

# ANOKA COUNTY HIGHWAY DEPARTMENT

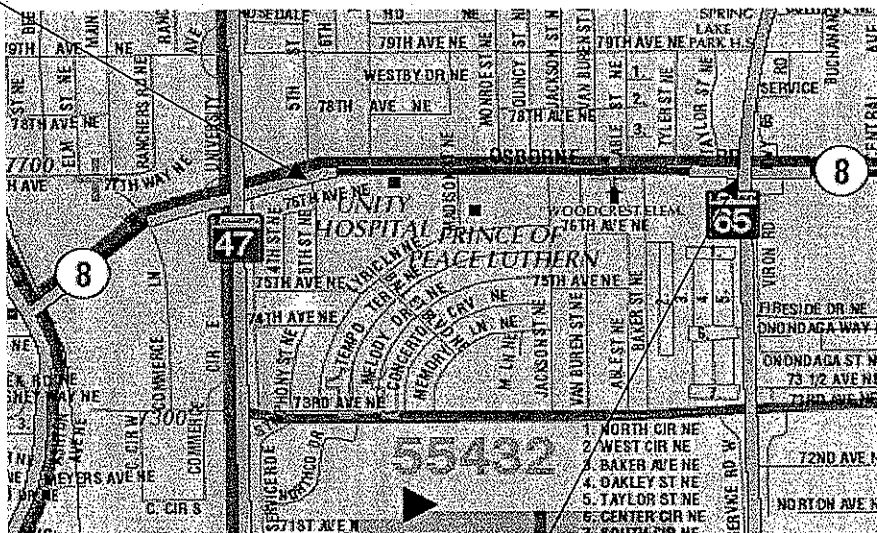
CONSTRUCTION PLAN FOR:

BIT. MILL, BIT. OVERLAY

CSAH NO: 8  
 FROM 5 TH ST  
 TO TH 65  
 FROM  
 TO

COUNTY PROJECT NO: 05-05-08  
 GROSS LENGTH 4360 FT 0.8 MI  
 BRIDGES LENGTH 0 FT 0 MI  
 EXCEPTION LENGTH 0 FT 0 MI  
 NET LENGTH 4360 FT 0.8 MI

←BEGIN PROJECT C.P. 05-05-08 STATION 10+00



→END PROJECT C.P. 05-05-08 STATION 53+60

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

*Andrew J. Witter*  
 ANDREW J. WITTER, P.E.

LIC. NO. 42757 DATE 4/14/05

**GOVERNING SPECIFICATIONS:**

THE 2000 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN. ALL TRAFFIC CONTROL DEVICES SHALL CONFORM TO THE MMUTCD, INCLUDING "FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS - JANUARY 2004."

APPROVED 4/13, 2005 *[Signature]*  
 ANOKA COUNTY ENGINEER

**STATEMENT OF ESTIMATED QUANTITIES**

ITEM NO.	ITEM	NOTE NO.	UNIT	TOTAL EST. QUANT.
2021.501	MOBILIZATION		LUMP SUM	1
2232.501	MILL BITUMINOUS SURFACE (1.5")		SQ YD	10980
2357.502	BITUMINOUS MATERIAL FOR TACK COAT		GALLON	1389
2360.609	TYPE MV3 WEARING COURSE MIXTURE ( MVWE35035 B )		TON	2292
2504.602	ADJUST GATE VALVE AND BOX		EACH	5
2506.522	ADJUST FRAME AND RING CASTING (SANITARY)		EACH	28
2563.601	TRAFFIC CONTROL		LUMP SUM	1
2563.602	PORTABLE CHANGEABLE MESSAGE SIGN		UNIT DAY	10
2564.602	PAVEMENT MESSAGE (LT ARROW)		EACH	8
2564.602	PAVEMENT MESSAGE (STRAIGHT ARROW)		EACH	2
2564.602	PAVEMENT MESSAGE (COMB STRAIGHT / RT ARROW)		EACH	2
2564.603	4" SOLID LINE WHITE - EPOXY		LIN FT	8820
2564.603	4" BROKEN LINE WHITE - EPOXY		LIN FT	1744
2564.603	4" SOLID LINE YELLOW - EPOXY		LIN FT	1314
2564.603	4" DOUBLE SOLID LINE YELLOW - EPOXY		LIN FT	4981
2564.603	24" SOLID LINE YELLOW - EPOXY		LIN FT	650
2564.603	24" SOLID LINE WHITE - POLY PREFORM		LIN FT	252
2564.604	ZEBRA CROSSWALK - POLY PREFORM		SQ FT	702
2565.602	LOOP DETECTOR 6'X6'		EACH	9
2580.603	REMOVABLE LANE TAPE		LIN FT	1395

**BASIS OF PLANNED QUANTITIES**

2357.502	BITUMINOUS MATERIAL FOR TACK COAT	.05 GAL / SQ YD
2360.609	TYPE MV 3 WEARING COURSE MIXTURE ( MVWE35035 B )	110 LBS/SQ YD/IN THICKNESS
2580.603	REMOVABLE LANE TAPE	4' AT 50' INTERVALS FOR SKIPS / CL

PLATE NO.	STANDARD DETAIL PLATES
80001	STANDARD BARRICADES

CERTIFIED BY

*Andrew J. Witter*

ANDREW J. WITTER, P.E.

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4/14/05

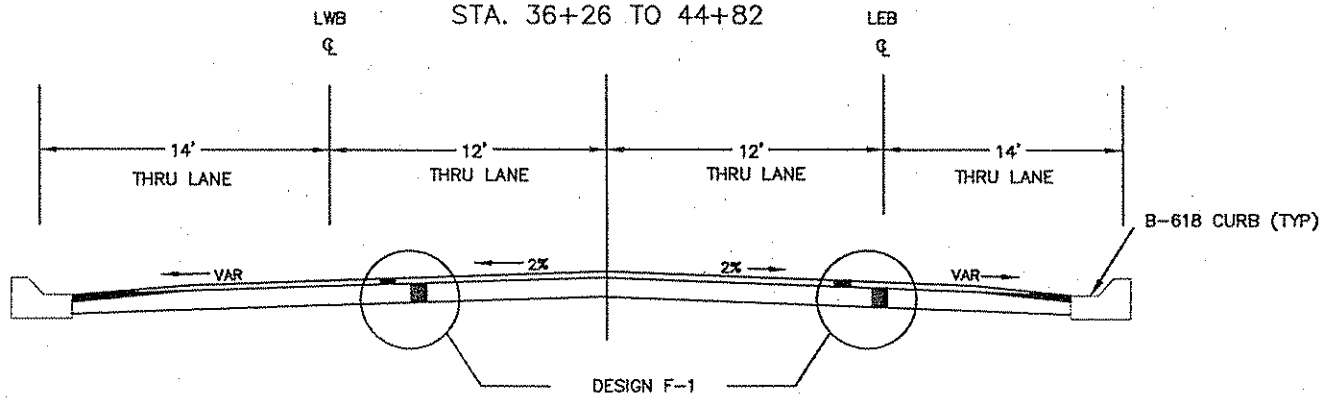
PROJ. 05-05-08

SHEET NO. 2 OF 11 SHEETS

# TYPICAL SECTIONS

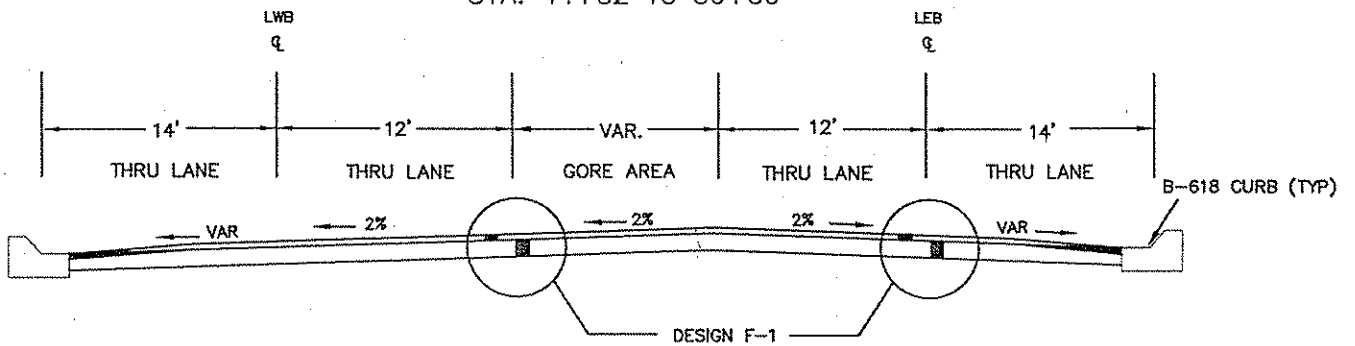
TYP. A

STA. 10+00 TO 16+44  
STA. 36+26 TO 44+82



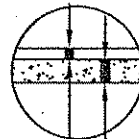
TYP. B

STA. 16+44 TO 19+40  
STA. 27+60 TO 36+26  
STA. 44+82 TO 50+50



## DESIGN F-1

PAVE 1.5" MV3 WEAR ( MVWE35035 B )  
EXISTING BITUMINOUS  
\*( 6" WIDE X 1.5" DEPTH EDGE MILL AT LIP OF CURB )



NOTE: NOT TO SCALE

CERTIFIED BY Andy J. Witter  
ANDY J. WITTER, P.E.

LIC. NO. 42757 DATE 4/4/05

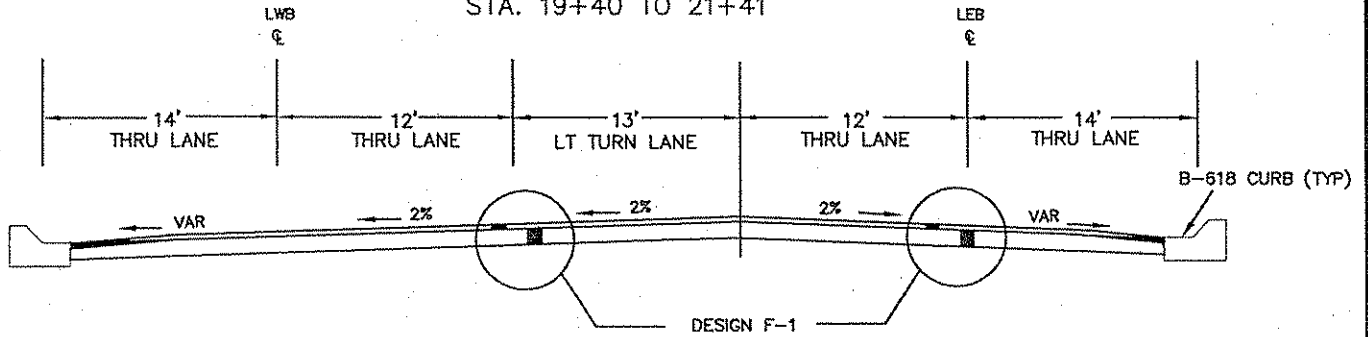
C.P. 05-05-08

SHEET NO. 3 OF 11 SHEETS

# TYPICAL SECTIONS

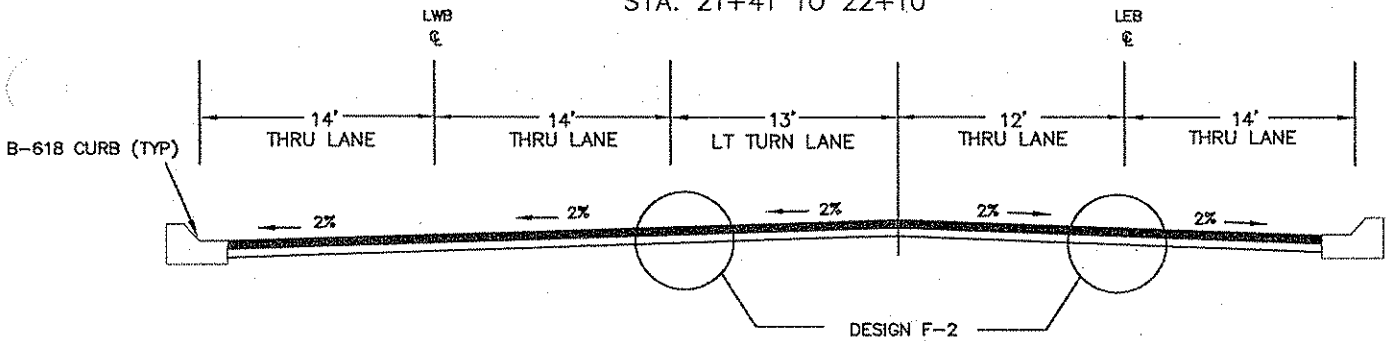
TYP. C

STA. 19+40 TO 21+41



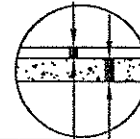
TYP. D

STA. 21+41 TO 22+10



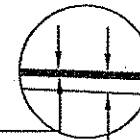
DESIGN F-1

PAVE 1.5" MV3 WEAR ( MVWE35035 B )  
 EXISTING BITUMINOUS  
 \* ( 6" WIDE X 1.5" DEPTH EDGE MILL AT LIP OF CURB )



DESIGN F-2

MILL FULL WIDTH 1.5" OF INPLACE BITUMINOUS  
 PAVE 1.5" TYPE MV3 WEARING COURSE ( MVWE35035 B )  
 EXISTING BITUMINOUS



NOTE: NOT TO SCALE

CERTIFIED BY

*Andy J. Witter*  
 ANDY J. WITTER, P.E.

LIC. NO. 42757

DATE 4/14/05

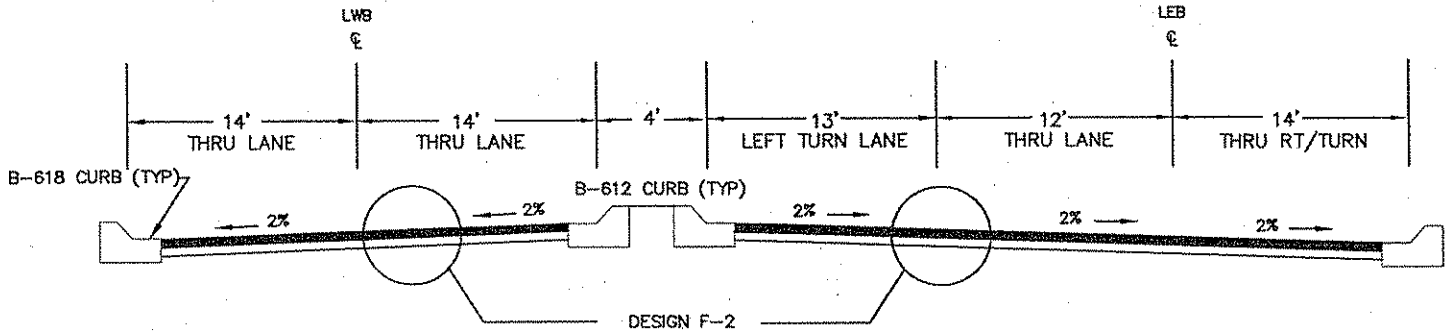
C.P. 05-05-08

SHEET NO. 4 OF 11 SHEETS

# TYPICAL SECTIONS

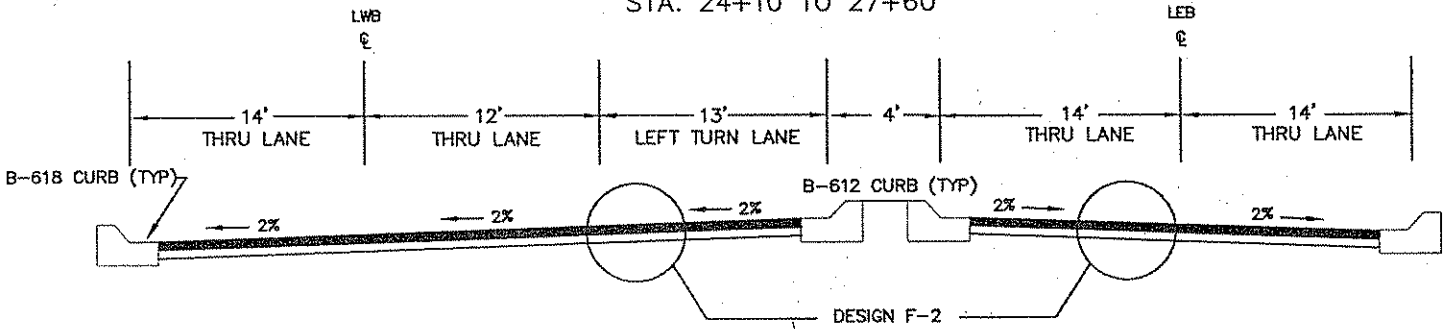
## TYP. E

STA. 22+10 TO 24+10  
STA. 51+85 TO 53+60



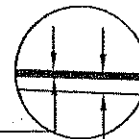
## TYP. F

STA. 24+10 TO 27+60



## DESIGN F-2

MILL FULL WIDTH 1.5" OF INPLACE BITUMINOUS  
PAVE 1.5" TYPE MV3 WEARING COURSE ( MVWE35035 B )  
EXISTING BITUMINOUS



NOTE: NOT TO SCALE

CERTIFIED BY

*Andreas J. Witter*  
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LIC. NO. 42757

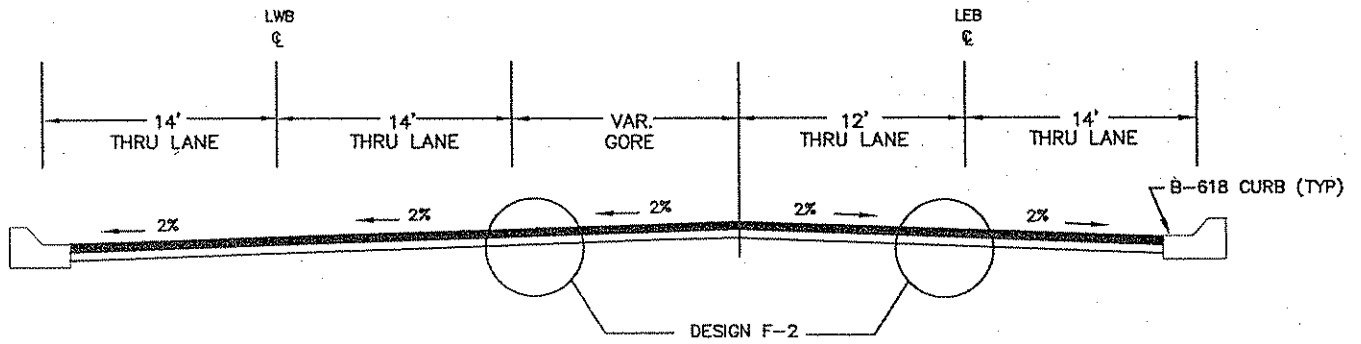
DATE 4/14/08

C.P. 05-05-08

SHEET NO. 5 OF 11 SHEETS

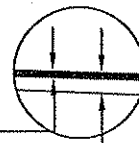
# TYPICAL SECTIONS

TYP. G  
STA. 50+50 TO 51+85



## DESIGN F-2

MILL FULL WIDTH 1.5" OF INPLACE BITUMINOUS  
PAVE 1.5" TYPE MV3 WEARING COURSE ( MVWE35035 B )  
EXISTING BITUMINOUS



NOTE: NOT TO SCALE

CERTIFIED BY

*Angela J. Witter*  
ANGELA J. WITTER, P.E.

C.P. 05-05-08

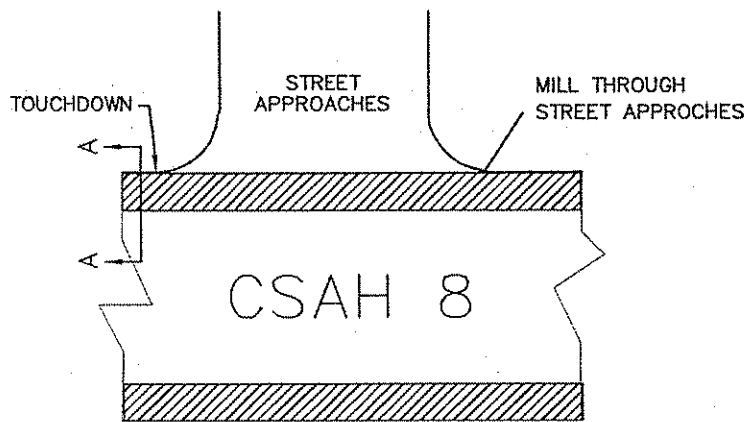
LIC. NO. 42757

DATE 4/14/08

SHEET NO. 6 OF 11 SHEETS

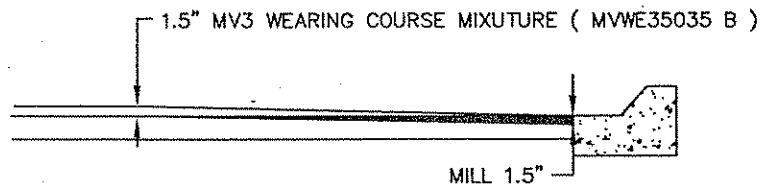
# TYPICAL SECTIONS

## MILL DETAILS



### MILL DETAILS A - A

MILL AS DIRECTED BY THE ENGINEER



NOTE: NOT TO SCALE

CERTIFIED BY

  
ANDREW J. WITTER, P.E.

C.P. 05-05-08

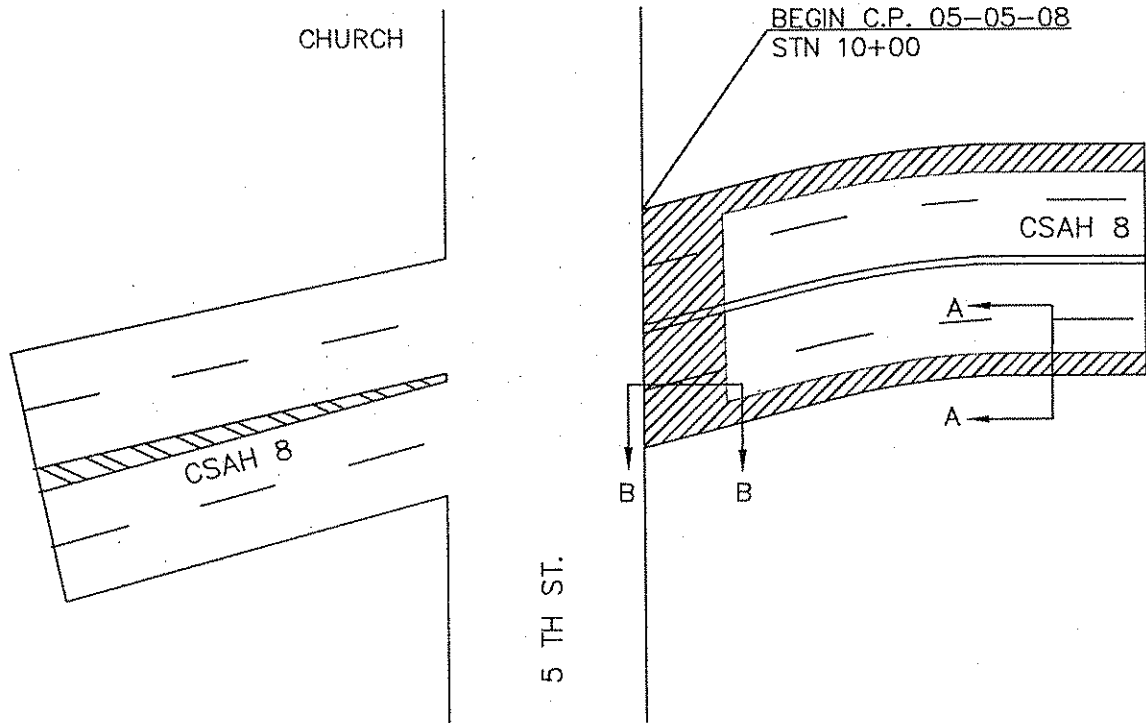
LIC. NO. 42757

DATE 4/14/05

SHEET NO. 7 OF 11 SHEETS

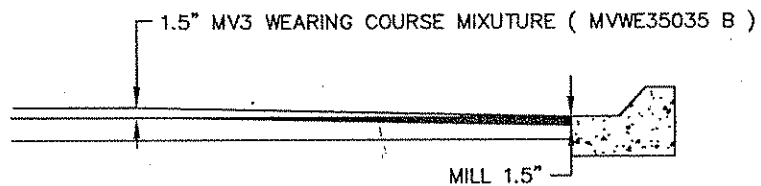
# TRANSITION DETAILS

PROJECT BEGIN



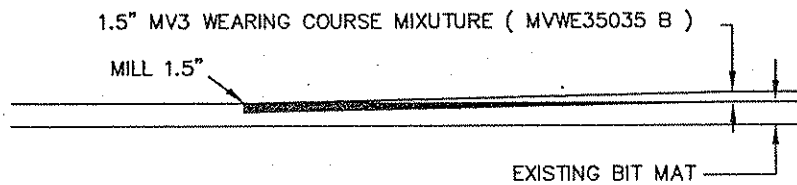
## MILL DETAILS A - A

MILL AS DIRECTED BY THE ENGINEER



## TRANSITION DETAIL B - B

MILL AS DIRECTED BY THE ENGINEER



NOTE: NOT TO SCALE

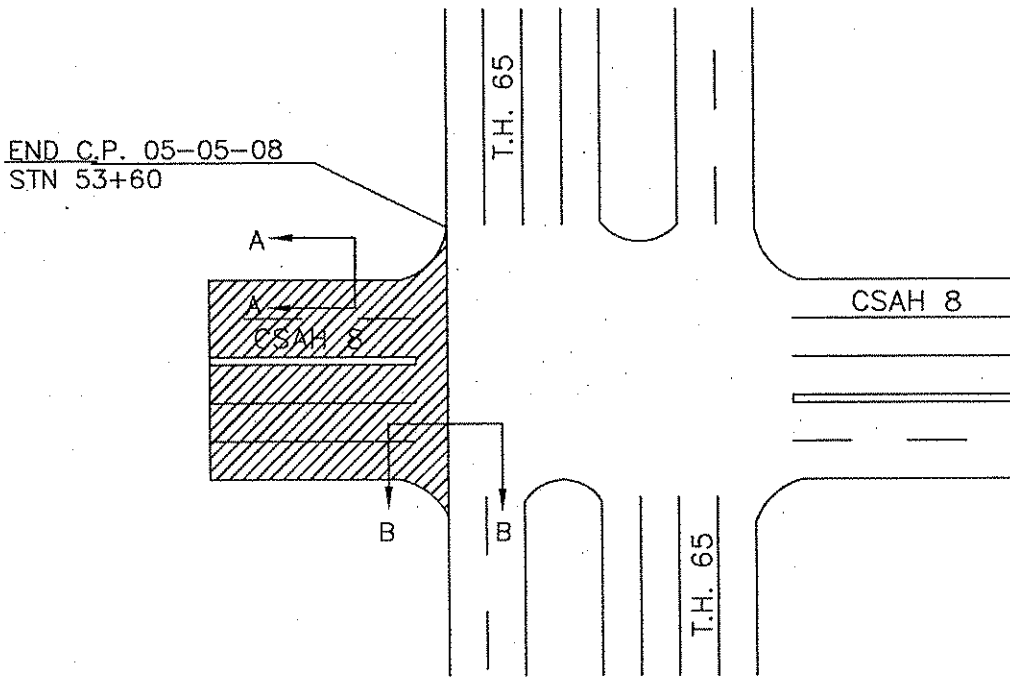
CERTIFIED BY Andrew J. Witter  
ANDREW J. WITTER, P.E.  
C.P. 05-05-08

LIC. NO. 42757 DATE 4/14/08  
SHEET NO. 8 OF 11 SHEETS



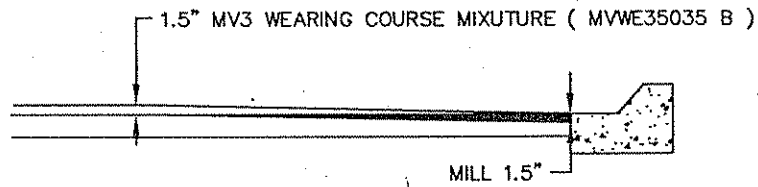
# TRANSITION DETAILS

PROJECT END



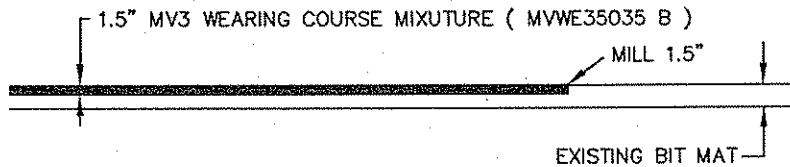
## MILL DETAILS A - A

MILL AS DIRECTED BY THE ENGINEER



## TRANSITION DETAIL B - B

MILL AS DIRECTED BY THE ENGINEER



NOTE: NOT TO SCALE

CERTIFIED BY

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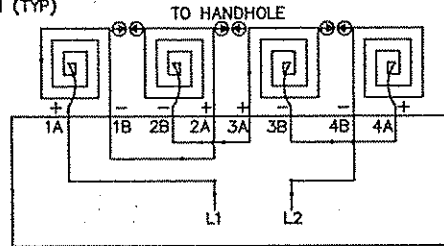
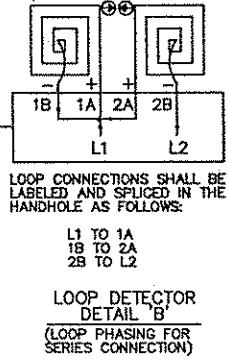
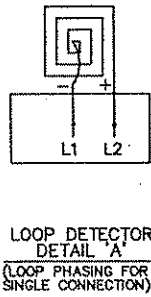
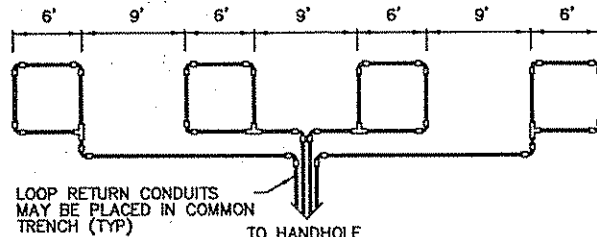
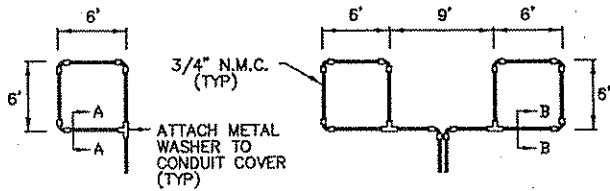
C.P. 05-05-08

LIC. NO. 42757 DATE

*4/1/05*

SHEET NO. 9 OF 11 SHEETS

# SIGNAL LOOP DETAIL

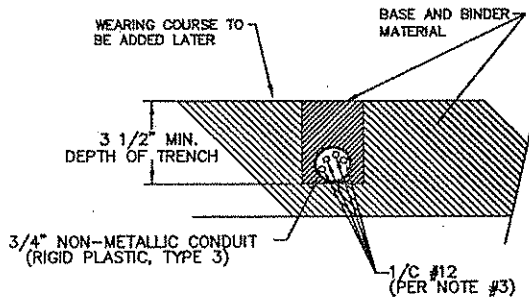


LOOP CONNECTIONS SHALL BE LABELED AND SPLICED IN THE HANDHOLE AS FOLLOWS:

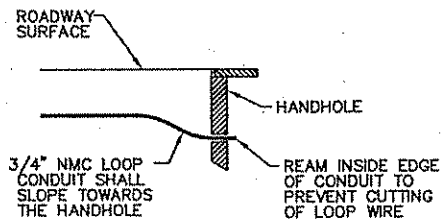
L1 TO 1A	3B TO 4A
1B TO 2A	4B TO L2
2B TO 3A	

SPLICE CONTROL CABLE TO L1 & L2 IN HANDHOLE. ALL CONDUCTORS SHALL BE TAGGED IN HANDHOLE (1A, 1B, ECT)

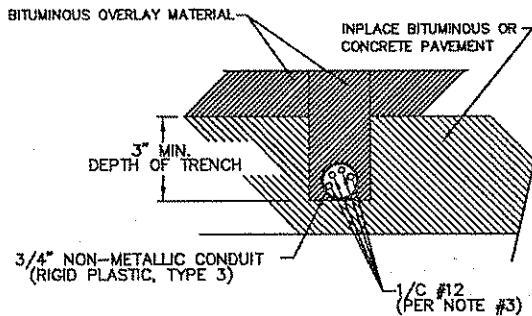
**LOOP DETECTOR  
DETAIL 'C'**  
(LOOP PHASING FOR  
SERIES CONNECTION)



**SECTION A-A**  
DETAIL FOR LOOP INSTALLATION  
IN NEW ROADWAY



**DRAINAGE DETAIL**



**SECTION B-B**  
DETAIL FOR LOOP INSTALLATION  
IN EXISTING ROADWAY

## LOOP DETECTOR WIRING

- 1) ALL CORNERS SHALL BE 90° CONDUIT BENDS.
- 2) CONNECT WIRES IN HANDHOLES USING SPLICE KIT METHOD DESCRIBED IN THE SPECIAL PROVISIONS.
- 3) LOOP DETECTOR WIRES SHALL BE #12 AWG CROSSED LINKED POLYETHYLENE (XLP). SEE SPECIAL PROVISIONS.
- 4) LOOP LEAD IN WIRES SHALL BE TWISTED A MIN. OF (5) TURNS PER FOOT THROUGH THE CONDUIT TO THE HANDHOLE.
- 5) NMC DESIGNATES NON-METALLIC CONDUIT (SPEC. 3803)
- 6) LOOPS 6' x 6' THRU 6' x 14' SHALL HAVE (4) TURNS.
- 7) LOOPS 6' x 15' AND LARGER SHALL HAVE (2) TURNS.

NOTE: NOT TO SCALE

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C.P. 05-05-08

SHEET NO. 10 OF 11 SHEETS

# SIGNAL LOOP DETAIL

STANDARD PLATES	
THESE STANDARD PLATES AS APPROVED BY FHWA SHALL APPLY:	
PLATE NO.	DESCRIPTION
7035 L	CONCRETE WALK AND CURB RETURNS AT ENTRANCES
7036 E	PEDESTRIAN CURB RAMP
7100 G	CONCRETE CURB AND GUTTER (DESIGN B)
8110 D	TRAFFIC SIGNAL BRACKETING - POLE MOUNTED
8111 C	TRAFFIC SIGNAL BRACKETING - PEDESTAL MOUNTED
8112 C	PEDESTAL FOUNDATION
8114 A	PVC HANDHOLE/PULLBOX
8115 D	PEDESTRIAN PUSH BUTTON INSTALLATION
8118 C	SERVICE EQUIPMENT AND POLE-TRAFFIC CONTROL SIGNALS
8119 C	GROUND MOUNTED CABINET FOUNDATION
8120 K	PAB5 POLE FOUNDATION
8121 D	TRANSFORMER BASE AND POLE BASE PLATE
8122 C	PEDESTAL AND PEDESTAL BASE
8123 E	POLE AND MAST ARM
8124 E	MAST ARM SIGNAL HEAD MOUNTS
8126 F	PAB9 AND PAB00 POLE FOUNDATION

\* - APPLIES TO THIS PROJECT

## CONDUCTOR COLOR CODE

R	RED
O	ORANGE
BL	BLUE
WH	WHITE
R/BLK	RED WITH BLACK TRACER
O/BLK	ORANGE WITH BLACK TRACER
BL/BLK	BLUE WITH BLACK TRACER
WH/BLK	WHITE WITH BLACK TRACER
BLK	BLACK
BLK/WH	BLACK WITH WHITE TRACER
G/BLK	GREEN WITH BLACK TRACER
G	GREEN

## LEGEND OF SYMBOLS

CONTROLLER AND SERVICE EQUIP. NO'S	(A)
SIGNAL BASE NO.	(B)
SIGNAL FACE NO.	(C)
LUMINAIRE NO.	(D)
CONTROLLER AND CABINET	(E)
CONTROLLER AND CABINET - IN PLACE	(F)
HANDHOLE	(G)
HANDHOLE - IN PLACE	(H)
RIGID STEEL CONDUIT (RSC)	(I)
RIGID STEEL CONDUIT (RSC) - IN PLACE	(J)
SIGNAL FACE WITH BACKGROUND SHIELD	(K)
SIGNAL FACE W/O BACKGROUND SHIELD	(L)
SIGNAL FACE - IN PLACE	(M)
PEDESTRIAN INDICATORS	(N)
PEDESTRIAN INDICATORS - IN PLACE	(O)
PEDESTRIAN PUSH BUTTONS ON PEDESTAL OR POLE	(P)
PEDESTRIAN PUSH BUTTON STATION	(Q)
TRAFFIC SIGNAL PEDESTAL	(R)
TRAFFIC SIGNAL PEDESTAL - INPLACE	(S)
TRAFFIC SIGNAL POLE AND MAST ARM	(T)
TRAFFIC SIGNAL POLE AND MAST ARM - IN PLACE	(U)
STREET LIGHT POLE AND LUMINAIRE	(V)
STREET LIGHT POLE AND LUMINAIRE - IN PLACE	(W)
MAST ARM AND LUMINAIRE	(X)
MAST ARM AND LUMINAIRE - INPLACE	(Y)
WOOD POLE	(Z)
WOOD POLE - IN PLACE	(AA)
SOURCE OF POWER	(AB)
RAILROAD SIGNAL - IN PLACE	(AC)
RIGHT OF WAY LINE	(AD)
CENTERLINE	(AE)
EDGE OF ROADWAY	(AF)
SHOULDERLINE	(AG)
CURB LINE	(AH)
STOP BAR	(AI)
EMERGENCY VEHICLE PREEMPTION DETECTOR	(AJ)

## ABBREVIATIONS

3-1(EG)	SIGNAL HEAD PHASE '3' - NO. '1'	P2-1(EG)	PED INDICATION PHASE '2' - NO. '1'
BR. GR.	BARE GROUND	PB	PUSH BUTTON
CH. SV.	CHECK SWITCH	PB2-1(EG)	PUSH BUTTON PHASE '2' - NO. '1'
CLR	CLEAR	PEC	PHOTOELECTRIC CELL
D2-1(EG)	DETECTOR PHASE '2' - NO. '1'	PED	PEDESTRIAN
DWK	DON'T WALK	R	RED
EGG	EQUIPMENT GROUND	R&S	REMOVE AND SALVAGE
EVP	EMERGENCY VEHICLE PRE-EMPTION	RLTA	RED LEFT TURN ARROW
F&I	FURNISH AND INSTALL	RRTA	RED RIGHT TURN ARROW
FL	FLASH/FLASHING	RSC	RIGID STEEL CONDUIT
G	GREEN	SOP	SOURCE OF POWER
GLTA	GREEN LEFT TURN ARROW	SPR	SPARE
GRN	GREEN	ST. LHT	STREET LIGHT
GR. R	GROUND ROD	STA	STATION
GRTA	GREEN RIGHT TURN ARROW	SW	SWITCH
GTHA	GREEN THRU ARROW	SWD	SWITCHED
HH	HANDHOLE	S&R	SALVAGE AND REINSTALL
HPS	HIGH PRESSURE SODIUM	TDW	TELEPHONE DROP WIRE
JB	JUNCTION BOX	WLK	WALK
LUM	LUMINAIRE	YEL	YELLOW
NEU	NEUTRAL	YLTA	YELLOW LEFT TURN ARROW
NMC	NONMETALLIC CONDUIT	YRTA	YELLOW RIGHT TURN ARROW
		YTHA	YELLOW THRU ARROW

CERTIFIED BY

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ANDREW J. WITTER, P.E.

C.P. 05-05-08

LIC. NO. 42757 DATE 4/14/05

SHEET NO. 11 OF 11 SHEETS