INFORMATION HANDOUT

For Contract No. 06-0R0701
At 06-MAD-99-1.5/9.5

Identified by
Project ID 0614000006

MATERIALS INFORMATION

WATER SOURCE INFORMATION

ALTERNATIVE IN-LINE TERMINAL SYSTEM

ALTERNATIVE FLARED TERMINAL SYSTEM

TAU-IIR CRASH CUSHION

CROSS SECTIONS

EXISTING TRAFFIC MANAGEMENT SYSTEM ELEMENTS

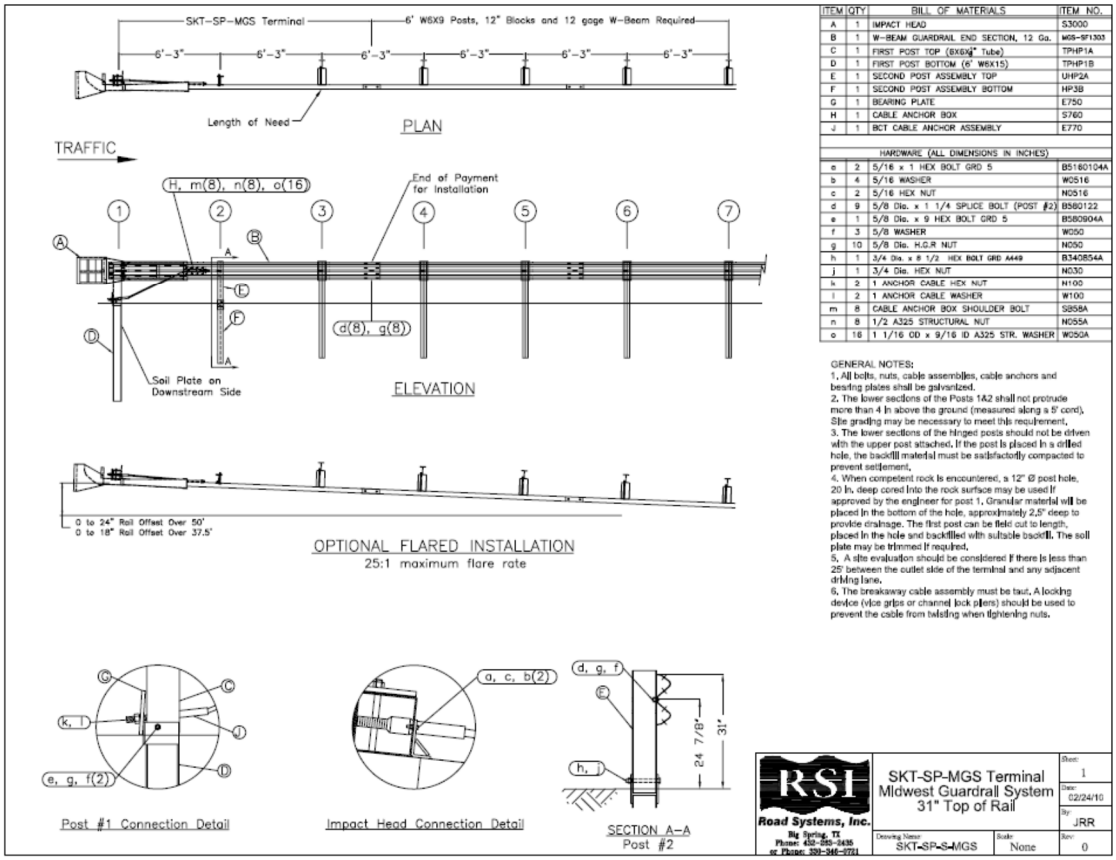
06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006

CALTRANS
Highway 168 at Temperance westbound on-ramp and at eastbound off-ramp at parking pads.

Contacts:

Sean Wirth: email - sean_wirth@dot.ca.gov, phone - (559) 974-8551

06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	S3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	MGS-SF1303
C	1	FIRST POST TOP (8X6X¼" Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' W6X15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S760
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	9	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W050
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	S858A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

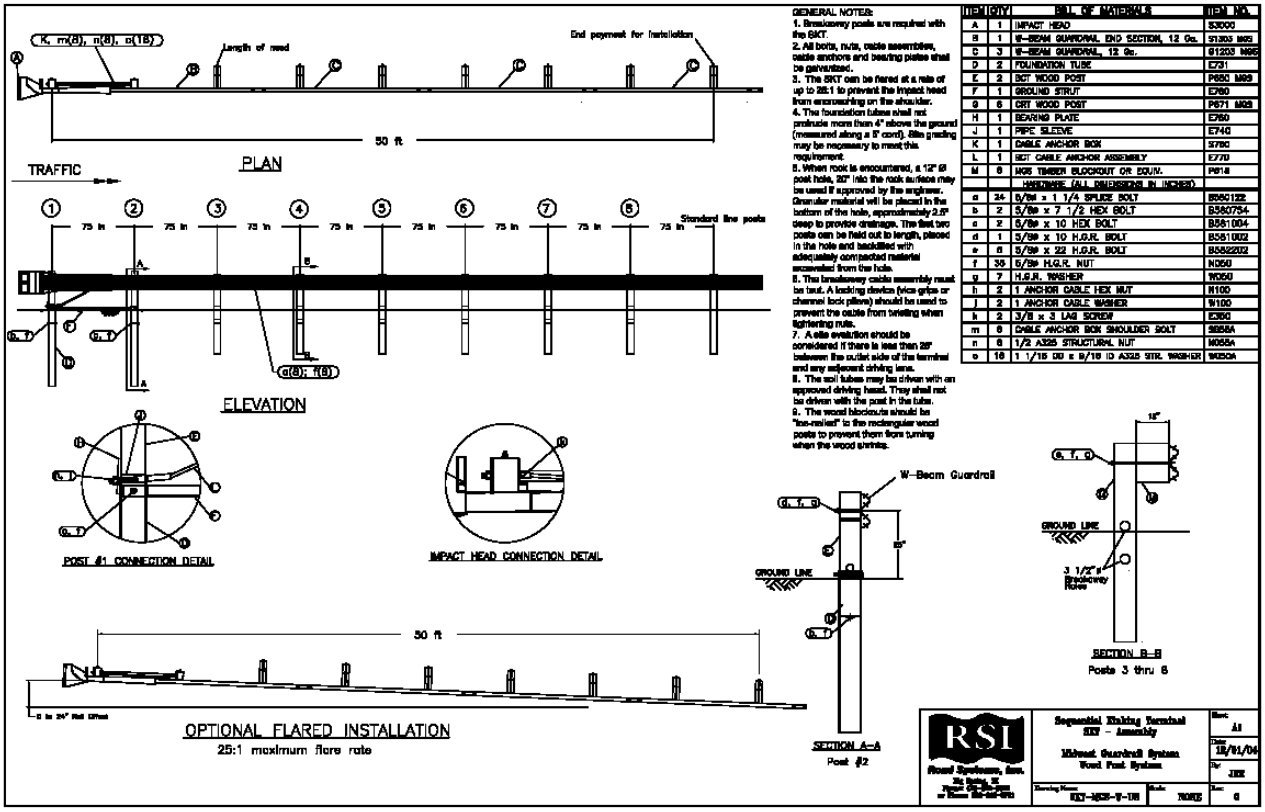
GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
3. The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. A site evaluation should be considered if there is less than 25' between the outlet side of the terminal and any adjacent driving lane.
6. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

RSI Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 320-346-7701

SKT-SP-MGS Terminal
Midwest Guardrail System
31" Top of Rail

Sheet: 1
Date: 02/24/10
By: JRR
Drawing Name: SKT-SP-S-MGS
Scale: None
Rev: 0

06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



GENERAL NOTES:

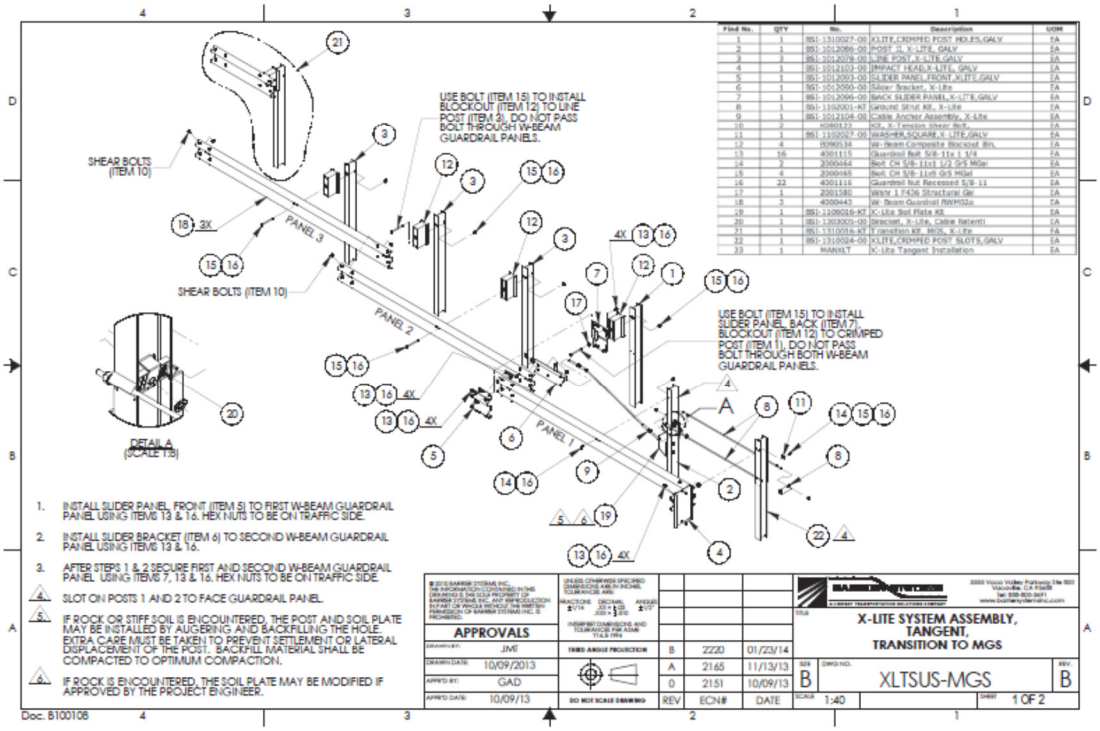
1. Breakaway posts are required with the SKT.
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. The SKT can be flared at a rate of up to 25:1 to prevent the impact head from encroaching on the shoulder.
4. The foundation tubes shall not protrude more than 4" above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
5. When rock is encountered, a 12" Ø post hole, 30" into the rock surface may be used if approved by the engineer. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first two posts can be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
6. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
7. A site evaluation should be considered if there is less than 25' between the outlet side of the terminal and any adjacent driving lane.
8. The soil tubes may be driven with an approved driving head. They shall not be driven with the post in the tube.
9. The wood blockouts should be "toe-relief" to the rectangular wood posts to prevent them from turning when the wood shrinks.

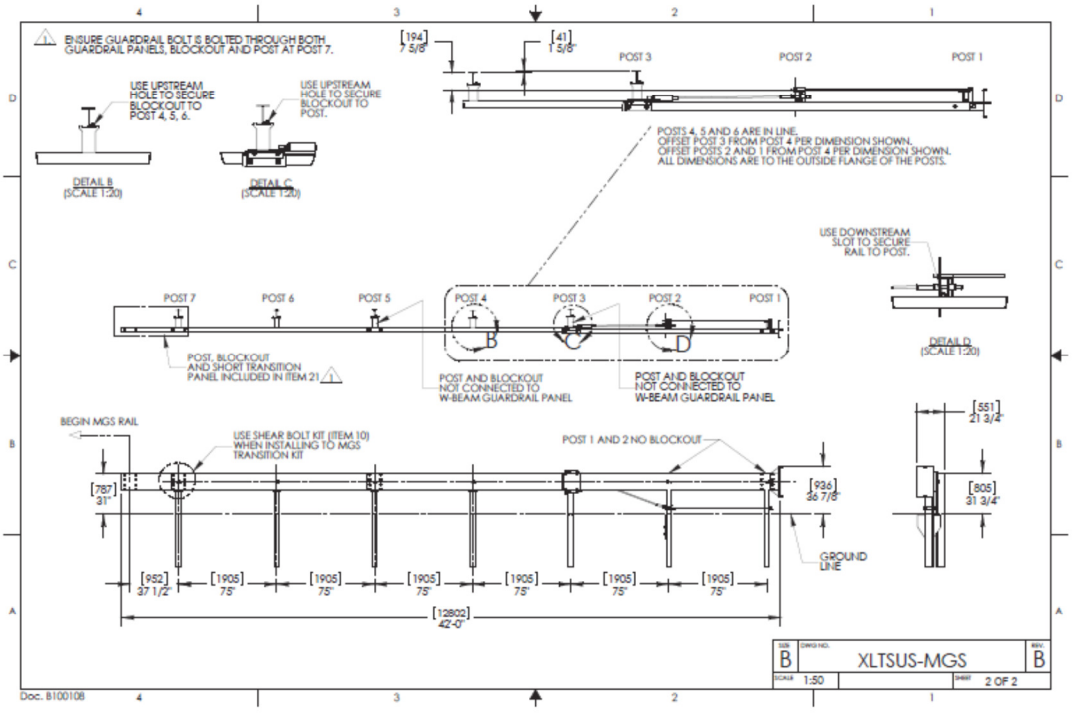
ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	S3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	31203 M03
C	3	W-BEAM GUARDRAIL, 12 Ga.	31203 M05
D	2	FOUNDATION TUBE	E731
E	2	SKT WOOD POST	P652 M09
F	1	GROUND STRUT	E760
G	6	CRT WOOD POST	P671 M09
H	1	BEARING PLATE	E750
J	1	PIPE SLEEVE	E740
K	1	CABLE ANCHOR BOX	X760
L	1	SKT CABLE ANCHOR ASSEMBLY	E770
M	6	MGS TIMBER BLOCKOUT OR EQUIV.	P614
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	24	5/8ø x 1 1/4 SPLICE BOLT	B560122
b	2	5/8ø x 7 1/2 HEX BOLT	B560754
c	2	5/8ø x 10 HEX BOLT	B561004
d	1	5/8ø x 10 H.G.R. BOLT	B561002
e	6	5/8ø x 22 H.G.R. BOLT	B562202
f	35	5/8ø H.G.R. NUT	N560
g	7	H.G.R. WASHER	W560
h	2	1 ANCHOR CABLE HEX NUT	N100
j	2	1 ANCHOR CABLE WASHER	W100
k	2	3/8 x 3 LAG SCREW	X360
m	6	CABLE ANCHOR BOX SHOULDER BOLT	S626A
n	6	1/2 A325 STRUCTURAL NUT	N055A
o	18	1 1/16 OD x 9/16 ID A325 STR. WASHER	W250A

RSI Road Systems, Inc.

Sequential Kinking Terminal
SKT - Assembly
Midwest Guardrail System
Wood Post System

Sheet: A1
Date: 12/01/04
By: JKK
Drawing Name: SKT-MGS-W-TH
Scale: NONE
Rev: 0

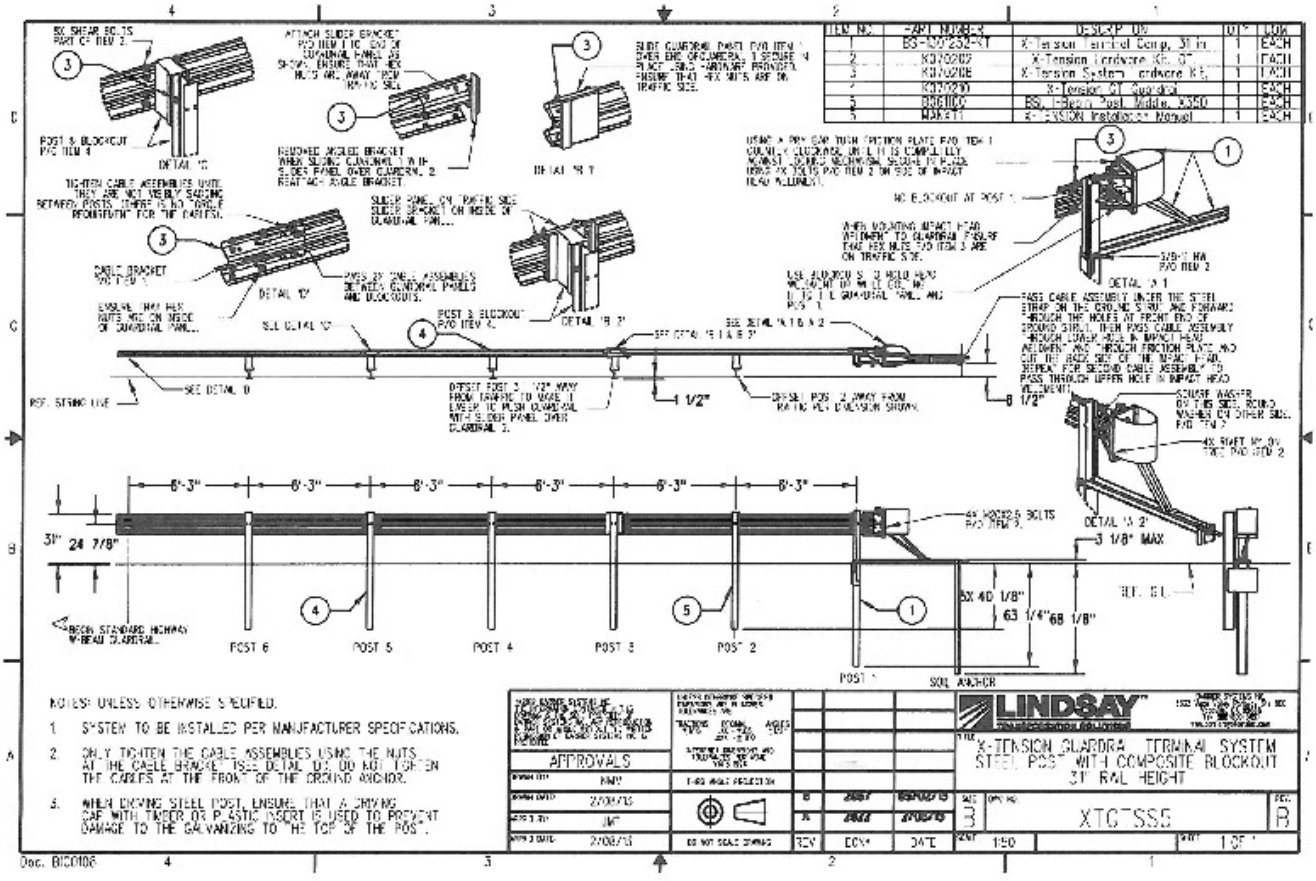

USE BOLT (ITEM 15) TO INSTALL BLOCKOUT (ITEM 12) TO LINE POST (ITEM 3). DO NOT PASS BOLT THROUGH W-BEAM GUARDRAIL PANELS.
SHEAR BOLTS (ITEM 10)
PANEL 3
PANEL 2
PANEL 1
SHEAR BOLTS (ITEM 10)
USE BOLT (ITEM 15) TO INSTALL SLIDER PANEL, BACK (ITEM 7) BLOCKOUT (ITEM 12) TO CRIMPED POST (ITEM 1). DO NOT PASS BOLT THROUGH BOTH W-BEAM GUARDRAIL PANELS.
DETAIL A
(SCALE 1:8)
1. INSTALL SLIDER PANEL, FRONT, (ITEM 5) TO FIRST W-BEAM GUARDRAIL PANEL USING ITEMS 13 & 16. HEX NUTS TO BE ON TRAFFIC SIDE.
2. INSTALL SLIDER BRACKET (ITEM 6) TO SECOND W-BEAM GUARDRAIL PANEL USING ITEMS 13 & 16.
3. AFTER STEPS 1 & 2 SECURE FIRST AND SECOND W-BEAM GUARDRAIL PANEL USING ITEMS 7, 13 & 16. HEX NUTS TO BE ON TRAFFIC SIDE.
4. SLOT ON POSTS 1 AND 2 TO FACE GUARDRAIL PANEL.
5. IF ROCK OR STIFF SOIL IS ENCOUNTERED, THE POST AND SOIL PLATE MAY BE INSTALLED BY AUGERING AND BACKFILLING THE HOLE. EXTRA CARE MUST BE TAKEN TO PREVENT SETTLEMENT OR LATERAL DISPLACEMENT OF THE POST. BACKFILL MATERIAL SHALL BE COMPACTED TO OPTIMUM COMPACTION.
6. IF ROCK IS ENCOUNTERED, THE SOIL PLATE MAY BE MODIFIED IF APPROVED BY THE PROJECT ENGINEER.
APPROVALS
X-LITE SYSTEM ASSEMBLY, TANGENT, TRANSITION TO MGS
XLTSUS-MGS
1 OF 2
Doc. B100108


ENSURE GUARDRAIL BOLT IS BOLTED THROUGH BOTH GUARDRAIL PANELS, BLOCKOUT AND POST AT POST 7.
USE UPSTREAM HOLE TO SECURE BLOCKOUT TO POST 4, 5, 6.
USE UPSTREAM HOLE TO SECURE BLOCKOUT TO POST.
DETAIL B (SCALE 1:20)
DETAIL C (SCALE 1:20)
[194] 7 5/8"
[41] 1 5/8"
POST 3
POST 2
POST 1
POSTS 4, 5 AND 6 ARE IN LINE. OFFSET POST 3 FROM POST 4 PER DIMENSION SHOWN. OFFSET POSTS 2 AND 1 FROM POST 4 PER DIMENSION SHOWN. ALL DIMENSIONS ARE TO THE OUTSIDE FLANGE OF THE POSTS.
USE DOWNSTREAM SLOT TO SECURE RAIL TO POST.
DETAIL D (SCALE 1:20)
POST 7
POST 6
POST 5
POST 4
POST 3
POST 2
POST 1
POST, BLOCKOUT AND SHORT TRANSITION PANEL INCLUDED IN ITEM 21
POST AND BLOCKOUT NOT CONNECTED TO W-BEAM GUARDRAIL PANEL
POST AND BLOCKOUT NOT CONNECTED TO W-BEAM GUARDRAIL PANEL
BEGIN MGS RAIL
USE SHEAR BOLT KIT (ITEM 10) WHEN INSTALLING TO MGS TRANSITION KIT
POST 1 AND 2 NO BLOCKOUT
[787] 31"
[936] 36 7/8"
GROUND LINE
[551] 21 3/4"
[805] 31 3/4"
[952] 37 1/2"
[1905] 75"
[12802] 42'-0"
B
XLTSUS-MGS
B
1:50
2 OF 2
Doc. B100108

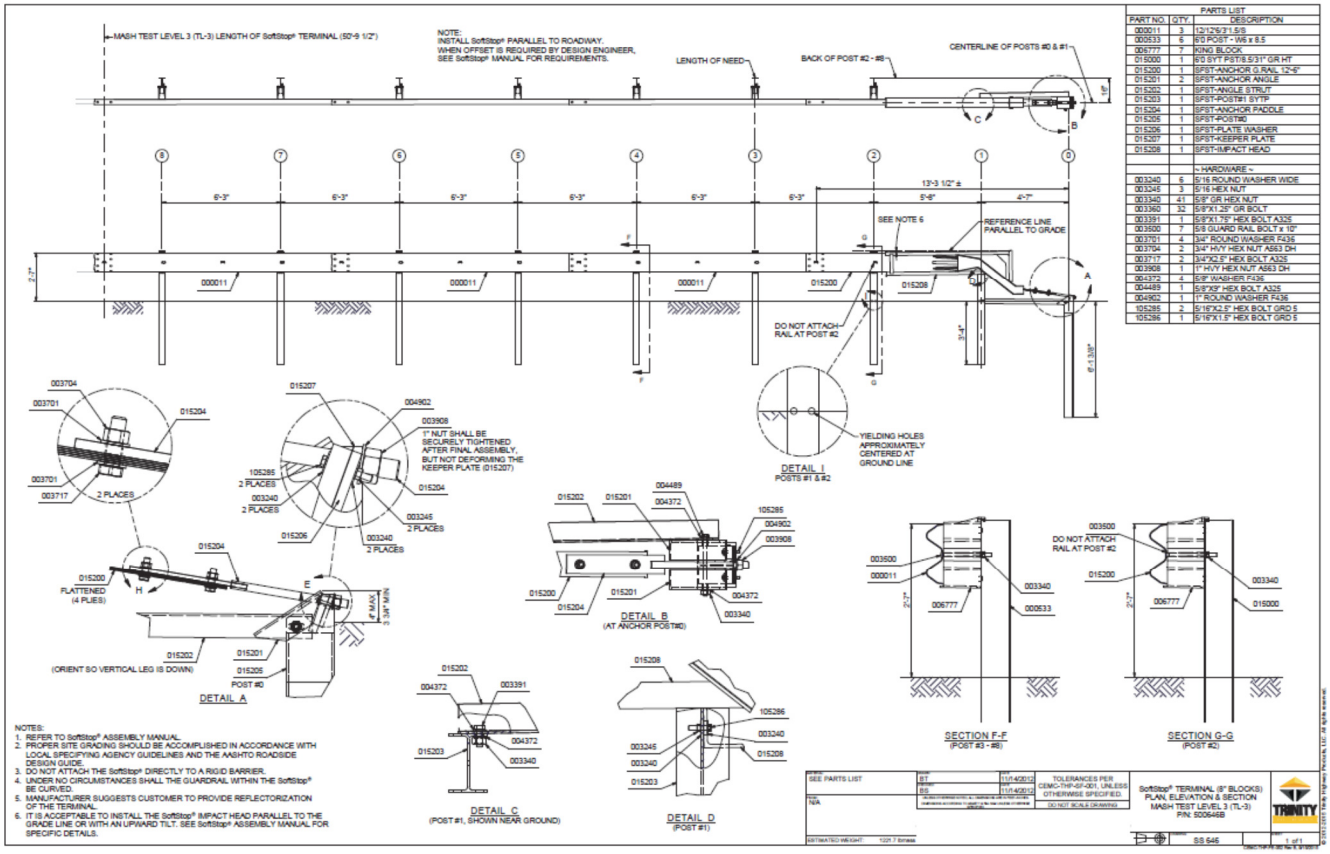
Appendix A -Bill of Materials - X-Lite Tangent, MGS 37' 6"

Item	Description	Full System	Kit Only
BSI-1310024-00	XLITE,CRIMPED POST SLOTS,GALV	1.00	1.00
BSI-1310027-00	XLITE,CRIMPED POST HOLES,GALV	1.00	1.00
BSI-1012086-00	POST II, X-LITE, GALV	1.00	1.00
BSI-1012078-00	LINE POST,X-LITE,GALV	3.00	-
BSI-1012103-00	IMPACT HEAD,X-LITE, GALV	1.00	1.00
BSI-1012093-00	SLIDER PANEL,FRONT,XLITE,GALV	1.00	1.00
BSI-1012090-00	Slider Bracket, X-Lite	1.00	1.00
BSI-1012096-00	BACK SLIDER PANEL,X-LITE,GALV	1.00	1.00
BSI-1012097-00	Ground Strut, X-Lite	2.00	2.00
BSI-1012098-00	Ground Strut Angle	1.00	1.00
BSI-1012104-00	Cable Anchor Assembly, X-Lite	1.00	1.00
K080123	Kit, X-Tension Shear Bolt,	2.00	2.00
BSI-1102027-00	WASHER,SQUARE,X-LITE,GALV	1.00	1.00
B090534	W-Beam Composite Blockout 8in,	4.00	-
4001115	Guardrail Bolt 5/8-11x 1 1/4	16.00	-
2000464	Bolt CH 5/8-11x1 1/2 Gr5 MGal	2.00	-
2000465	Bolt CH 5/8-11x9 Gr5 MGal	4.00	-
4001116	Guardrail Nut Recessed 5/8-11	26.00	-
2001580	Wshr 1" F436 Structural	1.00	-
4000443	W-Beam Guardrail RWM02a	3.00	-
BSI-1312100-00	Soil Plate	1.00	1.00
2000220	C-Scr HH 5/8-11x3 1/2 Gr5 MGal	2.00	2.00
2001636	Wshr 5/8 F436 Struct MGal	4.00	4.00
2000312	Nut HX 5/8-11 Gr5 Mgal	2.00	1.00
BSI-1303005-00	Bracket, X-Lite, Cable Retenti	1.00	1.00
BSI-1310016-KT	Transition Kit, MGS, X-Lite	1.00	1.00

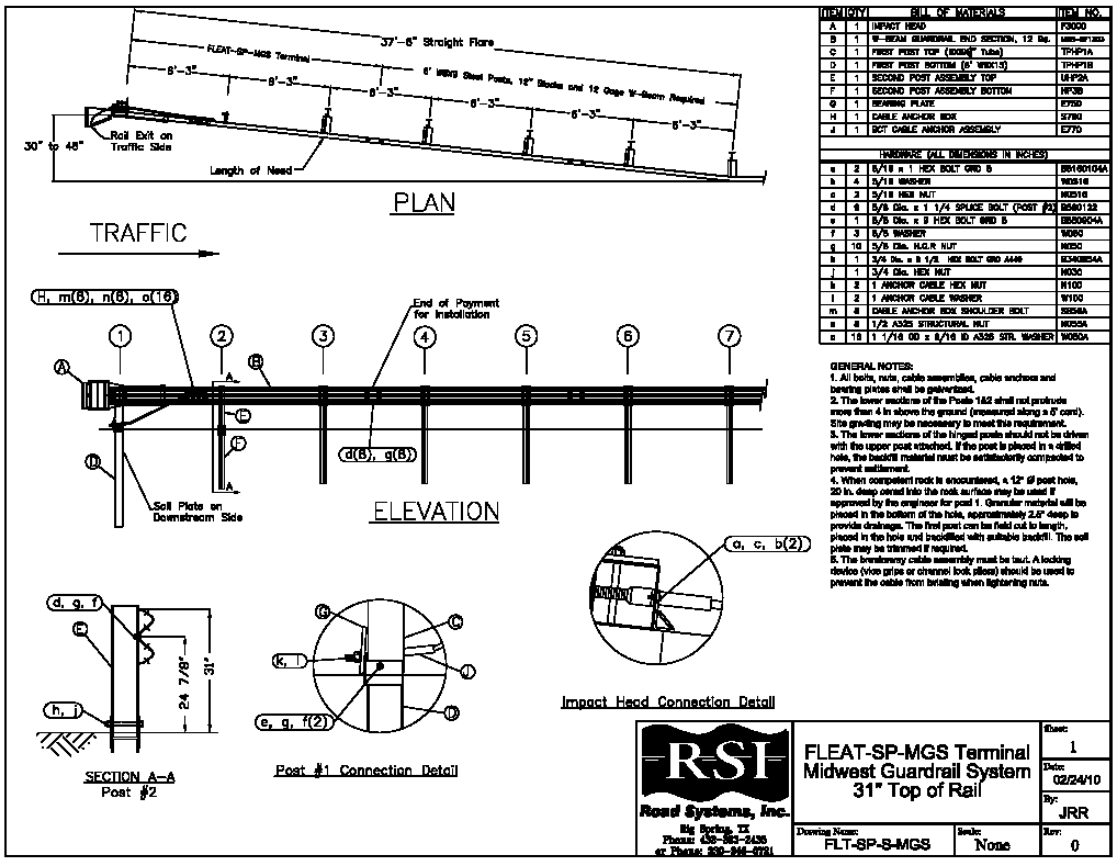
06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	F3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	[illegible]
C	1	FIRST POST TOP (10X8 Tube)	TPHP1A
D	1	FIRST POST BOTTOM (6' WBX15)	TPHP1B
E	1	SECOND POST ASSEMBLY TOP	UHP2A
F	1	SECOND POST ASSEMBLY BOTTOM	HP3B
G	1	BEARING PLATE	E750
H	1	CABLE ANCHOR BOX	S780
J	1	BCT CABLE ANCHOR ASSEMBLY	E770
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	2	5/16 x 1 HEX BOLT GRD 5	B5160104A
b	4	5/16 WASHER	W0516
c	2	5/16 HEX NUT	N0516
d	6	5/8 Dia. x 1 1/4 SPLICE BOLT (POST #2)	B580122
e	1	5/8 Dia. x 9 HEX BOLT GRD 5	B580904A
f	3	5/8 WASHER	W080
g	10	5/8 Dia. H.G.R NUT	N050
h	1	3/4 Dia. x 8 1/2 HEX BOLT GRD A449	B340854A
j	1	3/4 Dia. HEX NUT	N030
k	2	1 ANCHOR CABLE HEX NUT	N100
l	2	1 ANCHOR CABLE WASHER	W100
m	8	CABLE ANCHOR BOX SHOULDER BOLT	S854A
n	8	1/2 A325 STRUCTURAL NUT	N055A
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W050A

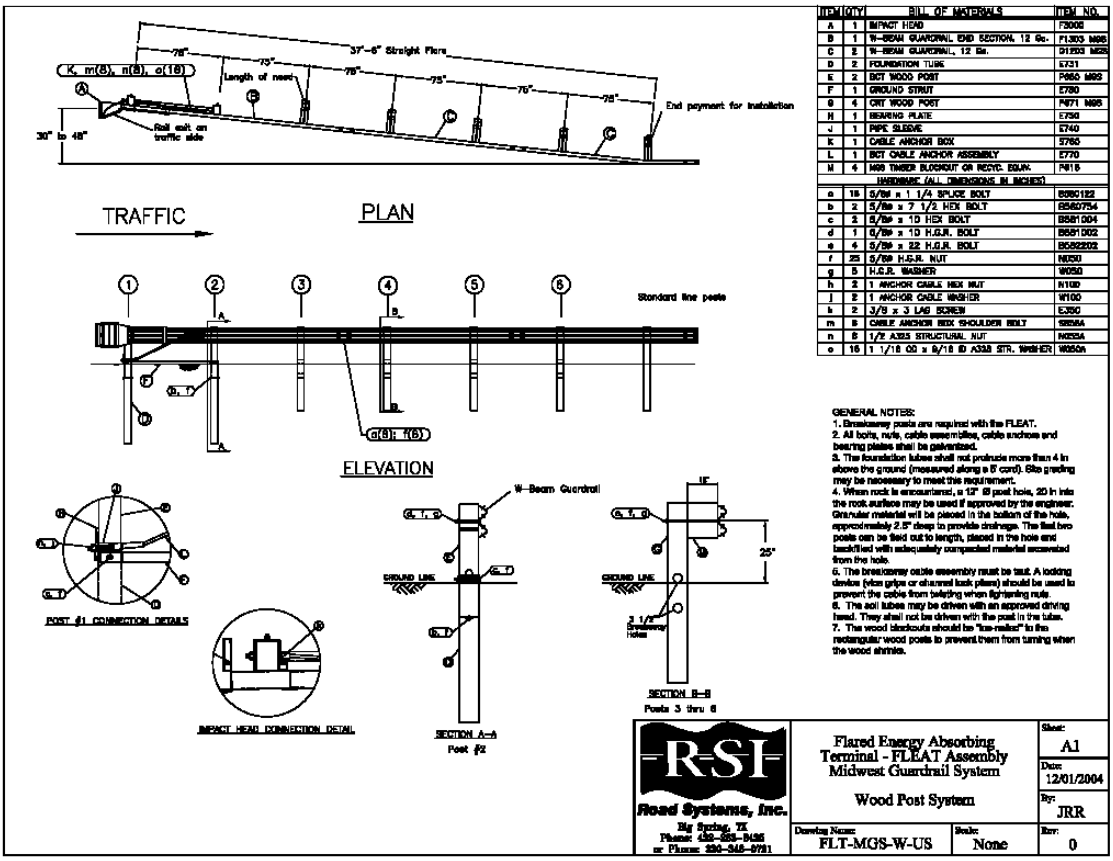
GENERAL NOTES:
1. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
2. The lower sections of the Posts 1&2 shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
3. The lower sections of the hinged posts should not be driven with the upper post attached. If the post is placed in a drilled hole, the backfill material must be satisfactorily compacted to prevent settlement.
4. When competent rock is encountered, a 12" Ø post hole, 20 in. deep cored into the rock surface may be used if approved by the engineer for post 1. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first post can be field cut to length, placed in the hole and backfilled with suitable backfill. The soil plate may be trimmed if required.
5. The breakaway cable assembly must be taut. A locking device (vice grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.

RSI Road Systems, Inc.
Big Spring, TX
Phone: 432-263-2435
or Phone: 330-946-0721

FLEAT-SP-MGS Terminal
Midwest Guardrail System
31" Top of Rail

Sheet:	1
Date:	02/24/10
By:	JRR
Drawing Name:	FLT-SP-S-MGS
Scale:	None
Rev:	0

06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



ITEM	QTY	BILL OF MATERIALS	ITEM NO.
A	1	IMPACT HEAD	F3000
B	1	W-BEAM GUARDRAIL END SECTION, 12 Ga.	F1303 M98
C	2	W-BEAM GUARDRAIL, 12 Ga.	F1203 M28
D	2	FOUNDATION TUBE	F731
E	2	BCT WOOD POST	F950 M99
F	1	GROUND STRUT	F780
G	4	CRT WOOD POST	F971 M98
H	1	BEARING PLATE	F750
J	1	PIPE SLEEVE	F740
K	1	CABLE ANCHOR BOX	F765
L	1	BCT CABLE ANCHOR ASSEMBLY	F770
M	4	M99 TIMBER BLOCKOUT OR RECYC. EQUIV.	F915
		HARDWARE (ALL DIMENSIONS IN INCHES)	
a	16	5/8ø x 1 1/4 SPLICE BOLT	B560122
b	2	5/8ø x 7 1/2 HEX BOLT	B560754
c	2	5/8ø x 10 HEX BOLT	B561004
d	1	5/8ø x 10 H.G.R. BOLT	B561002
e	4	5/8ø x 22 H.G.R. BOLT	B562202
f	25	5/8ø H.G.R. NUT	N050
g	5	H.G.R. WASHER	W050
h	2	1 ANCHOR CABLE HEX NUT	N100
j	2	1 ANCHOR CABLE WASHER	W100
k	2	3/8 x 3 LAG SCREW	S350
m	8	CABLE ANCHOR BOX SHOULDER BOLT	SB564
n	8	1/2 A325 STRUCTURAL NUT	N054
o	16	1 1/16 OD x 9/16 ID A325 STR. WASHER	W054A

GENERAL NOTES:
1. Breakaway posts are required with the FLEAT.
2. All bolts, nuts, cable assemblies, cable anchors and bearing plates shall be galvanized.
3. The foundation tubes shall not protrude more than 4 in above the ground (measured along a 5' cord). Site grading may be necessary to meet this requirement.
4. When rock is encountered, a 12" Ø post hole, 20 in into the rock surface may be used if approved by the engineer. Granular material will be placed in the bottom of the hole, approximately 2.5" deep to provide drainage. The first two posts can be field cut to length, placed in the hole and backfilled with adequately compacted material excavated from the hole.
5. The breakaway cable assembly must be taut. A locking device (vise grips or channel lock pliers) should be used to prevent the cable from twisting when tightening nuts.
6. The soil tubes may be driven with an approved driving head. They shall not be driven with the post in the tube.
7. The wood blockouts should be "toe-nailed" to the rectangular wood posts to prevent them from turning when the wood shrinks.

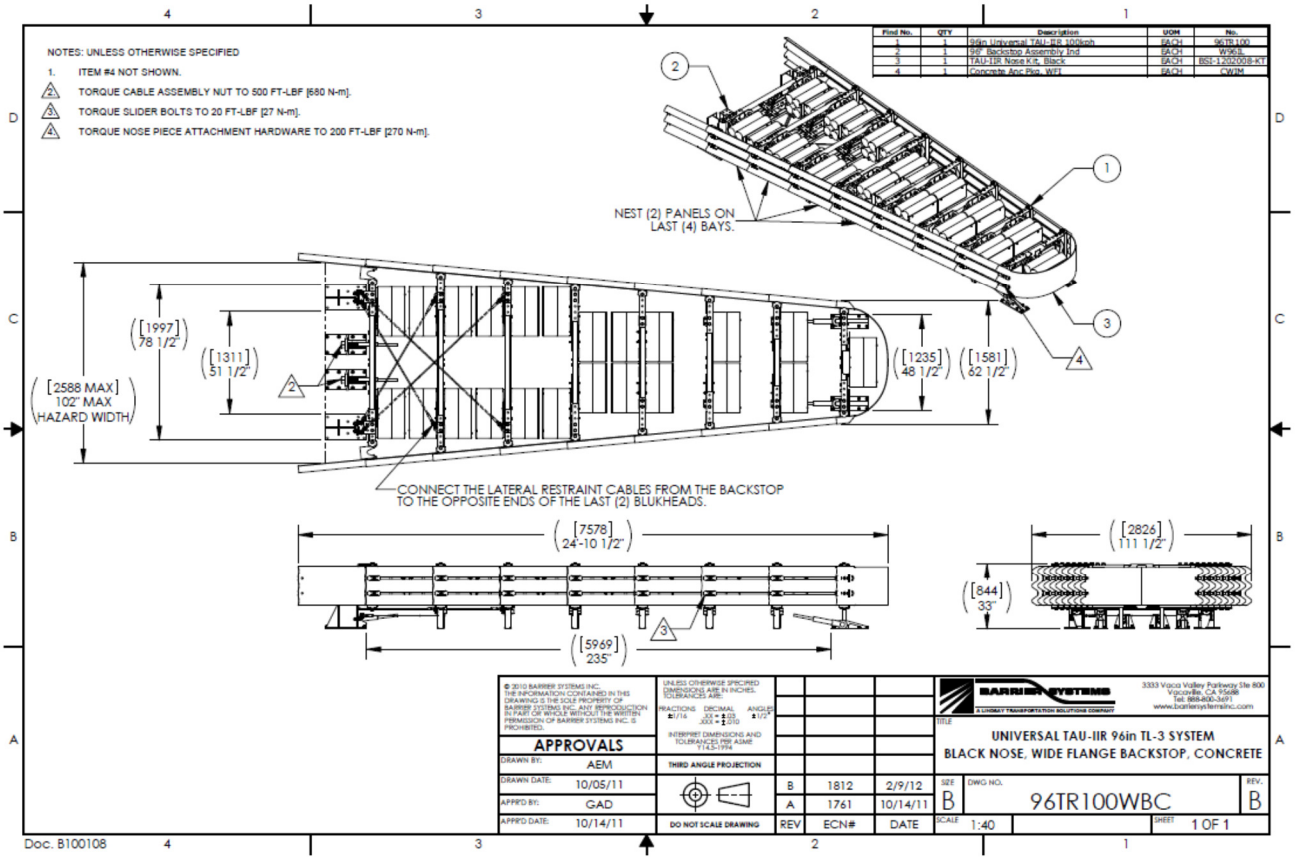
RSI Road Systems, Inc.
Big Spring, TX
Phone: 432-263-8435
or Phone: 230-345-8781

Flared Energy Absorbing Terminal - FLEAT Assembly
Midwest Guardrail System
Wood Post System

Drawing Name: FLT-MGS-W-US
Scale: None

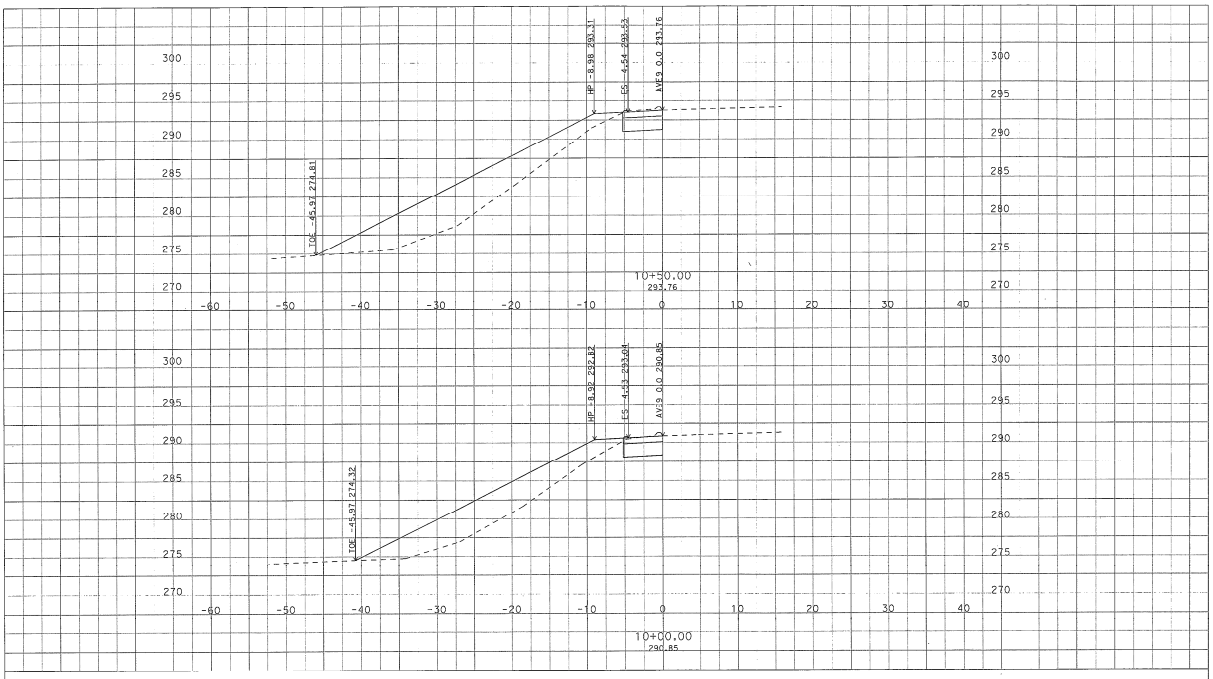
Sheet: A1
Date: 12/01/2004
By: JRR
Rev: 0

06-0R0701
06-Mad-99-1.5/9.5
Project ID: 0614000006



For Earthwork Development Only

All Dimensions are U.S. Survey Feet



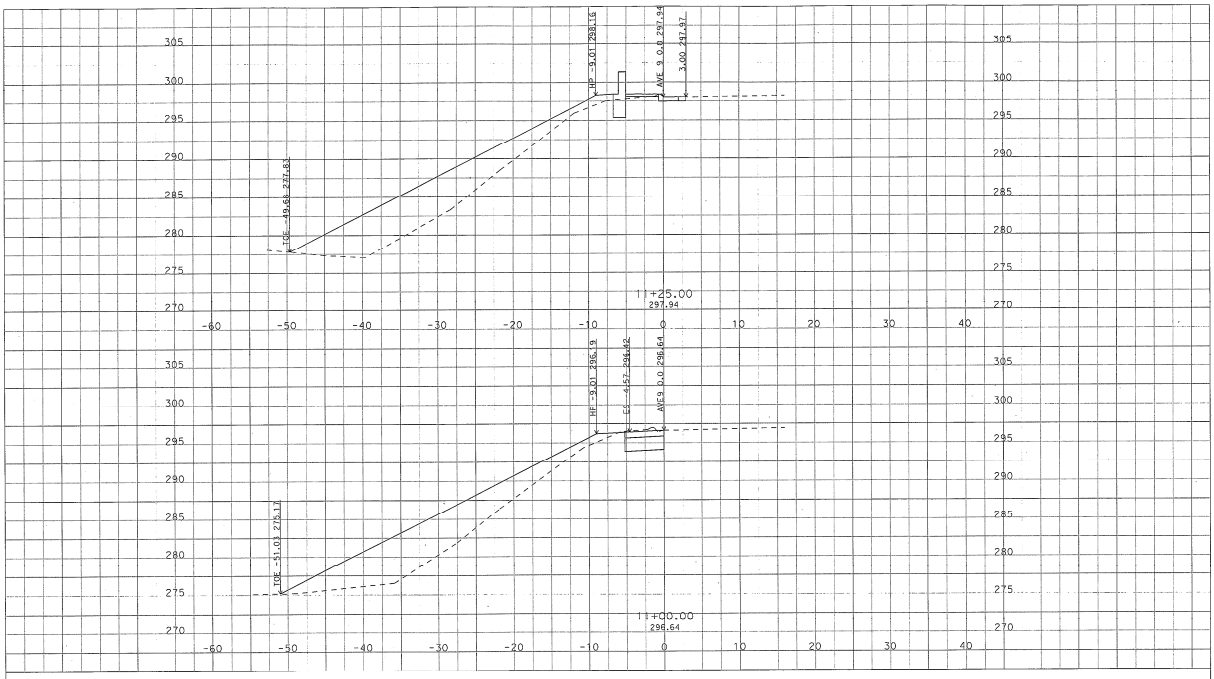
PLOTTED DATE: 04/01/16
SCALE: 1"=5' Horiz.
1"=5' Vert.
CREATED BY: c128149

CONTRACT: 06-0R070
DIST/CO/RTE/PM: 06/MAD/99/1.5/9.5
PROJECT ID: 0614000006

AVE9
CROSS SECTIONS
SHEET 1 OF 2

For Earthwork Development Only

All Dimensions are U.S. Survey Feet



PLOTTED DATE: 04/01/16
SCALE: 1"=5' Horiz.
1"=5' Vert.
CREATED BY: s120149

CONTRACT: 06-0R070
DIST/CO/RTE/PM: 06/MAD/99/1.5/9.5
PROJECT ID: 0614000006

AVE9
CROSS SECTIONS
SHEET 2 OF 2

EXISTING TMS ELEMENTS

ELEMENT	POSTMILE	LOCATION	DIRECTION
CMS	2.210	S OF 8TH AVENUE	NB
CMS	2.240	N OF 8TH AVENUE	SB
TCS	2.257	N OF AVENUE 7	NB/SB
VDS	3.110	AVENUE 8	NB/SB
TCS	3.358	NB OFF TO AVENUE 9	NB
VDS	3.550	AT AVENUE 9	SB
TCS	3.629	SB ON FR AVENUE 9	SB
TCS	3.738	NB ON FROM AVENUE 9	NB
TCS	3.804	SB OFF TO AVENUE 9	SB
VDS	4.860	N OF AVENUE 9 (AVENUE 10)	SB
VDS	6.130	AT AVENUE 11	SB
TCS	6.136	AT AVENUE 11	NB
TCS	6.136	AT AVENUE 11	SB
TCS	7.270	NB OFF TO AVENUE 12	NB
SIGNAL	7.440	AVENUE 12 AND ROAD 29-NORTH	
CCTV	7.460	AVENUE 12	NB
SIGNAL	7.500	99 (SB) AT AVENUE 12 GOLDEN STATE	
TCS	7.534	SB ON FR AVENUE 12	SB
SIGNAL	7.570	99 (NB) AT AVENUE 12 E	
TCS	7.653	NB ON FROM AVENUE 12	NB
TCS	7.787	SB OFF TO AVENUE 12	SB
VDS	8.690	AT AVENUE 13	SB

TCS	9.372	SB ON FROM ALMOND AVE	SB
SIGNAL	9.490	99 SB ON/OFF RAMP FROM ALMOND	

Postmiles listed are approximate.

Abbreviations:
TMS: Traffic Monitoring Station
CMS: Changeable Message Sign
TCS: Traffic Count Station
VDS: Vehicle Detection Station
CCTV: Closed Circuit Television