

PLAN SYMBOLS

- COUNTY LINE.....
- TOWNSHIP OR RANGE LINE.....
- SECTION LINE.....
- QUARTER LINE.....
- SIXTEENTH LINE.....
- RIGHT OF WAY LINE.....
- SLOPE EASEMENT.....
- PRESENT RIGHT OF WAY.....
- PROPERTY LINE.....
- CORPORATE OR CITY LIMITS.....
- RETAINING WALL.....
- RAILROAD.....
- RAILROAD RIGHT OF WAY.....
- RIVER OR CREEK.....
- DRAINAGE DITCH.....
- CULVERT.....
- EGG INLET.....
- CAURD RAIL.....
- BARBED WIRE FENCE.....
- WOVEN WIRE FENCE.....
- CHAIN LINK FENCE.....
- WOOD FENCE.....
- STONE WALL OR FENCE.....
- HEDGE.....

- LOWLAND.....
- TIMBER.....
- ORCHARD.....
- GRASS.....
- NURSERY.....

- CATTLE GAURD.....
- OVERPASS (Highway Over).....
- UNDERPASS (Highway Under).....
- BRIDGE.....

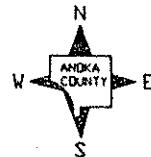
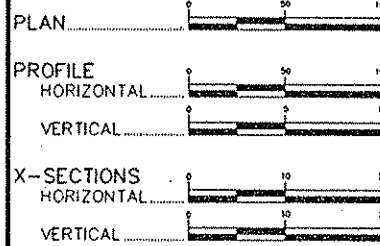
- BUILDING (One Story Frame).....
- F-FRAME C-CONCRETE.....
- S-STONE T-TILE.....
- B-BRICK ST-STUCCO.....

- RAILROAD CROSSING BELL.....
- RAILROAD CROSSING GATE.....
- MANHOLE.....
- CATCH BASIN.....
- FIRE HYDRANT.....
- CAST IRON MONUMENT.....
- IRON PIN.....
- GRAVEL PIT.....
- SAND PIT.....
- BORROW PIT.....
- ROCK QUARRY.....

UTILITY SYMBOLS

- POWER POLE LINE.....
- TELEPHONE OR TELEGRAPH POLE LINE.....
- JOINT TELEPHONE & POWER ON POWER POLES.....
- ON TELEPHONE POLES.....
- ANCHOR.....
- STEEL TOWER.....
- STREET LIGHT.....
- PEDESTAL (Cable Terminal).....
- GAS MAIN.....
- WATERMAIN.....
- TELEPHONE CABLE IN CONDUIT.....
- ELECTRIC CABLE IN CONDUIT.....
- TELEPHONE MANHOLE.....
- ELECTRIC MANHOLE.....
- BURIED TELEPHONE CABLE.....
- BURIED ELECTRIC CABLE.....
- AERIAL TELEPHONE CABLE.....
- SEWER (Sanitary or Storm).....
- SEWER MANHOLE.....

SCALES



# MINNESOTA DEPARTMENT OF TRANSPORTATION

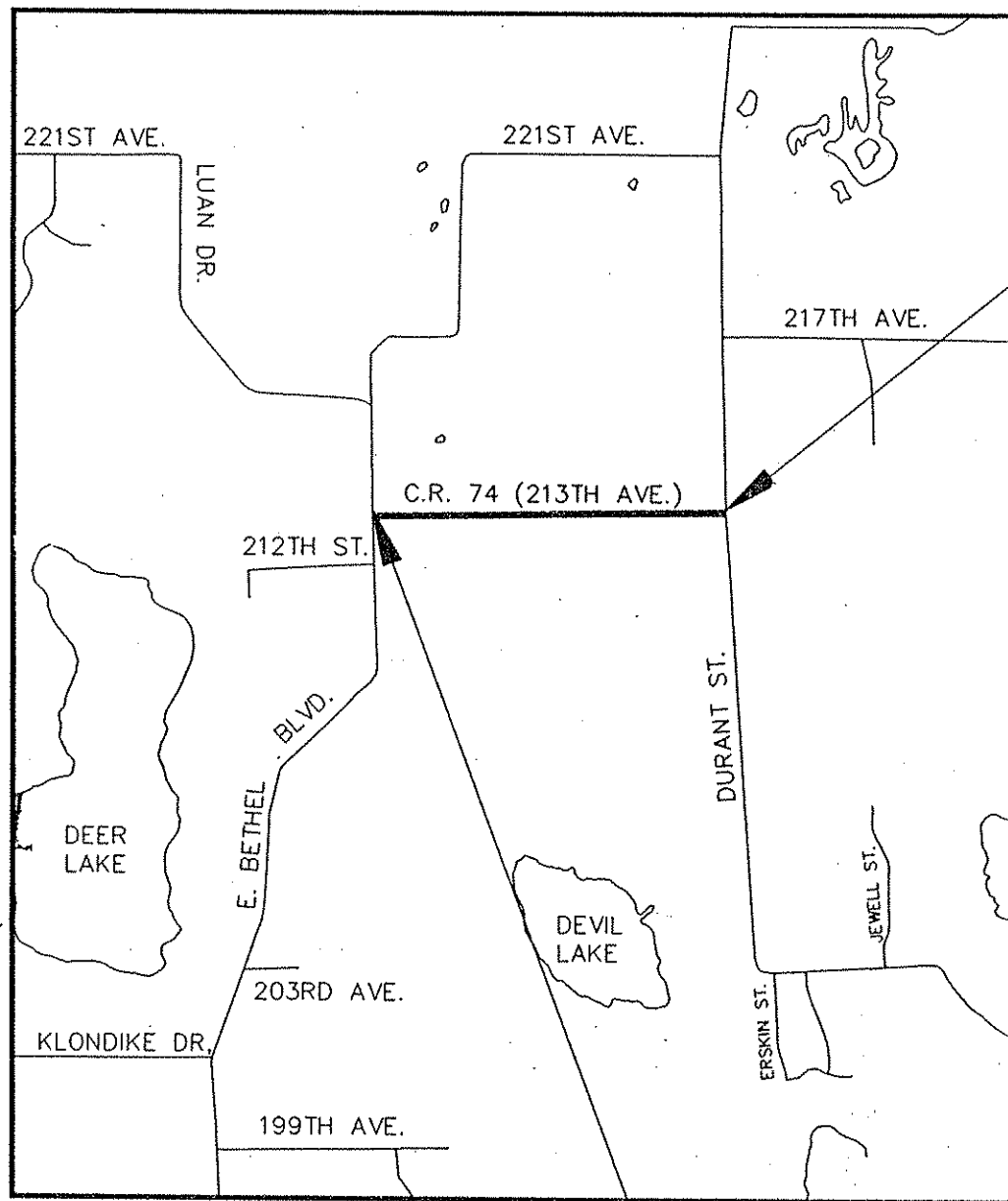
## ANOKA COUNTY

### CONSTRUCTION PLAN FOR BITUMINOUS OVERLAY

LOCATED ON CR 74 IN THE CITY OF EAST BETHEL BETWEEN EAST BETHEL BLVD. AND DURANT STREET

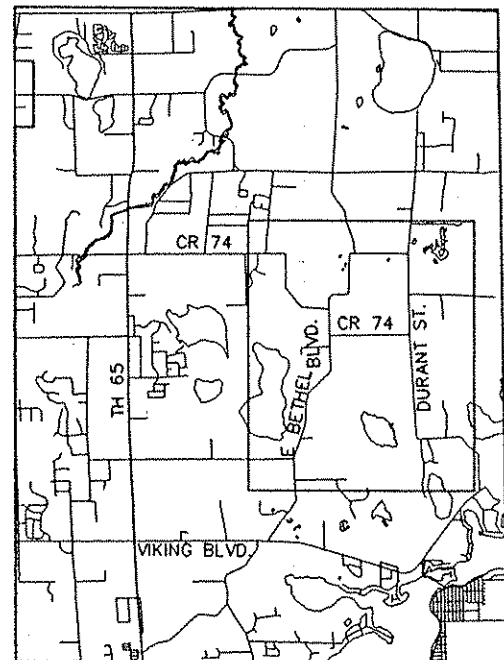
STATE PROJ. NO. 02-600-09 STATE PROJ. NO. \_\_\_\_\_

MN PROJ. NO. _____	GROSS LENGTH 5294.00 FEET 1.003 MILES	GROSS LENGTH..... FEET..... MILES
	BRIDGES-LENGTH..... FEET..... MILES	BRIDGES-LENGTH..... FEET..... MILES
	EXCEPTIONS-LENGTH..... FEET..... MILES	EXCEPTIONS-LENGTH..... FEET..... MILES
	NET LENGTH 5294.00 FEET 1.003 MILES	NET LENGTH..... FEET..... MILES



END S.P. 02-600-09  
STA. 52+94.00

BEGIN S.P. 02-600-09  
STA. 0+00.00



MINN. PROJ. NO. \_\_\_\_\_  
MINN. PROJ. NO. STP. PAVE (010) \_\_\_\_\_  
GOVERNING SPECIFICATIONS  
THE 1988 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AS AMENDED BY THE JANUARY 2, 1991 SUPPLEMENTAL SPECIFICATIONS SHALL GOVERN.

SHEET NO.	INDEX	DESCRIPTION
1	TITLE SHEET	
2	ESTIMATED QUANTITIES	
3	TABULATED QUANTITIES	
4	TYPICAL SECTIONS	
5	STANDARD DETAILS	
6	TRAFFIC CONTROL	

THIS PLAN CONTAINS 6 SHEETS

DESIGN DESIGNATION

§1820 NA  
R VALUE NA  
ADT (1993)= 895  
Proj. ADT (2013)= 1522  
Proj. HCA DT (2013)= 114  
Soil Factor 50%  
7 TON DESIGN  
Shoulder Width 3'

Functional Classification  
No. of Traffic Lanes No. of Parking Lanes  
Design Speed 55 MPH  
Based on Stopping Sight Distance  
Height of eye 3.5 Height of object 0.5  
Design Speed not achieved at: NA  
STA. TO STA. MPH  
STA. TO STA. MPH  
STA. TO STA. MPH

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 8/27/93 REG. NO. 20235 ENGR. Douglas M. Trick ANOKA COUNTY DESIGN ENGINEER  
DESIGN SQUAD J. TRICK

- Recommended for Approval Michael P. Kelly 8/27, 1993
- Recommended for Approval [Signature] 8/27, 1993
- Recommended for Approval [Signature] 9/17, 1993
- Approved 9/30, 1993 [Signature] ANOKA COUNTY ENGINEER
- Approved 9/10, 1993 [Signature] CITY OF EAST BETHEL
- Recommended for Approval [Signature] 11/10, 1993
- Recommended for Approval [Signature] 4-4, 1994
- Approved 4/5, 1994 [Signature] STATE AID ENGINEER

DEPARTMENT OF TRANSPORTATION  
FEDERAL HIGHWAY ADMINISTRATION  
APPROVED \_\_\_\_\_  
DIVISION ADMINISTRATOR DATE

### STATEMENT OF ESTIMATED QUANTITIES

CHART ID	ITEM NO.	ITEM	UNIT	TOTAL QUANTITIES		S.P. 02-600-09		NON-PARTICIPATING	
				ESTIMATE	FINAL	ESTIMATE	FINAL	ESTIMATE	FINAL
② ③ ⑤	A 0015.601	COMPUTER EQUIPMENT	LUMP SUM	0.03		0.03			
	2105.523	COMMON BORROW (LV)	CU YD	3		3			
	2232.501	MILL BITUMINOUS SURFACE	SQ YD	551		551			
	2340.508	TYPE 41 WEARING COURSE MIXTURE	TON	1195		1195			
	2357.502	BITUMINOUS MATERIAL FOR TACK COAT	GAL	724		724			
④ ①	B 0412.602	MAILBOX SUPPORT	EACH	4		4			
	0563.601	TRAFFIC CONTROL	LUMP SUM	0.03		0.03			
	D 2575.505	SODDING TYPE ERSION	SQ YD	190		190			
	D 2575.532	COMMERCIAL FERTILIZER ANALYSIS 10-10-10	LB	20		20			
	2580.501	TEMPORARY LANE MARKING	ROAD STA	53		53			

### INDEX OF TABULATION CHARTS

CHART ID	SHEET NO.	DESCRIPTION
A	3	ENTRANCE APPROACH IMPROVEMENTS
B	3	MAILBOX SUPPORT
C	3	MISCELLANEOUS REMOVALS
D	3	TURF ESTABLISHMENT

**NOTES:**

- ① ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING APPENDIX B DATED NOVEMBER 1992.
- ② INCLUDES MATERIAL NEEDED FOR APPROACH CORRECTIONS.
- ③ MILL TOUCHDOWN AREAS (20' LONG, FULL WIDTH) AT BEGIN AND END POINTS.
- ④ INCLUDES SALVAGING & INSTALLING OF EXISTING BOX AND F & I NEW SUPPORT.
- ⑤ INCLUDES 30 TONS FOR STREET APPROACHES AND ENTRANCES.

**BASIS OF QUANTITIES**

TYPE 41 WEAR COURSE:  
110 LB/SY/INCH

BITUMINOUS MAT'L FOR TACK:  
0.05 GAL/SY

COMMERCIAL FERTILIZER, ANALYSIS  
10-10-10: 500 LBS/ACRE

BITUMINOUS MIXTURE DESIGNATION:  
41 WE A50070Y

THESE STANDARD PLATES, AS APPROVED BY THE FHWA SHALL APPLY

### STANDARD PLATES

0005 A	SPECIFICATION REFERENCE TO STANDARD PLATES
8000 I	STANDARD BARRICADES
9102 D	TURF ESTABLISHMENT AREAS

## ESTIMATED QUANTITIES

ENTRANCE APPROACH IMPROVEMENTS (A)													
STATION	LOC	ADDRESS	EXISTING CULVERT		REMOVE		FURNISH AND INSTALL						
			SIZE	TYPE	CULV. LIN.FT	APRON EACH	15" CULV LIN.FT	EXT.LT LIN.FT	EXT.RT LIN.FT	APRONS		EMBANKMENT	
										15'	18'	LEFT(CY)	RIGHT(CY)
15+84	LT	3633					0	0				0.0	0.0
18+45	LT	3633					0	0				0.0	1.0
28+05	RT	3832					0	0				0.0	0.0
31+90	RT	3832					0	0				0.0	0.0
34+40	LT	3911					0	0				0.0	0.0
39+77	LT	F. ENT					0	0				0.0	0.0
42+89	RT	4044					0	0				1.0	0.0
TOTALS						0	0	0	0	0	0	1.0	1.0

① EARTHWORK SUMMARY:

COMMON BORROW(LV) = EMBANKMENT x 1.5 = (1.0+1.0) x 1.5 = 3 C.Y.

MISCELLANEOUS REMOVAL CHART (C)				
STATION	LOCATION	ITEM		REMARKS
		POWER POLE (EA)	SPLICE BOX (EA)	
48+46	30.0' RT	1		RELOCATE BY OTHERS
48+91	30.0' RT		1	RELOCATE BY OTHERS
52+74	27.0' RT	1		RELOCATE BY OTHERS
52+74	30.0' RT		1	RELOCATE BY OTHERS
TOTALS		2	2	

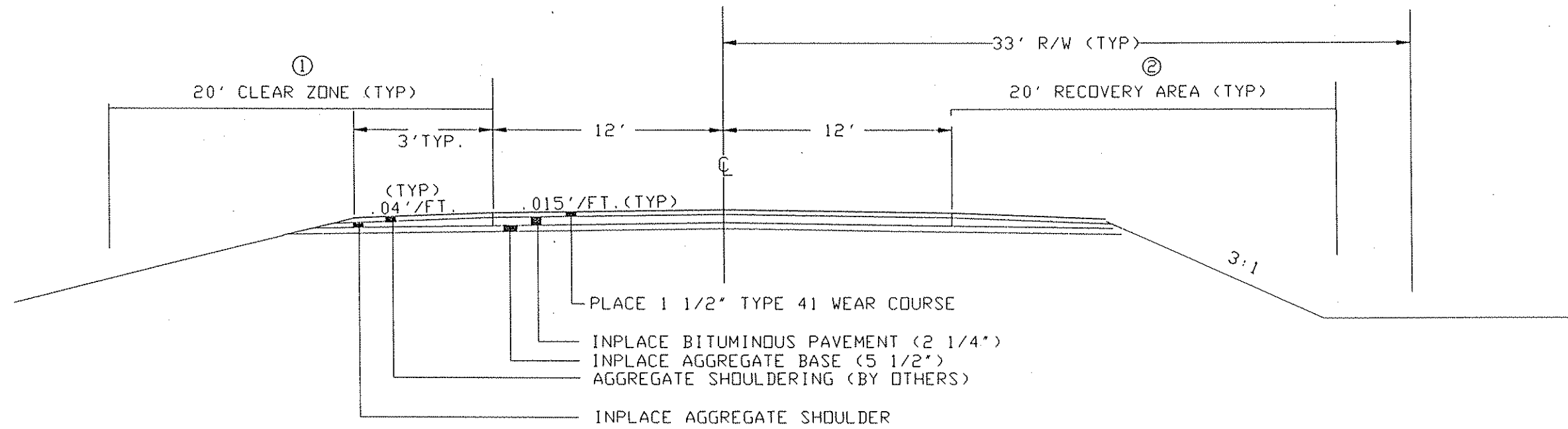
MAILBOX SUPPORT CHART (B)			
STATION	LOCATION	ADDRESS	RELOCATE
18+19	18.0' RT	3633	1
29+66	20.0' RT	3832	1
34+25	17.0' RT	3911	1
43+17	14.0' RT	4044	1
TOTALS			4

TURF ESTABLISHMENT (D)							
LOCATION	LOC	SEEDING	SEED MIX 700	SODDING TYPE EROSION CONTROL	MULCH MATERIAL TYPE 1	DISK ANCHORING	COMMERCIAL FERTILIZER ANALYSIS 10-10-10
		SQ YD	LB.	SQ. YD.	TON	SQ YD	LB.
18+45	LT			103			10.6
42+89	RT			87			9.0
TOTALS		0	0	190	0	0	19.6

TABULATED QUANTITIES

### TYPICAL SECTION

STATION 0+00 TO STATION 52+94



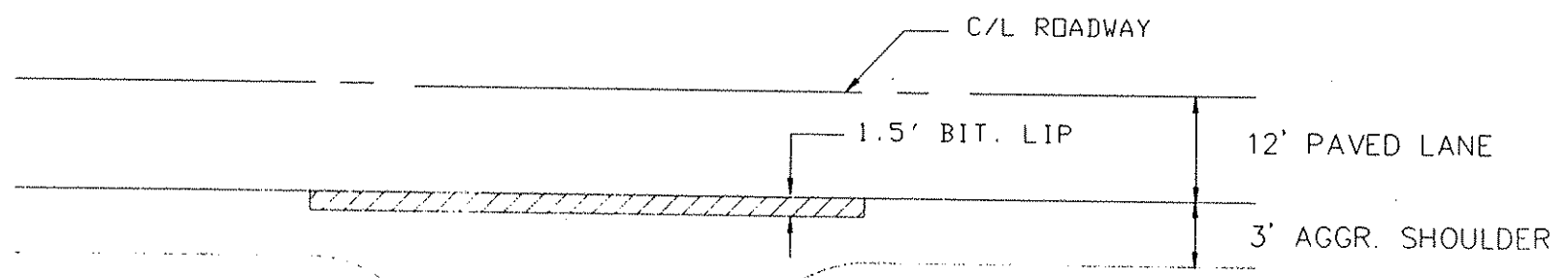
NOTES:

- ① PROVIDE OBSTACLE-FREE AREA WITHIN THIS ZONE. SEE CHART C FOR MISCELLANEOUS REMOVALS.
- ② PROVIDE A 3:1 SHOULDER INSLOPE WITHIN RECOVERY AREA.

TYPICAL SECTION

### TYPICAL ENTRANCES

PAVED AND UNPAVED STREETS AND ENTRANCES

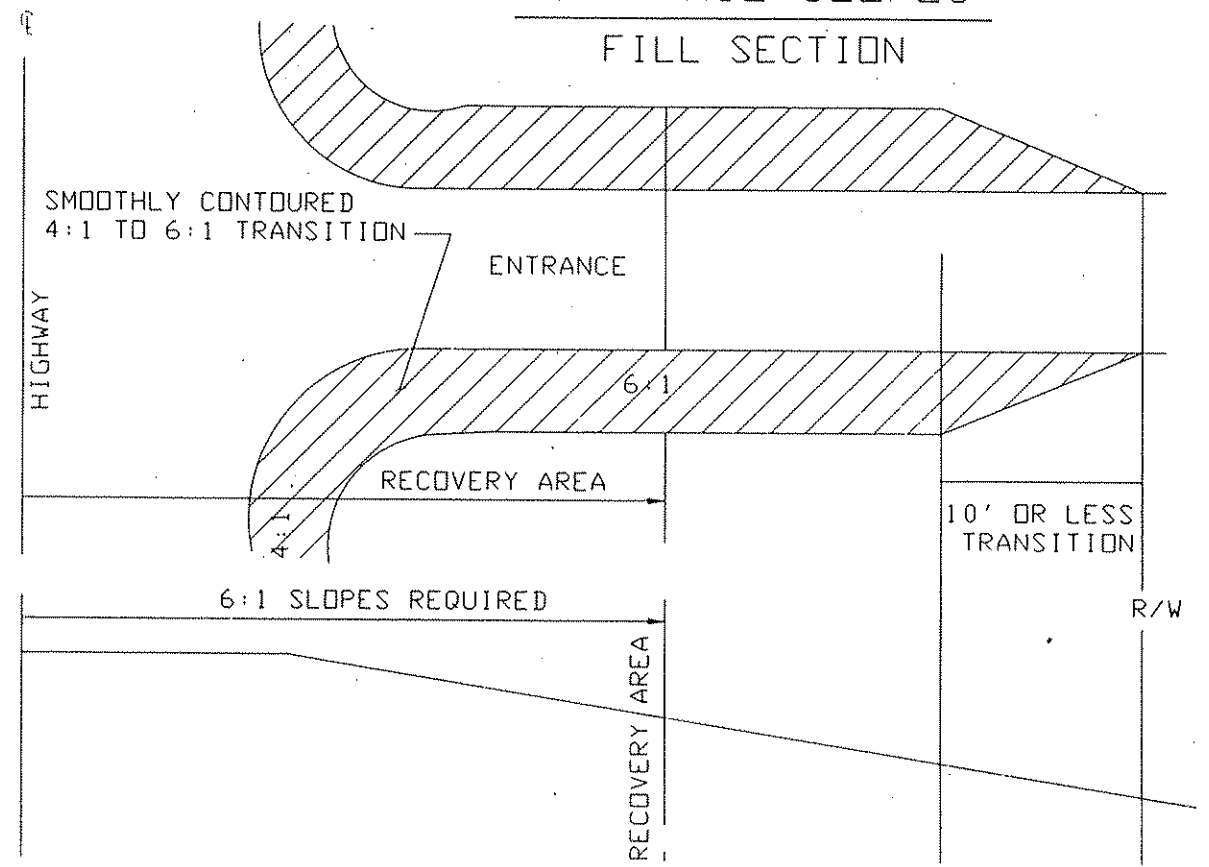


NOTE:  
ON PAVED ENTRANCES  
TACK PAVEMENT &  
FEATHER BIT. TO  
BLEND WITH EXISTING  
DRIVEWAY.

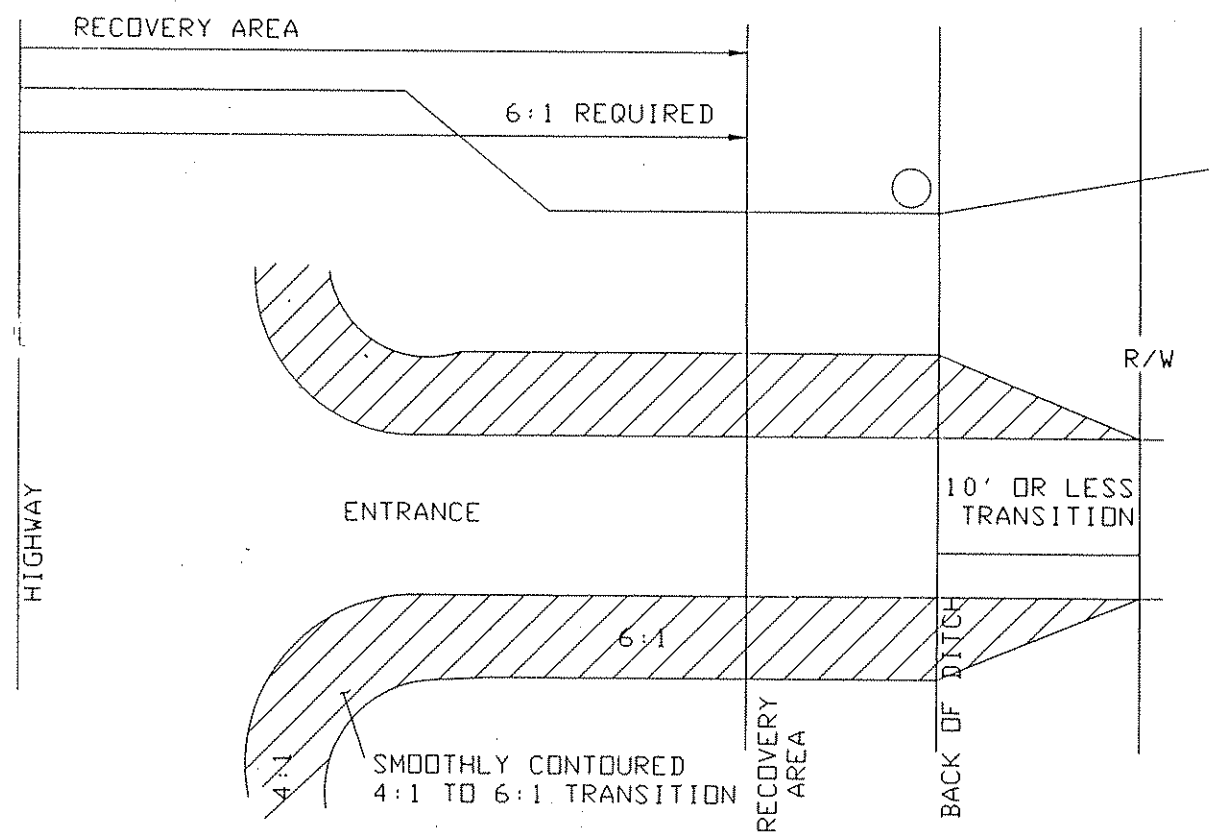
NOTE: NOT TO SCALE

### ENTRANCE SLOPES

#### FILL SECTION

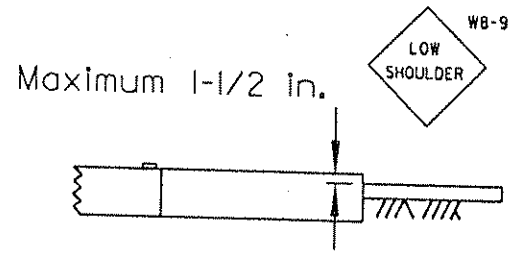


#### DITCH SECTION

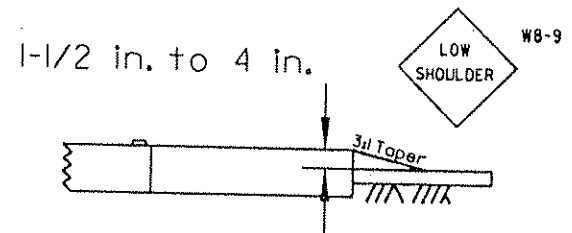


STANDARD DETAILS

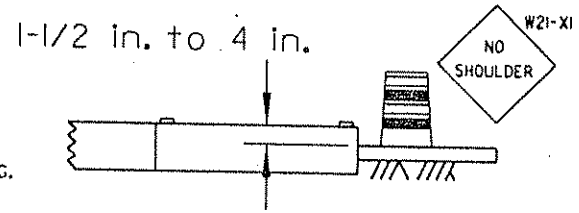
### EDGE DROP OFF



EDGE DROP OFF - WITH TAPER

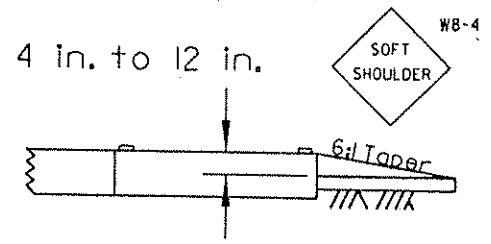


SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING.



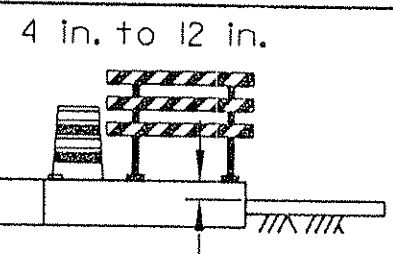
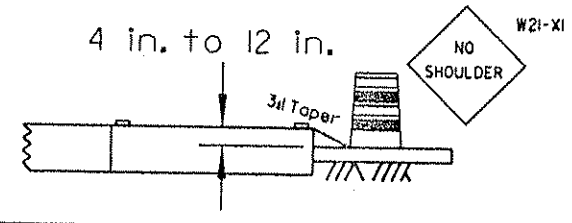
EDGE DROP-OFF WITH TAPER (SHOULDER - OPEN)

THIS CONDITION WILL NOT BE PERMITTED UNLESS THE 6:1 SLOPE IS COMPACTED SO THAT A VEHICLE MAY SAFELY DRIVE ONTO IT WITHOUT LOSING CONTROL AND IN THE OPINION OF THE ENGINEER THERE ARE NO OTHER HAZARDOUS CONDITIONS.



EDGE DROP-OFF WITH TAPER (SHOULDER - CLOSED)

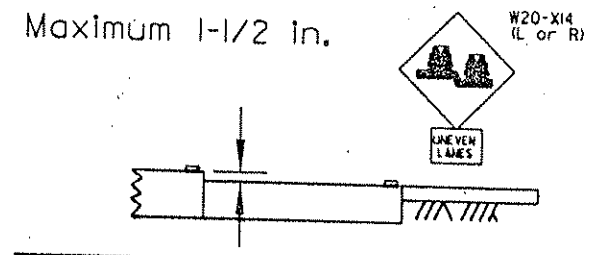
SHOULDER SHALL BE CLOSED WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING



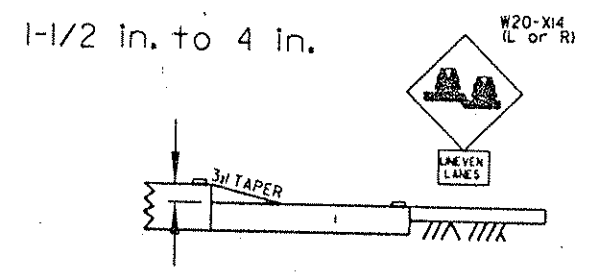
ADJACENT LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE LAYOUT SHOWN IN APPENDIX B. CHANNELIZING DEVICES TO BE AT A MAXIMUM OF 100 FT. SPACING AND TYPE III EVERY 1000 FT.

NOTE: SIGNS ARE REQUIRED ONLY ON THE SIDE OF THE ROAD THAT IS AFFECTED BY CONSTRUCTION (EXCEPT SIGNS THAT ARE FOR A LANE CLOSURE ON DIVIDED HIGHWAYS).

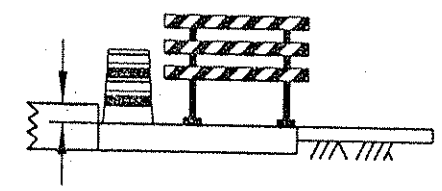
### UNEVEN LANES



UNEVEN LANES - WITH TAPER



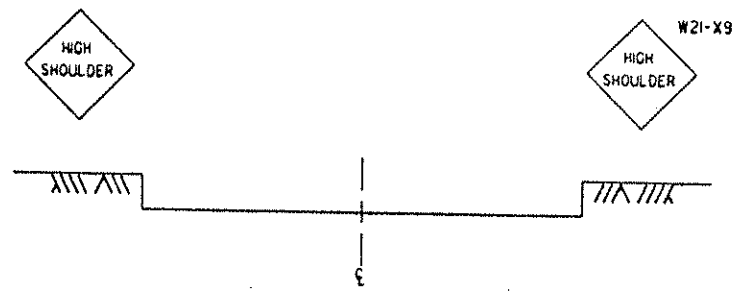
1-1/2 in. to 4 in.



LANE SHALL BE CLOSED WITH APPROPRIATE LANE CLOSURE FROM APPENDIX B. CHANNELIZING DEVICES AT A MAXIMUM OF 100 FT. SPACING AND A TYPE III BARRICADE EVERY 1000 FT.

NOTE: FOR DIVIDED HIGHWAYS, USE SIGNS ON RIGHT AND LEFT SIDE. SIGN SEQUENCE SHOWN FOR ONE DIRECTION ONLY; OTHER DIRECTION SHALL BE IDENTICAL.

### MILLED EDGE



NOTE: MILLED EDGES SHOULD BE TREATED WITH TAPERS, CHANNELIZERS, AND SIGNING AS SHOWN ON EDGE DROP-OFF DETAILS.

NOTE: ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MINNESOTA MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, INCLUDING APPENDIX B, DATED NOVEMBER 1992.

### GUIDELINES

THESE GUIDELINES ARE INTENDED TO INCREASE TRAFFIC SAFETY USING TRAFFIC CONTROL DEVICES, SAFETY RELATED APPURTENANCES, AND CONSTRUCTION TECHNIQUES FOR UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS THAT OCCUR IN HIGHWAY WORK ZONES. THE BEST WAY TO INCREASE TRAFFIC SAFETY IS TO MAKE EVERY ATTEMPT TO MINIMIZE EXPOSURE TO UNEVEN LANES, MILLED EDGES, AND EDGE DROP-OFFS; HOWEVER, IT IS REALIZED THAT THIS IS OFTEN NOT POSSIBLE OR FEASIBLE. ONLY WHEN UNEVEN LANES, MILLED EDGES, OR EDGE DROP-OFFS ARE DEEMED NECESSARY, SHALL THE APPROPRIATE PORTION(S) OF THESE GUIDELINES BE APPLIED TO ENHANCE TRAFFIC SAFETY.

APPROPRIATE UNEVEN LANE WARNING SIGNS OR SHOULDER WARNING SIGNS SHALL BE REPEATED AFTER EACH INTERSECTION.

MAXIMUM WARNING SIGN SPACING SHALL BE:  
 A - 1 MILE WHEN THE SPEED LIMIT IS GREATER THAN 30 MPH AND  
 B - 1/4 MILE WHEN THE SPEED LIMIT IS 30 MPH OR LESS.

WHEN SPACE PERMITS, MINIMUM WARNING SIGN SIZE SHALL BE:  
 A - 48 INCHES x 48 INCHES WHEN THE SPEED LIMIT IS GREATER THEN 30 MPH AND  
 B - 36 INCHES x 36 INCHES WHEN THE SPEED LIMIT IS 30 MPH OR LESS.

- FOR DROP-OFFS OF 1-1/2 INCHES OR LESS, APPROPRIATE WARNING SIGNS SHALL BE PROVIDED.
- FOR DROP-OFFS GREATER THAN 1-1/2 INCHES UP TO 4 INCHES:
  - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED; OR
  - IF THE TAPER IS NOT PROVIDED, TRAFFIC SHALL NOT BE PERMITTED TO CROSS THE DROP-OFF AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND DEVICES.
- FOR DROP-OFFS GREATER THAN 4 INCHES UP TO 12 INCHES:
  - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 6:1 AND APPROPRIATE WARNING SIGNS SHALL BE PROVIDED. (6:1 TAPER SHALL NOT BE USED AS A TRAFFIC CARRYING LANE)
  - THE EDGE SHALL BE TAPERED AND COMPACTED AT A RATE OF 3:1. TRAFFIC SHALL NOT BE ALLOWED TO CROSS THE DROP-OFF, AND THAT PORTION OF THE ROADWAY SHALL BE CLOSED TO TRAFFIC WITH APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES; OR
  - IF A TAPER IS NOT PROVIDED, THE TRAFFIC OR AUXILIARY LANE ADJACENT TO THE DROP-OFF SHALL BE CLOSED TO TRAFFIC WITH THE APPROPRIATE WARNING SIGNS AND CHANNELIZING DEVICES OR A POSITIVE BARRIER, SUCH AS A PORTABLE PRECAST CONCRETE BARRIER, SHALL BE PROVIDED TO PREVENT TRAFFIC FROM CROSSING THE DROP-OFF.
- FOR SHOULDER EDGE DROP-OFFS:
  - 0-2 FOOT SHOULDER WIDTH AND A 0-12 INCH DROP-OFF; USE GUIDELINES AS SHOWN
  - 2-8 FOOT SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; INSTALL EDGE LINE OR USE GUIDELINES AS SHOWN
  - 8 FOOT OR GREATER SHOULDER WIDTH AND A 0-4 INCH DROP-OFF; NO TRAFFIC CONTROL REQUIRED
  - GREATER THAN 2 FOOT SHOULDER WIDTH AND A 4-12 INCH DROP-OFF; USE GUIDELINES AS SHOWN
- DROP-OFFS GREATER THAN 4 INCHES ADJACENT TO TRAFFIC CARRYING LANES ARE PERMITTED WITHOUT TAPERS OR POSITIVE BARRIERS FOR:
  - PROJECTS WITHIN URBAN AREA WHEN THE SPEED LIMIT IS 30 MPH OR LESS; OR
  - SHORT TERM (7 CALENDAR DAYS OR LESS) CONCRETE OR UTILITY REPAIR, LESS THAN 50 FEET IN LENGTH WHEN THE SPEED LIMIT IS GREATER THAN 30 MPH.
- AT NO TIME SHALL THERE BE MORE THAN ONE UNEVEN LANE CONDITION BETWEEN THE TRAFFIC CARRYING LANES WHICH INCLUDE AUXILIARY LANES, TURN LANES, AND RAMP ACCESS OR EGRESS AREAS. WEATHER PERMITTING, ALL EXPOSED UNEVEN LANES CONDITIONS WITHIN THE TRAFFIC CARRYING LANES SHALL BE 'MATCHED' WITHIN 24 HOURS.
- MILLING OPERATIONS SHALL BE REQUIRED TO COMPLETE THE FULL WIDTH OF THE SECTION UNDER CONSTRUCTION AT THE END OF EACH WORK PERIOD.

Traffic Control Treatment of Longitudinal Joints and Edge Drop-offs in Work Zones

VAX780 05A3:145,100] FILE NAME LANEEDGE.DGN