERLAP ONTO ELBOW SHALL NOT EXCEED 6'-0" FROM THE FIELD SPLICE.
2. WHEN SEVERAL SIGN PANELS ARE TO BE INSTALLED WITH A SPACE BETWEEN THE PANELS, THE SPACE SHALL BE AS SMALL AS POSSIBLE AND 2'-0" MAXIMUM.
3. ALL POSTS BETWEEN BASE PLATE AND FIELD SPLICE SHALL HAVE A TUBE WALL THICKNESS OF 1/8". ALL MAST ARMS SHALL HAVE A TUBE WALL THICKNESS OF 1/8".
4. BEFORE ANY PORTION OF THE SIGN FRAMES ARE ASSEMBLED IN THEIR FINAL POSITIONS THE CONTRACTOR SHALL DEMONSTRATE TO THE ENGINEER BY PREASSEMBLY OR OTHER APPROVED METHODS THAT THE SPAN LENGTHS OF THE FRAMES IN THE NO LOAD CONDITION MATCH WITHIN 1/2" ± THE FIELD MEASURED SPAN LENGTHS BETWEEN FOUNDATIONS.
5. IF THE SIGN FRAMES ARE ERECTED AS ONE UNIT, THEY SHALL BE ADEQUATELY SUSPENDED TO AVOID DISTORTIONS OR CHANGES IN SPAN LENGTH BETWEEN BASE PLATES.
6. FOR MAST ARMS WITH LENGTHS BETWEEN 40'-0" AND 80'-0" A BOLTED FIELD SPLICE WILL BE PERMITTED AT 1/2 OF THE ARM TO FACILITATE GALVANIZING AND HAULING OPERATIONS. FOR MAST ARMS WITH LENGTHS GREATER THAN 80'-0", TWO BOLTED FIELD SPLICES WILL BE PERMITTED AT THE 1/3 POINTS TO FACILITATE GALVANIZING AND HAULING OPERATIONS.
7. SEE SHEET 2 FOR FIELD SPLICE DETAILS.



STATIC SIGN BRIDGE



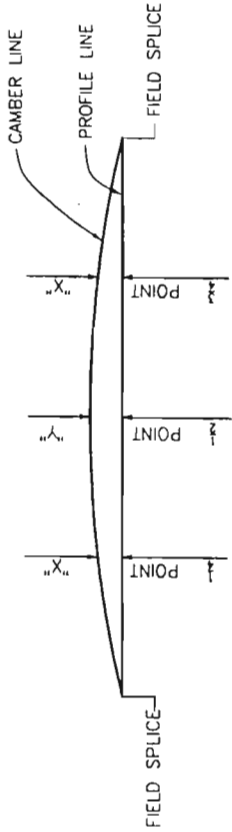
POST SPLIT DETAILS

* PIPE POST		
PIPE OD (IN.)	"R" (FT.)	CAMBER TYPE
12.75	8	(A)
14	8	(A)
16	8	(B)
18	8	(C)
20	10	(C)
24	12	(D)*

CAMBER

TYPE	"X"	"Y"
(A)	1 1/2"	2"
(B)	2 1/2"	3"
(C)	2 3/4"	4"
(D)	3 1/2"	5"
(E)	4 1/2"	6"

- USE CAMBER TYPE E FOR 130' - 140'.
- * MAST ARM DIAMETER SAME AS POST.
- INDICATES CAMBER TYPE, SEE TABLE.



CAMBER DIAGRAM

Colorado Department of Transportation



4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9436 FAX: (303) 757-9219

Safety and Traffic Engineering Branch KA

Computer File Information

Path: www.dol.state.co.us/DevelopProjects/DesignSupport/SSStandards
Drawing File Name: S614500314.DWG (Staff Bridge, RLO)
Acad Version: 15.0 Scale: NA Units: English

Standard Plan Revised

Date: 7/13/01
Comments: General Revision

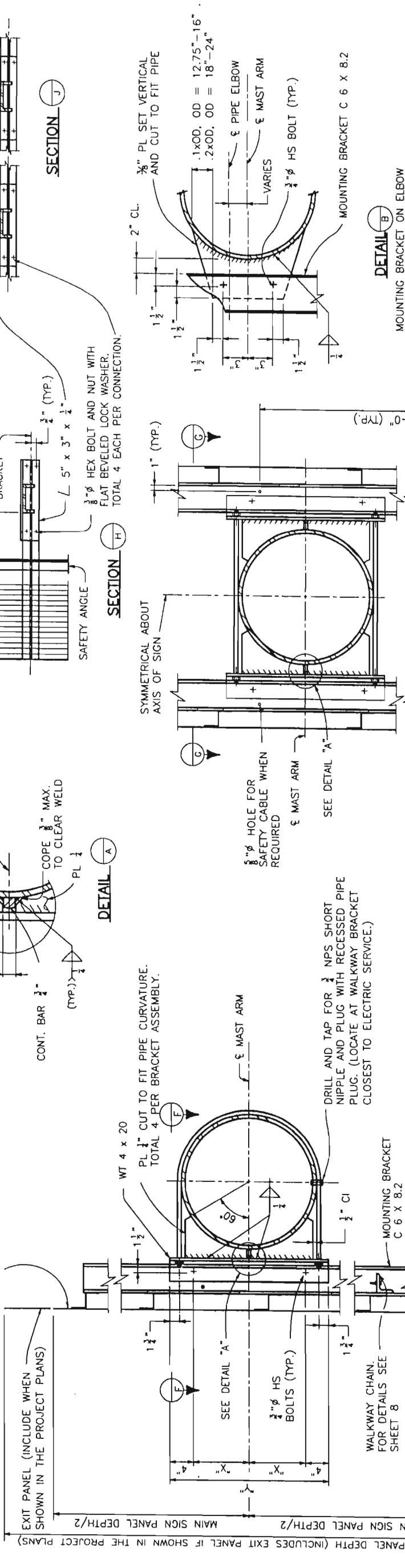
MONOTUBE
OVERHEAD SIGNS

Issued By: Traffic Engineering Unit October 2000

STANDARD PLAN NO.

S-614-50

Sheet No. 3 of 14

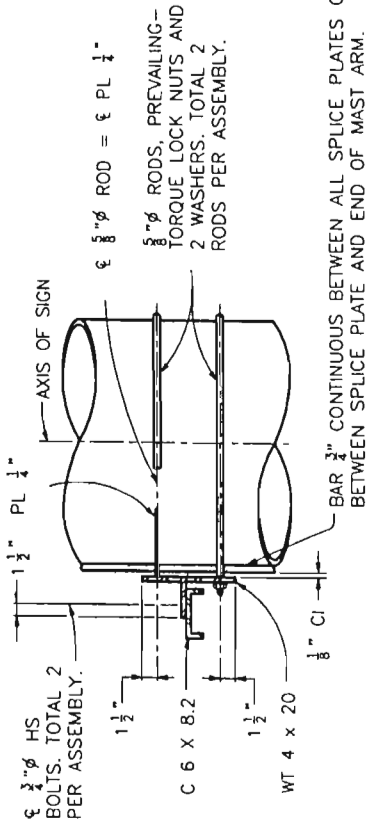
[illegible]

PIPE OUTSIDE DIAMETER (IN.)	DISTANCE	
	"X" (IN.)	"Y" (IN.)
12.75	4 $\frac{1}{2}$	16 $\frac{7}{8}$
14	5	18 $\frac{1}{8}$
16	6	20 $\frac{1}{8}$
18	7	22 $\frac{1}{8}$
20	8	24 $\frac{1}{8}$
24	10	28 $\frac{1}{8}$

NOTES

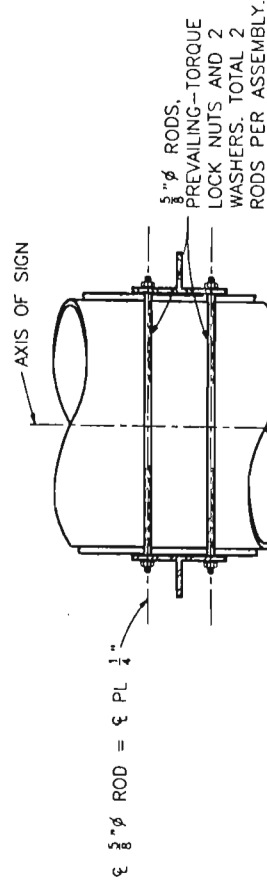
FOR DETAILS NOT SHOWN OR NOTED SEE "SINGLE SIGN PANEL".
 ASSEMBLY DETAILS SHOWN APPLY TO TANGENT PORTION OF PIPE
 ONLY. FOR MOUNTING BRACKET ON ELBOW SEE DETAIL "B".

MOUNTING BRACKET ASSEMBLY DETAILS



NOTE
FOR DETAILS NOT SHOWN OR
NOTED SEE VIEW "F".

BACK-TO-BACK SIGN PANELS



VIEW 

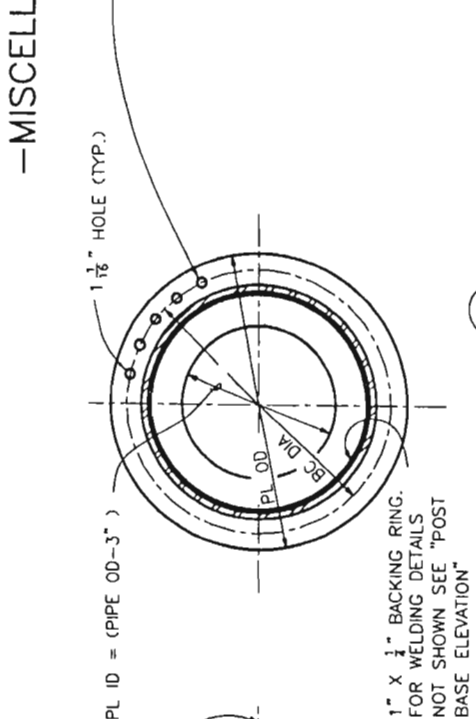
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219 Safety and Traffic Engineering Branch KA	Computer File Information		Standard Plan Revised		MONOTUBE OVERHEAD SIGNS Issued By: Traffic Engineering Unit October 2000	STANDARD PLAN NO. S-614-50 Sheet No. 4 of 14
	Path: www.dot.state.co.us/Develop/Projects/DesignSupport/SSStandards		Date:	Comments:		
	Drawing File Name: S614500414.DWG (Staff Bridge, RLO)		7/13/01	General Revision		
	Acad Version: 15.0 Scale: NA Units: English					



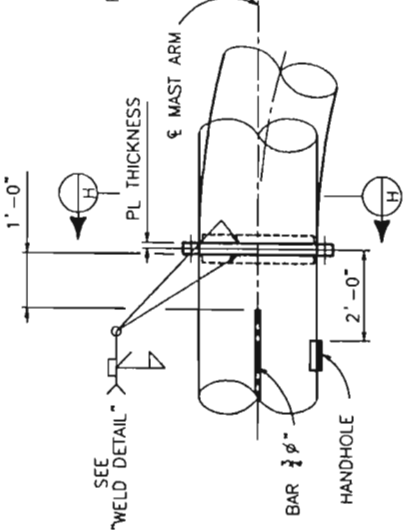
Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219 Safety and Traffic Engineering Branch KA		Computer File Information Polh: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards Drawing File Name: S6145005141.DWG (Slaff Bridge, RLO)		Standard Plan Revised Date: 7/13/01 Comments: New Sheet		MONOTUBE OVERHEAD SIGNS		STANDARD PLAN NO. S-614-50	
Issued By: Traffic Engineering Unit October 2000								Sheet No. 5 of 14	

MISCELLANEOUS MONOTUBE DETAILS

1" ASTM A-325 H.S. BOLTS (GALVANIZED) EQUALLY SPACED. THE LUBRICATED TIGHTENING TORQUE IS 395 FT.-LBS. FOR 1"Ø BOLTS. BOLTS SHALL BE SEQUENTIALLY TIGHTENED, ASSUMING 12 BOLTS AND A CLOCK FACE, THE TIGHTENING SEQUENCE WOULD BE 12, 6, 1, 7 ETC. THIS PROCESS SHALL BE CONTINUED UNTIL NO LOOSE BOLTS ARE FOUND AFTER ALL BOLTS HAVE BEEN INITIALLY TIGHTENED. SEE THE FIELD SPLICE TABLE FOR OTHER DETAILS

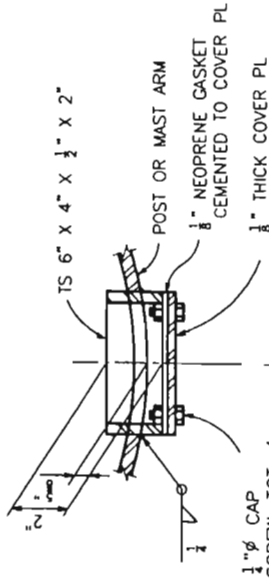
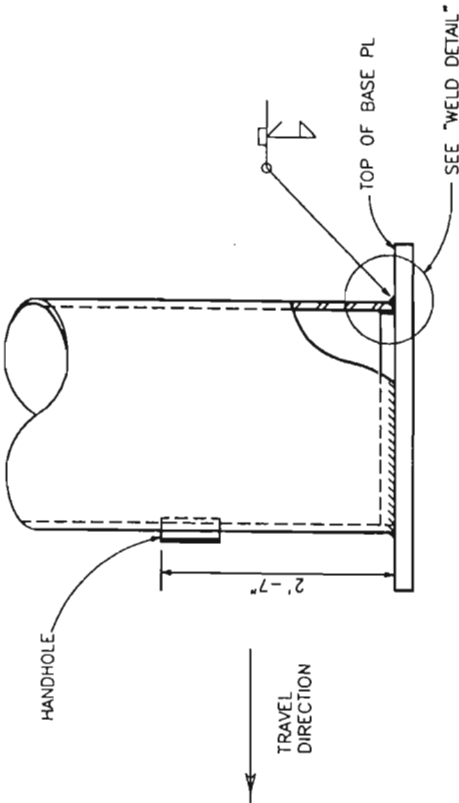


FIELD SPLICE



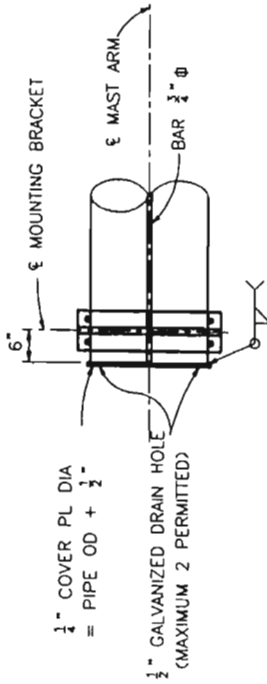
POST BASE ELEVATION

(FOR BASE PL DETAILS SEE "FOUNDATION DETAILS" SHEETS)

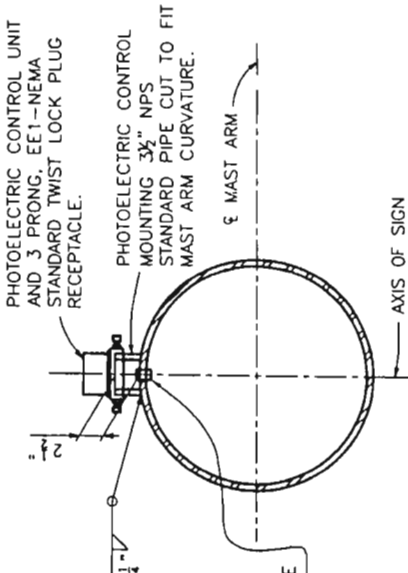
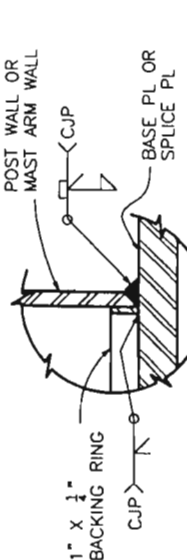


MAST ARM END DETAIL

(FOR "CANTILEVER TYPE" ONLY)

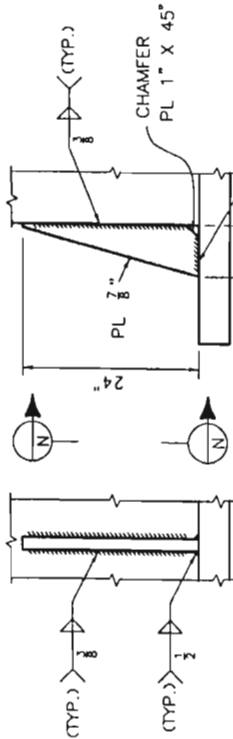


WELD DETAIL



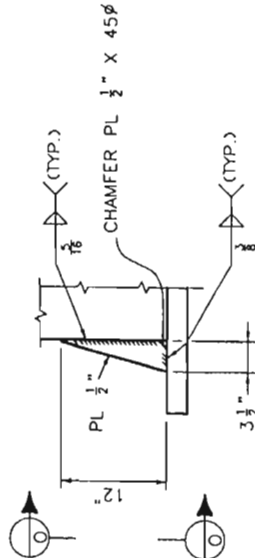
PHOTOELECTRIC CONTROL DETAILS

(SEE "LAYOUT" SHEET FOR LOCATION WHEN REQUIRED)



STIFFENER DETAILS

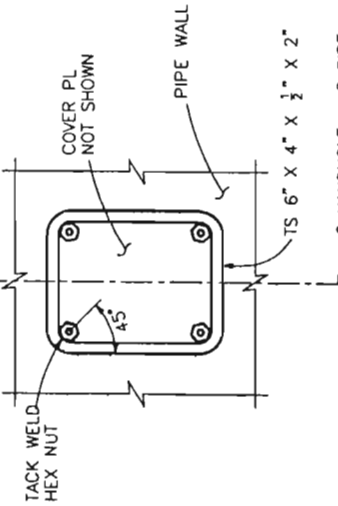
(© THE POLE BASE)



STIFFENER DETAILS

(© THE FIELD SPLICE)

HANDHOLE AND COVER DETAILS



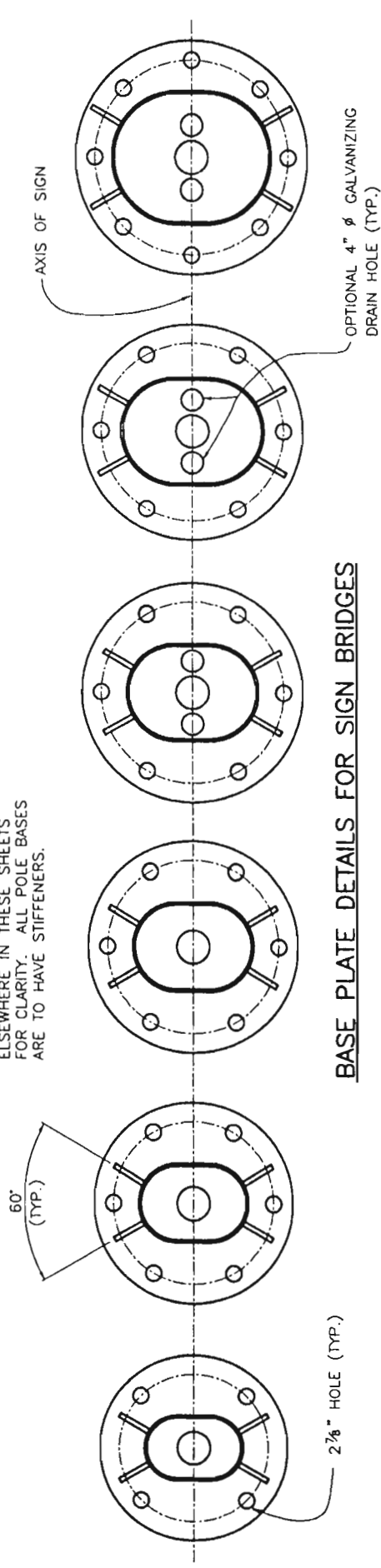
NOTE: TERMINATE WELD 1/2" SHORT OF THE TOP OF THE STIFFENER PLATE. AT THE OTHER 3 WELD TERMINATIONS ON THESE TWO TYPICAL WELDS STOP THE WELD 1/2" SHORT OF THE END OF THE PLATE.

NOTES

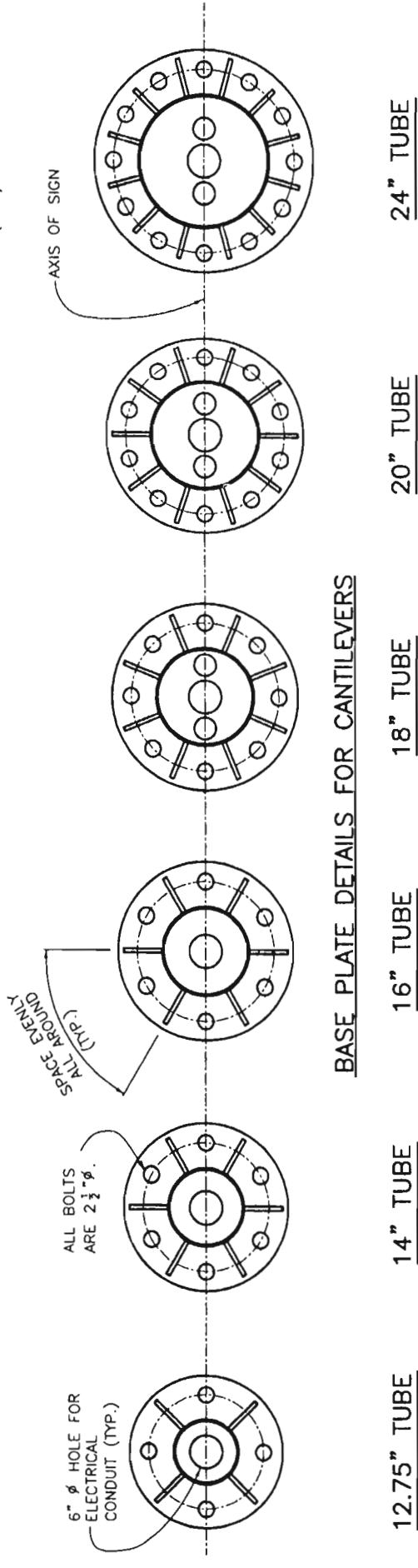
- 1. DESIGN BASED ON CAPACITY OF STANDARD PIPE.
- 2. NPS = NOMINAL PIPE SIZE. OD = OUTSIDE DIAMETER.

PIPE OUTSIDE DIAMETER (IN.)	FIELD SPLICE			
	PL THICKNESS (IN.)	BC DIAMETER (IN.)	PL OD (IN.)	# OF STIFF.
12.75	1 1/2	16	21	6
14	1 1/2	17	22	6
16	1 1/2	21	24	6
18	1 3/8	23	26	10
20	1 3/8	25	28	10
24	1 1/2	29	32	12
				28

NOTE: STIFFENERS ARE NOT SHOWN ELSEWHERE IN THESE SHEETS FOR CLARITY. ALL POLE BASES ARE TO HAVE STIFFENERS.



BASE PLATE DETAILS FOR SIGN BRIDGES



BASE PLATE DETAILS FOR CANTILEVERS

ANCHOR BOLT DETAIL

CANTILEVERS

PIPE OD (IN.)	SPLIT (IN.)	BASE PL SIZE (DIAM. X THICK.) (IN.)	BOLT CIRCLE (IN.)	# OF ANCHOR BOLTS	# OF STIFF.
12.75	-	28" x 2.5"	21"	4	4
14	-	30" x 2.5"	23"	6	6
16	-	32" x 2.5"	25"	6	6
18	-	34" x 2.75"	27"	8	8
20	-	36" x 3.0"	29"	10	10
24	-	40" x 3.0"	33"	12	12

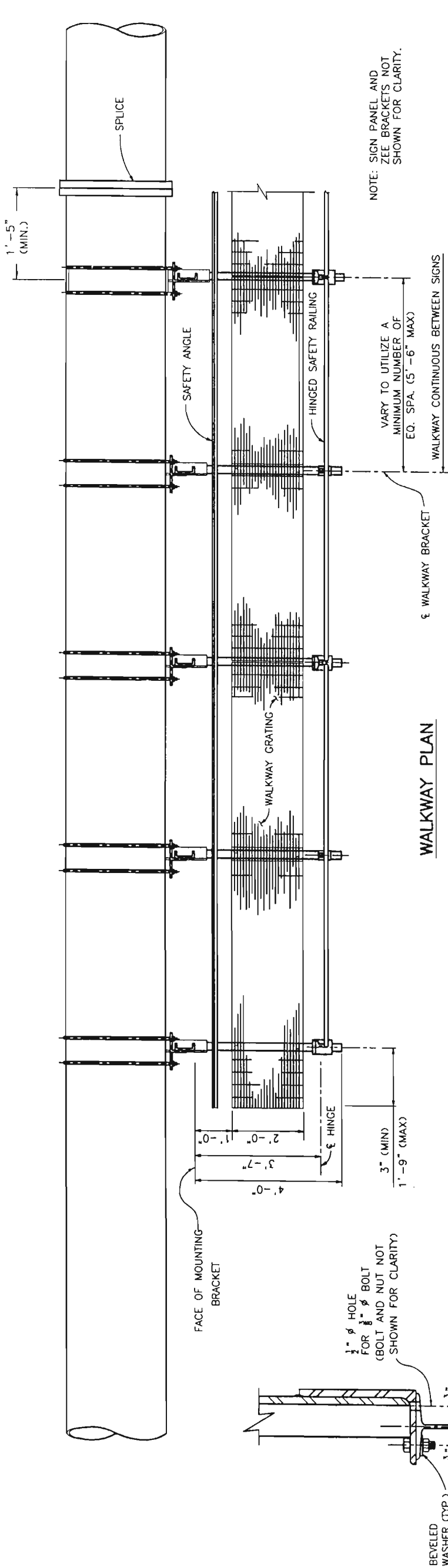
SIGN BRIDGES

PIPE OD (IN.)	SPLIT (IN.)	BASE PL SIZE (DIAM. X THICK.) (IN.)	BOLT CIRCLE (IN.)	# OF ANCHOR BOLTS	# OF STIFF.
12.75	5	34" x 2.5"	27"	4	4
14	5	36" x 2.5"	29"	6	4
16	5	38" x 2.5"	31"	6	4
18	5	40" x 2.75"	33"	6	4
20	5	40" x 3.0"	33"	6	4
24	5	42" x 3.0"	35"	8	4

NOTES

1. THREAD UPPER 9" AND GALVANIZE UPPER 1'-0" OF THE ANCHOR BOLTS.
2. ANCHOR BOLTS SHALL BE SET WITH A STEEL TEMPLATE UNTIL THE CONCRETE HAS CURED AT LEAST TWO DAYS.
3. THERE SHALL BE NO GROUT PAD INSTALLED ON TOP OF THE EXISTING FOUNDATIONS.
4. THE ANCHOR BOLTS SHALL BE TIGHTENED USING THE TURN-OF-NUT METHOD. THE BOLTS SHALL FIRST BE TIGHTENED TO SNUG TIGHT, WHICH IS DEFINED AS THE TIGHTNESS THAT EXISTS WHEN THE UPPER AND LOWER NUTS ARE IN FIRM CONTACT WITH THE BASE PLATE. WITH THE MAST ARM FREE TO DEFLECT, THE UPPER AND LOWER NUTS SHALL EACH THEN BE ROTATED AN ADDITIONAL $\frac{1}{2}$ TURN ($30^\circ \pm 5^\circ$) USING A SLUGGING WRENCH.

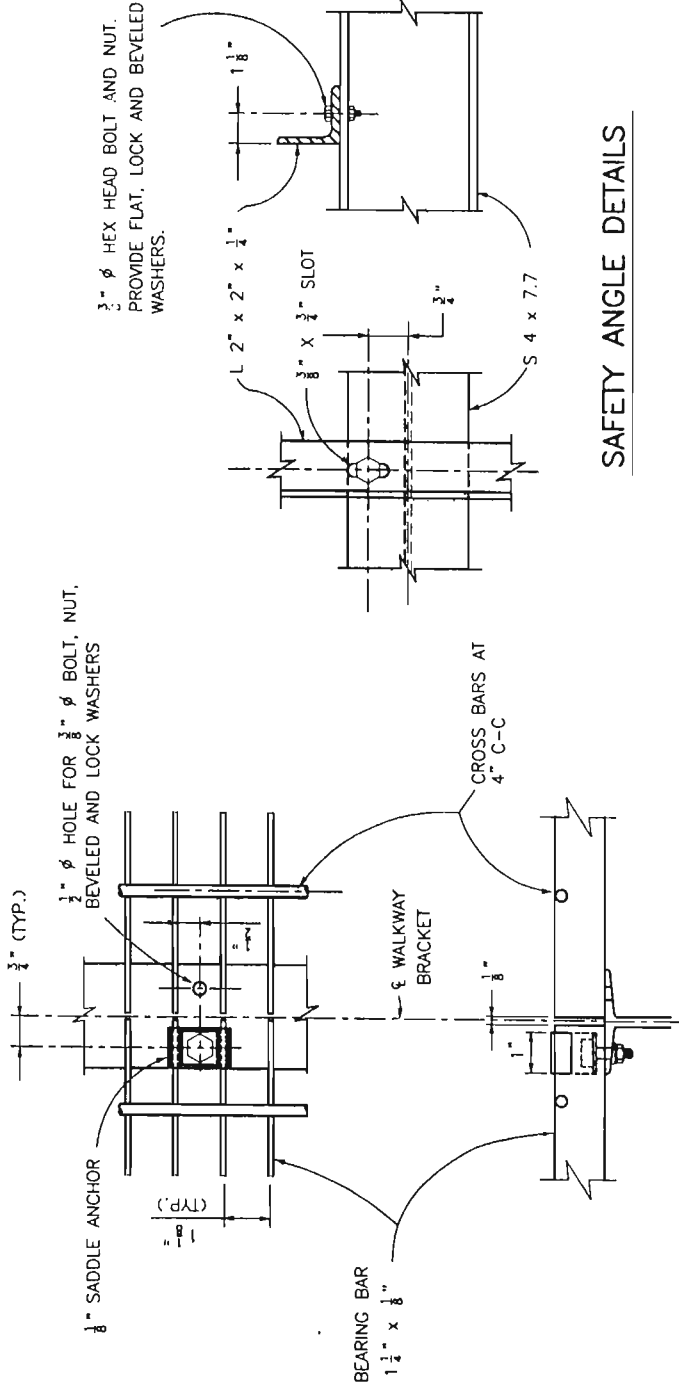
-STATIC SIGN WALKWAY DETAILS-



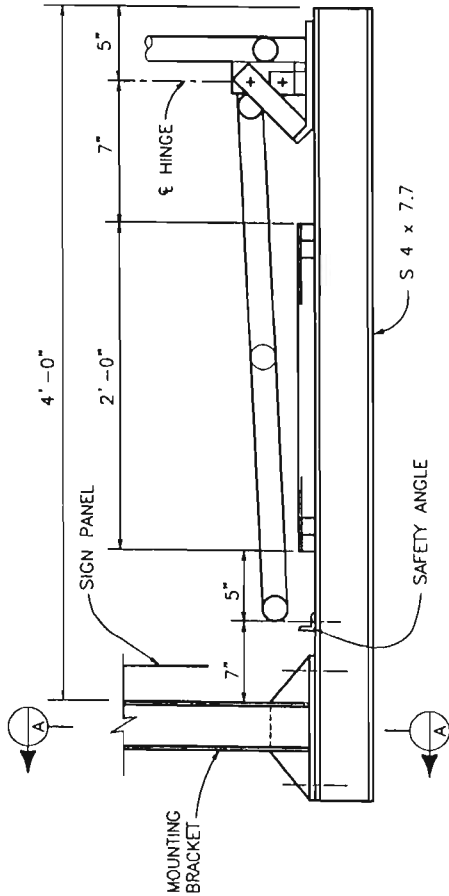
NOTES

- 1) WELDED TYPE GRATING SHALL HAVE 1 1/4" X 1/8" BEARING BARS AT 1 1/8" CENTERS WITH 1/4" DIAMETER (OR EQUAL) CROSS BARS AT 4" CENTERS. IF MECHANICAL LOCK GRATING IS USED, IT SHALL BE EQUAL IN STRENGTH TO THE WELDED TYPE. ALTERNATE HOLD-DOWN CLIPS MAY BE SUBMITTED FOR APPROVAL.
- 2) WALKWAY GRATING TO BE CONTINUOUS (NO SPLICES) OVER AS MANY WALKWAY BRACKETS AS PRACTICAL CONSISTENT WITH FABRICATION, EASE OF HANDLING AND ASSEMBLY.

SECTION A

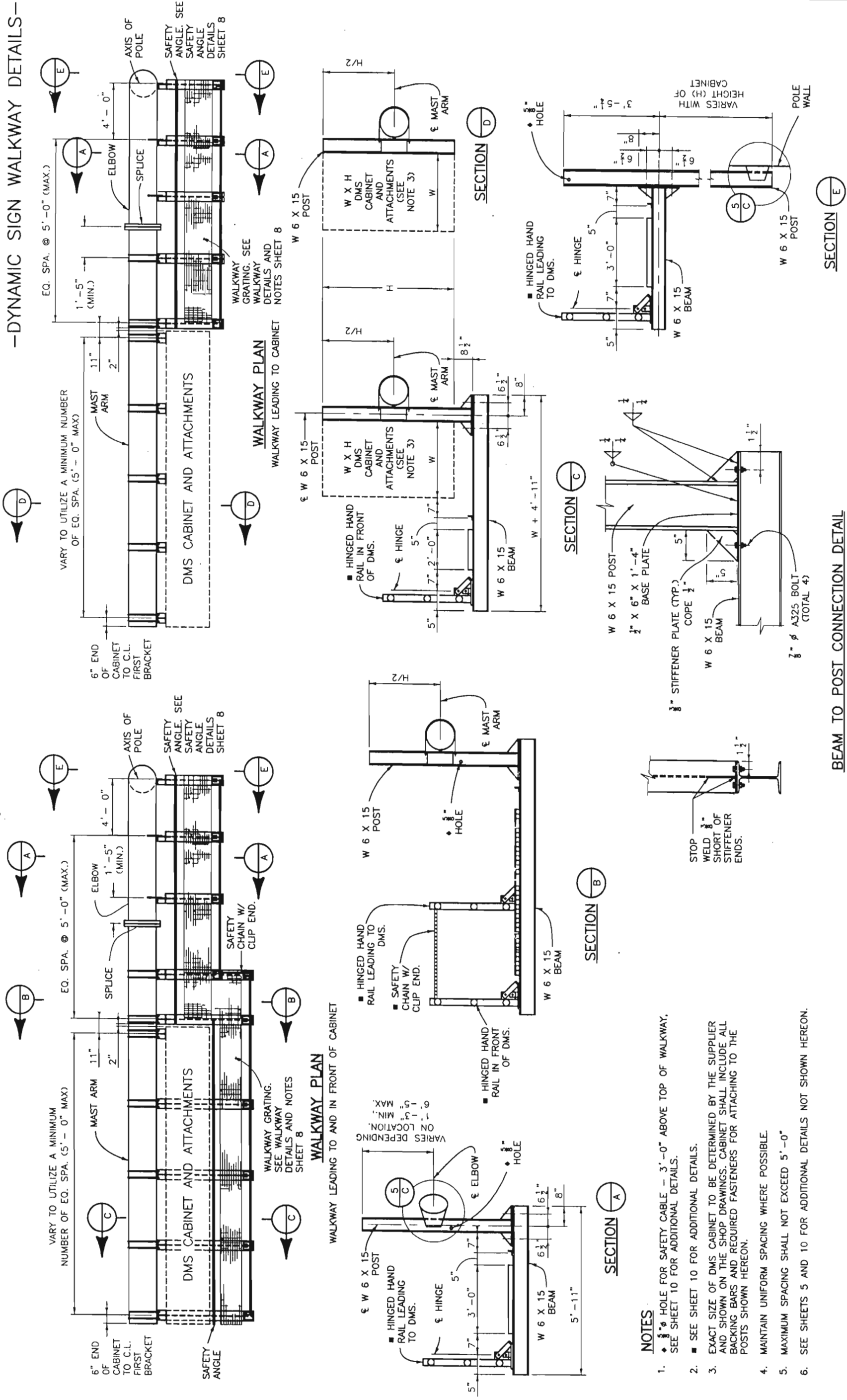


TYPICAL WALKWAY SECTION



Colorado Department of Transportation		Computer File Information		Standard Plan Revised		MONOTUBE OVERHEAD SIGNS		STANDARD PLAN NO.	
 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219 Safety and Traffic Engineering Branch KA	K4.	Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards		Date:	Comments:	S-614-50		Sheet No. 8 of 14	
		Drawing File Name: S614500814.DWG (Staff Bridge, RLO)		7/13/01	General Revision				
		Acad Version: 15.0 Scale: NA Units: English		05/17/02	Static Sign Lighting Revision				
						Issued By: Traffic Engineering Unit		October 2000	

-DYNAMIC SIGN WALKWAY DETAILS-



- NOTES**
1. ♦  HOLE FOR SAFETY CABLE — 3'-0" ABOVE TOP OF WALKWAY. SEE SHEET 10 FOR ADDITIONAL DETAILS.
 2. ■ SEE SHEET 10 FOR ADDITIONAL DETAILS.
 3. EXACT SIZE OF DMS CABINET TO BE DETERMINED BY THE SUPPLIER AND SHOWN ON THE SHOP DRAWINGS. CABINET SHALL INCLUDE ALL BACKING BARS AND REQUIRED FASTENERS FOR ATTACHING TO THE POSTS SHOWN HEREON.
 4. MAINTAIN UNIFORM SPACING WHERE POSSIBLE.
 5. MAXIMUM SPACING SHALL NOT EXCEED 5'-0"
 6. SEE SHEETS 5 AND 10 FOR ADDITIONAL DETAILS NOT SHOWN HEREON.

BEAM TO POST CONNECTION DETAIL

 Colorado Department of Transportation 4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9219		K.A. Safety and Traffic Engineering Branch KA	
Computer File Information		Standard Plan Revised	
Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards		Date: 7/13/01	
Drawing File Name: S614500914.DWG (Staff Bridge, RLO)		Comments: New Sheet	
Acad Version: 15.0 Scale: NA Units: English		05/17/02 Miscellaneous Revision	
Issued By: Traffic Engineering Unit October 2000			
MONOTUBE OVERHEAD SIGNS		STANDARD PLAN NO. S-614-50	
Safety and Traffic Engineering Branch KA		Sheet No. 9 of 14	

-STATIC CANTILEVER SIGN PIPE SELECTION TABLES-

"D" (FT.)	10'		12'		14'	
	H≤25	25<H≤30	H≤25	25<H≤30	H≤25	25<H≤30
SPANS (FT.)	20'	14	16	16	16	18
	25	16	18	18	18	20
	30	18	20	20	24	24
	35	20	24	24	24	24
	40	24	24			
	45					

UP TO 50% COVERAGE CHART

"D" (FT.)	10'		12'		14'	
	H≤25	25<H≤30	H≤25	25<H≤30	H≤25	25<H≤30
SPANS (FT.)	20'	16	18			
	25	20	20	20	20	20
	30	24	24	24	24	24
	35	24				
	40					
	45					

51-80% COVERAGE CHART

"D" (FT.)	10'		12'		14'	
	H≤25	25<H≤30	H≤25	25<H≤30	H≤25	25<H≤30
SPANS (FT.)	20'	16	16			
	25	18	18	18	18	18
	30	20	24	24	24	24
	35	24	24			
	40					

UP TO 50% COVERAGE CHART

"D" (FT.)	10'		12'		14'	
	H≤25	25<H≤30	H≤25	25<H≤30	H≤25	25<H≤30
SPANS (FT.)	20'	18	20			
	25	20	24	24	24	24
	30	24	24			
	35					

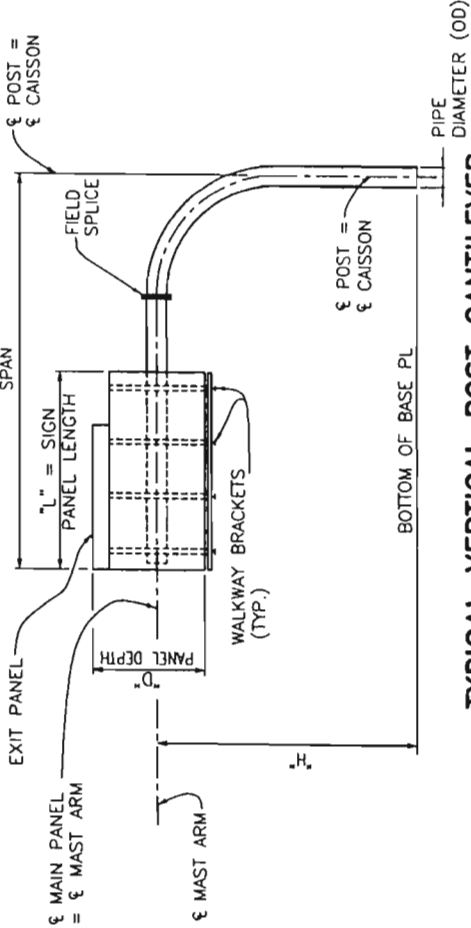
51-80% COVERAGE CHART

PROCEDURE TO DETERMINE THE DESIGN WIND SPEED

80 MPH IS THE STANDARD DESIGN WIND SPEED FOR THE STATE OF COLORADO. THE STANDARD DESIGN WIND SPEED OF 80 MPH IS TO BE USED AT ALL LOCATIONS EXCEPT THE FOLLOWING:

- USE THE 90 MPH WIND SPEED FOR LOCATIONS WITHIN 4 MILES OF EITHER SIDE OF THE BASE OF THE FOOTHILLS ALONG THE FRONT RANGE OF THE EASTERN SLOPE.
- USE THE 100 MPH WIND SPEED FOR LOCATIONS IN BOULDER COUNTY.

IF THERE ARE QUESTIONS CONCERNING THE PROPER DESIGN WIND SPEED CONTACT THE STAFF BRIDGE BRANCH.



TYPICAL VERTICAL POST CANTILEVER

PIPE SELECTION PROCEDURE FOR VERTICAL POST CANTILEVERS

- COVERGE PERCENTAGE = $\frac{\text{SIGN PANEL LENGTH}}{\text{SPAN}}$ FOR THE SPAN LENGTH USE THE SPAN FROM ONE OF THE CHARTS (25', 35', ETC.), NOT THE ACTUAL SPAN.
- PICK THE PIPE OUTSIDE DIAMETER (OD) FROM THE 0-50% OR THE 51-80% CHART. THE COVERGE PERCENTAGE CHOSEN SHOULD BE HIGH ENOUGH TO INCLUDE ANY SIGN PANELS WHICH MAY POTENTIALLY BE PLACED ON THIS SIGN IN THE FUTURE.
- TO DETERMINE "D" FOR THE SELECTION CHARTS ADD THE AREA OF THE EXIT PANEL, IF PRESENT, TO THE MAIN SIGN PANEL AREA. DIVIDE BY THE MAIN PANEL LENGTH TO OBTAIN "D".
- IF NO TUBE IS SHOWN FOR A CERTAIN SPAN THIS INDICATES THAT THIS SPAN/SIGN PANEL/HEIGHT COMBINATION EXCEEDS THE LIMITS OF THIS STANDARD.
- ON THE OVERHEAD SIGN X-SECTION SHEET INDICATE THE DIAMETER OF THE TUBE, THE HEIGHT "H" AND THE SPAN.
- OBTAIN THE DESIGN WIND SPEED FROM THE OVERHEAD SIGN X-SECTION SHEETS IN THE ROADWAY PLANS.

"D" (FT.)	10'		12'		14'	
	H≤25	25<H≤30	H≤25	25<H≤30	H≤25	25<H≤30
SPANS (FT.)	12.75	14	14	14	14	16
	14	16	16	16	16	18
	16	18	18	18	18	20
	18	20	20	20	24	24
	20	24	24	24	24	24
	24	24	24	24		

UP TO 50% COVERAGE CHART

"D" (FT.)	10'		12'		14'	
	H≤25	25<H≤30	H≤25	25<H≤30	H≤25	25<H≤30
SPANS (FT.)	16	16	16	18	18	20
	18	18	18	20	20	24
	20	20	20	24	24	24
	24	24	24	24	24	
	24	24				

51-80% COVERAGE CHART

80 MPH WIND

100 MPH WIND

90 MPH WIND

Colorado Department of Transportation



4201 East Arkansas Avenue
Denver, Colorado 80222
Phone: (303) 757-9436 FAX: (303) 757-9219

Safety and Traffic Engineering Branch KA

Computer File Information

Path: www.dot.state.co.us/DevelopProjects/DesignSupport/SSStandards
Drawing File Name: S6145012141.DWG (Staff Bridge, RLO)

Acad Version: 15.0 Scale: NA Units: English

Standard Plan Revised

Date: 7/13/01
Comments: General Revision

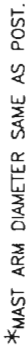
MONOTUBE
OVERHEAD SIGNS

Issued By: Traffic Engineering Unit October 2000

STANDARD PLAN NO.

S-614-50

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- A. DESIGN IS BASED ON A SIGN HEIGHT OF 15' WITH 50% OF THE SPAN LENGTH COVERED UP UNTIL THE CAPACITY OF THE LARGEST POLE SHOWN IS REACHED. BEYOND THIS POINT THE COVERAGE PERCENTAGE DECREASES.
- B. THE MAXIMUM PRIMARY PANEL HEIGHT IS 14'. ADD THE AREA OF ALL EXIT PANELS TO THE AREA OF ALL PRIMARY PANELS TO CHECK AGAINST MAXIMUM SIGN PANEL AREA.
- C. OBTAIN THE DESIGN WIND SPEED FROM THE OVERHEAD SIGN X-SECTION SHEETS IN THE ROADWAY PLANS.
- D. PICK PIPE OD AND SPLIT SIZE FROM THE APPROPRIATE CHART. INCLUDE THE AREA OF ALL SIGN PANELS SHOWN IN THE OVERHEAD SIGN X-SECTION SHEETS WHICH MAY POTENTIALLY BE PLACED ON THE SIGN IN THE FUTURE.

*MAST ARM DIAMETER SAME AS POST.

80 MPH IS THE STANDARD DESIGN WIND SPEED FOR THE STATE OF COLORADO. THE STANDARD DESIGN WIND SPEED OF 80 MPH IS TO BE USED AT ALL LOCATIONS EXCEPT THE FOLLOWING:

1. USE THE 90 MPH WIND SPEED FOR LOCATIONS WITHIN 4 MILES OF EITHER SIDE OF THE BASE OF THE FOOTHILLS ALONG THE FRONT RANGE OF THE EASTERN SLOPE.
2. USE THE 100 MPH WIND SPEED FOR LOCATIONS IN BOULDER COUNTY.

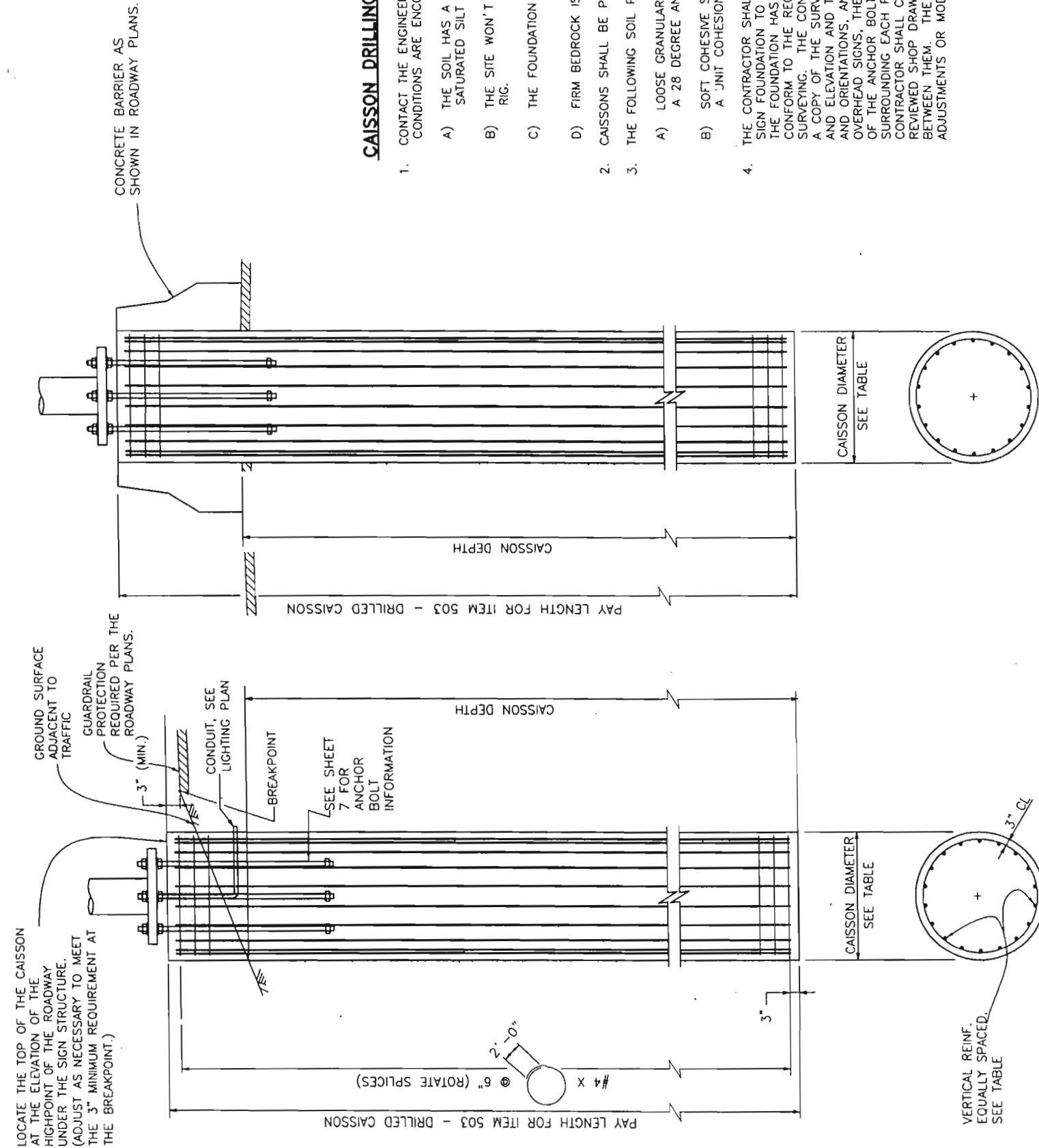
IF THERE ARE QUESTIONS CONCERNING THE PROPER DESIGN WIND SPEED CONTACT THE STAFF BRIDGE BRANCH.

*MAST ARM DIAMETER SAME AS POST.

90 MPH WIND

-149-

-FOUNDATION DETAILS-



BRIDGES

PIPE OUTSIDE DIAMETER (INCHES)	SPLIT (INCHES)	CAISSON DIAMETER (INCHES)	CAISSON DEPTH (FEET)	VERTICAL REINF
12.75	5	48	17	18 - #8
14	5	48	19	24 - #8
16	5	48	20	24 - #8
18	5	54	21	24 - #8
20	5	54	22	24 - #8
24	5	54	24	24 - #8

CANTILEVERS

PIPE OUTSIDE DIAMETER (INCHES)	SPLIT (INCHES)	CAISSON DIAMETER (INCHES)	CAISSON DEPTH (FEET)	VERTICAL REINF
12.75	-	36	13	13 - #8
14	-	42	15	18 - #8
16	-	42	16	18 - #8
18	-	42	17	18 - #8
20	-	48	18	24 - #8
24	-	48	20	24 - #8
24	-	48	29	24 - #8

■ DYNAMIC CANTILEVER SIGN ONLY

CAISSON DRILLING AND INSTALLATION NOTES

1. CONTACT THE ENGINEER IF ANY OF THE FOLLOWING SOIL CONDITIONS ARE ENCOUNTERED DURING DRILLING:

A) THE SOIL HAS A HIGH ORGANIC CONTENT OR CONSISTS OF SATURATED SILT AND CLAY.

B) THE SITE WON'T SUPPORT THE WEIGHT OF THE DRILLING RIG.

C) THE FOUNDATION SOILS ARE NOT HOMOGENOUS.

D) FIRM BEDROCK IS ENCOUNTERED.
2. CAISSONS SHALL BE PLACED AGAINST UNDISTURBED EARTH.
3. THE FOLLOWING SOIL PARAMETERS WERE USED FOR DESIGN:

A) LOOSE GRANULAR SOIL WITH A UNIT WEIGHT OF 100 PCF AND A 28 DEGREE ANGLE OF INTERNAL FRICTION (PHI ANGLE).

B) SOFT COHESIVE SOIL WITH A UNIT WEIGHT OF 100 PCF AND A UNIT COHESION OF 500 PSF.
4. THE CONTRACTOR SHALL PROVIDE A SURVEY OF EACH OVERHEAD SIGN FOUNDATION TO VERIFY PLACEMENT SOON AFTER WORK ON THE FOUNDATION HAS BEEN COMPLETED. THE SURVEY SHALL CONFORM TO THE REQUIREMENTS OF SECTION 625, CONSTRUCTION SURVEYING. THE CONTRACTOR SHALL SUBMIT TO THE ENGINEER A COPY OF THE SURVEY NOTES DETAILING THE FOUNDATION LOCATION AND ELEVATION AND THE ANCHOR BOLT LOCATIONS, PROJECTIONS, AND ORIENTATIONS, AND IN THE CASE OF SIGN-BRIDGE TYPE OF OVERHEAD SIGNS, THE DISTANCE MEASURED BETWEEN THE CENTERLINE OF THE ANCHOR BOLT GROUPS. THE ELEVATION OF THE GROUND SURROUNDING EACH FOUNDATION SHALL ALSO BE PROVIDED. THE CONTRACTOR SHALL COMPARE THE SURVEY INFORMATION TO THE REVIEWED SHOP DRAWINGS AND RECONCILE ANY DIFFERENCES BETWEEN THEM. THE CONTRACTOR SHALL SUBMIT ALL PROPOSED ADJUSTMENTS OR MODIFICATIONS TO THE ENGINEER FOR APPROVAL.

CAISSON FOUNDATION DETAILS

MEDIAN RAIL INSTALLATION

(SEE ROADSIDE SHOULDER INSTALLATION FOR ADDITIONAL INFORMATION)

CAISSON FOUNDATION DETAILS

ROADSIDE SHOULDER INSTALLATION

Colorado Department of Transportation  4201 East Arkansas Avenue Denver, Colorado 80222 Phone: (303) 757-9436 FAX: (303) 757-9436 Safety and Traffic Engineering Branch KA	Computer File Information	Standard Plan Revised	MONOTUBE OVERHEAD SIGNS	STANDARD PLAN NO.	
	Path: www.dol.state.co.us/DevelopProjects/DesignSupport/SSStandards	Date: 7/13/01			Comments: General Revision
	Drawing File Name: S6145014141.DWG (Staff Bridge, RLO)				
	Acad Version: 15.0	Scale: NA			Units: English
Issued By: Traffic Engineering Unit		October 2000	Sheet No. 14 of 14		