

IDAHO TRANSPORTATION DEPARTMENT



STANDARD DRAWINGS

JUNE 2016

STANDARD DRAWING LIST

JUNE 2016

DRAWING NUMBER	DRAWING NAME (additional required drawings in parentheses)	REVISION DATE
<input type="checkbox"/> G-1-F-1	Guardrail Terminal Type 5 Alternate "A" (requires G-1-A-1 through G-1-A-4)	05-06
<input type="checkbox"/> G-1-F-2	Guardrail Terminal Type 5 Alternate "B" (requires G-1-A-1 through G-1-A-4)	10-10
<input type="checkbox"/> G-1-H	Guardrail Terminals Type 7 & 8 (requires G-1-A-1 through G-1-A-4)	10-10
<input type="checkbox"/> G-1-I	Guardrail Terminal Type 11 (requires G-1-A-1 through G-1-A-4)	10-10
<input type="checkbox"/> G-1-J	Guardrail Terminal Types 4-A & 4-B (requires G-1-A-1 through G-1-A-4 & R-2 when needed)	05-06
<input type="checkbox"/> G-1-K	Guardrail Terminal Type 9 (requires G-1-A-1 through G-1-A-4)	10-10
<input type="checkbox"/> G-1-L	Guardrail Installation for Minor Structures & Large Culverts (requires G-1-A-1 through G-1-A-4)	12-10
<input type="checkbox"/> G-1-M	Guardrail Terminal Type 10 (requires G-1-A-1 through G-1-A-4)	10-10
<input type="checkbox"/> G-1-N	Guardrail Terminal Type 12 (requires G-1-A-1 through G-1-A-4)	10-10
<input type="checkbox"/> G-2-A	Concrete Barrier Terminals	12-14
<input type="checkbox"/> G-2-A-1	20' Concrete Barrier	05-14
<input type="checkbox"/> G-2-A-2	10' Concrete Barrier	05-14
<input type="checkbox"/> G-2-C	Concrete Parapet to Thrie Beam Guardrail Connector (requires G-1-E)	11-13
<input type="checkbox"/> G-2-D	Concrete Barrier to Thrie Beam Guardrail Connector (requires G-1-E)	11-13
<input type="checkbox"/> G-2-H	Special Cast-in-place Concrete Barrier (requires G-2-A-1 or G-2-A-2)	05-13
<input type="checkbox"/> G-2-I-1	Tall Concrete Median Barrier	05-13
<input type="checkbox"/> G-2-I-2	Tall to Standard Concrete Barrier Transition	05-13
<input type="checkbox"/> H-2-C	Pedestrian Pushbutton Placement	06-14
<input type="checkbox"/> H-4-A	Rural Approaches (Private, Commercial, & Public)	06-07
<input type="checkbox"/> H-4-B	Mailbox Turnout & Installation (requires H-4-A)	01-13
<input type="checkbox"/> I-5	Loop Detectors - 10 ft/sec ² Deceleration Rate	07-10
<input type="checkbox"/> I-6-A	Mast Arm Traffic Signal Poles (requires H-2-C)	04-14
<input type="checkbox"/> I-6-B	Frangible Cast Base Traffic Signal Poles (requires H-2-C)	04-14
<input type="checkbox"/> I-7-A-1	Signal Cabinet & Service Pedestal Foundation Details	06-14
<input type="checkbox"/> I-7-A-2	Signal Cabinet Foundation Detail	06-14
<input type="checkbox"/> I-7-B-1	Electronic Cabinet Foundation Detail	04-14
<input type="checkbox"/> I-7-B-2	Electronic Cabinet & Service Pedestal Foundation Detail	04-14
<input type="checkbox"/> I-7-C	Mast Arm Signal Pole, Lighting Pole and Pedestrian Pole Foundation Details	12-15
<input type="checkbox"/> I-8-A	Breakaway Steel Sign Post Installation Type A	05-15
<input type="checkbox"/> I-8-D	Breakaway Steel Sign Post Installation Type B	05-15
<input type="checkbox"/> I-8-E	Breakaway Sign Posts Type D	12-13
<input type="checkbox"/> I-8-F	Breakaway Steel Sign Posts Type E	12-15
<input type="checkbox"/> I-9-A-1	B Post and Brace Angle Detail (requires I-9-A-2)	12-13
<input type="checkbox"/> I-9-A-2	B Post and Brace Angle Detail (requires I-9-A-1)	12-13
<input type="checkbox"/> I-9-B	Cardinal Route Marker Assemblies (requires I-8-D)	09-10
<input type="checkbox"/> I-9-C	Route Marker Bracket Details	12-13
<input type="checkbox"/> I-10-A	Extruded Aluminum Signs	11-14
<input type="checkbox"/> I-10-B	Exit Number Panels (requires I-10-A)	11-14
<input type="checkbox"/> I-11-A	Standard Route Markers (requires I-12-F)	12-13
<input type="checkbox"/> I-11-C	Route Marker Auxiliary Panels (requires I-12-F)	12-13
<input type="checkbox"/> I-12-A	Standard Regulatory Signs (requires I-12-F)	12-13
<input type="checkbox"/> I-12-D	Standard Warning Signs (requires I-12-F)	12-13
<input type="checkbox"/> I-12-F	Punching Schedule for Type "B" or Type "E" Signs	07-14
<input type="checkbox"/> I-13	Interstate Exit Number Panels	05-15
<input type="checkbox"/> I-21	Standard Pavement Markings for Arterial and Collector Roadways	12-15
<input type="checkbox"/> I-22	Freeway Pavement Markings	05-15

DRAWING NUMBER	DRAWING NAME (additional required drawings in parentheses)	REVISION DATE
<input type="checkbox"/> P-1-A	Temporary Erosion Control Slope Drains (requires D-4-A, D-5, P-1-D & P-1-E)	11-13
<input type="checkbox"/> P-1-B	Temporary Sediment Control Barriers (requires P-1-D)	02-13
<input type="checkbox"/> P-1-C	Temporary Sediment Trap (requires P-1-D)	11-13
<input type="checkbox"/> P-1-D	Temporary Erosion Control Diversion Devices & Site Example	12-12
<input type="checkbox"/> P-1-E	Temporary Sediment Control Berms, Dikes, and Swales (requires P-1-D)	02-13
<input type="checkbox"/> P-1-F	Erosion and Sediment Control for Temporary Roads (requires P-1-D)	12-12
<input type="checkbox"/> P-1-H	Temporary Sediment Control Inlet Protection (requires P-1-D)	02-13
<input type="checkbox"/> P-2-A	Erosion and Sediment Control Gabions and Revet Mattresses	02-13
<input type="checkbox"/> P-2-B	Sediment Control Rock Check Dam Types (requires P-2-A)	02-13
<input type="checkbox"/> P-2-C	Permanent Erosion Control Slope & Channel Protection (requires P-2-A)	11-14
<input type="checkbox"/> P-2-D	Chutes and Flumes (requires P-2-A)	10-10
<input type="checkbox"/> P-2-F	Permanent Erosion Control Culvert Outlet Protection (requires P-2-A)	10-10
<input type="checkbox"/> P-3-A	See Standard Drawing 605-30	N/A
<input type="checkbox"/> P-3-B	See Standard Drawing 605-31	N/A
<input type="checkbox"/> P-3-D	See Standard Drawing 605-32	N/A
<input type="checkbox"/> P-3-E	Vehicle and Equipment Washdown (requires P-1-D)	12-12
<input type="checkbox"/> P-4-A	Erosion & Sediment Control Retention Basin	10-10
<input type="checkbox"/> P-5-A	Petroleum Storage Area	11-13
<input type="checkbox"/> P-5-B	Temporary Concrete Washout	11-13
<input type="checkbox"/> R-1-A	Highway - Railroad Grade Crossing Signal Type 1	07-10
<input type="checkbox"/> R-1-B	Highway - Railroad Grade Crossing Signal Type 2	07-10
<input type="checkbox"/> R-1-C	Highway - Railroad Grade Crossing Signal Type 3	03-04
<input type="checkbox"/> R-2	Highway - Railroad Grade Crossing Area	03-04

INDIVIDUAL STANDARD DRAWINGS AND AN ELECTRONIC BOOK OF ALL OF THE STANDARD DRAWINGS ARE AVAILABLE ON THE ITD WEBSITE

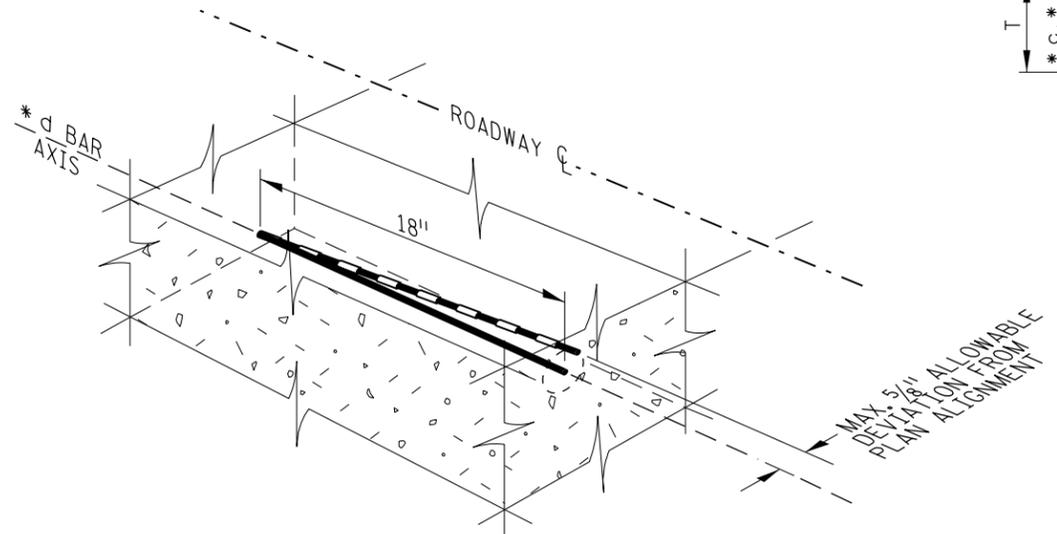
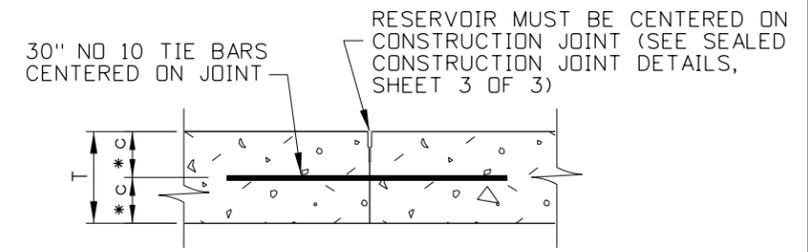
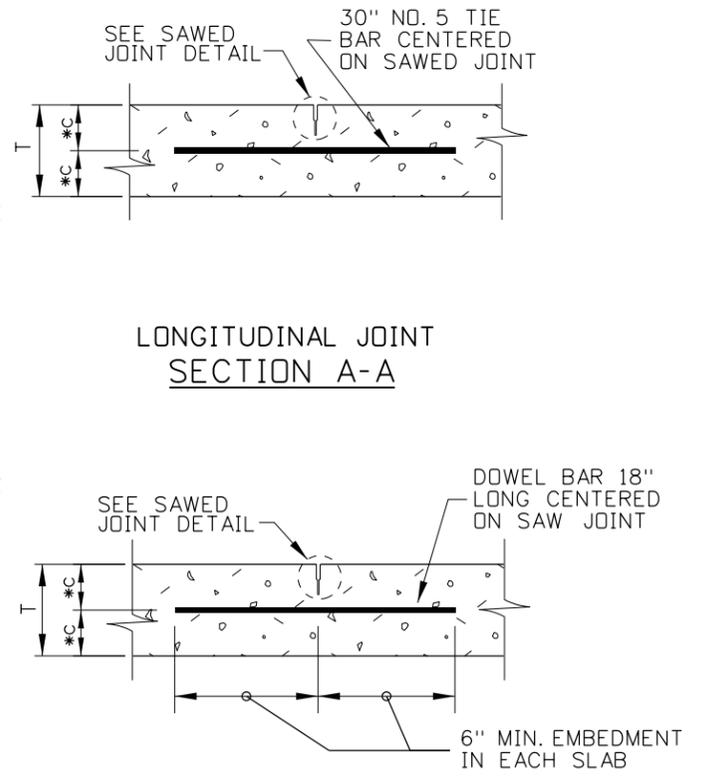
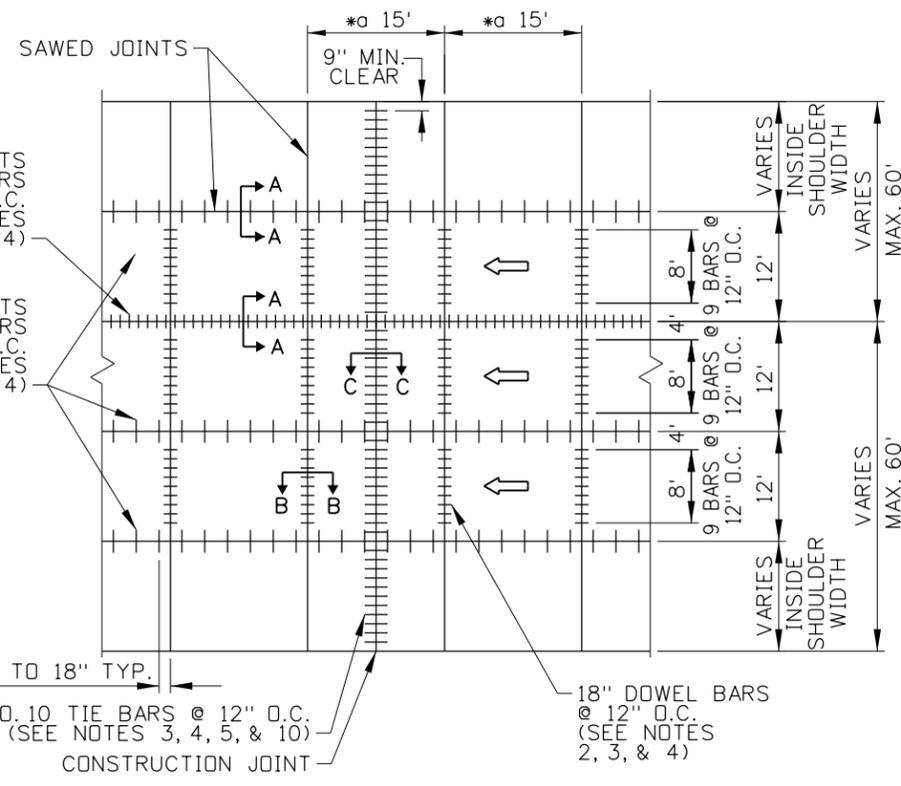
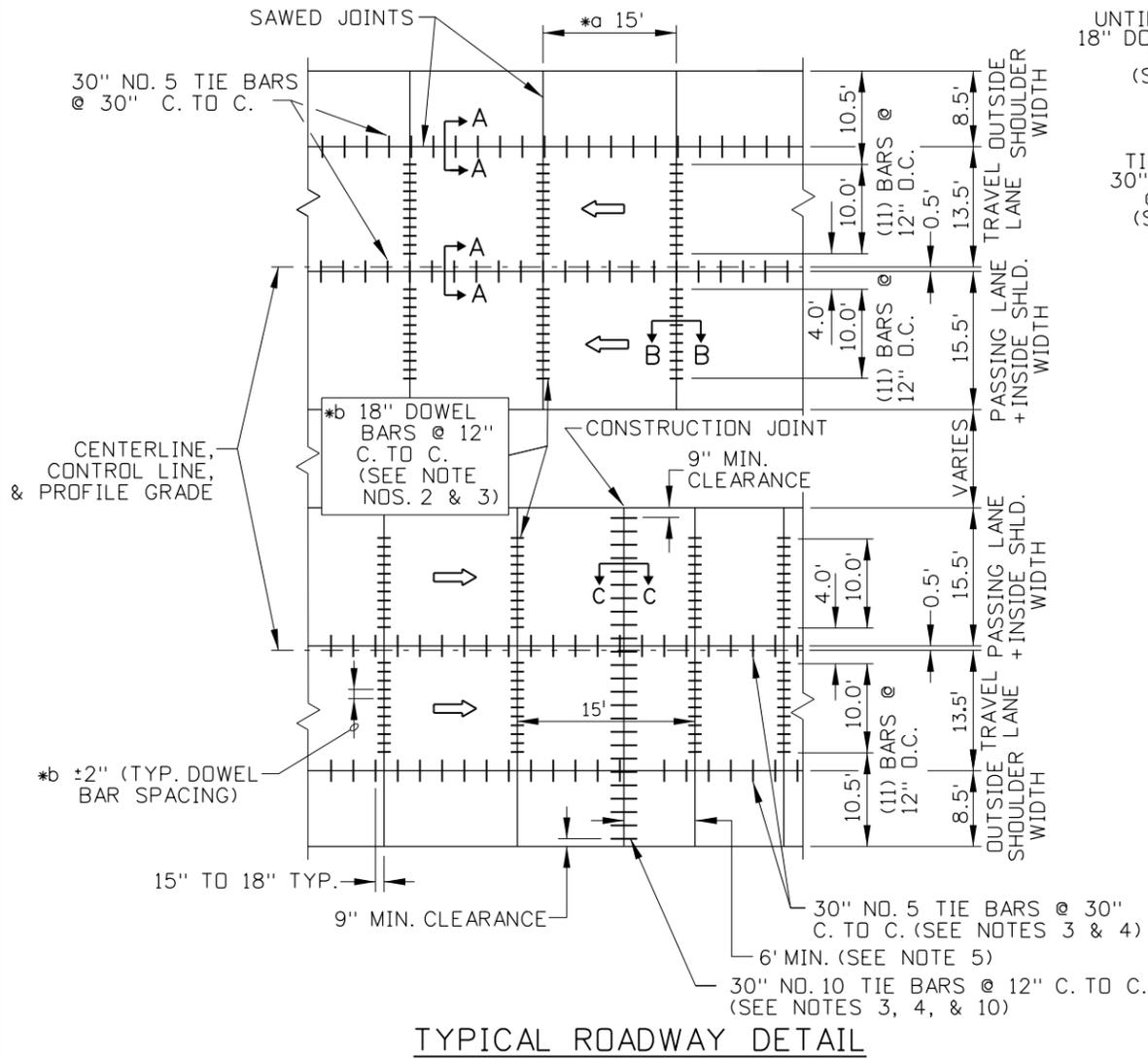
REVISIONS				DESIGNED	IDAHO TRANSPORTATION DEPARTMENT 	PROJECT NO.	STANDARD DRAWING LIST (2 of 2)	English	
NO.	DATE	BY	DESCRIPTION	DESIGN CHECKED		COUNTY KEY NUMBER SHEET OF			

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME StdList2_0616.dgn

DRAWING DATE:

THE MAXIMUM TIED TRANSVERSE WIDTH SHALL BE 60 FEET.
 LONGITUDINAL JOINTS THAT ARE UN-TIED IN ACCORDANCE WITH
 THE FOREGOING SHALL BE APPROVED BY THE ENGINEER. IN NO
 CASE SHALL AN UN-TIED JOINT BE A CONSTRUCTION JOINT.
 THE MAXIMUM TRANSVERSE SLAB LENGTH IS 15 FT.



TYPICAL ROADWAY DETAIL

MULTIPLE LANE ROADWAY DETAIL

LONGITUDINAL JOINT SECTION A-A

TRANSVERSE JOINT SECTION B-B

CONSTRUCTION JOINT SECTION C-C

ALIGNMENT TOLERANCE FOR PAVEMENT DOWEL BARS

SUB-NOTES

- *a ALL JOINTS ARE PERPENDICULAR TO ϵ
- *b ALL DOWEL BAR SPACING TOLERANCE IS TO 2" (ALSO SEE "ALIGNMENT TOLERANCE FOR PAVEMENT DOWEL BARS" DETAIL).
- *c T/2±1"
- *d THE PLAN ALIGNMENT IS FOR THE BAR AXIS TO BE PARALLEL TO CENTERLINE AND PARALLEL TO PAVEMENT SURFACE.

**BAR DIAMETER TABLE
 DOWEL BAR
 IN TRANSVERSE JOINTS
 (UNLESS OTHERWISE NOTED
 ON PROJECT)**

T = PAVEMENT THICKNESS	BAR DIAMETER
T < 11"	1 1/4"
11" ≤ T ≤ 13"	1 1/2"
T > 13"	1 3/4"

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	04-84	GB	6	01-91	GB	11	09-08	JRV
2	01-85	GB	7	12-92	AS	12	10-10	PLR
3	08-85	GB	8	04-93	MSM	13	08-11	RSC
4	08-86	GB	9	01-97	AS	14	04-13	RDL
5	11-89	GB	10	11-01	MSM			

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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 DRAWING DATE: APRIL, 1984

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

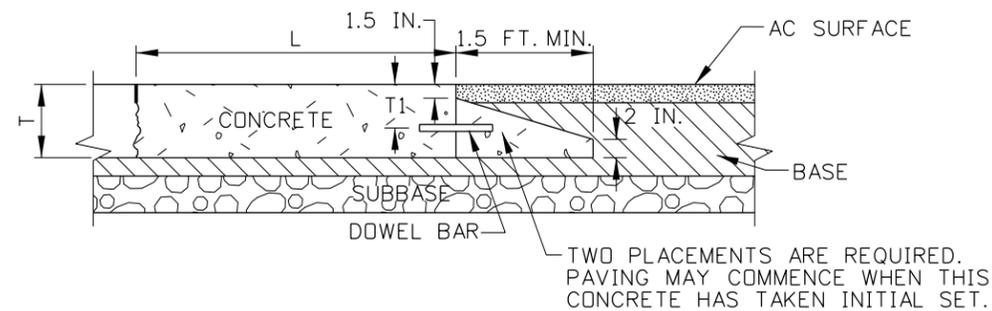
ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
PORTLAND CEMENT CONCRETE PAVEMENT
 REQUIRES SHEETS 2 OF 3 & 3 OF 3

English
 STANDARD DRAWING NO.
409-1
 SHEET 1 OF 3

ORIGINAL SIGNED BY:
 MICHAEL J. SANTI
 DATE ORIGINAL SIGNED:
 MAY 9, 2013

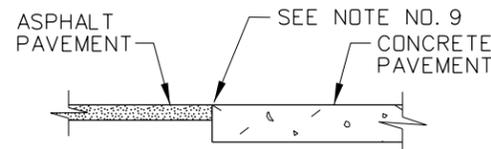


NOTES:

1. T = THICKNESS OF CONCRETE PAVEMENT (I.E. DEPTH)
2. L = PANEL LENGTH(I.E. JOINT SPACING)
3. $T_1 = (T + 1.5") / 2$
4. FOR RECOMMENDED DOWEL SIZES, SEE JOINT TYPES SHEET.

ELEVATION - IMPACT SLAB, HIGHWAYS/STREETS/ROADS

FOR TRANSVERSE JOINTS ABUTTING ASPHALT PAVEMENT IN RECONSTRUCTION OR NEW CONSTRUCTION PROJECTS WHERE $T > 7$ IN.

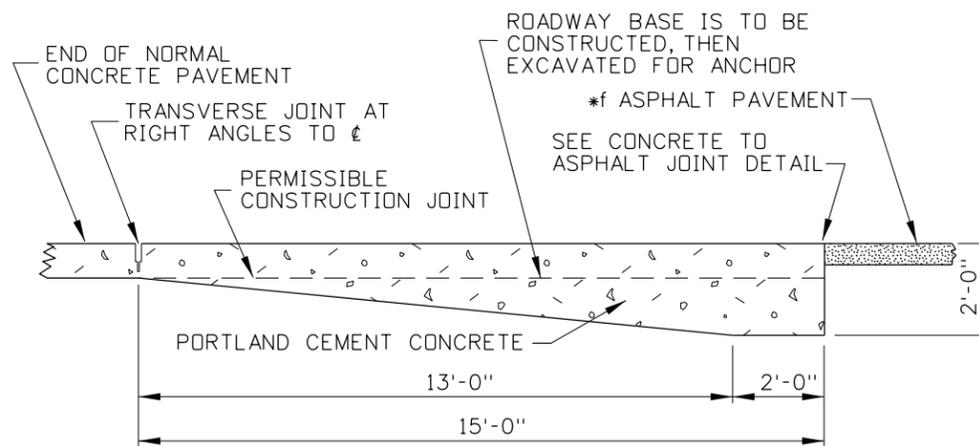


ASPHALT & CONCRETE PAVEMENT JOINT DETAIL

NOT FOR USE UNLESS SPECIFICALLY CALLED OUT IN PLANS.

NOTES

1. THE PAVEMENT EDGE IS TO BE PLACED APPROXIMATELY VERTICAL.
2. THE DOWEL BAR DIAMETERS SHALL BE DETERMINED BY THE BAR DIAMETER TABLE.
3. THE TIE BARS SHALL BE EPOXY COATED AND MEET THE REQUIREMENTS OF AASHTO M 284. THE DOWEL BARS SHALL BE COATED TO MEET THE REQUIREMENTS OF AASHTO M 254.
4. THE MAXIMUM TIED TRANSVERSE WIDTH SHALL BE 60 FEET. LONGITUDINAL JOINTS THAT ARE UN-TIED IN ACCORDANCE WITH THE FOREGOING SHALL BE APPROVED BY THE ENGINEER. IN NO CASE SHALL AN UN-TIED JOINT BE A CONSTRUCTION JOINT.
5. A CONSTRUCTION JOINT SHALL BE AT LEAST 6 FEET FROM A SAWED JOINT.
6. TRANSVERSE AND LONGITUDINAL JOINTS SHALL BE SAWED JOINTS.
7. SEALANTS AND PREFORMED SEALS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
8. THE ANCHOR IS TO BE USED AT RAILROAD GRADE CROSSINGS ADJACENT TO FLEXIBLE PAVEMENTS AND SIMILAR INTERRUPTIONS TO THE CONCRETE PAVEMENT.
9. MAKE A VERTICAL SAW CUT IN THE ASPHALT TO SERVE AS A FORM FOR THE END OF THE CONCRETE PAVEMENT.
10. PREFERRED PRACTICE IS TO PLACE THE CONSTRUCTION JOINT AT THE LOCATION OF A PLANNED CONTRACTION JOINT AND USE DOWEL BARS PER STD. TRANSVERSE JOINT DETAILS.
11. NOT TO SCALE
12. ALL LONGITUDINAL CONCRETE TO ASPHALT JOINTS SHALL BE SAWED AND SEALED.



**ELEVATION - ANCHOR FOR END OF CONCRETE
OPTIONAL**

SUB-NOTES

*f THIS ANCHOR IS NOT TO BE USED IN CONJUNCTION WITH CONCRETE PAVEMENT.

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
MICHAEL J. SANTI
DATE ORIGINAL SIGNED:
MAY 9, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	04-84	GB	6	01-91	GB	11	09-08	JRV
2	01-85	GB	7	12-92	AS	12	10-10	PLR
3	08-85	GB	8	04-93	MSM	13	08-11	RSC
4	08-86	GB	9	01-97	AS	14	04-13	RDL
5	11-89	GB	10	11-01	MSM			

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
409-1_0513.dgn

DRAWING DATE:
APRIL, 1984

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

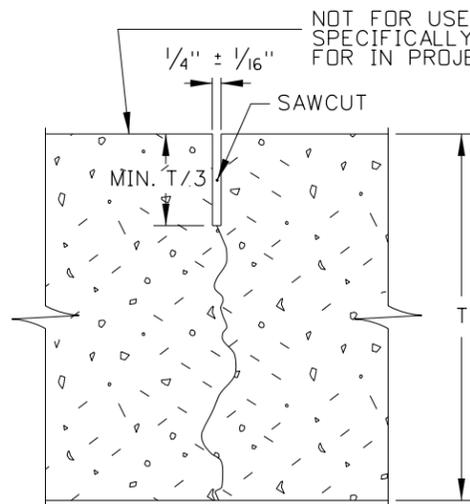
**PORTLAND CEMENT
CONCRETE PAVEMENT**

REQUIRES SHEETS 1 OF 3 & 3 OF 3

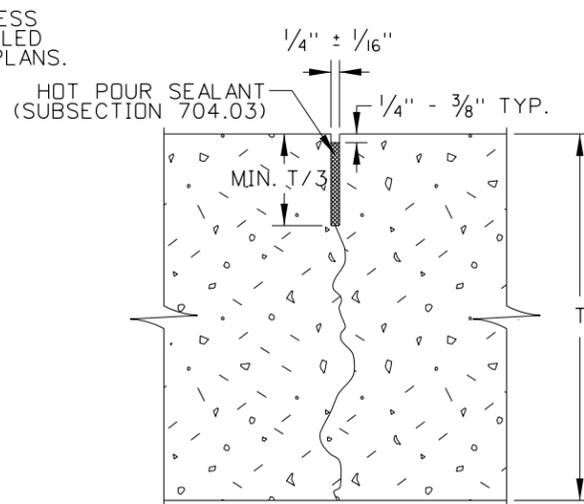
English

STANDARD DRAWING NO.
409-1

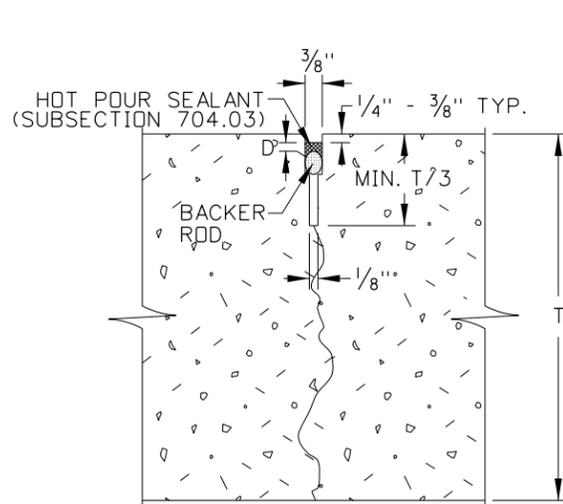
SHEET 2 OF 3



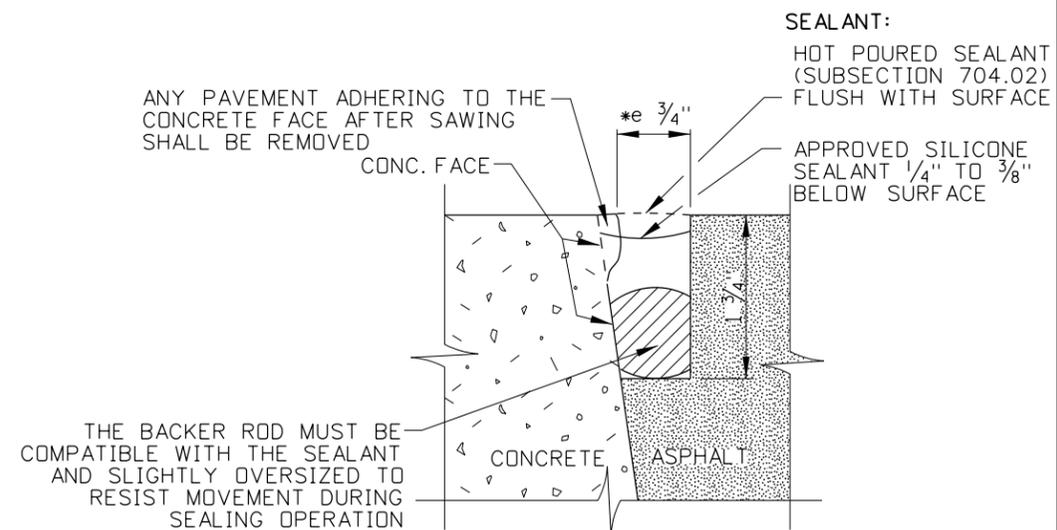
**SINGLE CUT
(NO SEALANT)**



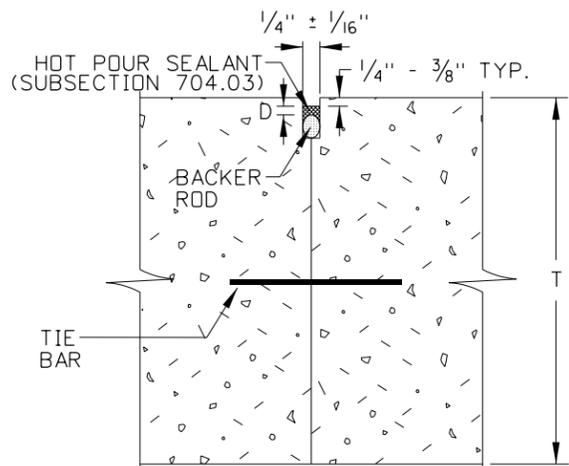
**SINGLE CUT
(FIELD-INSTALLED SEALANT)**



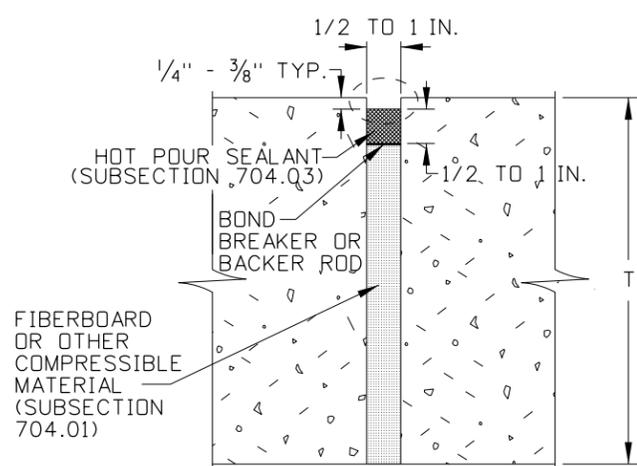
**WIDENED CUT
(FIELD-INSTALLED SEALANT)**



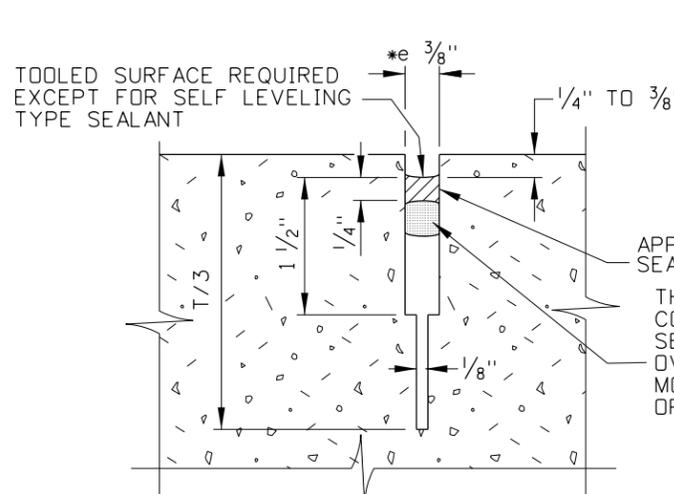
CONCRETE TO ASPHALT



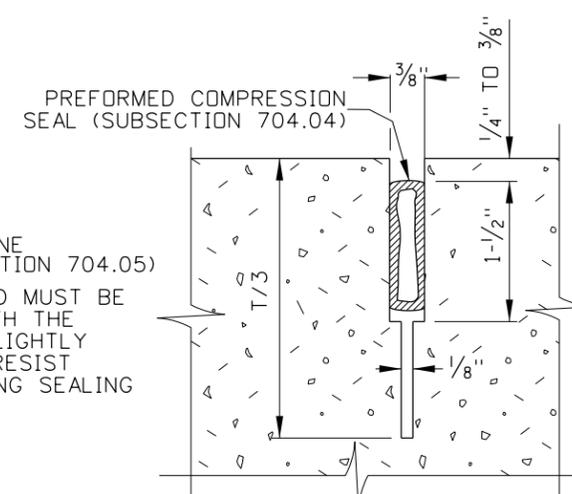
**SEALED CONSTRUCTION JOINT
(FIELD-INSTALLED SEALANT)**



**ISOLATION JOINT
(FIELD-INSTALLED SEALANT)**



SILICONE SEALANT

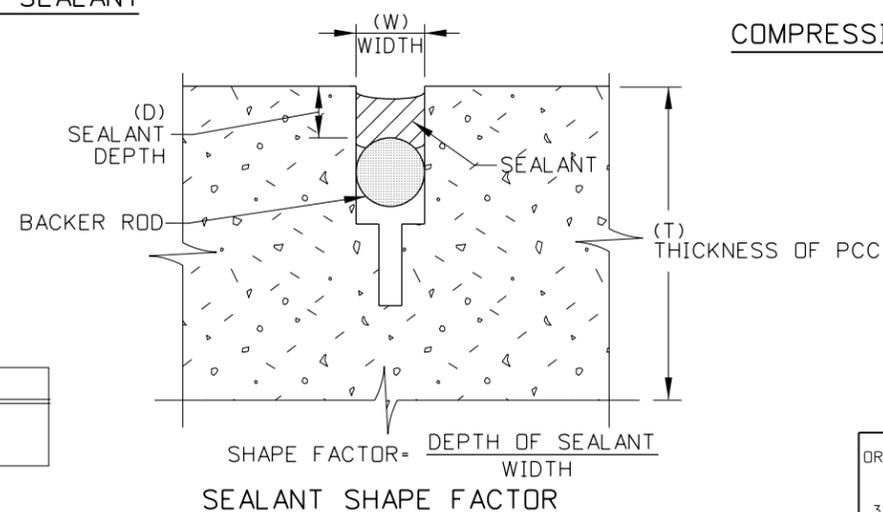


COMPRESSION SEAL

NOTES:

1. FOR HOT-POURED SEALANT, SHAPE FACTOR D/W = 1 (TYPICAL, ONLY IF BACKER ROD USED)
2. FOR SILICONE SEALANT, D/W = 0.5 (TYPICAL)
3. FOR TWO-COMPONENT COLD-POURED SEALANT, D/W = 0.5 (TYPICAL)
4. FOR PREFORMED COMPRESSION SEAL, W IS SIZED FOR SLAB & CLIMATE
5. SUBSECTION REFERENCES ARE ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
6. SEALANTS AND PREFORMED SEALS SHALL BE APPLIED IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
7. SAW CUT TO CONTROL SLAB CRACKING SHALL BE T/3 DEEP. "T" EQUALS DESIGN THICKNESS OF CONC. PAVEMENT.

CROSS-SECTIONS:



SUB-NOTES
*e DIMENSIONING REFERS TO SEALANT RESERVOIR ONLY.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	04-84	GB	6	01-91	GB	11	09-08	JRV
2	01-85	GB	7	12-92	AS	12	10-10	PLR
3	08-85	GB	8	04-93	MSM	13	08-11	RSC
4	08-86	GB	9	01-97	AS	14	04-13	RDL
5	11-89	GB	10	11-01	MSM			

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CADD FILE NAME: 409-1_0513.dgn
DRAWING DATE: APRIL, 1984

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

**PORTLAND CEMENT
CONCRETE PAVEMENT**

REQUIRES SHEETS 1 OF 3 & 2 OF 3

English

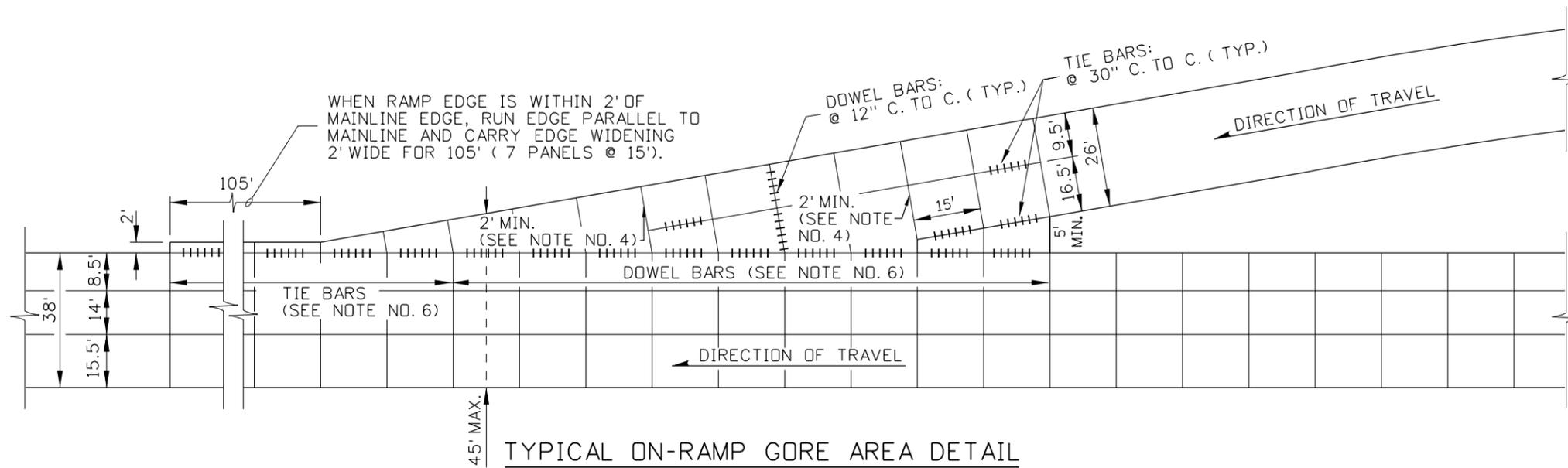
STANDARD DRAWING NO.

409-1

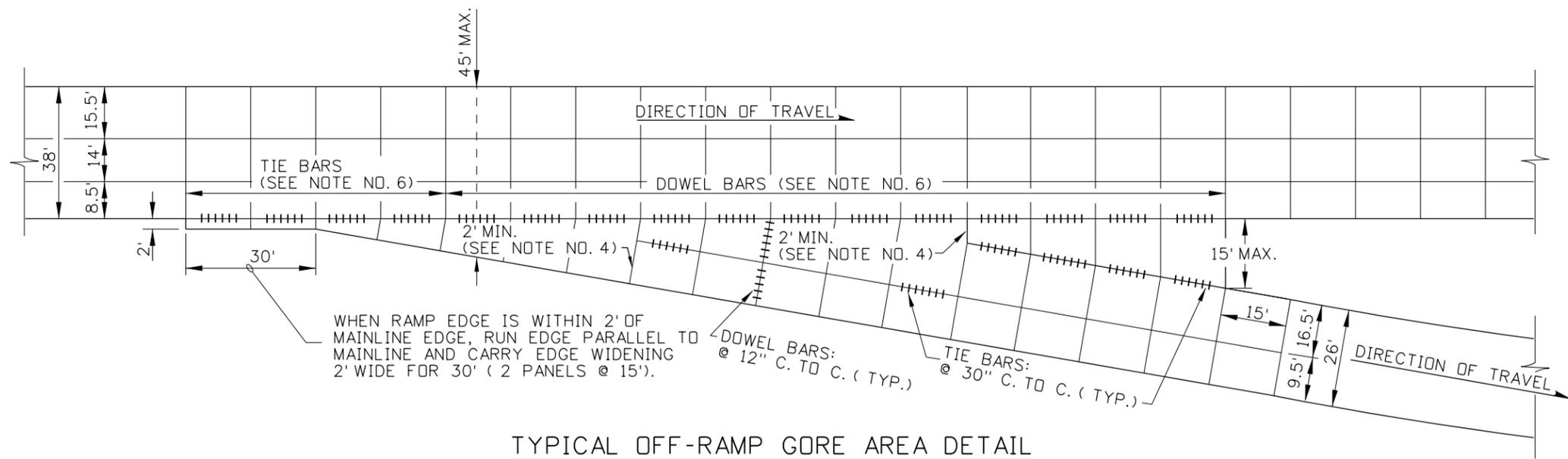
SHEET 3 OF 3

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
MICHAEL J. SANTI
DATE ORIGINAL SIGNED:
MAY 9, 2013



TYPICAL ON-RAMP GORE AREA DETAIL



TYPICAL OFF-RAMP GORE AREA DETAIL

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MICHAEL J. SANTI DATE ORIGINAL SIGNED: MAY 12, 2016

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	06-03	MSM						
2	10-08	JRV						
3	10-10	PLR						
4	08-11	RSC						
5	05-16	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 409-2_0516.dgn
 DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT

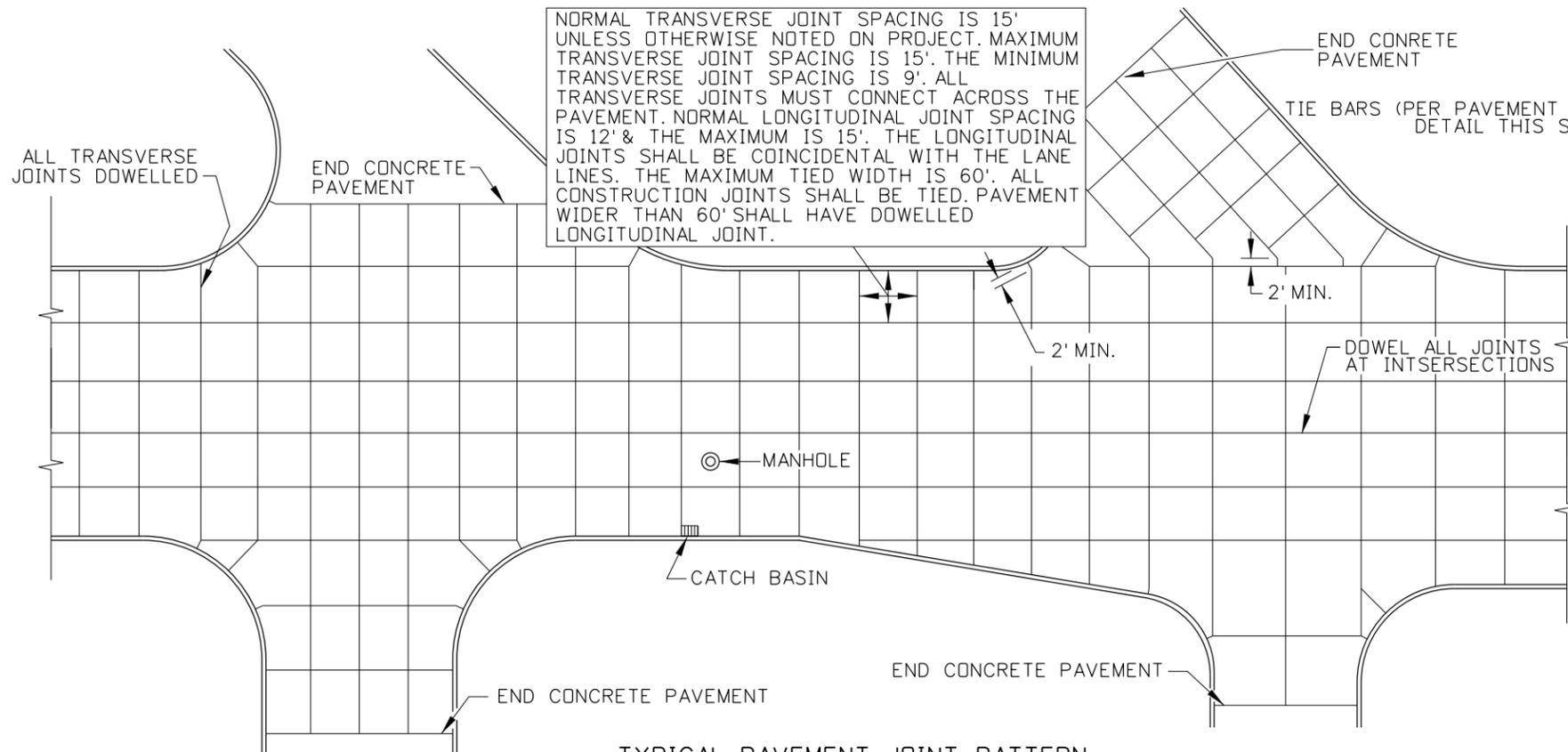


BOISE IDAHO

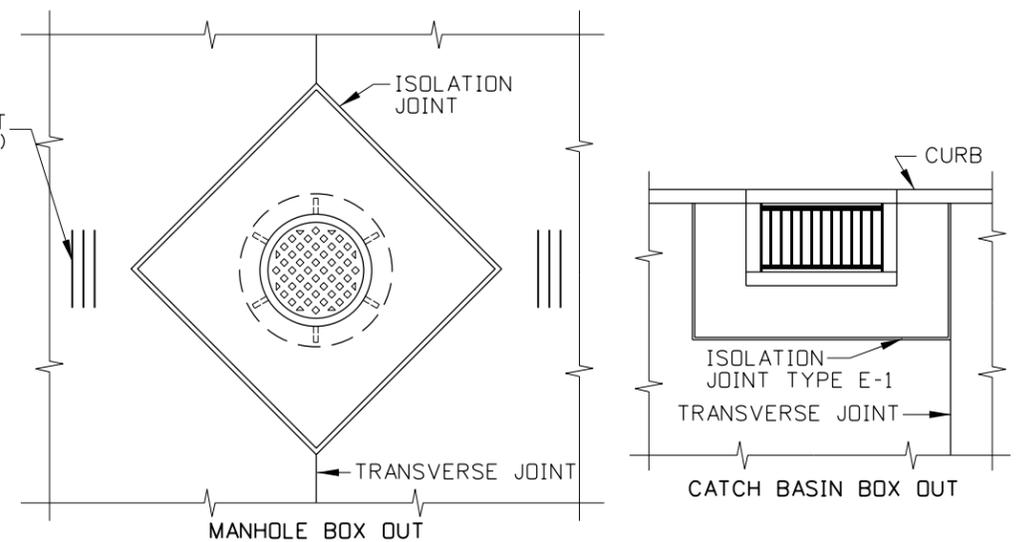
ORIGINAL SIGNED BY: JESSE BARRUS
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
PORTLAND CEMENT CONCRETE PAVEMENT RAMP GORE DETAILS
 REQUIRES SHT 2 OF 2 & STD. DWG. 409-1

English
 STANDARD DRAWING NO. **409-2**
 SHEET 1 OF 2

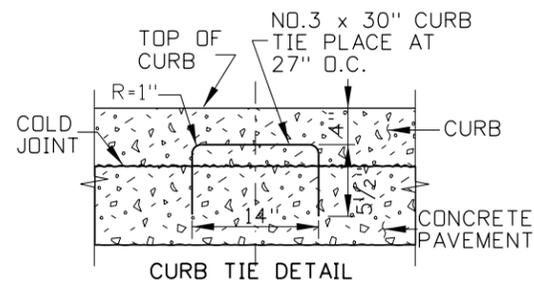
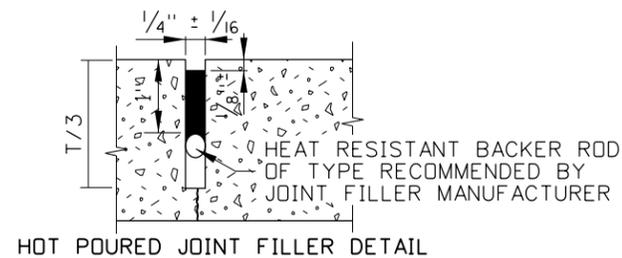
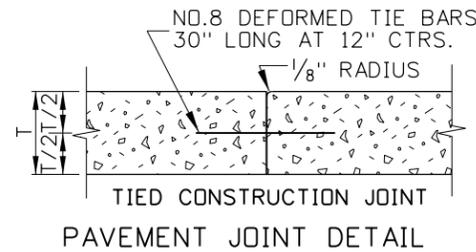
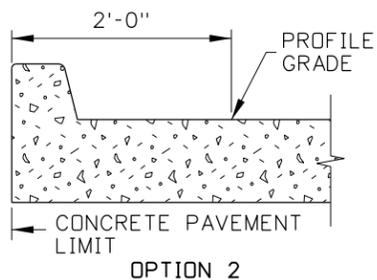
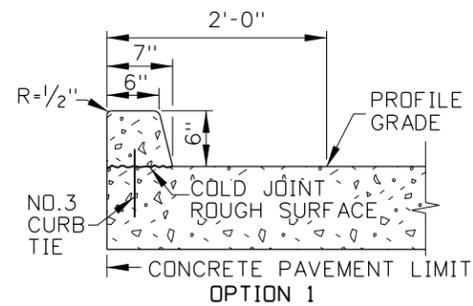


TYPICAL PAVEMENT JOINT PATTERN

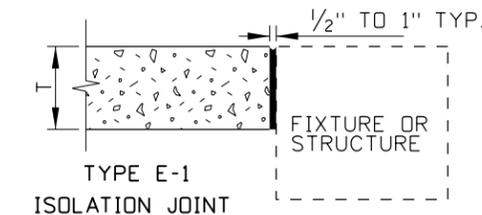
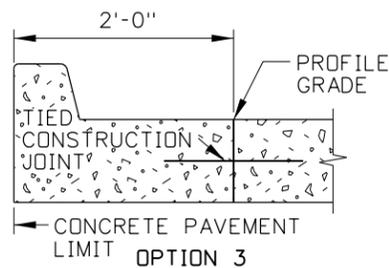


NOTES

1. THE TYPICAL PAVEMENT JOINT PATTERN SHOWN IS FOR ILLUSTRATION PURPOSES ONLY AND IS INTENDED TO BE USED AS A GUIDE IN DEVELOPING THE JOINT PATTERN FOR THE PROJECT. THE CONTRACTOR SHALL PREPARE A PAVEMENT JOINT PATTERN FOR THE ENTIRE PROJECT FOR APPROVAL BY THE ENGINEER.
2. WHEN POSSIBLE, MANHOLES SHALL BE CENTERED BETWEEN JOINTS. JOINT SPACING MAY BE ADJUSTED NEAR MANHOLES, WITHIN THE STANDARD LIMITS. SEE STANDARD DRAWING 411-2.
3. IF THE CONTRACTOR ELECTS TO BOX OUT AROUND THE MANHOLE OR CATCH BASIN FRAMES AND PLACE THE PAVEMENT AROUND THE FRAME AS A SEPARATE OPERATION, TIED CONSTRUCTION JOINTS SHALL BE PLACED AS SHOWN IN THE BOX OUT DETAIL.
4. JOINTS IN THE CURBS SHALL COINCIDE WITH TRANSVERSE JOINTS IN THE PAVEMENT.
5. SEE STANDARD DRAWING 615-1 FOR ADDITIONAL NOTES ON REQUIREMENTS FOR CURB CONSTRUCTION.
6. THE CONTRACTOR MAY PLACE CURBS AS SHOWN IN OPTIONS 1, 2, OR 3.
7. SAWED JOINTS SHALL BE 1/4" WIDE AND SHALL BE FILLED WITH HOT Poured ELASTOMERIC JOINT FILLER MEETING REQUIREMENTS OF SUBSECTION 704.02 OR A NEOPRENE COMPRESSION SEAL OF APPROVED CONFIGURATION MEETING THE REQUIREMENTS OF SUBSECTION 704.04 MAY BE USED.



CURB & GUTTER DETAILS



REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 411-1_1011.dgn

DRAWING DATE: AUGUST, 2011

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

URBAN CONCRETE PAVEMENT

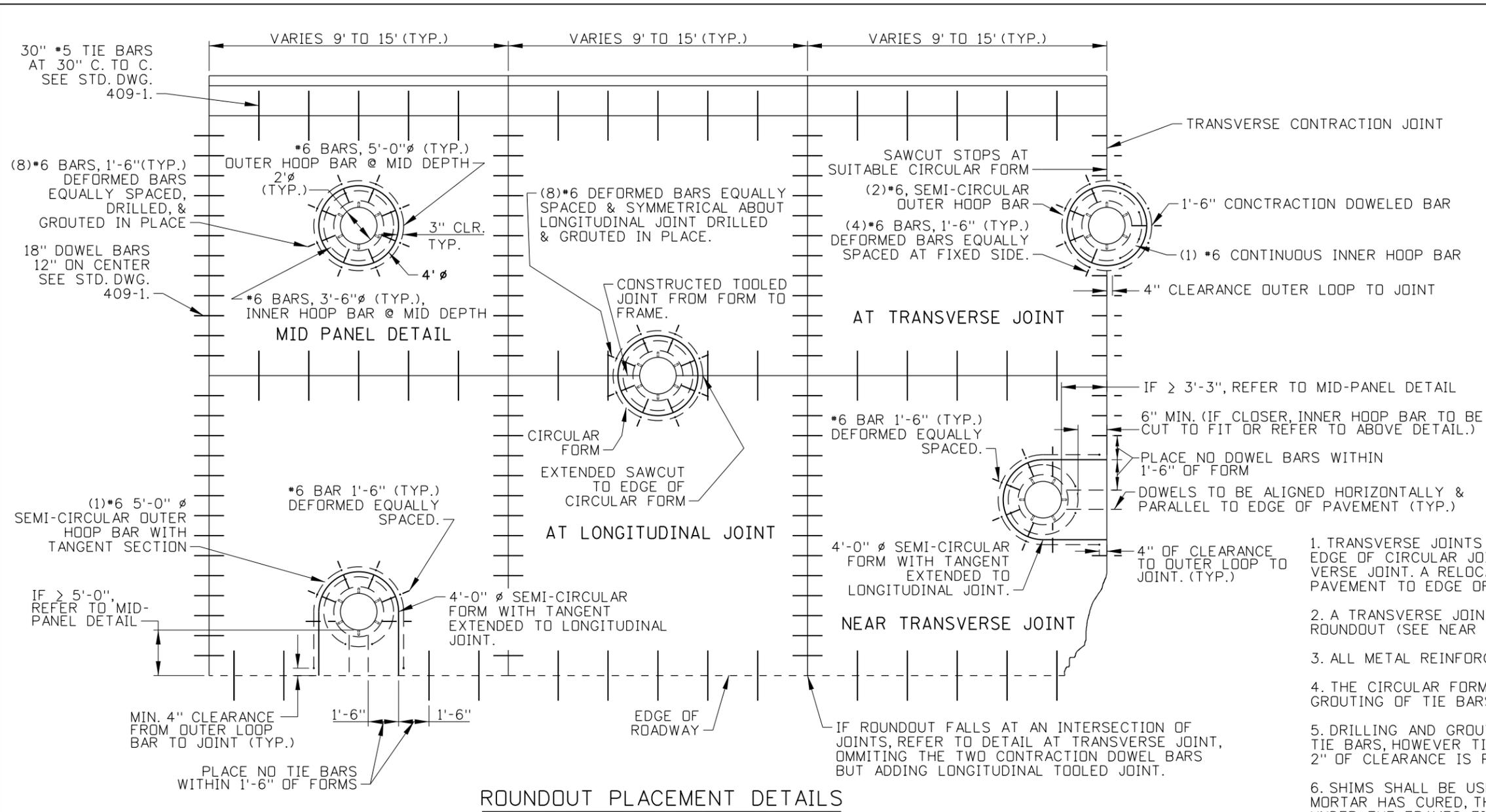
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO. 411-1

SHEET 1 OF 1

ORIGINAL SIGNED BY: MICHAEL J. SANTI
DATE ORIGINAL SIGNED: OCTOBER 21, 2011



ROUNDOUT PLACEMENT DETAILS

NOTES

1. TRANSVERSE JOINTS MAY BE MOVED TO ACCOMMODATE ROUNDOUT. THE EDGE OF CIRCULAR JOINT SHALL BE A MINIMUM OF 2'-0" FROM TRANSVERSE JOINT. A RELOCATED JOINT SHALL BE CONTINUOUS FROM EDGE OF PAVEMENT TO EDGE OF PAVEMENT.
2. A TRANSVERSE JOINT SHALL BE ALIGNED WITH THE CENTERLINE OF THE ROUNDOUT (SEE NEAR TRANSVERSE JOINT DETAIL.)
3. ALL METAL REINFORCEMENT BARS SHALL BE EPOXY COATED.
4. THE CIRCULAR FORM SHALL BE REMOVED PRIOR TO DRILLING AND GROUTING OF TIE BARS.
5. DRILLING AND GROUTING IS THE PREFERRED METHOD OF PLACING TIE BARS, HOWEVER TIE BARS MAY BE POURED IN PLACE IF A MAXIMUM 2" OF CLEARANCE IS PROVIDED TO OUTER EDGE OF FRAME.
6. SHIMS SHALL BE USED TO ADJUST ALL FRAMES, AFTER ADJUSTING MORTAR HAS CURED, THE SHIMS SHALL BE REMOVED AND THE VOIDS UNDER THE FRAMES FILLED WITH NON-SHRINK GROUT (SEE STD. DWG. E-9 FOR ALTERNATE FRAME PLACEMENT).
7. METAL REINFORCEMENT FOR HOOP BARS SHALL BE ONE-PIECE CONSTRUCTION HAVING A MINIMUM LAP LENGTH OF 2'-0".
8. ALL SITUATIONS NOT SHOWN AND MAY REQUIRE COMBINATION OF DETAILS.
9. WHEN THE CAST-IN-PLACE ROUNDOUT IS USED THE FRAME SHALL BE ANCHORED TO THE STRUCTURE TO PREVENT MOVEMENT DURING THE PAVING OPERATION.
10. STANDARD DRAWING 605-13 SHALL ACCOMPANY THIS DRAWING.
11. DOWEL BAR AND TIE BAR SIZE AND LOCATION SHALL BE AS SHOWN ON STANDARD DRAWING 409-1.
12. NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 411-2_1011.dgn

DRAWING DATE: AUGUST, 2011

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

URBAN CONCRETE PAVEMENT MANHOLE COLLARS

REQUIRES SHT. 2 OF 2 & STD. DWG. 605-13

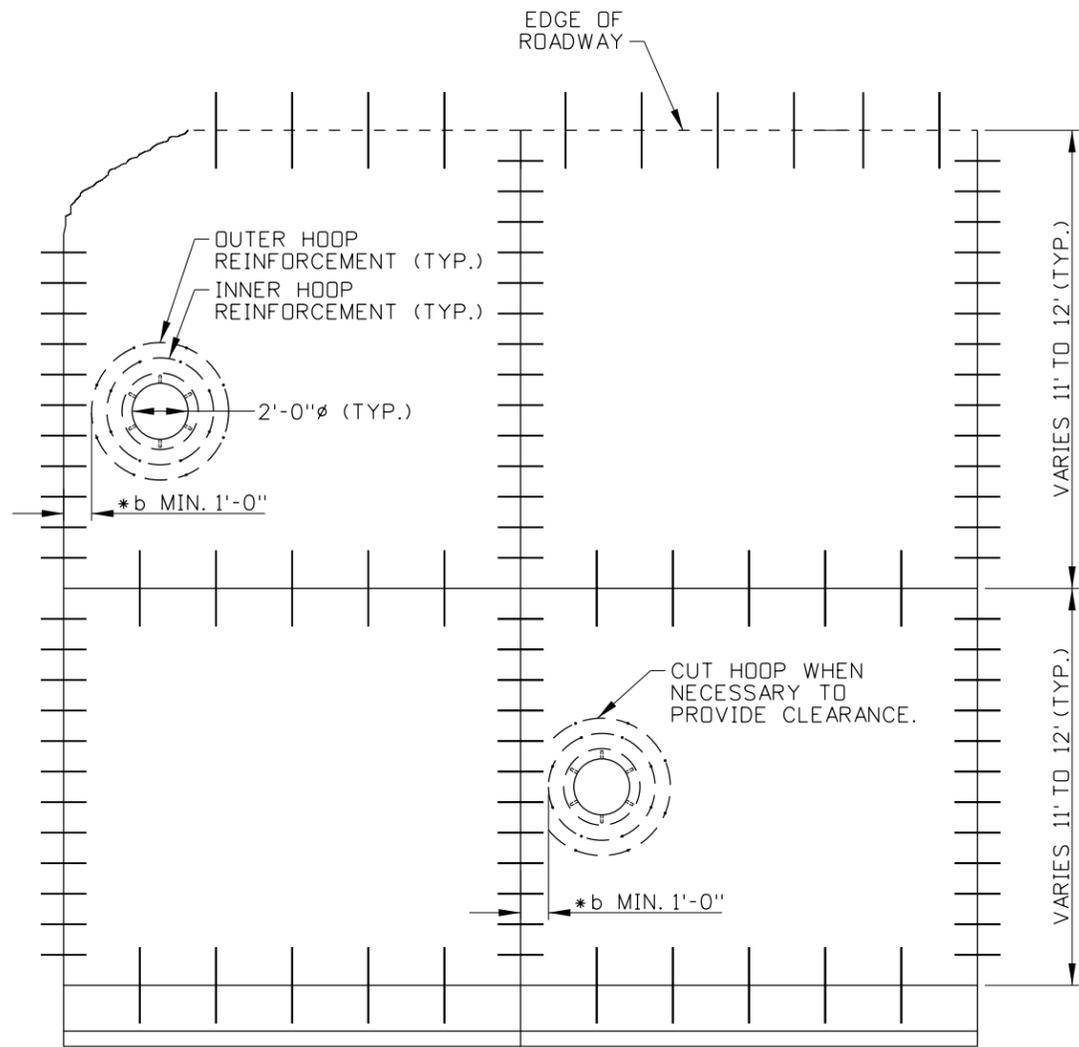
English

STANDARD DRAWING NO.
411-2

SHEET 1 OF 2

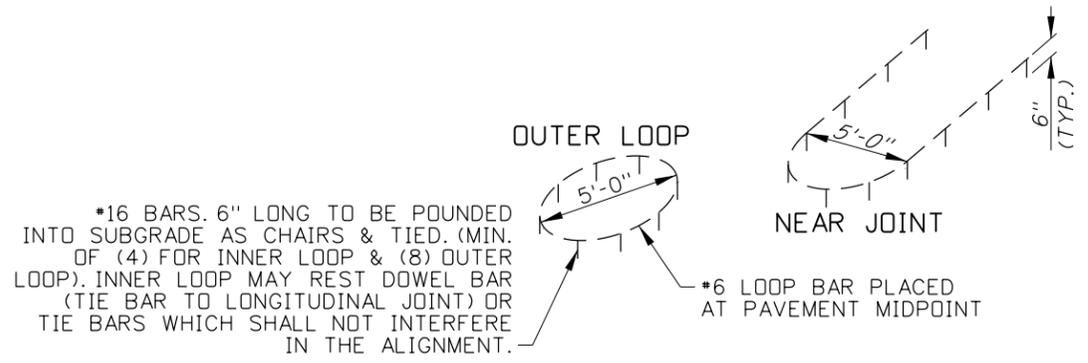
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
MICHAEL J. SANTI
DATE ORIGINAL SIGNED:
OCTOBER 21, 2011

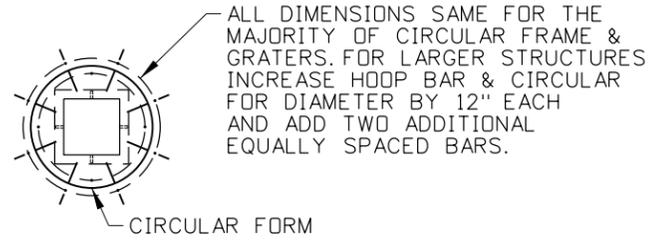


*b WHEN LESS THAN 1'-0" A FORMED ROUNDOUT SHALL BE USED.

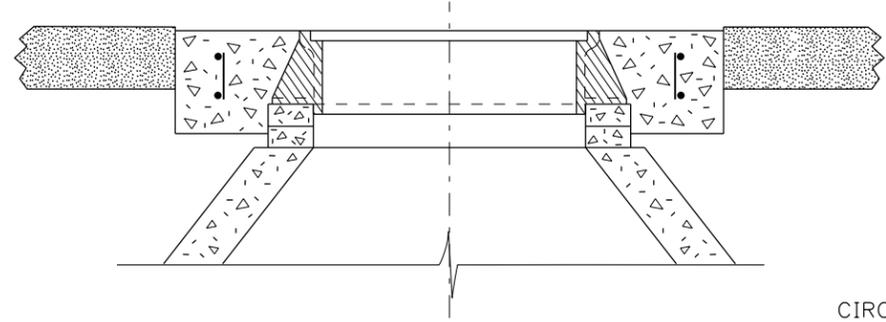
CAST IN PLACE DETAIL



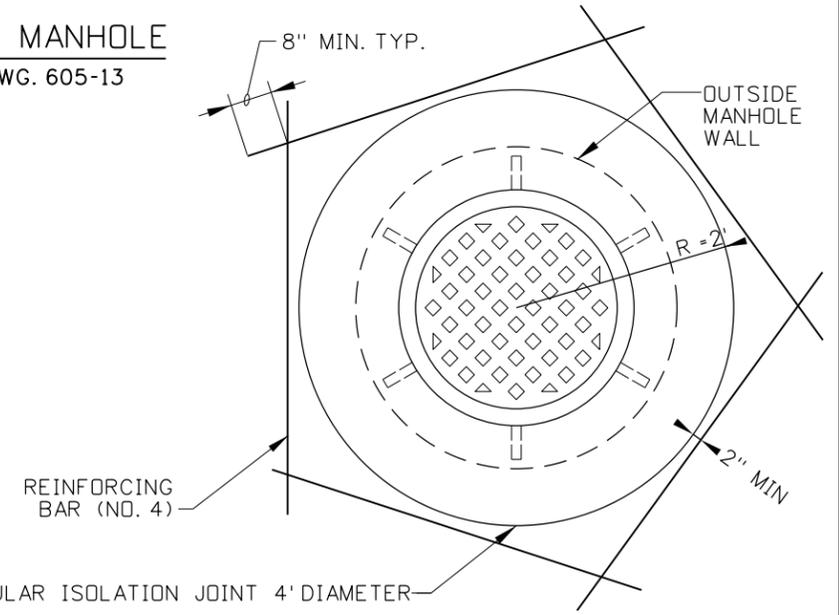
METAL REINFORCEMENT TIEING DETAIL OPTION



APPLICATION FOR SQUARE FRAME W/GRATE & MANHOLE
FOR DETAILS INSIDE OF CIRCULAR ISOLATION JOINT SEE STD. DWG. 605-13



MANHOLE FRAME FOR VISUAL REFERENCE ONLY
(SEE STANDARD DRAWING 605-13 FOR REINFORCEMENT DETAILS)



METAL REINFORCEMENT TIEING DETAIL OPTION

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 411-2_1011.dgn
DRAWING DATE: AUGUST, 2011

IDAHO TRANSPORTATION DEPARTMENT



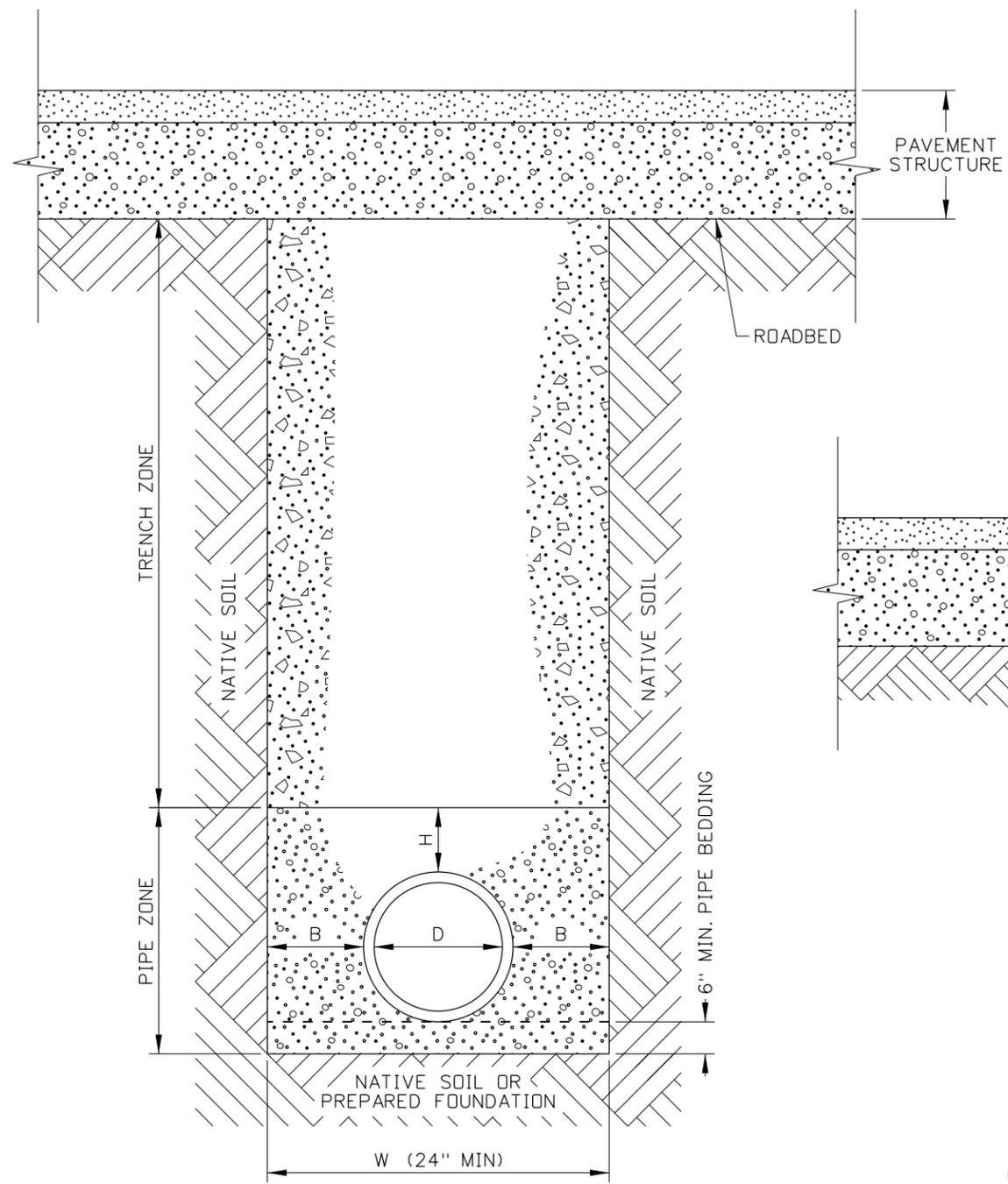
BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

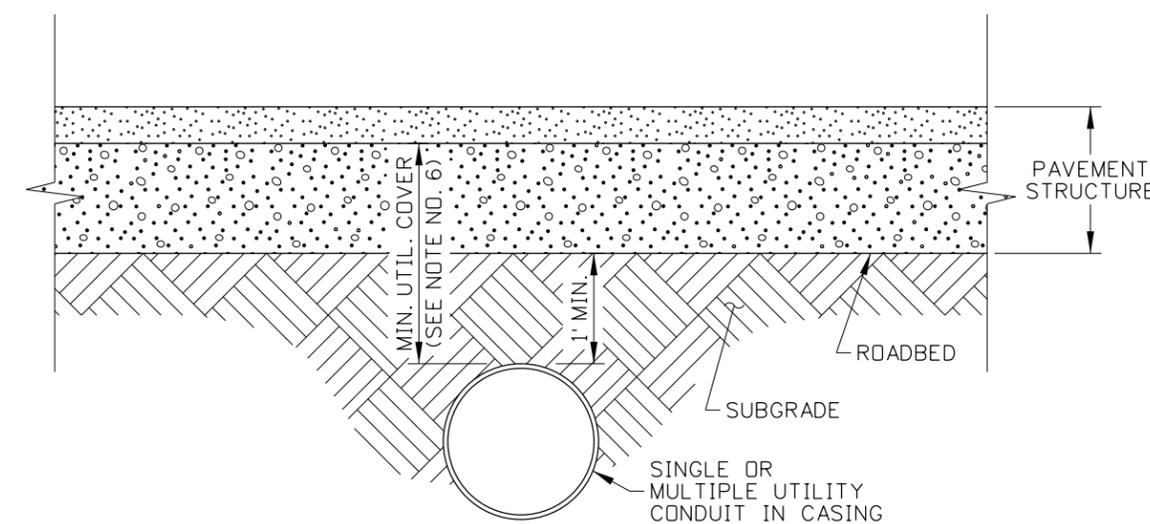
STANDARD DRAWING
URBAN CONCRETE PAVEMENT MANHOLE COLLARS
REQUIRES SHT. 1 OF 2 & STD. DWG. 605-13

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho
English
STANDARD DRAWING NO. **411-2**
SHEET 2 OF 2

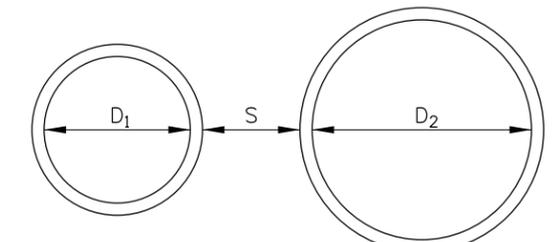
ORIGINAL SIGNED BY: MICHAEL J. SANTI
DATE ORIGINAL SIGNED: OCTOBER 21, 2011



TRENCHING



JACKING, DRIVING, OR BORING



MULTIPLE PIPE INSTALLATION DETAIL

MATERIALS AND COMPACTION TABLE				
PIPE LOCATION	PIPE ZONE		TRENCH ZONE	
	MATERIAL REQUIREMENT	COMPACTION REQUIREMENT	MATERIAL REQUIREMENT	COMPACTION REQUIREMENT
INSIDE ROADWAY PRISM	3/4" AGGREGATE (703.04) (SEE NOTE NO. 1)	6" MAX. LOOSE LIFTS, COMPACTED TO CLASS A COMPACTION OR 90% OF T-180 OR IT-74 (SEE NOTE NO. 3)	3/4" AGGREGATE (703.04) (SEE NOTE NO. 1)	CLASS A COMPACTION OR 90% OF T-180 OR IT-74. (SEE NOTE NO. 2)
OUTSIDE ROADWAY PRISM	3/4" AGGREGATE (703.04) (SEE NOTE NO. 1)	6" MAX. LOOSE LIFTS, COMPACTED TO CLASS A COMPACTION OR 90% OF T-180 OR IT-74 (SEE NOTE NO. 3)	GRANULAR BORROW OR NATIVE MATERIALS WITH MAXIMUM SIZE OF 6" AND FREE FROM WOOD WASTE OR DELETERIOUS MATERIALS. (SEE NOTE NO. 1)	CLASS D COMPACTION

DIMENSION TABLE (SEE NOTE NOS. 4 AND 5)				
D (INCHES)	B (INCHES)	H (INCHES)	S (INCHES)	
≤ 6	10	8	24	
7 TO 15	12	10	24	
16 TO 30	18	12	24	
> 30	24	14	GREATER OF 24 OR D/2	

NOTES

- CONTROLLED DENSITY FILL (FLOWABLE FILL) MATERIAL OR PEA GRAVEL CAN BE USED IF APPROVED BY THE ENGINEER.
- CLASS D COMPACTION IN MEDIAN AND OUTSIDE 2H:1V SLOPE.
- LOOSE LIFT THICKNESS DIRECTLY ON TOP OF PIPE MAY BE INCREASED TO PREVENT DAMAGE TO PIPE DURING COMPACTION. DENSITY TEST MAY NOT BE REQUIRED FOR MATERIAL IN THE HAUNCH AND SIDES OF PIPE. CLASS D COMPACTION MAY BE APPLIED TO OUTSIDE THE ROADWAY PRISM IF APPROVED BY THE ENGINEER.
- WHEN TWO DIFFERENT DIAMETER PIPES ARE INSTALLED, USE THE LARGER D DIMENSION TO DETERMINE THE S DIMENSION.
- FOR PIPE DIAMETERS GREATER THAN 36 INCHES, THE B DIMENSION SHOULD BE EQUAL TO THE PIPE DIAMETER WHEN THE PIPE IS INSTALLED DURING EMBANKMENT CONSTRUCTION.
- MINIMUM DEPTH OF COVER FOR CONDUITS CARRYING:
 WATER: 3'
 LIQUID OR GAS PETROLIUM: 4'
 COMMUNICATIONS OR ELECTRONICS: 2'
- DRAWINGS NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-15	RDL						
2	03-16	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 601-1_0516.dgn
 DRAWING DATE: MAY 2014

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

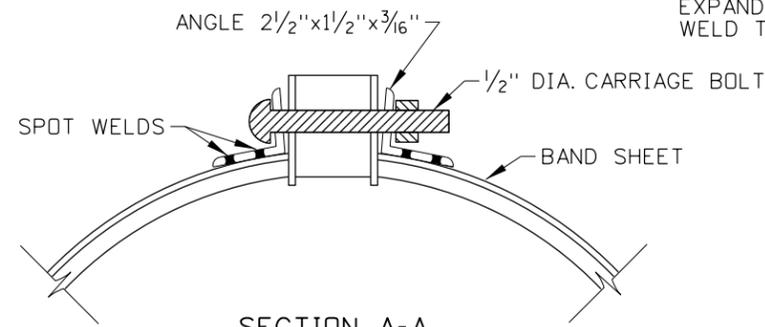
ORIGINAL SIGNED BY: JESSE BARRUS
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
PIPE AND CONDUIT INSTALLATION

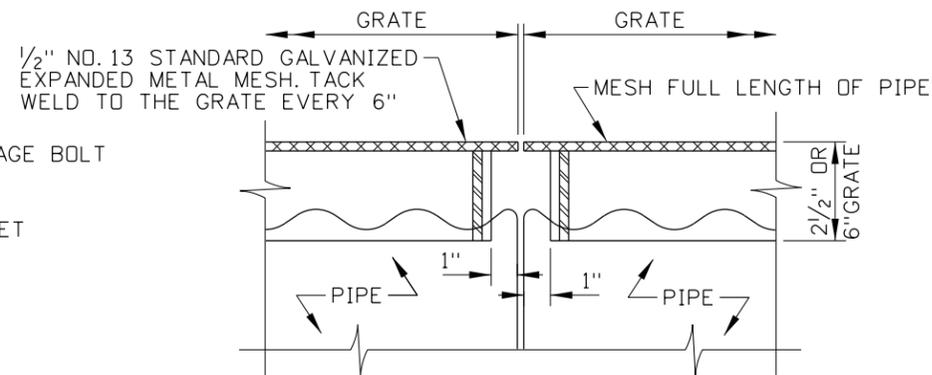
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: TRJ BUJ
 DATE ORIGINAL SIGNED: MAY 12, 2016

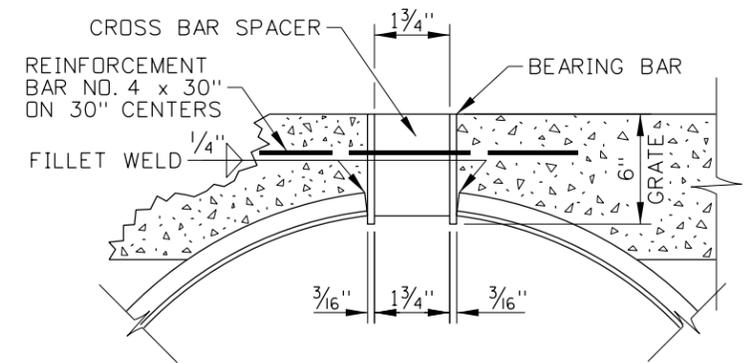
English
 STANDARD DRAWING NO. 601-1
 SHEET 1 OF 1



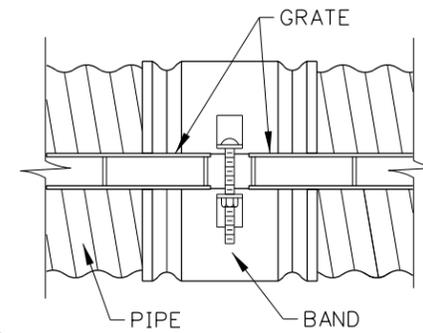
SECTION A-A



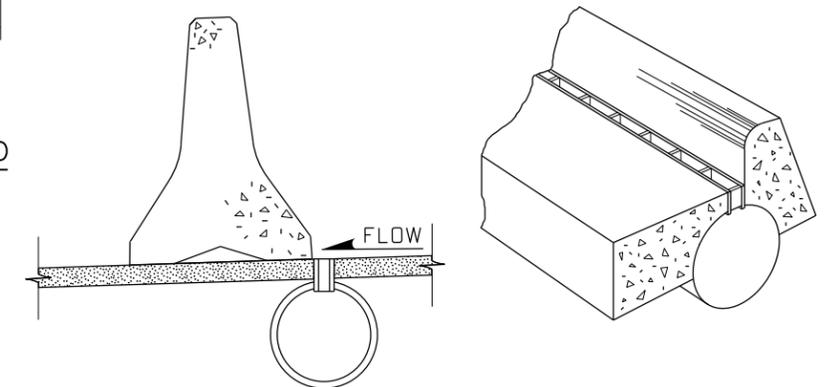
SECTION B-B



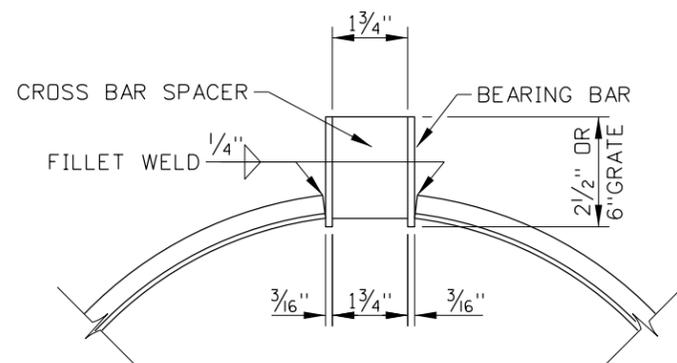
WHEN CONCRETE PAVEMENT IS USED
STANDARD GRATE SLOT DETAIL



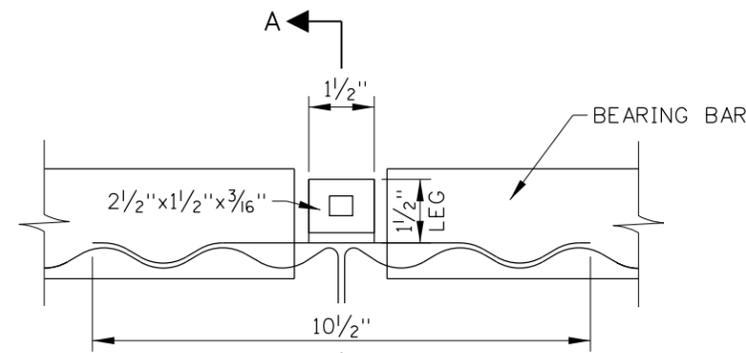
TOP VIEW
TYPICAL COUPLING BAND



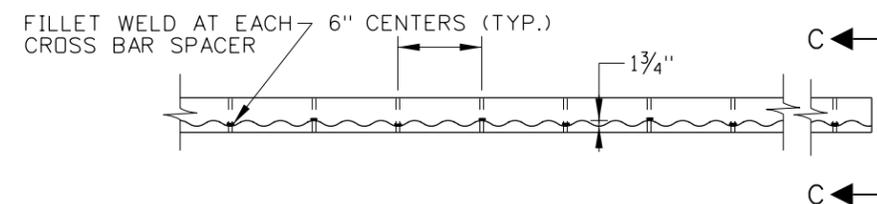
TYPICAL INSTALLATIONS



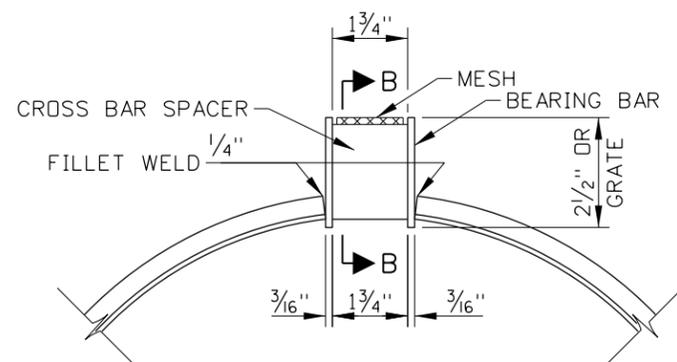
TYPE 1 - STANDARD GRATE SLOT DETAIL
SECTION C-C



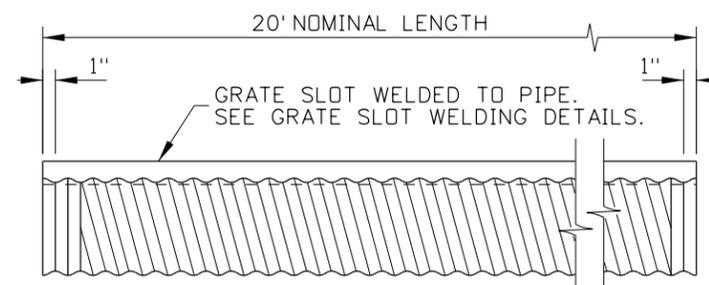
ELEVATION



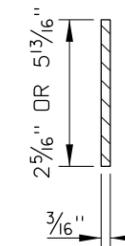
GRATE SLOT WELDING DETAIL



TYPE 2 - ALTERNATE GRATE SLOT DETAIL
FOR INCLUSION OF MESH
SECTION C'-C'



GRATE SLOT DRAIN



CROSS BAR SPACER

NOTES

1. USE MINIMUM PIPE THICKNESS OF 0.079 INCHES FOR SLOTTED DRAINS.
2. THE DEPTH OF GRATES ON SLOTTED DRAINS WILL BE AS SHOWN ON THE PLANS.
3. SLOTTED DRAIN GRATES DO NOT NEED TO BE PAINTED OR GALVANIZED.
4. ENSURE THAT GASKETS, GASKET MATERIALS, O-RINGS, AND COUPLING BANDS MEET THE REQUIREMENTS OF STANDARD DRAWING 706-6.
5. THE FINISHED TOP OF PAVEMENT SHALL BE FLUSH WITH THE GRATE SURFACE.
6. WELD THE METAL GRATE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1.
7. NOT TO BE USED IN TEMPORARY OR PERMANENT TRAFFIC LANES. USE ONLY WHERE TRAFFIC IS OCCASIONAL, SUCH AS ON HIGHWAY SHOULDERS.
8. NOT TO SCALE.

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
DECEMBER 17, 2012

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	01-79						
2	02-96	IJR					
3	06-02	MSM					
4	10-05	MSM					
5	12-12	RDL					

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
605-1_1212.dgn

DRAWING DATE:
MAY, 1977

**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

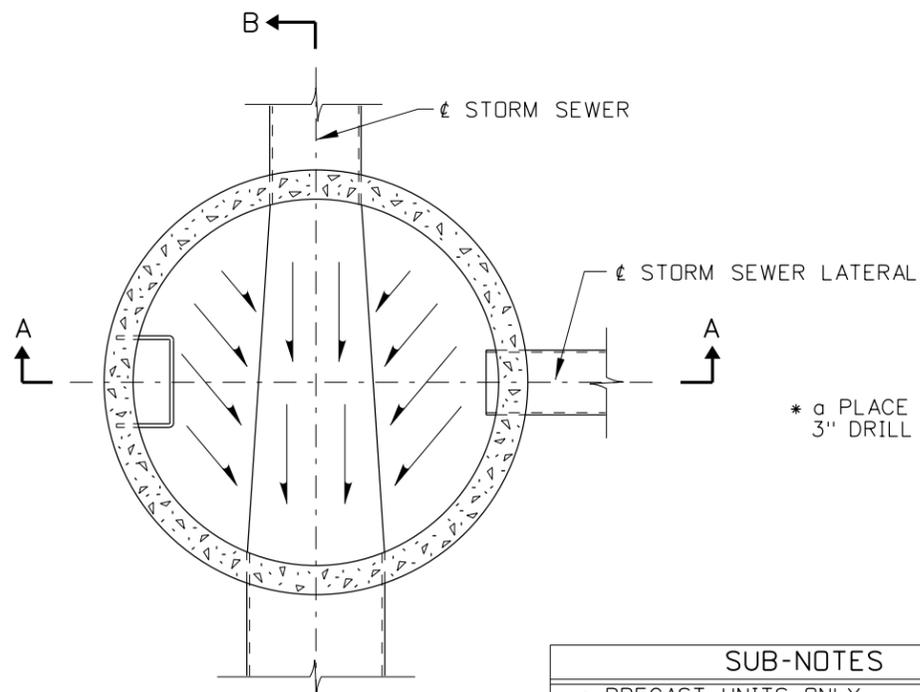
**STORM SEWER PIPE
12" THRU 30" SLOTTED DRAIN**

REQUIRES STD. DWG. 706-6

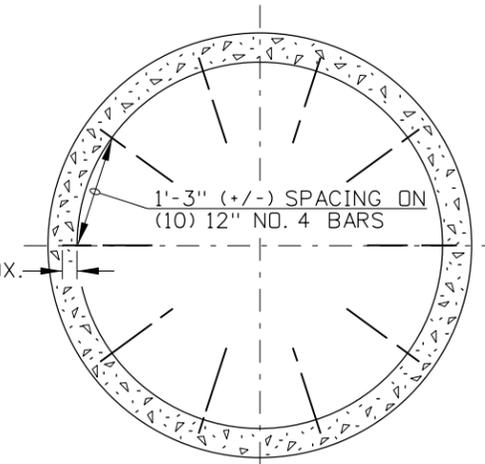
English

STANDARD DRAWING NO.
605-1

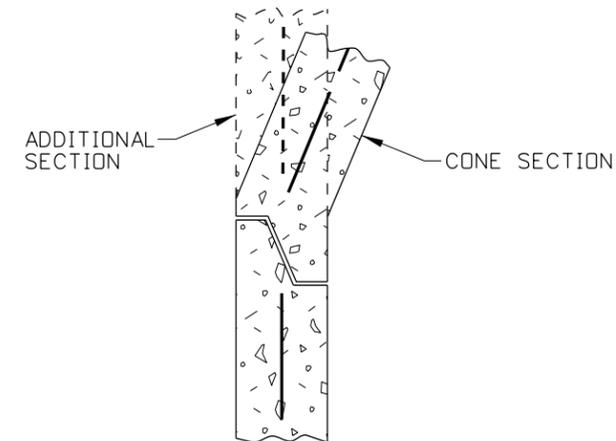
SHEET 1 OF 1



* a PLACE BARS IN APPROX. 3" DRILL HOLES



FLOOR METAL REINFORCEMENT



PRECAST CONSTRUCTION JOINT DETAIL

(NO SCALE)

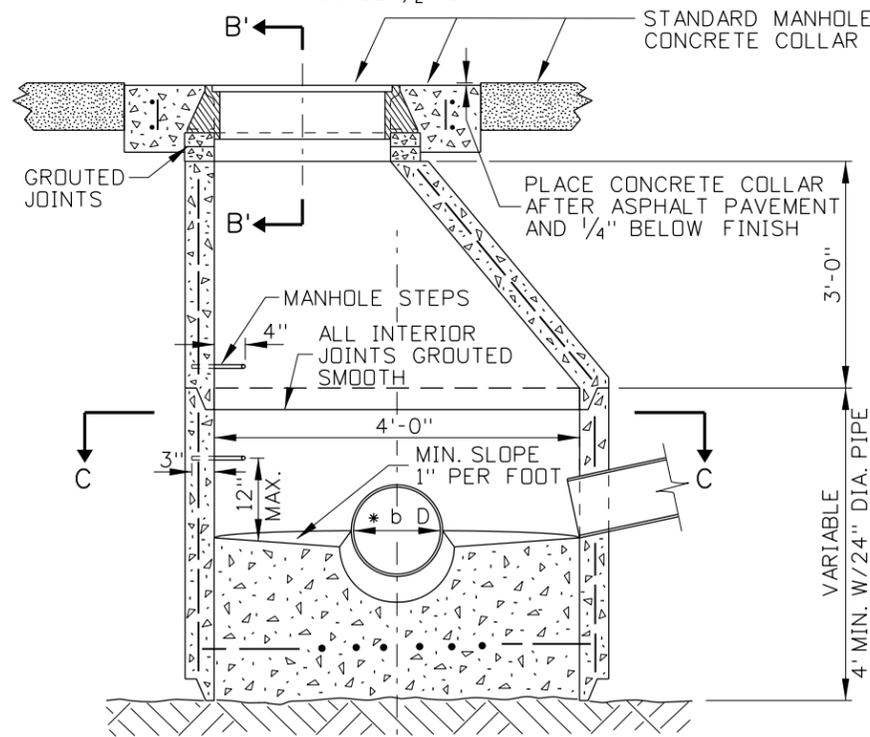
NOTES

- CARE SHALL BE TAKEN TO AVOID PLACING MANHOLES IN WHEEL PATHS.
- MANHOLES TYPE A MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST MANHOLES SHALL MEET THE REQUIREMENTS OF ASTM C478. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS WITH FLOOR AND/OR PIPE OPENINGS.
- CAST-IN-PLACE MANHOLES TYPE A SHALL CONFORM TO SECTION 609 - MINDR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. CAST-IN-PLACE MANHOLES SHALL HAVE 6" WALLS AND MINIMUM 8" FLOORS. THE METAL REINFORCEMENT USED ON THE WALLS AND FLOORS SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND/OR 3" IF CAST AGAINST EARTH.
- ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH TO FORM A WATER TIGHT MANHOLE. MASTIC SEALANTS, GASKETS, AND O-RINGS USED ON PRECAST SECTION(S) CONSTRUCTION JOINT(S) SHALL CONFORM TO AASHTO AND ASTM REQUIREMENTS.
- BENDS IN THE MAIN STORM SEWER SHALL BE MADE BY FORMING CURVED CHANNELS WITHIN THE MANHOLE. THE INSIDE OF THE TOP LATERAL PIPES MAY NOT BE LOWER THAN THE INSIDE TOP OF MAIN SEWER PIPES. WHEN THE INVERT OF A LATERAL PIPE FALLS BELOW THE 1" PER FOOT MINIMUM SLOPE LINE, THE CHANNEL SHALL BE FORMED FROM THE LATERAL PIPE TO THE MAIN SEWER.
- WHEN MANHOLE STEPS ARE REQUIRED AN ECCENTRIC CONE SECTION SHALL BE USED. PLASTIC COATED MANHOLE STEPS SHALL BE PLACED IN MANHOLES GREATER THAN 4' IN DEPTH. PLASTIC COATED MANHOLE STEPS SHALL CONFORM TO IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION.
- USE OF A PLASTIC MANHOLE FRAME SUPPORT, I. E. WHIRLY-GIG OR COMPARABLE DEVICE, IS AN ACCEPTABLE CONSTRUCTION OPTION (FOR FURTHER INFORMATION REFER TO STANDARD DRAWING E-9).
- CHEMICAL RESISTANT LINERS MAY BE REQUIRED (SEE PLANS AND/OR SPECIAL PROVISIONS).
- STANDARD DRAWING 605-13 SHALL ACCOMPANY THIS DRAWING.

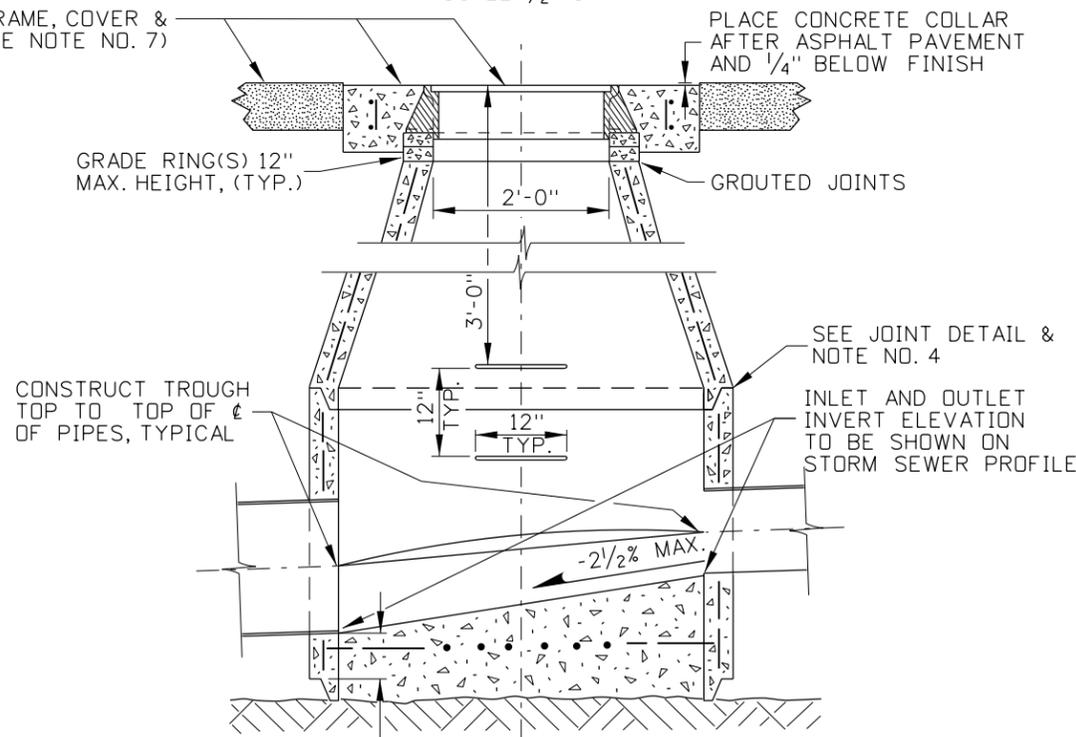
SUB-NOTES	
* a	PRECAST UNITS ONLY
* b	24" MAXIMUM PIPE DIA., FOR LARGER PIPE USE MANHOLE TYPE D.

SECTION C-C
(SCALE 1/2"=1')

TOP - SECTION B'-B'
(SCALE 1/2"=1')



SECTION A-A
(SCALE 1/2"=1')



BOTTOM - SECTION B-B
(SCALE 1/2"=1')

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	03-64		6	12-93	MSM	11	09-10
2	04-71		7	11-01	MSM		
3	05-74		8	06-03	MSM		
4	02-75		9	12-04	MSM		
5	12-92	MSM	10	05-07	MSM		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 605-10_1010.dgn
DRAWING DATE: JUNE, 1961

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

MANHOLE TYPE A

REQUIRES STD. DWG. 605-13

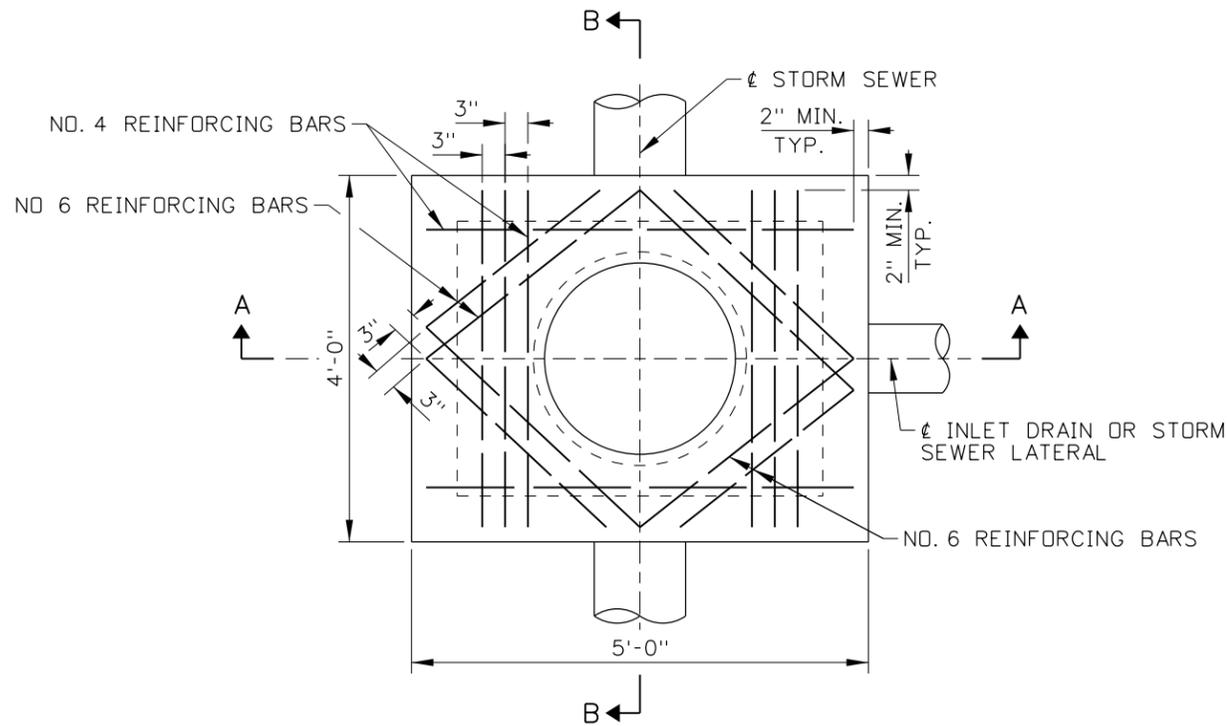
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

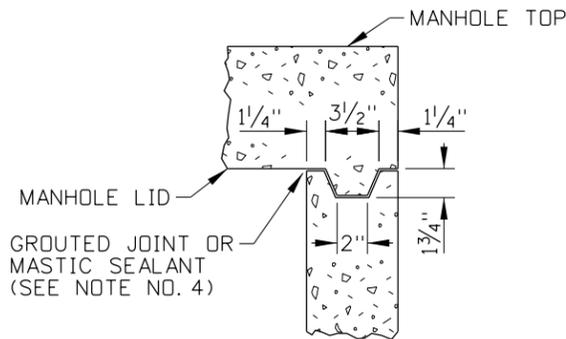
STANDARD DRAWING NO. **605-10**

SHEET 1 OF 1

ORIGINAL SIGNED BY: TED E. MASDN
DATE ORIGINAL SIGNED: OCTOBER 26, 2010



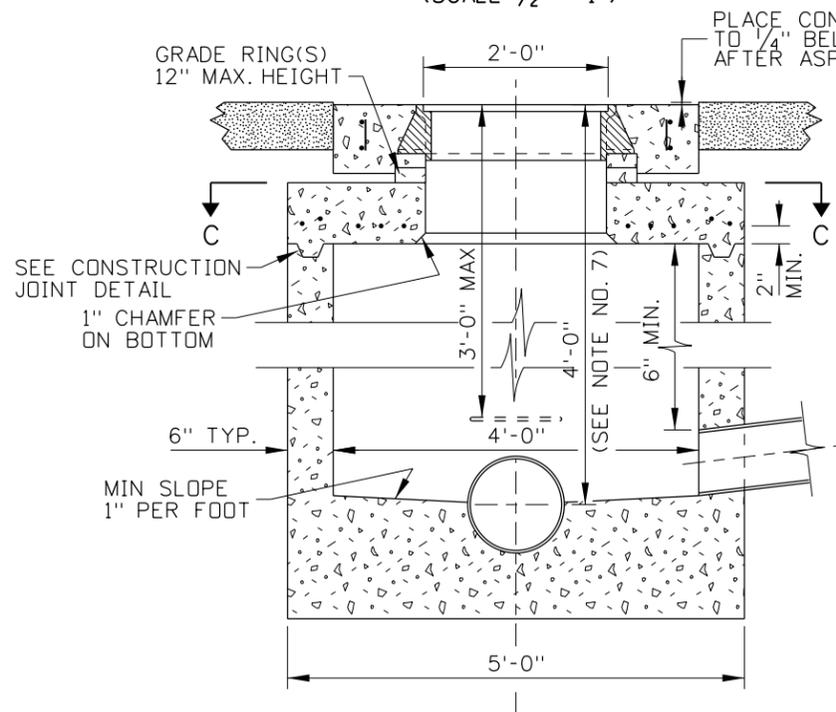
MANHOLE TOP
SECTION C-C
(SCALE 1/2" = 1")



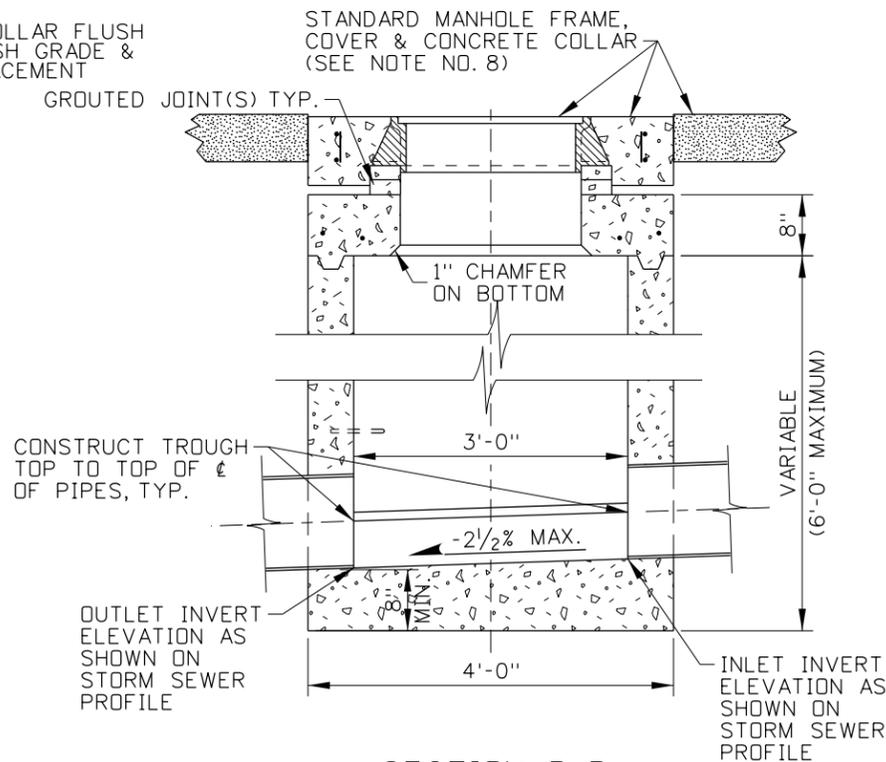
CONSTRUCTION JOINT DETAIL
(NO SCALE)

NOTES

- CARE SHALL BE TAKEN TO AVOID PLACING MANHOLES IN WHEEL PATHS.
- MANHOLE TYPE B MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST MANHOLES SHALL MEET THE REQUIREMENTS OF ASTM C478. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS WITH FLOOR AND/OR PIPE OPENINGS.
- CAST-IN-PLACE MANHOLE TYPE B SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. CAST-IN-PLACE MANHOLES SHALL HAVE 6" WALLS AND MINIMUM 8" FLOORS. THE METAL REINFORCEMENT USED ON THE WALLS AND FLOORS SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND/OR 3" IF CAST AGAINST EARTH.
- ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH TO FORM A WATER TIGHT MANHOLE. MASTIC SEALANTS, GASKETS, USED ON PRECAST SECTION(S) CONSTRUCTION JOINT(S) SHALL CONFORM TO AASHTO AND ASTM REQUIREMENTS.
- BENDS IN THE MAIN STORM SEWER SHALL BE MADE BY FORMING CURVED CHANNELS WITHIN THE MANHOLE. THE INSIDE OF THE TOP LATERAL PIPES MAY NOT BE LOWER THAN THE INSIDE TOP OF MAIN SEWER PIPES. WHEN THE INVERT OF THE LATERAL PIPE FALLS BELOW THE 1" PER FOOT MINIMUM SLOPE LINE, THE CHANNEL SHALL BE FORMED FROM THE LATERAL PIPE TO THE MAIN SEWER.
- THE CONCRETE MANHOLE LIDS SHALL BE DESIGNED FOR AASHTO H-25 LIVE LOADS.
- WHEN MANHOLE DEPTH IS GREATER THAN 4'-0" INSTALL MANHOLE STEP(S), THE NORMAL STEP-TO-STEP SPACING IS 12" AND THE STEP PROTRUDES FROM THE MANHOLE WALL 4".
- USE OF A PLASTIC MANHOLE FRAME SUPPORT, I. E. WHIRLY-GIG OR COMPARABLE DEVICE IS AN ACCEPTABLE CONSTRUCTION OPTION (FOR FURTHER INFORMATION REFER TO STANDARD DRAWING 605-13).
- STANDARD DRAWING 605-13 SHALL ACCOMPANY THIS DRAWING.



SECTION A-A
(SCALE 1/2" = 1")



SECTION B-B
(SCALE 1/2" = 1")

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER
DATE ORIGINAL SIGNED: MAY 16, 2007

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	03-64		6	09-04	MSM		
2	04-71		7	05-07	MSM		
3	05-71						
4	12-92	MSM					
5	11-01	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 605-11_0507.dgn
DRAWING DATE: JUNE, 1961

IDAHO TRANSPORTATION DEPARTMENT

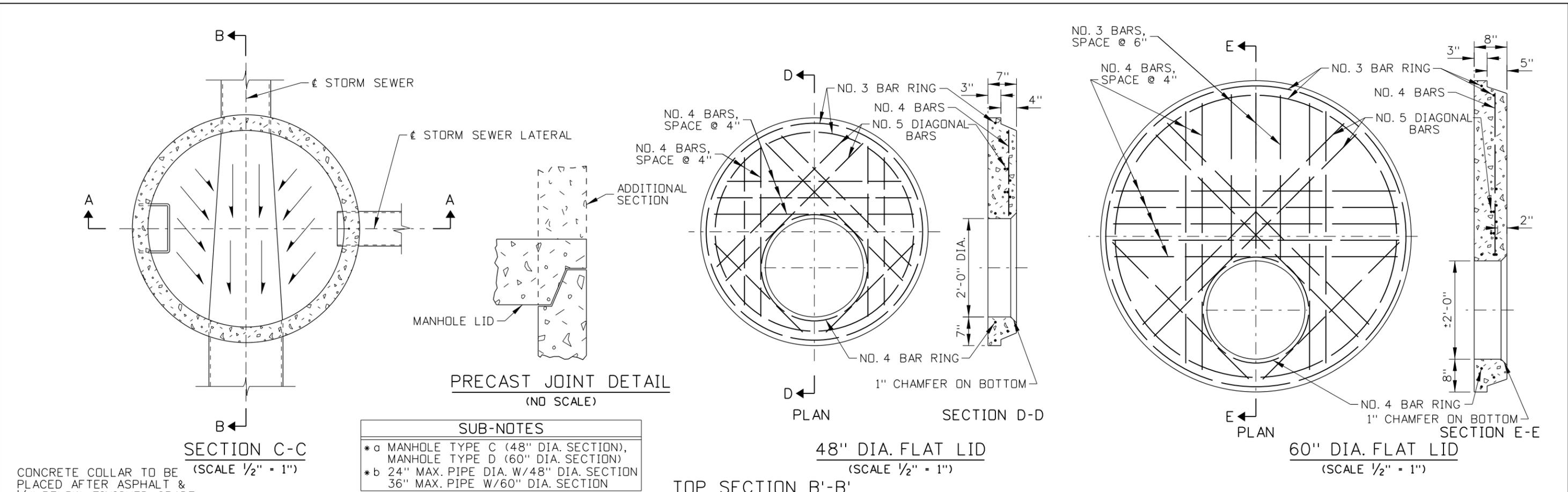


BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING
MANHOLE TYPE B
REQUIRES STD. DWG. 605-13

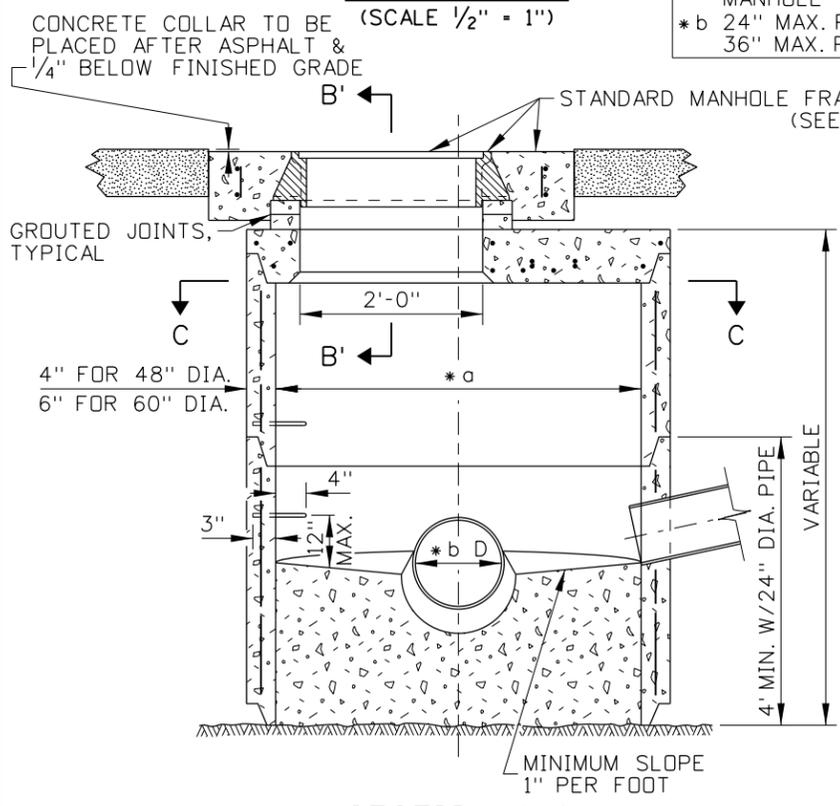
English
STANDARD DRAWING NO.
605-11
SHEET 1 OF 1



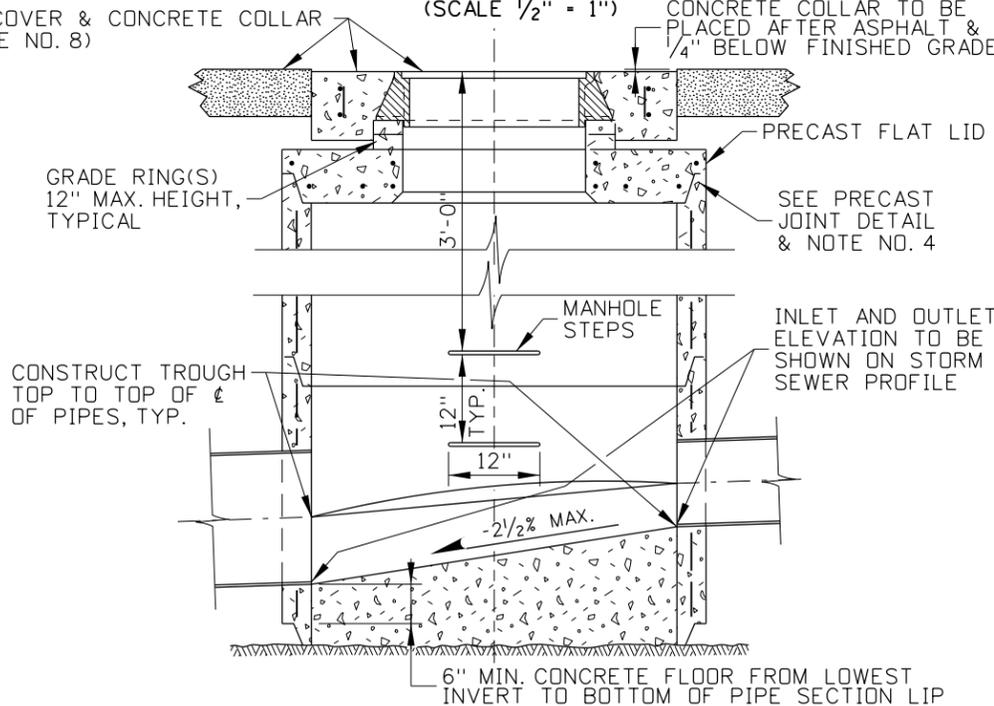
SUB-NOTES

* a MANHOLE TYPE C (48" DIA. SECTION), MANHOLE TYPE D (60" DIA. SECTION)

* b 24" MAX. PIPE DIA. W/48" DIA. SECTION
36" MAX. PIPE W/60" DIA. SECTION



SECTION A-A
(SCALE 1/2" = 1")



BOTTOM SECTION B-B
(SCALE 1/2" = 1")

- NOTES**
- CARE SHALL BE TAKEN TO AVOID PLACING MANHOLES IN WHEEL PATHS.
 - MANHOLES TYPE C & D MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST MANHOLES SHALL MEET THE REQUIREMENTS OF ASTM C478. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS WITH FLOOR AND/OR PIPE OPENINGS.
 - CAST-IN-PLACE MANHOLES TYPE C & D SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT "ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION". CAST-IN-PLACE MANHOLES SHALL HAVE 6" WALLS AND MINIMUM 8" FLOORS. THE METAL REINFORCEMENT USED ON THE WALLS AND FLOORS SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND/OR 3" IF CAST AGAINST EARTH.
 - ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH TO FORM A WATER TIGHT MANHOLE. MASTIC SEALANTS, GASKETS, AND O-RINGS USED ON PRECAST SECTION(S) CONSTRUCTION JOINT(S) SHALL CONFORM TO AASHTO AND ASTM REQUIREMENTS.
 - BENDS IN THE MAIN STORM SEWER SHALL BE MADE BY FORMING CURVED CHANNELS WITHIN THE MANHOLE. THE INSIDE OF THE TOP LATERAL PIPES MAY NOT BE LOWER THAN THE INSIDE TOP OF MAIN SEWER PIPES. WHEN THE INVERT OF THE LATERAL PIPE FALLS BELOW THE 1" PER FOOT MINIMUM SLOPE LINE, THE CHANNEL SHALL BE FORMED FROM THE LATERAL PIPE TO THE MAIN SEWER.
 - THE CONCRETE MANHOLE LIDS SHALL BE DESIGNED FOR AASHTO H-25 LIVE LOADS.
 - WHEN MANHOLE STEPS ARE REQUIRED AN ECCENTRIC CONE SECTION SHALL BE USED. PLASTIC COATED MANHOLE STEPS SHALL BE PLACED IN MANHOLES GREATER THAN 4' IN DEPTH. MANHOLE STEPS SHALL CONFORM TO IDAHO STANDARDS FOR PUBLIC WORKS CONSTRUCTION, STANDARD DRAWING SD-509 AND SECTION 504.06 PLASTIC COATED MANHOLE STEPS.
 - USE OF A PLASTIC MANHOLE FRAME SUPPORT, I.E. WHIRLY-GIG OR COMPARABLE DEVICE, IS AN ACCEPTABLE CONSTRUCTION OPTION (FOR FURTHER INFORMATION REFER TO STANDARD DRAWING 605-13).

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	12-92	MSM					
2	11-01	MSM					
3	12-04	MSM					
4	05-07	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 605-12_0507.dgn

DRAWING DATE: MAY, 1981

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING

MANHOLE TYPES C & D

REQUIRES STD. DWG. 605-13

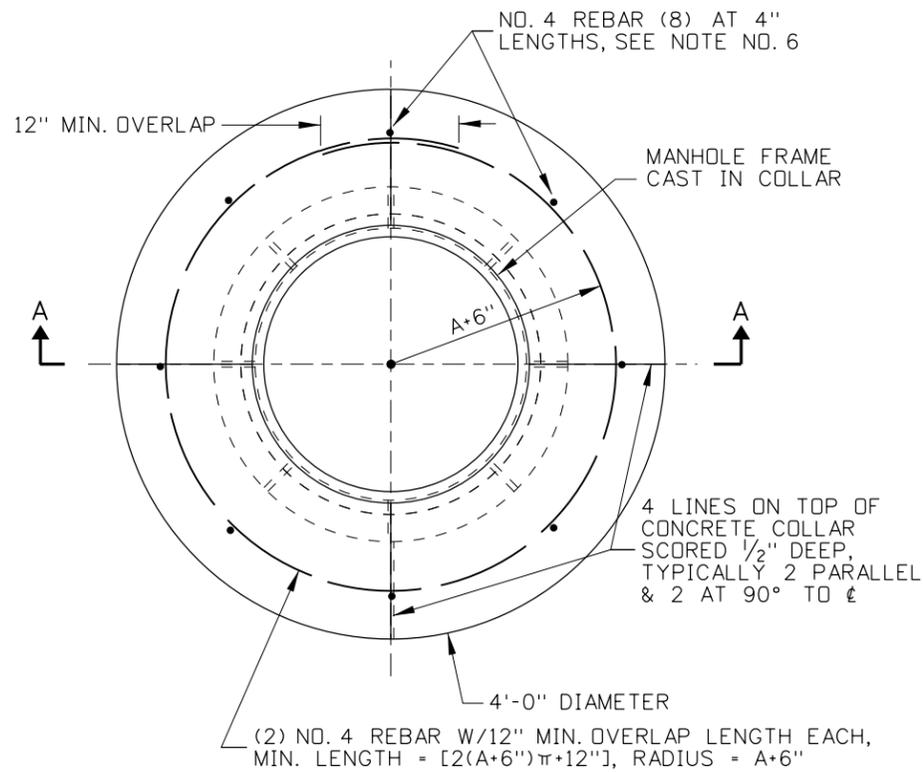
English

STANDARD DRAWING NO. **605-12**

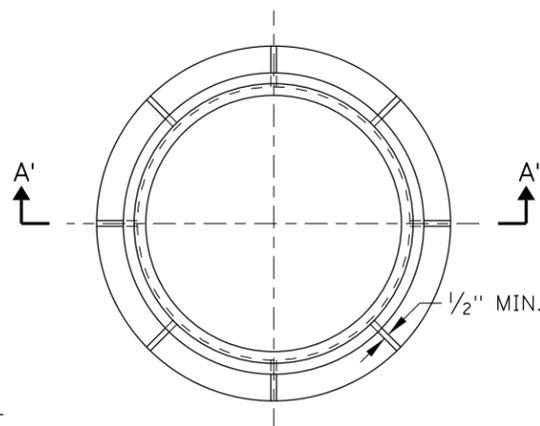
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER
DATE ORIGINAL SIGNED: MAY 16, 2007

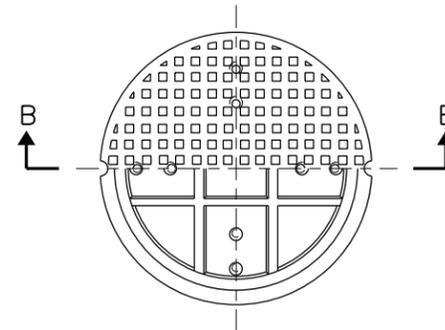


CONCRETE COLLAR PLAN



FRAME PLAN

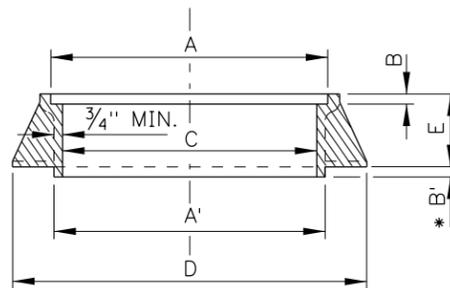
COVER PLAN - TOP HALF VIEW



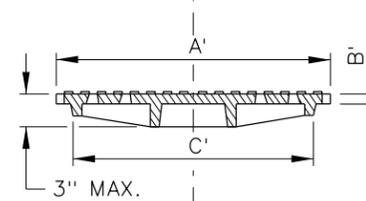
COVER PLAN - BOTTOM HALF VIEW

STANDARD MANHOLE FRAME BASIC DIMENSIONS	
A	24 1/8"
B	1"
C	21" MIN.
D	31" MIN.
E	5"
STANDARD MANHOLE COVER BASIC DIMENSIONS	
A'	23 7/8"
* B'	1"
C'	20"

* B' MANHOLE FRAME BOTTOM TO FIT INSIDE ANOTHER FRAME LID OPENING



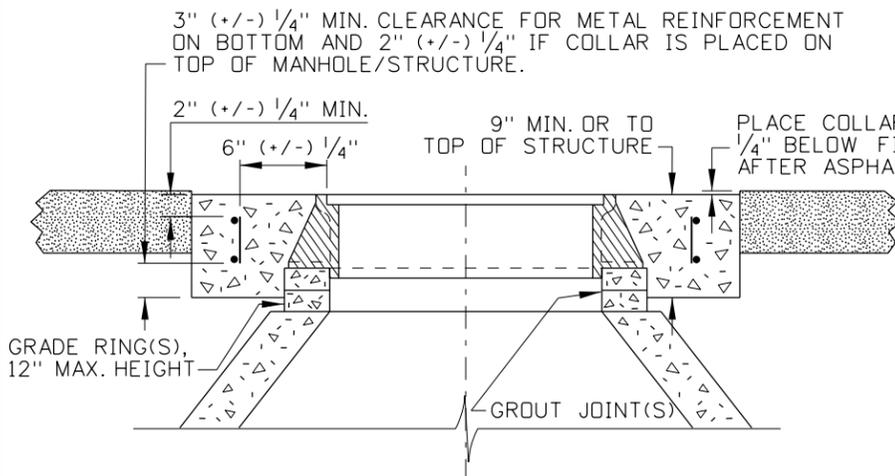
SECTION A-A'



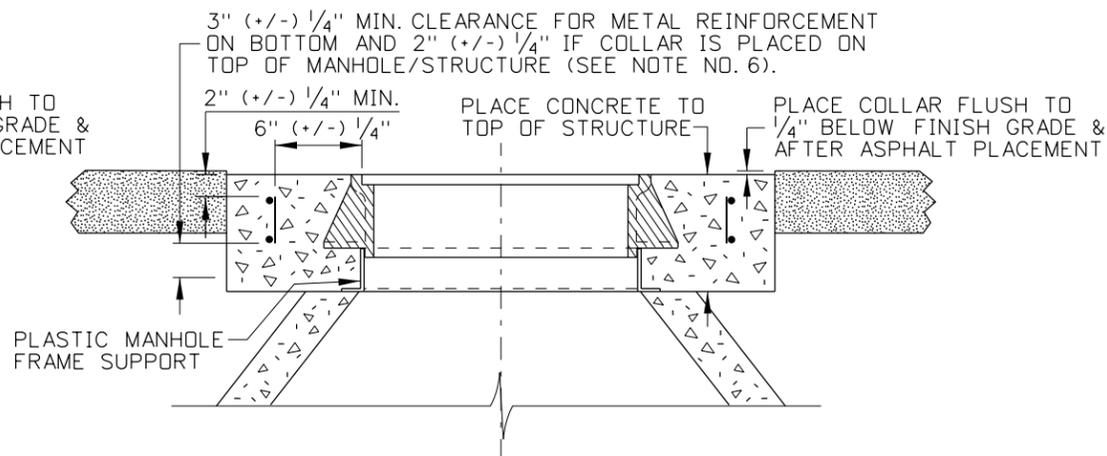
SECTION B-B

NOTES

1. THE MINIMUM WEIGHT OF THE FRAMES SHALL BE 150LBS. AND THE MINIMUM WEIGHT OF COVERS SHALL BE 110LBS. THESE FRAMES AND COVERS ARE TO BE USED IN ALL TRAFFIC AND NON-TRAFFIC AREAS.
2. FRAMES AND COVERS SHALL CONFORM TO AASHTO M 306-05 AND SHALL BE MADE OF CLASS 35B GRAY IRON.
3. THE LAYOUT AND DIMENSIONS OF THE WEBS ARE TYPICAL MINIMUMS. PROPRIETARY MANHOLE COVERS WITHOUT WEBS ARE ACCEPTABLE PROVIDED THEY MEET AASHTO M 306-05 AND MINIMUM WEIGHT REQUIREMENTS. ALL COVER DESIGNS SHALL BE PROVIDED WITH AN ANTI-SHIFT SKIRT THAT EXTENDS A MINIMUM OF 1" BELOW THE COVER SEAT.
4. THE SURFACE SHOWN IS FOR ILLUSTRATION ONLY. ANY SURFACE DESIGN, OTHER THAN SMOOTH, MAY BE USED UPON APPROVAL.
5. A CAST-IN-PLACE CONCRETE COLLAR SHALL BE PLACED AROUND THE MANHOLE FRAME UNLESS OTHERWISE DIRECTED. THE CONCRETE COLLAR SHALL MEET THE REQUIREMENTS OF SECTION 609 - MINOR STRUCTURES, OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
6. THE CONCRETE COLLAR SHALL BE PLACED TO THE TOP OF THE MANHOLE/STRUCTURE OR HAVE A MINIMUM THICKNESS OF 9". WHEN THE CONCRETE COLLAR IS PLACED ON TOP OF A MANHOLE/STRUCTURE THE THICKNESS SHALL NOT BE LESS THAN THE "F DIMENSION" OF THE FRAME. THE VERTICAL METAL REINFORCEMENT LENGTHS MAY BE ADJUSTED WHEN THE COLLAR IS PLACED ON TOP OF A STRUCTURE/MANHOLE.
7. USE OF A PLASTIC MANHOLE FRAME SUPPORT, I.E. WHIRLY-GIG OR COMPARABLE DEVICE, IS AN ACCEPTABLE CONSTRUCTION OPTION.
8. NOT TO SCALE.



MANHOLE FRAME SUPPORTED WITH CONC. COLLAR RINGS (SEE NOTE NO. 6)



PLASTIC MANHOLE FRAME SUPPORT (SEE NOTE NO. 7)

SECTION A-A

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-61	NS	6	10-05	MSM		
2	02-74		7	06-07	MSM		
3	12-92	MSM	8	09-10	PLR		
4	05-95	MSM					
5	11-01	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 605-13_1010.dgn
 DRAWING DATE: JUNE, 1961

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

MANHOLE FRAME, COVER, & CONCRETE COLLAR

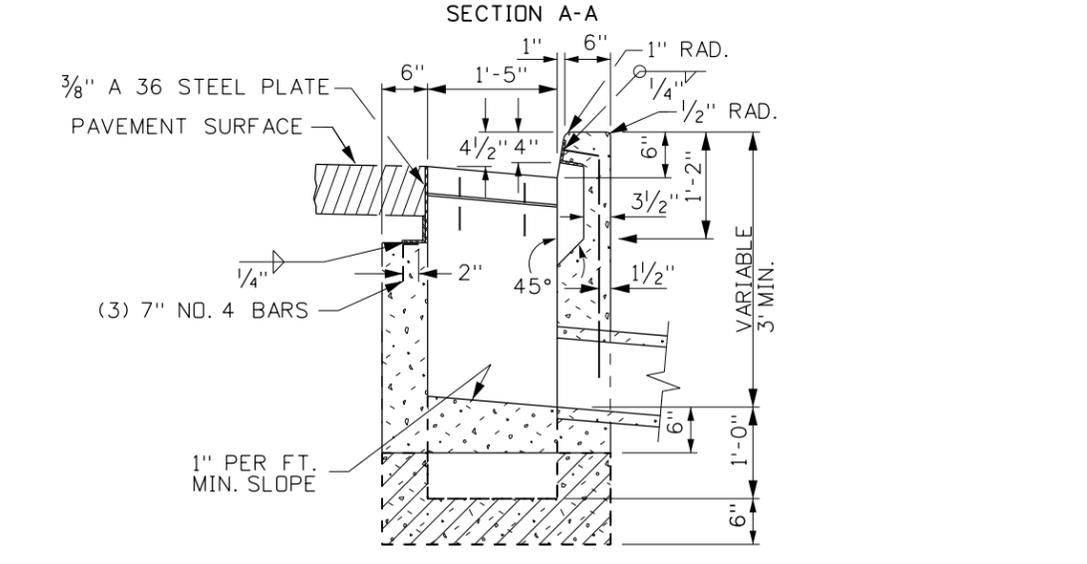
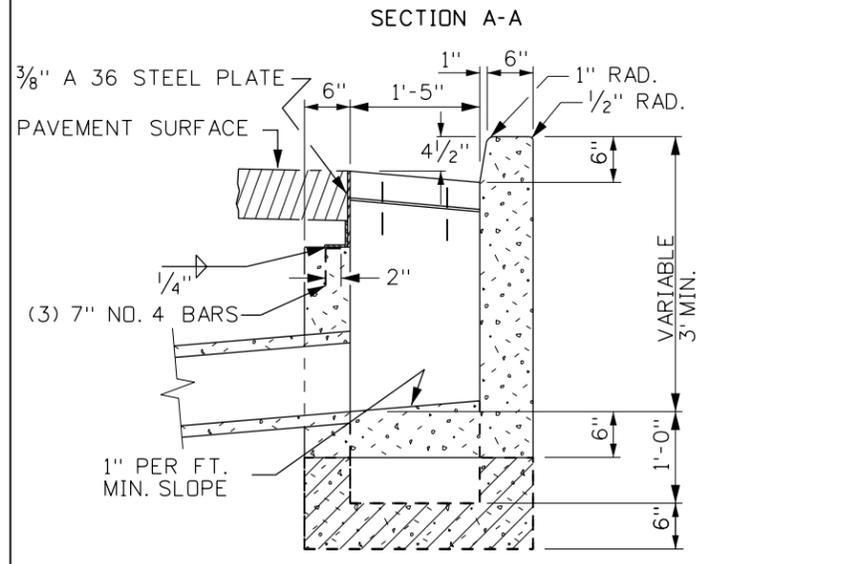
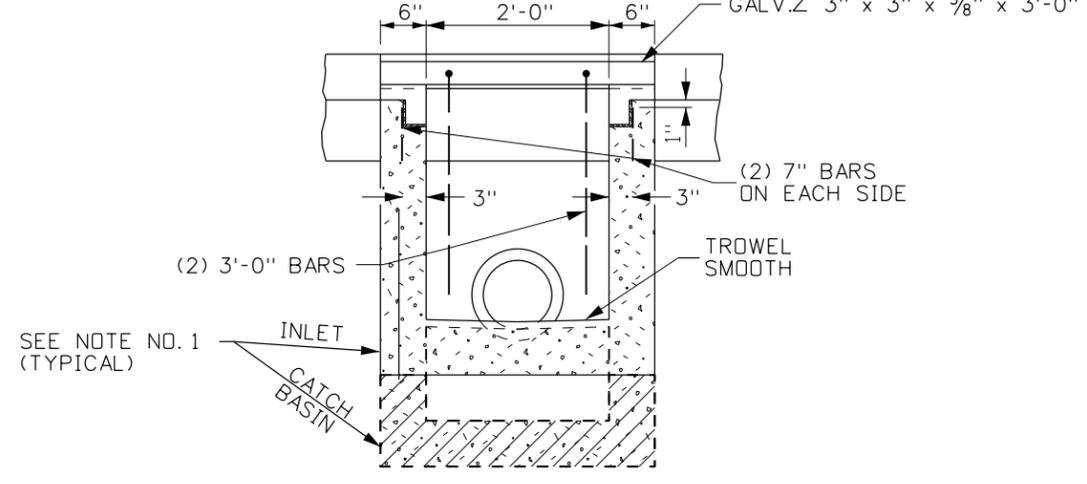
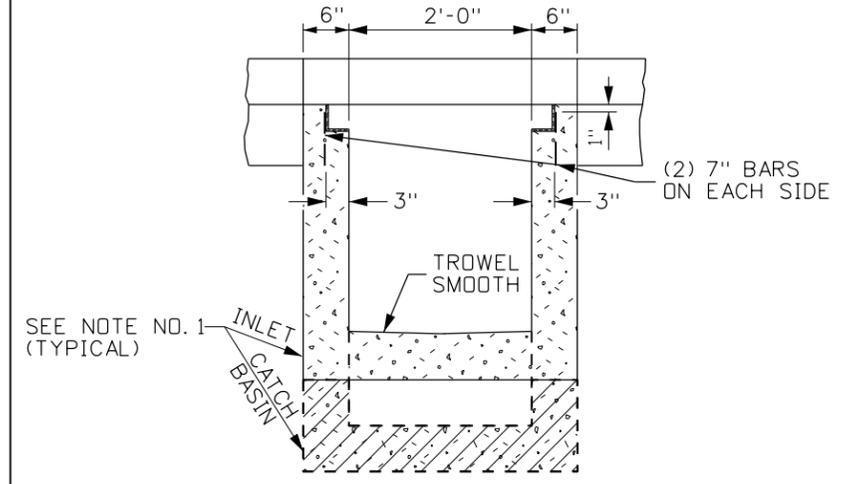
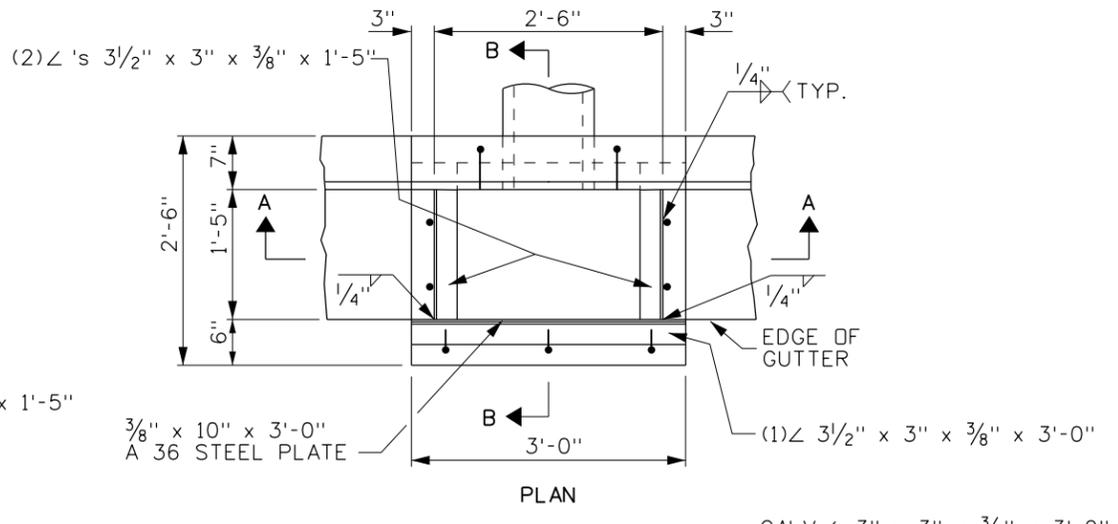
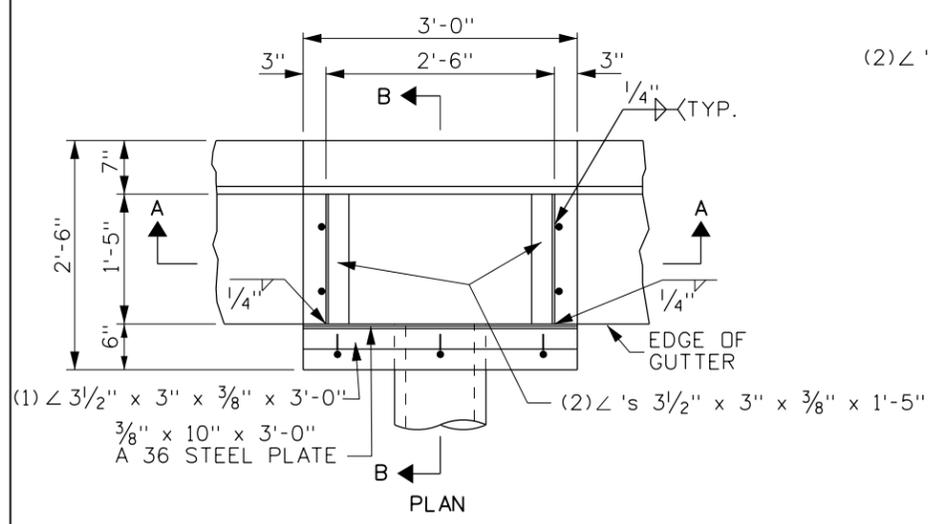
English

STANDARD DRAWING NO. 605-13

SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: TED E. MASON
 DATE ORIGINAL SIGNED: OCTOBER 26, 2010



SECTION B-B
INLET - TYPE 1
CATCH BASIN - TYPE 1

SECTION B-B
INLET - TYPE 2
CATCH BASIN - TYPE 2

NOTES

- PATTERNS USED IN DRAWING:
 INLET SECTIONS:
 CATCH BASIN BOTTOMS:
 PAVEMENT:
- INLETS AND CATCH BASINS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C 913. (PRIOR APPROVAL OF SHOP DRAWINGS WILL BE REQUIRED ON MODIFIED UNITS.)
- A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
- CAST-IN-PLACE INLETS AND CATCH BASINS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.
- PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.
- STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFABRICATED GRATE SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIREMENTS OF ASTM A 36.
- ALL METAL REINFORCEMENT USED SHALL BE NO. 4 BARS. THE METAL REINFORCEMENT SHALL BE SMOOTH CUT TO ACCOMMODATE PIPES.
- GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
- INLET/CATCH BASIN GRATES MAY EITHER BE RESISTANCE WELDED OR ARC WELDED. IN EITHER CASE THE GRATE SHALL BE TRUE AND FLUSH.
- GRATE B WILL BE USED ONLY WHEN SPECIFIED.
- NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-80		6	09-94	MSM	11	11-08
2	04-82		7	06-97	MSM		
3	03-84		8	06-01	MSM		
4	01-89	GB	9	11-04	MSM		
5	12-93	MSM	10	05-07	MSM		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 605-20_1108.dgn
 DRAWING DATE: JULY, 1961

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

INLETS & CATCH BASINS TYPES 1, 2, & 3

REQUIRES SHEET 2 OF 2

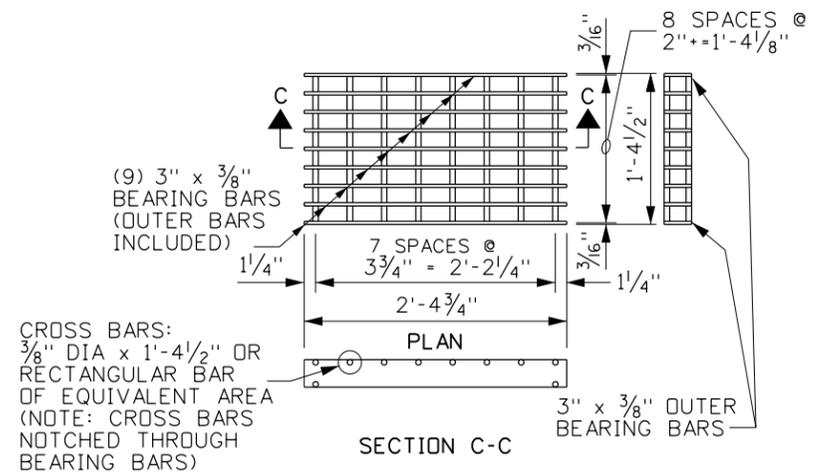
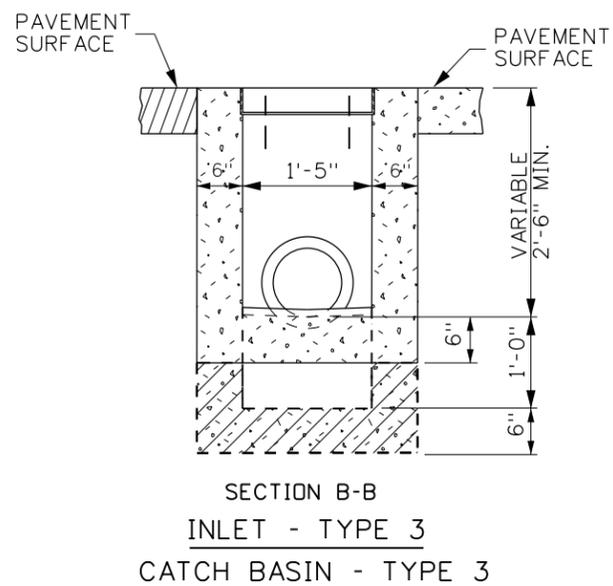
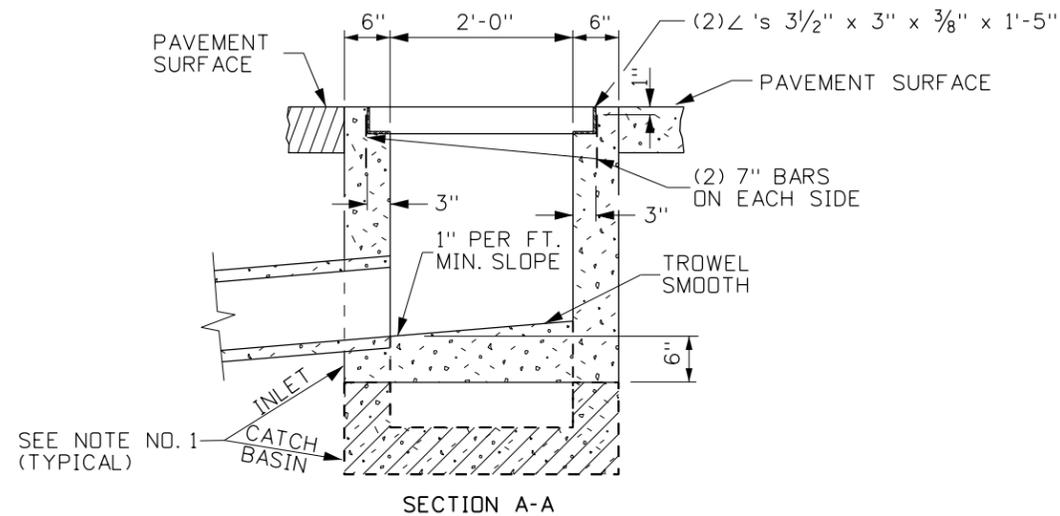
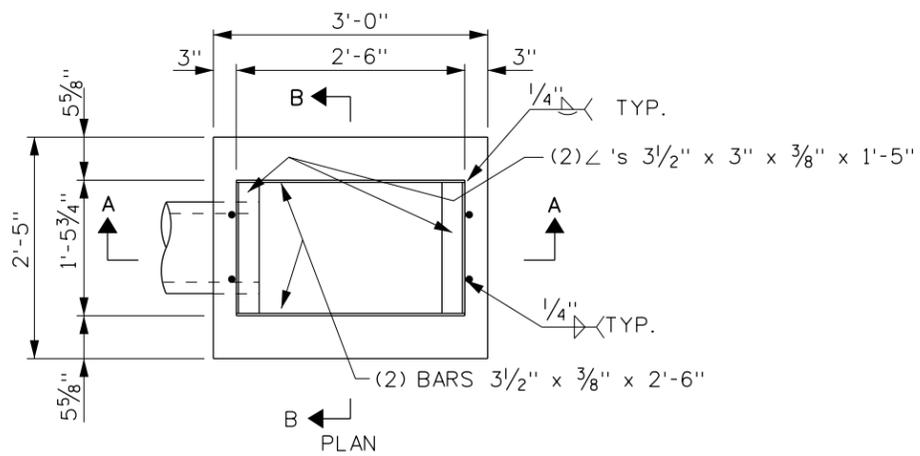
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

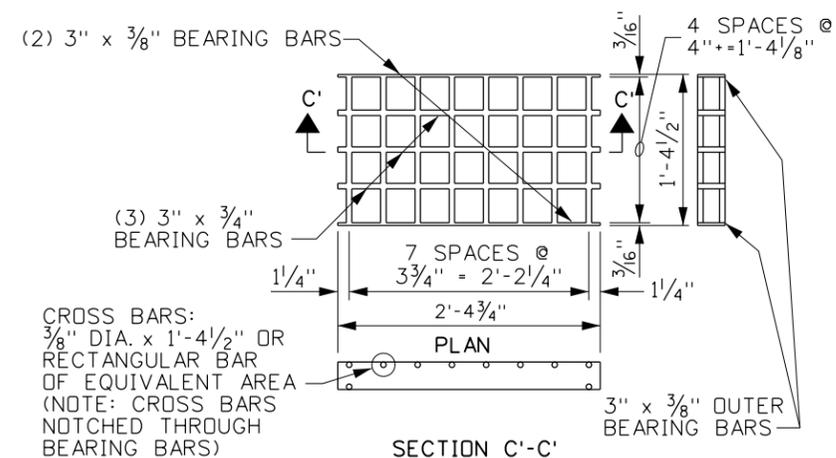
STANDARD DRAWING NO. **605-20**

SHEET 1 OF 2

ORIGINAL SIGNED BY: TED E. MASDN
 DATE ORIGINAL SIGNED: NOVEMBER 3, 2008



(WEIGHT: APPROXIMATELY 88 LBS., SEE NOTE 9 & 10)



(WEIGHT: APPROXIMATELY 79 LBS., SEE NOTE 9 & 10)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: DATE
TED E. MASDN ORIGINAL SIGNED: NOVEMBER 3, 2008

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-80		6	09-94	MSM	11	11-08	JRV
2	04-82		7	06-97	MSM			
3	03-84		8	06-01	MSM			
4	01-89	GB	9	11-04	MSM			
5	12-93	MSM	10	05-07	MSM			

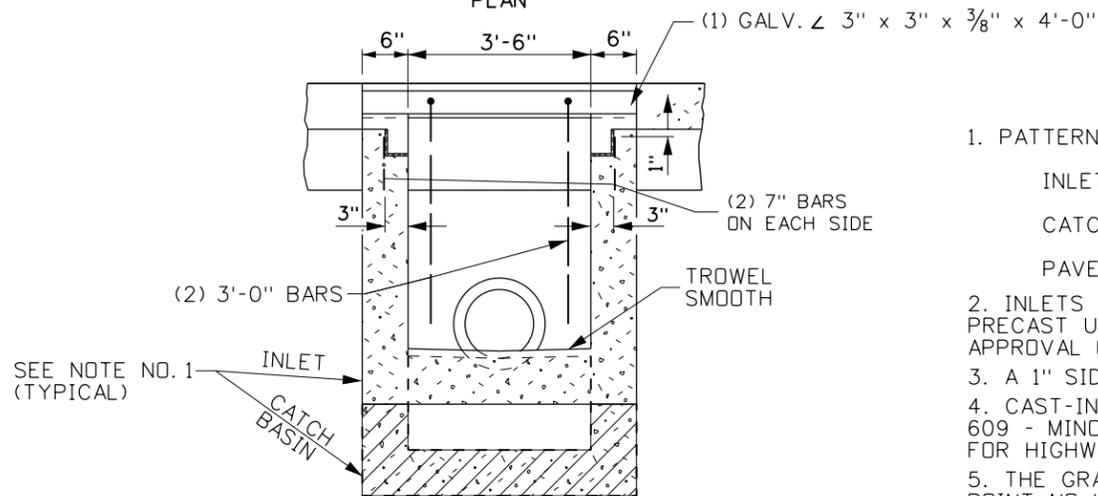
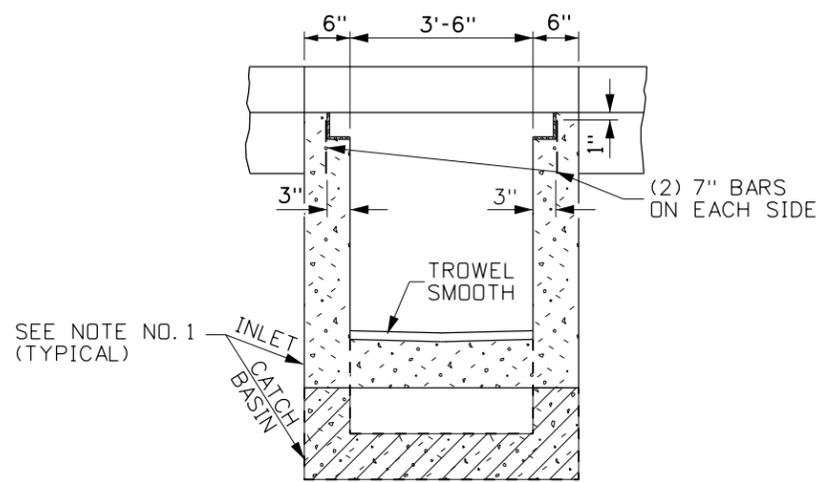
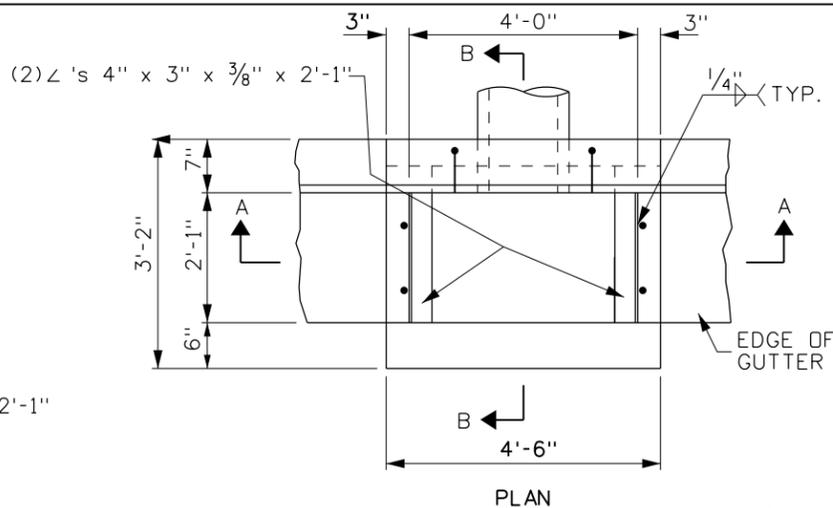
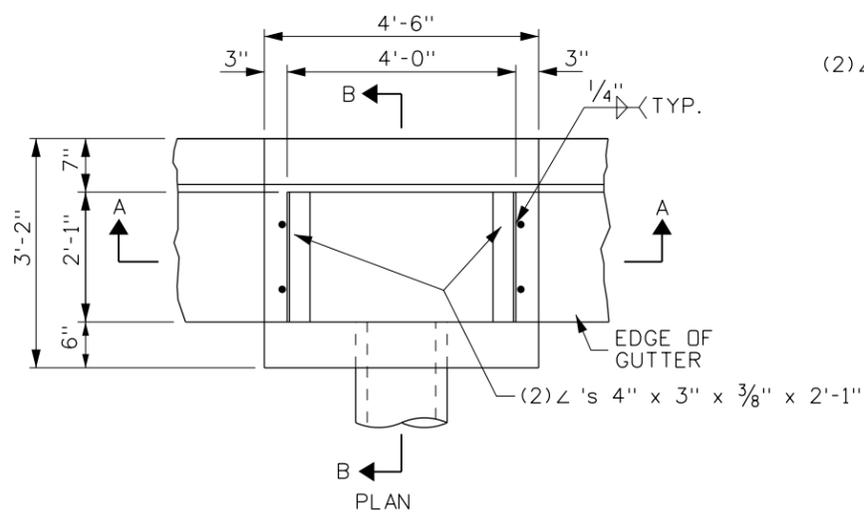
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 605-20_1108.dgn
DRAWING DATE: JULY, 1961

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
INLETS & CATCH BASINS TYPES 1, 2, & 3
REQUIRES SHEET 1 OF 2

English
STANDARD DRAWING NO. 605-20
SHEET 2 OF 2



NOTES

1. PATTERNS USED IN DRAWING:

INLET SECTIONS:



CATCH BASIN BOTTOMS:



PAVEMENT:



2. INLETS AND CATCH BASINS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C 913. (PRIOR APPROVAL OF SHOP DRAWINGS WILL BE REQUIRED ON MODIFIED UNITS.)

3. A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.

4. CAST-IN-PLACE INLETS AND CATCH BASINS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

5. THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.

6. PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.

7. STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFABRICATED GRATE SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIREMENTS OF ASTM A 36.

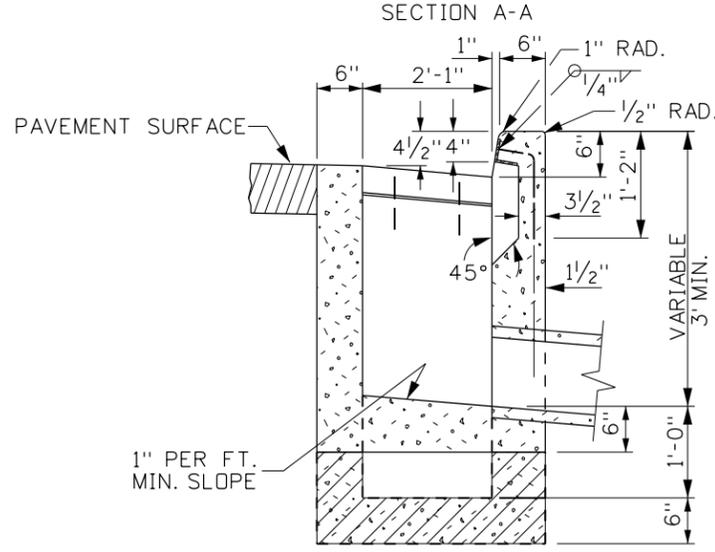
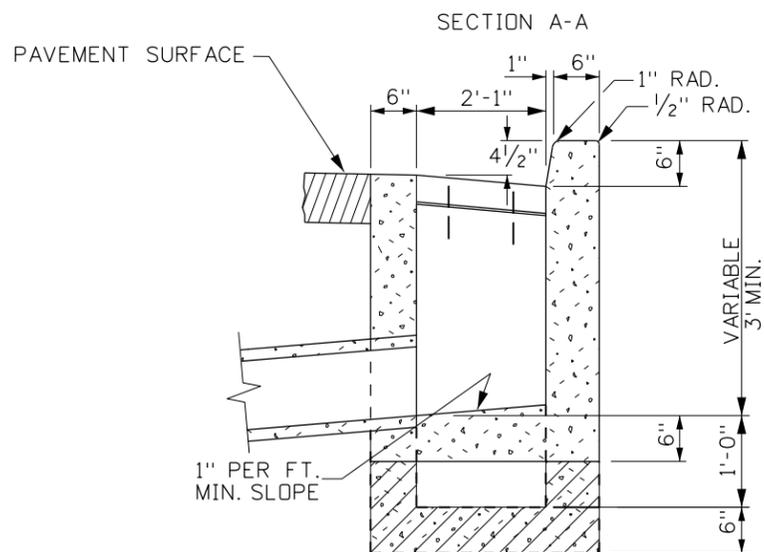
8. ALL METAL REINFORCEMENT USED SHALL BE NO. 4 BARS. THE METAL REINFORCEMENT SHALL BE SMOOTH CUT TO ACCOMMODATE PIPES.

9. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.

10. INLET/CATCH BASIN GRATES MAY EITHER BE RESISTANCE WELDED OR ARC WELDED. IN EITHER CASE THE GRATE SHALL BE TRUE AND FLUSH.

11. GRATE B WILL BE USED ONLY WHEN SPECIFIED.

12. NOT TO SCALE.



SECTION B-B
INLET - TYPE 1A
CATCH BASIN - TYPE 1A

SECTION B-B
INLET - TYPE 2A
CATCH BASIN - TYPE 2A

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	04-82		6	11-04	MSM		
2	01-89		7	11-08	JRV		
3	12-94	MSM					
4	06-97	MSM					
5	03-01	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 605-21_1108.dgn
DRAWING DATE: OCTOBER, 1980

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

**INLETS & CATCH BASINS
TYPES 1A, 2A, & 3A**

REQUIRES SHEET 2 OF 2

English

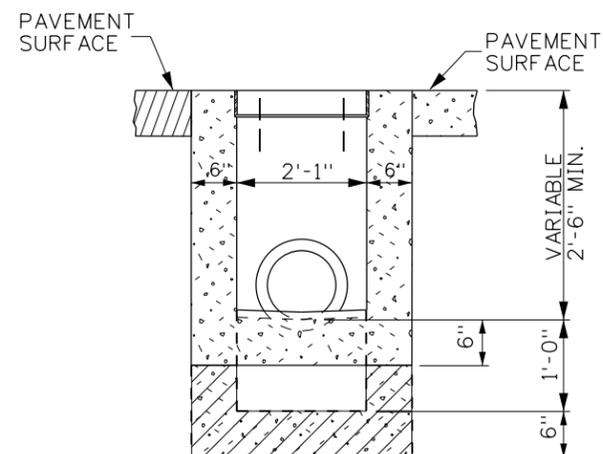
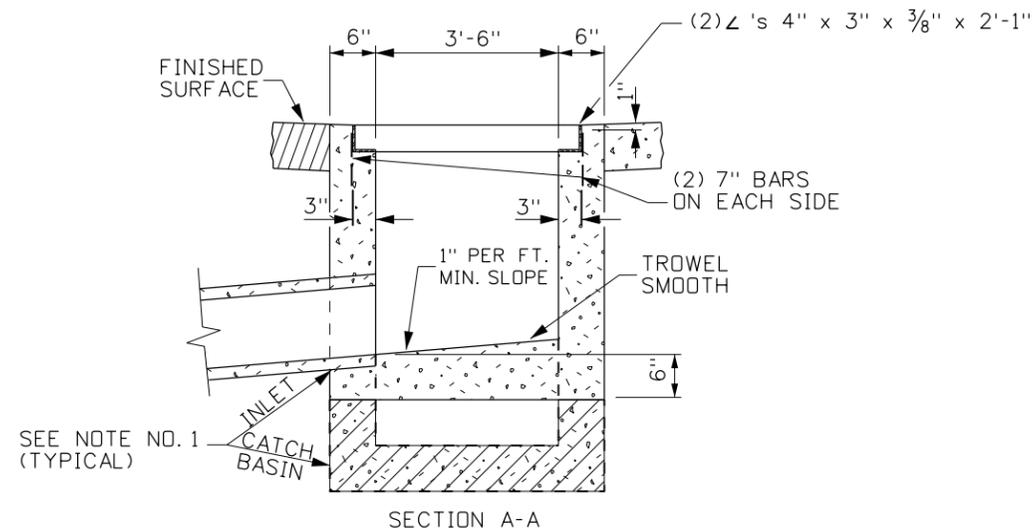
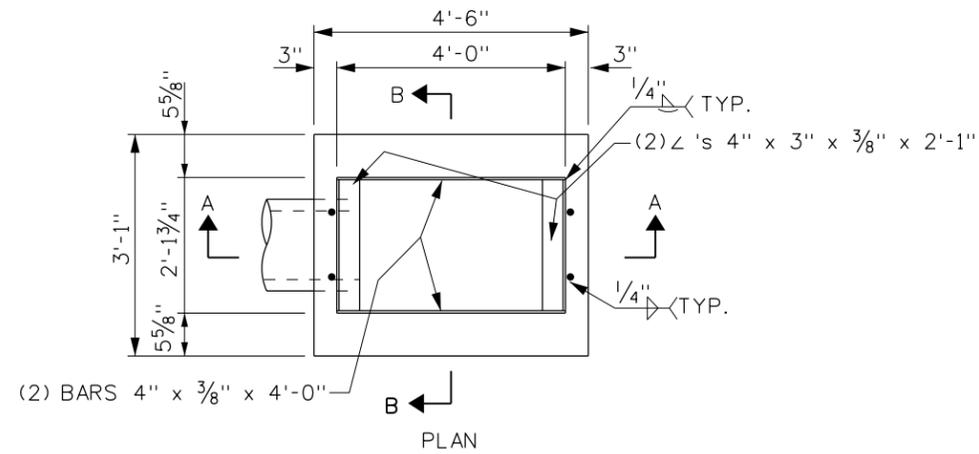
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605-21

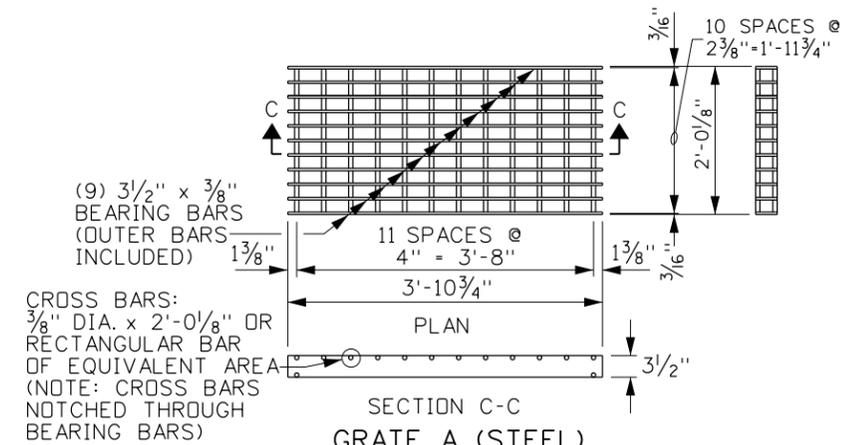
SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

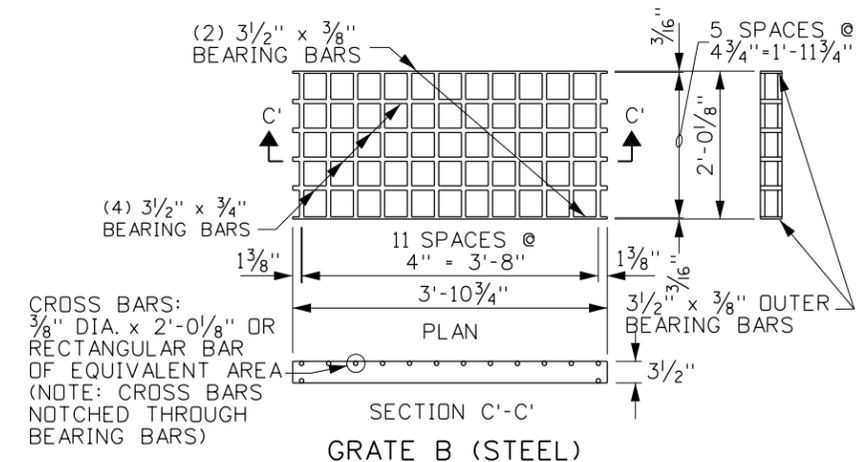
ORIGINAL SIGNED BY:
DATE: TED E. MASDN
NOVEMBER 3, 2008



SECTION B-B
INLET - TYPE 3A
CATCH BASIN - TYPE 3A



(WEIGHT : APPROXIMATELY 202 LBS., SEE NOTE 9 & 10)



(WEIGHT : APPROXIMATELY 185 LBS., SEE NOTE 9 & 10)

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	04-82		6	11-04	MSM		
2	01-89		7	11-08	JRV		
3	12-94	MSM					
4	06-97	MSM					
5	03-01	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 605-21_1108.dgn

DRAWING DATE: OCTOBER, 1980

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

INLETS & CATCH BASINS TYPES 1A, 2A, & 3A

REQUIRES SHEET 1 OF 2

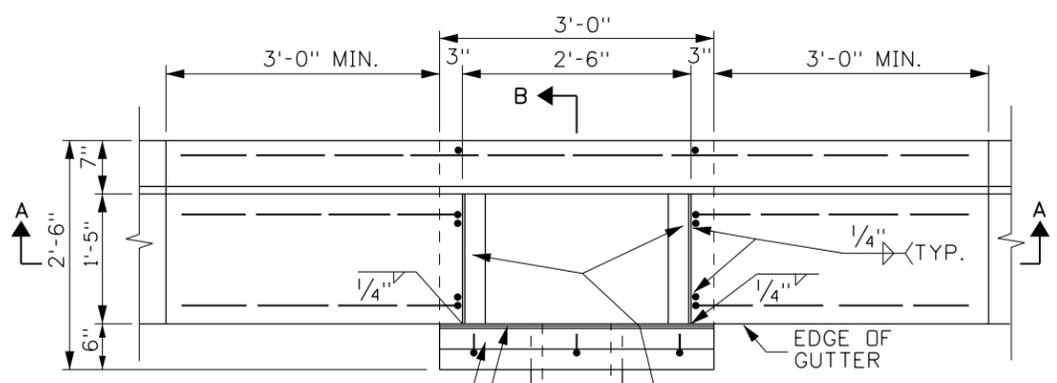
English

STANDARD DRAWING NO. 605-21

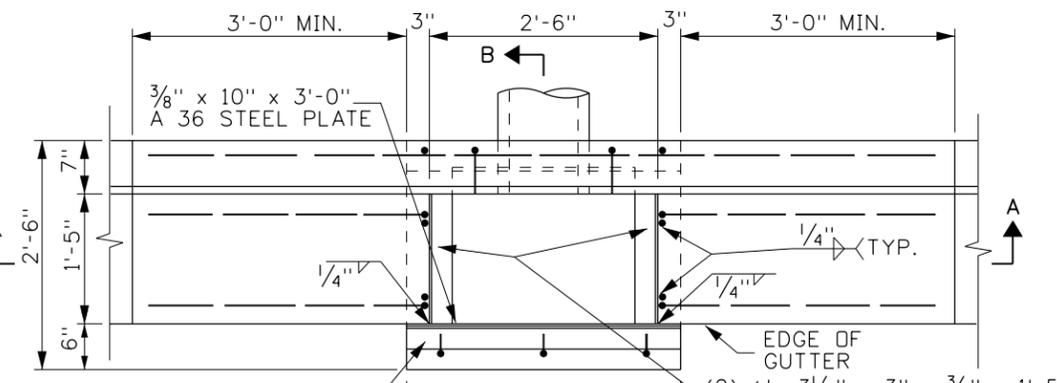
SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

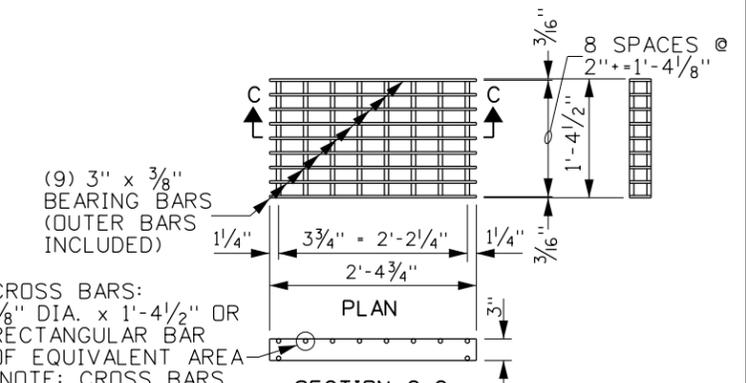
ORIGINAL SIGNED BY: TED E. MASDN
DATE ORIGINAL SIGNED: NOVEMBER 3, 2008



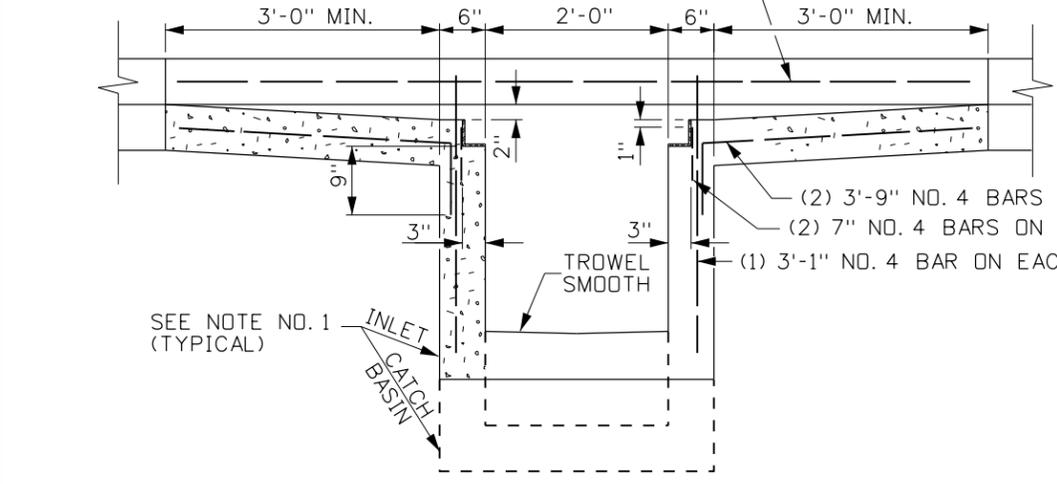
PLAN
 (1) \angle 3 1/2" x 3" x 3/8" x 3'-0"
 3/8" x 10" x 3'-0"
 A 36 STEEL PLATE
 (2) \angle 's 3 1/2" x 3" x 3/8" x 1'-5"



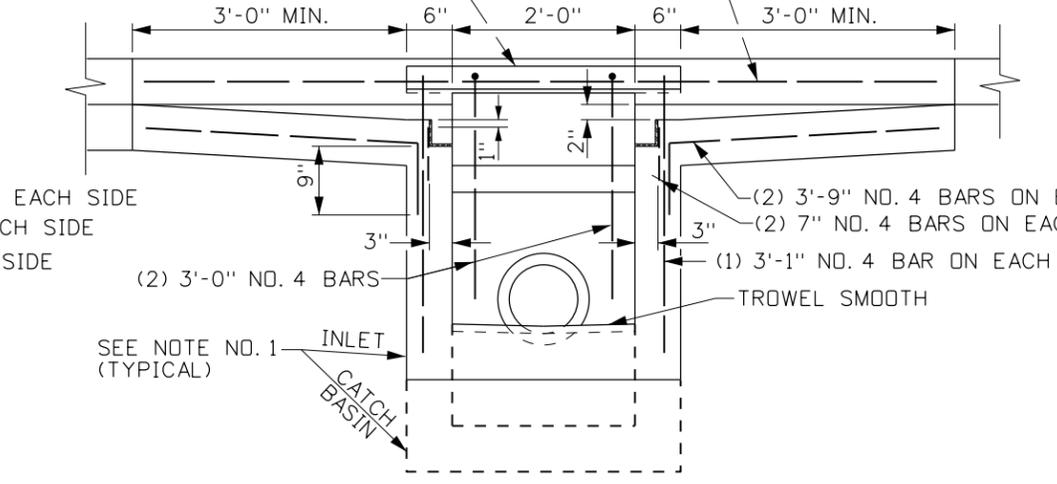
PLAN
 (1) \angle 3 1/2" x 3" x 3/8" x 3'-0"
 3/8" x 10" x 3'-0"
 A 36 STEEL PLATE
 (2) \angle 's 3 1/2" x 3" x 3/8" x 1'-5"



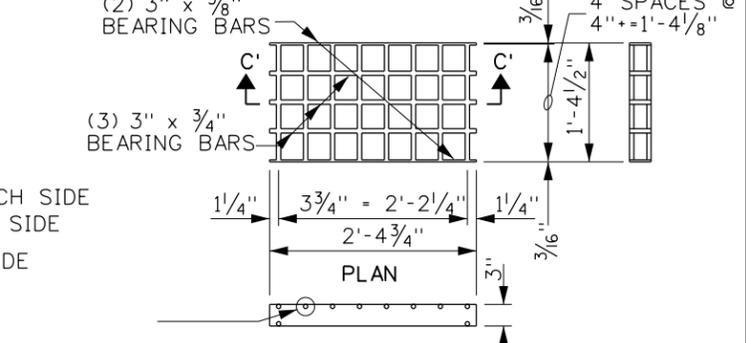
SECTION C-C
 GRATE A (STEEL)
 (9) 3" x 3/8" BEARING BARS (OUTER BARS INCLUDED)
 CROSS BARS: 3/8" DIA. x 1'-4 1/2" OR RECTANGULAR BAR OF EQUIVALENT AREA (NOTE: CROSS BARS NOTCHED THROUGH BEARING BARS)



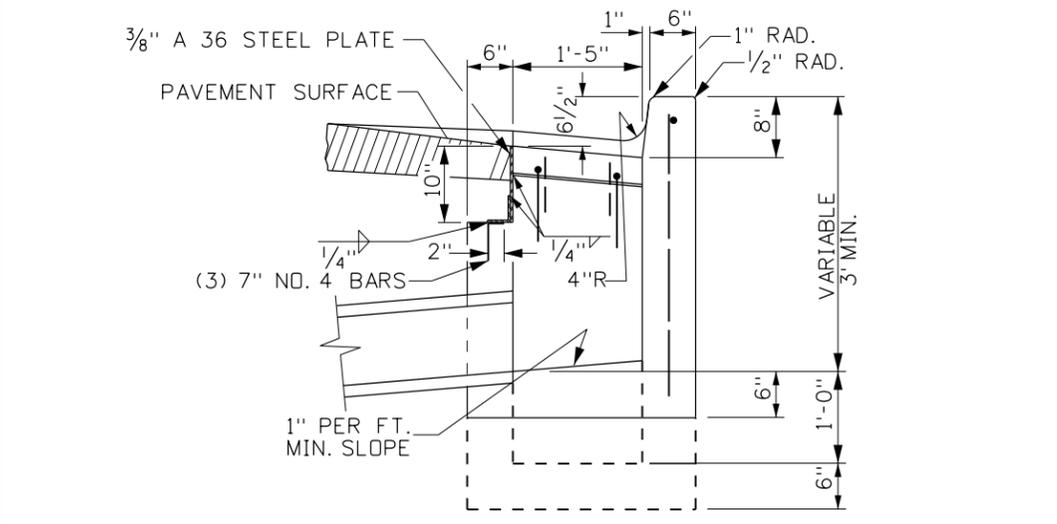
SECTION A-A
 (1) 7" NO. 4 BAR (MIN.)
 (2) 3'-9" NO. 4 BARS ON EACH SIDE
 (2) 7" NO. 4 BARS ON EACH SIDE
 (1) 3'-1" NO. 4 BAR ON EACH SIDE
 TROWEL SMOOTH
 INLET CATCH BASIN
 SEE NOTE NO. 1 (TYPICAL)



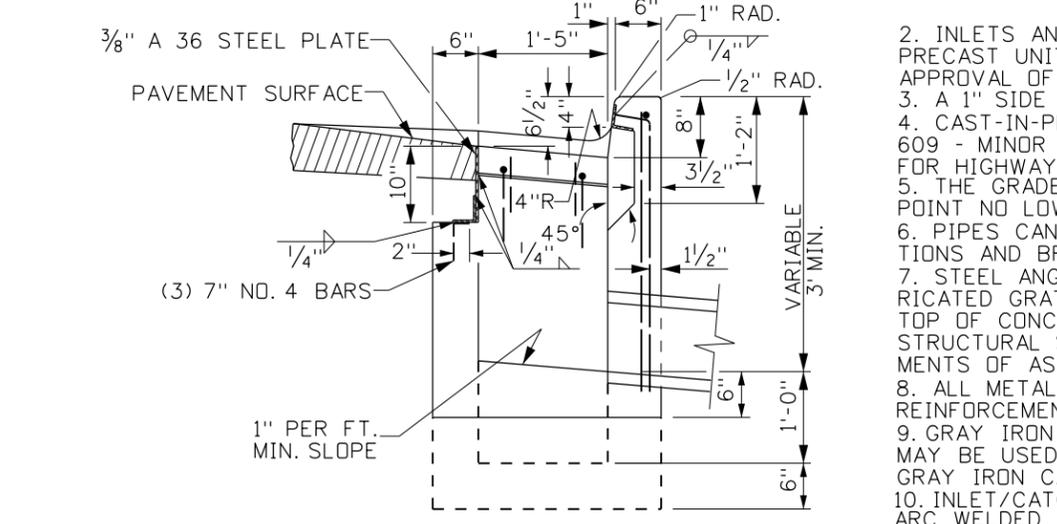
SECTION A-A
 (1) 8'-7" NO. 4 BAR (MIN.)
 (2) 3'-9" NO. 4 BARS ON EACH SIDE
 (2) 7" NO. 4 BARS ON EACH SIDE
 (1) 3'-1" NO. 4 BAR ON EACH SIDE
 TROWEL SMOOTH
 INLET CATCH BASIN
 SEE NOTE NO. 1 (TYPICAL)



SECTION C'-C'
 GRATE B (STEEL)
 (2) 3" x 3/8" BEARING BARS
 (3) 3" x 3/4" BEARING BARS



SECTION B-B
 INLET - TYPE 4
 CATCH BASIN - TYPE 4
 3/8" A 36 STEEL PLATE
 PAVEMENT SURFACE
 (3) 7" NO. 4 BARS
 1" PER FT. MIN. SLOPE
 VARIABLE 3" MIN.



SECTION B-B
 INLET - TYPE 5
 CATCH BASIN - TYPE 5
 3/8" A 36 STEEL PLATE
 PAVEMENT SURFACE
 (3) 7" NO. 4 BARS
 1" PER FT. MIN. SLOPE
 VARIABLE 3" MIN.

NOTES

2. INLETS AND CATCH BASINS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C 913. (PRIOR APPROVAL OF SHOP DRAWINGS WILL BE REQUIRED ON MODIFIED UNITS.)
3. A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
4. CAST-IN-PLACE INLETS AND CATCH BASINS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
5. THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.
6. PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.
7. STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFABRICATED GRATE SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIREMENTS OF ASTM A 36.
8. ALL METAL REINFORCEMENT USED SHALL BE NO. 4 BARS. THE METAL REINFORCEMENT SHALL BE SMOOTH CUT TO ACCOMMODATE PIPES.
9. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
10. INLET/CATCH BASIN GRATES MAY EITHER BE RESISTANCE WELDED OR ARC WELDED. IN EITHER CASE THE GRATE SHALL BE TRUE AND FLUSH.
11. GRATE B WILL BE USED ONLY WHEN SPECIFIED.
12. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: DATE
 TED E. MASON
 NOVEMBER 3, 2008

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-80		6	06-97	MSM		
2	04-82		7	03-01	MSM		
3	03-84		8	12-04	MSM		
4	01-89		9	11-08	JRV		
5	12-94	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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 DRAWING DATE: NOVEMBER, 1969

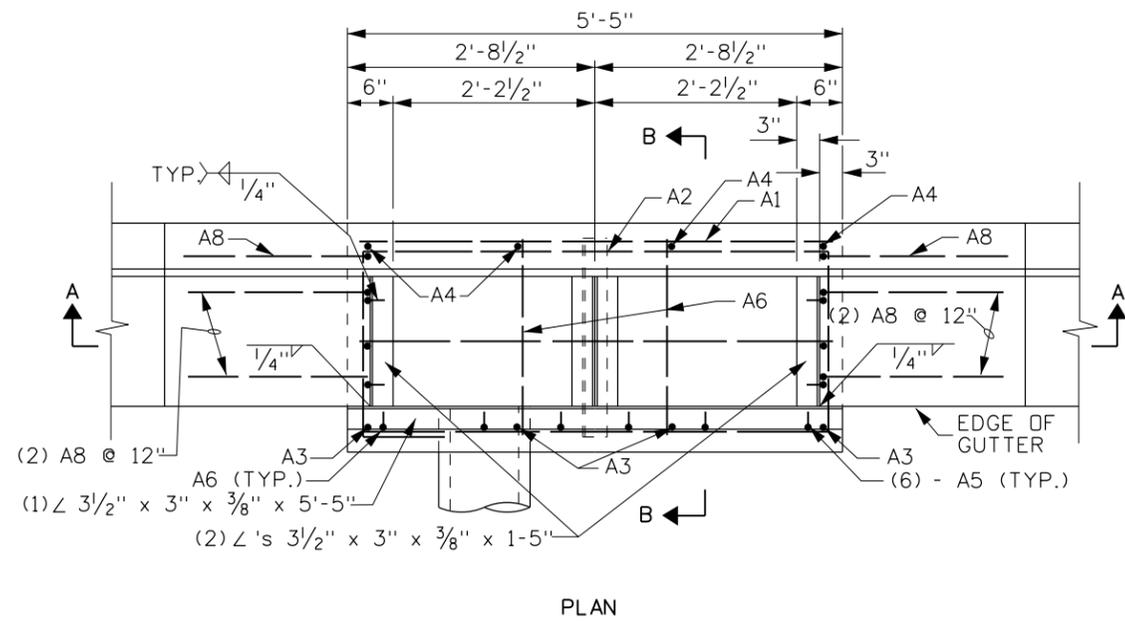
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
INLETS & CATCH BASINS TYPES 4 & 5

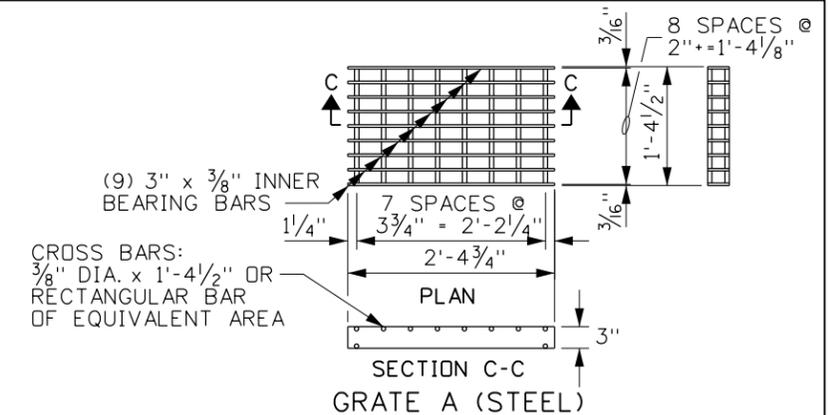
English
 STANDARD DRAWING NO. 605-22
 SHEET 1 OF 1



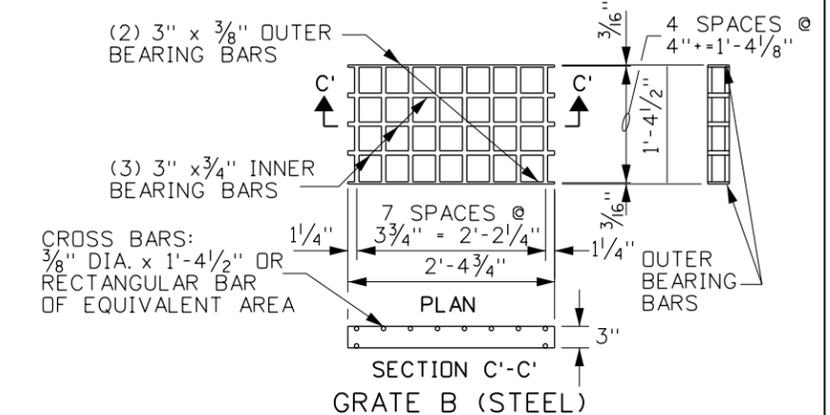
BAR LIST					
MARK	LOCATION	SIZE	TOTAL LENGTH	NO.	SKETCH
A1	FLOOR & WALLS	4	5'-1"	2	5'-1"
A2	WALLS	4	15'-1"	3	5'-0" 5'-0" 1" MIN. OVERLAP
* A3	FRONT WALL	4	3'-7"	4	3'-7"
* A4	BACK WALL	4	4'-1"	4	4'-1"
A5	GRATE DOWEL	4	7"	10	2 L 5"
A6	WALL	4	2'-2"	2	2'-2"
A7	GUTTER & SIDE WALLS	4	2'-9"	4	5° 2'-0" 9"
A8	CURB & BACK WALL	4	3'-3"	2	2'-0" 1'-3"

113.75 L.F. AT 0.668 LBS/FT. = 76.00 LBS

* (SEE NOTE NO. 7)



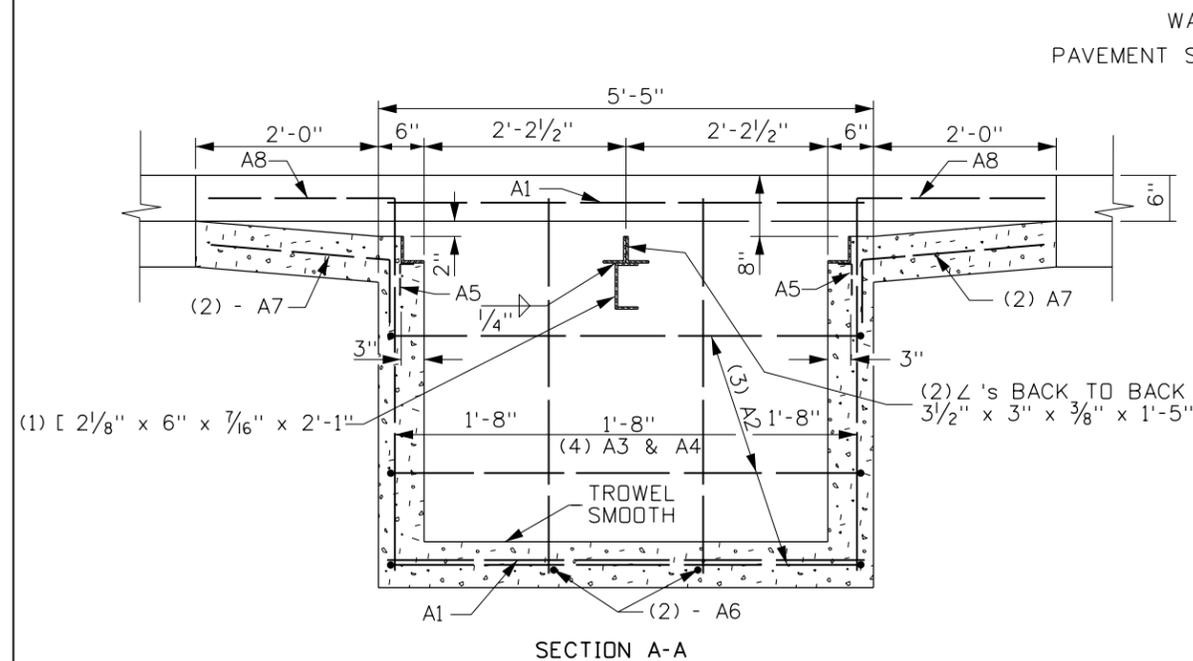
(WEIGHT : APPROXIMATELY 88 LBS., SEE NOTE 9)



(WEIGHT : APPROXIMATELY 79 LBS., SEE NOTE 9)

NOTES

- CATCH BASINS MAY EITHER BE PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C913. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON MODIFIED UNITS.
- CAST-IN-PLACE CATCH BASINS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
- THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.
- PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.
- STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFABRICATED GRATE SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIREMENTS OF ASTM A 36.
- ALL METAL REINFORCEMENT USED SHALL BE NO. 4 BARS. THE METAL REINFORCEMENT SHALL BE SMOOTH CUT TO ACCOMMODATE PIPES. VERTICAL BARS NEED TO BE LENGTHENED FOR CATCH BASINS DEEPER THAN 4'-6".
- GRATE B WILL BE USED ONLY WHEN SPECIFIED.
- GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
- CATCH BASIN GRATES MAY EITHER BE RESISTANCE WELDED OR ARC WELDED. IN EITHER CASE THE GRATE SHALL BE TRUE AND FLUSH.
- NOT TO SCALE.



CATCH BASIN - DETAILS

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-80		6	03-01	MSM		
2	04-82		7	12-04	MSM		
3	03-84		8	11-08	JRV		
4	01-89						
5	12-94	MSM					

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 CADD FILE NAME: 605-23_1108.dgn
 DRAWING DATE: OCTOBER, 1980

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
CATCH BASIN TYPE 6

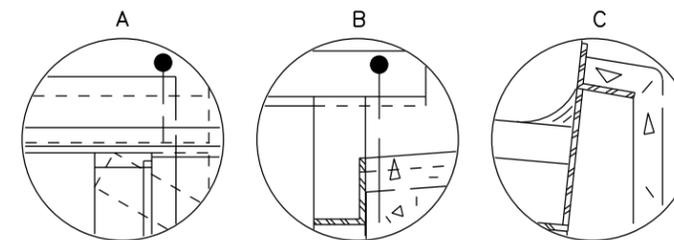
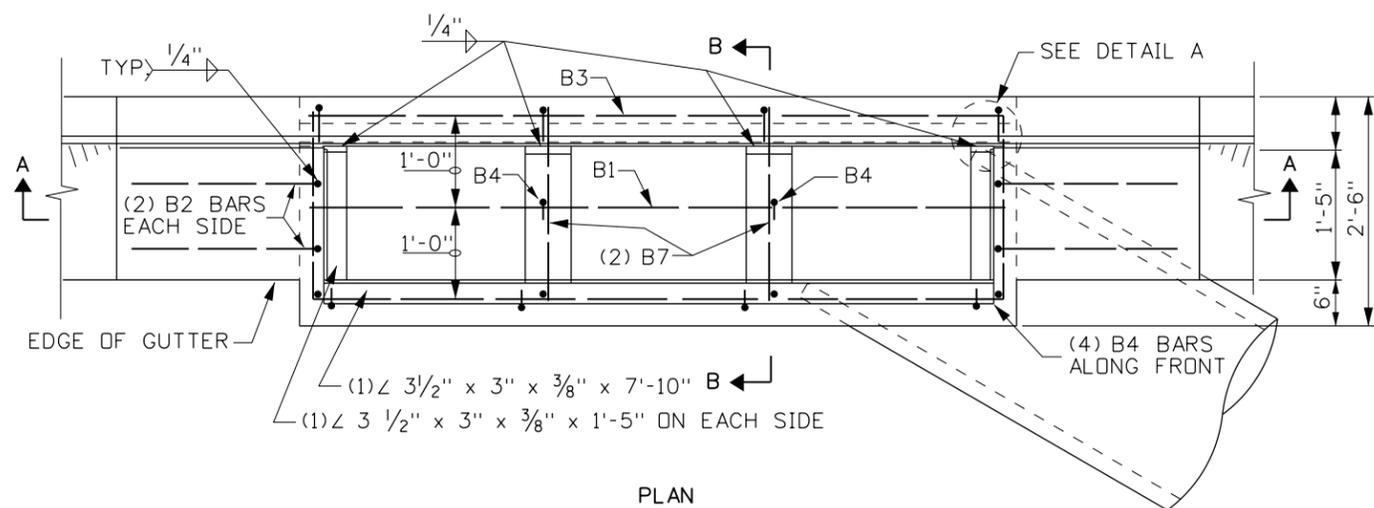
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: TED E. MASON
 DATE ORIGINAL SIGNED: NOVEMBER 3, 2008

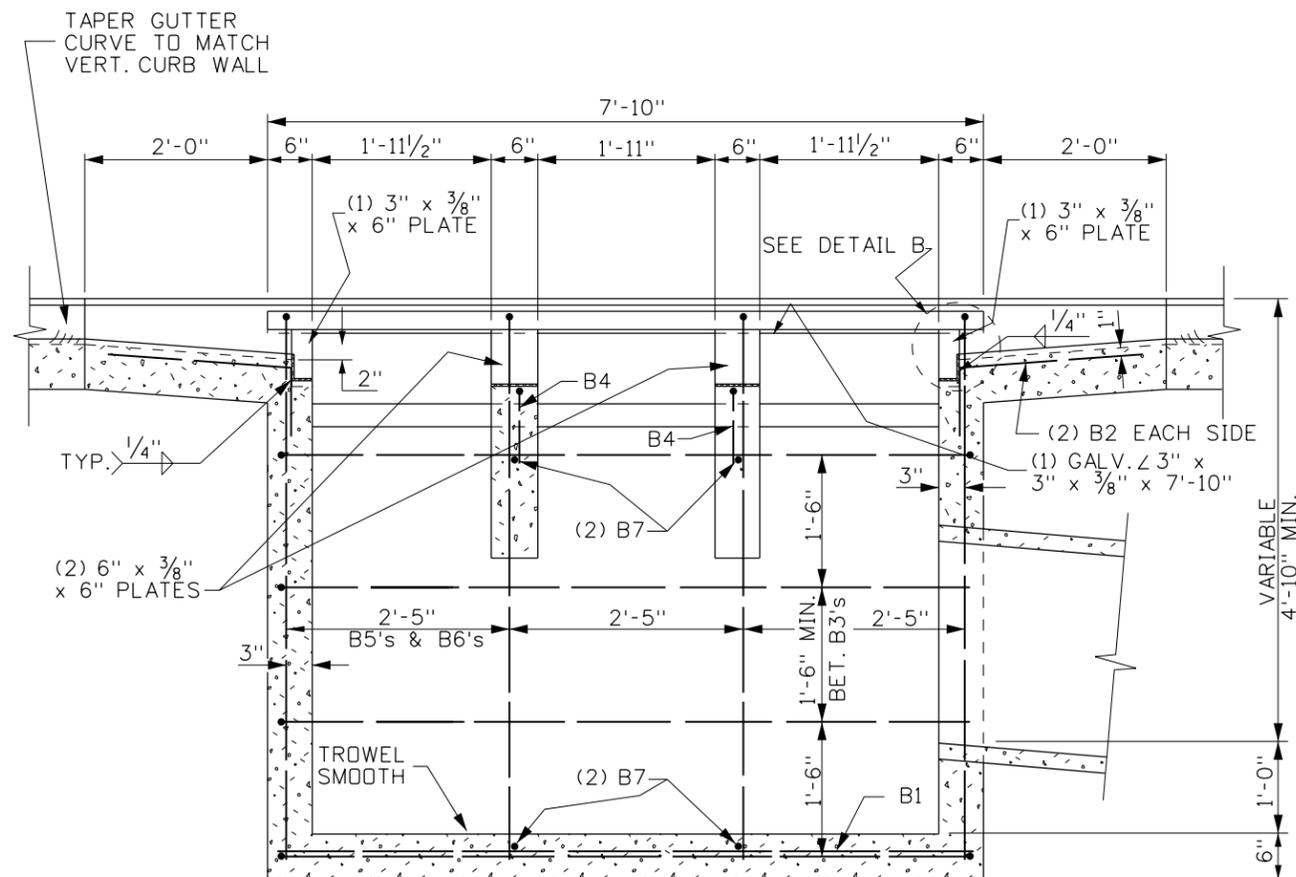
English

STANDARD DRAWING NO. **605-23**

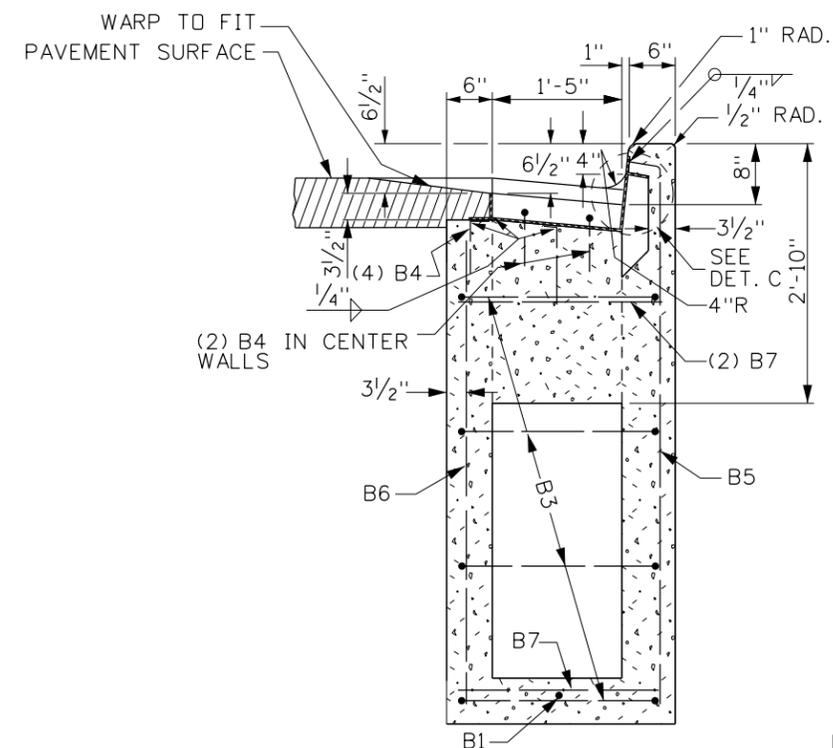
SHEET 1 OF 1



DETAILS A, B, & C



SECTION A-A



SECTION B-B

CATCH BASIN - DETAILS

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: DATE: TED E. MASDN NOVEMBER 3, 2008

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-80		6	03-01	MSM		
2	04-82		7	12-04	MSM		
3	03-84		8	11-08	JRV		
4	01-89						
5	12-94	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 605-24_1108.dgn
 DRAWING DATE: OCTOBER, 1980

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

CATCH BASIN TYPE 7

REQUIRES SHEET 2 OF 2

English

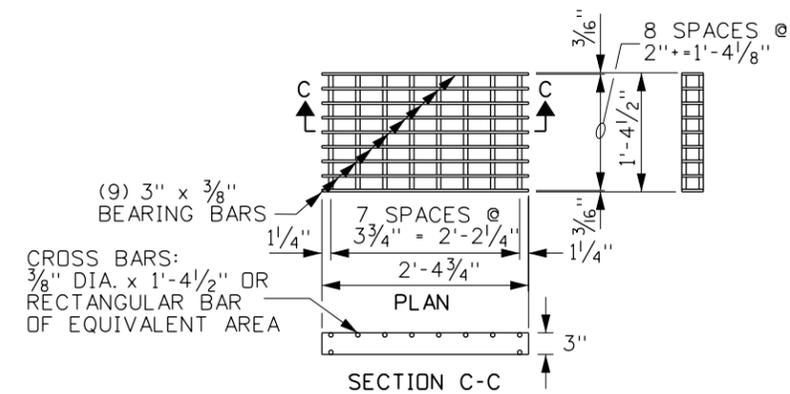
STANDARD DRAWING NO. **605-24**

SHEET 1 OF 2

BAR LIST					
MARK	LOCATION	SIZE	BAR LENGTH	NO.	SKETCH
B1	FLOOR	4	7'-6"	1	7'-6"
B2	WALLS	4	2'-9"	4	2'-0"
B3	WALLS (ADD AS NEEDED)	4	20'-0"	4	1'-0" 7'-5" 7'-5"
B4	WALL & SUPPORTS	4	1'-0"	6	2 1/2" 9/2"
B5	WALLS & FLOOR (ADD LENGTH AS NEEDED)	4	6'-2"	4	5'-10"
B6	WALLS & FLOOR (ADD LENGTH AS NEEDED)	4	5'-0"	4	5'-0"
B7	SUPPORTS	4	2'-2"	4	2'-2"
157.8 L.F. AT 0.668 LBS/FT. = 106 LBS					

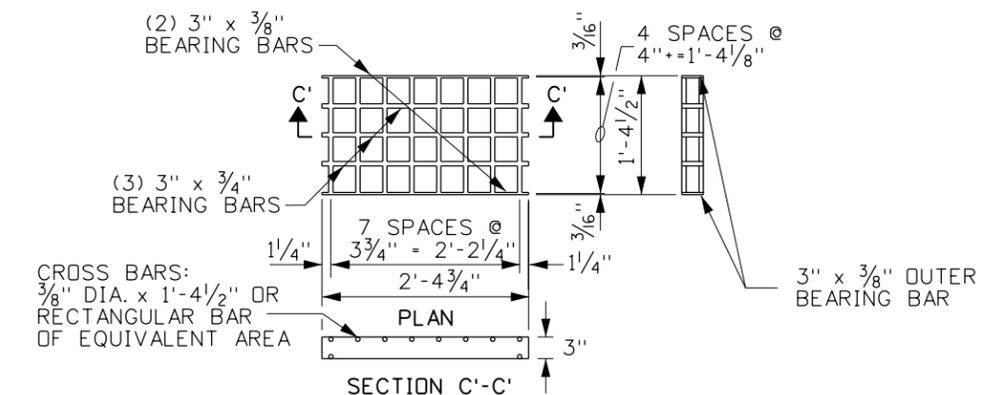
NOTES

- CATCH BASINS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C913. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS.
- A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
- CAST-IN-PLACE CATCH BASINS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.
- PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.
- STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFABRICATED GRATE SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIREMENTS OF ASTM A36.
- ALL METAL REINFORCEMENT SHALL BE NO. 4 BARS. METAL REINFORCEMENT SHALL BE SMOOTH CUT TO FIT AROUND PIPES. VERTICAL BARS B5 & B6 NEED TO LENGTHENED TO ACCOMMODATE CATCH BASINS DEEPER THAN 6'-4".
- GRATE B WILL BE USED ONLY WHEN SPECIFIED.
- GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
- NOT TO SCALE.



GRATE A (STEEL)

(WEIGHT : APPROXIMATELY 88 LBS., SEE NOTE 9)



GRATE B (STEEL)

(WEIGHT : APPROXIMATELY 79 LBS., SEE NOTE 8 & 9)

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-80		6	03-01	MSM			
2	04-82		7	12-04	MSM			
3	03-84		8	11-08	JRV			
4	01-89							
5	12-94	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 605-24_1108.dgn
 DRAWING DATE: OCTOBER, 1980

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

CATCH BASIN TYPE 7

REQUIRES SHEET 1 OF 2

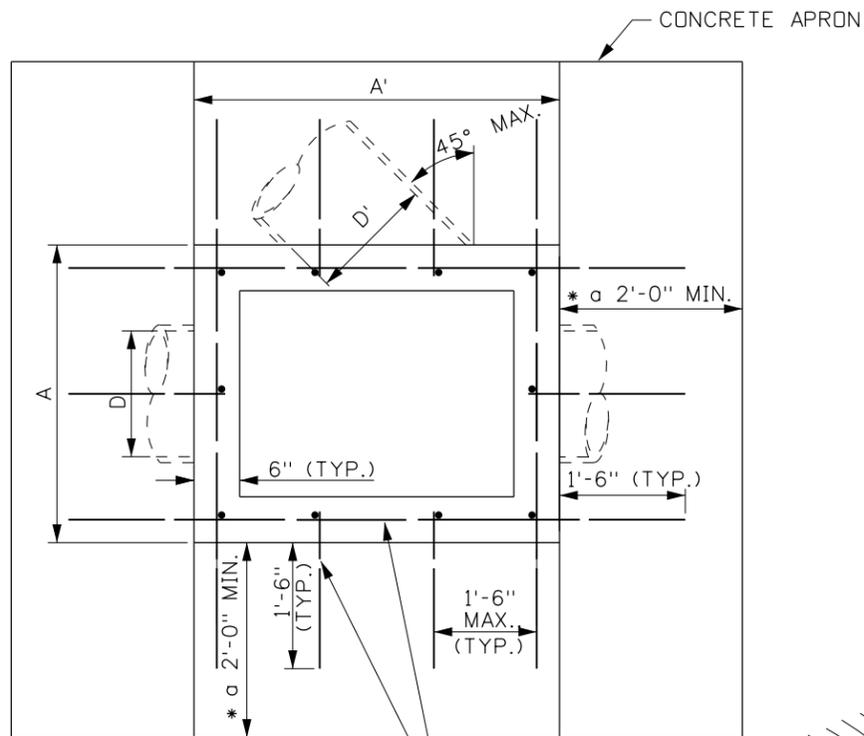
English

STANDARD DRAWING NO.
605-24

SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 DATE: TED E. MASDN
 NOVEMBER 3, 2008



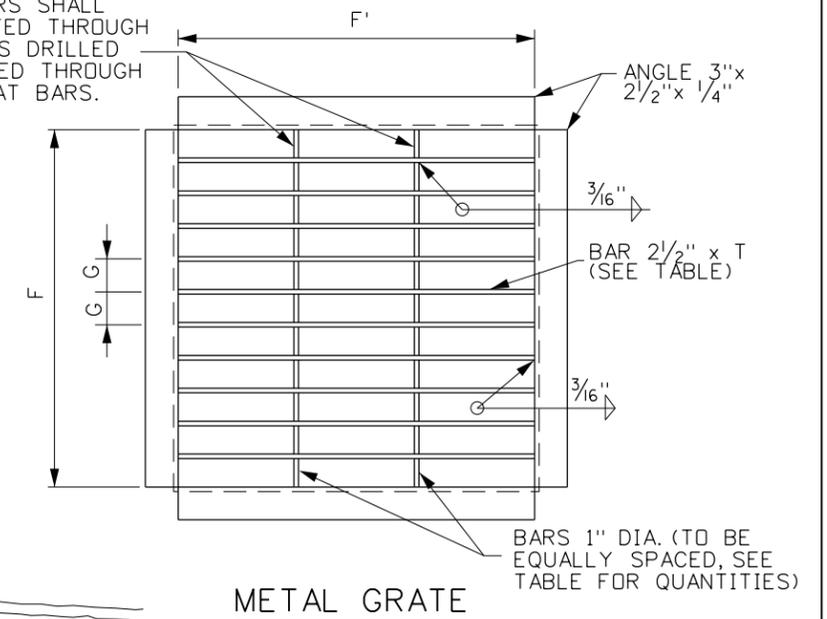
* a ADJUST TO FIT FIELD CONDITIONS
METAL REINFORCEMENT NO. 4 BARS
PLAN

* b TABLE OF DIMENSIONS

D/D'	A/A'	B MIN.	F/F'	G	BAR(S) (E.A.)	T
18"	3'-4"	3'-0"	2'-3"	3"	1	1/4"
24"	4'-0"	3'-7"	2'-11"	3 3/8"	2	1/4"
30"	4'-6"	4'-3"	3'-5"	3 3/8"	3	5/16"
36"	5'-0"	4'-9"	3'-11"	3 3/8"	3	3/8"
48"	6'-0"	5'-2"	4'-11"	3 3/8"	4	1/2"

* b SEE NOTE NO. 5

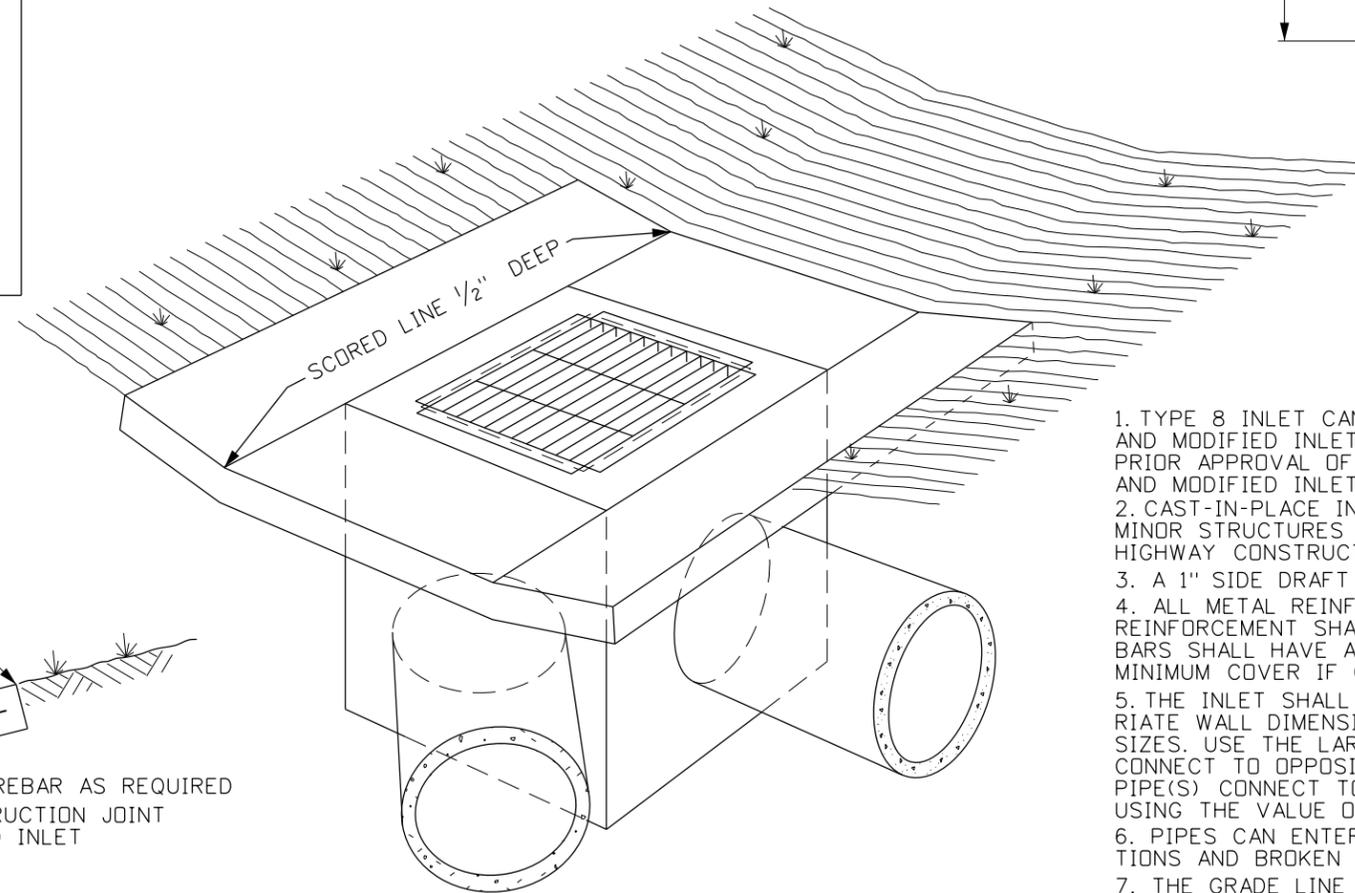
1" DIA. BARS SHALL BE INSERTED THROUGH 1/16" HOLES DRILLED OR PUNCHED THROUGH 1/8" OF FLAT BARS.



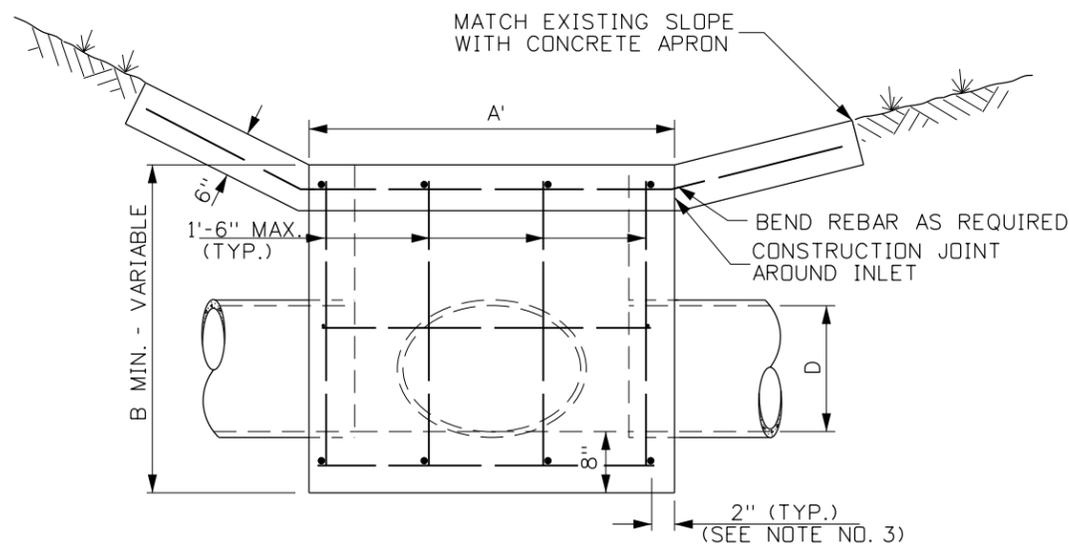
METAL GRATE

NOTES

- TYPE 8 INLET CAN BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST AND MODIFIED INLETS SHALL MEET THE REQUIREMENTS OF ASTM C913. PRIOR APPROVAL OF SHOP DRAWINGS IS REQUIRED FOR USE OF PRECAST AND MODIFIED INLETS. THE APRON MUST BE CAST-IN-PLACE.
- CAST-IN-PLACE INLET TYPE 8 SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
- ALL METAL REINFORCEMENT USED SHALL BE NO. 4 BARS. THE METAL REINFORCEMENT SHALL BE SMOOTH CUT TO ACCOMMODATE PIPES. ALL BARS SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND/OR 3" MINIMUM COVER IF CAST AGAINST EARTH.
- THE INLET SHALL BE CONSTRUCTED RECTANGULAR USING THE APPROPRIATE WALL DIMENSIONS (A & A') DETERMINED BY THE CONNECTING PIPE SIZES. USE THE LARGER WALL DIMENSION IF TWO DIFFERENT PIPE SIZES CONNECT TO OPPOSITE WALLS. USE THE MINIMUM WALL DIMENSION IF NO PIPE(S) CONNECT TO OPPOSITE WALLS. SELECT THE DEPTH (B MIN.) BY USING THE VALUE OF THE INLET'S LARGEST CONNECTING PIPE.
- PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.
- THE GRADE LINE OF THE TOP INSIDE OF ANY INLET PIPE SHALL BE AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.
- ONLY COMBINATIONS OF THE DIMENSIONS SHOWN ON THE TABLE SHALL BE USED TO CONSTRUCT A TYPE 8 INLET.
- THE METAL FOR THE GRATE SHALL MEET THE REQUIREMENTS OF ASTM A36. THE METAL GRATE NEED NOT BE PAINTED OR GALVANIZED.
- WELDING OF THE METAL GRATE SHALL MEET THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1.
- GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
- NOT TO SCALE.



PERSPECTIVE VIEW



ELEVATION

INLET - DETAILS

REVISIONS

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-80		6	11-08	JRV			
2	12-92	MSM						
3	1-97	MSM						
4	3-01	MSM						
5	12-04	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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DRAWING DATE: AUGUST, 1972

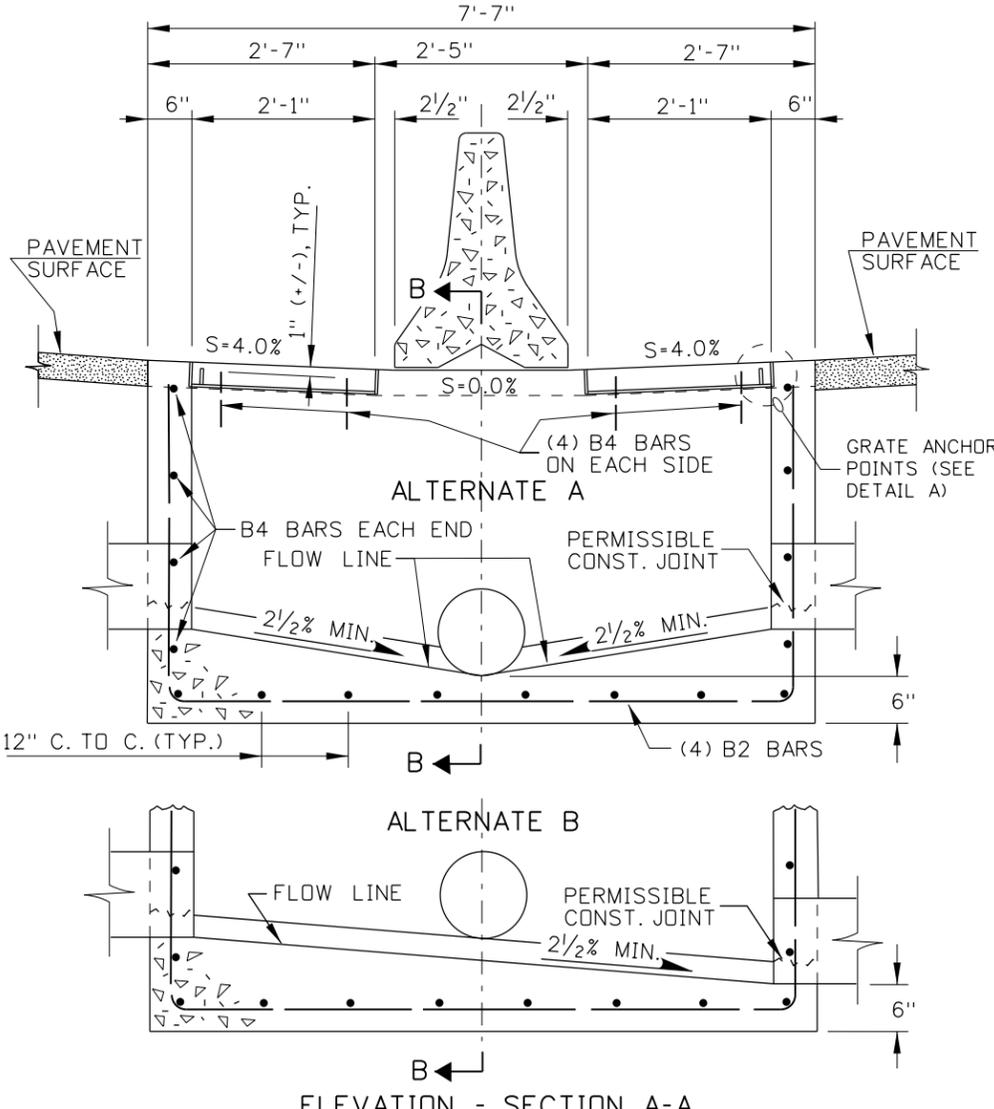
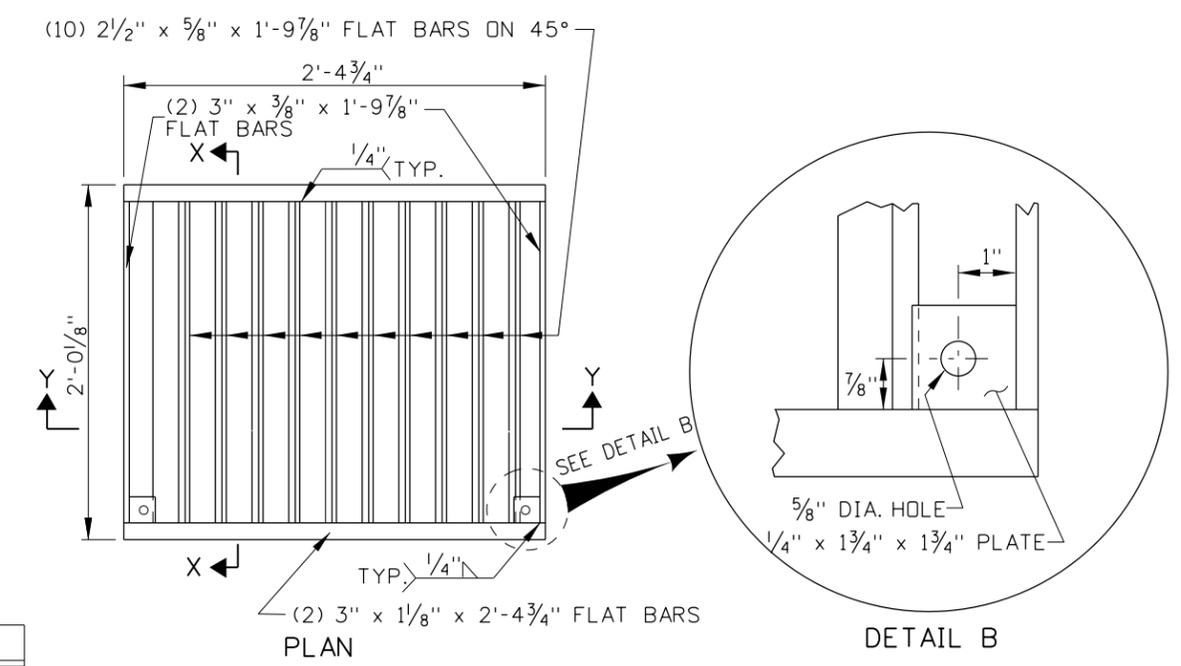
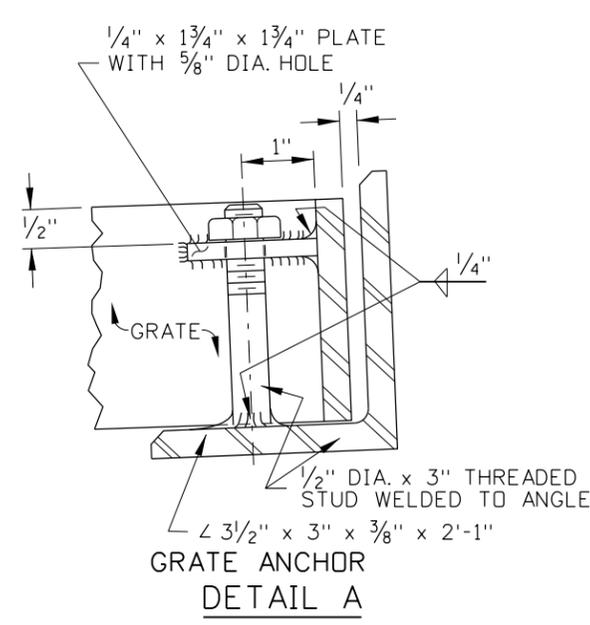
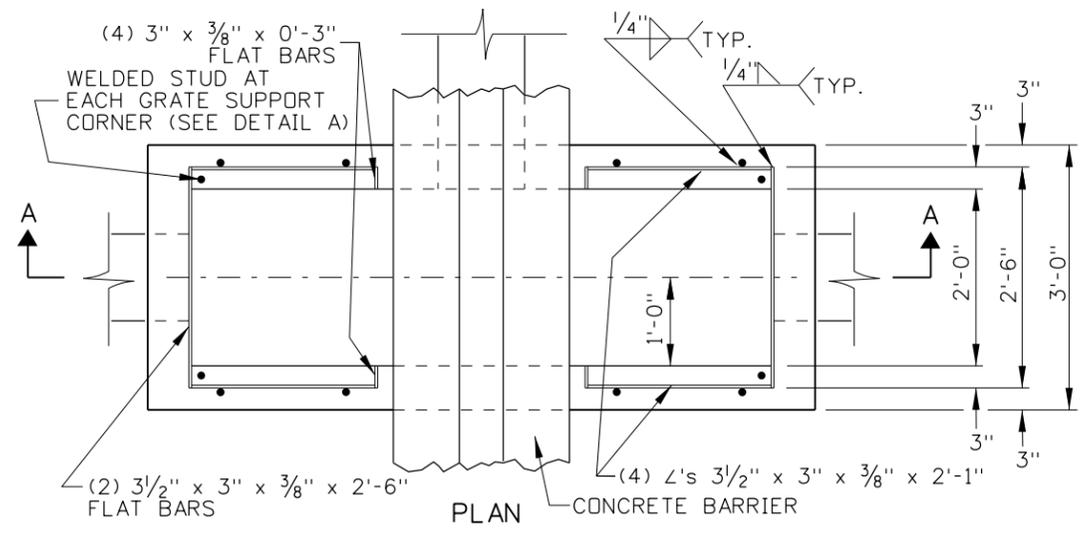
IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
INLET TYPE 8

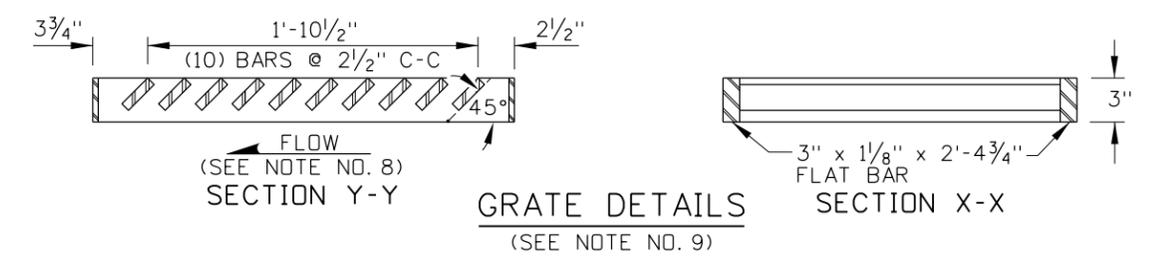
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho
English
STANDARD DRAWING NO. 605-25
SHEET 1 OF 1

ORIGINAL SIGNED BY: TED E. MASON
DATE ORIGINAL SIGNED: NOVEMBER 3, 2008



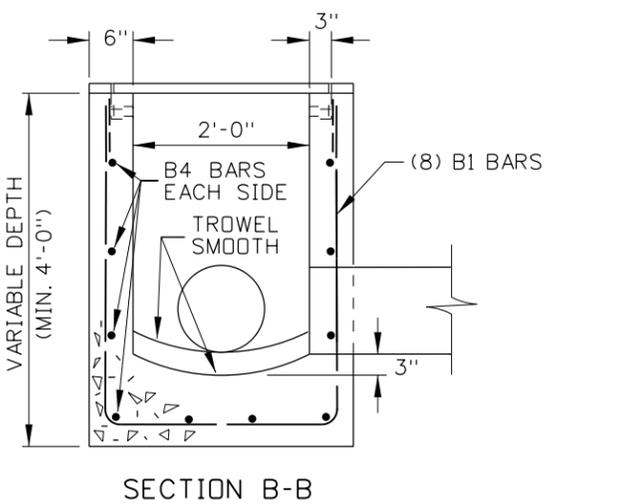
BAR LIST					
MARK	LOCATION	SIZE	BAR LENGTH	NO.	SKETCH
B1	VERT. IN WALLS & FLOOR (ADD LENGTH AS NEEDED)	4	VARIES	6	
B2	VERT. IN WALLS & FLOOR (ADD LENGTH AS NEEDED)	4	VARIES	4	
B3	WALLS (AS NEEDED)	4	7'-2"	*	
B4	WALLS (AS NEEDED)	4	2'-8"	*	
B5	WELDED TO: L's 3 1/2" x 3" x 3/8" IN SIDE WALLS	4	7"	6	

* (4) MIN., ADD BARS AS NEEDED



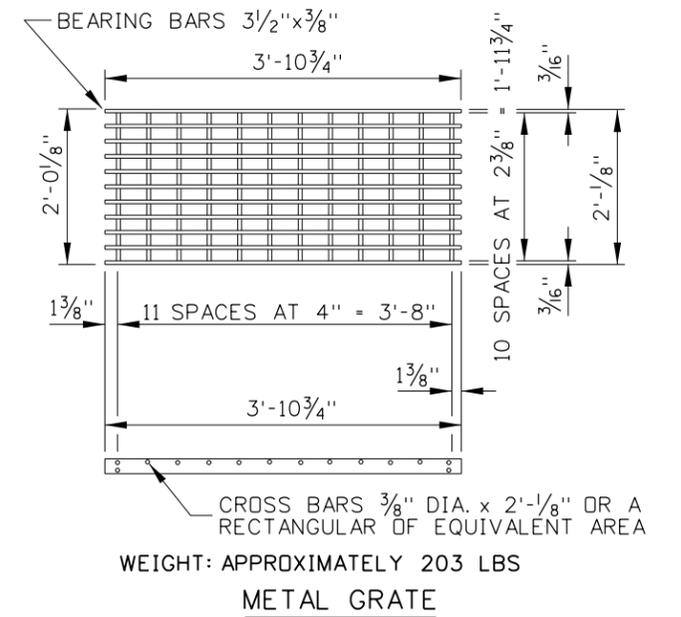
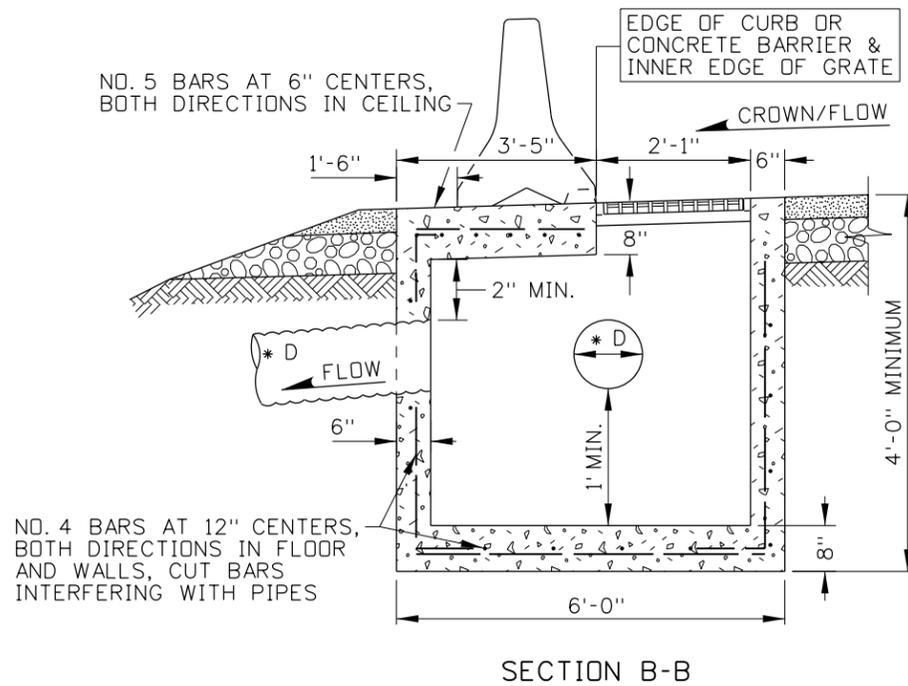
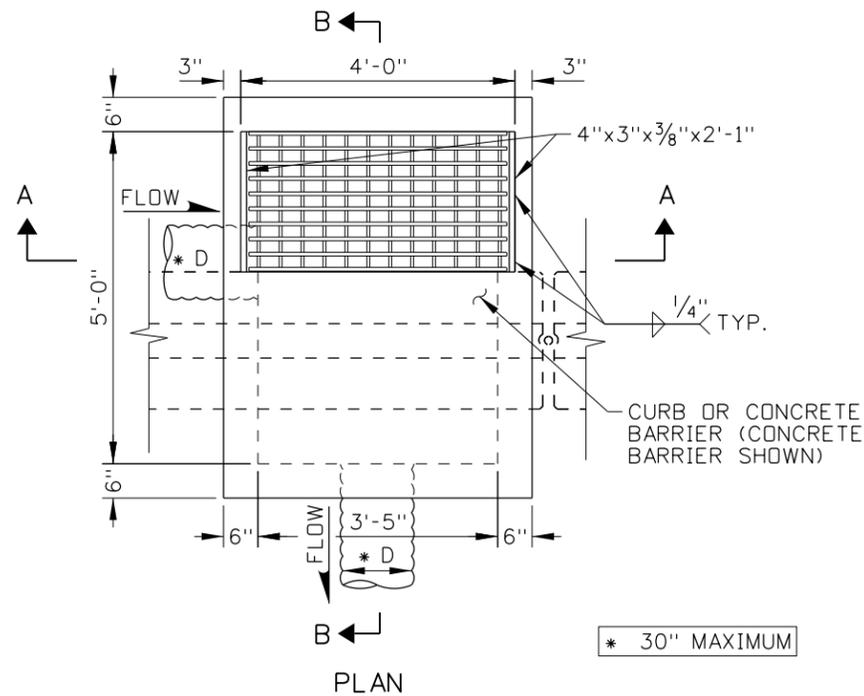
NOTES

1. INLET MEDIAN DRAIN MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST UNITS SHALL MEET THE REQUIREMENTS OF ASTM C913. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS.
2. A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
3. CAST-IN-PLACE INLET MEDIAN DRAINS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
4. THE GRADE LINE OF THE TOP INSIDE OF ANY PIPE SHALL ENTER AT A POINT NO LOWER THAN THE TOP INSIDE OF THE OUTLET PIPE.
5. PIPES CAN ENTER OR LEAVE THE BOX IN ANY DIRECTION. ALL CONNECTIONS AND BROKEN AREAS SHALL BE GROUTED SMOOTH.
6. STEEL ANGLES SHALL BE SET SO THAT EACH BEARING BAR OF PREFABRICATED GRATE SHALL HAVE FULL BEARING ON BOTH ENDS. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE ANGLE/GRATE SURFACE. THE STRUCTURAL STEEL NEED NOT BE PAINTED BUT SHALL MEET THE REQUIREMENTS OF ASTM A36.
7. ALL METAL REINFORCEMENT SHALL BE NO. 4 BARS. METAL REINFORCEMENT SHALL BE SMOOTH CUT TO FIT AROUND PIPES. VERTICAL BARS NEED TO BE LENGTHENED TO ACCOMMODATE INLET DEPTH.
8. THE (10) FLAT BARS AT THE 45° ANGLE MUST BE POINTED DOWN AND IN THE DIRECTION OF THE FLOW.
9. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
10. NOT TO SCALE.



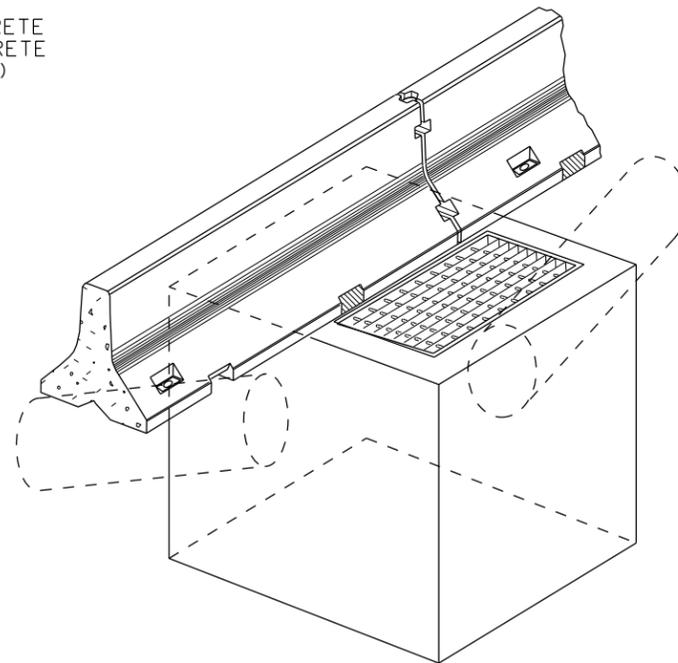
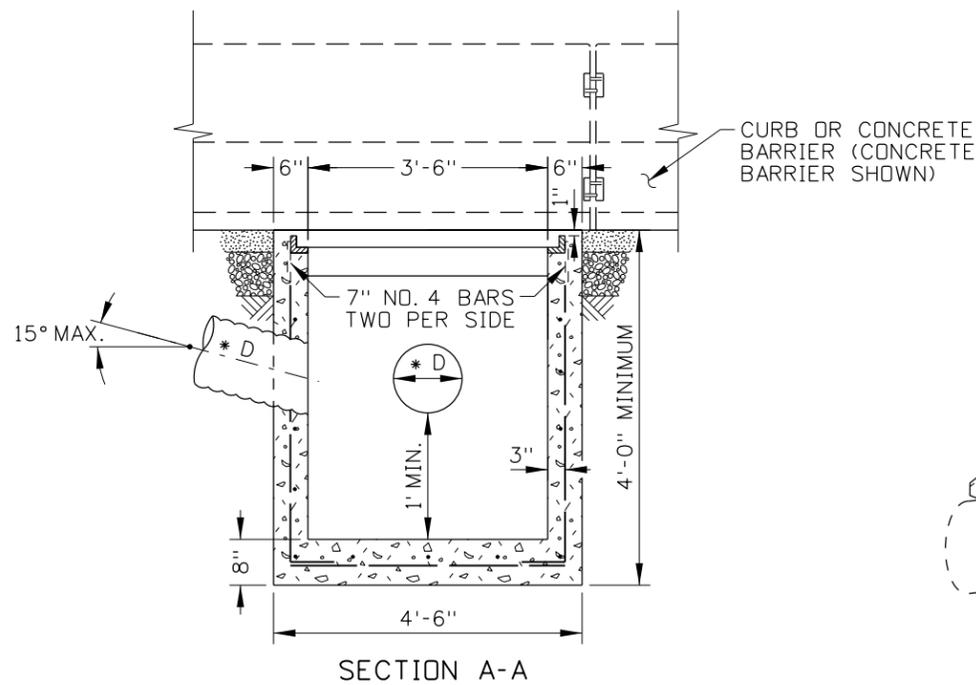
INLET MEDIAN DRAIN - DETAILS

<table border="1"> <thead> <tr> <th colspan="8">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>NO.</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>05-07</td> <td>MSM</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> <tr> <td>2</td> <td>09-10</td> <td>PLR</td> <td></td> <td></td> <td></td> <td></td> <td></td> <td></td> </tr> </tbody> </table>								REVISIONS								NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY	1	05-07	MSM							2	09-10	PLR							SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY CADD FILE NAME: 605-26_1010.dgn DRAWING DATE: DECEMBER, 2004		IDAHO TRANSPORTATION DEPARTMENT BOISE IDAHO		ORIGINAL SIGNED BY: LOREN THOMAS ASSISTANT CHIEF ENGINEER (DEVELOPMENT) ORIGINAL SIGNED BY: TOM COLE CHIEF ENGINEER		STANDARD DRAWING INLET MEDIAN DRAIN TYPE 9		ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho English STANDARD DRAWING NO. 605-26 SHEET 1 OF 1		ORIGINAL SIGNED BY: DATE: TED E. MASON OCTOBER 26, 2010	
REVISIONS																																																						
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY																																														
1	05-07	MSM																																																				
2	09-10	PLR																																																				



NOTES

- CATCH BASIN TYPE 10 IS FOR USE WITH EMBANKMENT PROTECTOR WITH SLOTTED DRAIN, STANDARD DRAWING 607-2.
- A 1" SIDE DRAFT IS ALLOWED FOR FORM REMOVAL.
- CATCH BASINS FOR SLOTTED DRAINS CAN BE PRECAST OR CAST-IN-PLACE. ENSURE THAT PRECAST CATCH BASINS MEET THE REQUIREMENTS OF AASHTO M 199. TILT PRECAST CATCH BASINS OR CONSTRUCT CAST-IN-PLACE CATCH BASINS TO MATCH THE ROADWAY CROWN. OBTAIN THE ENGINEER'S APPROVAL PRIOR TO THE INSTALLATION OF PRECAST CATCH BASINS.
- CONSTRUCT CAST-IN-PLACE CATCH BASINS IN ACCORDANCE WITH SECTION 609 - MINOR STRUCTURES OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- PROVIDE A MINIMUM CONCRETE COVER OF 2" OVER REINFORCING STEEL. PROVIDE A MINIMUM CONCRETE COVER OF 3" OVER REINFORCING STEEL IF CAST AGAINST EARTH.
- ENSURE THAT THE FINISHED TOP OF CONCRETE IS FLUSH WITH THE GRATE SURFACE.
- ENSURE THAT THE METAL FOR THE GRATE MEETS THE REQUIREMENTS OF ASTM A36. PAINTING OR GALVANIZATION OF THE METAL GRATE IS NOT REQUIRED.
- WELD THE METAL GRATE IN ACCORDANCE WITH THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1.
- SET ANGLES SO THAT EACH BEARING BAR OF THE PREFABRICATED GRATE HAS FULL BEARING ON BOTH ENDS.
- ENSURE THAT THE DISCHARGE PIPE SIZE IS THE SAME SIZE AS THE SLOTTED DRAIN PIPE. GROUT PIPE CONNECTIONS.
- NOT TO SCALE.



ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
JANUARY 31, 2013

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
605-27_0113.dgn

DRAWING DATE:
DECEMBER, 2012

**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

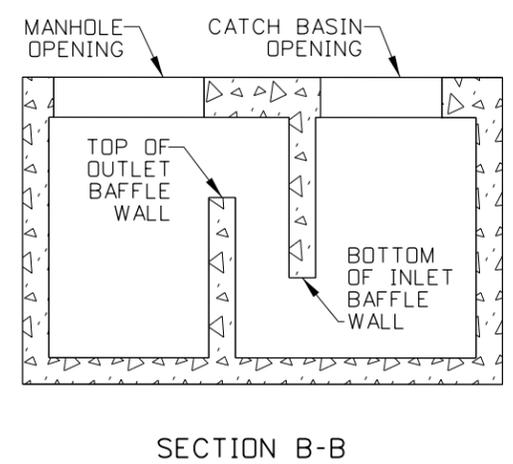
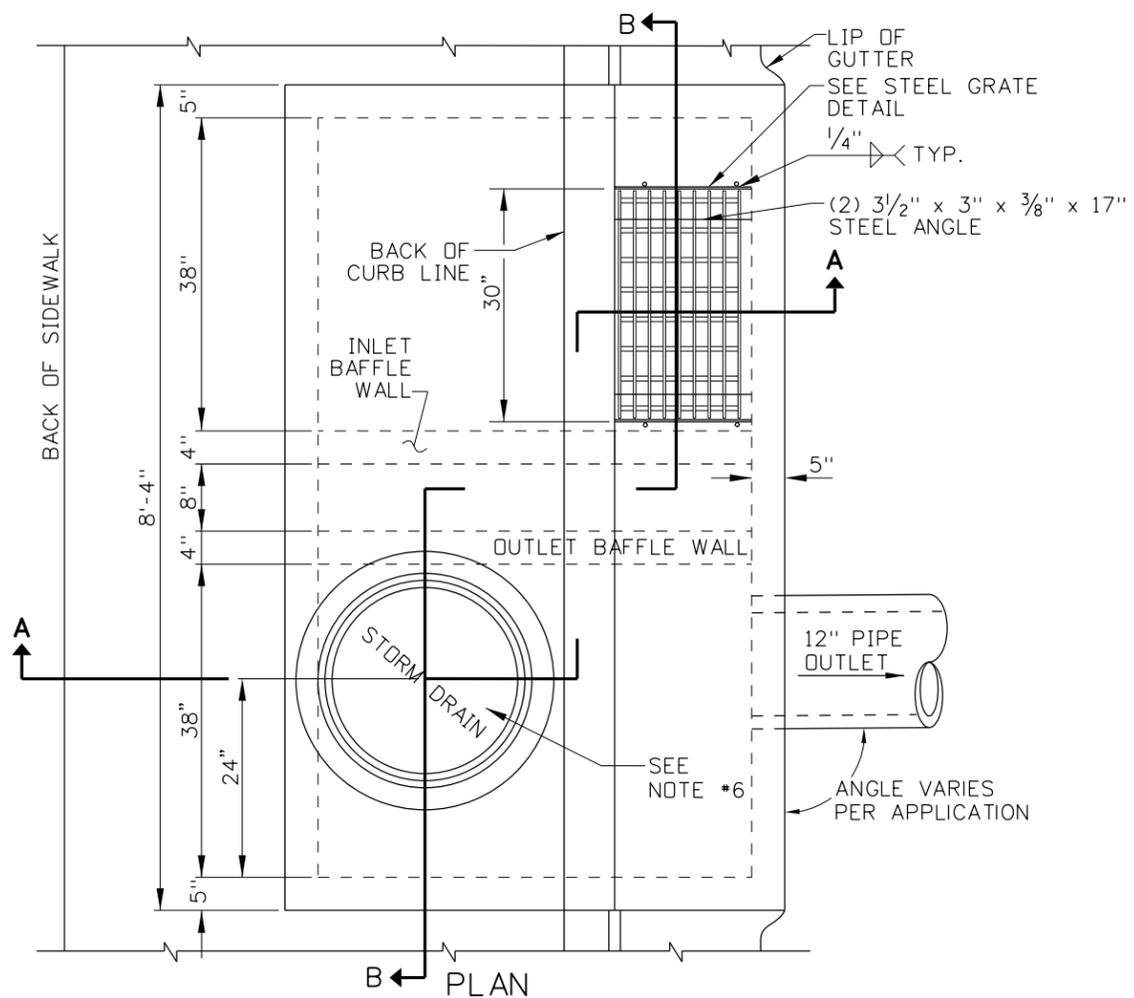
CATCH BASIN TYPE 10

REQUIRES STD. DWG. 607-2

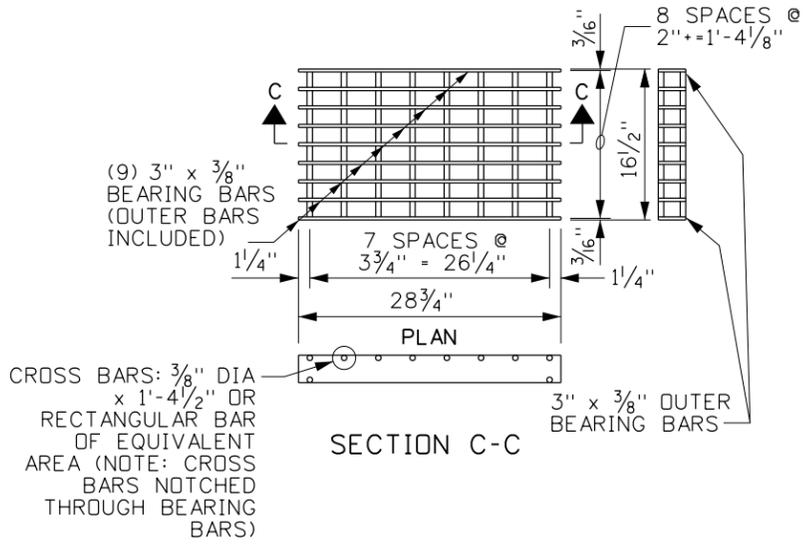
English

STANDARD DRAWING NO.
605-27

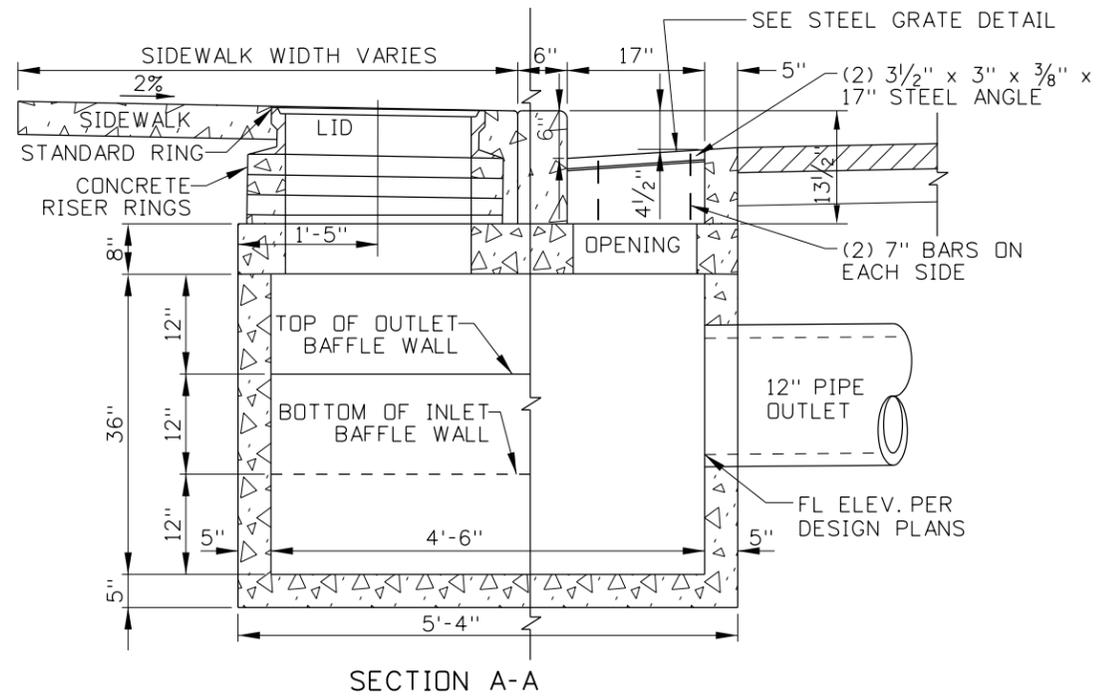
SHEET 1 OF 1



- NOTES**
1. SEDIMENT CONTROL BOXES CAN BE EITHER PRECAST OR CAST-IN-PLACE. DETAILED DRAWING OF SEDIMENT CONTROL BOX SHALL BE SUBMITTED AND APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
 2. CAST-IN-PLACE BOXES SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
 3. DESIGN LOAD SHALL MEET AASHTO H-25 HIGHWAY LOADING AND CLASS 4000 PSI CONCRETE.
 4. ALL REINFORCING STEEL SHALL BE GRADE 60.
 5. THE FINISHED TOP OF CONCRETE SHALL BE EVEN WITH THE GRATE SURFACE.
 6. THE CATCH BASIN MANHOLE FRAME AND COVER SHALL BE A FLUSH MOUNT TYPE WITH A FRAME NO DEEPER THAN 4". THE FLUSH MOUNT MANHOLE IS NOT PERMITTED FOR VEHICULAR TRAFFIC.
 7. TANK CAPACITY IS APPROXIMATELY 750 GALLONS OR 100 CUBIC FEET.
 8. DESIGN MAY BE REVERSED FOR BEST APPLICATION WITH MANHOLE AND CATCH BASIN OPENINGS IN OPPOSITE DIRECTIONS AND BAFFLE WALLS REVERSED.
 9. GRAY IRON CAST TO THE DIMENSIONS GIVEN FOR THE STEEL GRATES MAY BE USED. THE CASTINGS SHALL CONFORM TO AASHTO M306 CLASS 35B GRAY IRON CASTINGS.
 10. INLET/CATCH BASIN GRATES MAY EITHER BE RESISTANCE WELED OR ARC WELDED. IN EITHER CASE THE GRATE SHALL BE TRUE AND FLUSH.
 11. NOT TO SCALE.



STEEL GRATE
(WEIGHT: APPROXIMATELY 88 LBS., SEE NOTE 9 & 10)



REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	02-96	MSM						
2	10-11	KEH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 605-30_1011.dgn

DRAWING DATE: JANUARY, 1994

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

SEDIMENT CONTROL CATCH BASIN

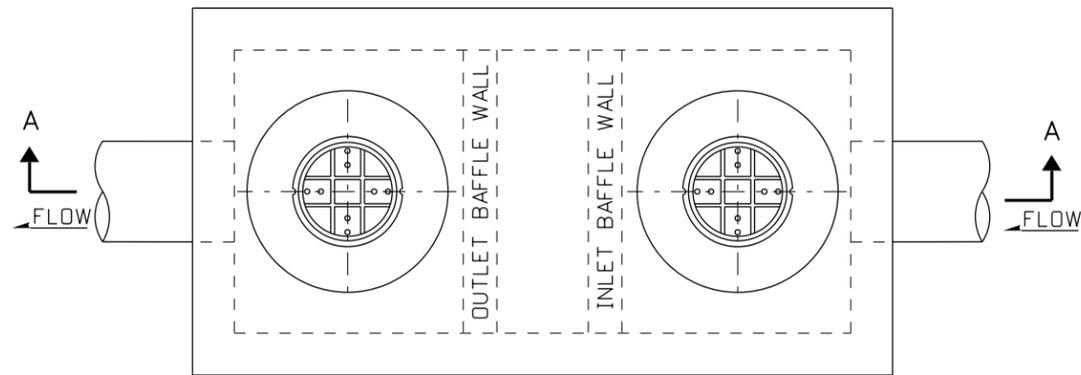
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

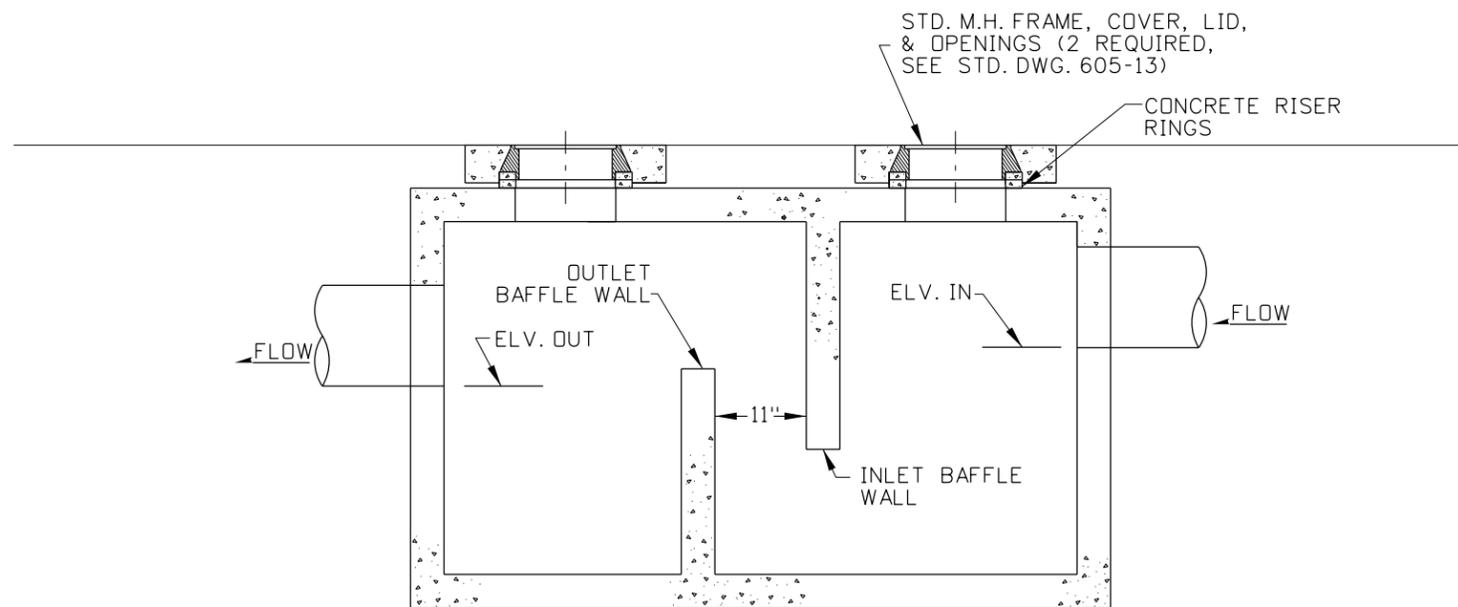
STANDARD DRAWING NO. **605-30**

SHEET 1 OF 1

ORIGINAL SIGNED BY: KARISSA HARDY
DATE ORIGINAL SIGNED: OCTOBER 3, 2011



PLAN



SECTION A-A
SAND AND OIL TRAP

NOTES

1. SEDIMENT & OIL TRAPS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST TRAPS SHALL MEET THE REQUIREMENTS OF ASTM C 478 AND SHALL HAVE A DESIGN LOAD MEETING AASHTO HS-25 HIGHWAY LOADING.
2. ALL REINFORCING STEEL SHALL BE GRADE 60.
3. CAST-IN-PLACE SEDIMENT & OIL TRAPS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. DETAILED DRAWING OF PRECAST BOX OR CAST-IN-PLACE BOX DESIGN MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION.
4. FOR DETAILS ON MANHOLE INSTALLATION REFER TO STANDARD DRAWING 605-13 (STANDARD MANHOLE FRAME, COVER, & CONCRETE COLLAR).
5. HEIGHT OF OUTLET BAFFLE WALL AND LENGTH OF INLET BAFFLE WALL DETERMINED BY TANK CAPACITY AND FLOW RATE.
6. IF DISTANCE FROM TOP OF BOX TO BOTTOM OF MANHOLE FORM EXCEEDS 12" USE PRECAST MANHOLE RISER PLUS A MAXIMUM OF 12" OF RISER GRADE RINGS.
7. PROVIDE STEPS WHEN THE DISTANCE FROM TOP OF MANHOLE FRAME TO TOP OF BOX EXCEEDS 24".
8. CONCRETE RISER RINGS (MAX 24"). FOR VAULT DEPTH GREATER THAN 24", USE PRECAST MANHOLE SECTIONS.
9. LOCATION AND FLOW LINE ELVATION PER DESIGN PLANS.
10. $ELV. IN > ELV. OF TOP OF OUTLET BAFFLE WALL$ BY A MINIMUM OF 0.1', UNLESS OTHERWISE APPROVED BY THE ENGINEER.
11. $ELV. OUT < ELV. OF TOP OF OUTLET BAFFLE WALL$ BY A MINIMUM OF 0.25', UNLESS OTHERWISE APPROVED BY THE ENGINEER.
12. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-11	KEH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 605-31_1011.dgn

DRAWING DATE: JUNE, 1996

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

SEDIMENT AND OIL TRAP MANHOLE

REFER TO STD. DWG. 605-13

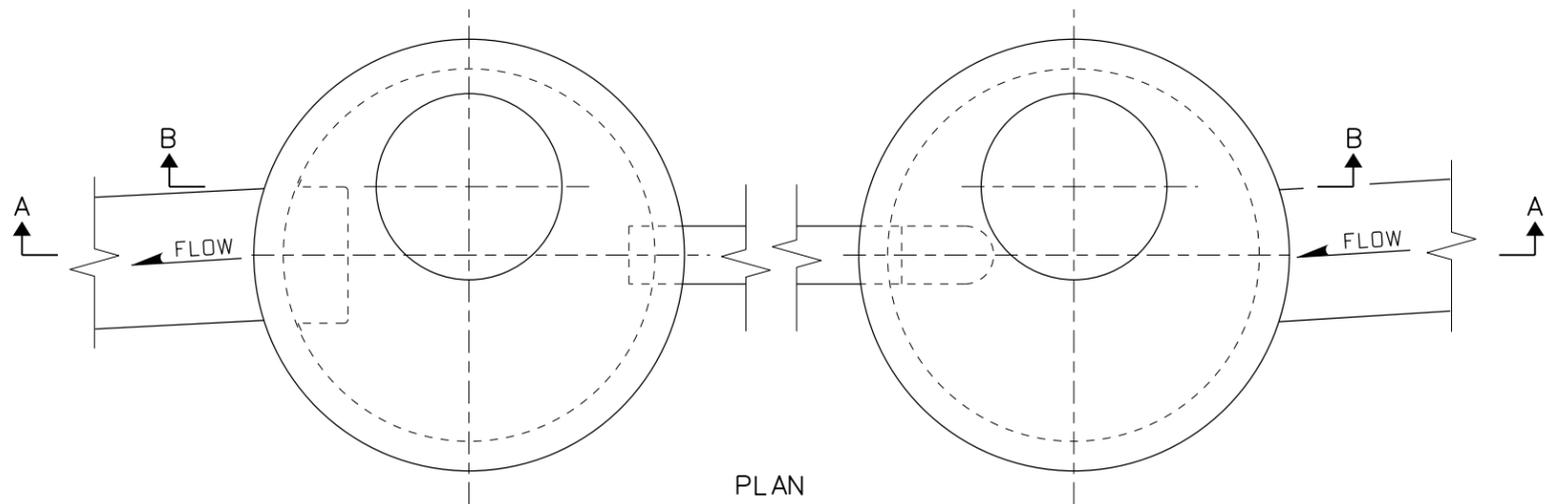
English

STANDARD DRAWING NO.
605-31

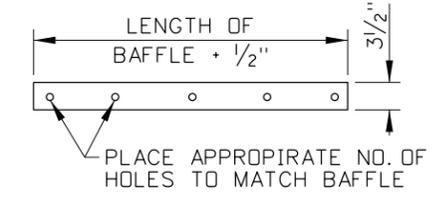
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: KARISSA HARDY
DATE ORIGINAL SIGNED: OCTOBER 3, 2011

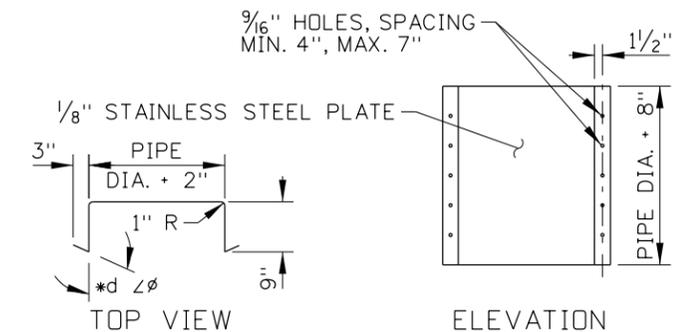


PLAN
TOP ELEVATION - SECTION B-B

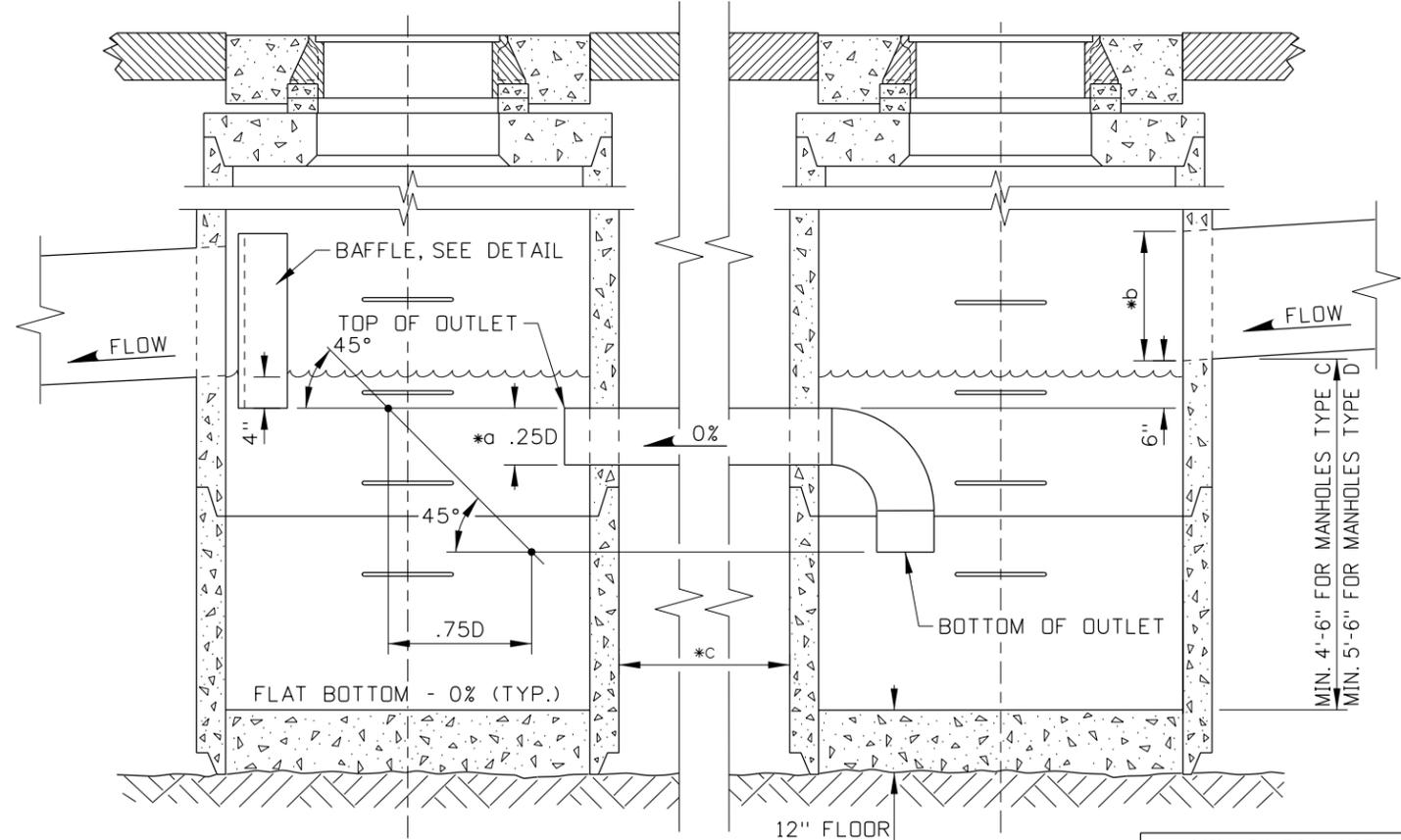


*e (2) REQUIRED (SEE NOTE NO. 5)

GASKET DETAIL



BAFFLE DETAIL



BOTTOM ELEVATION - SECTION A-A
SEDIMENT & OIL TRAP

PIPE SIZE	BEND ANGLE (°)	
	MANHOLE C (48")	MANHOLE D (48")
12"	±70°	±75°
15"	±65°	±70°
18"	±60°	±65°
24"	±55°	±60°
30"	±45°	±55°
36"	±30°	±45°

NOTES

- CARE SHALL BE TAKEN TO AVOID PLACING THE MANHOLE OPENINGS IN WHEEL PATHS.
- SEDIMENT AND OIL TRAPS MAY BE EITHER PRECAST OR CAST-IN-PLACE. PRECAST TRAPS SHALL MEET THE REQUIREMENTS OF ASTM C 478. PRIOR APPROVAL OF THE SHOP DRAWING WILL BE REQUIRED ON PRECAST UNITS.
- CAST-IN-PLACE SEDIMENT & OIL TRAPS SHALL CONFORM WITH SECTION 609 - MINOR STRUCTURES OF THE CURRENT STANDARD SPECIFICATIONS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND/OR 3" IF CAST AGAINST EARTH.
- MAXIMUM SPACING BETWEEN MANHOLES SHALL BE 20' FOR TYPE C MANHOLES AND 30' FOR TYPE D MANHOLES.
- THE BAFFLE SHALL BE INSTALLED SO THAT THE EDGES ARE WATER-TIGHT TO THE STRUCTURE. THE GASKET SHALL BE MADE OF A WATER AND OIL RESISTANT MATERIAL.
- STANDARD DRAWING 605-12 SHALL ACCOMPANY THIS DRAWING. REFER TO STANDARD DRAWING 605-13 FOR MANHOLE COVERS.
- NOT TO SCALE.

- *a MIN. 6" DIA. WITH MANHOLE TYPE C
MIN. 8" DIA. WITH MANHOLE TYPE D
- *b MAX. 24" DIA. PIPE WITH MANHOLE TYPE C
MAX. 36" DIA. PIPE WITH MANHOLE TYPE D
- *c SEE NOTE NO. 4
- *d SEE BAFFLE LIP ANGLE TABLE
 $\cos \phi = ((\text{OUTLET PIPE DIA.}) + 5") / \text{MANHOLE DIA.}$
- *e BAFFLE REQUIRES TWO GASKETS

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER
DATE ORIGINAL SIGNED: DECEMBER 21, 1995

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 605-32_1295.dgn
DRAWING DATE: DECEMBER, 1995

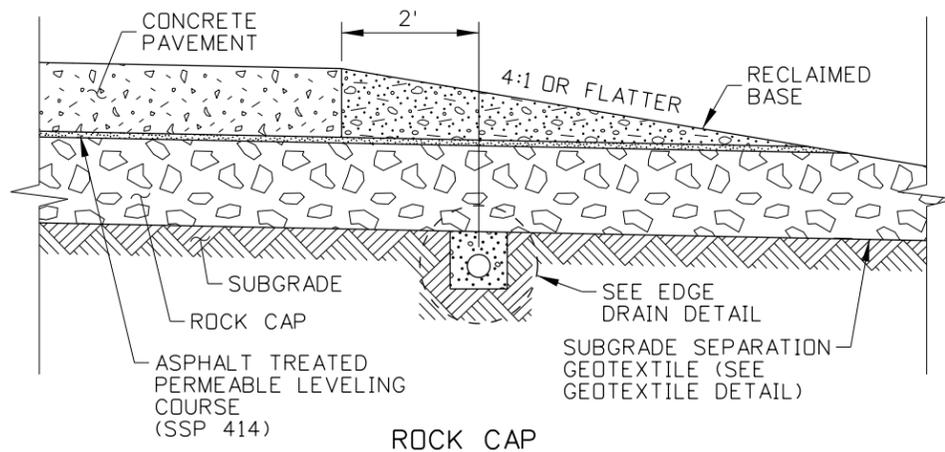
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

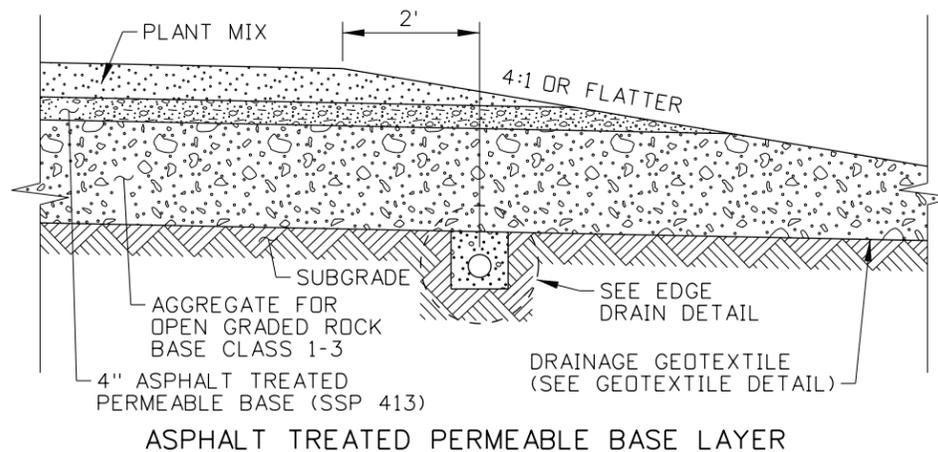
ORIGINAL SIGNED BY: MONTE FIALA
CHIEF OF HIGHWAY OPERATIONS
ORIGINAL SIGNED BY: JIMMY ROSS
CHIEF ENGINEER

STANDARD DRAWING
SEDIMENT AND OIL TRAP MANHOLE (IN STREET)
REQUIRES STD. DWG. 605-12 & REFER TO STD. DWG. 605-13

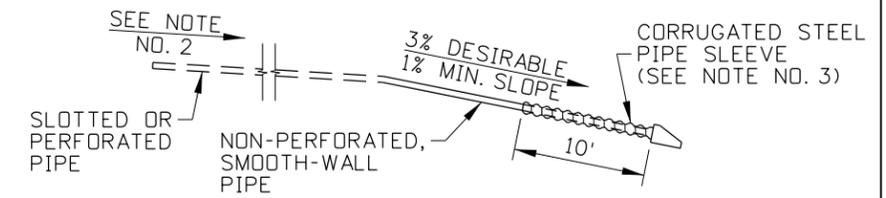
English
STANDARD DRAWING NO.
605-32
SHEET 1 OF 1



ROCK CAP

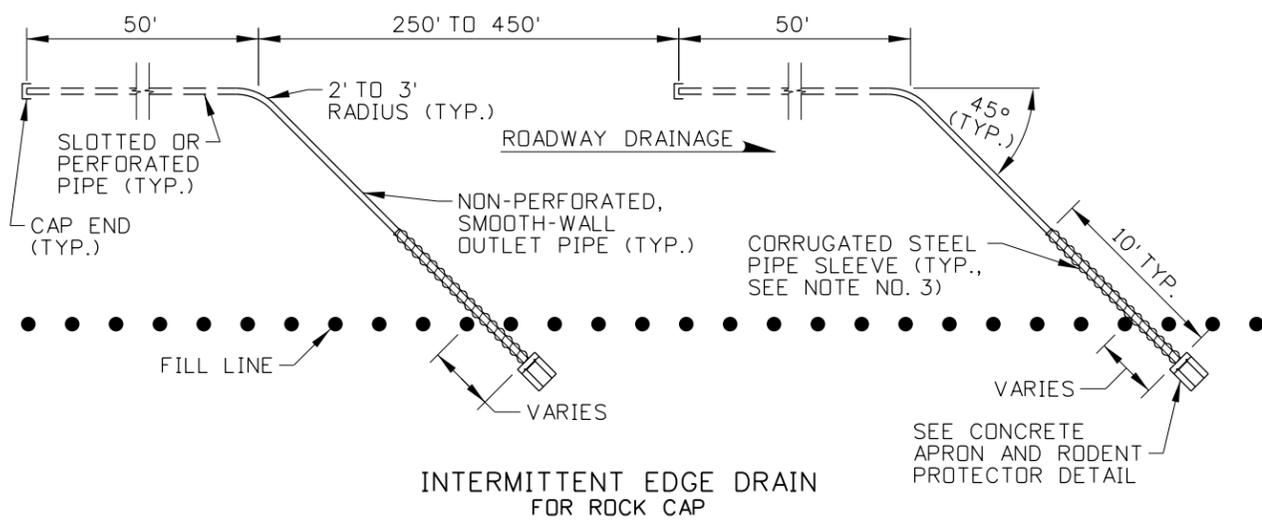


ASPHALT TREATED PERMEABLE BASE LAYER

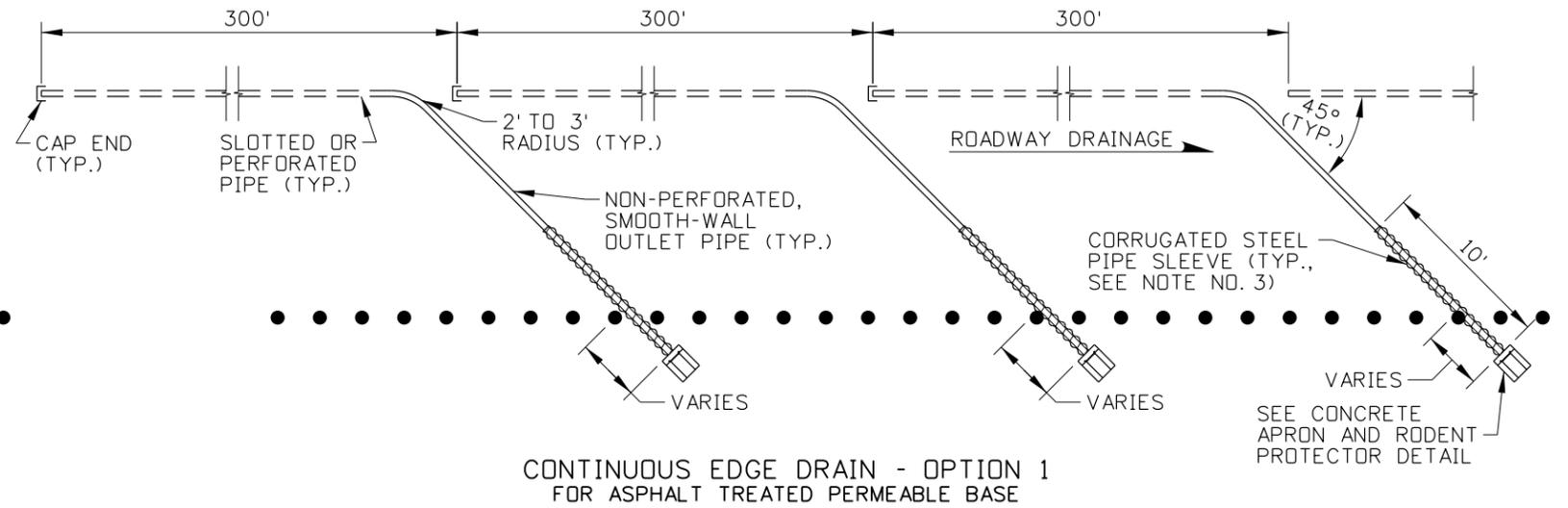


RURAL EDGE DRAIN PIPE PROFILE
(SEE NOTE NO. 5)

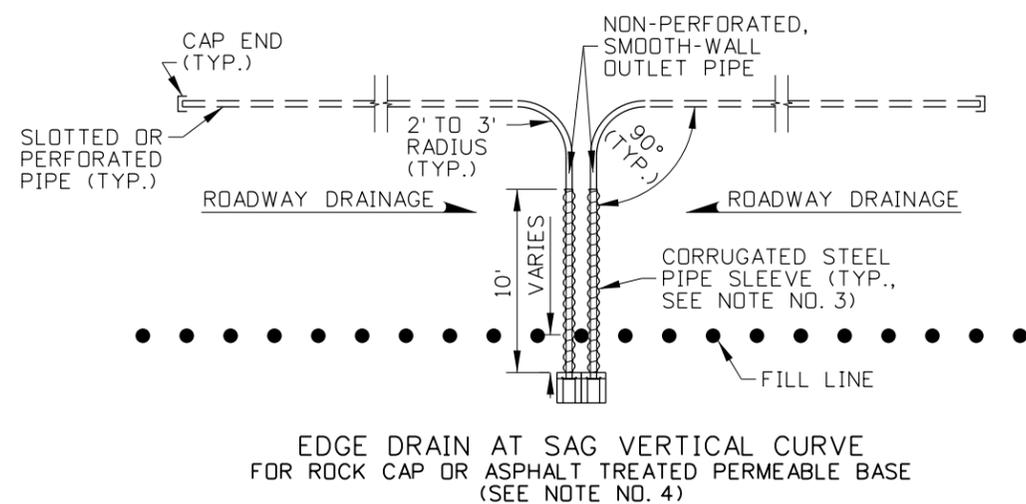
RURAL EDGE DRAIN PLACEMENT



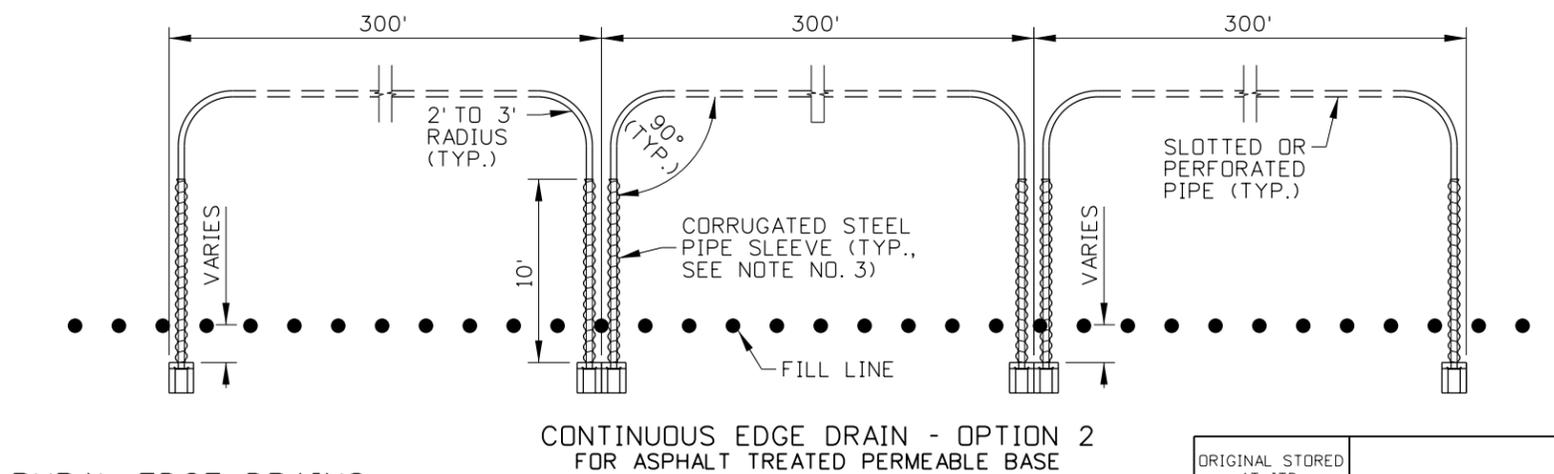
INTERMITTENT EDGE DRAIN FOR ROCK CAP



CONTINUOUS EDGE DRAIN - OPTION 1 FOR ASPHALT TREATED PERMEABLE BASE



EDGE DRAIN AT SAG VERTICAL CURVE FOR ROCK CAP OR ASPHALT TREATED PERMEABLE BASE (SEE NOTE NO. 4)



CONTINUOUS EDGE DRAIN - OPTION 2 FOR ASPHALT TREATED PERMEABLE BASE

RURAL EDGE DRAINS
PLAN VIEW

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: KAREN A. MERRICK DATE MAY 7, 2014

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 606-2_0514.dgn
DRAWING DATE: FEBRUARY, 2014

IDAHO TRANSPORTATION DEPARTMENT

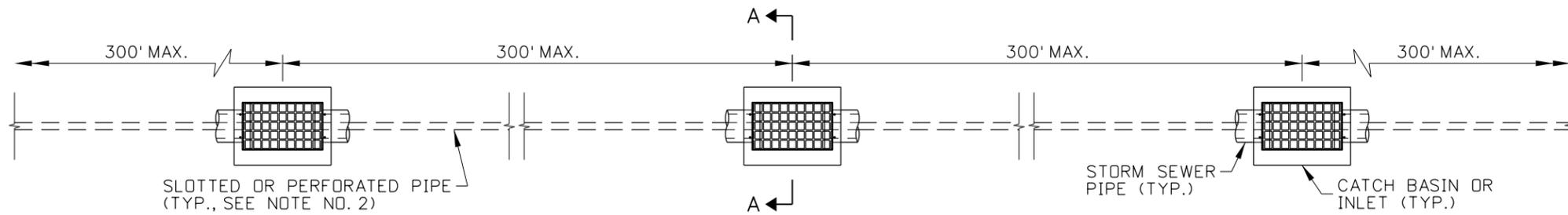


BOISE IDAHO

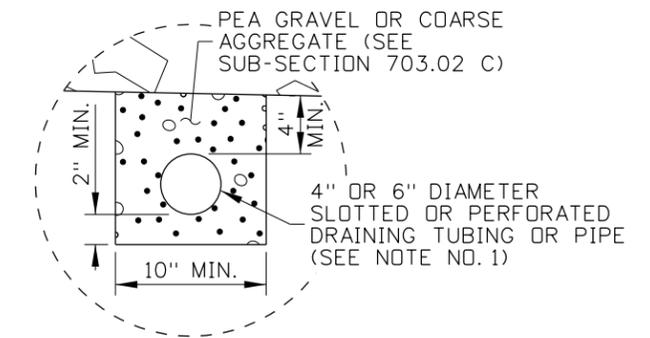
ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
EDGE DRAIN
REQUIRES SHEET 2 OF 2

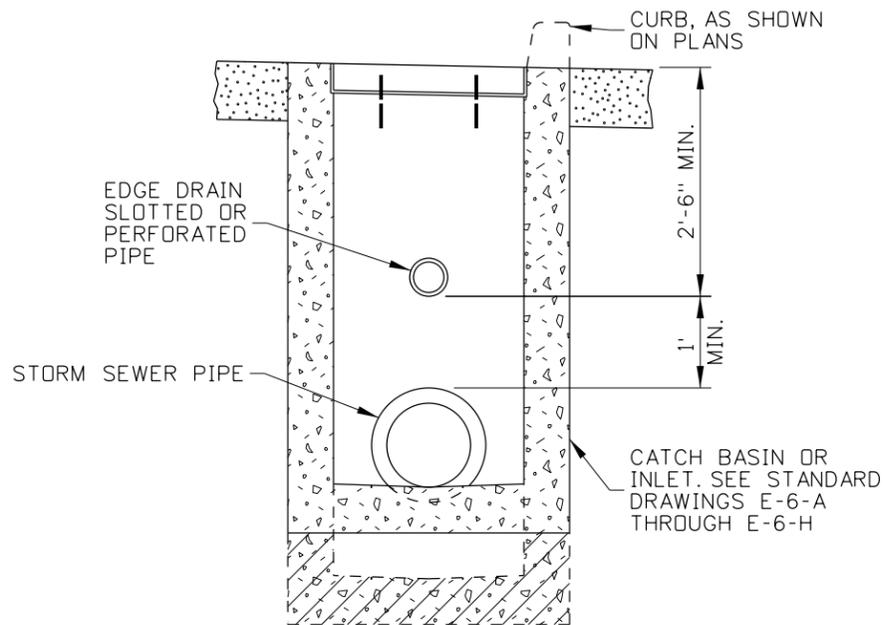
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STANDARD DRAWING NO.
606-2
SHEET 1 OF 2



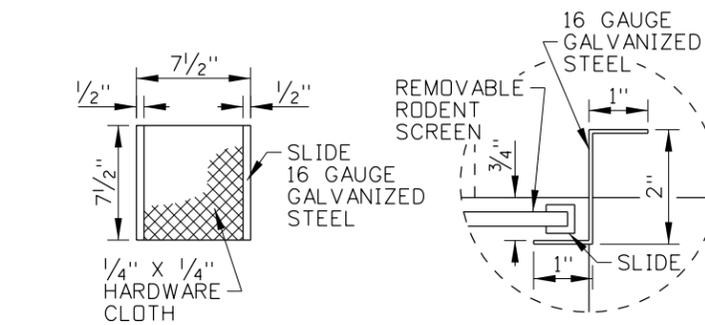
URBAN EDGE DRAIN
PLAN VIEW



EDGE DRAIN DETAIL



SECTION A-A
URBAN EDGE DRAIN PLACEMENT

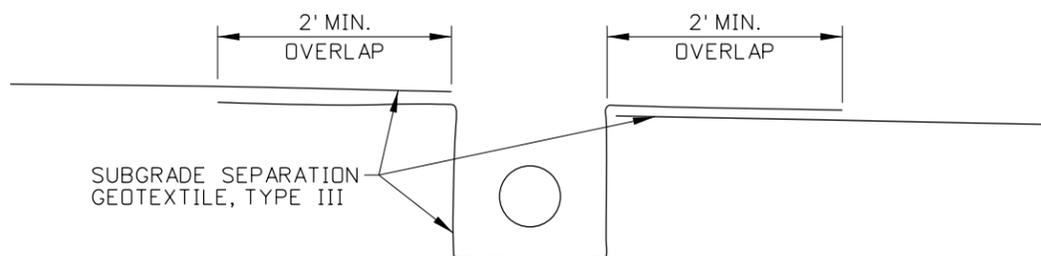


REMOVABLE RODENT
SCREEN DETAIL

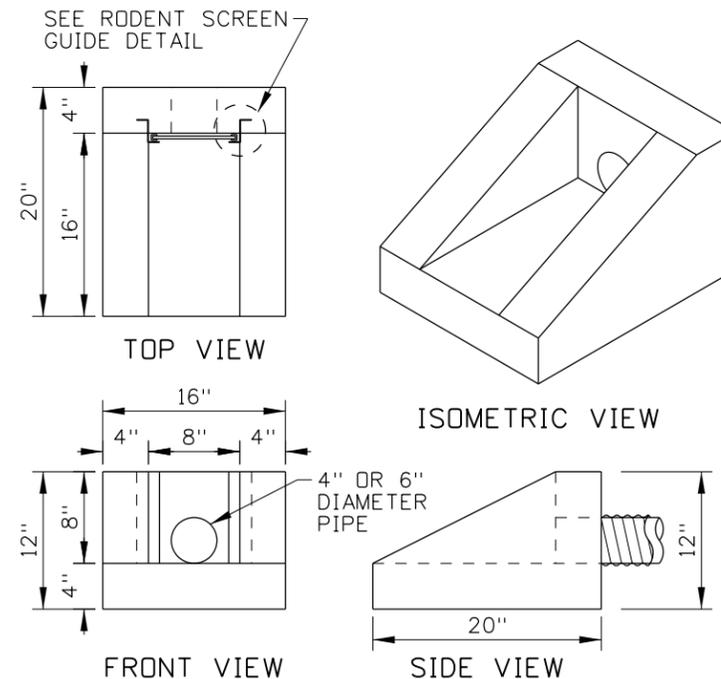
RODENT SCREEN
GUIDE DETAIL

NOTES

1. PROVIDE CORRUGATED POLYETHYLENE DRAINAGE TUBING IN ACCORDANCE WITH SUBSECTION 703.10 OR CLASS PS 46 POLYVINYL CHLORIDE (PVC) PIPE IN ACCORDANCE WITH SUBSECTION 703.14 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. MINIMUM PIPE GRADE OF 0.5 PERCENT. IN SPECIAL CASES, EDGE DRAIN GRADIENTS MAY BE AS FLAT AS 0.2 PERCENT IF LARGER PIPE DIAMETERS ARE USED.
3. PLACE OUTLET PIPES IN 10 FOOT LONG CORRUGATED STEEL PIPE SLEEVES EXTENDING FROM THE CONCRETE APRON. USE PIPE JUST LARGE ENOUGH TO ALLOW THE OUTLET PIPES TO FIT THROUGH.
4. PROVIDE OUTLET PIPES AT THE BOTTOM OF SAG VERTICAL CURVES.
5. PROVIDE A MINIMUM OF 6 INCHES OF FREEBOARD ABOVE THE BOTTOM OF THE DITCH AND THE PIPE OUTLET. WHERE THIS IS NOT POSSIBLE, PROVIDE A COLLECTION AND DISPOSAL SYSTEM.
6. KEEP JOINTS IN EDGE DRAIN AND OUTLET PIPES TO A MINIMUM. USE COUPLINGS TO JOIN PIPES AS NEEDED.
7. CONCRETE APRON AND RODENT PROTECTOR DETAIL MAY BE PRECAST OR CAST-IN-PLACE. PROVIDE REMOVABLE RODENT SCREEN.
8. VIDEO INSPECT FINISHED EDGE DRAIN AND OUTLET PIPES TO ENSURE THAT DAMAGE WAS NOT INCURRED DURING SUBSEQUENT CONSTRUCTION.
9. DRAWINGS NOT TO SCALE.



GEOTEXTILE DETAIL



CONCRETE APRON AND RODENT PROTECTOR DETAIL
(SEE NOTE NO. 7)

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 606-2_0514.dgn
DRAWING DATE: FEBRUARY, 2014

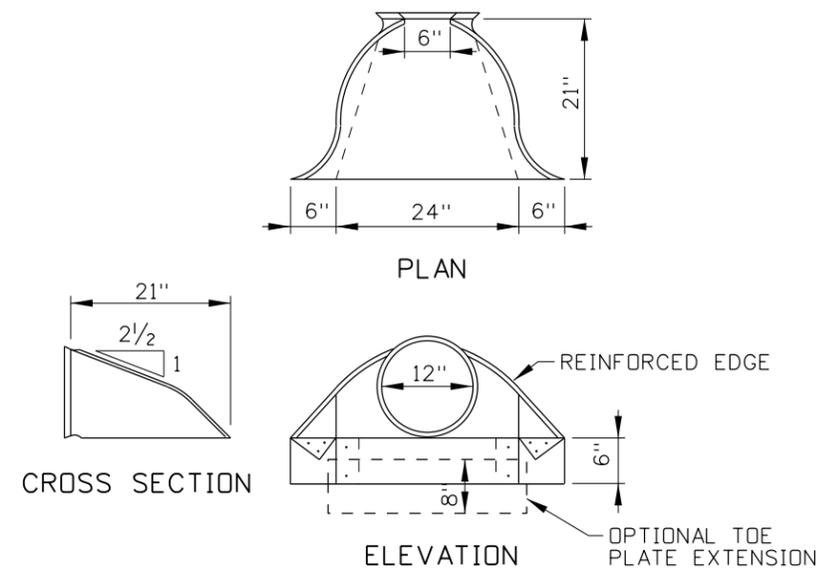
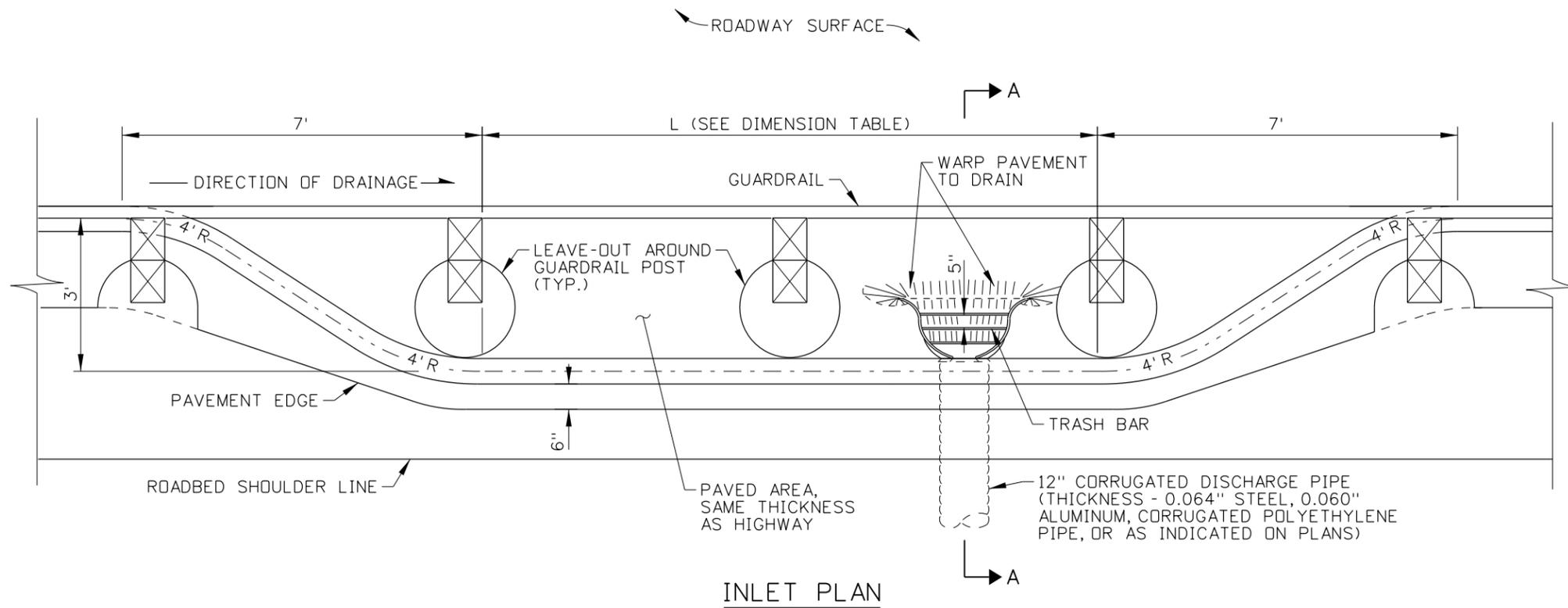
IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
EDGE DRAIN
REQUIRES SHEET 1 OF 2

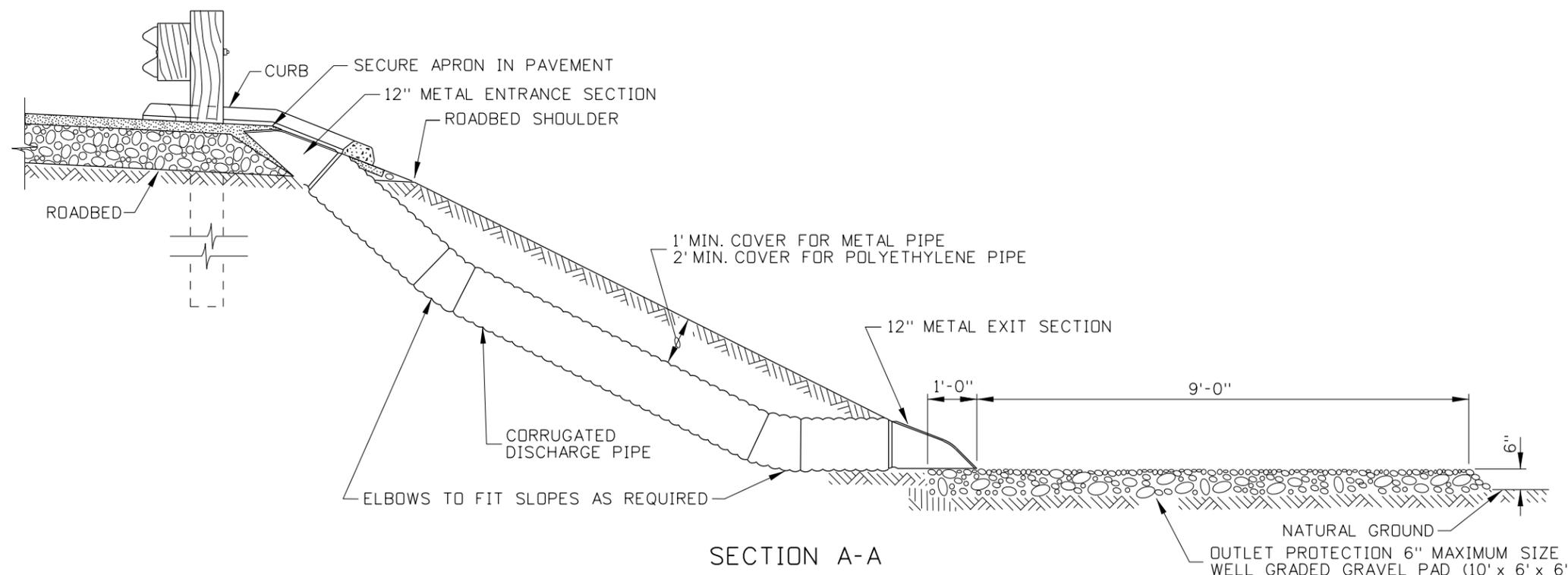
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho
English
STANDARD DRAWING NO. 606-2
SHEET 2 OF 2

ORIGINAL SIGNED BY: KAREN A. MERRICK
DATE ORIGINAL SIGNED: MAY 7, 2014



METAL ENTRANCE AND EXIT SECTIONS

SEE THE PIPE APRON STANDARD DRAWINGS FOR MORE INFORMATION



DIMENSION TABLE	
TYPE	L
1	20'
2	30'
3	40'
4	50'

NOTES

1. DRAWING NOT TO SCALE

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 8, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	04-64		6	07-92	MSM	11	12-04	MSM
2	08-65		7	04-93	MSM	12	09-10	PLR
3	03-67		8	12-93	MSM	13	11-15	RDL
4	01-74		9	06-97	MSM			
5	05-77		10	07-02	MSM			

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 607-1_1215.dgn

DRAWING DATE: APRIL, 1964

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: TED E. MASON for DESIGN/TRAFFIC SERVICES ENGINEER

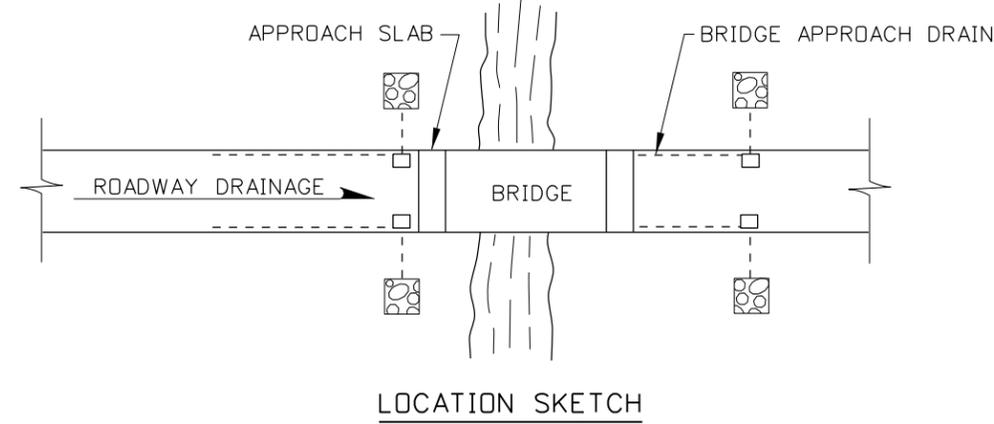
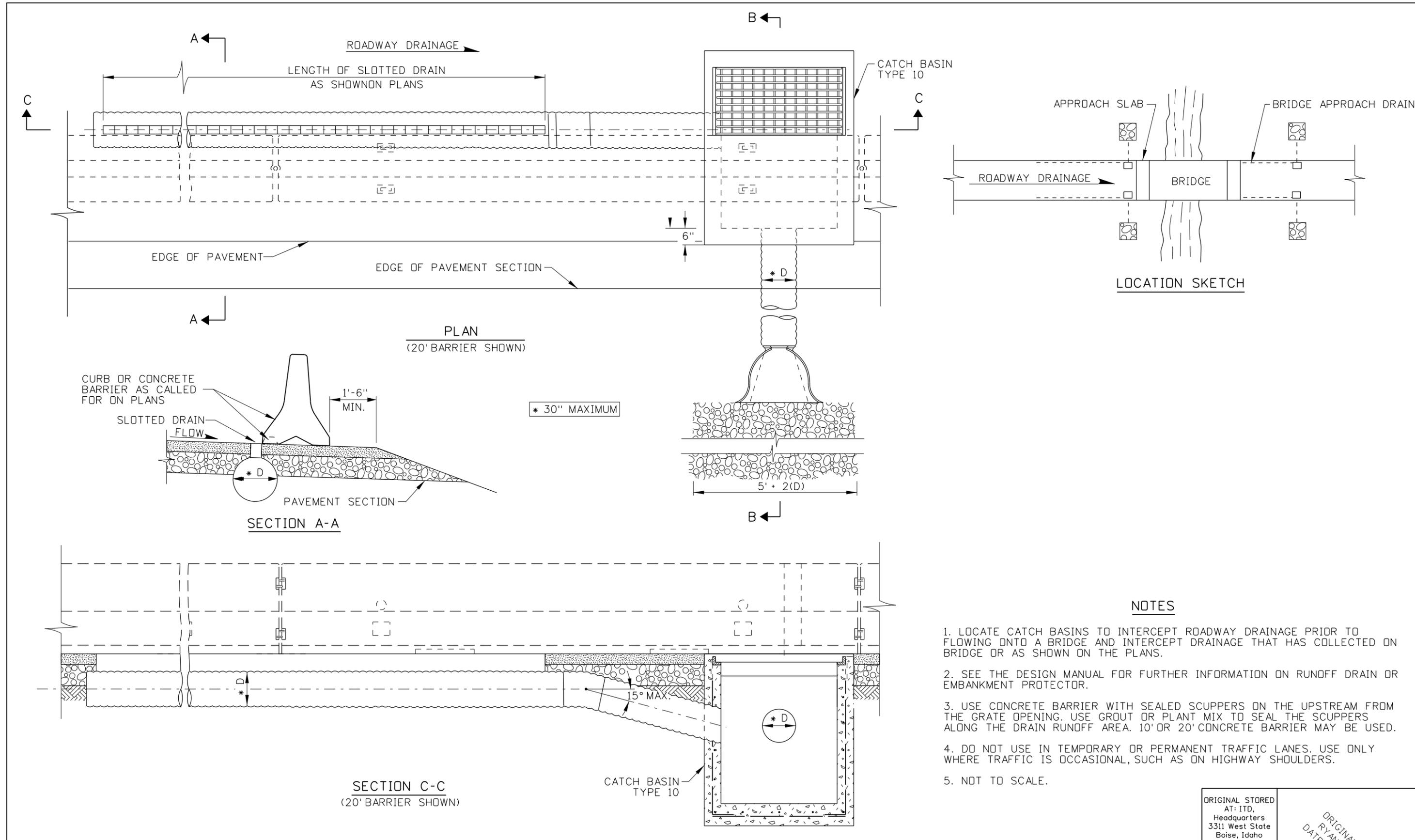
STANDARD DRAWING

EMBANKMENT PROTECTOR

English

STANDARD DRAWING NO. **607-1**

SHEET 1 OF 1



- NOTES**
1. LOCATE CATCH BASINS TO INTERCEPT ROADWAY DRAINAGE PRIOR TO FLOWING ONTO A BRIDGE AND INTERCEPT DRAINAGE THAT HAS COLLECTED ON BRIDGE OR AS SHOWN ON THE PLANS.
 2. SEE THE DESIGN MANUAL FOR FURTHER INFORMATION ON RUNOFF DRAIN OR EMBANKMENT PROTECTOR.
 3. USE CONCRETE BARRIER WITH SEALED SCUPPERS ON THE UPSTREAM FROM THE GRATE OPENING. USE GROUT OR PLANT MIX TO SEAL THE SCUPPERS ALONG THE DRAIN RUNOFF AREA. 10' OR 20' CONCRETE BARRIER MAY BE USED.
 4. DO NOT USE IN TEMPORARY OR PERMANENT TRAFFIC LANES. USE ONLY WHERE TRAFFIC IS OCCASIONAL, SUCH AS ON HIGHWAY SHOULDERS.
 5. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JANUARY 31, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	MSM						
2	7-02	MSM						
3	3-05	MSM						
4	9-10	PLR						
5	12-12	RDL						

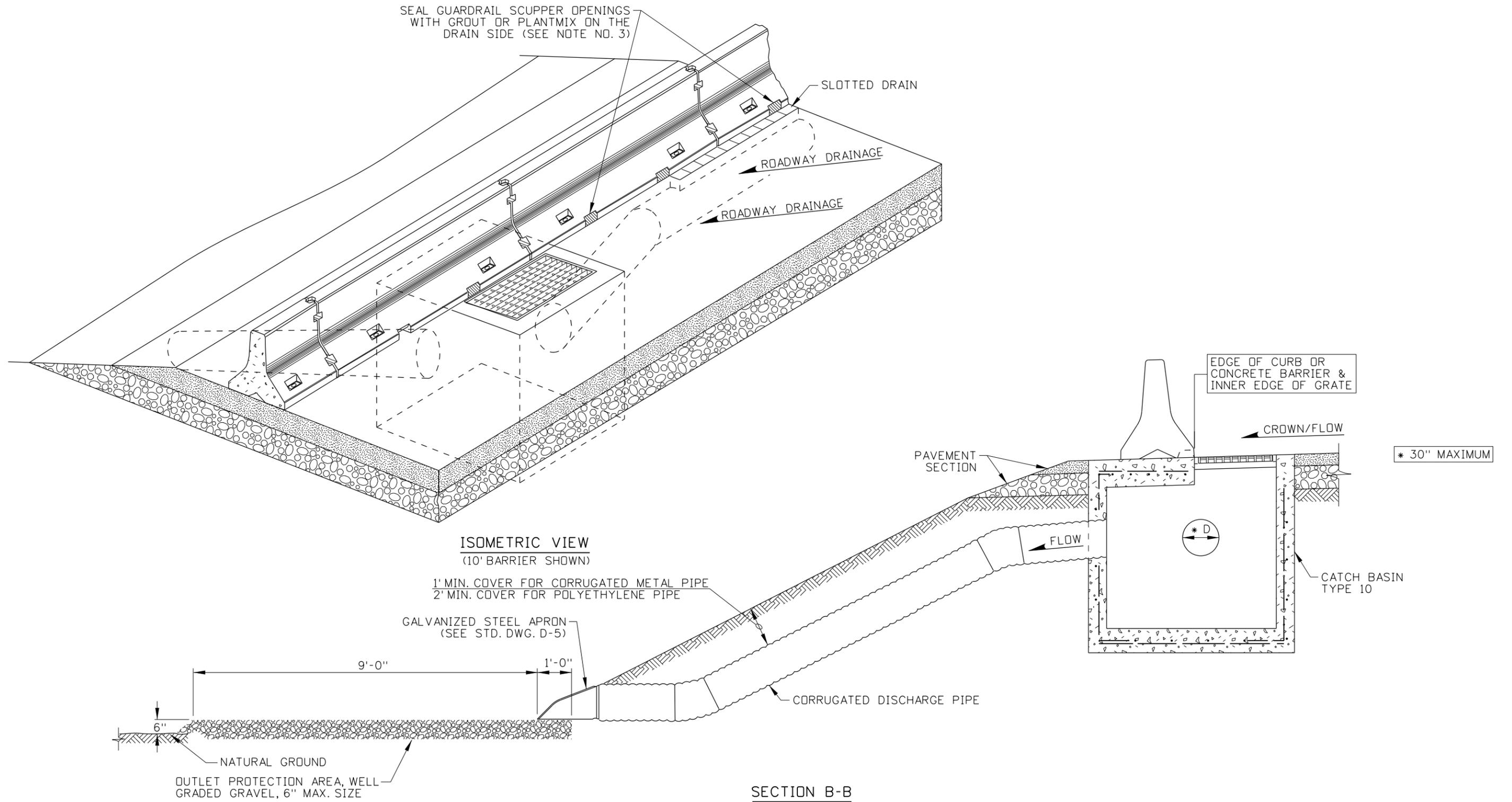
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 607-2_0113.dgn
DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
EMBANKMENT PROTECTOR WITH SLOTTED DRAIN
REQUIRES SHEET 2 OF 2 & STD. DWG. E-6-H

English
STANDARD DRAWING NO. **607-2**
SHEET 1 OF 2



REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	MSM						
2	7-02	MSM						
3	3-05	MSM						
4	9-10	PLR						
5	12-12	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 607-2_0113.dgn

DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

EMBANKMENT PROTECTOR WITH SLOTTED DRAIN

REQUIRES SHEET 1 OF 2 & STD. DWG. E-6-H

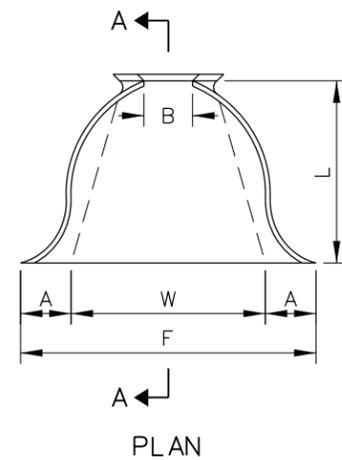
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

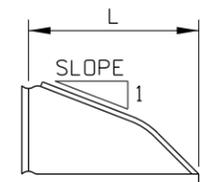
STANDARD DRAWING NO. **607-2**

SHEET 2 OF 2

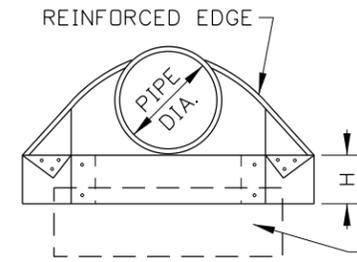
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JANUARY 31, 2013



PLAN

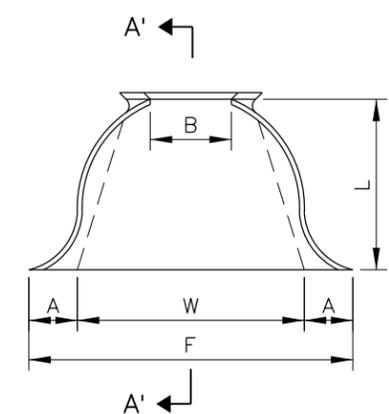


SECTION A-A (TYPICAL)

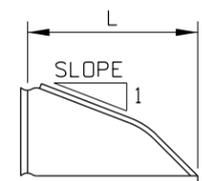


ELEVATION

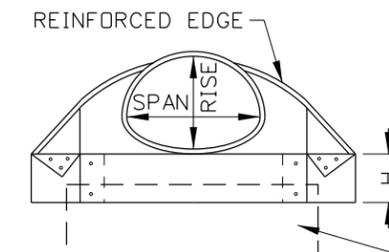
APRON FOR ROUND METAL PIPE
(GALVANIZED STEEL)



PLAN



SECTION A'-A' (TYPICAL)



ELEVATION

APRON FOR METAL ARCH PIPE
(GALVANIZED STEEL)

DIMENSIONS TABLE									
PIPE DIA.	THICK-NESS (1000'S)	ALL DIMENSIONS ARE IN INCHES						APPROX. SLOPE	BODY
		A (MIN.)	B	H (MIN.)	F (MIN.)	L ±2"	W (MAX.)		
12	0.064	5	7	6	22	21	24	2 1/2:1	1 PC.
15	0.064	7	8	6	28	26	30	2 1/2:1	1 PC.
18	0.064	7	10	6	34	31	36	2 1/2:1	1 PC.
21	0.064	8	12	6	40	36	42	2 1/2:1	1 PC.
24	0.064	9	13	6	46	41	48	2 1/2:1	1 PC.
30	0.079	13	16	8	55	51	60	2 1/2:1	1 PC.
36	0.079	11	19	9	70	60	72	2 1/2:1	2 PC.
42	0.109	15	25	10	82	69	84	2 1/2:1	2 PC.
48	0.109	17	29	12	88	78	90	2 1/2:1	2 PC.
54	0.109	17	33	12	100	84	102	2:1	2 PC.
60	0.109	17	36	12	112	87	114	2 1/2:1	3 PC.
66	0.109	17	39	12	118	87	120	2 1/2:1	3 PC.
72	0.109	17	44	12	120	87	126	2 1/2:1	3 PC.
78	0.109	17	48	12	130	87	132	2 1/2:1	3 PC.
84	0.109	17	52	12	136	87	138	2 1/2:1	3 PC.

DIMENSIONS TABLE										
PIPE-ARCH		THICK-NESS (1000'S)	ALL DIMENSIONS ARE IN INCHES						APPROX. SLOPE	BODY
SPAN IN.	RISE IN.		A (MIN.)	B	H (MIN.)	F (MIN.)	L ±2"	W (MAX.)		
17	13	0.064	5	9	6	28	20	50	2 1/2:1	1 PC.
21	15	0.064	6	11	6	34	24	58	2 1/2:1	1 PC.
24	18	0.064	7	12	6	40	28	63	2 1/2:1	1 PC.
28	20	0.064	7	16	6	46	32	70	2 1/2:1	1 PC.
35	24	0.079	9	16	6	58	39	85	2 1/2:1	1 PC.
42	29	0.079	11	18	8	73	46	104	2 1/2:1	1 PC.
49	33	0.109	12	21	9	82	53	117	2 1/2:1	2 PC.
57	38	0.109	16	26	10	88	62	130	2 1/2:1	2 PC.
64	43	0.109	17	30	12	100	79	142	2 1/4:1	2 PC.
71	47	0.109	17	36	12	112	77	156	2 1/4:1	2 PC.
77	52	0.109	17	36	12	124	77	167	2:1	3 PC.
83	57	0.109	17	44	12	130	77	179	2:1	3 PC.

NOTES

- ALL 3-PIECE BODIES (APRONS WITH PIPE DIA. 60 IN. & LARGER) TO HAVE 0.109 IN. SIDES AND 0.138 IN. CENTER PANELS. MULTIPLE PANEL BODIES TO HAVE LAP SEAMS WHICH ARE TO BE TIGHTLY JOINED BY GALVANIZED RIVETS OR BOLTS.
- THE REINFORCED EDGES OF GALVANIZED STEEL APRONS, FOR ROUND METAL PIPE SIZES 60 IN. THROUGH 84 IN. AND FOR ARCH METAL PIPE SIZES 77x62 IN. THROUGH 83x57 IN., ARE TO BE SUPPLEMENTED BY GALVANIZED STIFFENER ANGLES. THE ANGLES ARE TO BE ATTACHED BY GALVANIZED BOLTS AND NUTS.
- ANGLE REINFORCEMENT WILL BE PLACED UNDER THE CENTER PANEL SEAMS ON ARCH PIPE SIZES 77x52 IN. THROUGH 83x57 IN.
- A GALVANIZED TOE PLATE IS AVAILABLE AS AN ACCESSORY. WHEN SPECIFIED IT SHALL BE THE SAME GAGE AS THE APRON.
- THE APRON SHALL BE CONNECTED TO PIPE BY USING EITHER CONNECTING BANDS, RODS, OR STRAPS.
- NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER DATE ORIGINAL SIGNED: MARCH 4, 2005

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	09-64		6	06-84			
2	06-68		7	07-92	MSM		
3	04-70		8	11-01	MSM		
4	10-76		9	03-05	MSM		
5	07-78						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 608-1_0305.dgn
DRAWING DATE: APRIL, 1961

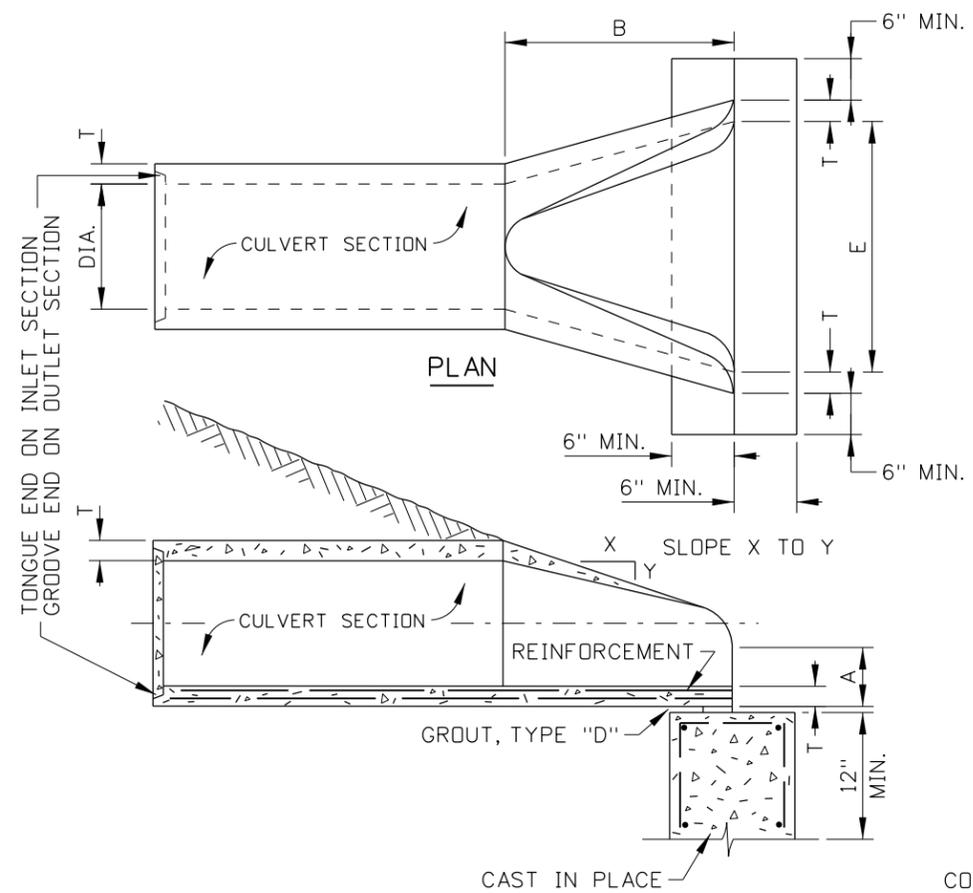
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

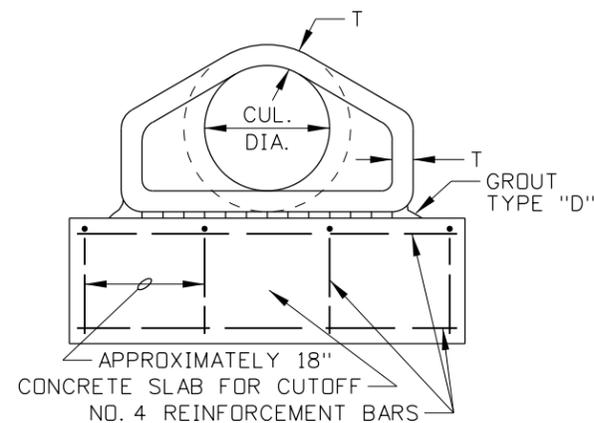
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING
GALVANIZED STEEL APRONS FOR PIPE CULVERTS

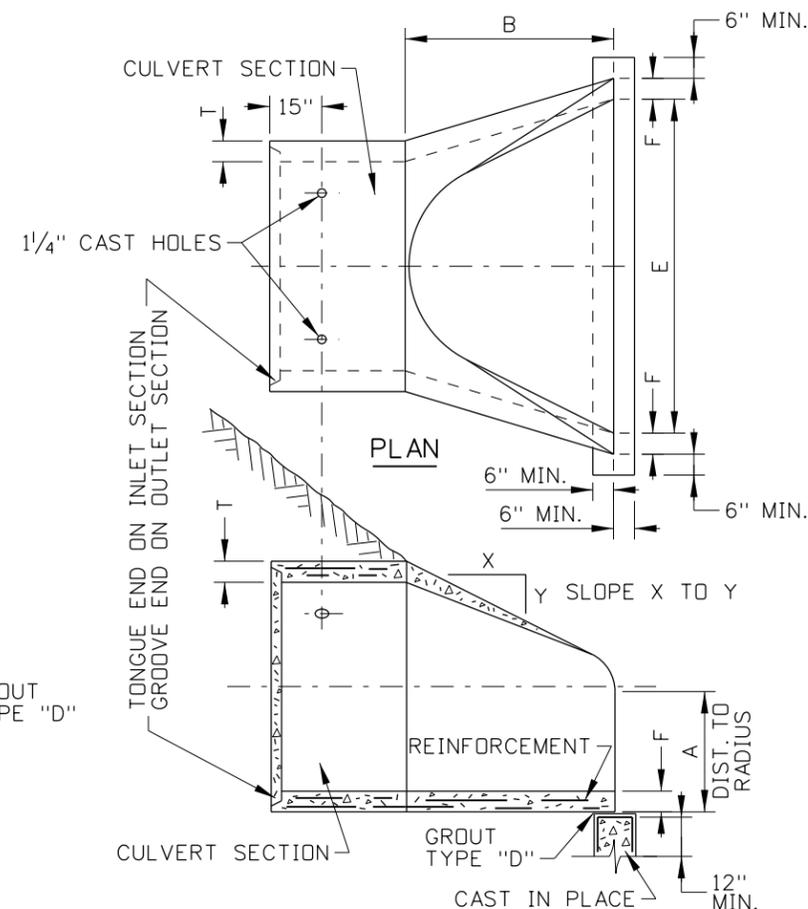
English
STANDARD DRAWING NO.
608-1
SHEET 1 OF 1



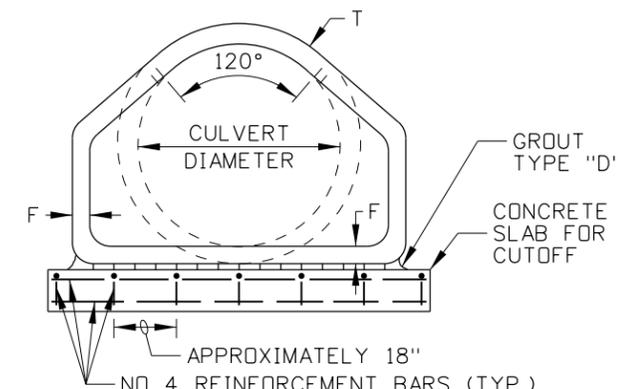
LONGITUDINAL SECTION
(FOR 12" TO 54" DIA. PIPE)



END VIEW
(FOR 12" TO 54" DIA. PIPE)

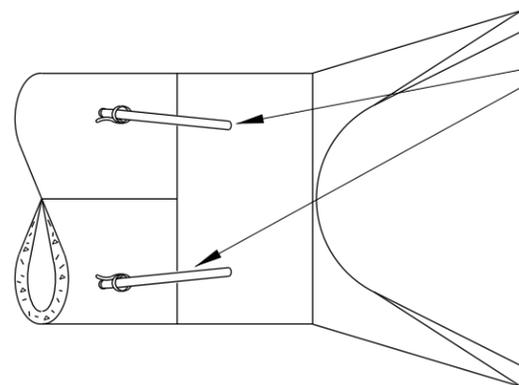


LONGITUDINAL SECTION
(FOR 60" TO 84" DIA. PIPE)



END VIEW
(FOR 60" TO 84" DIA. PIPE)

APRON DIMENSION FOR 12" TO 54" DIA. PIPE					
DIA.	A	B	E	T	SLOPE
12"	4"-5"	1'-10" - 2'-0"	2'-0"	2"	3 TO 1
15"	6"	2'-3"	2'-6"	2 1/4"	3 TO 1
18"	9"-10"	2'-3"	3'-0"	2 1/2"	3 TO 1
21"	9"	3'-0"	3'-5"	2 3/4"	3 TO 1
24"	9 1/2"-10"	3'-7" - 3'-7 1/2"	4'-0"	3"	3 TO 1
27"	10 1/2"	4'-1 1/2"	4'-6"	3 1/4"	3 TO 1
30"	1'-0"	4'-6"	5'-0"	3 1/2"	3 TO 1
36"	1'-3"	5'-3" - 5'-4"	6'-0"	4"	3 TO 1
42"	1'-9" - 1'-10"	5'-3" - 5'-4"	6'-6"	4 1/2"	3 TO 1
48"	2'-0"	6'-0"	7'-0"	5"	3 TO 1
54"	2'-3"	5'-5"	7'-6"	5 1/2"	2 TO 1



ANCHORING DETAIL

60" DIA. PIPE:
2 - 1" TIE BOLTS EACH AT 60° TO THE VERTICAL USED TO TIE THE END SECTION TO ADJACENT STRAIGHT SECTION.

72" DIA. & 84" DIA. PIPE:
2 - 1" TIE BOLTS PLACED AS SPECIFIED FOR 60" PIPE ALSO 1 - 1" TIE BOLT IS TO BE PLACED AT THE TOP.

APRON DIMENSION FOR 60" TO 84" DIA. PIPE						
DIA.	A	B	E	F	T	SLOPE
60"	2'-11"	5'-0"	8'-0"	5"	6"	2 TO 1
72"	3'-0"	6'-6"	9'-0"	6"	7"	1.86 TO 1
84"	3'-0"	7'-6 1/2"	10'-0"	6 1/2"	8"	1.5 TO 1

NOTES

1. TONGUE AND GROOVE JOINTS ARE SHOWN ON THE DRAWING FOR EXAMPLE ONLY. OTHER JOINTS MAY BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
2. NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	4-66						
2	8-67						
3	2-00	MSM					
4	10-05	MSM					
5	12-12	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 608-2_1212.dgn

DRAWING DATE: MARCH, 1966

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

CONCRETE APRONS FOR PIPE CULVERTS

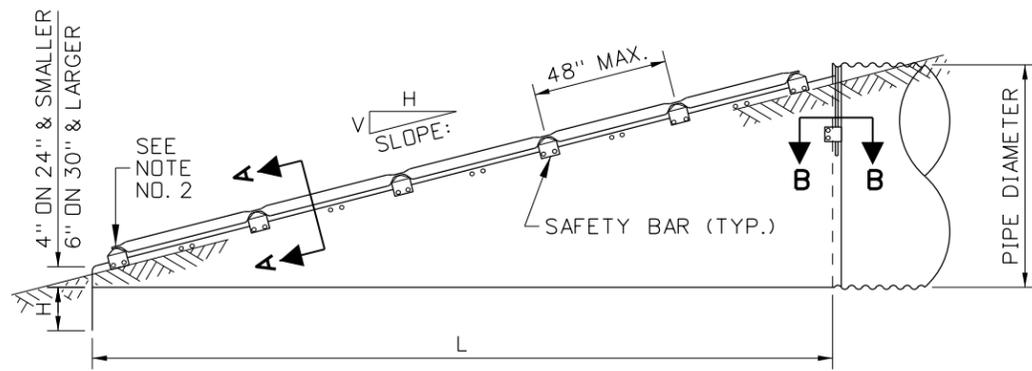
English

STANDARD DRAWING NO. **608-2**

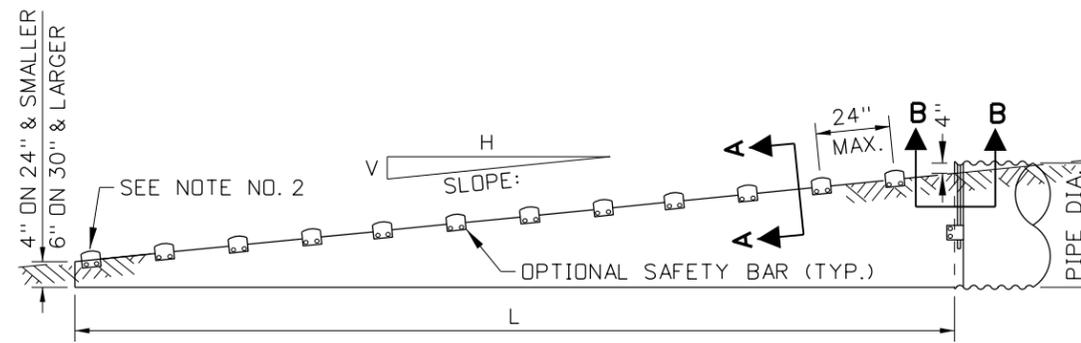
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

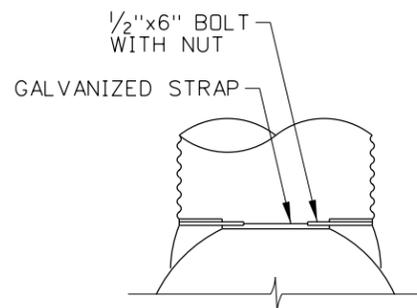
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 17, 2012



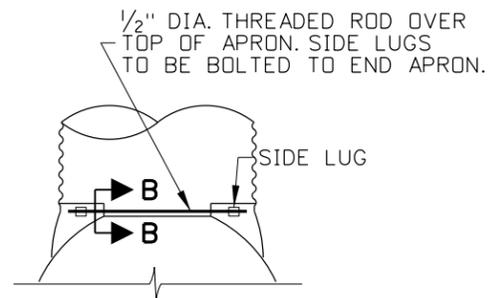
SIDE VIEW OF CROSS DRAINAGE STRUCTURE



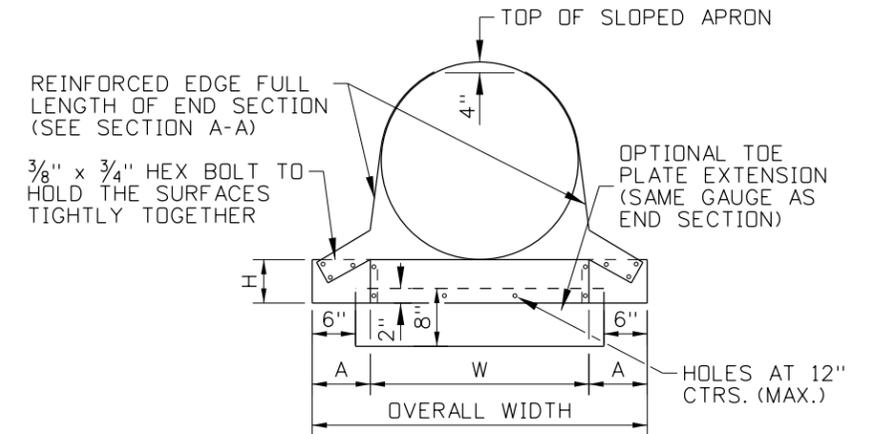
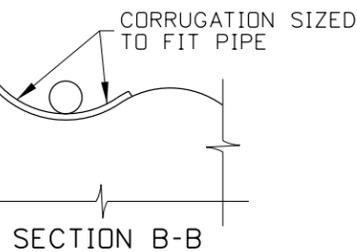
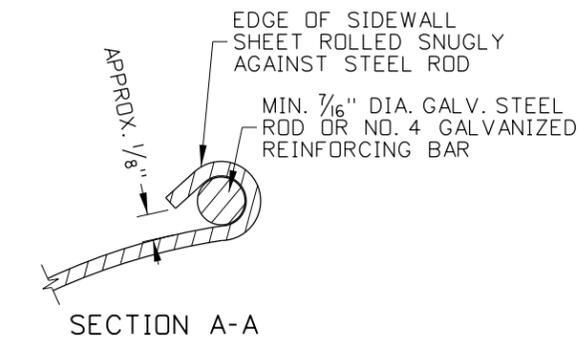
SIDE VIEW OF PARALLEL DRAINAGE STRUCTURE



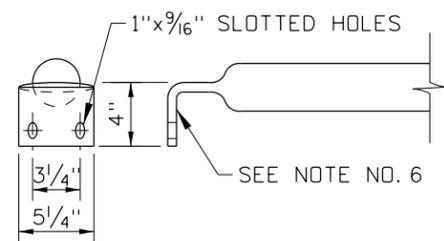
TYPE 1 CONNECTOR DETAIL
CIRCULAR PIPES 15" THROUGH 24"



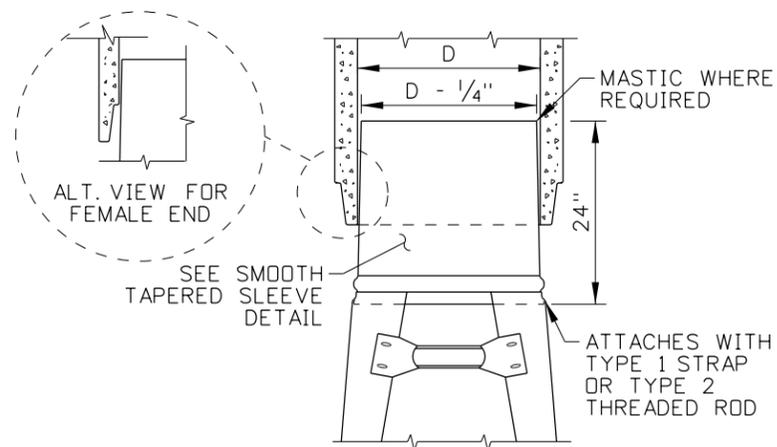
TYPE 2 CONNECTOR DETAIL
USE WITH 30" AND LARGER CIRCULAR PIPES
AND ALL ARCHED PIPES



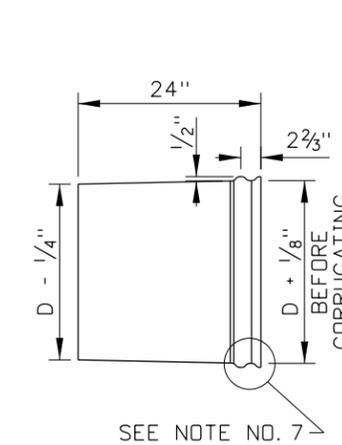
FRONT VIEW - ROUND PIPE



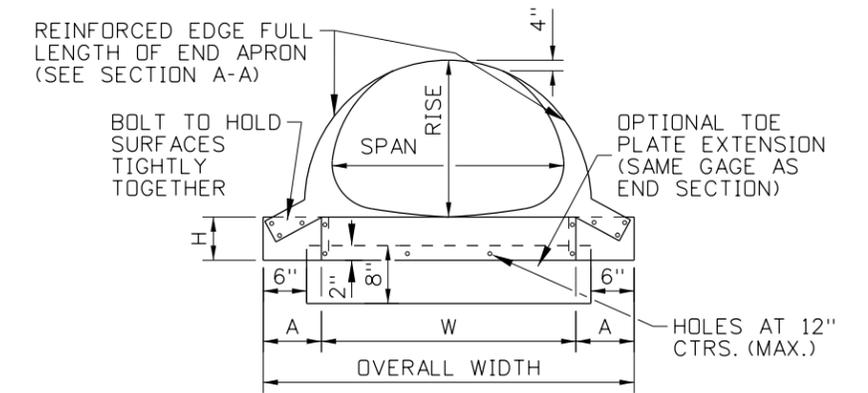
SAFETY BAR DETAIL



TAPERED SLEEVE FOR ATTACHING STEEL END SECTIONS TO CONCRETE OR SMOOTH PIPE
END SECTION WITH OPTIONAL SAFETY BAR SHOWN FOR ILLUSTRATION ONLY



SMOOTH TAPERED SLEEVE DETAIL



FRONT VIEW - ARCHED PIPE

LONGITUDINAL BAR DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	7-92	MSM	6	05-16	RDL		
2	6-97	MSM					
3	11-00	MSM					
4	3-05	MSM					
5	12-12	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 608-3_0516.dgn
DRAWING DATE: NOVEMBER, 1990

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

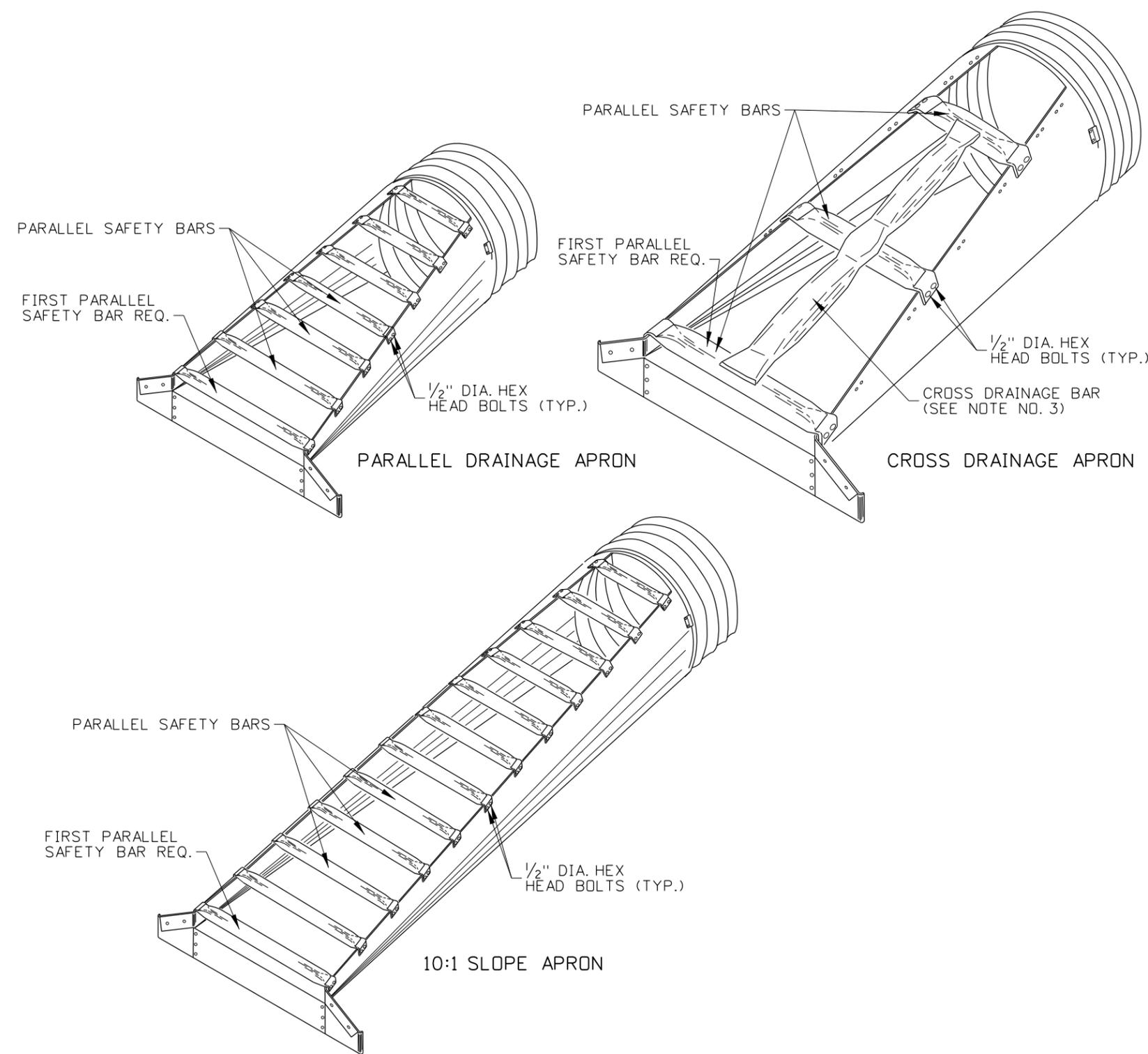
ORIGINAL SIGNED BY: JESSE BARRUS
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
METAL SAFETY SLOPE APRON
REQUIRES SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English
STANDARD DRAWING NO. **608-3**
SHEET 1 OF 2

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: MAY 12, 2016



APRONS FOR CIRCULAR PIPES												
PIPE DIA. (IN.)	MIN. THICK.		DIMENSIONS (±2")				L DIMENSIONS (±2") (SEE NOTE NO. 5)					
	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)
15	.064	16	8	6	21	37	4:1	20	6:1	30	10:1	70
18	.064	16	8	6	24	40	4:1	32	6:1	48	10:1	100
21	.064	16	8	6	27	43	4:1	44	6:1	66	10:1	130
24	.064	16	8	6	30	46	4:1	56	6:1	84	10:1	160
30	.109	12	12	9	36	60	4:1	80	6:1	120	10:1	220
36	.109	12	12	9	42	66	4:1	104	6:1	156	10:1	280
42	.109	12	16	12	48	80	4:1	128	6:1	192		N/A
48	.109	12	16	12	54	86	4:1	152	6:1	228		N/A
54	.109	12	16	12	60	92	4:1	176	6:1	264		N/A
60	.109	12	16	12	66	98	4:1	200	6:1	300		N/A

APRONS FOR ARCHED PIPES														
EQUIV. DIA. (IN.)	(INCHES)		MIN. THICK.		DIMENSIONS (±2")			L DIMENSIONS (±2") (SEE NOTE NO. 5)						
	SPAN	RISE	IN.	GAGE	A	H	W	OVERALL WIDTH	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)	SLOPE H:V	LENGTH (IN.)
18	21	15	.064	16	8	6	27	43	4:1	20	6:1	30	10:1	70
21	24	18	.064	16	8	6	30	46	4:1	32	6:1	48	10:1	100
24	28	20	.064	16	8	6	34	50	4:1	40	6:1	60	10:1	120
30	35	24	.079	14	12	9	41	65	4:1	56	6:1	84	10:1	160
36	42	29	.109	12	12	9	48	72	4:1	76	6:1	114	10:1	210
42	49	33	.109	12	16	12	55	87	4:1	92	6:1	138		N/A
48	57	38	.109	12	16	12	63	95	4:1	112	6:1	168		N/A
54	64	43	.109	12	16	12	70	102	4:1	132	6:1	198		N/A
60	71	47	.109	12	16	12	77	109	4:1	148	6:1	222		N/A
72	83	57	.109	12	16	12	89	121	4:1	188	6:1	282		N/A

NOTES

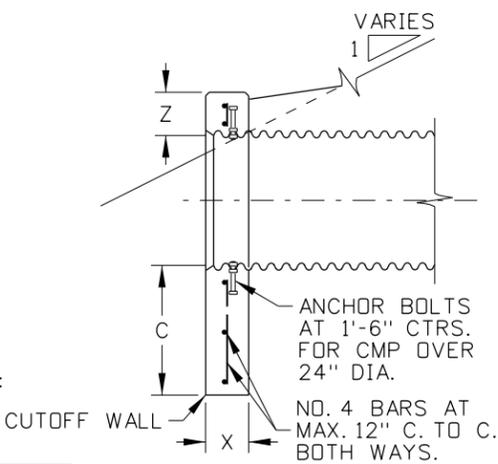
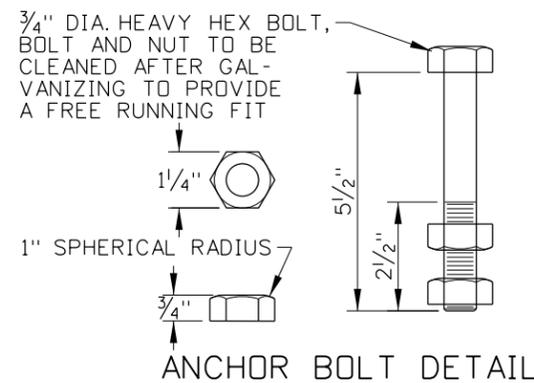
1. PROVIDE SLOTTED HOLES FOR PARALLEL SAFETY BAR ATTACHMENT.
2. USE AT LEAST ONE PARALLEL SAFETY BAR AT THE STRUCTURE OPENING. USE PARALLEL SAFETY BARS AT THE SPACING SHOWN WHEN THE PIPE DIAMETER IS GREATER THAN 18". THE NUMBER OF BARS WILL VARY DEPENDING ON THE STRUCTURE LENGTH (L).
3. USE CROSS DRAINAGE BAR WHEN THE PIPE DIAMETER IS GREATER THAN 30". WELD CROSS DRAINAGE BAR TO PARALLEL SAFETY BARS FOR SINGLE PIECE STRUCTURE.
4. LARGE END SECTIONS MAY BE PROVIDED IN MULTIPLE PANELS. WHEN MULTIPLE PANELS ARE USED, JOIN THE PANELS WITH BOLTS AND NUTS.
5. FOR 10:1 SLOPE END SECTIONS, USE 0.109" THICK (12 GAUGE) MATERIALS.
6. USE SCHEDULE 40 3" GALVANIZED STEEL PIPE FOR SAFETY BARS. FLATTEN END, THEN BEND OUTSIDE 4" TO MATCH STRUCTURE SIDES.
7. FORM 1/2"x2 3/8" CORRUGATIONS. MAINTAIN INSIDE DIAMETER OF SLEEVE. FINISHED END TO BE THE SAME DIAMETER AS CORRUGATED STEEL PIPE DIAMETER.
8. DRAWINGS NOT TO SCALE.

PERSPECTIVE VIEWS - APRONS

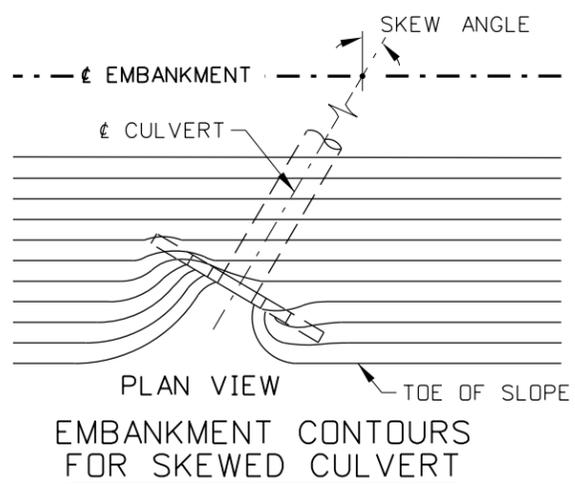
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 12, 2016

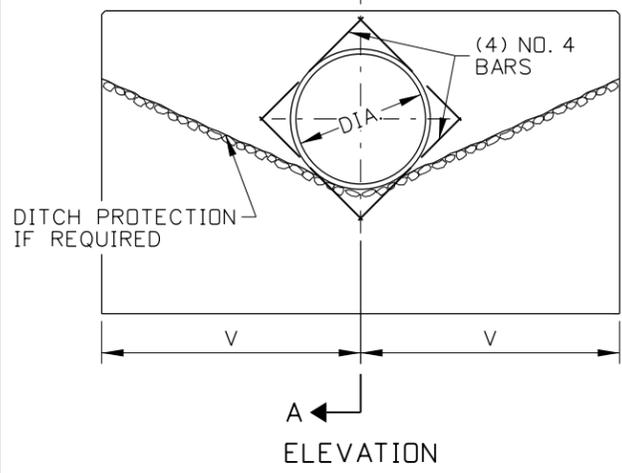
REVISIONS NO. DATE BY NO. DATE BY NO. DATE BY 1 7-92 MSM 6 05-16 RDL 2 6-97 MSM 3 11-00 MSM 4 3-05 MSM 5 12-12 RDL									SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY CADD FILE NAME: 608-3_0516.dgn DRAWING DATE: NOVEMBER, 1990		IDAHO TRANSPORTATION DEPARTMENT  BOISE IDAHO		ORIGINAL SIGNED BY: JESSE BARRUS DESIGN/TRAFFIC SERVICES ENGINEER		STANDARD DRAWING METAL SAFETY SLOPE APRON REQUIRES SHEET 1 OF 2		English STANDARD DRAWING NO. 608-3 SHEET 2 OF 2	
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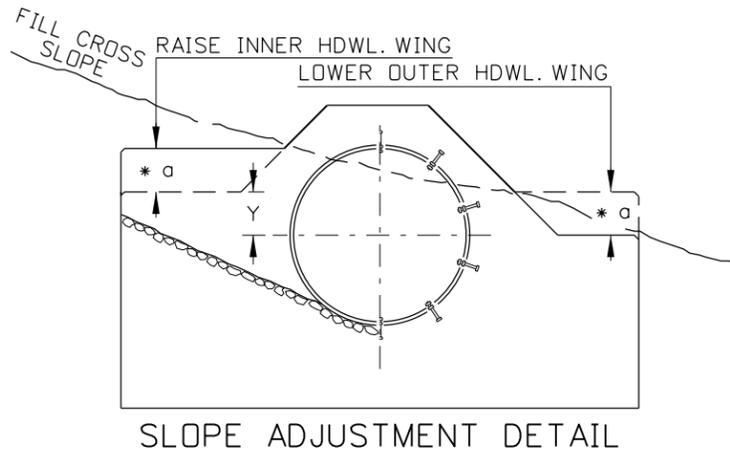
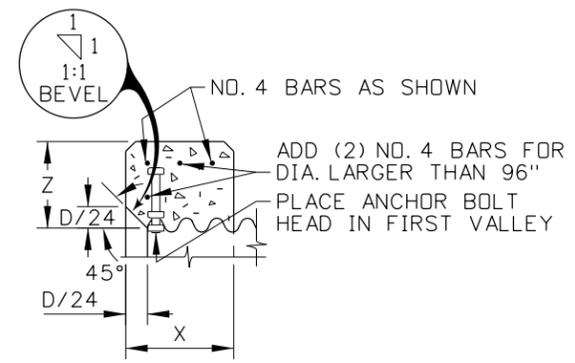
* a ADJUST WALL ENDS TO FILL SLOPE. WHEN CULVERT IS SKEWED TO EMBANKMENT, SLOPE THE ANGLE OF THE HEADWALL TO MEET THE HIGH SIDE.



DIMENSION TABLE						
DIA. (INCHES)	C (INCHES)	V (INCHES)	W (INCHES)	X (INCHES)	Y (INCHES)	Z (INCHES)
18	24	36	4	8	5	8
24	24	48	5	9	6	9
30	24	60	6	9	8	9
36	24	54	11	10	9	10
42	24	63	13	10	11	10
48	24	72	14	10	12	10
54	24	81	15	11	14	11
60	24	90	16	11	15	11
72	36	108	19	11	18	11
84	36	126	21	11	21	11
96	36	144	24	12	24	12
108	36	162	27	14	27	14
120	36	180	30	15	30	15
144	36	216	36	18	36	18
180	36	270	45	23	45	23



INLET STRUCTURE (CULVERT SIZES 18" TO LESS THAN 36" DIA.)



SUMMARY OF QUANTITIES					
DIA. (INCHES)	CONCRETE (CU. YD.)	METAL REINF. (LBS.)	DIA. (INCHES) CON'T.	CONCRETE (CU. YD.) CON'T.	METAL REINF. (LBS.) CON'T.
18	0.6	45	72	4.1	435
24	0.9	65	84	5.6	535
30	1.2	85	96	6.9	640
36	1.2	75	108	9.8	795
42	1.4	90	120	12.5	955
48	1.7	105	144	20.3	1,255
54	2.3	125	180	37.6	1,820
60	2.6	145			

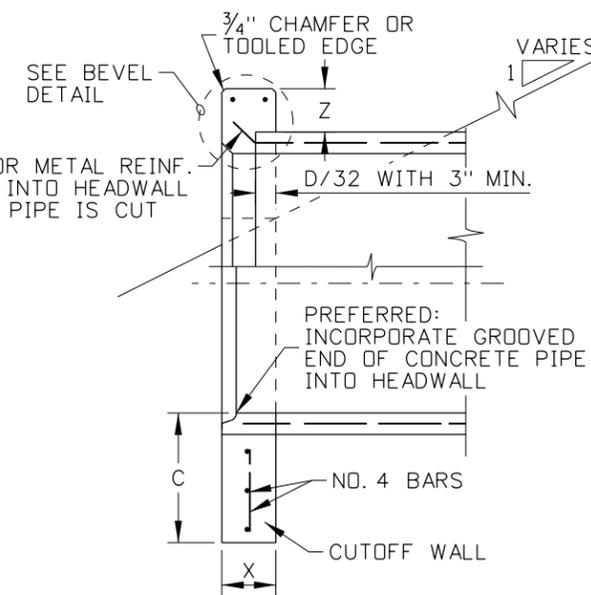
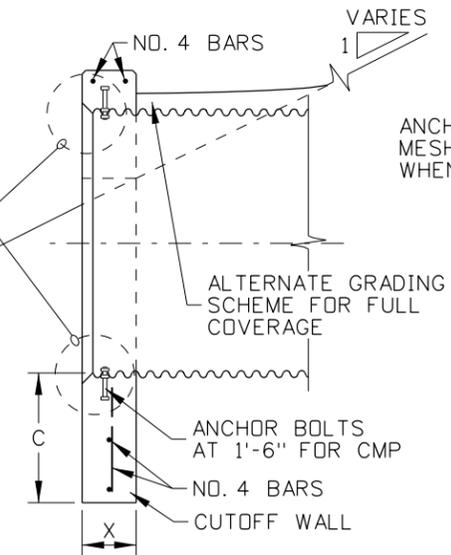
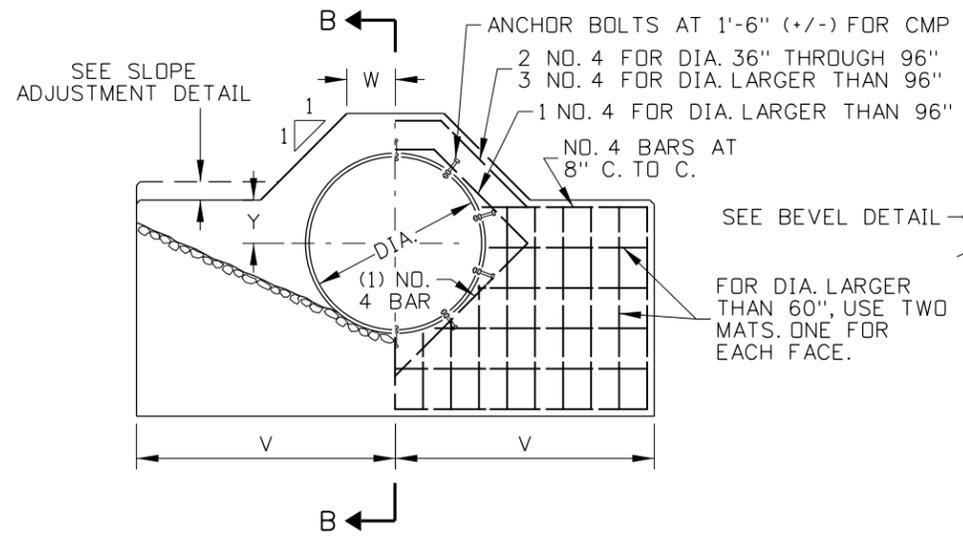
NOTE: QUANTITIES SHOWN ARE FOR CORR. METAL PIPE (CMP)

NOTES

- ENSURE THAT ANCHOR BOLT AND NUT MATERIAL CONFORMS TO ASTM A307. GALVANIZE BOLTS AND NUTS AFTER FABRICATION IN ACCORDANCE WITH AASHTO M 232. ANCHOR BOLTS ARE NOT REQUIRED FOR CONCRETE PIPE.
- THE DEPTH OF THE CUTOFF WALL SHOWN MAY BE REDUCED IF ROCK IS ENCOUNTERED AT A HIGHER ELEVATION.
- TO PERMIT THE PLACEMENT AND TAMPING OF BACKFILL MATERIAL BETWEEN MULTIPLE PIPES, PROVIDE A CLEAR SPACE OF ONE-HALF THE DIAMETER OF THE LARGER PIPE. ENSURE THAT THE CLEAR SPACE DOES NOT EXCEED 3 FEET.
- WHEN USING PERVIOUS BEDDING AND BACKFILL MATERIAL, PREVENT SEEPAGE AND PIPING BY PLACING IMPERVIOUS MATERIAL AT THE INLET. CUTOFF COLLARS MAY BE USED INSTEAD OF IMPERVIOUS MATERIAL.
- USE ENTRANCE LOSS COEFFICIENT $K_e=0.2$ FOR BEVELED ENTRANCE.
- WHEN CULVERT IS SKEWED TO EMBANKMENT, THE EMBANKMENT MAY BE CONTOURED AS SHOWN.
- COVER REINFORCING STEEL WITH A MINIMUM CONCRETE DEPTH OF 2".
- ALL EDGES TO HAVE 3/4" CHAMFER OR TOOLED EDGES.
- THIS INLET IS TO BE USED ONLY OUTSIDE OF THE CLEAR ZONE, OR BEHIND GUARDRAIL.
- NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 17, 2012



INLET STRUCTURE (CULVERT SIZES 36" TO 180" DIA.)

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	01-97	MSM					
2	11-00	MSM					
3	07-02	MSM					
4	03-05	MSM					
5	12-12	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 609-1_1212.dgn

DRAWING DATE: JANUARY, 1989

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

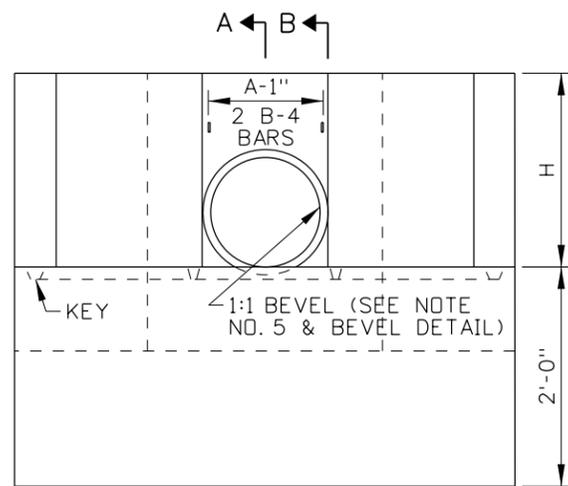
STANDARD DRAWING

CULVERT INLET HEADWALL

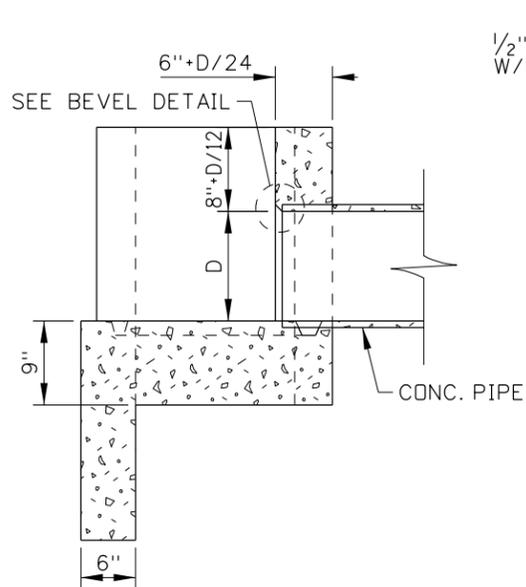
English

STANDARD DRAWING NO. 609-1

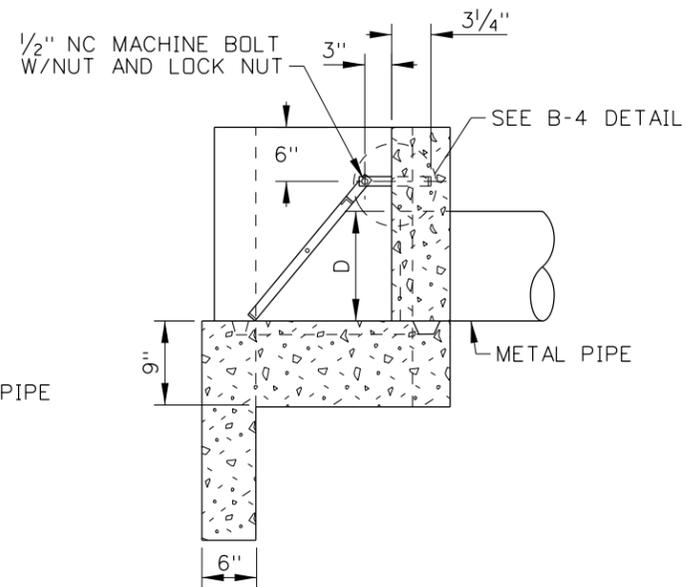
SHEET 1 OF 1



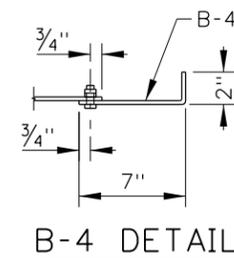
ELEVATION



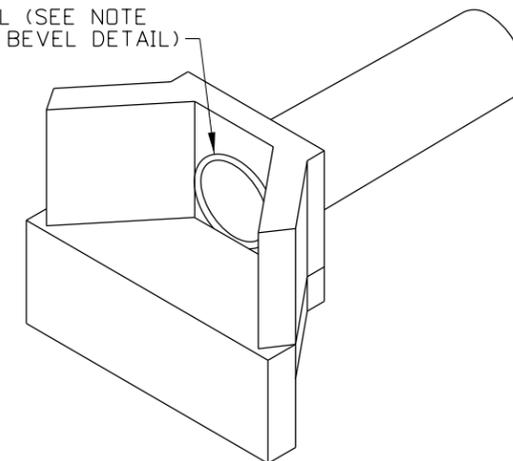
SECTION A-A



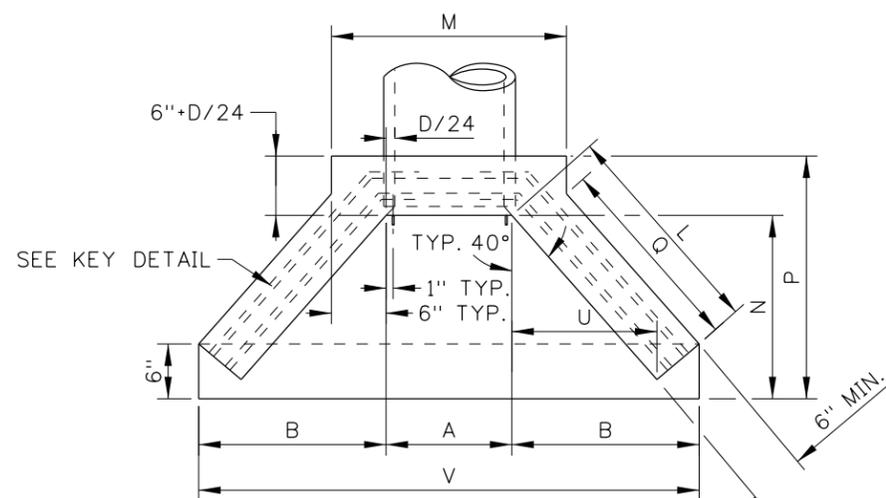
SECTION B-B



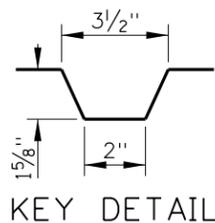
1:1 BEVEL (SEE NOTE NO. 5 & BEVEL DETAIL)



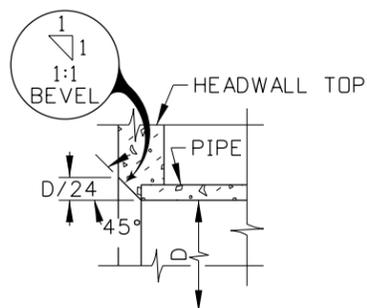
ISOMETRIC VIEW



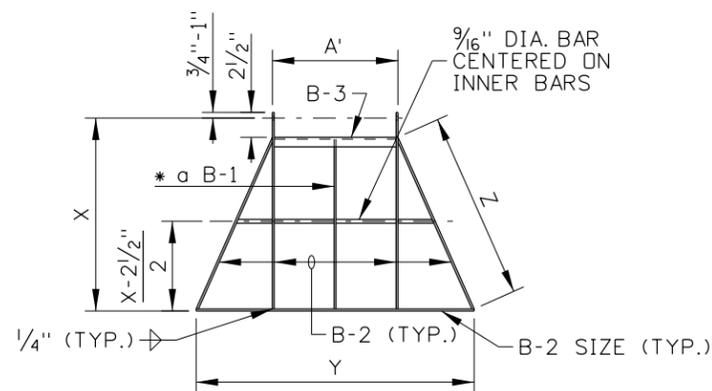
PLAN



KEY DETAIL



BEVEL DETAIL



* a BARS SHALL BE EQUALLY SPACED IN GRATE NOT TO EXCEED 8" CENTER TO CENTER OR LESS THAN 6" CENTER TO CENTER.

INLET GRATE DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-64		6	12-92	TMR		
2	02-68		7	10-01	MSM		
3	09-68		8	03-05	MSM		
4	10-69						
5	03-92	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 609-2_0305.dgn
 DRAWING DATE: APRIL, 1961

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING
CONCRETE HEADWALL FOR SINGLE PIPE CULVERT
 REQUIRES SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

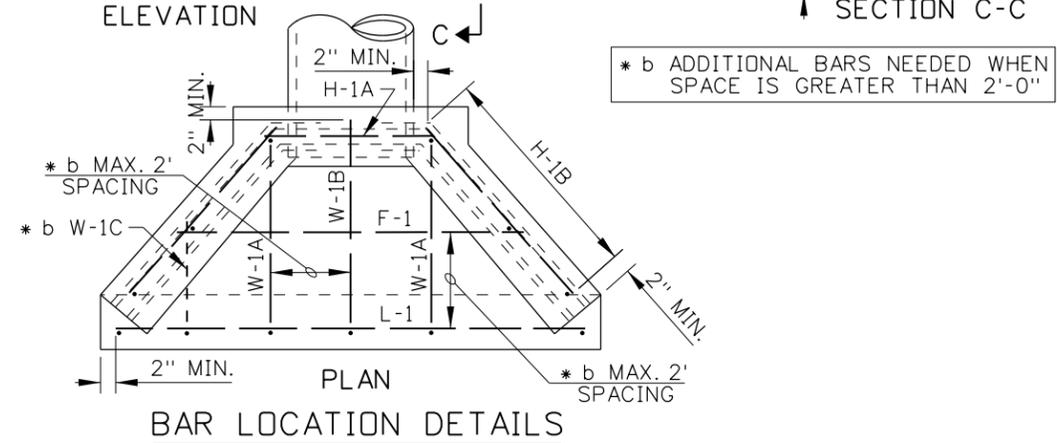
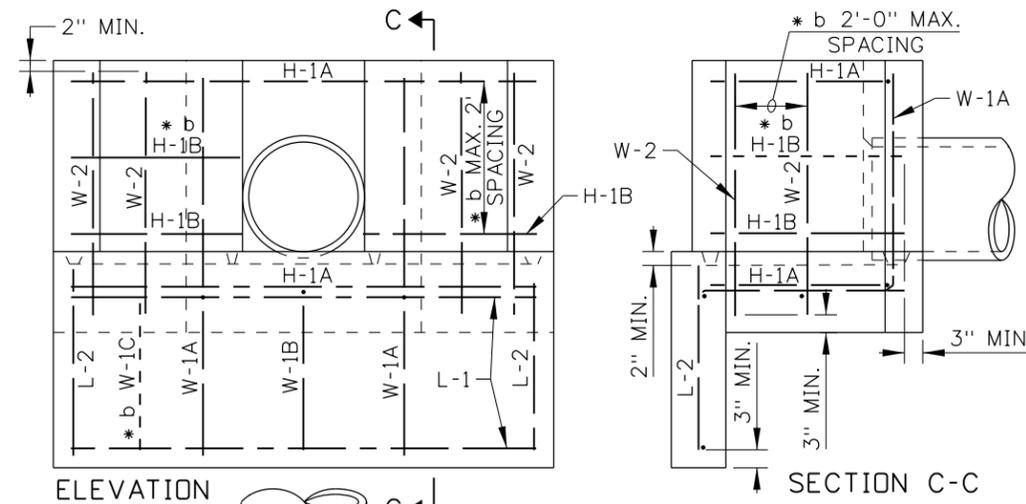
English

STANDARD DRAWING NO. **609-2**

SHEET 1 OF 2

ORIGINAL SIGNED BY: MILDRED L. MILLER
 DATE ORIGINAL SIGNED: MARCH 4, 2005

METAL REINFORCEMENT TABLE			
MARK	LOCATION	BAR SIZE	SKETCH
F-1	FLOOR	NO. 4	
L-1	TOP & BOTOM OF INLET LIP IN FLOOR	NO. 4	
H-1A	HORIZ. IN TOP OF WING WALL & IN FLOOR BACK WALL	NO. 4	
H-1B	HORIZ. IN WING WALL BETWEEN H-1As (PAIRS ONLY)	NO. 4	
W-1A	EACH SIDE OF PIPE IN BACKWALL, FLOOR, & INLET LIP	NO. 4	
W-1B	IN FLOOR, & INLET LIP	NO. 4	
W-1C	IN FLOOR, & INLET LIP	NO. 4	
L-2	VERTICAL IN FLOOR, & INLET LIP	NO. 4	
W-2	VERTICAL IN WING WALLS	NO. 4	



NOMINAL SIZE DIA. (IN.)	CONCRETE (C.Y.)			
	WING & BCKWL.	FLOOR	LIP	TOTAL
12	0.2	0.3	0.1	0.6
15	0.3	0.3	0.1	0.7
18	0.3	0.4	0.2	0.9
21	0.4	0.5	0.2	1.1
24	0.5	0.6	0.2	1.3
30	0.8	0.8	0.2	1.8
36	1.0	1.0	0.3	2.3
42	1.3	1.3	0.3	2.9

NOMINAL SIZE DIA. (IN.)	GRATE DIMENSION & MATERIALS TABLE							
	IN INCHES							
	DIMENSIONS				BAR SIZES			
	A'	* c X	Y	Z	B-1	B-2	B-3	B-4
12	12	19 1/4	29 1/2	18 7/8	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
15	15 1/4	24	39 1/2	24 3/4	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
18	18 1/2	28	46 1/2	29	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
21	21 3/4	33	55 3/4	35	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
24	25	37 1/2	66 1/2	40 5/8	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
30	31 1/2	46 3/4	81 1/2	50 7/8	1 1/4 x 1/4	1 1/2 x 1/4	1 1/2 x 1 1/2 x 1/4	1 1/2 x 1/4 x 9
36	38	56	98	61 1/8	1 1/2 x 1/4	1 3/4 x 1/4	1 3/4 x 1 3/4 x 1/4	1 3/4 x 1/4 x 9
42	44 1/2	65	116	72	1 3/4 x 1/4	2 1/4 x 3/8	2 1/4 x 2 1/2 x 3/8	2 1/4 x 3/8 x 9

* c ALLOW 3/4"-1" EXTRA BAR LENGTH FOR HOLE FABRICATION

HEADWALL DIMENSION TABLE											
NOMINAL SIZE DIA. (IN.)	IN INCHES										
	D/24	A	B	H	L	M	N	P	Q	U	V
12	1/2	13	20 3/8	21	24 5/8	25	21	27 1/2	22 1/2	15 7/8	53 3/4
15	5/8	16 1/4	23 3/8	24 1/4	28 7/8	28 1/4	24 1/4	30 7/8	26 5/8	18 5/8	62 1/2
18	3/4	19 1/2	25 5/8	27 1/2	33 3/8	31 1/2	27 1/2	34 1/4	30 1/8	21 1/4	71 1/4
21	7/8	22 3/4	28 5/8	30 3/4	37 3/8	34 3/4	30 3/4	37 5/8	35 1/8	24	80
24	1	26	31 3/8	34	41 5/8	38	34	41	39 3/8	26 3/4	88 3/4
30	1 1/4	32 1/2	36 3/4	40 1/2	50 7/8	44 1/2	40 1/2	47 3/4	47 1/8	32 1/4	106
36	1 1/2	39	42 1/4	47	58 5/8	51	47	54 1/2	56 3/8	37 5/8	123 1/2
42	1 3/4	45 1/2	47 5/8	53 1/2	67 7/8	57 1/2	53 1/2	61 1/4	64 7/8	43 3/8	140 3/4

METAL REINFORCEMENT TABLE																
BAR	NOMINAL PIPE SIZE DIAMETER (IN.)															
	12		15		18		21		24		30		36		42	
	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.
F-1	1	35 3/4	1	41 1/2	1	49	1	53 1/2	1	58	1	70 3/4	1	83	2	79/109
H-1A	2	64	2	76	2	87 3/4	2	104	2	112	2	135	2	158	2	182
H-1B	2	25	2	30	4	34	4	38	4	43	4	52	4	58	6	67
L-1	2	49	2	59	2	67	2	76	2	84 3/4	2	102	2	119	2	136 3/4
L-2	2	19	2	19	2	19	2	19	2	19	2	19	2	19	2	19
W-1A	2	61 3/4	2	68 3/4	2	74 3/4	2	81 1/2	2	87 1/2	2	100 1/2	2	114	2	127
W-1B	0	N/A	0	N/A	0	N/A	1	49	1	53	1	59	1	62	1	68
W-1C	0	N/A	0	N/A	2	34	2	35	2	36	2	40	2	43	2	47
W-2	4	25	4	28 1/2	4	32	4	35 1/4	4	38 1/4	6	44 3/4	6	51	6	57 1/2
TOT. WT.	32 lbs.		37 lbs.		49 lbs.		58 lbs.		62 lbs.		78 lbs.		89 lbs.		113 lbs.	

NOTES

- THIS HEADWALL SHALL BE USED ONLY WHEN PROTECTED BY GUARDRAIL OR INSTALLED OUTSIDE THE CLEAR ZONE.
- CAST-IN-PLACE HEADWALLS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES, OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE METAL REINFORCEMENT SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND 3" MINIMUM COVER IF CAST AGAINST EARTH.
- ALL EDGES TO HAVE 3/4" CHAMFER OR TOOLED EDGES.
- ALL PIPE CULVERTS WITH A CONCRETE HEADWALL SHALL HAVE THE INLET HEADWALLS BEVELED. USE ENTRANCE LOSS COEFFICIENT $K_e = 0.2$ FOR BEVELED ENTRANCES.
- THE METAL FOR THE GRATE SHALL MEET THE REQUIREMENTS OF ASTM A 36. WELDING OF THE METAL GRATE SHALL MEET THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1. GRATES FOR INLET HEADWALLS WILL BE REQUIRED ONLY WHEN SHOWN ON THE ROADWAY PLANS. GRATES NEED NOT BE PAINTED OR GALVANIZED.
- USE CONCRETE, METAL, OR PLASTIC PIPE WITH HEADWALL (CONCRETE PIPE SHOWN ON DRAWING).
- NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER DATE ORIGINAL SIGNED: MARCH 4, 2005

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-64		6	12-92	TMR		
2	02-68		7	10-01	MSM		
3	09-68		8	03-05	MSM		
4	10-69						
5	03-92	MSM					

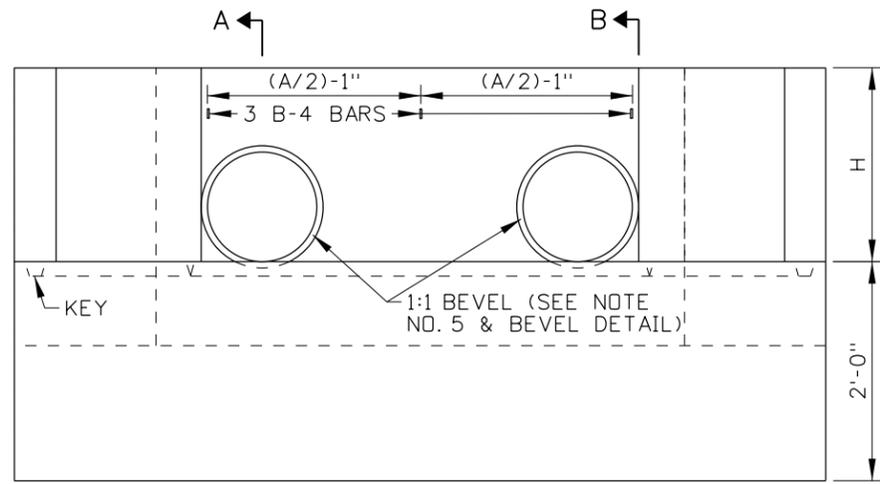
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 609-2_0305.dgn
DRAWING DATE: APRIL, 1961

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

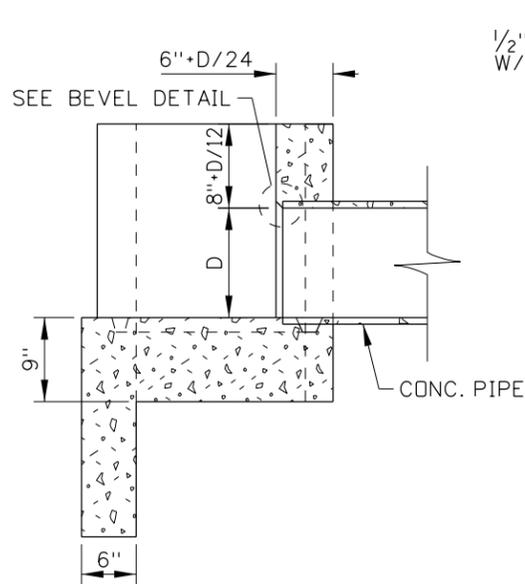
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING
CONCRETE HEADWALL FOR SINGLE PIPE CULVERT
REQUIRES SHEET 1 OF 2

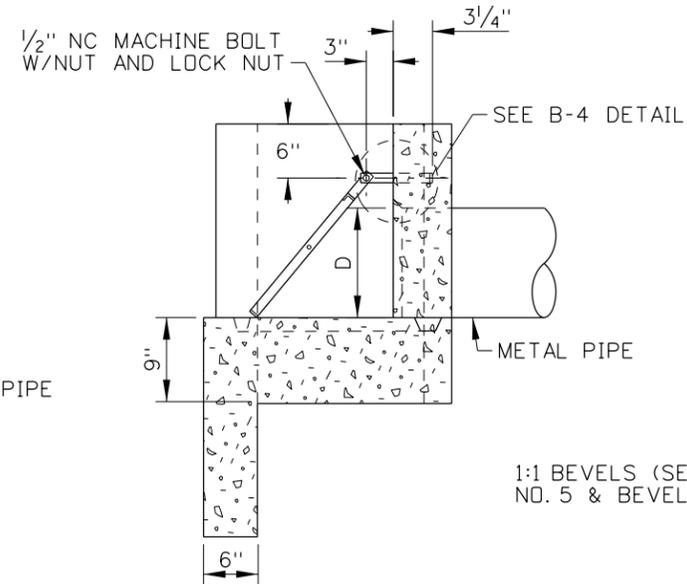
English
STANDARD DRAWING NO. 609-2
SHEET 2 OF 2



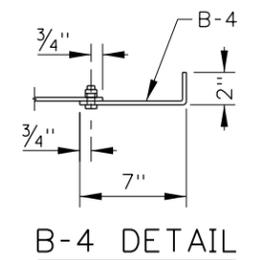
ELEVATION



SECTION A-A

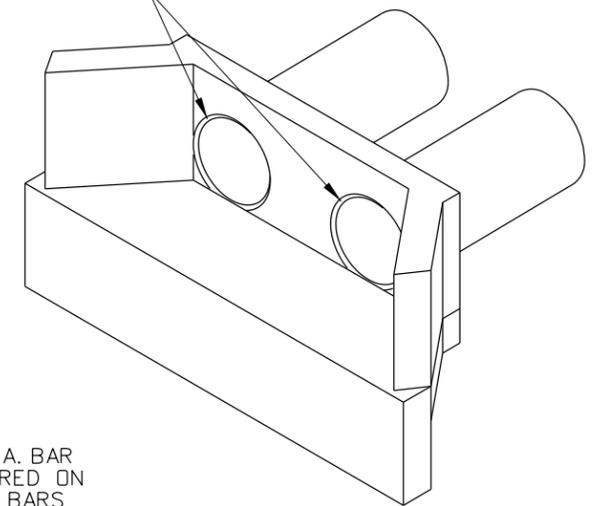


SECTION B-B

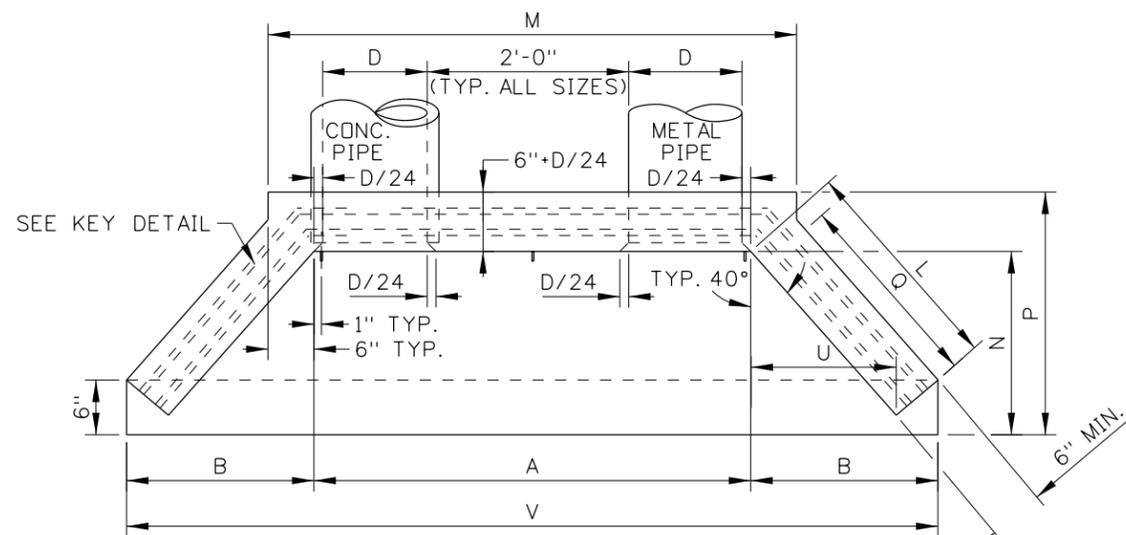


B-4 DETAIL

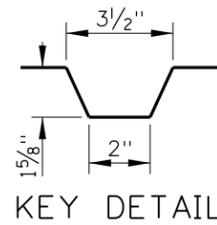
1:1 BEVELS (SEE NOTE NO. 5 & BEVEL DETAIL)



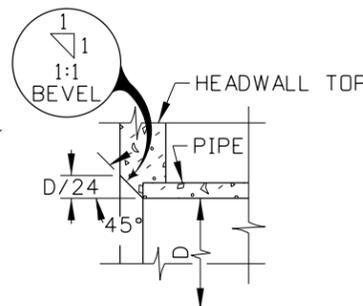
ISOMETRIC VIEW



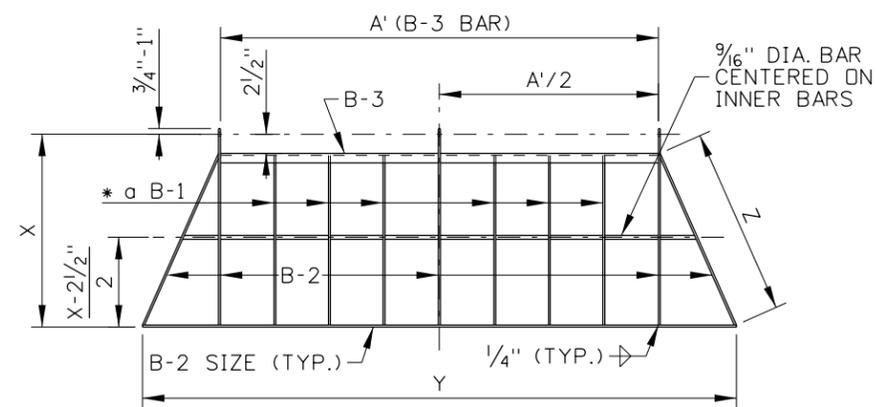
PLAN



KEY DETAIL



BEVEL DETAIL



INLET GRATE DETAIL

* o BARS SHALL BE EQUALLY SPACED IN GRATE NOT TO EXCEED 8" CENTER TO CENTER OR LESS THAN 6" CENTER TO CENTER.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-68		6	12-92	TMR		
2	09-68		7	10-01	MSM		
3	10-69		8	06-03	MSM		
4	04-90	GB	9	03-05	MSM		
5	03-92	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 609-3_0305.dgn
 DRAWING DATE: MAY, 1964

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

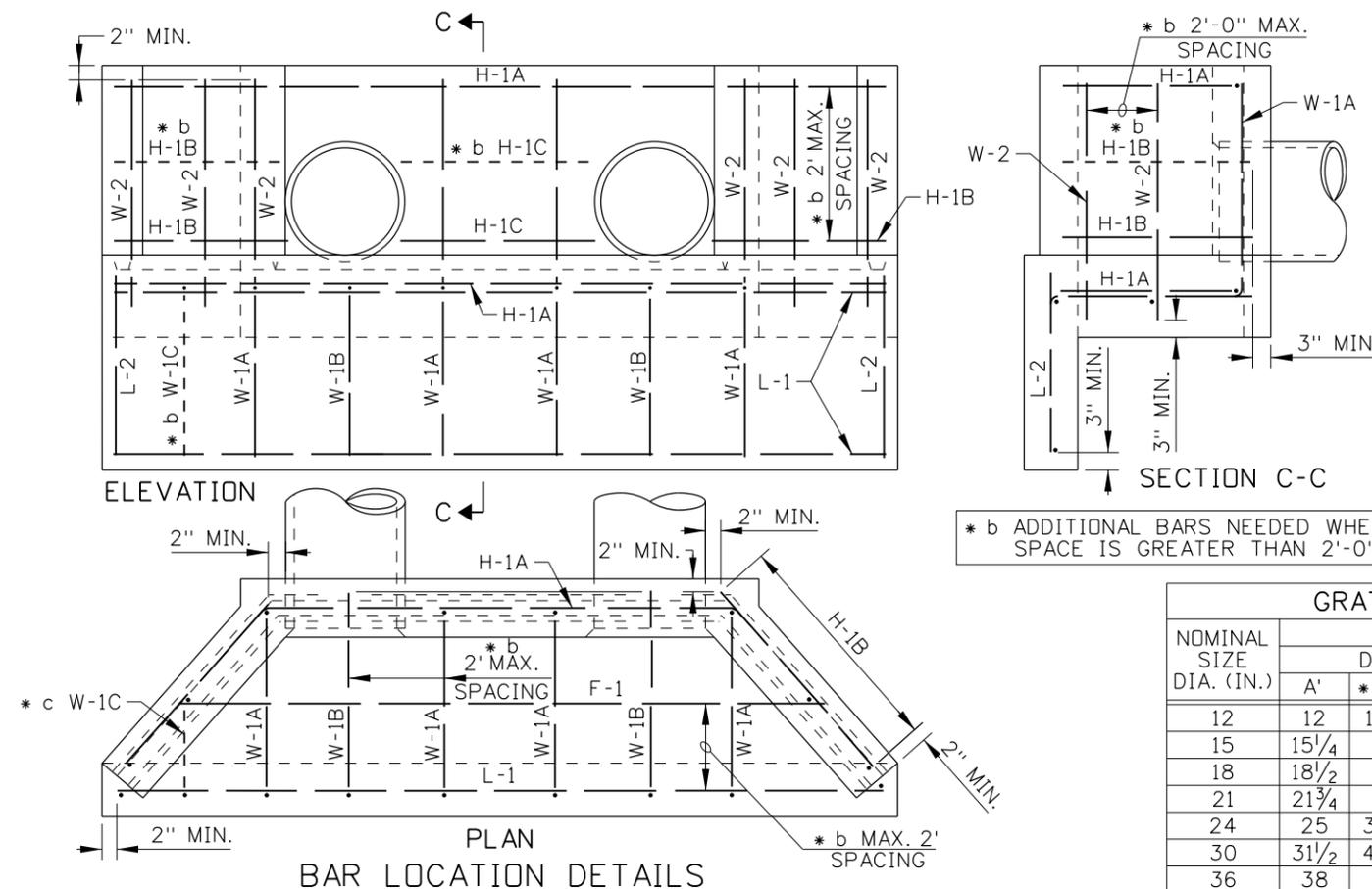
STANDARD DRAWING
CONCRETE HEADWALL FOR TWIN PIPE CULVERTS
 REQUIRES SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English
 STANDARD DRAWING NO. **609-3**
 SHEET 1 OF 2

ORIGINAL SIGNED BY: MILDRED L. MILLER
 DATE ORIGINAL SIGNED: MARCH 4, 2005

METAL REINFORCEMENT TABLE			
MARK	LOCATION	BAR SIZE	SKETCH
F-1	FLOOR	NO. 4	
H-1A	HORIZ. IN TOP OF WING WALL & IN FLOOR BACKWALL	NO. 4	
H-1B	HORIZ. IN WING WALL BETWEEN H-1As' (PAIRS)	NO. 4	
H-2	VERT. IN BCKWL. WALL BETWEEN AROUND PIPE	NO. 4	
L-1	TOP & BOTOM OF INLET LIP IN FLOOR	NO. 4	
L-2	VERTICAL IN FLOOR, & INLET LIP	NO. 4	
W-1A	EACH SIDE OF PIPE IN BACKWALL, FLOOR, & INLET LIP	NO. 4	
W-1B	IN FLOOR, & INLET LIP, UNDER PIPES	NO. 4	
W-1C	IN FLOOR, & INLET LIP	NO. 4	
W-2	VERTICAL IN WING WALLS	NO. 4	



NOMINAL SIZE DIA. (IN.)	CONCRETE (C.Y.)			
	WING & BCKWL.	FLOOR	LIP	TOTAL
12	0.3	0.4	0.2	0.9
15	0.4	0.6	0.2	1.2
18	0.5	0.7	0.2	1.4
21	0.6	0.8	0.3	1.7
24	0.7	1.0	0.3	2.0
30	1.0	1.3	0.3	2.6
36	1.3	1.7	0.4	3.4
42	1.7	2.1	0.5	4.3

NOMINAL SIZE DIA. (IN.)	GRATE DIMENSION & MATERIALS TABLE							
	IN INCHES							
	DIMENSIONS				BAR SIZES			
	A'	* c X	Y	Z	B-1	B-2	B-3	B-4
12	12	19 1/4	29 1/2	18 7/8	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
15	15 1/4	24	39 1/2	24 3/4	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
18	18 1/2	28	46 1/2	29	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
21	21 3/4	33	55 3/4	35	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
24	25	37 1/2	66 1/2	40 5/8	1 x 1/4	1 1/4 x 1/4	1 1/4 x 1 1/4 x 1/4	1 x 1/4 x 9
30	31 1/2	46 3/4	81 1/2	50 7/8	1 1/4 x 1/4	1 1/2 x 1/4	1 1/2 x 1 1/2 x 1/4	1 1/2 x 1/4 x 9
36	38	56	98	61 1/8	1 1/2 x 1/4	1 3/4 x 1/4	1 3/4 x 1 3/4 x 1/4	1 3/4 x 1/4 x 9
42	44 1/2	65	116	72	1 3/4 x 1/4	2 1/4 x 3/8	2 1/4 x 2 1/2 x 3/8	2 1/4 x 3/8 x 9

* c ALLOW 3/4"-1" EXTRA BAR LENGTH FOR HOLE FABRICATION

NOTES

- THIS HEADWALL SHALL BE USED ONLY WHEN PROTECTED BY GUARDRAIL OR INSTALLED OUTSIDE THE CLEAR ZONE.
- CAST-IN-PLACE HEADWALLS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES, OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- THE METAL REINFORCEMENT SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND 3" MINIMUM COVER IF CAST AGAINST EARTH.
- ALL EDGES TO HAVE 3/4" CHAMFER OR TOOLED EDGES.
- ALL PIPE CULVERTS WITH A CONCRETE HEADWALL SHALL HAVE THE INLET HEADWALLS BEVELED. USE ENTRANCE LOSS COEFFICIENT $K_e = 0.2$ FOR BEVELED ENTRANCES.
- THE METAL FOR THE GRATE SHALL MEET THE REQUIREMENTS OF ASTM A 36. WELDING OF THE METAL GRATE SHALL MEET THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1. GRATES FOR INLET HEADWALLS WILL BE REQUIRED ONLY WHEN SHOWN ON THE ROADWAY PLANS. GRATES NEED NOT BE PAINTED OR GALVANIZED.
- USE CONCRETE, METAL, OR PLASTIC PIPE WITH HEADWALL (CONCRETE PIPE SHOWN ON DRAWING).
- NOT TO SCALE.

NOMINAL SIZE DIA. (IN.)	HEADWALL DIMENSION TABLE										
	IN INCHES										
	D/24	A	B	H	L	M	N	P	Q	U	V
12	1/2	49	20 3/8	21	24 5/8	61	21	27 1/2	22 1/2	15 7/8	89 3/4
15	5/8	55 1/4	23 3/8	24 1/4	28 7/8	67 1/4	24 1/4	30 7/8	26 5/8	18 5/8	101 1/2
18	3/4	61 1/2	25 3/8	27 1/2	33 3/8	73 1/2	27 1/2	34 1/4	30 3/8	21 1/4	113 1/4
21	7/8	67 3/4	28 5/8	30 3/4	37 3/8	79 3/4	30 3/4	37 5/8	35 1/8	24	125
24	1	74	31 3/8	34	41 5/8	86	34	41	39 3/8	26 3/4	136 3/4
30	1 1/4	86 1/2	36 3/4	40 1/2	50 1/8	98 1/2	40 1/2	47 3/4	47 7/8	32 1/4	160
36	1 1/2	99	42 1/4	47	58 5/8	111	47	54 1/2	56 3/8	37 5/8	183 1/2
42	1 3/4	111 3/4	47 5/8	53 1/2	67 7/8	123 1/2	53 1/2	61 1/4	64 7/8	43 3/8	207

BAR	METAL REINFORCEMENT TABLE															
	NOMINAL PIPE SIZE DIAMETER (IN.)															
	12		15		18		21		24		30		36		42	
	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.
F-1	1	71 7/8	1	80	1	90	1	98	1	106	1	124	1	143	2	145/175
H-1A	2	100	2	115	2	129	2	149	2	160	2	189	2	218	2	248
H-1B	2	25	2	30	4	34	4	38	4	43	4	52	4	58	6	67
H-1C	1	22	1	28	2	22/25	2	22/23	2	22/28	2	22/32	2	21/36	3	29/20/40
L-1	2	85 7/8	2	100	2	109	2	121	2	132 3/4	2	156	2	179	2	202
L-2	2	19	2	19	2	19	2	19	2	19	2	19	2	19	2	19
W-1A	4	61 3/4	4	68 3/4	4	74 3/4	4	81 1/2	3	87 1/2	3	100 1/2	4	114	4	127
W-1B	0	N/A	0	N/A	2	N/A	2	49	2	53	2	59	2	66	2	68
W-1C	0	N/A	0	N/A	2	34	2	34	2	35	2	40	2	43	2	47
W-2	4	25	4	28 1/2	4	32	4	35 1/4	4	38 1/4	6	44 3/4	6	51	6	57 1/2
TOT. WT.	51 lbs.		58 lbs.		72 lbs.		81 lbs.		86 lbs.		105 lbs.		126 lbs.		158 lbs.	

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-68		6	12-92	TMR		
2	09-68		7	10-01	MSM		
3	10-69		8	06-03	MSM		
4	04-90	GB	9	03-05	MSM		
5	03-92	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 609-3_0305.dgn
 DRAWING DATE: MAY, 1964

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING

CONCRETE HEADWALL FOR TWIN PIPE CULVERTS

REQUIRES SHEET 1 OF 2

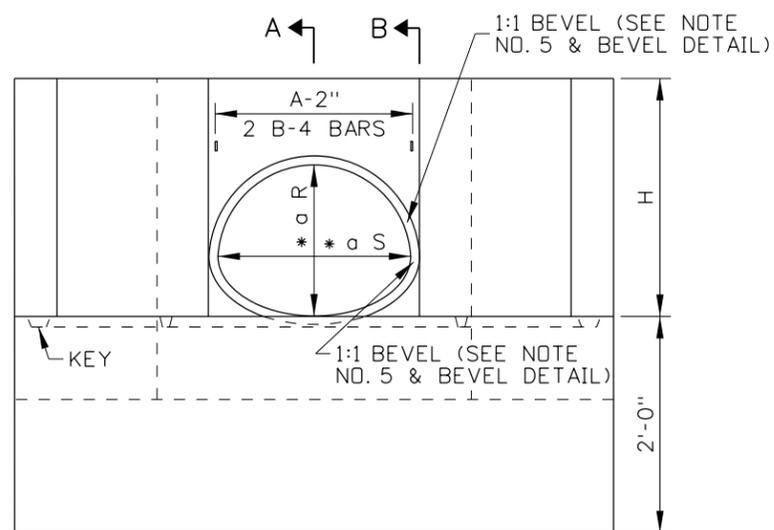
English

STANDARD DRAWING NO. **609-3**

SHEET 2 OF 2

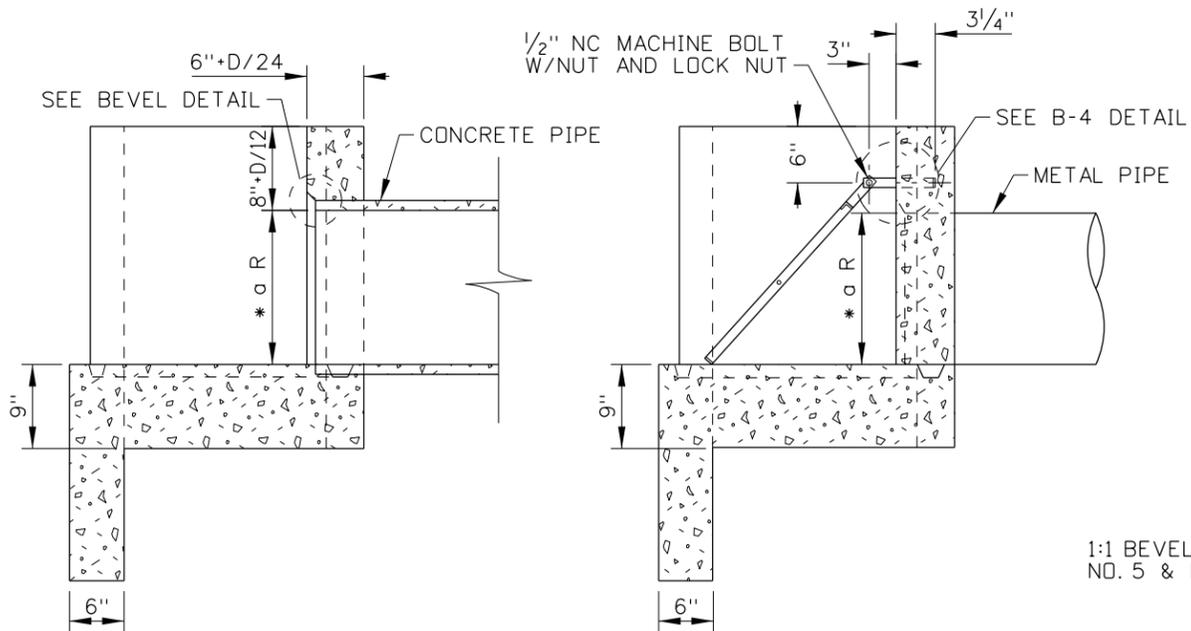
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER
 DATE ORIGINAL SIGNED: MARCH 4, 2005



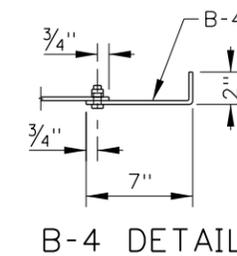
ELEVATION

* a S=SPAN & R=RISE:
 "D/24" VALUE=((S+R)/2)/24
 "D/12" VALUE=((S+R)/2)/12

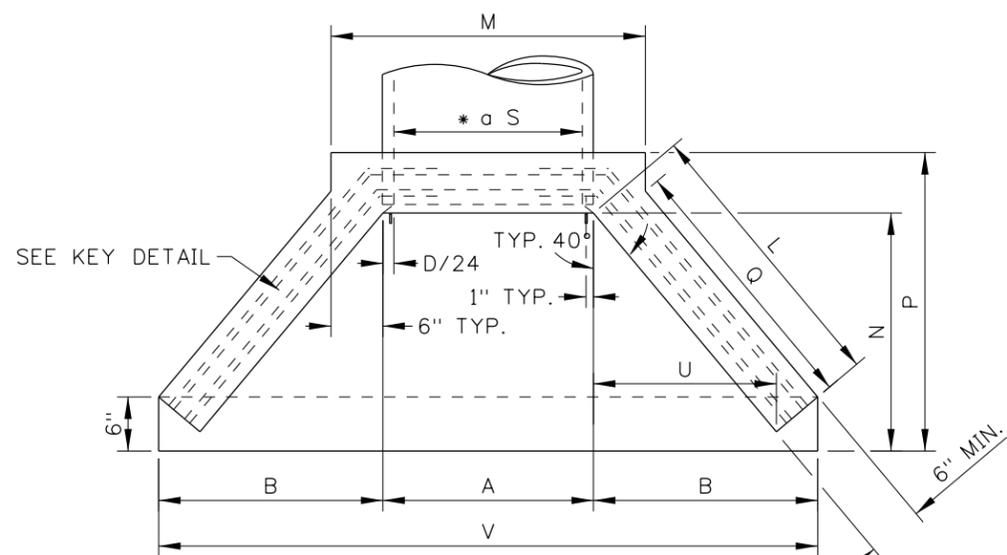


SECTION A-A

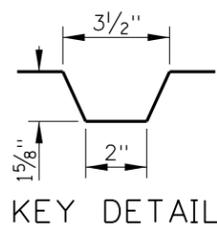
SECTION B-B



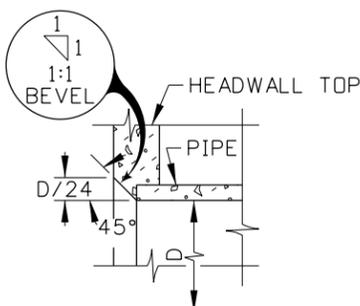
B-4 DETAIL



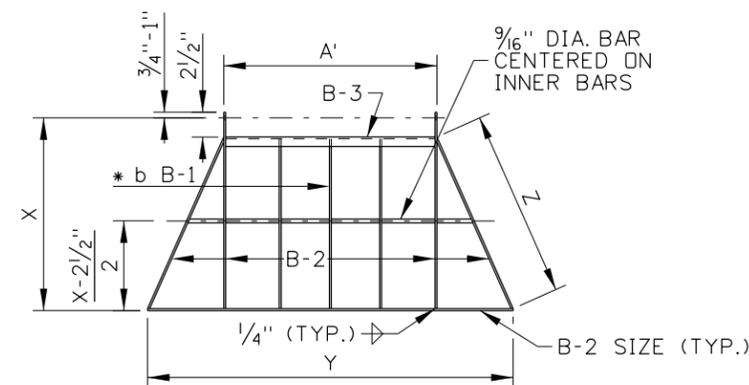
PLAN



KEY DETAIL



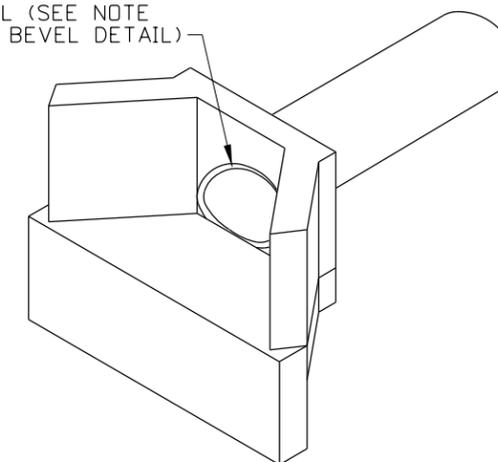
BEVEL DETAIL



* b BARS SHALL BE EQUALLY SPACED IN GRATE
 NOT TO EXCEED 8" CENTER TO CENTER
 OR LESS THAN 6" CENTER TO CENTER.

INLET GRATE DETAIL

1:1 BEVEL (SEE NOTE
 NO. 5 & BEVEL DETAIL)



ISOMETRIC VIEW

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-69		6	10-01	MSM		
2	03-92	MSM	7	06-03	MSM		
3	12-92	TMR	8	03-05	MSM		
4	05-95	MSM					
5	04-99	MSM					

SCALES SHOWN
 ARE FOR 11" X 17"
 PRINTS ONLY

CADD FILE NAME:
 609-4_0305.dgn

DRAWING DATE:
 AUGUST, 1968

**IDAHO
 TRANSPORTATION
 DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING

**CONCRETE HEADWALL
 FOR ARCH PIPE CULVERT**

REQUIRES SHEET 2 OF 2

ORIGINAL STORED
 AT: ITD,
 Headquarters
 3311 West State
 Boise, Idaho

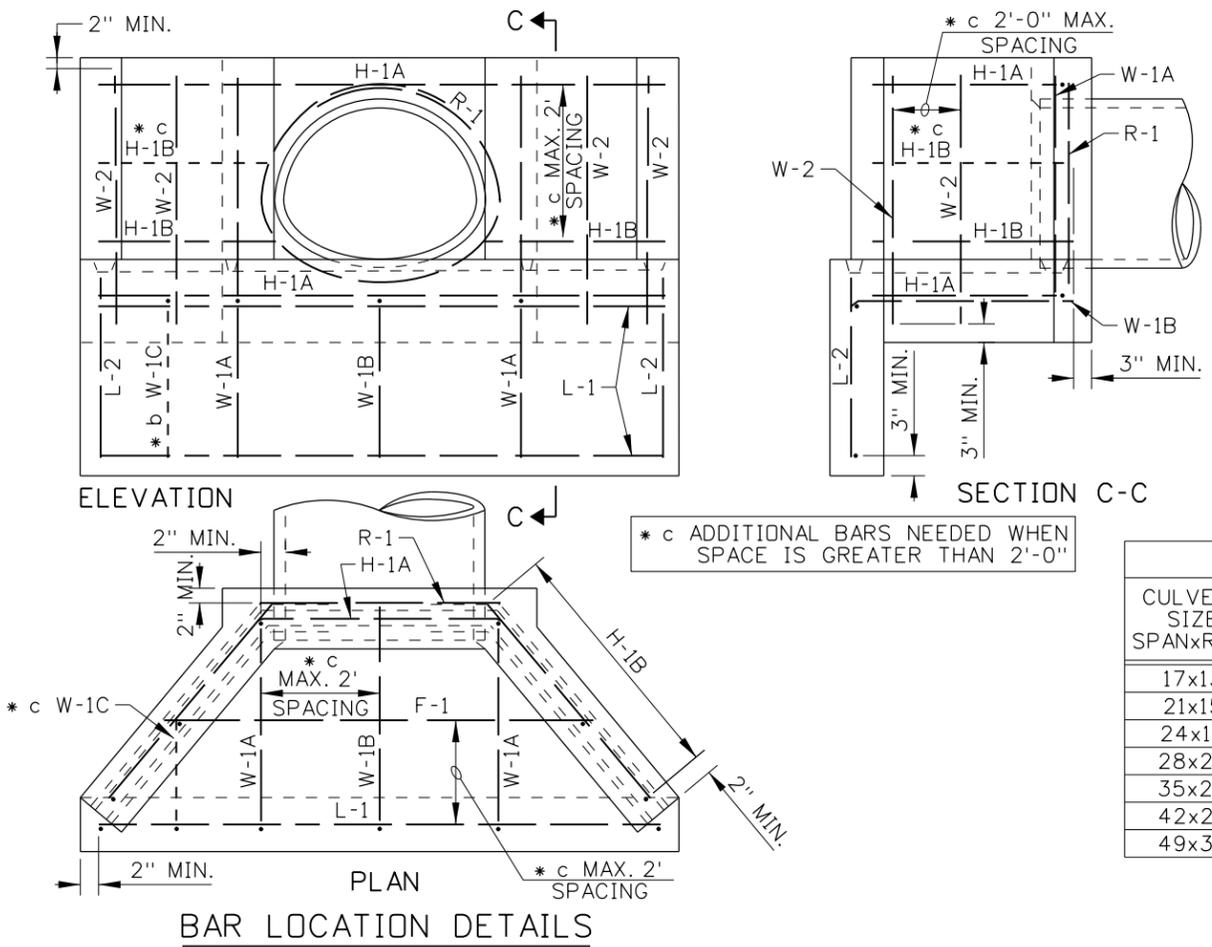
English

STANDARD DRAWING NO.
609-4

SHEET 1 OF 2

ORIGINAL SIGNED BY:
 MILFORD L. MILLER
 DATE ORIGINAL SIGNED:
 MARCH 4, 2005

METAL REINFORCEMENT TABLE			
MARK	LOCATION	BAR SIZE	SKETCH
F-1	FLOOR	NO. 4	
L-1	TOP & BOTOM OF INLET LIP IN FLOOR	NO. 4	
H-1A	HORIZ. IN TOP OF WING WALL & IN FLOOR BACK WALL	NO. 4	
H-1B	HORIZ. IN WING WALL BETWEEN H-1As'	NO. 4	
H-2	VERT. IN BCKWL. WALL BETWEEN AROUND PIPE	NO. 4	
W-1A	EACH SIDE OF PIPE IN BACKWALL, FLOOR, & INLET LIP	NO. 4	
W-1B	IN FLOOR, & INLET LIP	NO. 4	
W-1C	IN FLOOR, & INLET LIP	NO. 4	
L-2	VERTICAL IN FLOOR, & INLET LIP	NO. 4	
W-2	VERTICAL IN WING WALLS	NO. 4	



CULVERT SIZE SPANxRISE	CONCRETE (C.Y.)			
	WING & BCKWL.	FLOOR	LIP	TOTAL
17x13	0.2	0.3	0.2	0.7
21x15	0.3	0.3	0.2	0.8
24x18	0.4	0.4	0.2	1.0
28x20	0.4	0.5	0.2	1.1
35x24	0.5	0.7	0.2	1.4
42x29	0.8	0.9	0.2	1.9
49x33	1.0	1.1	0.3	2.4

CULVERT SIZE SPANxRISE	GRATE DIMENSION & MATERIALS TABLE							
	IN INCHES							
	DIMENSIONS				BAR SIZES			
	A'	* d X	Y	Z	B-1	B-2	B-3	B-4
17x13	17 1/4	21	36 7/8	17 3/4	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
21x15	21 1/2	24 1/8	44 1/2	26 1/2	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
24x18	24 3/4	28 3/4	53 3/8	30 1/8	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
28x20	29	31 7/8	61 1/2	33 1/2	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
35x24	36 1/2	38 1/4	76 3/4	41	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
42x29	43 1/2	46	93	50	1 1/4x1/4	1 1/2x1/4	1 1/2x1 1/2x1/4	1 1/2x1/4x9
49x33	51 1/2	52 1/4	108	57 1/8	1 1/2x1/4	1 3/4x1/4	1 3/4x1 3/4x1/4	1 3/4x1/4x9

* d ALLOW 3/4"-1" EXTRA BAR LENGTH FOR HOLE FABRICATION

HEADWALL DIMENSION TABLE											
CULVERT SIZE SPANxRISE	(S+R)/2/24 D/24	IN INCHES									
		A	B	H	L	M	N	P	Q	U	V
17x13	5/8	18 1/4	21 1/2	22 1/4	26 1/4	30 1/4	22 1/4	28 7/8	24	16 7/8	61 1/4
21x15	3/4	23 3/8	23 3/8	24 1/2	29 1/4	34 1/2	24 1/2	31 1/4	27	18 3/4	69 1/4
24x18	7/8	26 1/8	26 1/8	27 3/4	33 1/2	37 3/4	27 3/4	34 5/8	31 3/8	21 1/2	78
28x20	1	28	28	30	36 3/8	42	30	37	34 1/4	23 3/8	86
35x24	1 1/4	31 3/4	31 3/4	34 1/2	42 1/4	49 1/2	34 1/2	41 3/4	40	27 1/8	101
42x29	1 1/2	36 1/2	36 1/2	40	49 1/2	57	40	47 1/2	47 3/8	31 3/4	118
49x33	1 3/4	40 1/8	40 1/8	44 3/8	55 1/8	64 1/2	44 3/8	52 1/8	53	31 3/4	132 3/4

METAL REINFORCEMENT TABLE														
BAR	NOMINAL PIPE SIZE DIAMETER (IN.)													
	17x13		21x15		24x18		28x20		35x24		42x29		49x33	
	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.	NO.	LGTH.
F-1	1	40 1/2	1	48	1	54	1	60	1	70	1	82	1	96
H-1A	2	74	2	83	2	94	2	105	2	124	2	146	2	165
H-1B	2	25	2	30	4	34	4	38	4	44	4	52	4	58
L-1	2	57	2	65	2	74	2	82	2	97	2	114	2	128
L-2	2	19	2	19	2	19	2	19	2	19	2	19	2	19
R-1	1	72	1	82	1	92	1	102	1	118	1	138	1	153
W-1A	2	61 1/2	2	67 1/2	2	74	2	79 1/2	2	87 1/2	2	98 1/2	2	107
W-1B	0	N/A	2	41 1/2	2	45	2	48	2	52	2	59 1/2	2	62
W-1C	0	N/A	1	N/A	1	32	1	33 1/2	1	36	1	39	2	40
W-2	4	26	4	29 1/2	4	32	4	34	4	38 1/2	6	44	6	48
TOT. WT.	39 lbs.		46 lbs.		58 lbs.		64 lbs.		73 lbs.		90 lbs.		101 lbs.	

NOTES

1. THIS HEADWALL SHALL BE USED ONLY WHEN PROTECTED BY GUARDRAIL OR INSTALLED OUTSIDE THE CLEAR ZONE.
2. CAST-IN-PLACE HEADWALLS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES, OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. THE METAL REINFORCEMENT SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" AND 3" MINIMUM COVER IF CAST AGAINST EARTH.
4. ALL EDGES TO HAVE 3/4" CHAMFER OR TOOLED EDGES.
5. ALL PIPE CULVERTS WITH A CONCRETE HEADWALL SHALL HAVE THE INLET HEADWALLS BEVELED. USE ENTRANCE LOSS COEFFICIENT $K_e = 0.2$ FOR BEVELED ENTRANCES.
6. THE METAL FOR THE GRATE SHALL MEET THE REQUIREMENTS OF ASTM A 36. WELDING OF THE METAL GRATE SHALL MEET THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1. GRATES FOR INLET HEADWALLS WILL BE REQUIRED ONLY WHEN SHOWN ON THE ROADWAY PLANS. GRATES NEED NOT BE PAINTED OR GALVANIZED.
7. USE CONCRETE, METAL, OR PLASTIC PIPE WITH HEADWALL (CONCRETE PIPE SHOWN ON DRAWING).
8. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER DATE ORIGINAL SIGNED: MARCH 4, 2005

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-69		6	10-01	MSM		
2	03-92	MSM	7	06-03	MSM		
3	12-92	TMR	8	03-05	MSM		
4	05-95	MSM					
5	04-99	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 609-4_0305.dgn
DRAWING DATE: AUGUST, 1968

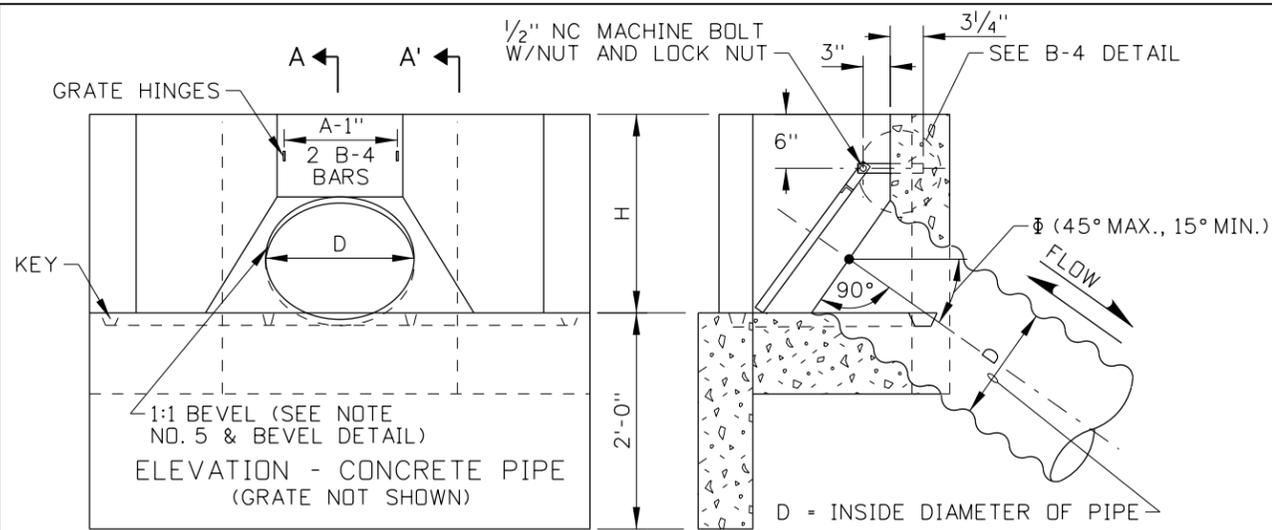
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

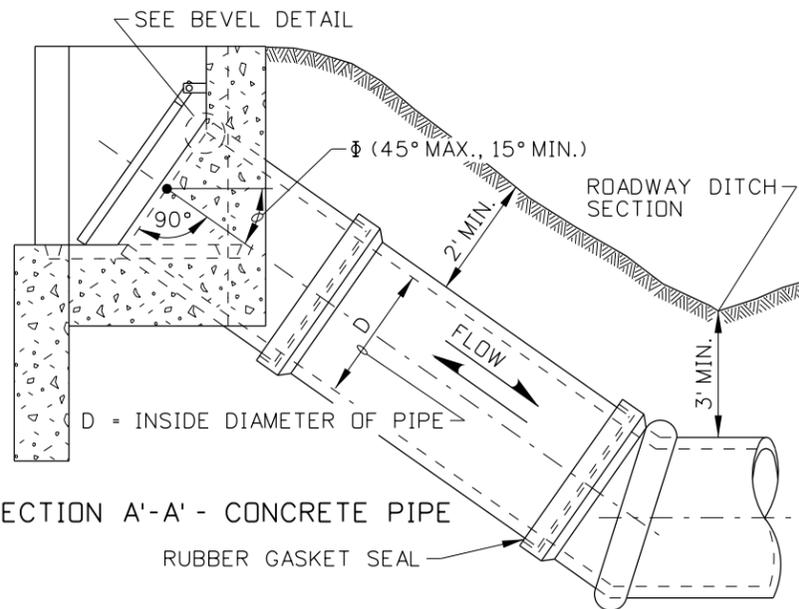
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING
CONCRETE HEADWALL FOR ARCH PIPE CULVERT
REQUIRES SHEET 1 OF 2

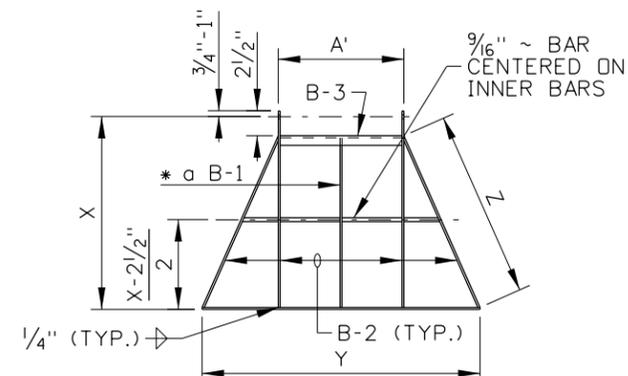
English
STANDARD DRAWING NO.
609-4
SHEET 2 OF 2



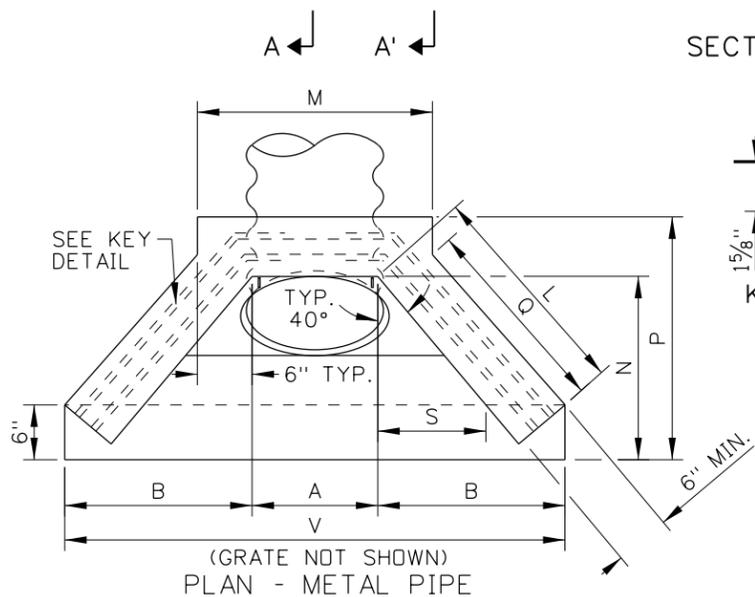
SECTION A-A - METAL PIPE



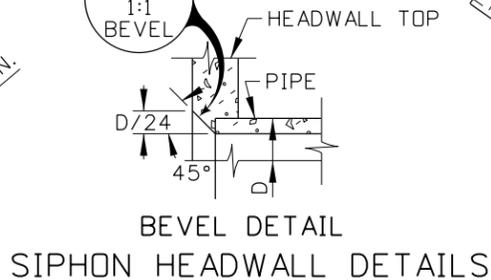
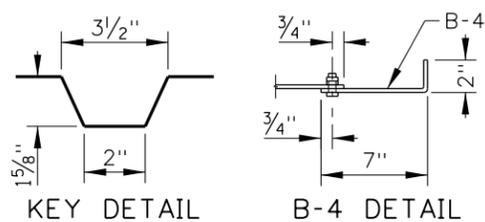
SECTION A'-A' - CONCRETE PIPE



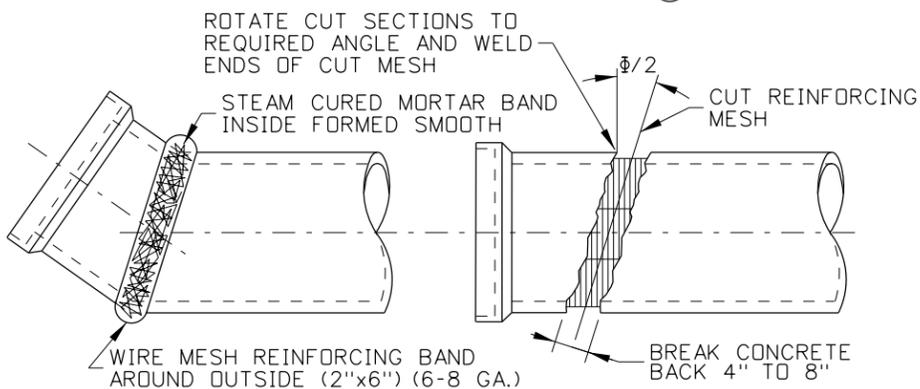
GRATE DETAIL



PLAN - METAL PIPE

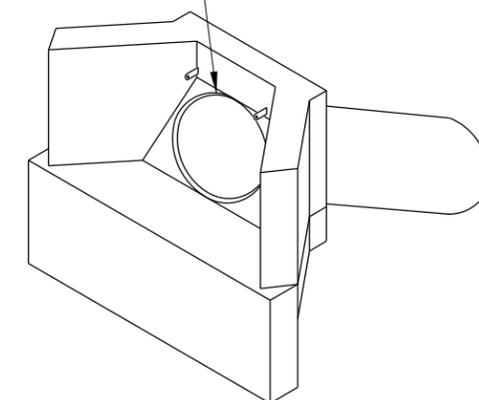


BEVEL DETAIL SIPHON HEADWALL DETAILS

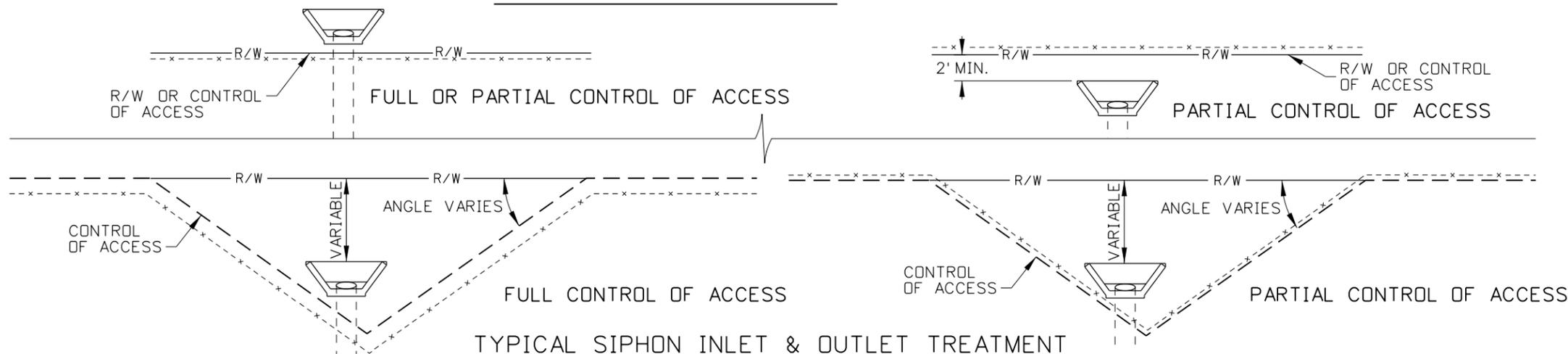


METHOD OF FABRICATING ELBOW

1:1 BEVEL (SEE NOTE NO. 5 & BEVEL DETAIL)



ISOMETRIC VIEW



TYPICAL SIPHON INLET & OUTLET TREATMENT (PRIVATE IRRIGATION SYSTEMS ONLY)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-64		6	06-92	MSM		
2	02-68		7	12-92	TMR		
3	09-68		8	06-02	MSM		
4	10-69		9	12-05	MSM		
5	04-90	GB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 609-5_1205.dgn
 DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
 BOISE IDAHO

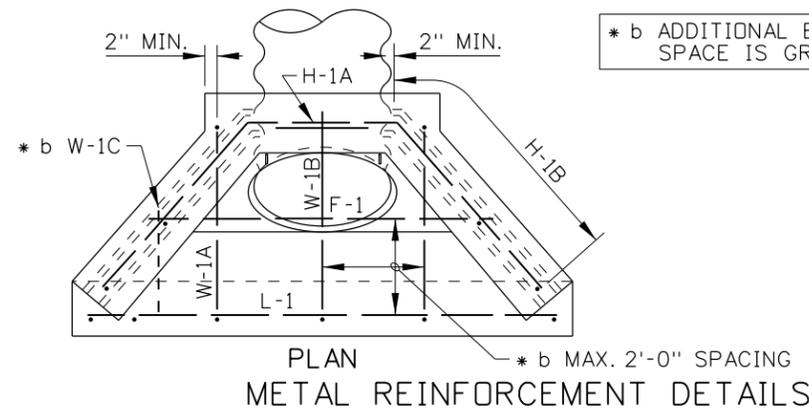
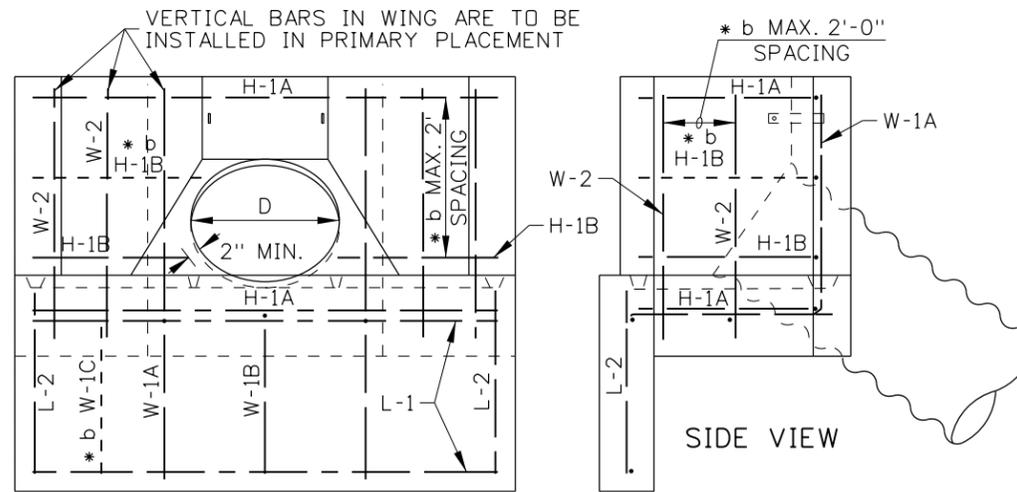
ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING
CONCRETE HEADWALL FOR SIPHONS
 REQUIRES SHEET 2 OF 2

English
 STANDARD DRAWING NO.
609-5
 SHEET 1 OF 2

ORIGINAL SIGNED BY:
 MILFORD L. MILLER
 DATE ORIGINAL SIGNED:
 DECEMBER 19, 2005

METAL REINFORCEMENT TABLE				
MARK	LOCATION	BAR SIZE	(NO. BARS) HDWL. SIZE	SKETCH
F-1	FLOOR	NO. 4	(1) 12"-36" (2) 42"	
L-1	TOP & BOTOM OF INLET LIP IN FLOOR	NO. 4	(2) 12"-42"	
H-1A	HORIZ. IN TOP OF WING WALL & IN FLOOR BACK WALL	NO. 4	(2) 12"-42"	
H-1B	HORIZ. IN WING WALL BETWEEN H-1As' (PAIRS)	NO. 4	(2) 12"-42" (4) 30"-36" (6) 42"	
W-1A	EACH SIDE OF PIPE IN BACKWALL, FLOOR, & INLET LIP	NO. 4	(2) 12"-42"	
W-1B	IN FLOOR, & INLET LIP, UNDER PIPES	NO. 4	(1) 12"-30" (2) 12"-42"	
W-1C	IN FLOOR, & INLET LIP	NO. 4	(2) 12"-42"	
L-2	VERTICAL IN FLOOR, & INLET LIP	NO. 4	(2) 12"-42"	
W-2	VERTICAL IN WING WALLS	NO. 4	(1) 12"-30" (2) 12"-42"	



METAL REINFORCEMENT DETAILS

HEADWALL DIMENSION TABLE											
CULVERT SIZE DIAMETER (IN.)	IN INCHES										
	D/24	A	B	H	L	M	N	P	Q	S	V
12	1/2	13	20 7/16	21	24 5/8	25	21	27 1/2	22 7/16	12 9/16	53 13/16
15	5/8	16 1/4	23 1/8	24 1/4	28 1/8	28 1/4	24 1/4	30 1/8	26 11/16	15 3/16	62 9/16
18	3/4	19 1/2	25 1/8	27 1/2	33 1/8	31 1/2	27 1/2	34 1/4	30 15/16	18 1/16	71 1/4
21	7/8	22 3/4	28 5/8	30 3/4	37 3/8	34 3/4	30 3/4	37 3/8	35 3/16	20 3/4	79 15/16
24	1	26	31 3/8	34	41 9/16	38	34	41	39 3/8	23 1/2	88 5/8
30	1 1/4	32 1/2	36 3/4	40 1/2	50 1/16	44 1/2	40 1/2	47 3/4	47 1/8	28 5/16	106 1/16
36	1 1/2	39	42 1/4	47	58 9/16	51	47	54 1/2	56 3/8	34 3/8	123 1/2
42	1 3/4	45 1/2	47 1/16	53 1/2	67 1/16	57 1/2	53 1/2	61 1/4	64 1/8	39 5/8	140 7/8

GRATE DIMENSION & MATERIALS TABLE								
CULVERT SIZE DIAMETER (IN.)	IN INCHES							
	DIMENSIONS				BAR SIZES			
	A'	* c X	Y	Z	B-1	B-2	B-3	B-4
12	11	19 3/16	28 1/2	18 7/8	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
15	14	23 3/4	36 1/8	24 3/16	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
18	17	28 3/8	45 5/16	29 1/2	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
21	20	32 15/16	53 3/4	34 13/16	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
24	23	37 9/16	62 3/16	40 1/8	1x1/4	1 1/4x1/4	1 1/4x1 1/4x1/4	1x1/4x9
30	29	46 3/4	79 1/16	50 13/16	1 1/4x1/4	1 1/2x1/4	1 1/2x1 1/2x1/4	1 1/2x1 1/4x9
36	35	55 7/8	92 5/16	61 1/2	1 1/2x1/4	1 3/4x1/4	1 3/4x1 3/4x1/4	1 3/4x1 1/4x9
42	41	65 1/16	112 3/16	72 3/16	1 3/4x1/4	2 1/4x3/8	2 1/4x2 1/2x3/8	2 1/4x3 3/8x9

* c ALLOW 3/4"-1" EXTRA BAR LENGTH FOR HOLE FABRICATION

NOMINAL SIZE DIAMETER (IN.)	CONCRETE (C.Y.)				STEEL (LBS.)
	WING & BCKWL.	FLOOR	LIP	TOTAL	
12	0.179	0.148	0.167	0.494	24.6
15	0.248	0.200	0.193	0.633	27.8
18	0.309	0.259	0.220	0.788	31.0
21	0.386	0.326	0.247	0.959	35.8
24	0.472	0.400	0.274	1.146	39.4
30	0.671	0.572	0.327	1.570	46.1
36	0.905	0.774	0.381	2.061	57.6
42	1.176	1.007	0.435	2.618	73.6

NOTES

1. THE SIPHON HEADWALL SHALL BE USED ONLY WHEN PROTECTED BY GUARDRAIL OR INSTALLED OUTSIDE THE CLEAR ZONE.
2. ALL CAST-IN-PLACE HEADWALLS SHALL CONFORM TO SECTION 609 - MINOR STRUCTURES, OF THE CURRENT ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. THE METAL REINFORCEMENT SHALL BE NO. 4 BARS. ALL REINFORCEMENT SHALL HAVE A MINIMUM CONCRETE COVER OF 2" OR 3" MINIMUM COVER IF CAST AGAINST EARTH.
4. ALL EDGES TO HAVE 3/4" CHAMFER OR TOOLED EDGES.
5. ALL PIPE INLETS/OUTLETS WITH A CONCRETE SIPHON HEADWALL SHALL HAVE THE INLET HEADWALLS BEVELED. USE ENTRANCE LOSS COEFFICIENT $K_e = 0.2$ FOR BEVELED ENTRANCES.
6. THE METAL FOR THE GRATE SHALL MEET THE REQUIREMENTS OF ASTM A 36. WELDING OF THE METAL GRATE SHALL MEET THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY D1.1. GRATES FOR INLET HEADWALLS WILL BE REQUIRED ONLY WHEN SHOWN ON THE ROADWAY PLANS. GRATES NEED NOT BEPAINTED OR GALVANIZED.
7. THE USE OF CONCRETE, CORRUGATED METAL, OR CORRUGATED POLYETHYLENE PIPE WITH A SIPHON HEADWALL IS ALLOWED (CONCRETE PIPE SHOWN ON DRAWING).
8. A SIPHON SYSTEM REQUIRES A GRATE ON THE BOTH INLET AND OUTLET HEADWALL.
9. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER DATE ORIGINAL SIGNED: DECEMBER 19, 2005

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-64		6	06-92	MSM		
2	02-68		7	12-92	TMR		
3	09-68		8	06-02	MSM		
4	10-69		9	12-05	MSM		
5	04-90	GB					

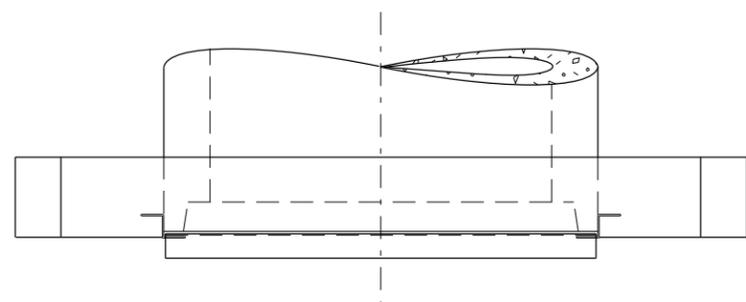
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 609-5_1205.dgn
DRAWING DATE:

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

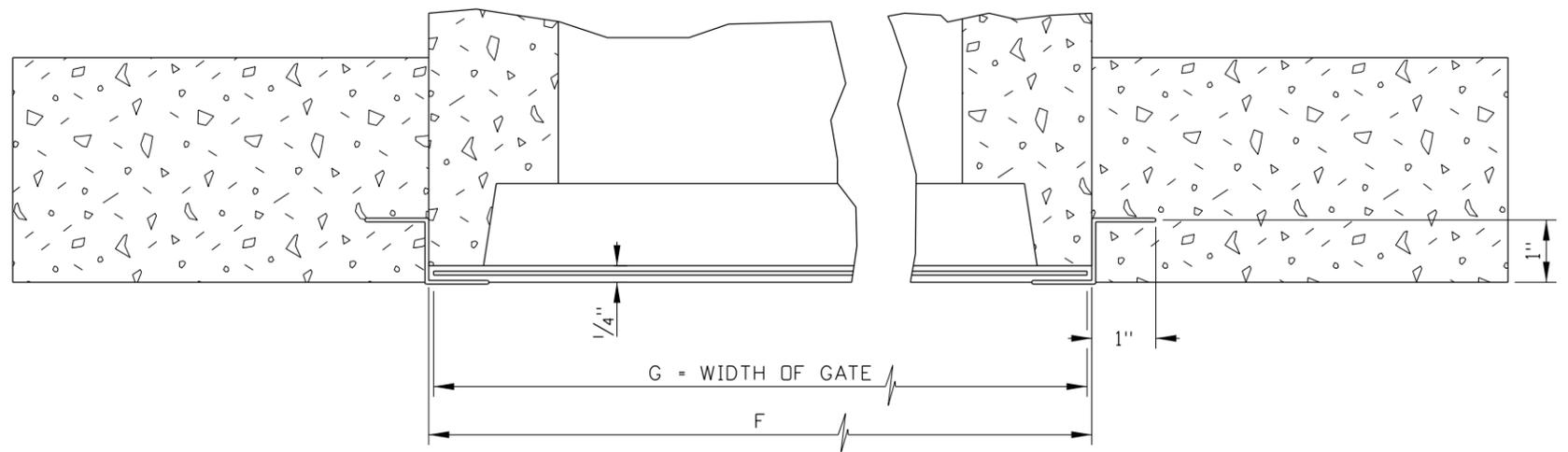
ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING
CONCRETE HEADWALL FOR SIPHONS
REQUIRES SHEET 1 OF 2

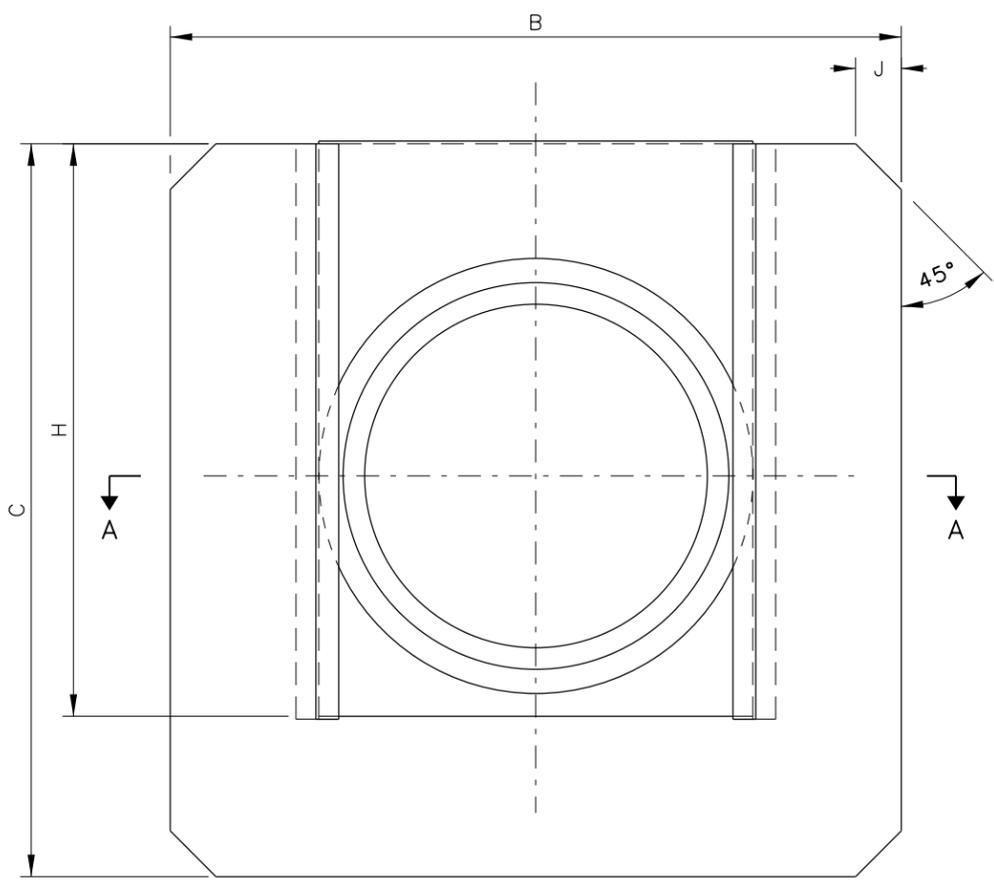
English
STANDARD DRAWING NO. 609-5
SHEET 2 OF 2



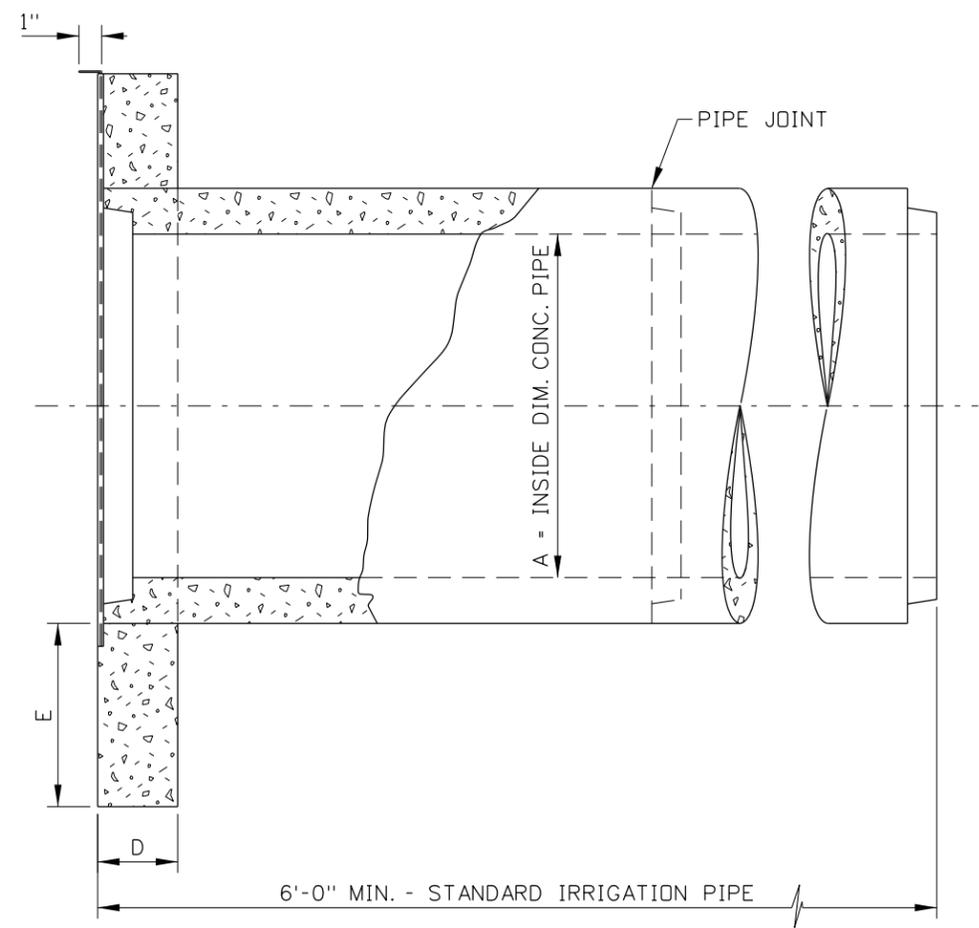
PLAN



SECTION A-A



END ELEVATION



SIDE ELEVATION

MINIMUM DIMENSIONS TABLE								
PIPE DIA.	MINIMUM DIMENSIONS (INCHES)							
	A	B	C	D	E	F	G	J
4	15	15	2 1/2	3	8 1/4	8	13	24
6	15	15	2 1/2	3	8 1/4	8	13	30
8	22	22	3	6	12 1/2	12 1/4	17	36
10	22	22	3	6	12 1/2	12 1/4	17	42
12	27	27	3	7	16 1/4	16	21	48
15	32	32	3 1/2	8	19 1/4	19	25	60
18	36	36	4	9	23 3/4	23 1/2	28	72
21	42	42	4	11	26 1/4	26	32	84
24	54	54	4	15	30 1/4	30	40	90
30	60	60	4	19	36 1/4	36	42	102

NOTES

1. SLIDE GATE AND GUIDES SHALL BE 16 GAGE GALVANIZED STEEL.
2. NO SCALE IS REPRESENTED ON THESE DRAWING ILLUSTRATIONS.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	08-64							
2	11-86	GB						
3	09-01	MSM						
4	03-05	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 609-6_0305.dgn
 DRAWING DATE: APRIL, 1961

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING
PRECAST CONCRETE HEADGATE

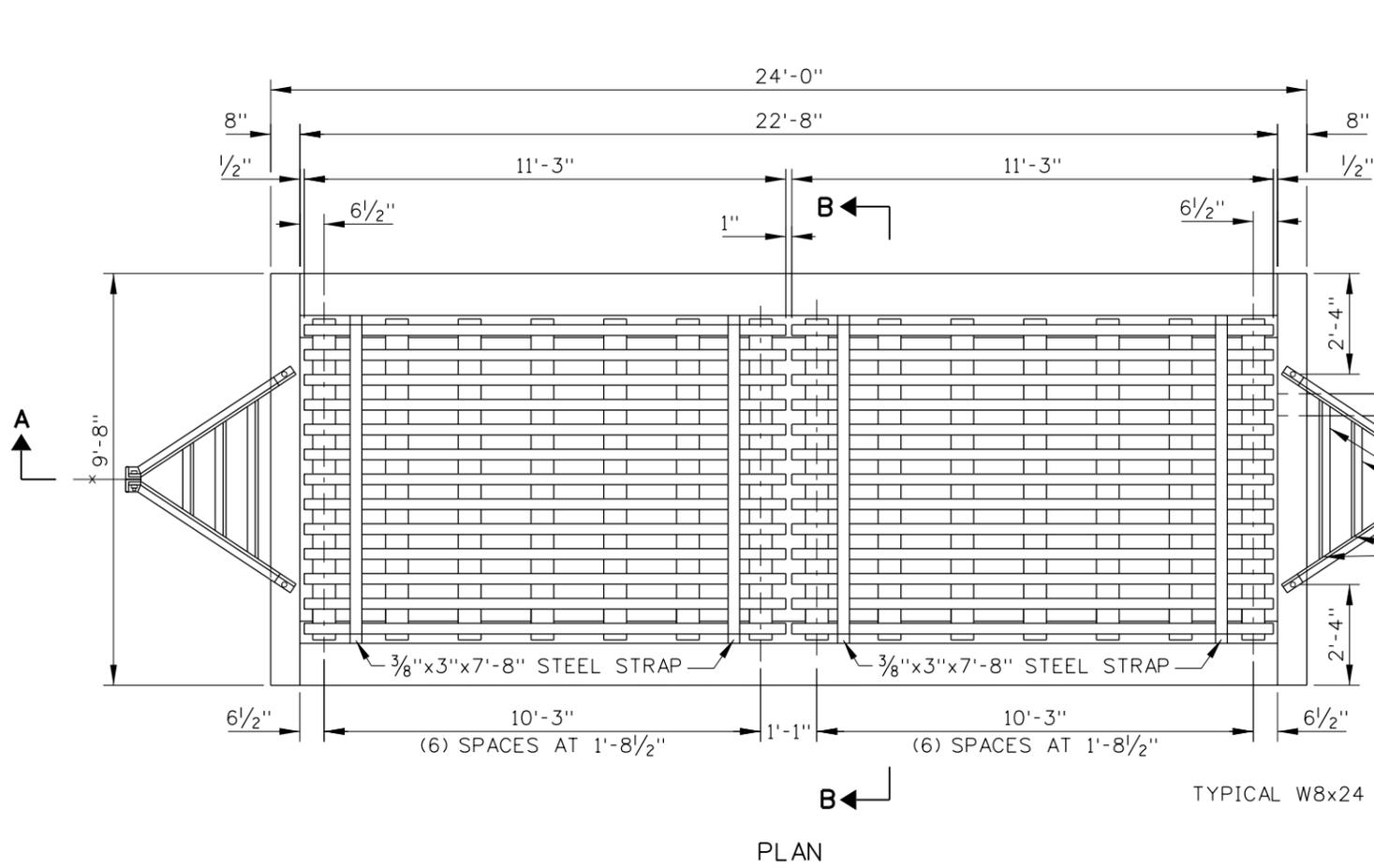
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

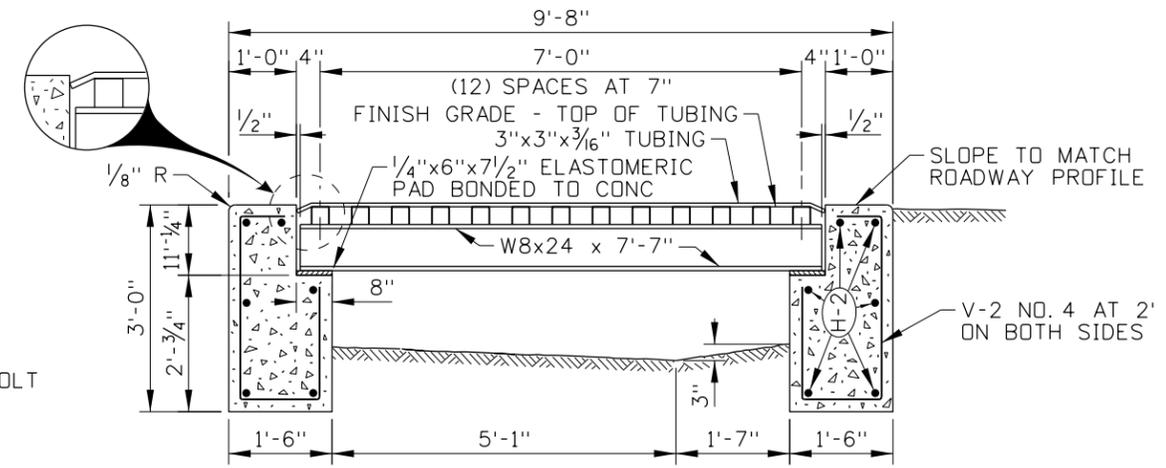
STANDARD DRAWING NO.
609-6

SHEET 1 OF 1

ORIGINAL SIGNED BY: MILDRED L. MILLER
 DATE ORIGINAL SIGNED: MARCH 4, 2005



PLAN



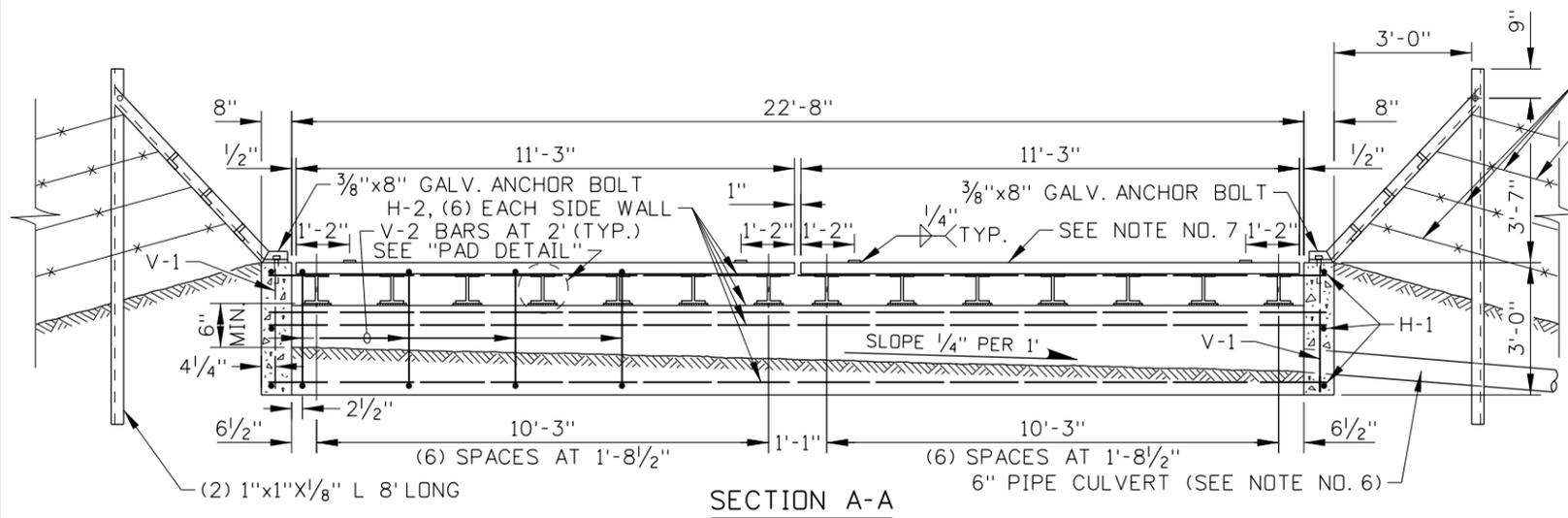
SECTION B-B

REINFORCEMENT STEEL				
MARK	LOCATION	SIZE NO.	BAR LENGTH	NO. REQ'D
V-1	END WALLS	4	2'-8"	18
V-2	SIDE WALLS	4	6'-0"	11
H-1	END WALLS	4	9'-4"	6
H-2	SIDE WALLS (TIE BARS)	4	23'-8"	12
454 LIN. FT. NO. 4 BARS @ 0.668 LB./FT. = 304 LBS.				

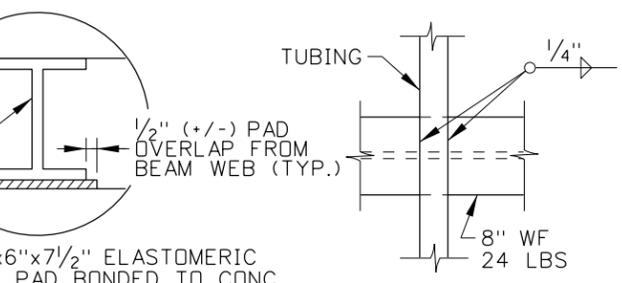
BILL OF MATERIALS	
CONCRETE, CLASS 30	8.2 C.Y.
METAL REINFORCEMENT	304 LBS
STRUCTURAL STEEL	4600 LBS

NOTES

1. ENSURE THAT CATTLE GUARD MEETS THE REQUIREMENTS OF SECTION 611 - CATTLE GUARDS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. ENSURE THAT THE EXPOSED STEEL SURFACES ARE BLASTED CLEAN TO AN SSPC SP-10 AND PAINTED WITH PAINT SYSTEM D IN ACCORDANCE WITH SECTION 627 - PAINTING OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
3. ENSURE THAT THE CATTLE GUARD AND SUPPORTS ARE DESIGNED FOR HS-25 LOADING. ENSURE THAT THE ELASTOMERIC BEARING PADS ARE 50 DUROMETER IN HARDNESS.
4. PLACE THE CATTLE GUARD ON BASE AGGREGATE, 3" MINIMUM THICKNESS OVER HAND LEVELED SOIL COMPACTED TO 95% DENSITY.
5. GALVANIZE CATTLE GUARD HARDWARE FASTENERS.
6. GRADE TO DRAIN.
7. PLACE THE CATTLE GUARD TO MATCH THE ROADWAY SLOPE, CROWN, OR BOTH.
8. ALTERNATE CATTLE GUARD DESIGNS MAY BE USED. PRIOR APPROVAL, BY THE ENGINEER, OF SHOP DRAWINGS IS REQUIRED FOR THE USE OF ALTERNATE CATTLE GUARDS.
9. NOT TO SCALE.



SECTION A-A



TYPICAL WELD DETAIL

PAD DETAIL

(SEE NOTE NO. 3)

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	12-72		6	5-95	IJR	11	12-12
2	12-73		7	1-00	MSM		
3	2-74		8	9-02	MSM		
4	3-81		9	10-05	MSM		
5	6-81		10	08-11	RSC		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 611-1_1212.dgn
 DRAWING DATE: JANUARY, 1971

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

CATTLE GUARD TYPE A

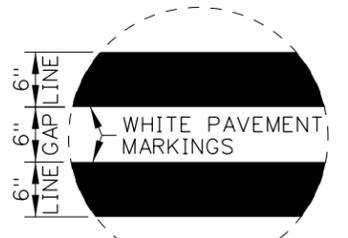
English

STANDARD DRAWING NO. **611-1**

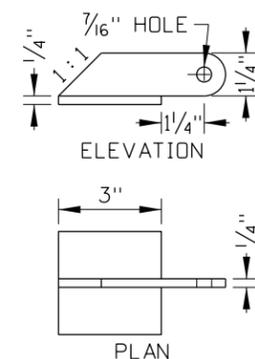
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

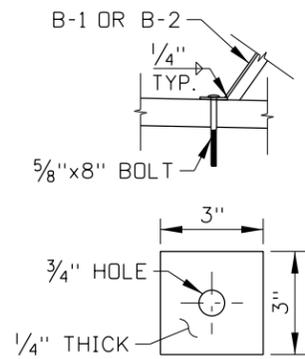
ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: DECEMBER 17, 2012



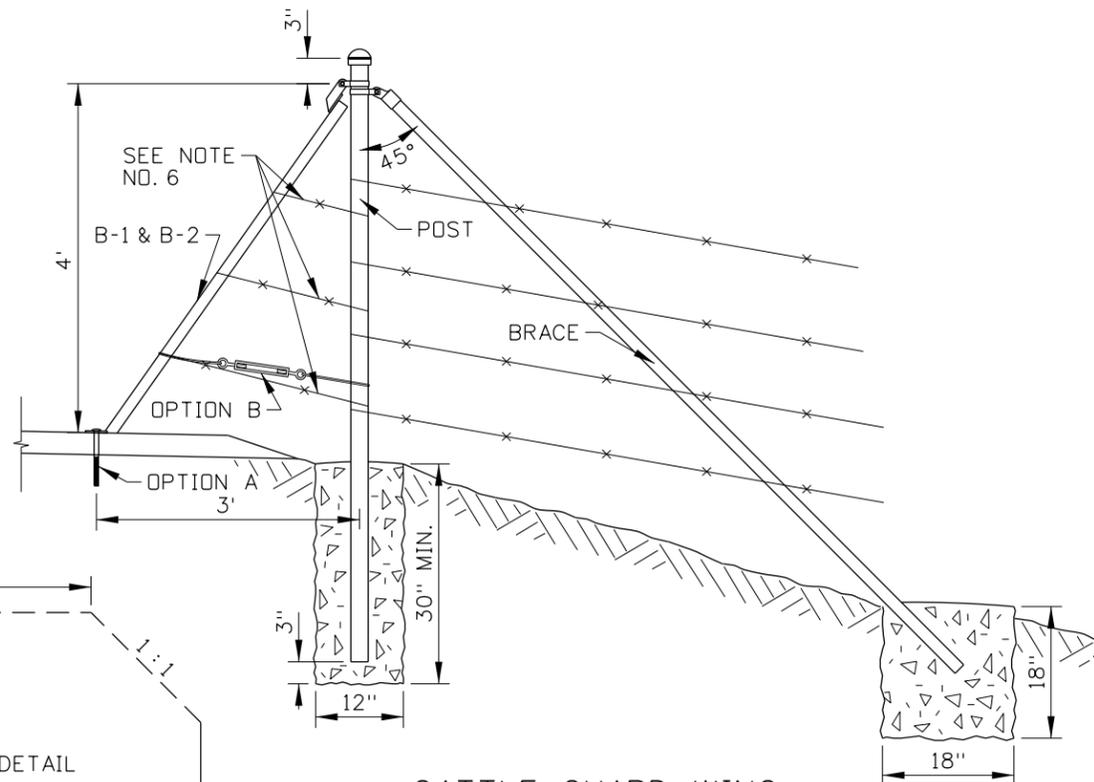
MARKINGS DETAIL



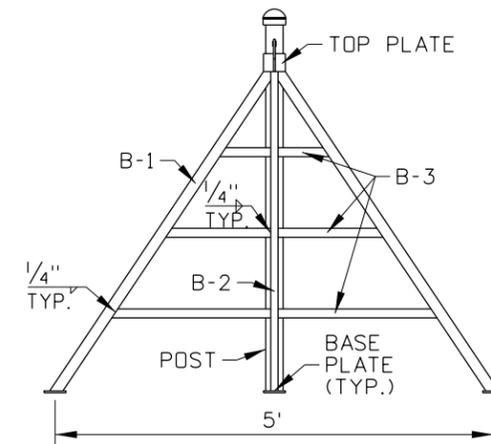
WING TOP PLATE DETAIL



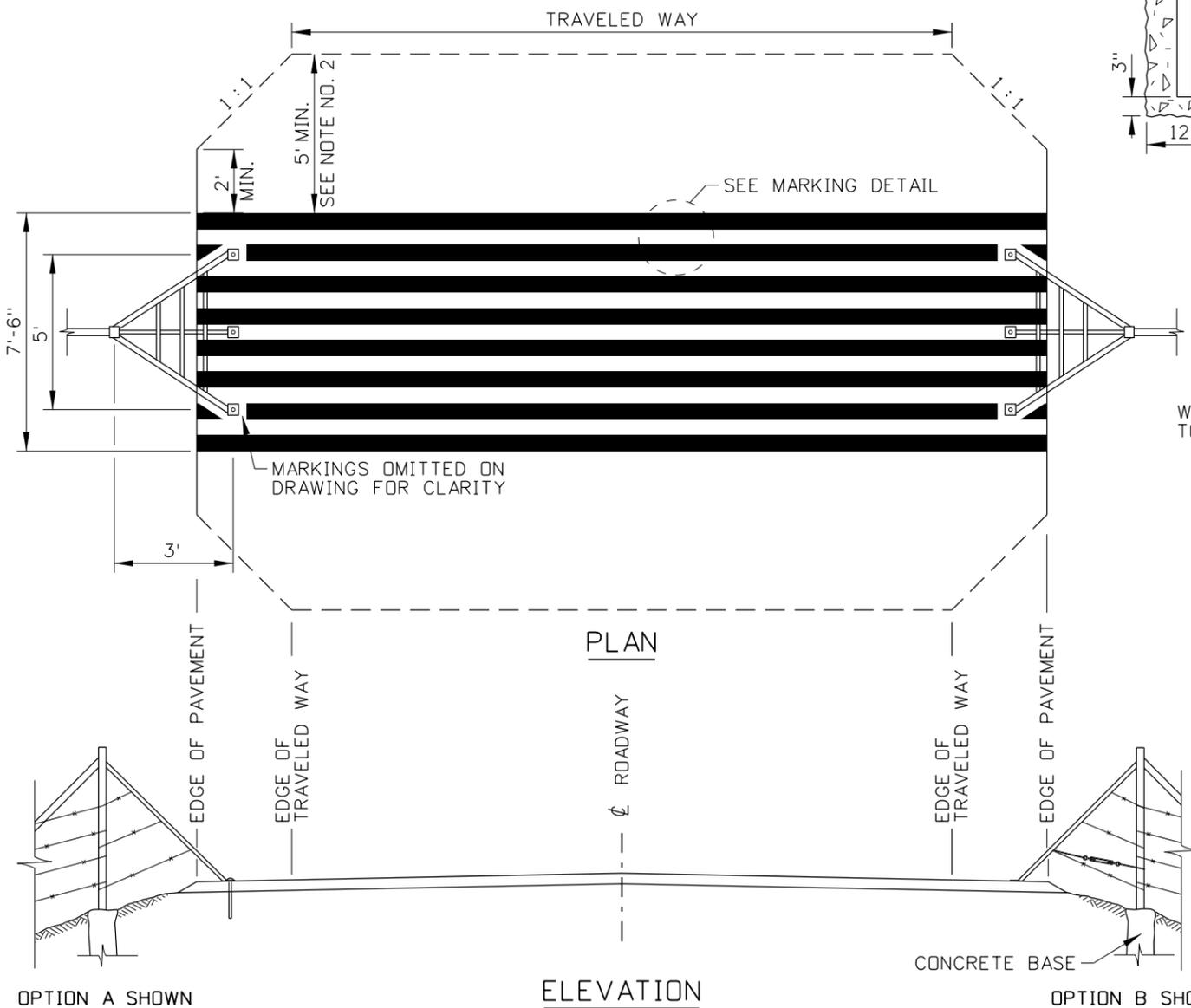
WING BASE PLATE DETAIL



CATTLE GUARD WING



CATTLE GUARD WING ELEVATION



OPTION A SHOWN

ELEVATION

OPTION B SHOWN

MATERIALS TABLE		
COMPONENT	QUANTITY	SIZE
POST	2	2 3/8" DIA. x 8'-0"
BRACE	2	1 5/8" DIA. x 10'-0"
B-1: WING SIDE LEGS	4	1/2"x1 1/2"x1/4"x68" ANGLE
B-2: WING CENTER LEG	2	1"x1/4"x60" FLAT
B-3: WING CROSS BARS	2	1/2"x1 1/2"x1/4" ANGLE 16", 31", & 46" LENGTHS
WING BASE PLATE	6	3"x3"x1/4"
WING TOP PLATE	2	SEE DETAIL
BRACE BAND	4	2 3/8" DIA.
POST CAP	2	2 3/8" DIA.
BRACE END CAP	2	1 5/8" DIA.
NUTS & BOLTS	4	5/16"x1 1/4" BOLT AND NUT
BASE BOLTS (OPTION A)	6	5/8"x8"
TURNBUCKLE (OPTION B)	2	3/8"

NOTES

- IF THE CATTLE GUARD IS CONSTRUCTED ON A PAVED ROAD WITH PAVEMENT MARKINGS, TERMINATE OR OBLITERATE THE LONGITUDINAL PAVEMENT MARKINGS 25 FEET FROM THE CATTLE GUARD MARKINGS.
- IF THE CATTLE GUARD IS CONSTRUCTED ON AN UNPAVED ROAD, PAVE THE CATTLE GUARD AREA AND EXTEND PAVEMENT A MINIMUM OF FIVE FEET BEYOND WHERE THE CATTLE GUARD IS TO BE MARKED.
- MARK THE CATTLE GUARD PRIOR TO ATTACHING THE CATTLE GUARD WINGS. USE WHITE WATERBORNE PAINT OR THERMOPLASTIC PAVEMENT MARKINGS. MARK A MINIMUM OF EIGHT LINES.
- SECURE THE CATTLE GUARD WINGS TO PAVEMENT WITH ONE OF THE FOLLOWING OPTIONS:
 OPTION A:
 INSERT 5/8"x8" BOLTS INTO PRE-DRILLED HOLES IN THE PAVEMENT. ENSURE THAT THE BOLT HEAD IS FLUSH WITH THE BASE PLATE.
 OPTION B:
 PLACE A 3/8" TURNBUCKLE FASTENED WITH 10 GAUGE OR THICKER WIRE BETWEEN THE WING CENTER MEMBER (B-2) AND THE BRACE POST. TIGHTEN TURNBUCKLE TO PRESS WING FEET TO ROADWAY PAVEMENT.
- PAINT THE CATTLE GUARD WINGS YELLOW WITH ITD PAINT SYSTEM C.
- TIE A MINIMUM OF THREE BARBED WIRES FROM THE POST TO THE INTERSECTIONS OF THE WING B-1 AND B-3 ANGLE BARS.
- DRAWINGS NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 12, 2016

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-04	MSM					
2	10-05	MSM					
3	12-12	RDL					
4	12-15	RDL					
5	05-16	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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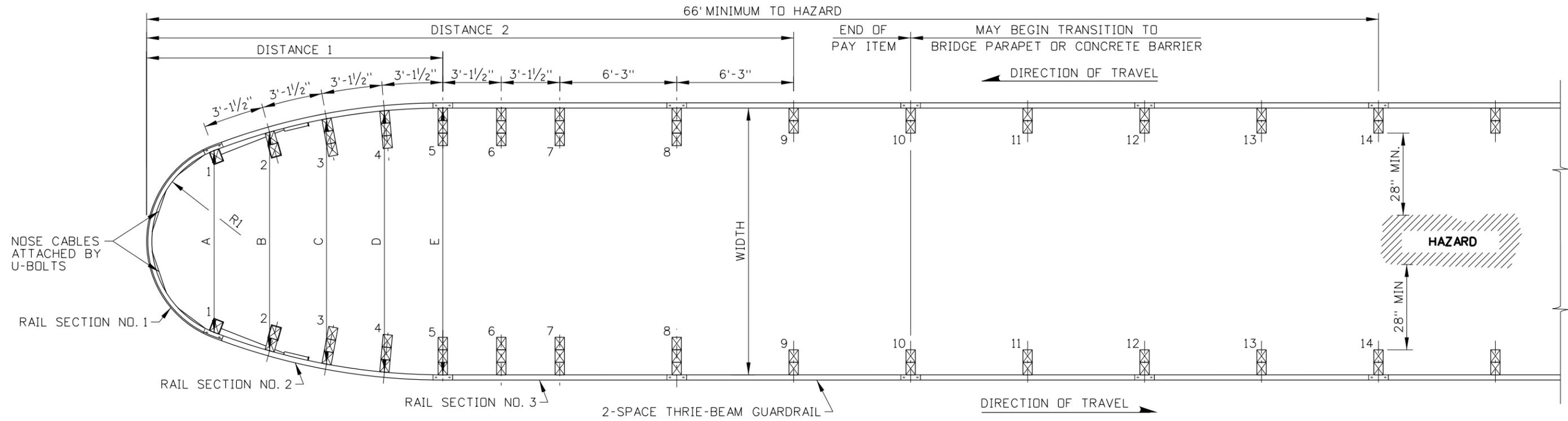
IDAHO TRANSPORTATION DEPARTMENT
 BOISE IDAHO

ORIGINAL SIGNED BY: JESSE BARRUS
 DESIGN/TRAFFIC SERVICES ENGINEER

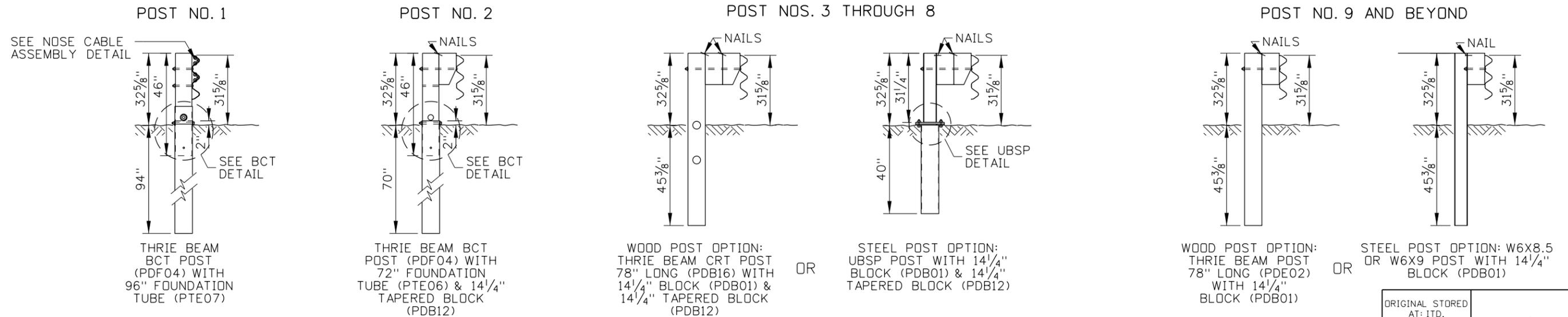
STANDARD DRAWING
 CATTLE GUARD PAVEMENT MARKINGS

English
 STANDARD DRAWING NO. 611-2
 SHEET 1 OF 1

BULLNOSE DIMENSION TABLE											
	DESIGN	WIDTH	A	B	C	D	E	DIST 1	DIST 2	R1	CABLE
SYMMETRICAL	1	14'-9 ¹ / ₈ "	9'-8"	11'-8"	13'-1"	13'-11"	14'-2 ¹ / ₂ "	15'-10"	34'-7"	5'-2 ³ / ₁₆ "	14'-6"
	2	19'-5 ⁵ / ₈ "	14'-6 ³ / ₈ "	16'-6"	17'-11"	18'-9 ¹ / ₈ "	19'-5 ⁵ / ₈ "	17'-6"	36'-3"	7'-9 ⁵ / ₁₆ "	20'-9 ⁵ / ₈ "
	3	23'-10 ³ / ₄ "	19'-4 ³ / ₈ "	21'-4"	22'-9"	23'-7"	23'-10 ³ / ₄ "	19'-2"	37'-11"	10'-4 ³ / ₈ "	27'-1"
ASYMMETRICAL	1	VARIES	9'-8"	11'-6"	13'-1 ¹ / ₁₆ "	14'-3 ⁷ / ₈ "	15'-3 ¹ / ₁₆ "	15'-10"	34'-7"	5'-2 ³ / ₁₆ "	14'-6"
	2	VARIES	9'-8"	11'-3"	12'-6 ¹ / ₁₆ "	13'-6 ⁷ / ₈ "	14'-3 ¹ / ₁₆ "	15'-10"	34'-7"	5'-2 ³ / ₁₆ "	14'-6"



SYMMETRICAL DESIGNS 1, 2, & 3



POST ASSEMBLY DETAILS

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: ORIGINAL SIGNED: DECEMBER 8, 2015

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-02	MSM	6	09-15	RDL		
2	10-03	MSM					
3	12-04	MSM					
4	05-06	MSM					
5	09-10	MGL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 613-1_1215.dgn
DRAWING DATE: NOVEMBER, 2001

IDAHO TRANSPORTATION DEPARTMENT

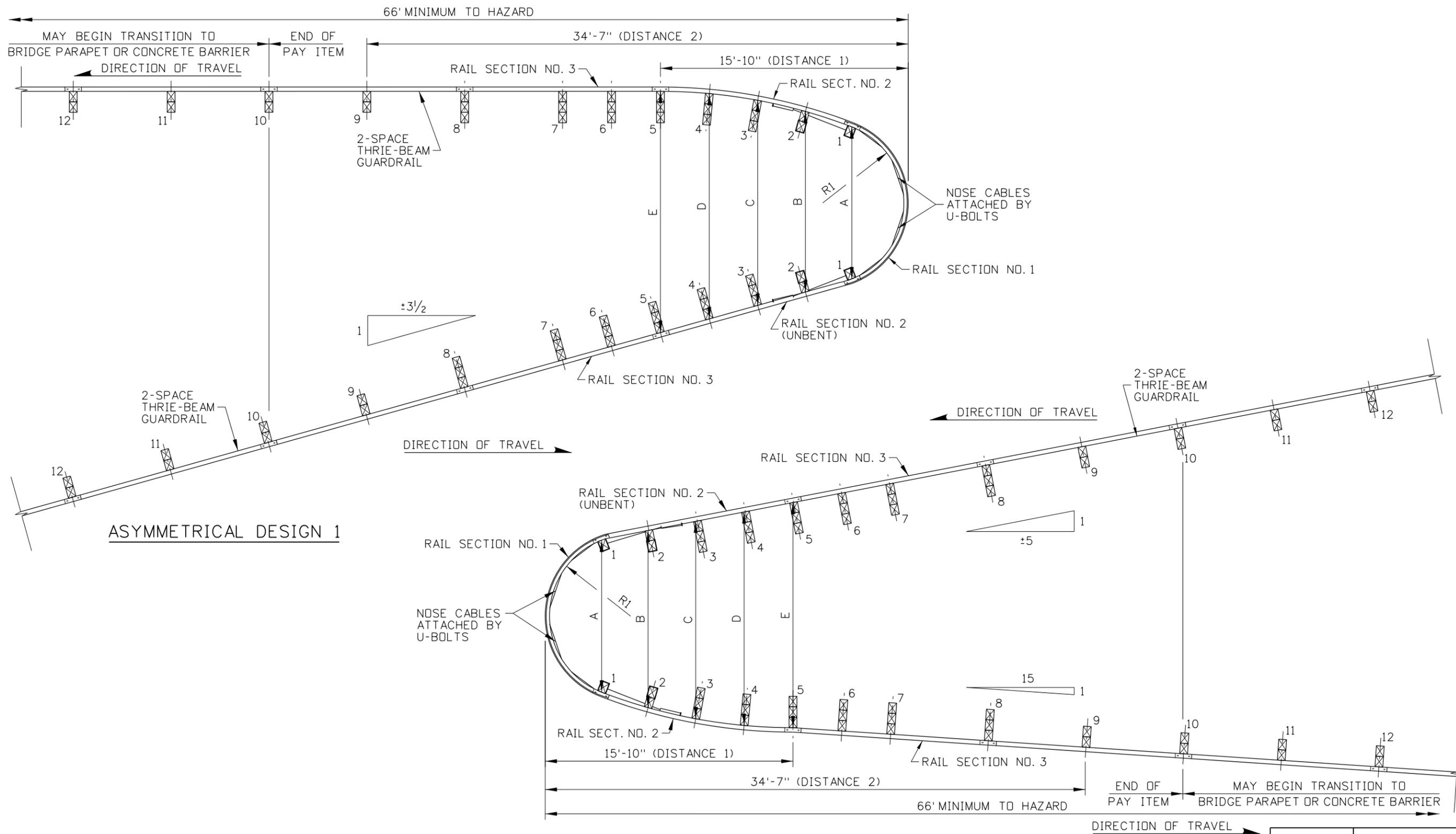


BOISE IDAHO

ORIGINAL SIGNED BY: TED E. MASON for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BULLNOSE CRASH CUSHION

English
STANDARD DRAWING NO.
613-1
SHEET 1 OF 7



ASYMMETRICAL DESIGN 1

ASYMMETRICAL DESIGN 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: ORIGINAL SIGNED: DECEMBER 8, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	06-02	MSM	6	09-15	RDL			
2	10-03	MSM						
3	12-04	MSM						
4	05-06	MSM						
5	09-10	MGL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 613-1_1215.dgn
 DRAWING DATE: NOVEMBER, 2001

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: TED E. MASON for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

BULLNOSE CRASH CUSHION

English

STANDARD DRAWING NO.

613-1

SHEET 2 OF 7

BULLNOSE CRASH CUSHION HARDWARE COMPONENTS TABLE (SEE NOTE NO. 6)

COMPONENT DESCRIPTION	QUANTITY										TASK FORCE 13 HARDWARE GUIDE DESIGNATOR	MATERIAL SPECIFICATION
	WOOD POST					STEEL POST						
	SYMMETRICAL		ASYMMETRICAL			SYMMETRICAL		ASYMMETRICAL				
	1	2	3	1	2	1	2	3	1	2		
SLOTTED AND BENT 12'-6" THRIE-BEAM GUARDRAIL SECTION NO. 1 - RADIUS 5'-2 ³ / ₁₆ "	1	-	-	1	1	1	-	-	1	1	RTM07a	12 GUAGE AASHTO M 180
SLOTTED AND BENT 9'-4 ¹ / ₂ " THRIE-BEAM GUARDRAIL SECTION NO. 1 - RADIUS 7'-9 ⁵ / ₁₆ "	-	2	-	-	-	-	2	-	-	-	-----	12 GUAGE AASHTO M 180
SLOTTED AND BENT 12'-6" THRIE-BEAM GUARDRAIL SECTION NO. 1 - RADIUS 10'-4 ³ / ₈ "	-	-	2	-	-	-	-	2	-	-	-----	12 GUAGE AASHTO M 180
SLOTTED AND BENT 12'-6" THRIE-BEAM GUARDRAIL SECTION NO. 2 - RADIUS 34'-1 ¹ / ₁₆ "	2	2	2	1	1	2	2	2	1	1	RTM07b	12 GUAGE AASHTO M 180
SLOTTED 12'-6" THRIE-BEAM GUARDRAIL SECTION NO. 2	-	-	-	1	1	-	-	-	1	1	RTM07b	12 GUAGE AASHTO M 180
SLOTTED 12'-6" THRIE-BEAM GUARDRAIL SECTION NO. 3	2	2	2	2	2	2	2	2	2	2	RTM07c	12 GUAGE AASHTO M 180
12'-6" 2-SPACE THRIE-BEAM GUARDRAIL	2	2	2	2	2	2	2	2	2	2	RTM02a	12 GUAGE AASHTO M 180
46" THRIE-BEAM GUARDRAIL BCT POST	4	4	4	4	4	4	4	4	4	4	PDF04	SYP GRADE NO. 1 OR BETTER
96" FOUNDATION TUBE	2	2	2	2	2	2	2	2	2	2	PTE07	ASTM A500 GRADE B
72" FOUNDATION TUBE	2	2	2	2	2	2	2	2	2	2	PTE06	ASTM A500 GRADE B
78" THRIE-BEAM GUARDRAIL CRT POST	12	12	12	12	12	-	-	-	-	-	PDB16	SYP GRADE NO. 1 OR BETTER
78" THRIE-BEAM GUARDRAIL TIMBER POST	4	4	4	4	4	-	-	-	-	-	PDE02	SYP GRADE NO. 1 OR BETTER
UBSP POST - TOP ASSEMBLY	-	-	-	-	-	12	12	12	12	12	-----	ASTM A36
UBSP POST - BOTTOM ASSEMBLY	-	-	-	-	-	12	12	12	12	12	-----	ASTM A36 (SHEAR PLATE), ASTM A500 GRADE B (TUBE)
78" W6X8.5X78" OR W6X9X78" STEEL POST	-	-	-	-	-	4	4	4	4	2	-----	ASTM A36
6"x8"x14 ¹ / ₄ " GUARDRAIL TIMBER BLOCKOUT (HOLE CENTERED FOR TIMBER POST)	14	14	14	14	14	-	-	-	-	-	PDB01 (PDB09)	SYP GRADE NO. 1 OR BETTER
6"x8"x14 ¹ / ₄ " GUARDRAIL TIMBER BLOCKOUT (HOLES OFFSET FOR STEEL POST)	-	-	-	-	-	14	14	14	14	14	PDB01 (PDB09)	SYP GRADE NO. 1 OR BETTER
6"x8"x14 ¹ / ₄ " TAPERED GUARDRAIL TIMBER BLOCKOUT (HOLE CENTERED FOR TIMBER POST)	14	14	14	14	14	2	2	2	2	2	PDB12	SYP GRADE NO. 1 OR BETTER
6"x8"x14 ¹ / ₄ " TAPERED GUARDRAIL TIMBER BLOCKOUT (HOLES OFFSET FOR STEEL POST)	-	-	-	-	-	12	12	12	12	12	PDB12 MODIFIED	SYP GRADE NO. 1 OR BETTER
6'-6" BCT ANCHOR CABLE	2	2	2	2	2	2	2	2	2	2	FCA01	6x19 OR 6x25 CABLE IWRC IPS
GUARDRAIL ANCHOR BRACKET AND BEARING PLATE	2	2	2	2	2	2	2	2	2	2	FPA01	ASTM A36
8"x8"x ⁵ / ₈ " BCT BEARING PLATE	2	2	2	2	2	2	2	2	2	2	FPB01	ASTM A36
2 ³ / ₈ " O.D. X 6" LONG BCT POST SLEEVE	2	2	2	2	2	2	2	2	2	2	FMM02	ASTM A53 GRADE B SCHEDULE 40
12 ⁵ / ₈ " X 5 ¹ / ₁₆ " NOSE CABLE ANCHOR PLATE	4	4	4	4	4	4	4	4	4	4	-----	ASTM A36
⁵ / ₈ " DIA. X 14'-6" NOSE CABLE (6x19 OR 6x25)	2	-	-	2	2	2	-	-	2	2	-----	SEE NOSE CABLE DETAIL
⁵ / ₈ " DIA. X 20'-9 ⁵ / ₈ " NOSE CABLE (6x19 OR 6x25)	-	2	-	-	-	-	2	-	-	-	-----	SEE NOSE CABLE DETAIL
⁵ / ₈ " DIA. X 27'-1" NOSE CABLE (6x19 OR 6x25)	-	-	2	-	-	-	-	2	-	-	-----	SEE NOSE CABLE DETAIL
16D DOUBLE HEAD NAIL	56	56	56	56	56	40	40	40	40	40	-----	N/A
¹ / ₄ " DIA. U-BOLT (TO ATTACH NOSE CABLE TO RAIL SECTION NO. 1)	6	6	6	6	6	6	6	6	6	6	-----	ASTM A307 GALVANIZED
U-BOLT PLATE WASHER (TO ATTACH NOSE CABLE TO RAIL SECTION NO. 1)	6	6	6	6	6	6	6	6	6	6	-----	ASTM A307 GALVANIZED
¹ / ₄ " DIA. HEX NUT (TO ATTACH NOSE CABLE TO RAIL SECTION NO. 1)	12	12	12	12	12	12	12	12	12	12	-----	ASTM A307 GALVANIZED
⁷ / ₁₆ " DIA. UNC-14 X 2 ¹ / ₂ " LONG HEX FULLY THREADED TAP BOLTS (FOR UBSP POSTS)	-	-	-	-	-	48	48	48	48	48	-----	SAE GRADE 5/ASTM A325
⁷ / ₁₆ " DIA. HEX NUT (FOR UBSP POSTS)	-	-	-	-	-	48	48	48	48	48	-----	ASTM A563DH GALVANIZED
⁷ / ₁₆ " DIA. FLAT WASHER (FOR UBSP POSTS)	-	-	-	-	-	192	192	192	192	192	-----	ASTM F436 GRADE 1 GALVANIZED
⁵ / ₈ " DIA. X 1 ¹ / ₂ " LONG GUARDRAIL BOLT AND RECESSED NUT	72	84	84	72	72	72	84	84	72	72	FBB01	ASTM A307 GALVANIZED
⁵ / ₈ " DIA. X 10" LONG GUARDRAIL BOLT AND RECESSED NUT	4	4	4	4	4	8	8	8	8	8	FBB03	ASTM A307 GALVANIZED
⁵ / ₈ " DIA. X 18" LONG GUARDRAIL BOLT AND RECESSED NUT	6	6	6	6	6	14	14	14	14	14	FBB04	ASTM A307 GALVANIZED
⁵ / ₈ " DIA. X 25" LONG GUARDRAIL BOLT AND RECESSED NUT	12	12	12	12	12	-	-	-	-	-	FBB05	ASTM A307 GALVANIZED
⁵ / ₈ " DIA. X 1 ¹ / ₂ " LONG HEX HEAD BOLT (FOR ANCHOR BRACKET)	16	16	16	16	16	16	16	16	16	16	FBX16a	GRADE A307 GALVANIZED
⁵ / ₈ " DIA. X 10" LONG HEX HEAD BOLT AND NUT (FOR BCT POSTS)	4	4	4	4	4	4	4	4	4	4	FBX16a	GRADE A307 GALVANIZED
⁵ / ₈ " DIA. FLAT WASHER	174	198	198	174	174	174	198	198	174	174	FWC16a	GRADE A307 GALVANIZED
⁷ / ₈ " DIA. X 7 ¹ / ₂ " LONG HEX HEAD BOLT AND NUT	4	4	4	4	4	4	4	4	4	4	FBX22a	GRADE A307 GALVANIZED
⁷ / ₈ " DIA. FLAT WASHER	8	8	8	8	8	8	8	8	8	8	FWC22a	GRADE A307 GALVANIZED
1" DIA. HEX NUT (FOR ANCHOR CABLE)	8	8	8	8	8	8	8	8	8	8	-----	ASTM A563DH
1" DIA. FLAT WASHER (FOR ANCHOR CABLE)	4	4	4	4	4	4	4	4	4	4	FWC24a	ASTM F436 GRADE 1 GALVANIZED

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
DECEMBER 8, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	06-02	MSM	6	09-15	RDL			
2	10-03	MSM						
3	12-04	MSM						
4	05-06	MSM						
5	09-10	MGL						

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CADD FILE NAME:
613-1_1215.dgn

DRAWING DATE:
NOVEMBER, 2001

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: TED E. MASON *for*
DESIGN/TRAFFIC SERVICES ENGINEER

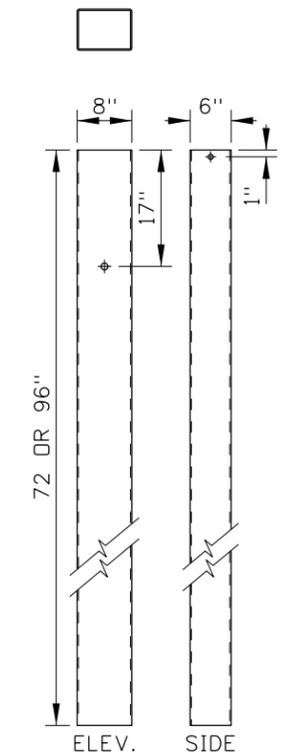
STANDARD DRAWING

BULLNOSE CRASH CUSHION

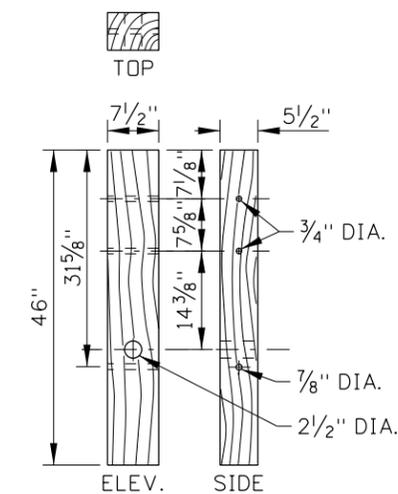
English

STANDARD DRAWING NO.
613-1

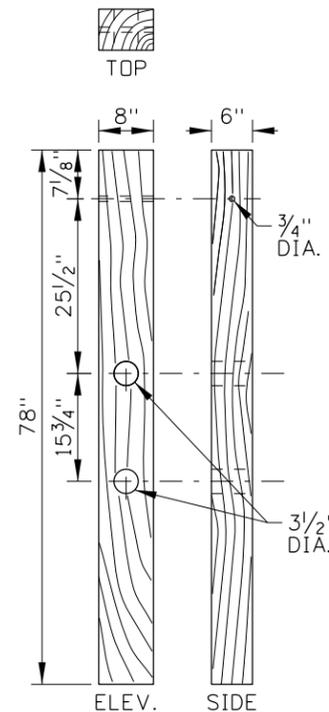
SHEET 3 OF 7



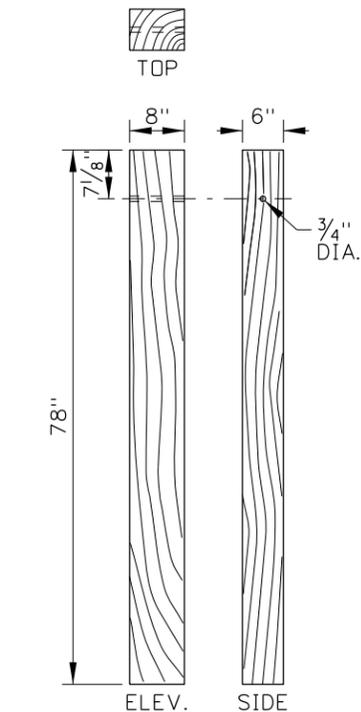
FOUNDATION TUBES
POSTS 1 & 2
(PTE06 & PTE07)



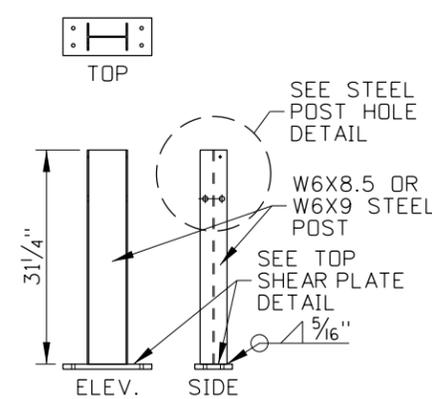
THRIE BEAM BCT POST
POSTS 1 & 2
(PDF04)



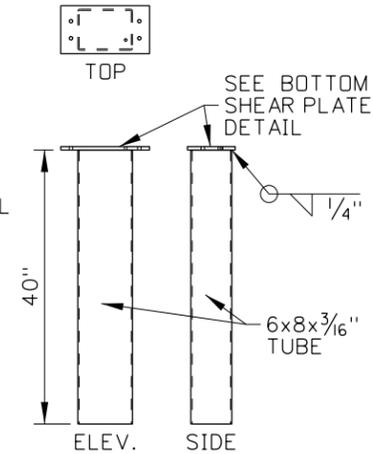
THRIE BEAM CRT POST
POSTS 3 THROUGH 8
(PDB16)



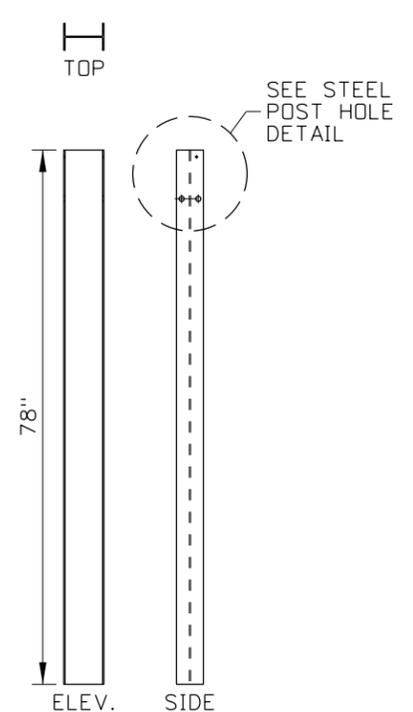
THRIE BEAM TIMBER POST
POST 9 AND BEYOND
(PDE02)



UBSP TOP ASSEMBLY
POSTS 3 THROUGH 8

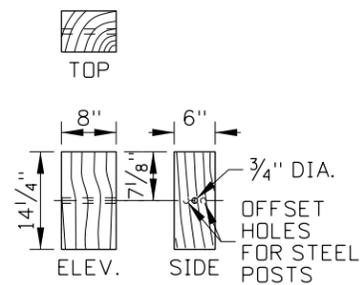


UBSP BOTTOM ASSEMBLY
POSTS 3 THROUGH 8

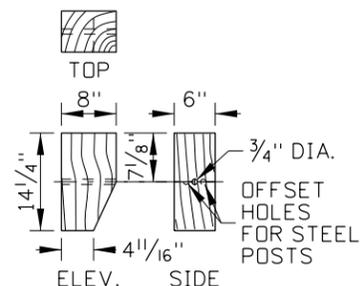


THRIE BEAM
W6X8.5 OR W6X9
STEEL POST
POST 9 AND BEYOND

POST DETAILS

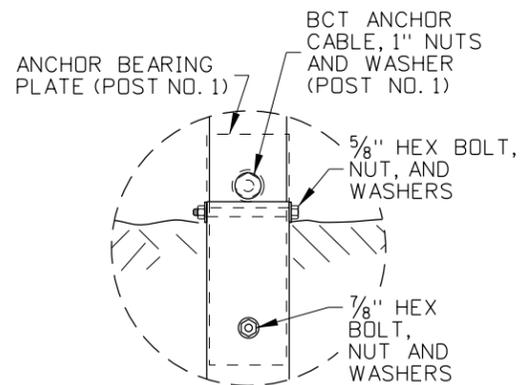


BLOCK
(PDB01 & PDB09)

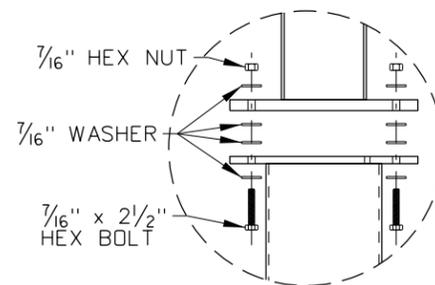


TAPERED BLOCK
(PDB12)

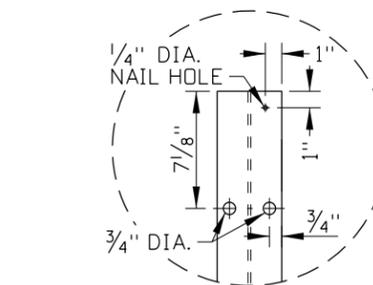
BLOCK DETAILS



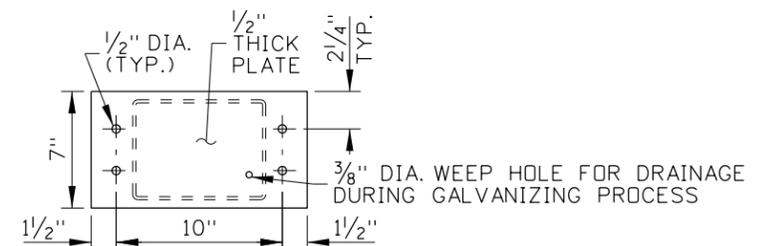
BCT DETAIL



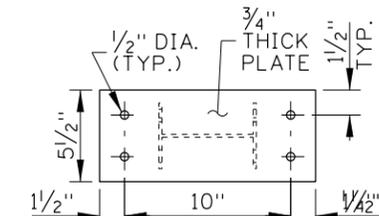
UBSP DETAIL



STEEL POST HOLE DETAIL



BOTTOM SHEAR PLATE DETAIL



TOP SHEAR PLATE DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-02	MSM	6	09-15	RDL		
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3	12-04	MSM					
4	05-06	MSM					
5	09-10	MGL					

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CADD FILE NAME: 613-1_1215.dgn
DRAWING DATE: NOVEMBER, 2001

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

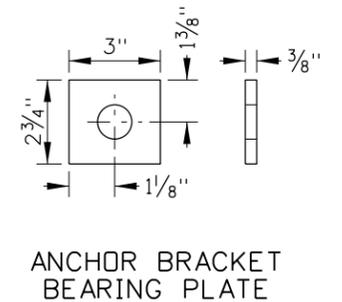
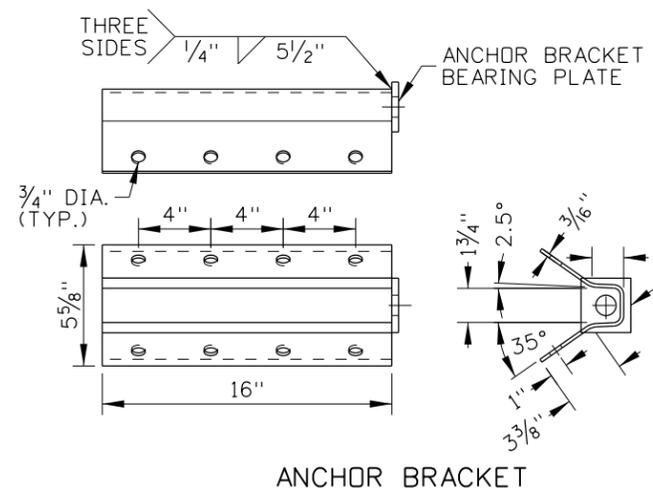
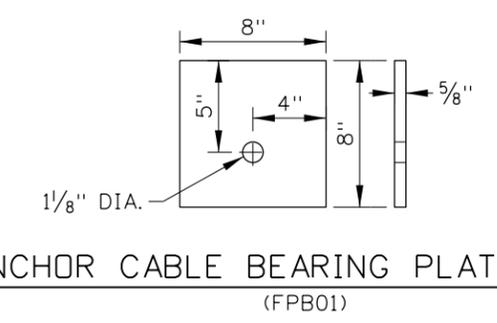
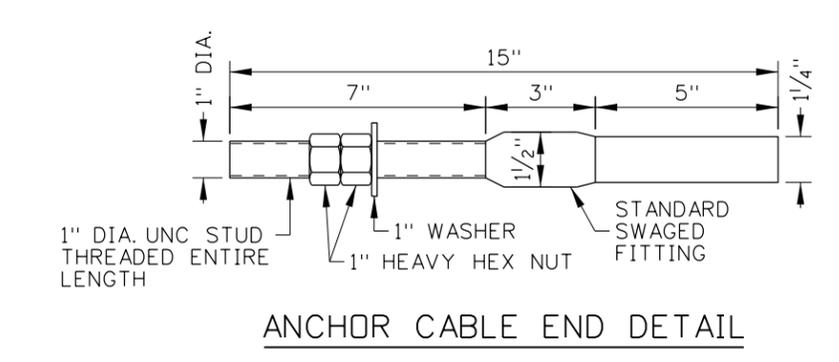
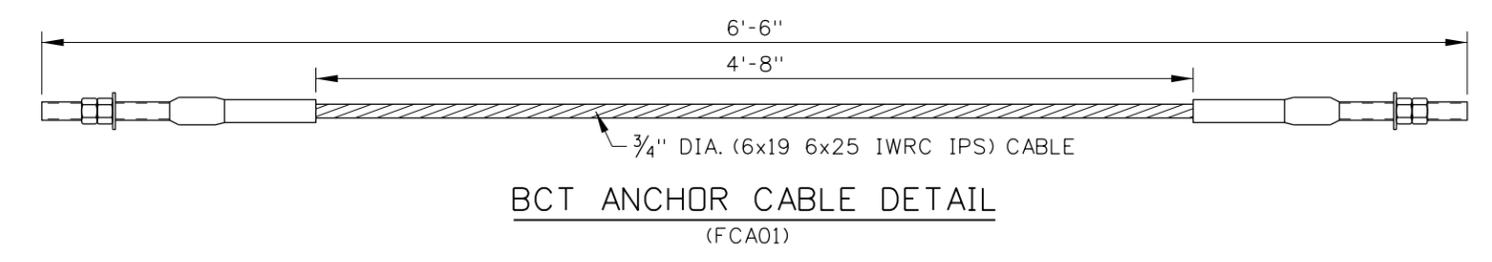
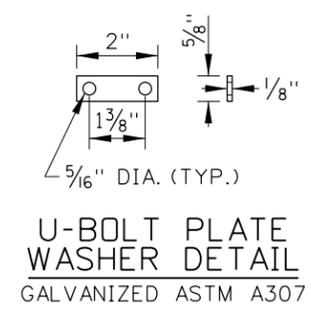
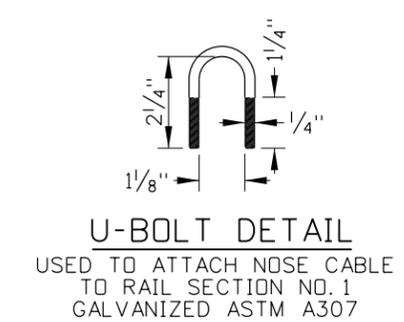
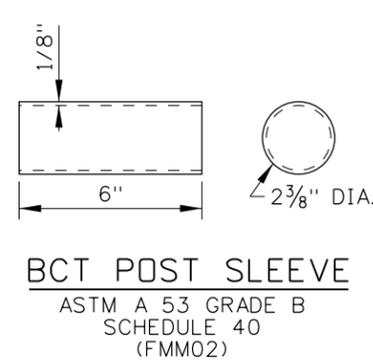
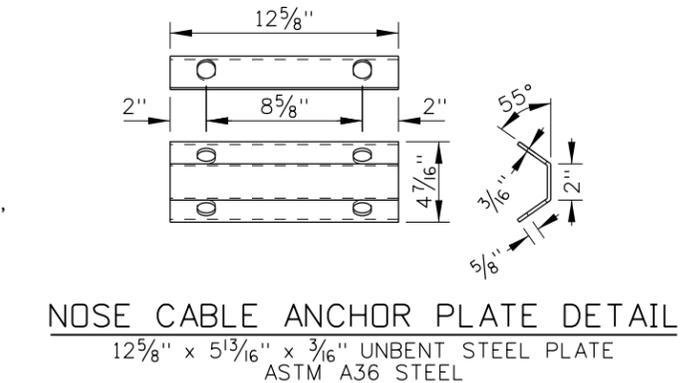
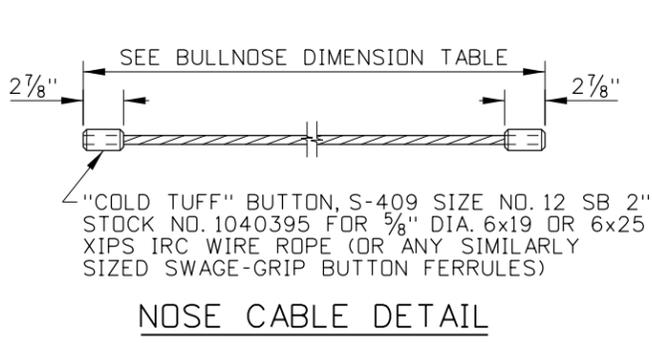
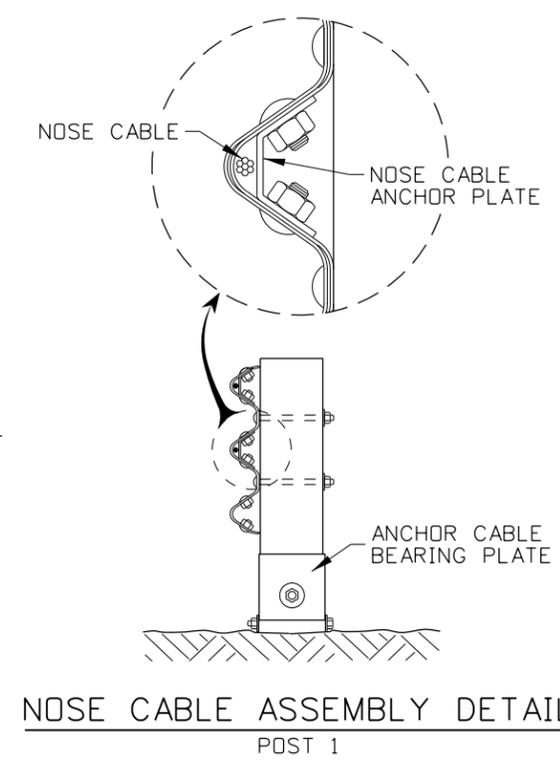
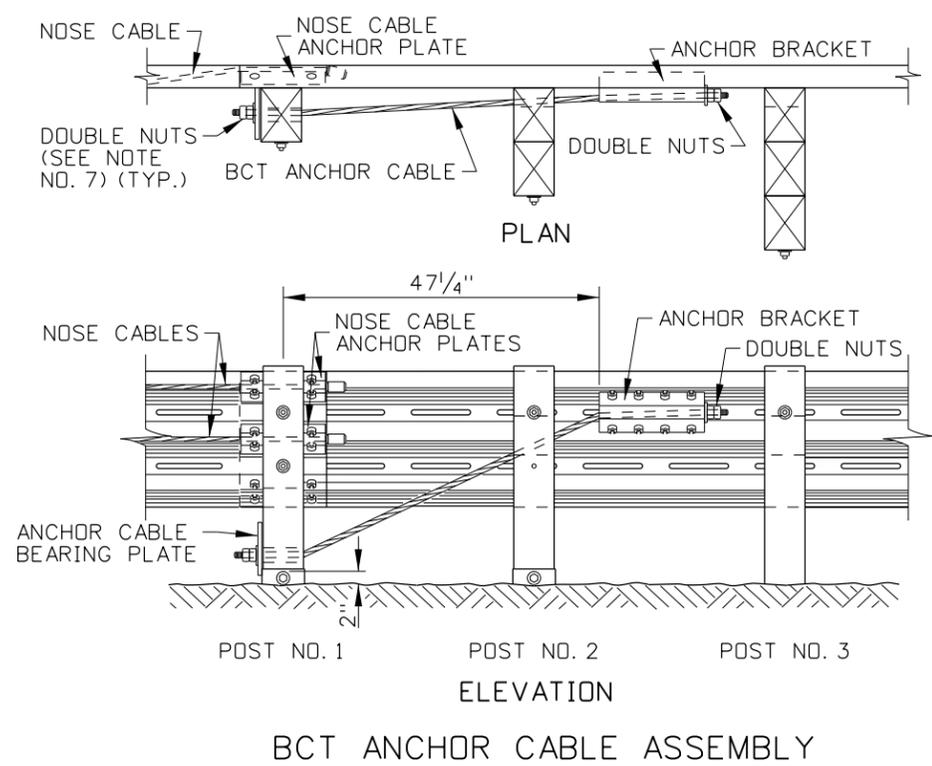
ORIGINAL SIGNED BY: TED E. MASON for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BULLNOSE CRASH CUSHION

English
STANDARD DRAWING NO. 613-1
SHEET 4 OF 7

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 8, 2015



REVISIONS							
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1	06-02	MSM	6	09-15	RDL		
2	10-03	MSM					
3	12-04	MSM					
4	05-06	MSM					
5	09-10	MGL					

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 DRAWING DATE: NOVEMBER, 2001

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

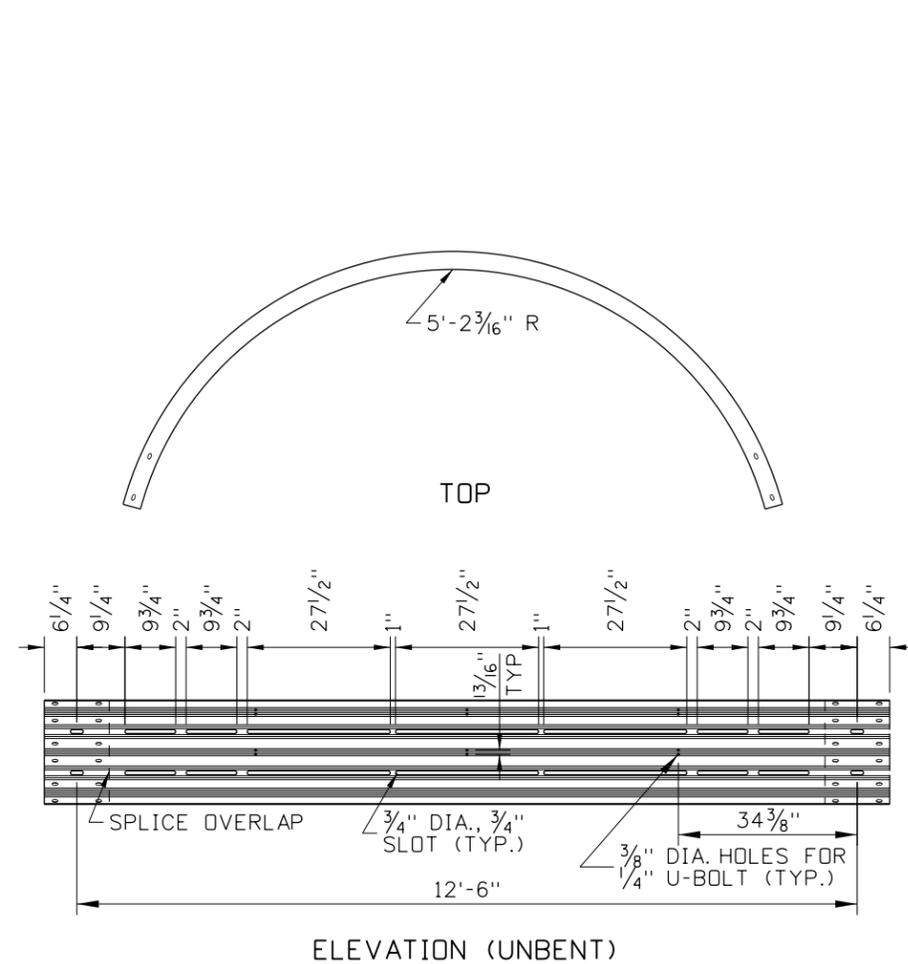
ORIGINAL SIGNED BY: TED E. MASON for
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BULLNOSE CRASH CUSHION

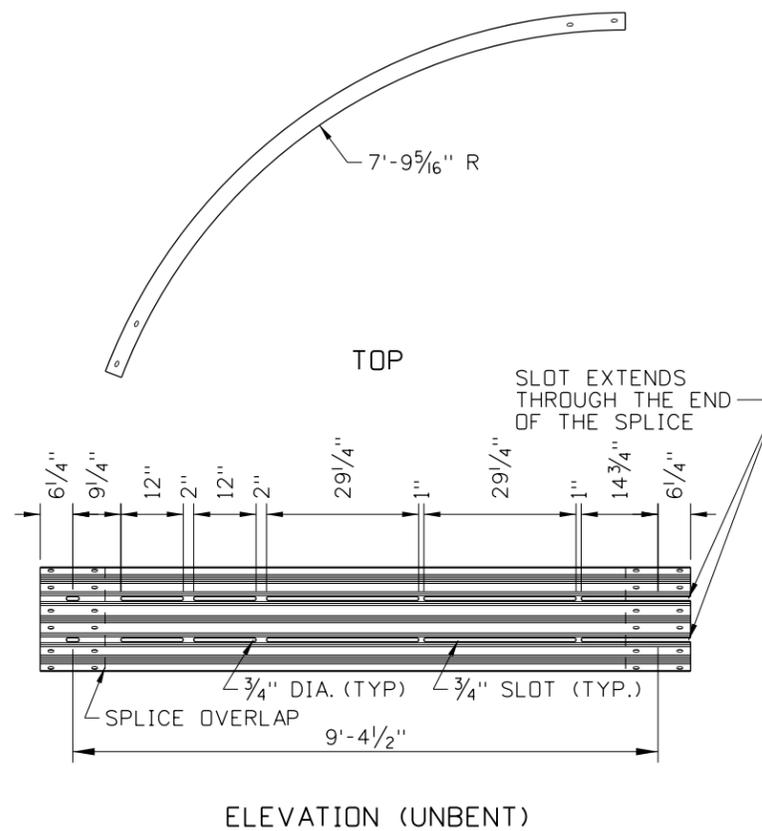
English
 STANDARD DRAWING NO.
613-1
 SHEET 5 OF 7

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

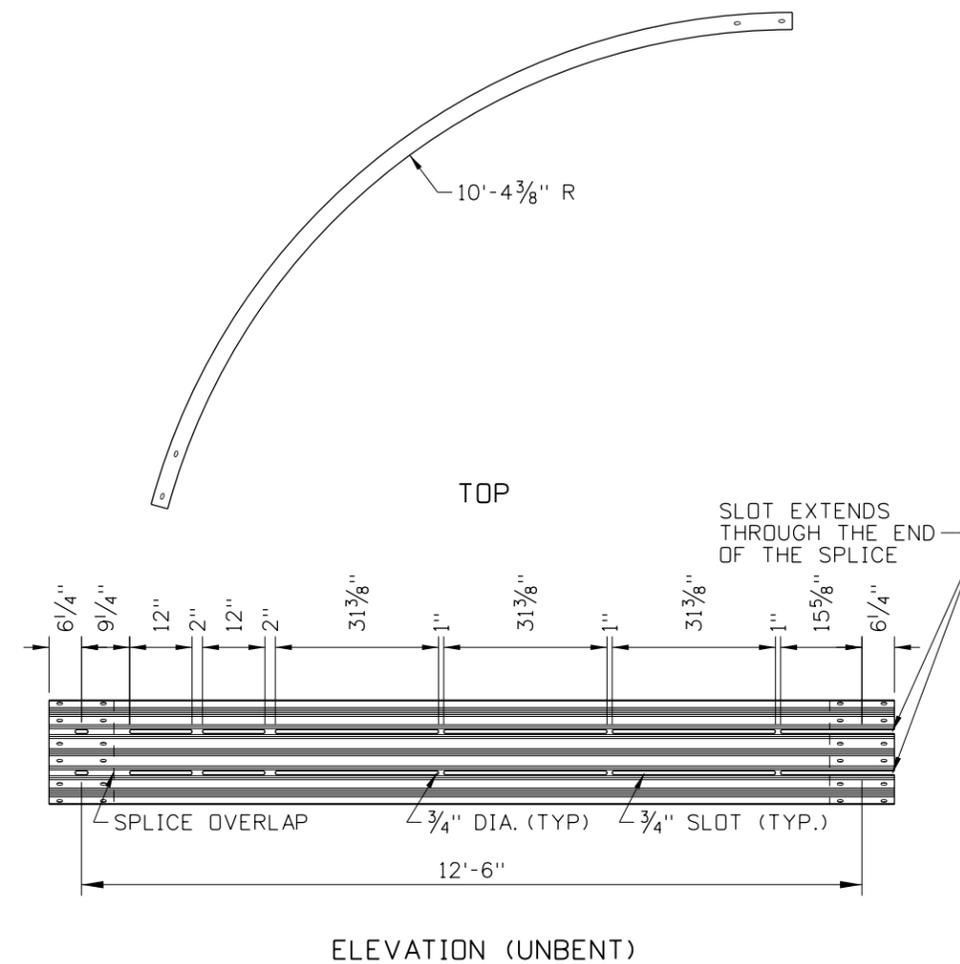
ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: DECEMBER 8, 2015



RAIL SECTION NO. 1
 SYMMETRICAL DESIGN 1
 ASYMMETRICAL DESIGNS 1 & 2
 (RTM07a)



RAIL SECTION NO. 1
 SYMMETRICAL DESIGN 2
 (2 PIECES)



RAIL SECTION NO. 1
 SYMMETRICAL DESIGN 3
 (2 PIECES)

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	06-02	MSM	6	09-15	RDL			
2	10-03	MSM						
3	12-04	MSM						
4	05-06	MSM						
5	09-10	MGL						

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 ARE FOR 11" X 17"
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CADD FILE NAME:
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DRAWING DATE:
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**IDAHO
 TRANSPORTATION
 DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: TED E. MASON *for*
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BULLNOSE CRASH CUSHION

English

STANDARD DRAWING NO.
613-1

SHEET 6 OF 7

ORIGINAL STORED
 AT: ITD,
 Headquarters
 3311 West State
 Boise, Idaho

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 DECEMBER 8, 2015

DEFINITIONS

BCT POST - BREAKAWAY CABLE TERMINAL POST - A NON-PROPRIETARY WOOD POST USED IN GUARDRAIL ANCHORS.

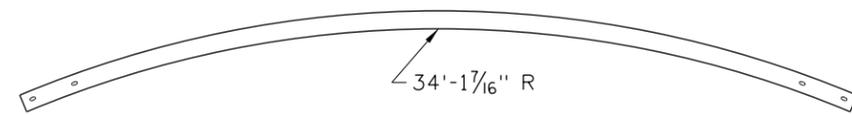
CRT POST - CONTROLLED-RELEASE TERMINAL POST - A NON-PROPRIETARY, WEAKENED WOOD POST.

UBSP - UNIVERSAL BREAKAWAY STEEL POST - A NON-PROPRIETARY FRACTURING-BOLT STEEL POST.

TASK FORCE 13 - A JOINT AASHTO, AGC, AND ARTBA SUBCOMMITTEE ON NEW HIGHWAY MATERIALS AND TECHNOLOGIES. THE TASK FORCE ASSIGNS COMPONENT AND SYSTEM NUMBERS, AND MAINTAINS A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE.

NOTES

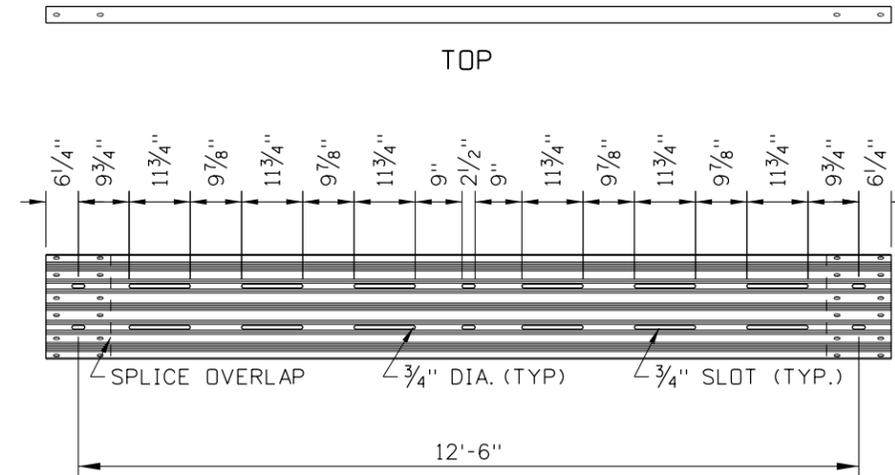
1. THE BULLNOSE CRASH CUSHION IS TYPICALLY USED TO SHIELD NARROW MEDIAN HAZARDS SUCH AS BRIDGE PIERS OR OVERHEAD SIGNS, TO SHIELD THE GAP BETWEEN TWIN BRIDGES, AND FOR GORE AREA PROTECTION.
2. SYMMETRICAL OR ASYMMETRICAL DESIGNS MAY BE USED.
3. EITHER THE WOOD OR THE STEEL POST OPTION MAY BE CHOSEN. DO NOT MIX WOOD AND STEEL POSTS (POST NOS. 1 AND 2 ARE WOOD IN BOTH THE WOOD AND STEEL POST OPTIONS).
4. ENSURE THAT GRADING UNDER, AROUND, AND IN FRONT OF THE BULLNOSE CRASH CUSHION IS 10:1 OR FLATTER. ENSURE THAT THE GRADING BEHIND THE NOSE OF THE CRASH CUSHION IS 10:1 OR FLATTER UP TO AT LEAST POST NO. 9.
5. POST NOS. 1 THROUGH 7 ARE SPACED AT 3'-1 1/2" INTERVALS. POSTS BEYOND POST NO. 7 ARE SPACED AT 6'-3" INTERVALS.
6. QUANTITIES SHOWN IN THE BULLNOSE CRASH CUSHION HARDWARE COMPONENTS TABLE ARE FOR RAIL SECTION NOS. 1 THROUGH 3 AND THE FIRST TWO 2-SPACE THRIE-BEAM GUARDRAIL SECTIONS AND POST NOS. 1 THROUGH 10.
7. TORQUE THE OUTSIDE NUTS ON EACH END OF THE ANCHOR CABLE A MINIMUM OF 100 FT.-LBS. AGAINST THE INSIDE NUTS.
8. DRAWING NOT TO SCALE.



TOP
(BENT SECTION - FOR SYMMETRICAL DESIGNS 1, 2, & 3 AND ONE SIDE OF ASYMMETRICAL DESIGNS 1 & 2)

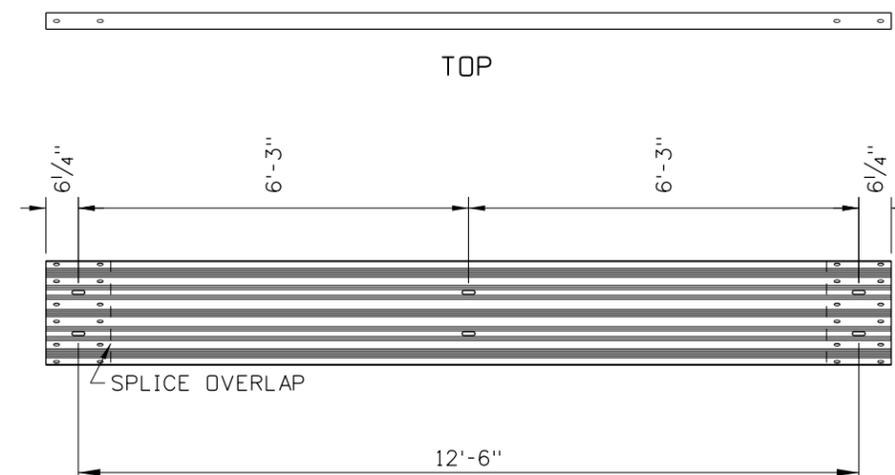


TOP
(UNBENT SECTION - FOR ONE SIDE OF ASYMMETRICAL DESIGNS 1 & 2)



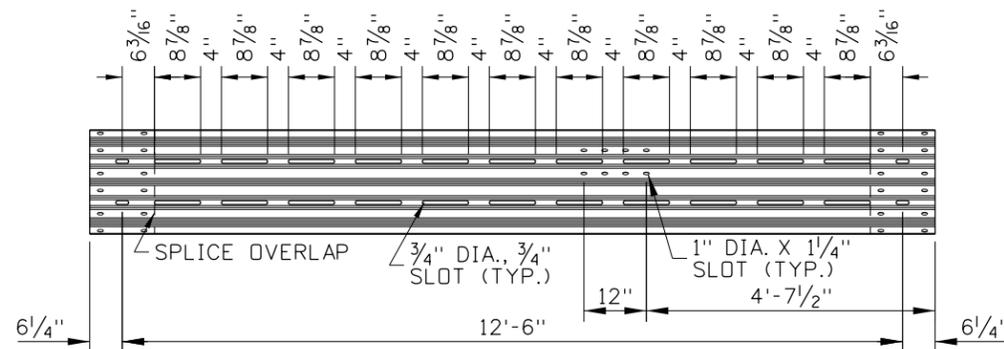
ELEVATION (UNBENT)

RAIL SECTION NO. 3
SYMMETRICAL DESIGNS 1, 2, & 3
ASYMMETRICAL DESIGNS 1 & 2
(RTM07c)



ELEVATION (UNBENT)

2-SPACE THRIE-BEAM GUARDRAIL
SYMMETRICAL DESIGNS 1, 2, & 3
ASYMMETRICAL DESIGNS 1 & 2
(RTM02a)



ELEVATION (UNBENT)

RAIL SECTION NO. 2
SYMMETRICAL DESIGNS 1, 2, & 3
ASYMMETRICAL DESIGNS 1 & 2
(RTM07b)

REVISIONS

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	06-02	MSM	6	09-15	RDL			
2	10-03	MSM						
3	12-04	MSM						
4	05-06	MSM						
5	09-10	MGL						

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CADD FILE NAME: 613-1_1215.dgn
DRAWING DATE: NOVEMBER, 2001



BOISE IDAHO

ORIGINAL SIGNED BY: TED E. MASON for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

BULLNOSE CRASH CUSHION

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO.

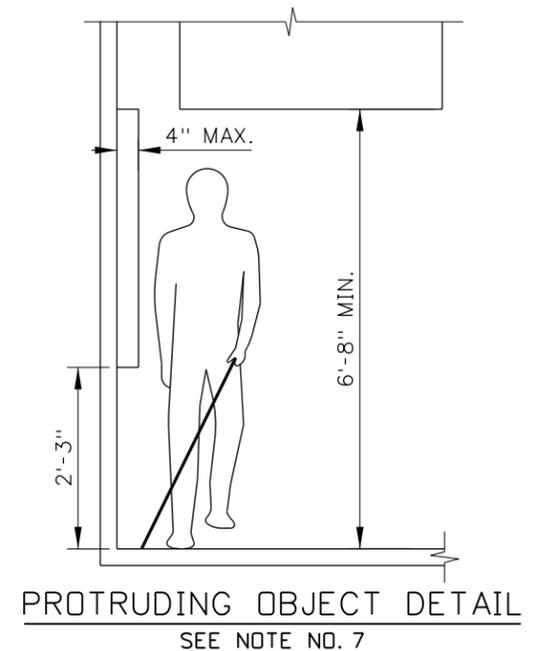
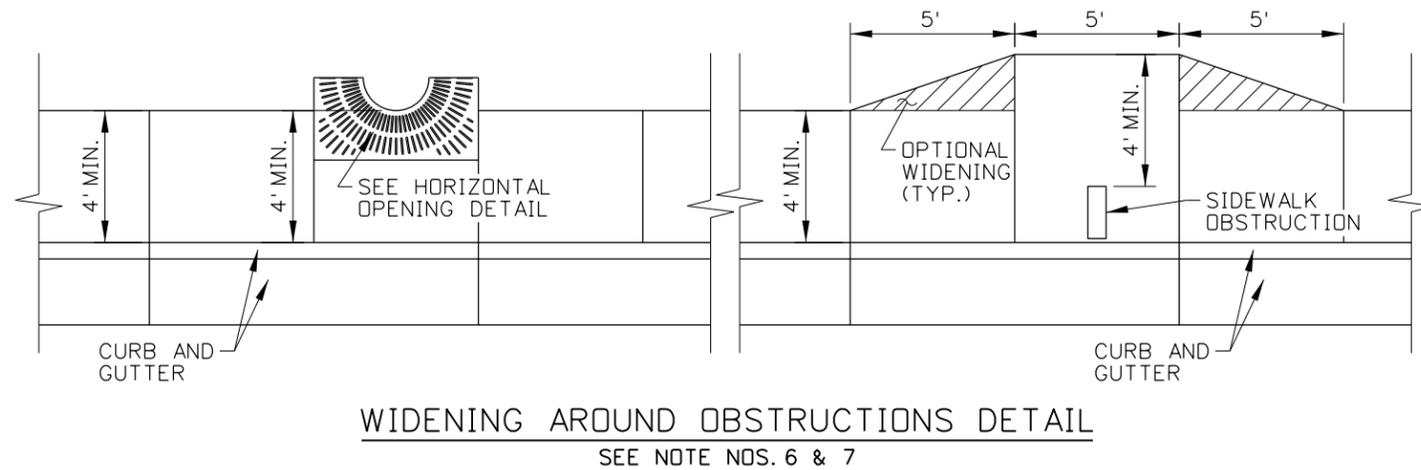
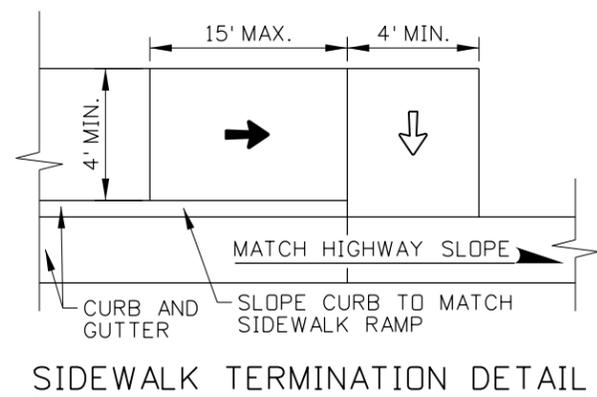
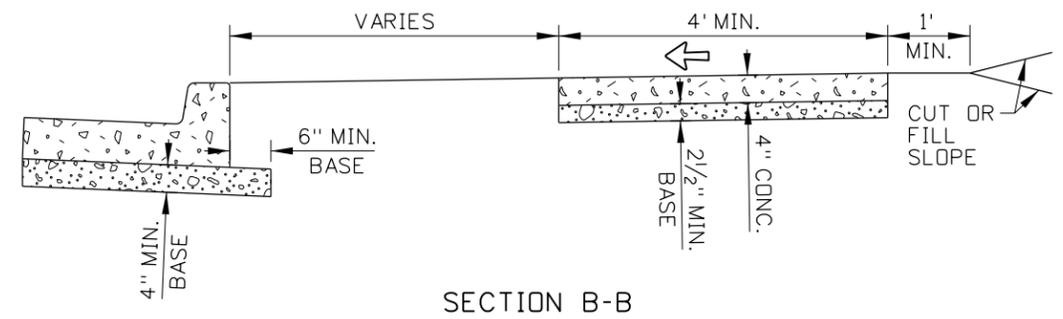
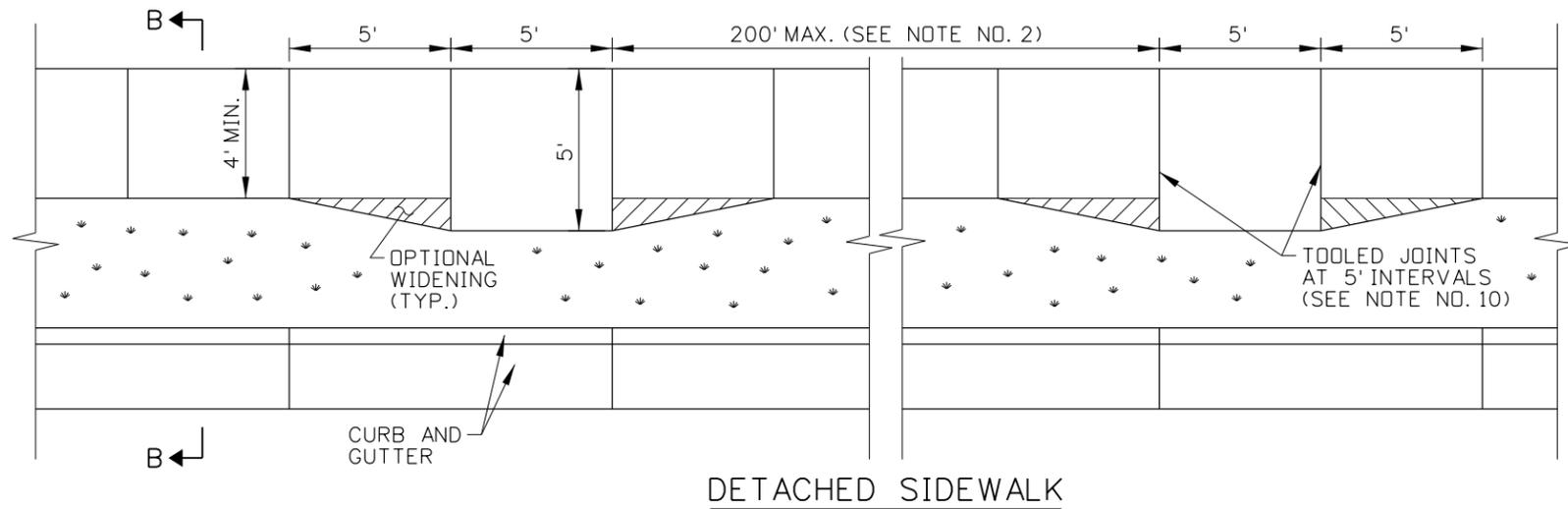
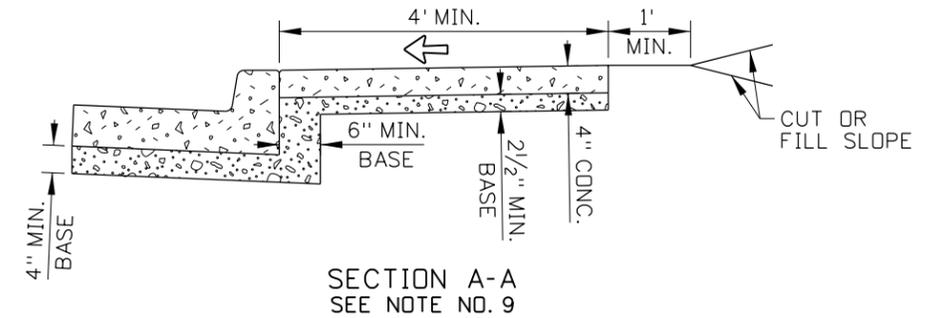
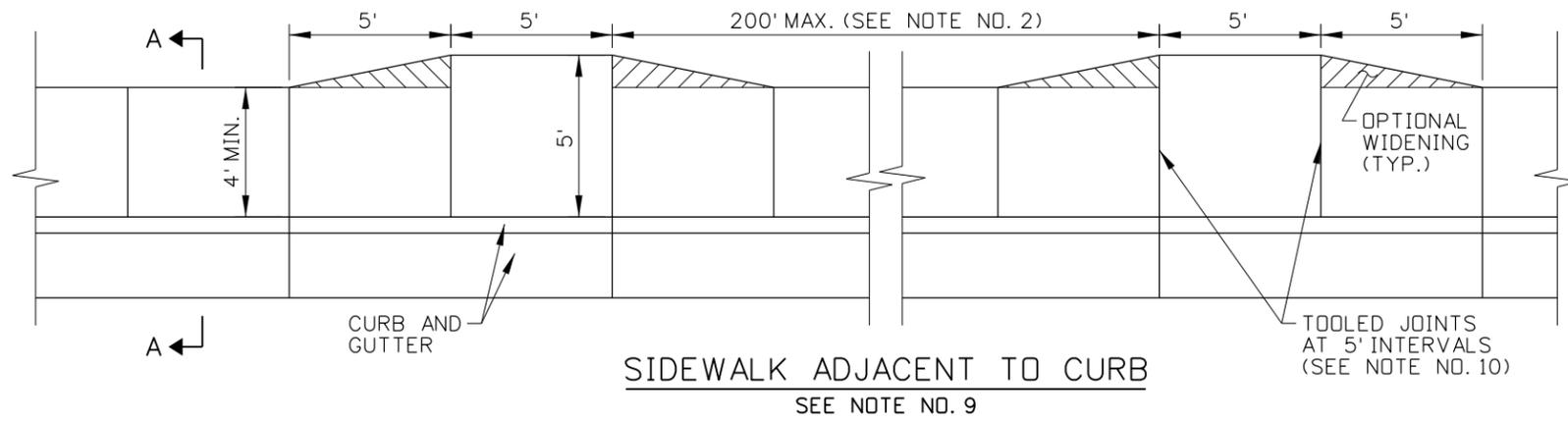
613-1

SHEET 7 OF 7

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: ORIGINAL SIGNED: DECEMBER 8, 2015

SYMBOL LEGEND

- ↖ 1.0% TO 2.0% SLOPE
- ↙ 5.0% TO 8.3% RUNNING SLOPE, 2.0% OR FLATTER CROSS SLOPE



ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS							
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CADD FILE NAME: 614-1_0615.dgn
DRAWING DATE: MAY, 2015

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
SIDEWALKS
REQUIRES SHEET 2 OF 2

English
STANDARD DRAWING NO.
614-1
SHEET 1 OF 2

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JUNE 15, 2015

SYMBOL LEGEND

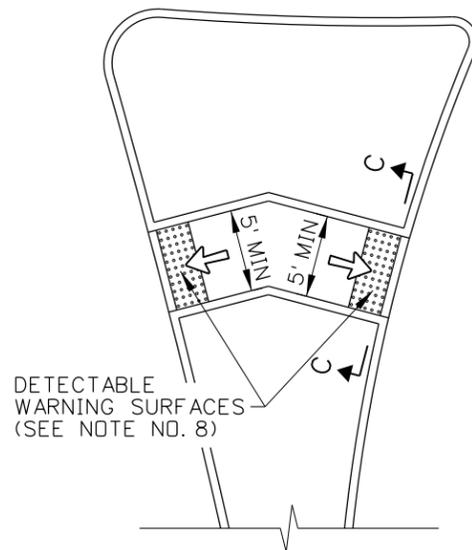
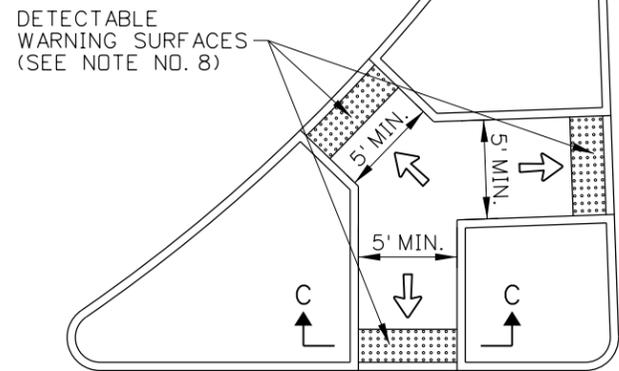
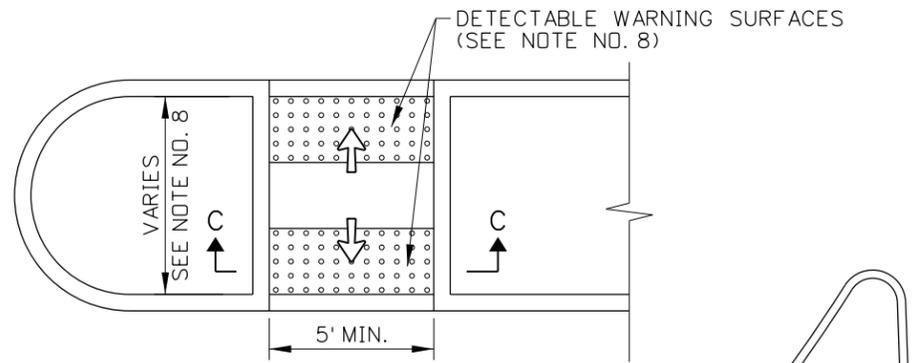
- ↖ 1.0% TO 2.0% SLOPE
- ↙ 5.0% TO 8.3% RUNNING SLOPE,
2.0% OR FLATTER CROSS SLOPE

NOTES

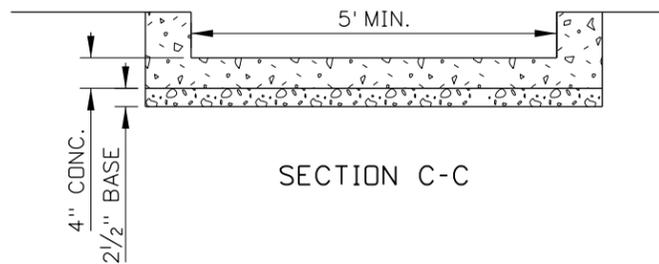
1. SIDEWALKS MAY CONSIST OF A PEDESTRIAN CIRCULATION PATH AND A PEDESTRIAN ACCESS ROUTE. THE PEDESTRIAN CIRCULATION PATH IS A PREPARED SURFACE PROVIDED FOR PEDESTRIAN TRAVEL IN THE PUBLIC RIGHT-OF-WAY. THE PEDESTRIAN ACCESS ROUTE IS A CONTINUOUS AND UNOBSTRUCTED PATH OF TRAVEL PROVIDED FOR PEDESTRIANS WITH DISABILITIES WITHIN OR COINCIDING WITH A PEDESTRIAN CIRCULATION PATH.
2. PROVIDE AT LEAST 4' OF CONTINUOUS CLEAR WIDTH OF PEDESTRIAN ACCESS ROUTE, EXCLUSIVE OF THE CURB WIDTH. WHERE SIDEWALKS ARE WIDER THAN 4', ONLY A PORTION OF THE SIDEWALK IS REQUIRED TO BE PART OF THE PEDESTRIAN ACCESS ROUTE.

PROVIDE A PASSING SPACE AT 200' OR SHORTER INTERVALS WHEN THE CLEAR WIDTH OF THE PEDESTRIAN ACCESS ROUTE IS LESS THAN 5'. ENSURE THAT THE DIMENSIONS OF THE PASSING SPACE ARE AT LEAST 5' BY 5'. INTERSECTING SIDEWALKS, DRIVEWAYS, AND ALLEYS MAY BE USED AS PASSING SPACES.
3. ENSURE THAT THE GRADE OF THE PEDESTRIAN ACCESS ROUTE DOES NOT EXCEED THE GENERAL GRADE ESTABLISHED FOR THE ADJACENT HIGHWAY.
4. ENSURE THAT THE CROSS SLOPE OF THE PEDESTRIAN ACCESS ROUTE WITHIN THE SIDEWALK DOES NOT EXCEED TWO PERCENT.
5. VERTICAL SURFACE DISCONTINUITIES MAY OCCASIONALLY OCCUR AT EXPANSION JOINTS, UTILITY COVERS, VAULT FRAMES, AND GRATINGS WITHIN THE SIDEWALK. ENSURE THAT VERTICAL SURFACE DISCONTINUITIES DO NOT EXCEED 1/2". BEVEL VERTICAL SURFACE DISCONTINUITIES BETWEEN 1/4" AND 1/2" WITH A 2:1 SLOPE ACROSS THE ENTIRE VERTICAL SURFACE DISCONTINUITY.
6. ENSURE THAT HORIZONTAL OPENINGS IN GRATINGS AND JOINTS DO NOT PERMIT PASSAGE OF A SPHERE MORE THAN 1/2" IN DIAMETER.
7. OBJECTS PROTRUDING INTO OR OVERHANGING A PEDESTRIAN CIRCULATION PATH MUST NOT REDUCE THE MINIMUM CLEAR WIDTH OF THE PEDESTRIAN ACCESS ROUTE. PROTRUDING OBJECTS INCLUDE STREET FURNITURE, STREET LIGHTS, UTILITY POLES, EQUIPMENT CABINETS, SIGN POSTS AND SIGNS, PARKING METERS, TRASH RECEPTACLES, PUBLIC TELEPHONES, MAILBOXES, NEWSPAPER VENDING MACHINES, BENCHES, TRANSIT SHELTERS, KIOSKS, BICYCLE RACKS, PLANTERS AND PLANTED TREES, AND STREET SCULPTURES.

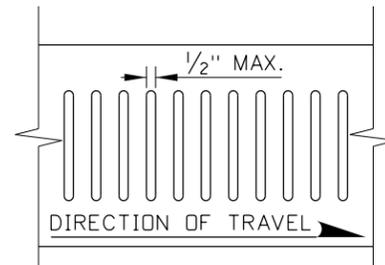
ENSURE THAT OBJECTS WITH LEADING EDGES BETWEEN 2'-3" AND 6'-8" ABOVE THE FINISH SURFACE DO NOT PROTRUDE MORE THAN 4" HORIZONTALLY INTO THE PEDESTRIAN CIRCULATION PATH.
8. PROVIDE DETECTABLE WARNING SURFACES ON PEDESTRIAN REFUGE ISLANDS WITH CURB RAMPS OR WHEN CUT-THROUGH AT STREET LEVEL AND REFUGE ISLAND WIDTHS ARE GREATER THAN SIX FEET IN THE DIRECTION OF PEDESTRIAN TRAVEL. DO NOT INSTALL DETECTABLE WARNING SURFACES AT PEDESTRIAN REFUGE ISLANDS THAT ARE CUT-THROUGH AT STREET LEVEL AND ARE LESS THAN SIX FEET IN WIDTH IN THE DIRECTION OF PEDESTRIAN TRAVEL. SEE STANDARD DRAWING 614-3 FOR DETECTABLE WARNING SURFACE DETAILS.
9. USE A BOND PREVENTATIVE BETWEEN THE SIDEWALK AND CURB WHEN CONSTRUCTED SEPARATELY AND PLACED ADJACENT TO EACH OTHER.
10. ALIGN CURB AND SIDEWALK JOINTS. CONSTRUCT JOINTS AT 5' INTERVALS THAT ARE APPROXIMATELY 1/8" WIDE AND 3/4" IN DEPTH. CONSTRUCT A LONGITUDINAL JOINT WHEN THE SIDEWALK IS 8' WIDE OR WIDER. INSTALL A PREFORMED EXPANSION JOINT FILLER EVERY 40'.
11. DRAWING NOT TO SCALE.



PEDESTRIAN REFUGE ISLAND DETAILS

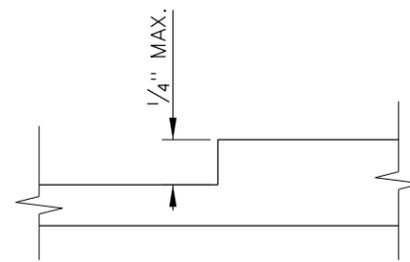


SECTION C-C

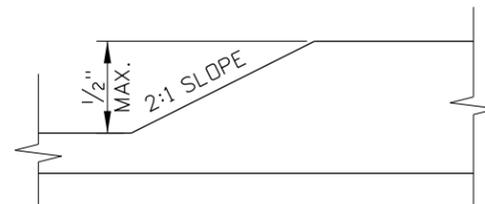


HORIZONTAL OPENING DETAIL

SEE NOTE NO. 6



VERTICAL DISCONTINUITY OF 1/4" OR LESS



VERTICAL DISCONTINUITY BETWEEN 1/4" AND 1/2"

VERTICAL SURFACE DISCONTINUITY DETAIL

SEE NOTE NO. 5

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 614-1_0615.dgn
 DRAWING DATE: MAY, 2015

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
SIDEWALKS
 REQUIRES SHEET 1 OF 2

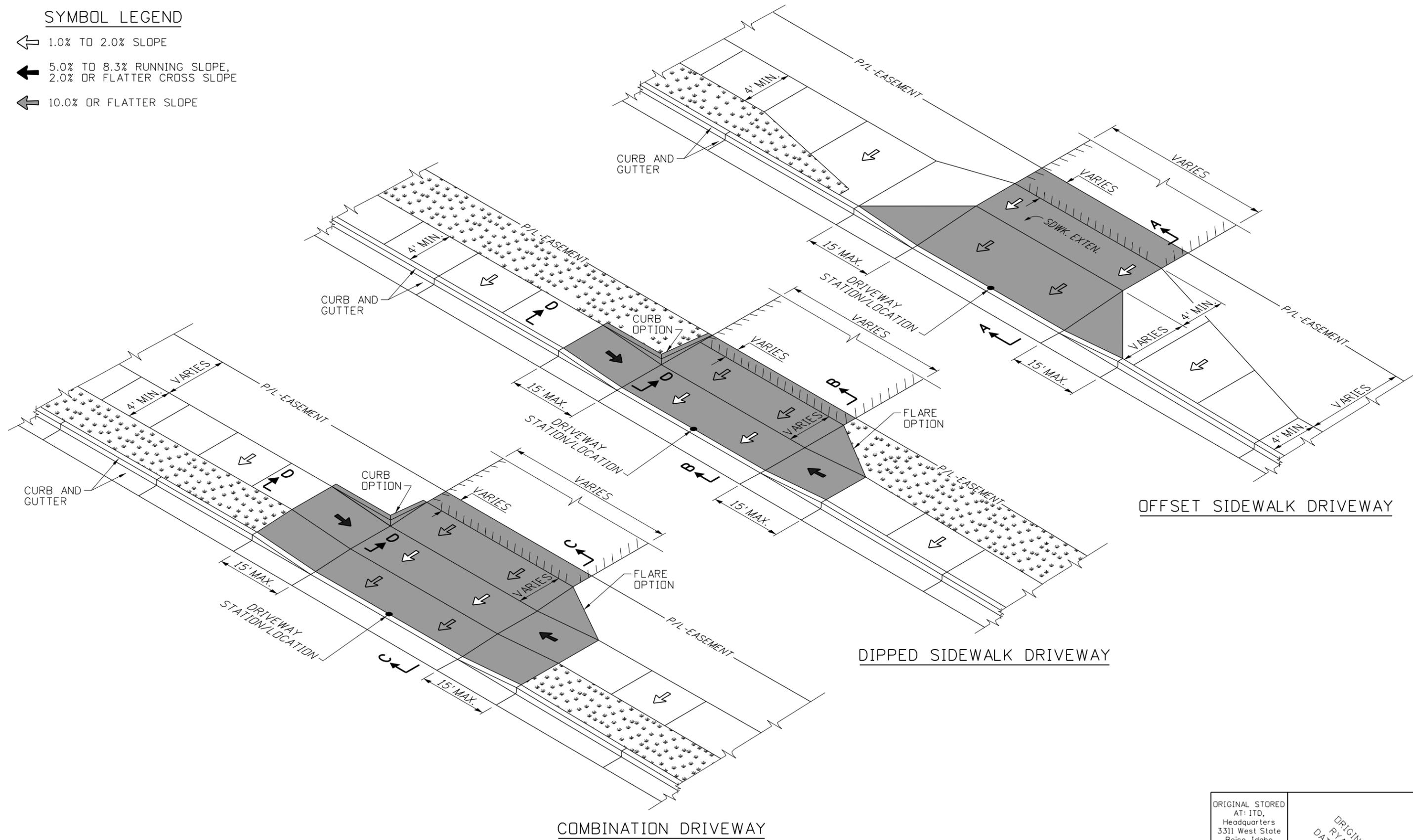
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English
 STANDARD DRAWING NO.
614-1
 SHEET 2 OF 2

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 JUNE 15, 2015

SYMBOL LEGEND

- ↖ 1.0% TO 2.0% SLOPE
- ↙ 5.0% TO 8.3% RUNNING SLOPE, 2.0% OR FLATTER CROSS SLOPE
- ↗ 10.0% OR FLATTER SLOPE



OFFSET SIDEWALK DRIVEWAY

DIPPED SIDEWALK DRIVEWAY

COMBINATION DRIVEWAY

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	11-90	GB	6	05-06	MSM			
2	09-93	MSM	7	05-07	MSM			
3	12-94	MSM	8	07-10	JAW			
4	09-02	MSM	9	04-15	EG			
5	06-04	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 614-2_0615.dgn
 DRAWING DATE: APRIL, 1990

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
DRIVEWAYS
 REQUIRES SHEET 2 OF 2

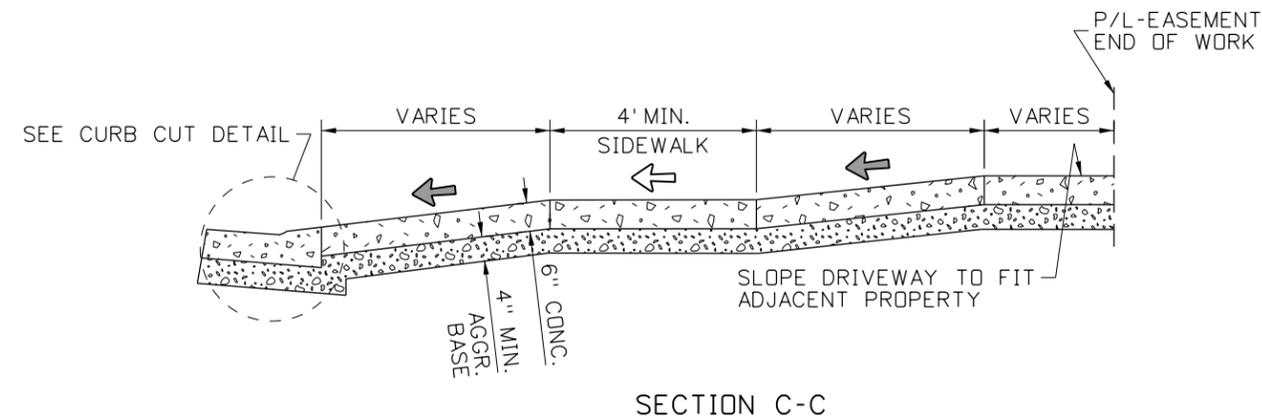
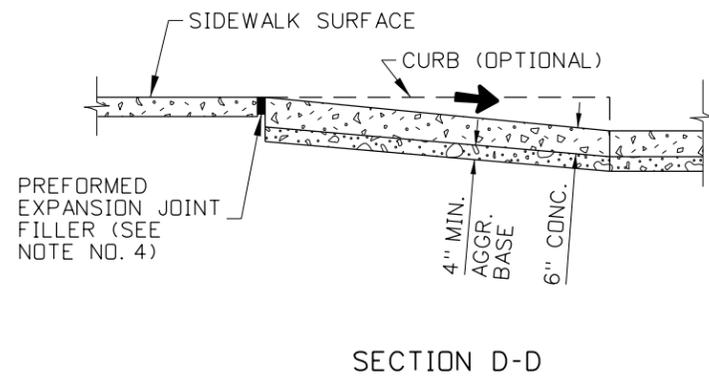
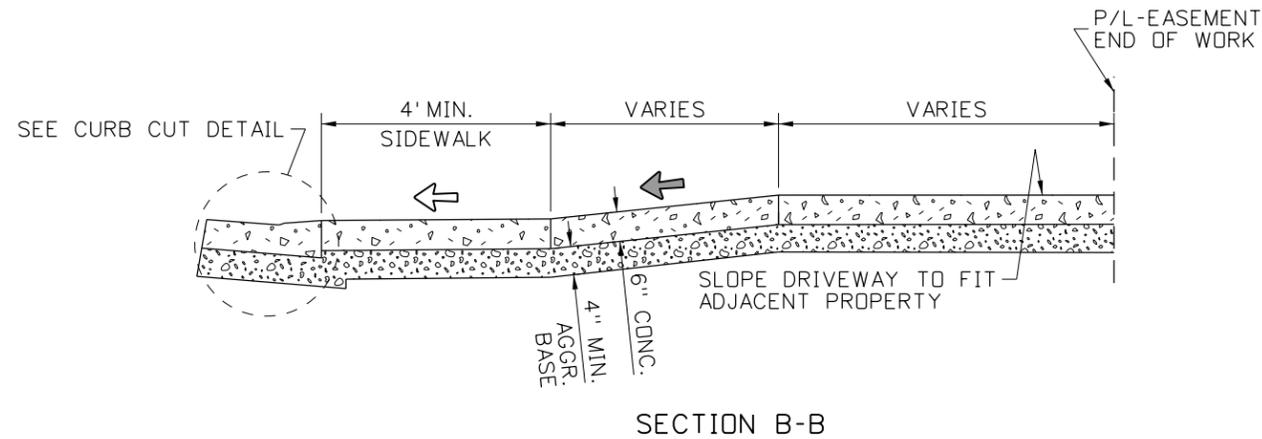
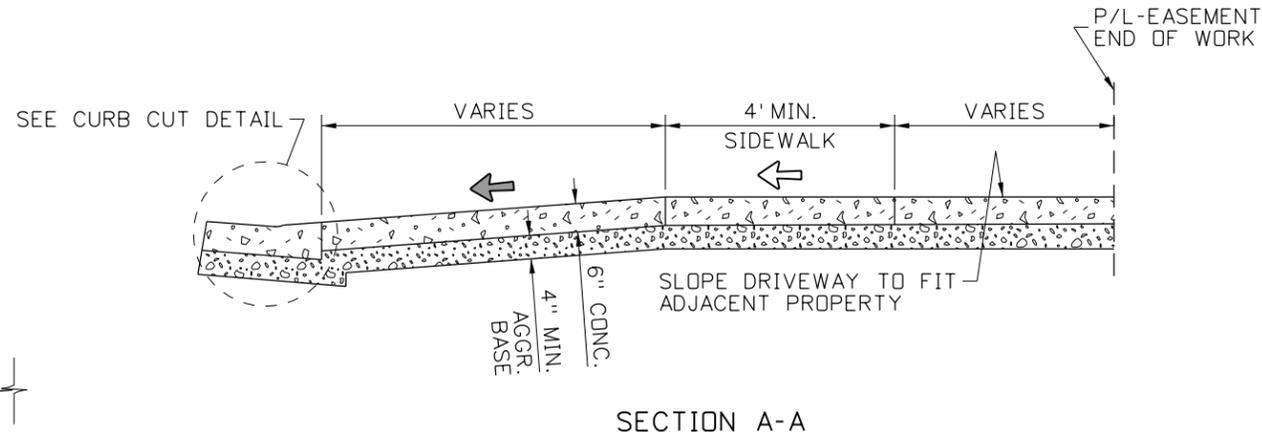
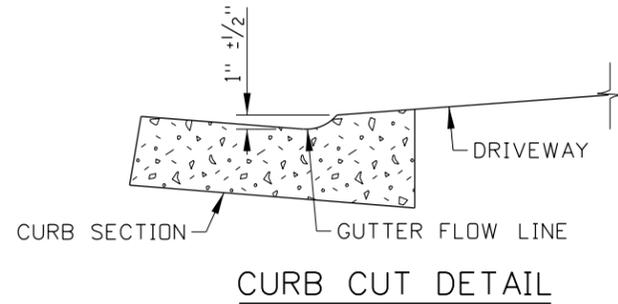
English
 STANDARD DRAWING NO.
614-2
 SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 JUNE 15, 2015

SYMBOL LEGEND

- ↖ 1.0% TO 2.0% SLOPE
- ↙ 5.0% TO 8.3% RUNNING SLOPE, 2.0% OR FLATTER CROSS SLOPE
- ↘ 10.0% OR FLATTER SLOPE



NOTES

1. EXTENTS OF DRIVEWAY PAY ITEMS ARE SHOWN IN GRAY SHADING.
2. SEE THE SIDEWALKS STANDARD DRAWING FOR NOTES RELATED TO THE PEDESTRIAN ACCESS ROUTE.
3. DO NOT PLACE DETECTABLE WARNING SURFACES ON DRIVEWAYS.
4. USE A BOND PREVENTATIVE BETWEEN THE DRIVEWAY OR SIDEWALK AND CURB WHEN CONSTRUCTED SEPARATELY AND PLACED ADJACENT TO EACH OTHER.
5. ALIGN ALTERNATING CURB AND SIDEWALK JOINTS. CONSTRUCT DRIVEWAY AND SIDEWALK JOINTS AT 5' INTERVALS THAT ARE APPROXIMATELY 1/8" WIDE AND 3/4" IN DEPTH.
6. DRAWING NOT TO SCALE.

REVISIONS								
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1	11-90	GB	6	05-06	MSM			
2	09-93	MSM	7	05-07	MSM			
3	12-94	MSM	8	07-10	JAW			
4	09-02	MSM	9	04-15	EG			
5	06-04	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 614-2_0615.dgn
 DRAWING DATE: APRIL, 1990

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
DRIVEWAYS
 REQUIRES SHEET 1 OF 2

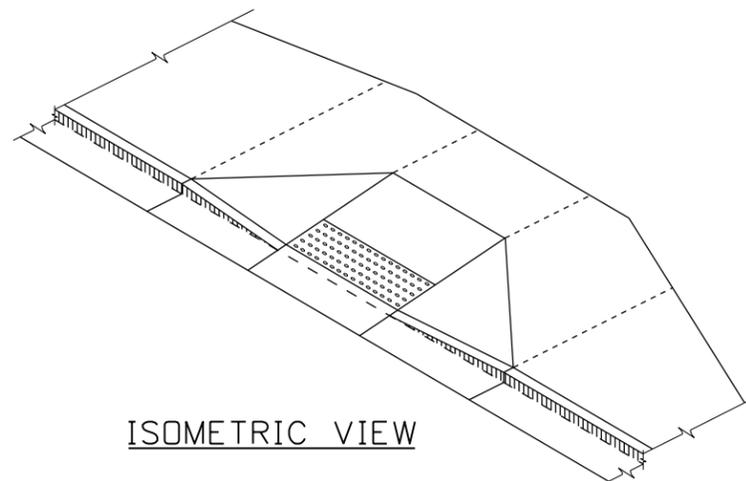
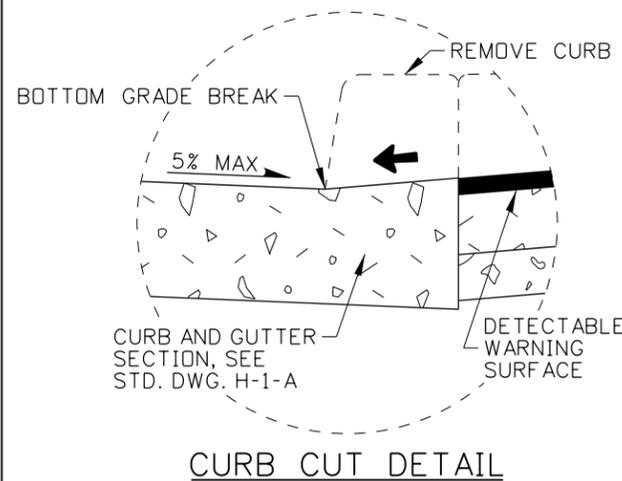
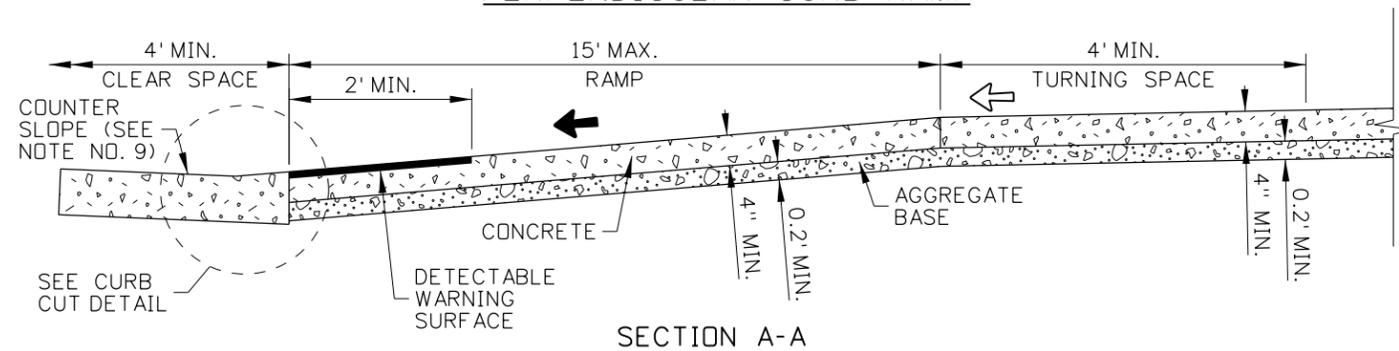
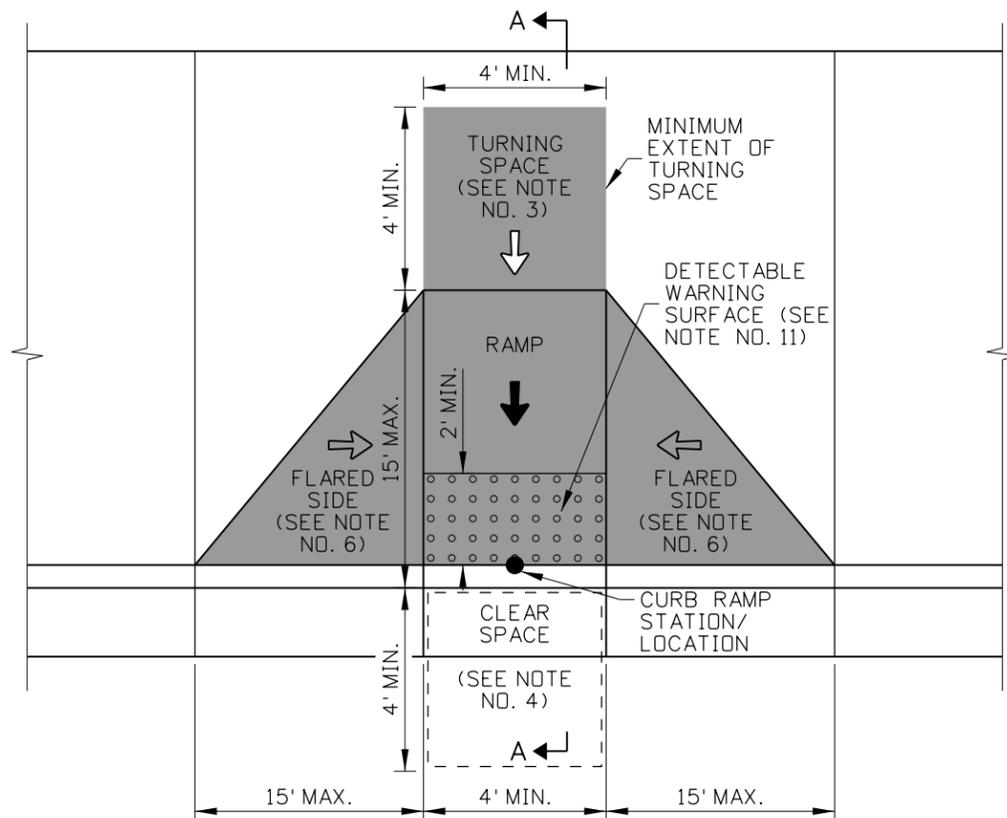
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO.
614-2

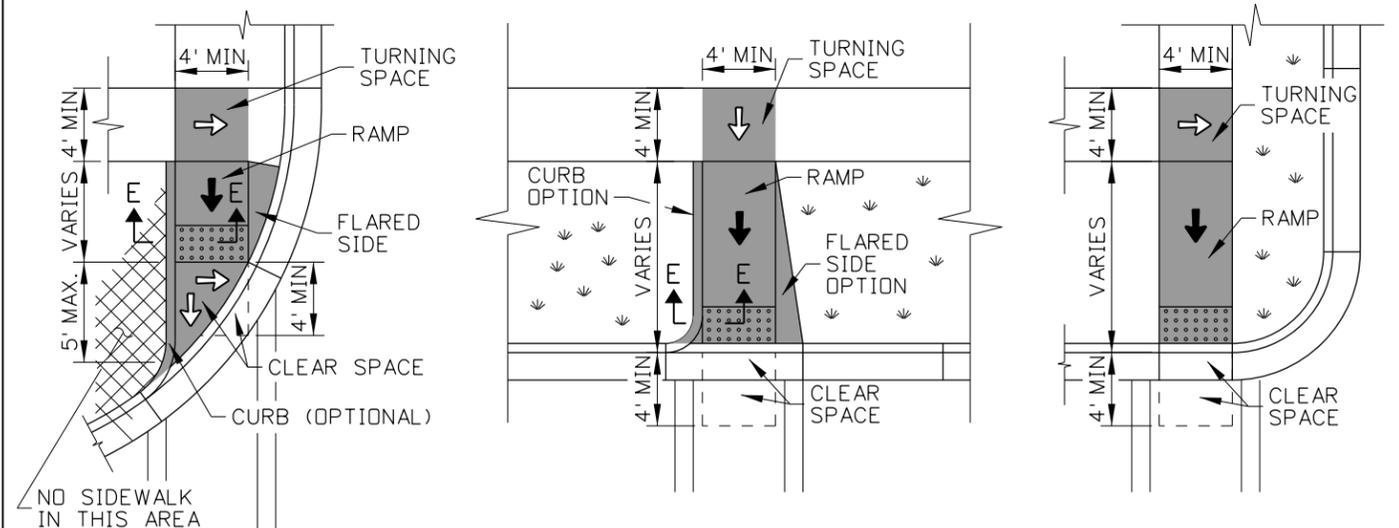
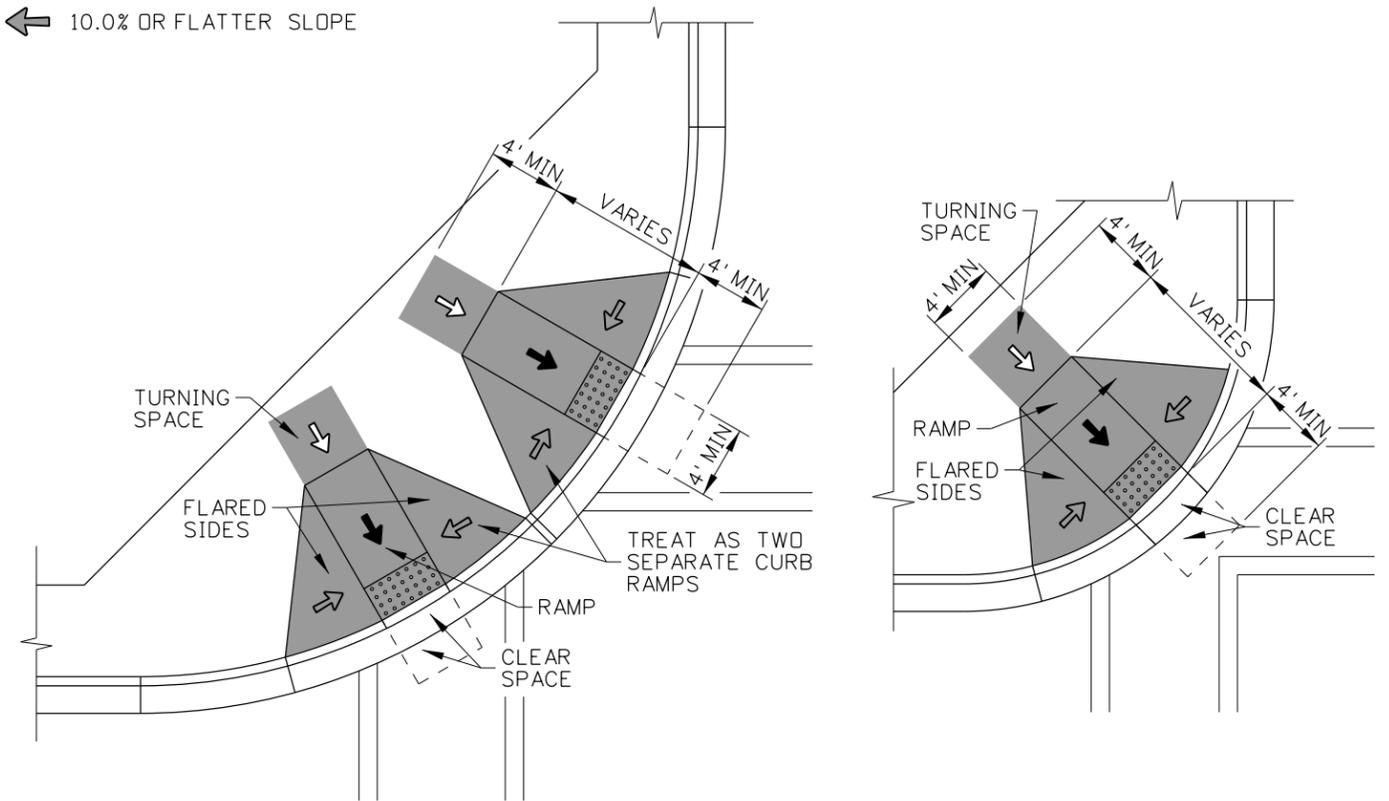
SHEET 2 OF 2

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 JUNE 15, 2015



SYMBOL LEGEND

- ↔ 1.0% TO 2.0% SLOPE
- ↘ 5.0% TO 8.3% RUNNING SLOPE, 2.0% OR FLATTER CROSS SLOPE
- ↙ 10.0% OR FLATTER SLOPE



ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: JUNE 15, 2015

REVISIONS							
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2	12-95	MSM	7	12-04	MSM	12	09-11
3	06-98	MSM	8	06-05	MSM	13	05-15
4	08-01	MSM	9	05-06	MSM		
5	10-02	MSM	10	05-07	MSM		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 614-3_0615.dgn
 DRAWING DATE: JUNE, 1990

IDAHO TRANSPORTATION DEPARTMENT

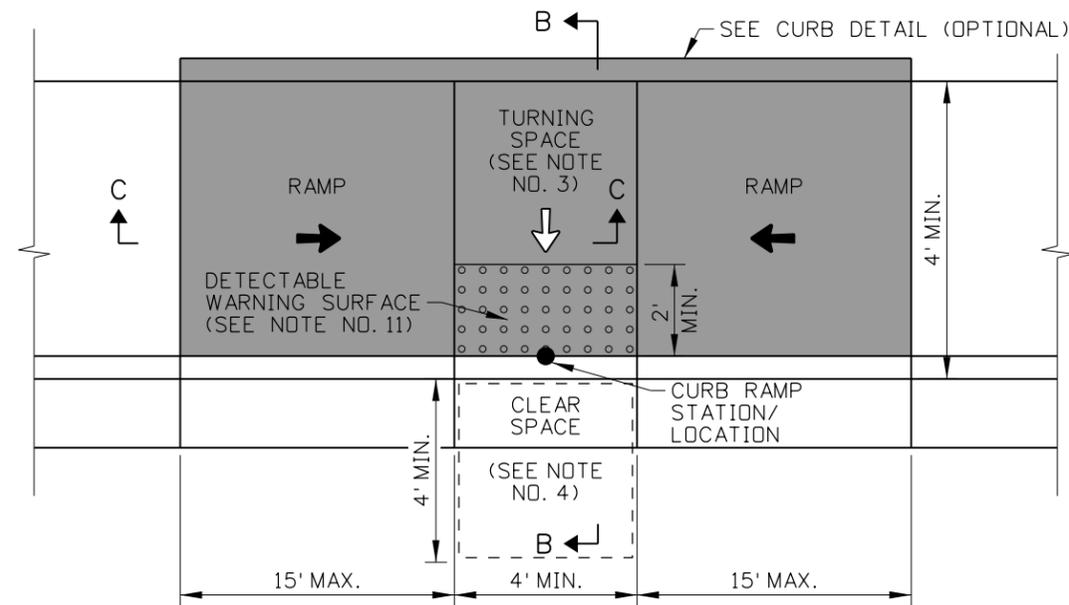


BOISE IDAHO

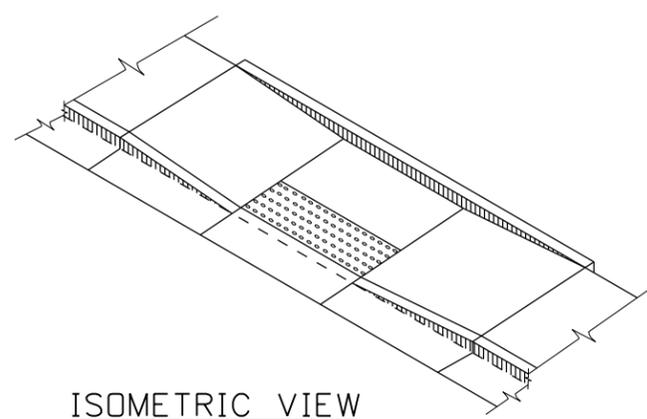
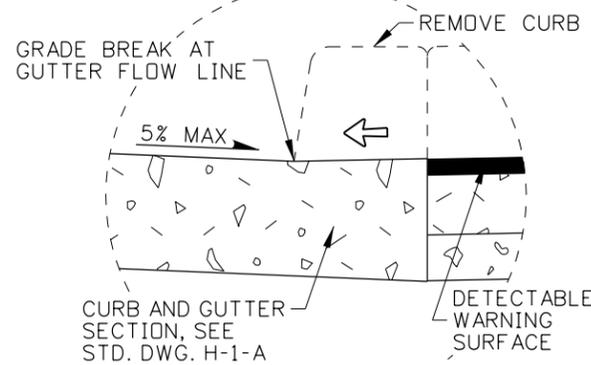
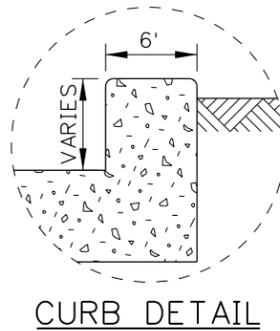
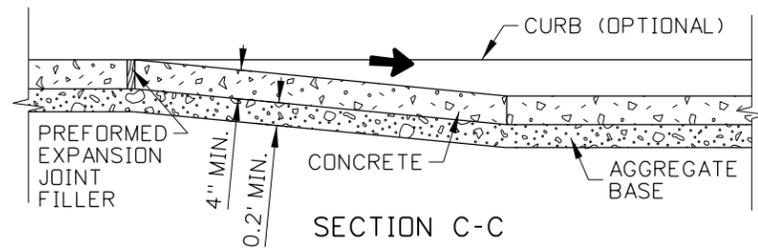
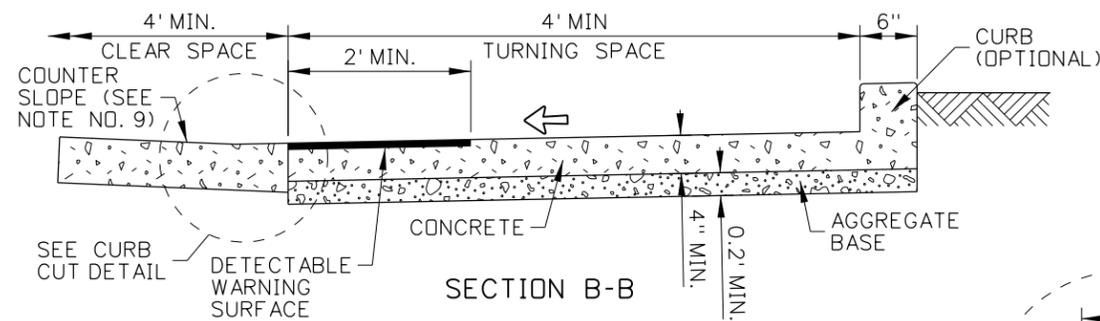
ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
CURB RAMPS
 REQUIRES SHEETS 2 OF 4, 3 OF 4, & 4 OF 4

English
 STANDARD DRAWING NO.
614-3
 SHEET 1 OF 4

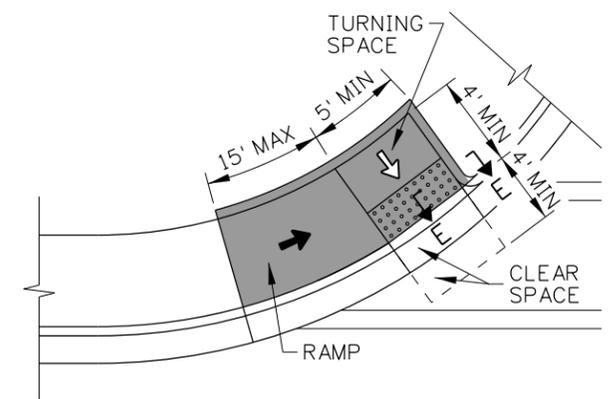
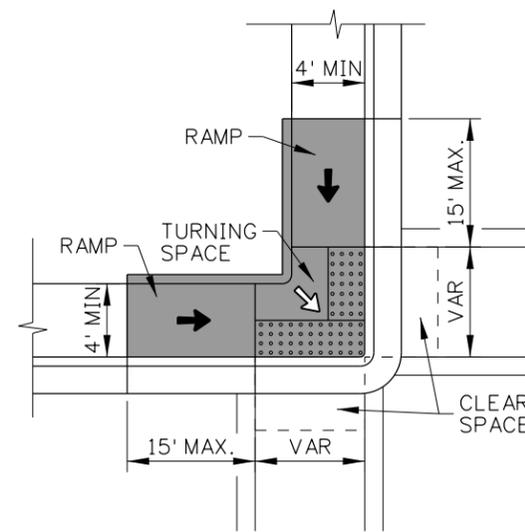
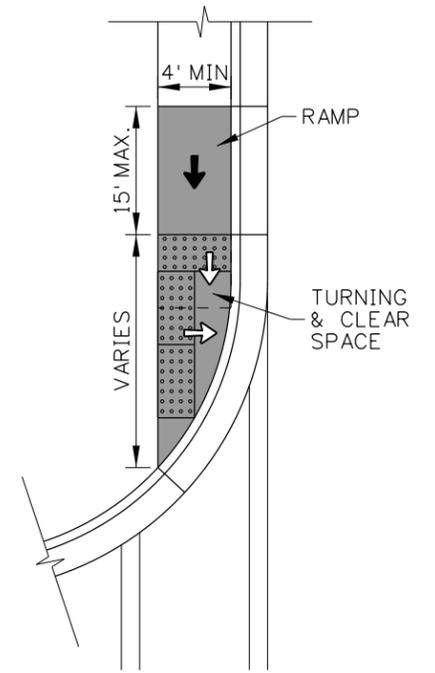
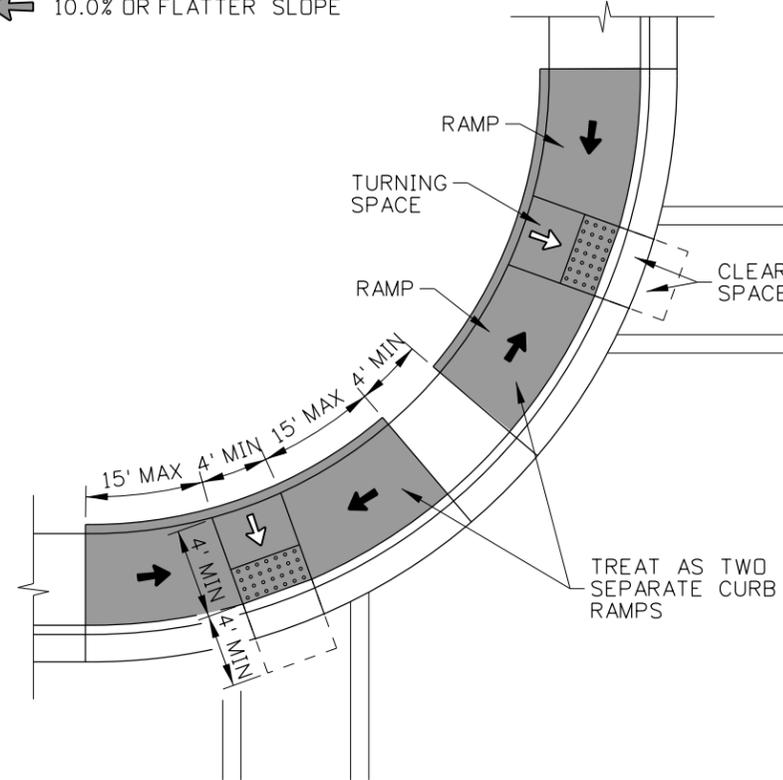


PARALLEL CURB RAMP



SYMBOL LEGEND

- ↖ 1.0% TO 2.0% SLOPE
- ↙ 5.0% TO 8.3% RUNNING SLOPE, 2.0% OR FLATTER CROSS SLOPE
- ↘ 10.0% OR FLATTER SLOPE



EXAMPLE APPLICATIONS

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: JUNE 15, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-93	MSM	6	07-03	MSM	11	07-10	JAW
2	12-95	MSM	7	12-04	MSM	12	09-11	TEM
3	06-98	MSM	8	06-05	MSM	13	05-15	RDL
4	08-01	MSM	9	05-06	MSM			
5	10-02	MSM	10	05-07	MSM			

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 614-3_0615.dgn

DRAWING DATE: JUNE, 1990

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN

DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

CURB RAMPS

REQUIRES SHEETS 1 OF 4, 3 OF 4, & 4 OF 4

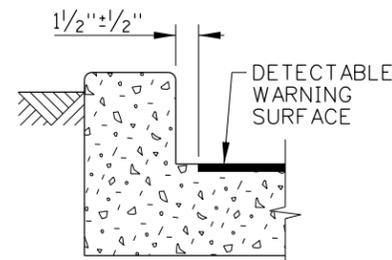
English

STANDARD DRAWING NO. 614-3

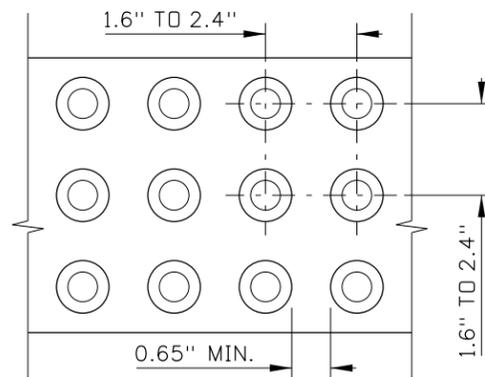
SHEET 2 OF 4

SYMBOL LEGEND

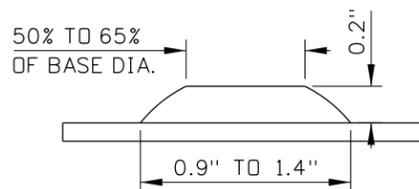
- ← 1.0% TO 2.0% SLOPE
- ← 5.0% TO 8.3% RUNNING SLOPE, 2.0% OR FLATTER CROSS SLOPE
- ← 10.0% OR FLATTER SLOPE



SECTION E-E

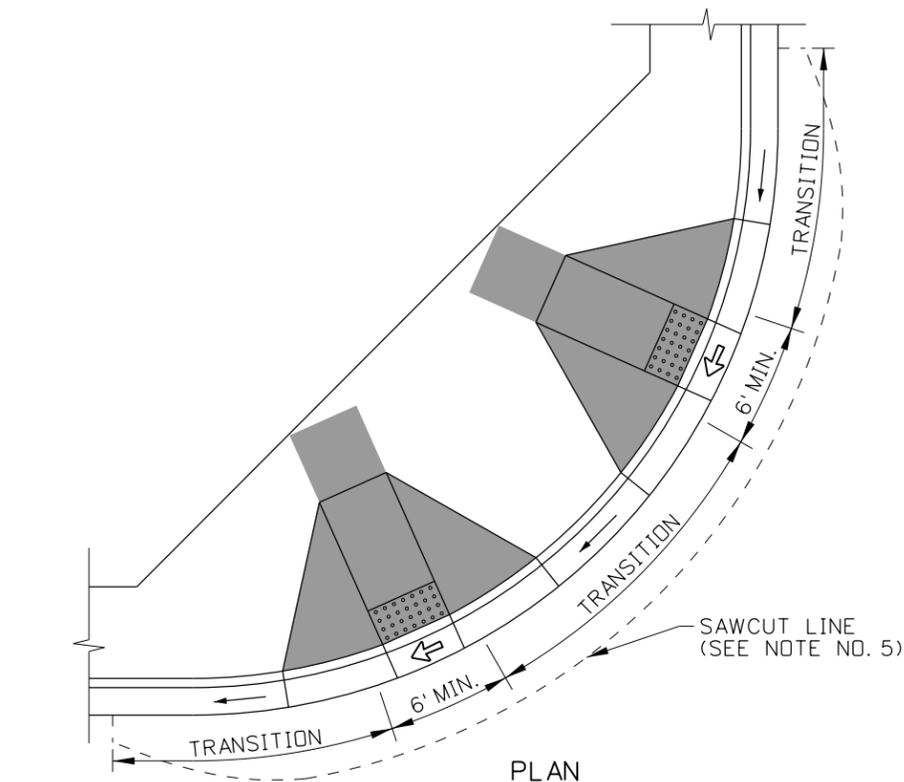


DOME SPACING

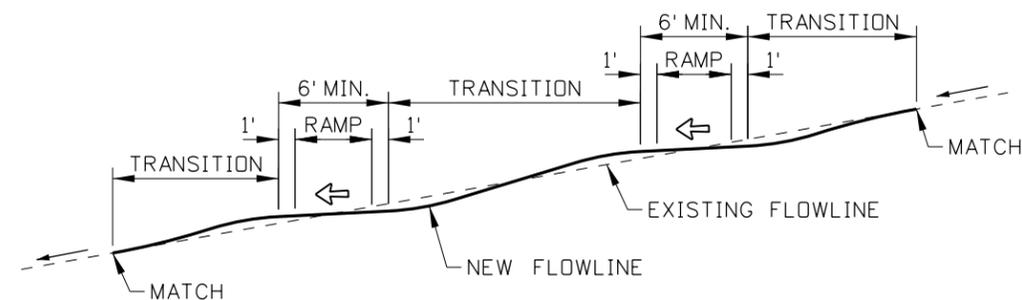


DOME SIZE

DETECTABLE WARNING SURFACE DETAILS
SEE NOTE NO. 11



PLAN



PROFILE

FLOWLINE PROFILE DETAIL
SEE NOTE NO. 5

NOTES

1. EXTENTS OF CURB RAMP PAY ITEMS ARE SHOWN IN GRAY SHADING.
2. CURB RAMP CAN BE PERPENDICULAR, PARALLEL, OR A COMBINATION OF PARALLEL AND PERPENDICULAR RAMP. EXAMPLE APPLICATIONS OF EACH ARE SHOWN ON SHEETS 1, 2, AND 3.
PERPENDICULAR CURB RAMP: PERPENDICULAR CURB RAMP HAS A RAMP THAT CUTS THROUGH THE CURB AT RIGHT ANGLES OR MEETS THE GUTTER GRADE BREAK AT RIGHT ANGLES WHEN THE CURB IS CURVED.
PARALLEL CURB RAMP: PARALLEL CURB RAMP HAS A RAMP OR RAMPS IN-LINE WITH THE DIRECTION OF SIDEWALK TRAVEL AND LOWER THE SIDEWALK TO A LEVEL TURNING SPACE WHERE A TURN IS MADE TO ENTER THE PEDESTRIAN STREET CROSSING.
COMBINATION CURB RAMP: COMBINATION CURB RAMP HAS FEATURES FROM PERPENDICULAR AND PARALLEL CURB RAMP.
3. PROVIDE A TURNING SPACE WITH A 2.0% OR FLATTER SLOPE IN EACH DIRECTION. TURNING SPACES MAY OVERLAP WITH OTHER TURNING SPACES AND CLEAR SPACES.
PERPENDICULAR CURB RAMP: PROVIDE A 4' BY 5' MINIMUM TURNING SPACE WHEN THE TURNING SPACE IS CONSTRAINED AT THE BACK-OF-SIDEWALK.
PARALLEL CURB RAMP: PROVIDE A 4' BY 5' TURNING SPACE WHEN THE TURNING SPACE IS CONSTRAINED ON TWO OR MORE SIDES. ENSURE THAT THE 5' DIMENSION IS PROVIDED IN THE DIRECTION OF THE PEDESTRIAN STREET CROSSING.
4. PROVIDE A CLEAR SPACE BEYOND THE BOTTOM OF THE GRADE BREAK THAT IS WITHIN THE WIDTH OF THE PEDESTRIAN STREET CROSSING AND WHOLLY OUTSIDE THE PARALLEL VEHICLE TRAFFIC LANE.
5. CROSS SLOPE IS THE SLOPE PERPENDICULAR TO THE DIRECTION OF PEDESTRIAN TRAVEL. ENSURE THAT THE CROSS SLOPE OF THE RAMP AND TURNING SPACE DOES NOT EXCEED TWO PERCENT. AT PEDESTRIAN STREET CROSSINGS WITHOUT YIELD OR STOP CONTROL AND AT MIDBLOCK PEDESTRIAN STREET CROSSINGS, THE CROSS SLOPE MAY MATCH THE STREET OR HIGHWAY GRADE. FLATTEN THE GUTTER FLOWLINE THROUGH CURB RAMP TO TWO PERCENT OR FLATTER WHEN NEEDED. WHEN THE PAVEMENT IS SAWCUT TO FLATTEN THE FLOWLINE, VARY THE WIDTH OF THE SAWCUT SO THAT THE PAVEMENT PATCH SMOOTHLY MATCHES THE EXISTING PAVEMENT.
6. PROVIDE FLARED SIDES ON PERPENDICULAR CURB RAMP, OR COMBINATION CURB RAMP WHERE A PEDESTRIAN CIRCULATION PATH CROSSES THE CURB RAMP. THE FLARED SIDES ARE PART OF THE PEDESTRIAN CIRCULATION PATH, BUT ARE NOT PART OF THE PEDESTRIAN ACCESS ROUTE. THE SLOPE OF THE FLARED SIDES IS MEASURED PARALLEL TO THE CURB LINE. FLARED SIDES ARE NOT NEEDED OR MAY BE STEEPER WHEN THE PEDESTRIAN CIRCULATION PATH DOES NOT CROSS THE CURB RAMP.
7. THE PEDESTRIAN CIRCULATION PATH IS A PREPARED SURFACE PROVIDED FOR PEDESTRIAN TRAVEL IN THE PUBLIC RIGHT-OF-WAY. THE PEDESTRIAN ACCESS ROUTE IS A CONTINUOUS AND UNOBSTRUCTED PATH OF TRAVEL PROVIDED FOR PEDESTRIANS WITH DISABILITIES WITHIN OR COINCIDING WITH A PEDESTRIAN CIRCULATION PATH.
8. ENSURE THAT GRADE BREAKS ARE PERPENDICULAR TO THE DIRECTION OF THE RAMP RUN AND ARE FLUSH. DO NOT CREATE GRADE BREAKS ON THE SURFACE OF RAMP RUNS AND TURNING SPACES.
9. ENSURE THAT THE COUNTER SLOPE OF THE GUTTER OR STREET AT THE FOOT OF CURB RAMP RUNS DOES NOT EXCEED FIVE PERCENT.
10. WHERE PRACTICAL, PLACE UTILITY COVERS, VAULT FRAMES, AND GRATINGS OUTSIDE RAMP RUNS, TURNING SPACES, OR GUTTER AREAS. LOCATE CATCH BASINS AND INLETS OUTSIDE OF RAMP RUNS.
11. DETECTABLE WARNING SURFACES CONSIST OF TRUNCATED DOMES ALIGNED IN A SQUARE OR RADIAL GRID PATTERN. PROVIDE DETECTABLE WARNING SURFACES THAT CONTRAST VISUALLY WITH ADJACENT GUTTER, HIGHWAY, OR PEDESTRIAN ACCESS ROUTE SURFACE, EITHER LIGHT-ON-DARK OR DARK-ON-LIGHT. ENSURE THAT THE DETECTABLE WARNING SURFACE EXTENDS THE FULL WIDTH OF THE RAMP RUN (EXCLUDING FLARED SIDES) OR TURNING SPACE.
PERPENDICULAR AND COMBINATION CURB RAMP: WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE IN FRONT OF THE BACK OF CURB, PLACE THE DETECTABLE WARNING SURFACE AT THE BACK OF CURB.
WHERE THE ENDS OF THE BOTTOM GRADE BREAK ARE BEHIND THE BACK OF CURB, PLACE THE DETECTABLE WARNING SURFACE ON THE RAMP RUN WITHIN ONE DOME SPACING OF THE BOTTOM GRADE BREAK AND WITHIN 5' OF THE BACK OF CURB.
PARALLEL CURB RAMP: PLACE DETECTABLE WARNING SURFACE ON THE TURNING SPACE AT THE BACK OF CURB.
12. USE A BOND PREVENTATIVE BETWEEN THE CURB RAMP OR SIDEWALK AND CURB WHEN CONSTRUCTED SEPARATELY AND PLACED ADJACENT TO EACH OTHER.
13. ALIGN ALTERNATING CURB AND SIDEWALK JOINTS. CONSTRUCT JOINTS APPROXIMATELY 1/8" WIDE AND 3/4" IN DEPTH.
14. DRAWING NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: JUNE 15, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-93	MSM	6	07-03	MSM	11	07-10	JAW
2	12-95	MSM	7	12-04	MSM	12	09-11	TEM
3	06-98	MSM	8	06-05	MSM	13	05-15	RDL
4	08-01	MSM	9	05-06	MSM			
5	10-02	MSM	10	05-07	MSM			

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 614-3_0615.dgn
DRAWING DATE: JUNE, 1990

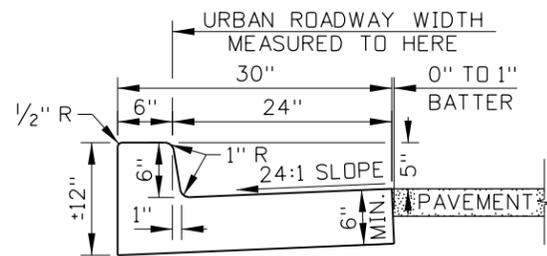
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

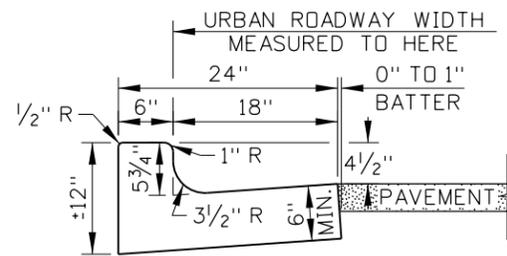
ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
CURB RAMP
REQUIRES SHEETS 1 OF 4, 2 OF 4, & 3 OF 4

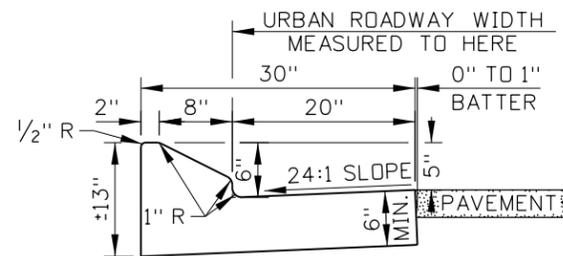
English
STANDARD DRAWING NO.
614-3
SHEET 4 OF 4



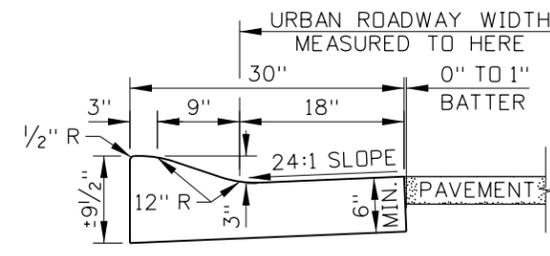
CURB AND GUTTER TYPE 1



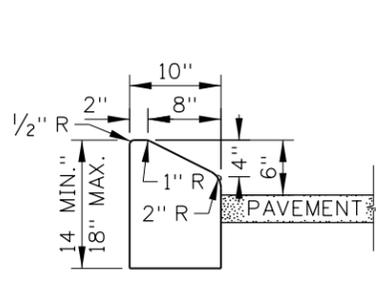
CURB AND GUTTER TYPE 2
(SEE NOTE NO. 4)



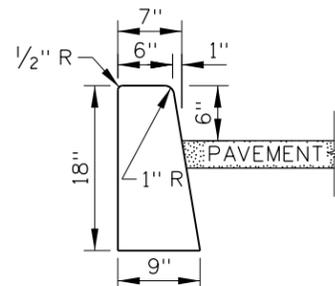
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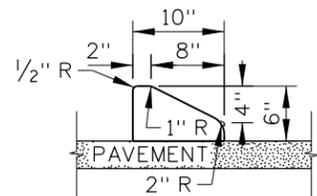
CURB AND GUTTER TYPE 4



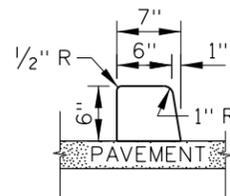
CURB TYPE 1



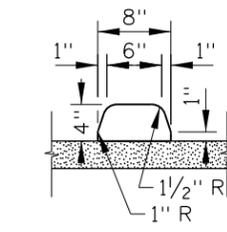
CURB TYPE 2



CURB TYPE 3
(SEE NOTE NO. 3)



CURB TYPE 4
(SEE NOTE NO. 3)



CURB TYPE 5
(SEE NOTE NO. 3)

NOTES

1. TRANSITION BETWEEN DIFFERENT TYPES OVER 10 FEET.
2. PROVIDE 4 INCHES OF AGGREGATE BASE UNDER CURB AND GUTTER, CURB, OR GUTTER UNLESS THE CURB IS PLACED ON PAVEMENT.
3. PORTLAND CEMENT CONCRETE CURB OR TRAFFIC SEPARATOR ON ASPHALT CONCRETE PAVEMENT:

PROVIDE A KEY IN THE PAVEMENT AT THE CENTERLINE OF THE CURB OR TRAFFIC SEPARATOR. SEE THE KEY DETAIL.

CONCRETE CURBS OR TRAFFIC SEPARATORS MAY BE PINNED TO THE PAVEMENT STRUCTURE IN LIEU OF THE KEY. DRILL THE PAVEMENT AND PLACE PINS BEFORE THE CURB OR TRAFFIC SEPARATOR IS CONSTRUCTED. SEE THE PIN DETAIL.

PORTLAND CEMENT CONCRETE CURB OR TRAFFIC SEPARATOR ON PORTLAND CEMENT CONCRETE PAVEMENT:

USE AN EPOXY BONDING AGENT. NO KEY IS NEEDED.

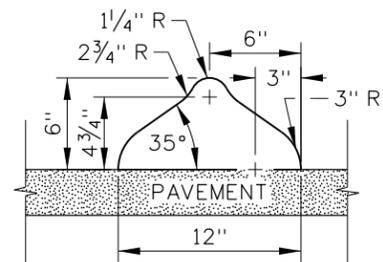
ASPHALT CONCRETE CURB OR TRAFFIC SEPARATOR ON ASPHALT CONCRETE PAVEMENT:

NO KEY IS NEEDED. ENSURE THAT THE CURB IS BONDED TO THE PAVEMENT.

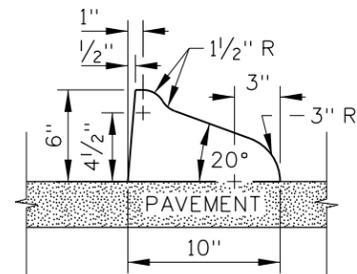
4. ENSURE THAT THE GUTTER SLOPE DOES NOT EXCEED 5 PERCENT AT CURB RAMPS.

5. TAPER THE LAST 6 FEET OF CURB AND GUTTER AND CURB TYPES 1 AND 2 DOWN TO A 1 INCH HEIGHT. TAPER CURB TYPES 3, 4, AND 5 AND TRAFFIC SEPARATORS TYPES 1 AND 2 DOWN TO A 1 INCH HEIGHT AT A 1:1 SLOPE.

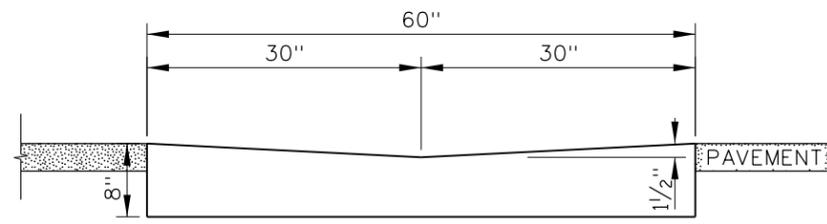
6. DRAWING NOT TO SCALE.



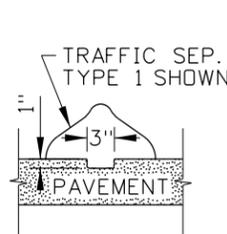
TRAFFIC SEPARATOR TYPE 1
(SEE NOTE NO. 3)



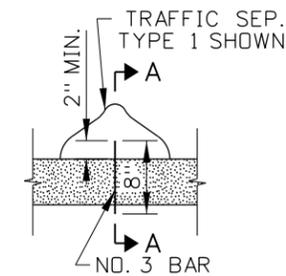
TRAFFIC SEPARATOR TYPE 2
(SEE NOTE NO. 3)



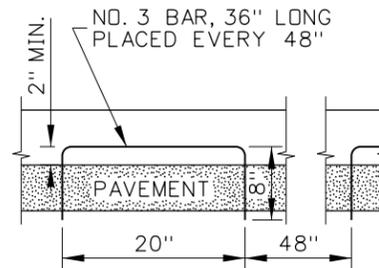
GUTTER TYPE 1



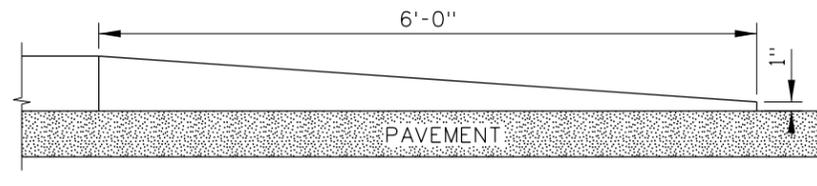
KEY DETAIL
(SEE NOTE NO. 3)



PIN DETAIL
(SEE NOTE NO. 3)



SECTION A-A



CURB TERMINUS DETAIL
(SEE NOTE NO. 5)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 1, 2014

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-76		6	12-04	MSM		
2	12-90	GB	7	06-05	MSM		
3	09-93	MSM	8	07-10	JAW		
4	12-94	MSM	9	11-14	RDL		
5	12-01	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 615-1_1114.dgn
DRAWING DATE: APRIL, 1961

IDAHO TRANSPORTATION DEPARTMENT

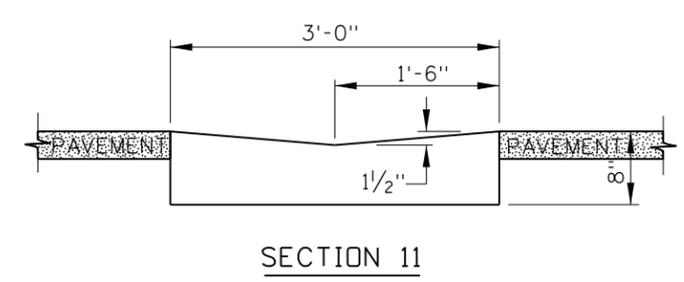
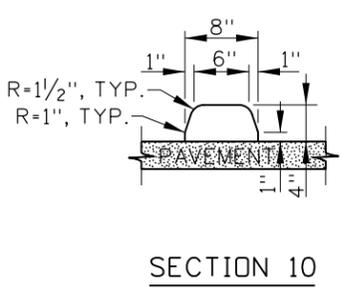
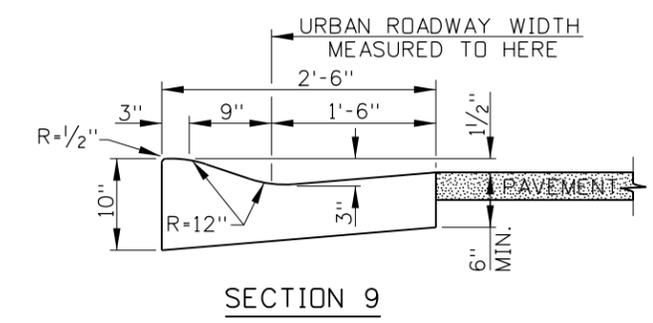
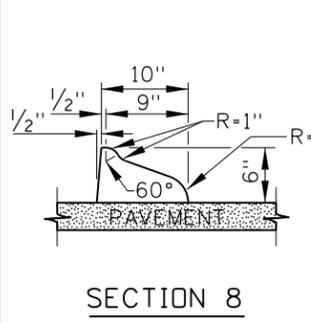
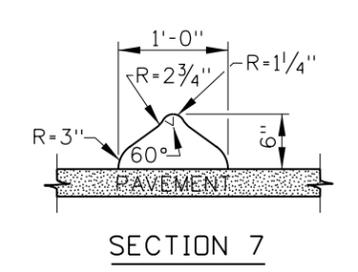
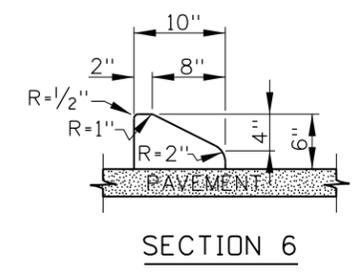
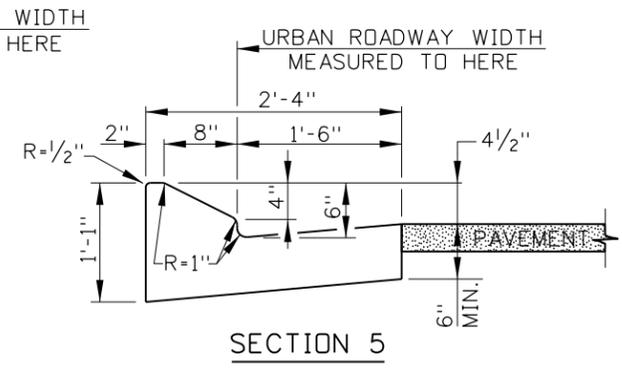
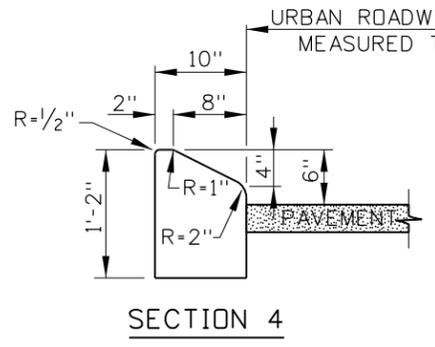
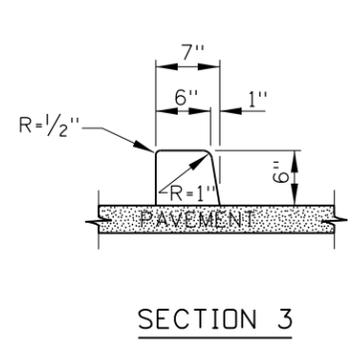
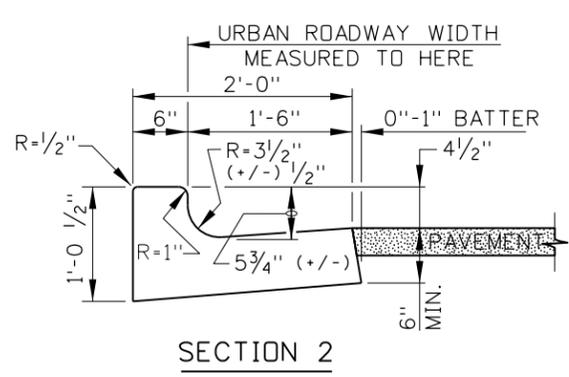


BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN for STANDARDS ENGINEER

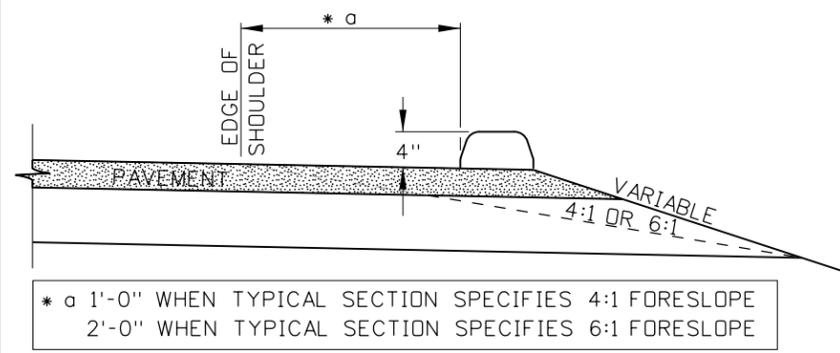
STANDARD DRAWING
CURB AND GUTTER
(SHEET 1 IS FOR USE WITH 2015 OR NEWER SUPPLEMENTAL SPECIFICATIONS)
REQUIRES SHEET 2 OF 2

English
STANDARD DRAWING NO.
615-1
SHEET 1 OF 2



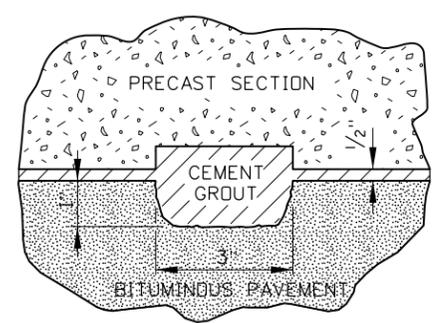
NOTES

1. THERE SHALL BE FOUR TYPES OF CURB, GUTTER, AND TRAFFIC SEPARATORS AS FOLLOWS:
TYPE A SECTIONS SHALL BE CAST-IN-PLACE PORTLAND CEMENT CONCRETE.
TYPE B SECTIONS SHALL BE PRECAST PORTLAND CEMENT CONCRETE.
TYPE C SECTIONS SHALL BE EXTRUDED PORTLAND CEMENT CONCRETE.
TYPE D SECTIONS SHALL BE EXTRUDED ASPHALT CONCRETE.
2. WHERE DIFFERENT CURB SECTIONS CONNECT, PROVIDE A UNIFORM TRANSITION WITH A MINIMUM LENGTH OF 12 TIMES THE LARGEST VARIATION IN CURB DIMENSIONS.
3. WHEN CONCRETE CURBS OR TRAFFIC SEPARATORS ARE PLACED ON TOP OF BITUMINOUS PAVEMENT, A KEY APPROXIMATELY 1" DEEP BY 3" WIDE SHALL BE PLACED AT THE CENTERLINE OF THE SECTION FOR ITS ENTIRE LENGTH. WHEN PRECAST CONCRETE SECTIONS ARE PLACED ON THE PAVEMENT, A KEY APPROXIMATELY 1" DEEP BY 3" WIDE SHALL BE PROVIDED IN THE BOTTOM OF THE SECTION. WHEN BITUMINOUS SECTIONS ARE USED, NO KEY IN THE PAVEMENT WILL BE REQUIRED. CURB PIN DOWELS MAY BE PROVIDED AS AN ALTERNATIVE TO PROVIDING A KEY. THE DOWELS SHALL BE #6 DEFORMED REBAR AND SHALL BE INSTALLED AT A MAXIMUM SPACING OF 5'. THE DOWELS SHALL EXTEND 8" BELOW THE FINISHED PAVEMENT SURFACE AND 4" INTO THE CURB. FOR CURB SECTION 10, THE DOWELS SHALL EXTEND INTO THE CURB TO PROVIDE 1" OF COVER. PRECAST CONCRETE CURBS SHALL HAVE A MINIMUM LENGTH OF 6' WITH 2 DOWELS. ANY SECTION LONGER THAN 6' SHALL HAVE A MINIMUM OF 3 DOWELS. NO PRECAST CONCRETE SECTION SHALL EXCEED 10'.
4. PRECAST OR EXTRUDED CONCRETE CURB AND TRAFFIC SEPARATORS PLACED ON PORTLAND CEMENT SURFACES SHALL BE ATTACHED TO THE SURFACE WITH AN EPOXY BONDING AGENT. NO KEY WILL BE REQUIRED.
5. AT SPECIFIED LOCATIONS, A REQUIREMENT SUCH AS "CONSTRUCT TYPE A-2 CURB AND GUTTER" INDICATES TYPE A CONSTRUCTION AS DEFINED IN THE SPECIFICATIONS AND SECTION 2 AS SHOWN ON THIS DRAWING. A DESIGNATION SUCH AS "CONSTRUCT TYPE B-6 OR C-6 CURB" INDICATES THAT EITHER TYPE B OR TYPE C CONSTRUCTION, AS DEFINED IN THE SPECIFICATIONS, MAY BE USED TO CONSTRUCT SECTION 6.
6. THE TERMINUS ENDS OF CURBS SHALL BE TAPERED DOWN IN THE LAST 6' TO A MAXIMUM OF 1" THICKNESS AT THE EXPOSED END.
7. REFER TO STANDARD DRAWING R-2 WHEN TRANSITIONING AND FLATTENING CURB AND/OR CURB & GUTTER FOR A RAILROAD CROSSING.
8. REFER TO STANDARD DRAWING H-1-B FOR A.D.A. CURB AND GUTTER SECTIONS TO BE USED AT A.D.A. PEDESTRIAN RAMPS.
9. REFER TO STANDARD DRAWING H-1-B FOR AGGREGATE BASE THICKNESS REQUIRED BENEATH CURB AND/OR CURB AND GUTTER SECTIONS.
10. NOT TO SCALE.

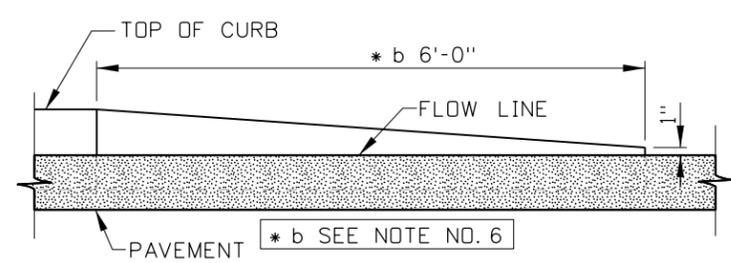


* a 1'-0" WHEN TYPICAL SECTION SPECIFIES 4:1 FORESLOPE
2'-0" WHEN TYPICAL SECTION SPECIFIES 6:1 FORESLOPE

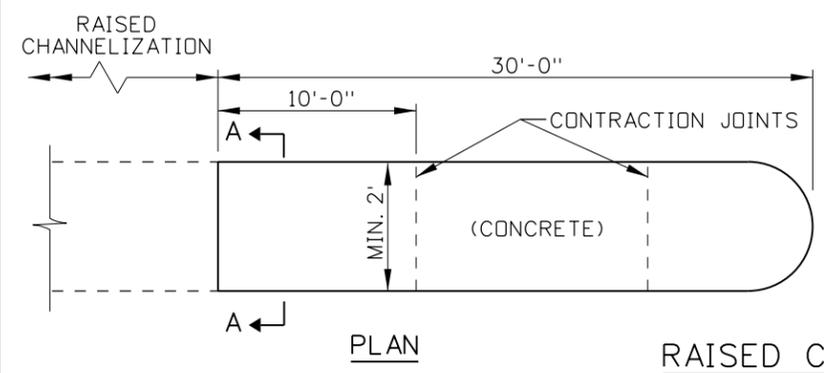
TYPICAL CURB INSTALLATION
(WHEN USED IN CONJUNCTION WITH
GUARDRAIL SEE STD. DWG G-1-A-1)



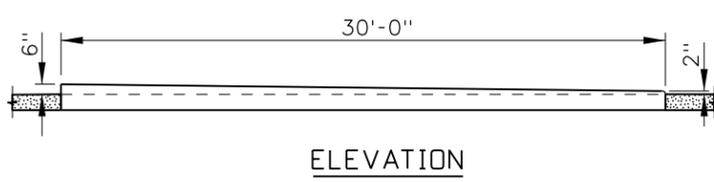
FOR CURB PLACED ON BITUMINOUS PAVEMENT
TYPICAL GROUT JOINT



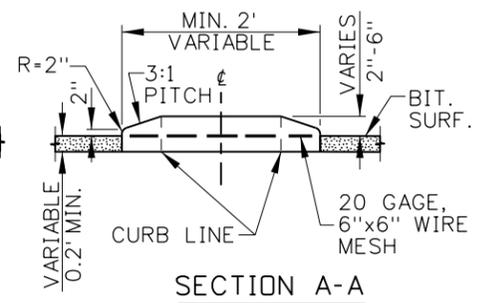
CURB TERMINUS
* b SEE NOTE NO. 6



PLAN



ELEVATION



SECTION A-A

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-76		6	12-04	MSM		
2	12-90	GB	7	06-05	MSM		
3	09-93	MSM	8	07-10	JAW		
4	12-94	MSM	9	11-14	RDL		
5	12-01	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 615-1_1114.dgn
DRAWING DATE: APRIL, 1961

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN for STANDARDS ENGINEER

STANDARD DRAWING
CURB AND GUTTER
(SHEET 2 IS FOR USE WITH 2014 OR OLDER SUPPLEMENTAL SPECIFICATIONS)
REQUIRES SHEET 1 OF 2

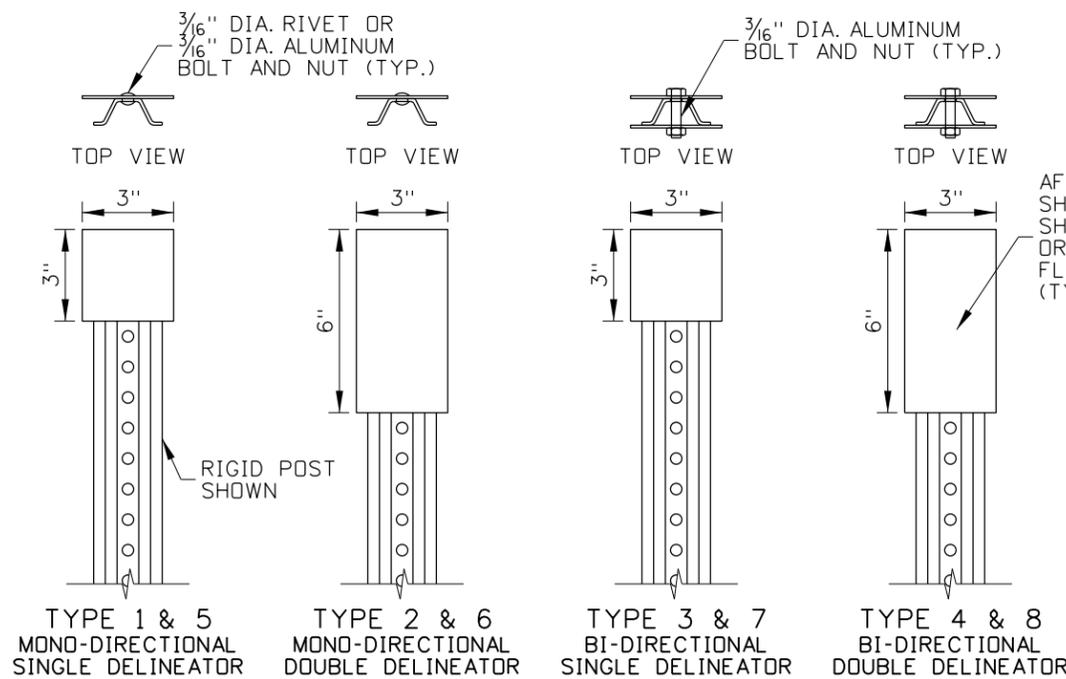
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO.
615-1

SHEET 2 OF 2

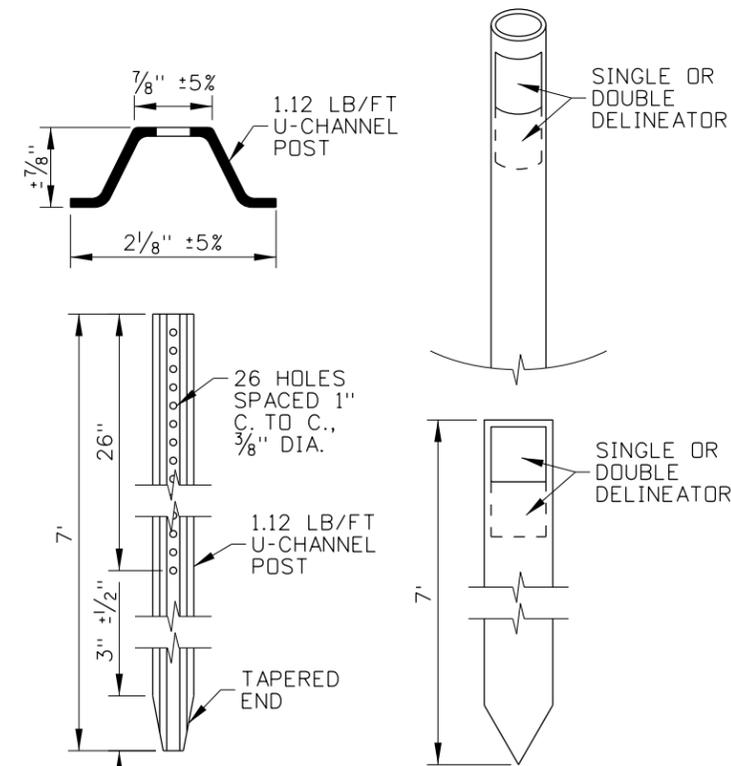
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 1, 2014



TYPE 1 & 5 MONO-DIRECTIONAL SINGLE DELINEATOR
 TYPE 2 & 6 MONO-DIRECTIONAL DOUBLE DELINEATOR
 TYPE 3 & 7 BI-DIRECTIONAL SINGLE DELINEATOR
 TYPE 4 & 8 BI-DIRECTIONAL DOUBLE DELINEATOR

DELINEATOR TYPES

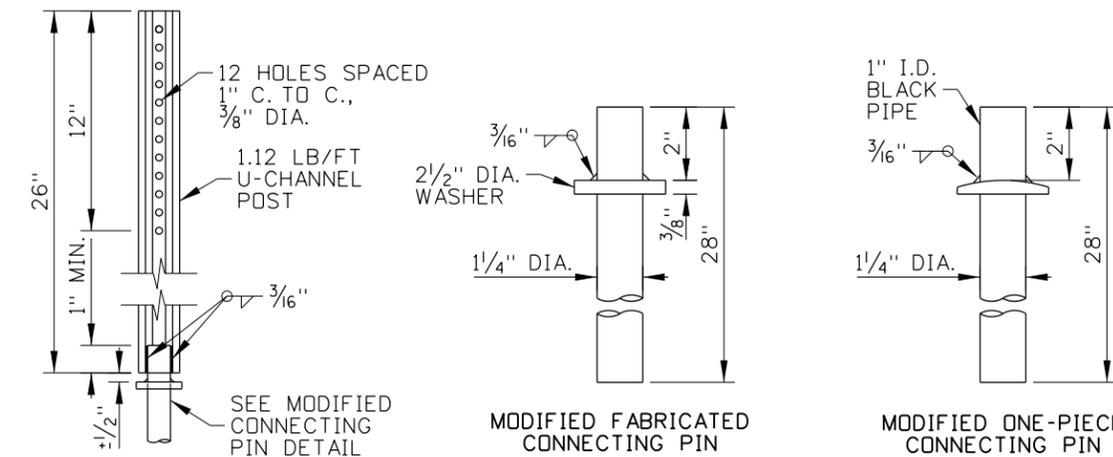
TYPE 9 NOT SHOWN
 TYPE 9 SHAPE VARIES



RIGID POST
 (SEE NOTE NO. 6)

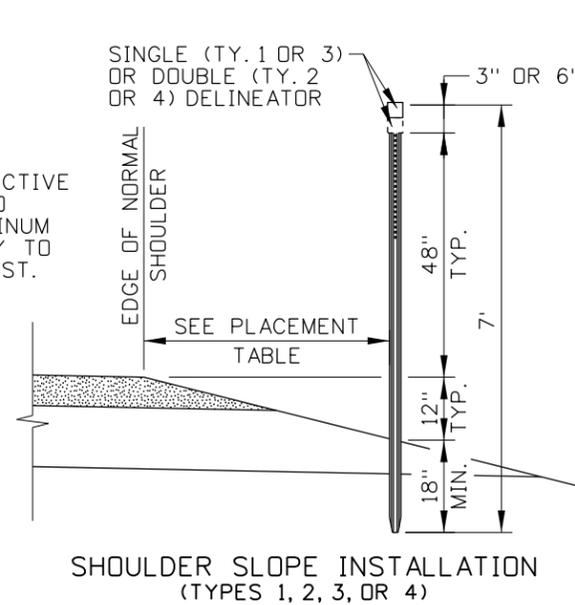
FLEXIBLE POST
 PROPRIETARY POSTS MAY DIFFER FROM THOSE SHOWN
 (SEE NOTE NO. 6)

HORIZONTAL CURVE SPACING TABLE				
RADIUS OF CURVE (FEET)	APPROXIMATE SPACING ON CURVE (FEET)	1st SPACE BEYOND PCS, PSC, PC, PT (FEET)	2nd SPACE BEYOND PCS, PSC, PC, PT (FEET)	3rd SPACE BEYOND PCS, PSC, PC, PT (FEET)
< 300	25	50	75	150
300-699	50	100	150	300
700 - 1,199	75	150	225	300
1,200 - 2,499	100	200	300	300
2,500 - 4,499	150	300	300	300
4,500 - 6,999	200	300	300	300
7,000 - 10,000	250	300	300	300
> 10,000	300	300	300	300

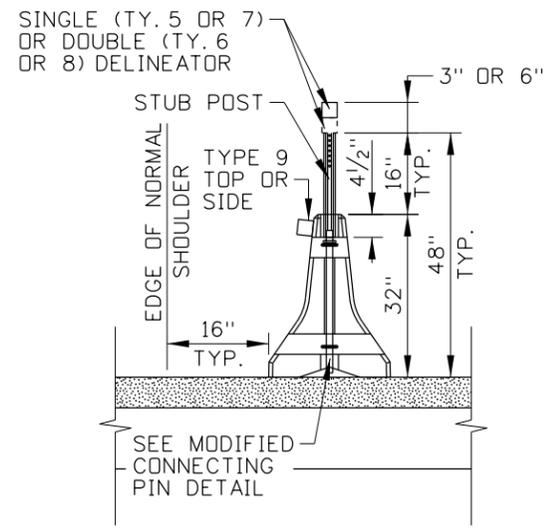


STUB POST
 FOR USE WITH TYPE 5, 6, 7, OR 8 DELINEATORS

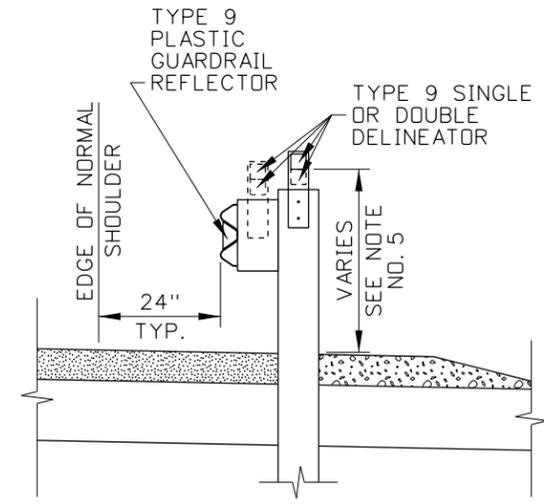
MODIFIED FABRICATED CONNECTING PIN
MODIFIED ONE-PIECE CONNECTING PIN
 FOR USE WITH TYPE 5, 6, 7, OR 8 DELINEATORS
 (SEE STANDARD DRAWINGS G-2-A-1 & G-2-A-2)



SHOULDER SLOPE INSTALLATION
 (TYPES 1, 2, 3, OR 4)

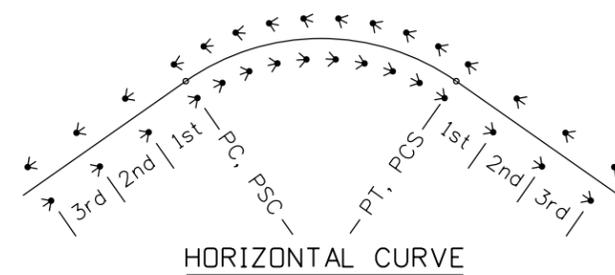


CONCRETE BARRIER INSTALLATION
 (TYPES 5, 6, 7, 8, OR 9)



GUARDRAIL INSTALLATION
 (TYPE 9)

DELINEATOR INSTALLATIONS



HORIZONTAL CURVE

PLACEMENT TABLE	
SHOULDER	OFFSET
2:1 SLOPE	2'
4:1 SLOPE	4'
6:1 OR FLATTER	6' TO 8'
CURB SECTION	6'
GUARDRAIL OR CONCRETE BARRIER	VARIES

NOTES

- ENSURE THAT THE DELINEATOR COLOR MATCHES THE COLOR OF THE ADJACENT EDGE LINE. USE RED DELINEATORS ON TRUCK ESCAPE RAMPS OR ON THE REVERSE SIDE OF A DELINEATOR TO INDICATE TRAVEL IN THE WRONG DIRECTION ON DIVIDED OR ONE-WAY HIGHWAYS.
- WHEN USED, SPACE DELINEATORS 528 FEET (0.1 MI.) APART ON MAINLINE TANGENT SECTIONS. SPACE DELINEATORS 100 FEET APART ON RAMP TANGENT SECTIONS. DELINEATE DECELERATION TRANSITION TAPERS WITH DOUBLE DELINEATORS AND SPACE TWO TIMES THE TAPER RATE, OR A MAXIMUM DISTANCE OF 100 FEET. ACCELERATION TRANSITION TAPERS MAY ALSO BE DELINEATED. REDUCE DELINEATOR SPACING ON CREST VERTICAL CURVES.
- DELINEATE GUARDRAIL AND CONCRETE BARRIERS. SPACING MAY BE REDUCED ON GUARDRAIL AND CONCRETE BARRIER TO FORM A CONTINUOUS OR NEARLY CONTINUOUS "RIBBON" OF DELINEATION.
- SPACE DELINEATORS ON CURVES IN ACCORDANCE WITH THE HORIZONTAL CURVE SPACING TABLE.
- MEASURE DELINEATOR HEIGHT VERTICALLY FROM THE BOTTOM OF THE LOWEST REFLECTIVE DEVICE TO THE ELEVATION OF THE EDGE OF NORMAL SHOULDER. DELINEATORS ATTACHED TO GUARDRAIL, GUARDRAIL POSTS, OR CONCRETE BARRIER MAY BE INSTALLED LOWER THAN 48".
- RIGID OR FLEXIBLE POSTS MAY BE USED FOR TYPES 1, 2, 3, AND 4. PROJECT PLANS MAY INDICATE WHICH POST TYPE TO USE. ON CONCRETE BARRIERS, USE TYPE 5, 6, 7, OR 8 DELINEATORS ON STUB POSTS OR TYPE 9 DELINEATORS. ON GUARDRAIL, USE TYPE 9 DELINEATORS OR TYPE 1, 2, 3, OR 4 RIGID OR FLEXIBLE POST DELINEATORS BETWEEN GUARDRAIL POSTS.
- WHEN UNIFORM SPACING IS INTERRUPTED BY DRIVEWAYS, INTERSECTIONS, OR OTHER FEATURES, RELOCATE THE DELINEATOR IN EITHER DIRECTION FOR A DISTANCE NOT EXCEEDING ONE QUARTER OF THE UNIFORM SPACING. DELINEATORS STILL FALLING WITHIN SUCH FEATURES MAY BE ELIMINATED.
- TYPE 9 DELINEATORS VARY IN SHAPE AND MAY BE ATTACHED TO CONCRETE BARRIER, TO GUARDRAIL POSTS, OR TO W-BEAM GUARDRAIL.
- DRAWINGS NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: MAY 12, 2016

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-05	MSM					
2	11-11	TEM					
3	04-14	RDL					
4	03-15	PJF					
5	05-16	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 617-1_0516.dgn

DRAWING DATE: DECEMBER, 2002

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: JESSE BARRUS
 DESIGN/TRAFFIC SERVICES ENGINEER

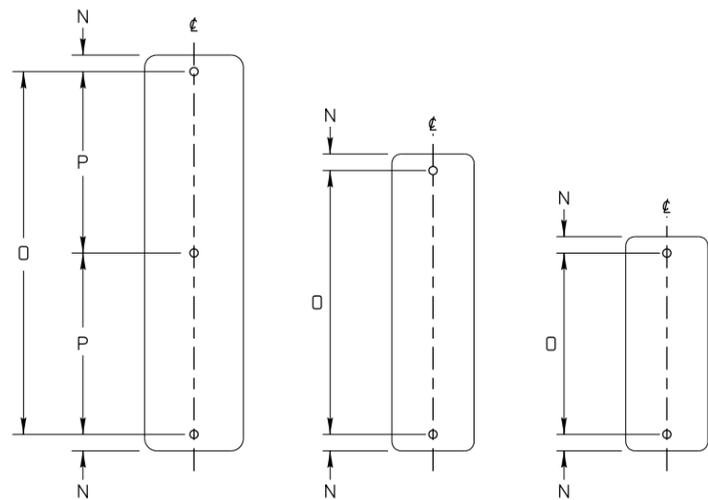
STANDARD DRAWING

DELINEATORS

English

STANDARD DRAWING NO. 617-1

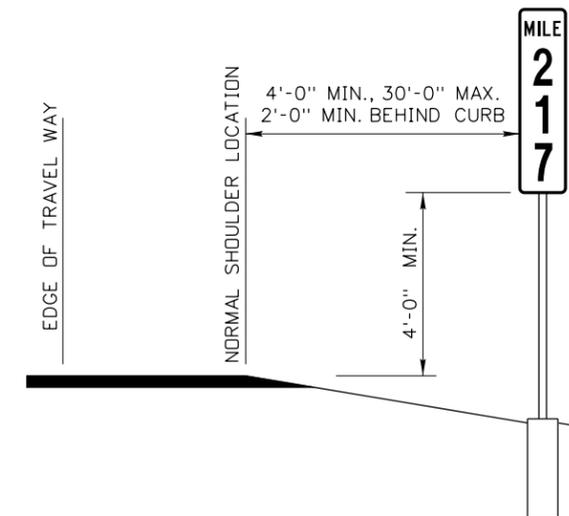
SHEET 1 OF 1



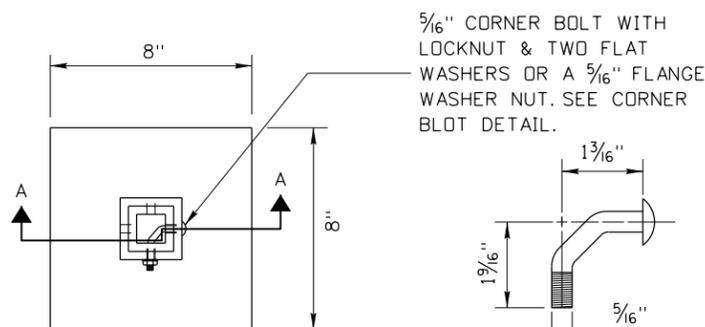
3/8" Ø HOLES TYPICAL

MILEPOST SIGNS

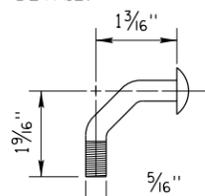
	TYPE 1			TYPE 2 AND 3		
	MILE 2	MILE 24	MILE 245	MILE 2	MILE 25	MILE 245
SIZE	12" X 24"	12" X 36"	12" X 48"	10" X 18"	10" X 27"	10" X 36"
NO. OF HOLES	2	2	3	2	2	2
N	2"	2"	2"	2"	2"	2"
O	20"	32"	44"	14"	23"	32"
P	-	-	22"	-	-	-



SIGN HEIGHT AND LATERAL LOCATION

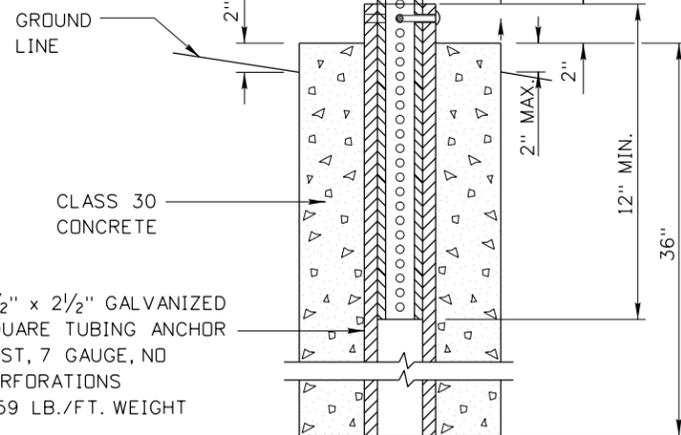


5/16" CORNER BOLT WITH LOCKNUT & TWO FLAT WASHERS OR A 5/16" FLANGE WASHER NUT. SEE CORNER BOLT DETAIL.



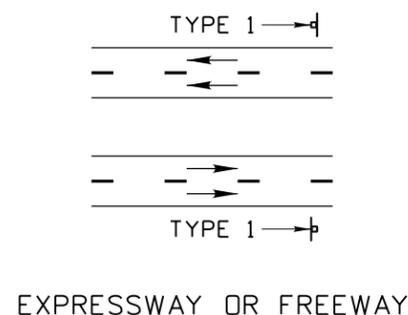
CORNER BOLT DETAIL

2" X 2" PERFORATED SQUARE TUBING SIGN POST, 12 GAUGE
2.42 LB./FT. WEIGHT

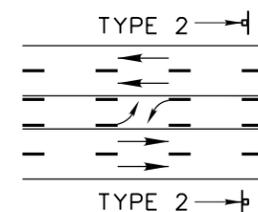


SECTION A-A

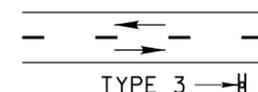
SIGN POST INSTALLATION DETAILS



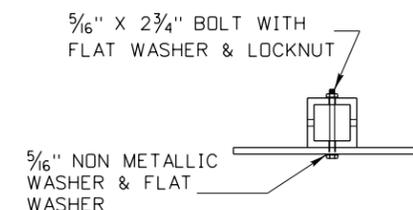
EXPRESSWAY OR FREEWAY



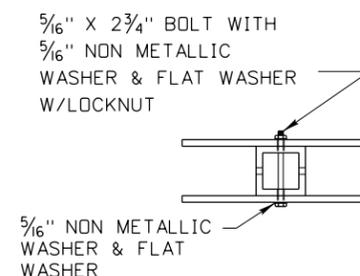
UNDIVIDED MULTI-LANE HIGHWAY



TWO LANE HIGHWAYS



TYPE 1 & 2 MILEPOST SIGN



TYPE 3 MILEPOST SIGN

NOTES

- ON EXPRESSWAYS, FREEWAYS OR MULTI-LANE HIGHWAYS, PLACE A MILEPOST ASSEMBLY IN EACH DIRECTION OF TRAVEL. ON TWO LANE ROADWAYS, BACK TO BACK MILEPOST ASSEMBLIES MAY BE INSTALLED ON THE ON THE RIGHT SIDE OF THE ROADWAY IN THE DIRECTION OF ASCENDING MILE POSTS.
- INSTALL SIGN POST AND ANCHOR OR GROUT INTO SOLID ROCK. IF INSTALLED IN ROCK, ENSURE THE ANCHOR POST IS EMBEDDED 18" INTO SOLID ROCK.
- DO NOT ATTACH MILEPOST SIGNS UNTIL THE CONCRETE HAS SET WHEN FOUNDATIONS ARE CAST IN PLACE.
- ENSURE THAT THE BOTTOM OF ANCHOR IS LEFT OPEN TO DRAIN.
- DRAWING NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	05-15	HEB					
2	12-15	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 617-2_1215.dgn
DRAWING DATE: MAY, 2015

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
MILEPOST ASSEMBLIES

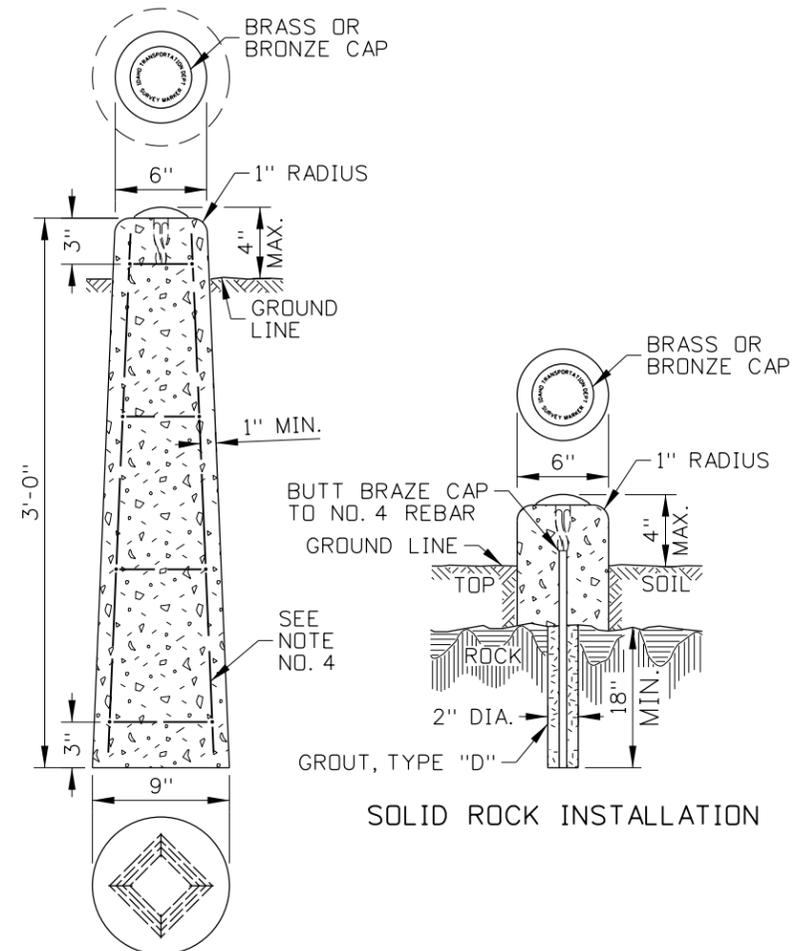
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO. 617-2

SHEET 1 OF 1

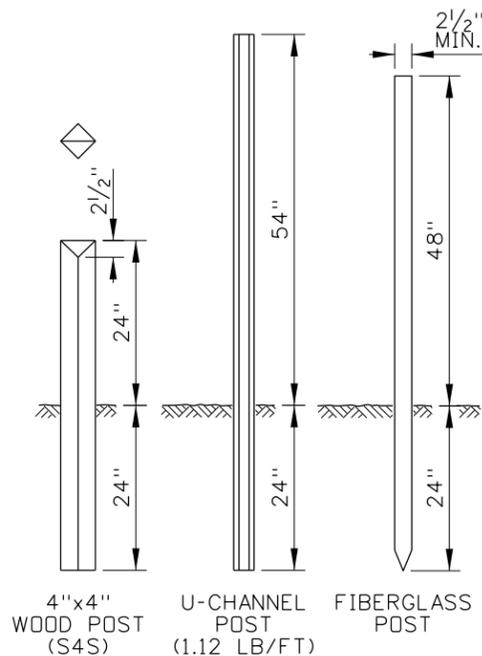
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 4, 2015



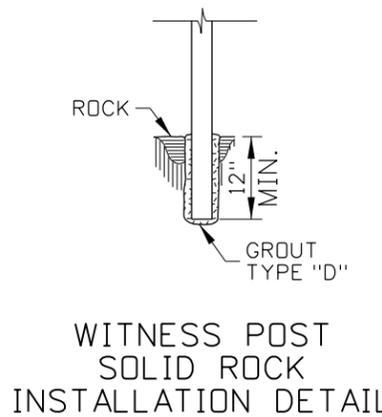
SOLID ROCK INSTALLATION

EARTH INSTALLATION

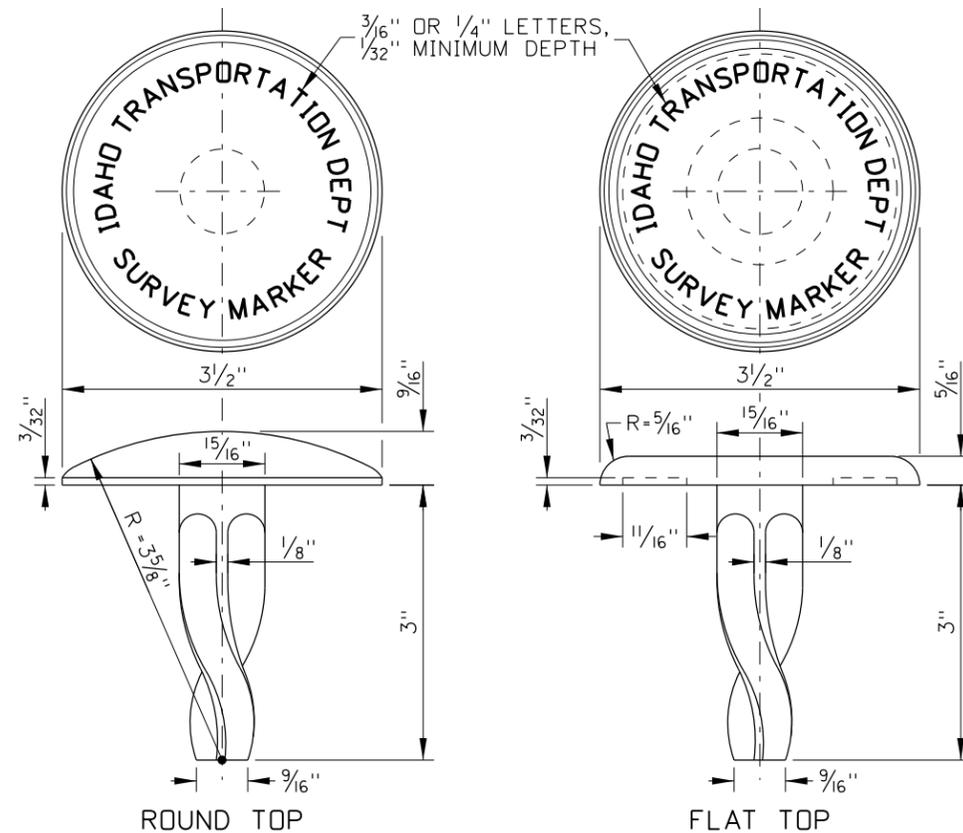
MONUMENT MARKER



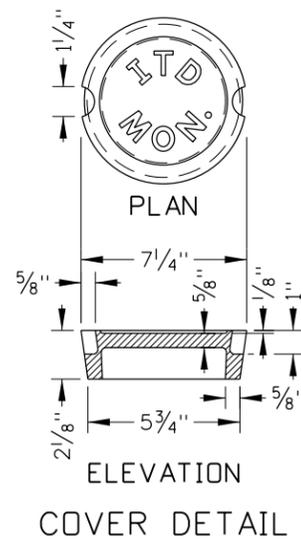
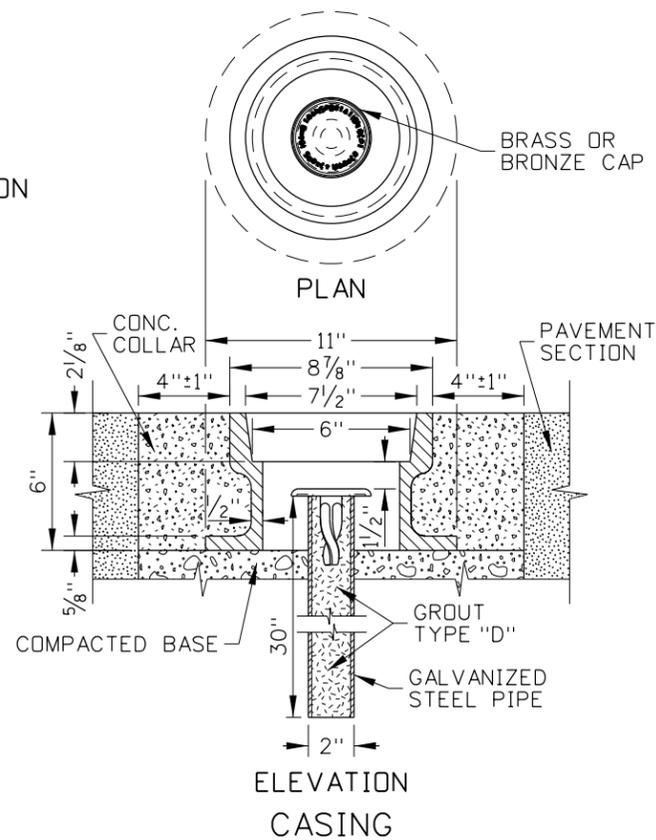
WITNESS POSTS



WITNESS POST SOLID ROCK INSTALLATION DETAIL



BRASS OR BRONZE CAP DETAILS



ELEVATION COVER DETAIL

NOTES

1. SURVEY MONUMENTS CAN BE PRECAST OR CAST-IN-PLACE. SET THE BRASS CAP IN THE TOP CENTER OF THE MONUMENT.
2. USE ROUND TOP MARKERS FOR VERTICAL CONTROL, HORIZONTAL CONTROL, OR BOTH. USE FLAT TOP MARKERS FOR HORIZONTAL CONTROL.
3. ENSURE THAT HORIZONTAL CONTROL MARKERS ARE PLACED WITHIN 1/2" OF THE POINT ESTABLISHED. THE VERTICAL CONTROL POINT IS THE HIGHEST POINT OF THE ROUND TOP CAP.
4. REINFORCE EARTH INSTALLATION MONUMENT MARKER WITH FOUR NO. 2 BARS, 33 1/2" LONG, AND PLACED AN EQUAL DISTANCE APART. TIE WITH NO. 8 WIRE AT 10" INTERVALS.
5. USE CASING WHEN THE MONUMENT IS PLACED IN PAVEMENT. THE MONUMENT MAY BE PLACED CLOSER TO THE GROUND OR IN CASING IN AREAS THAT ARE MOWED. OTHER CASING DESIGNS MAY BE USED WITH APPROVAL FROM THE ENGINEER.
6. MACHINE COVER AND CASING CONTACT SURFACES TO A TRUE BEARING ALL AROUND.
7. THE MONUMENT MARKER MAY BE USED AS A RIGHT-OF-WAY MARKER, PROJECT MARKER, REFERENCE MARKER, CONTROL POINT, OR PROPERTY CORNER.
8. STAMP THE MONUMENT CAP ACCORDING TO ITS PURPOSE. "ROW" FOR RIGHT-OF-WAY MARKER, "PRJ" FOR PROJECT MARKER, "REF" FOR REFERENCE MARKER, "CTL" FOR CONTROL POINT, OR "COR" FOR PROPERTY CORNER.
9. PLACE THE WITNESS POSTS AS CLOSE TO THE MARKERS AS PRACTICAL. WHEN SOLID ROCK IS ENCOUNTERED, GROUT THE WITNESS POST AS SHOWN IN THE WITNESS POST SOLID ROCK INSTALLATION DETAIL.
10. DRAWINGS NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: ORIGINAL SIGNED: DECEMBER 8, 2015

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	05-62		6	01-68		11	06-02
2	06-62		7	09-72		12	12-04
3	05-65		8	07-90	GB	13	11-06
4	09-66		9	09-93	MSM	14	12-12
5	04-67		10	05-95	MSM	15	11-15

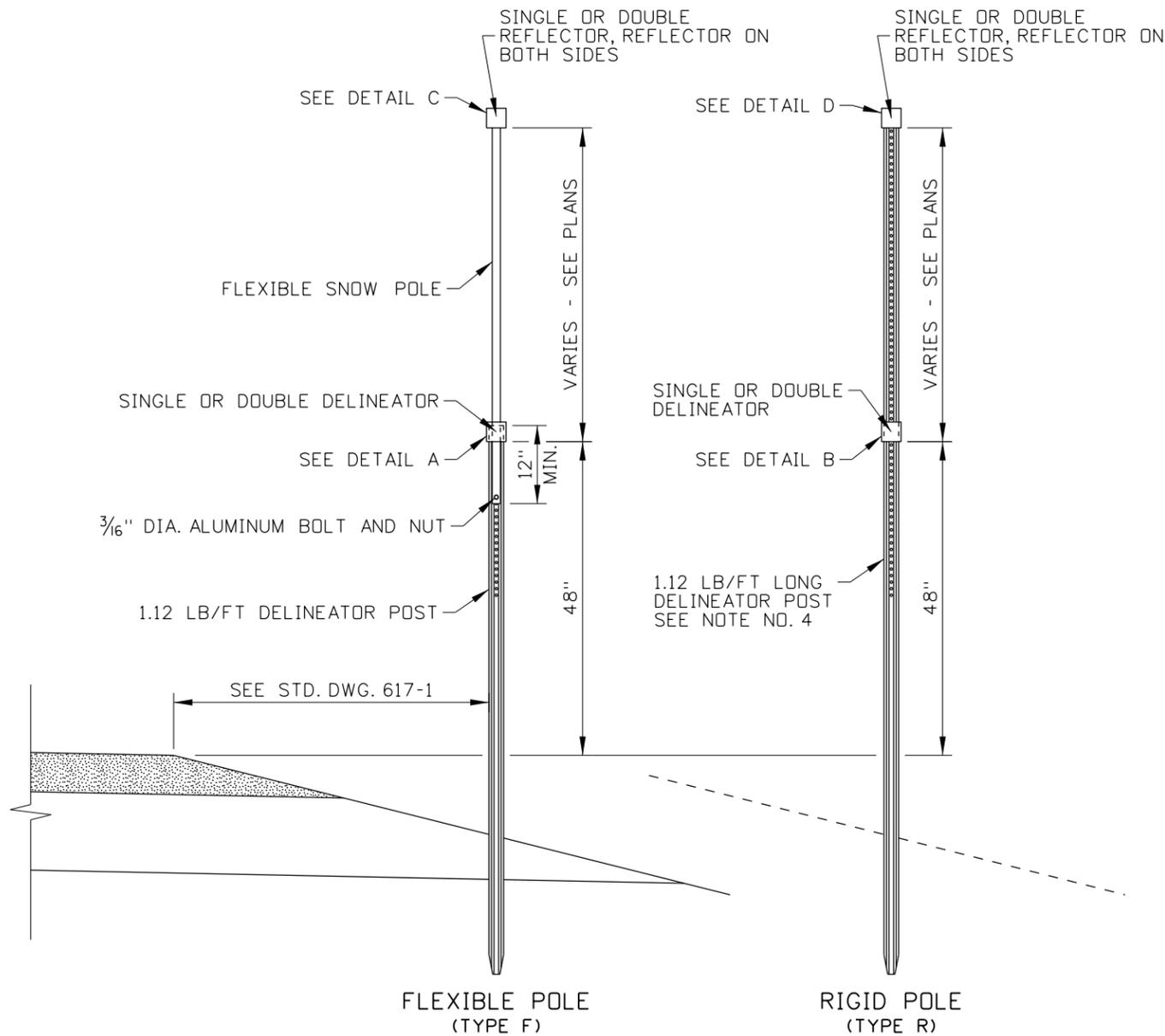
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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 DRAWING DATE: APRIL, 1961

IDAHO TRANSPORTATION DEPARTMENT
 BOISE IDAHO

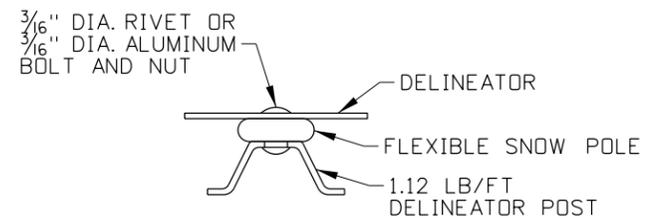
ORIGINAL SIGNED BY: TED E. MASON for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
 MARKER POSTS, WITNESS POSTS, AND STREET MONUMENTS

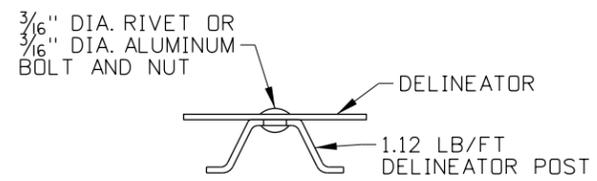
English
 STANDARD DRAWING NO. 618-1
 SHEET 1 OF 1



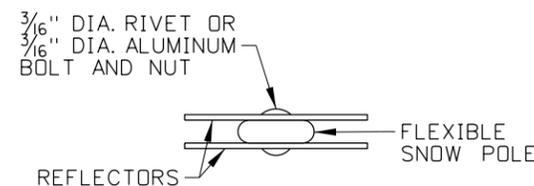
SNOW POLE INSTALLATION



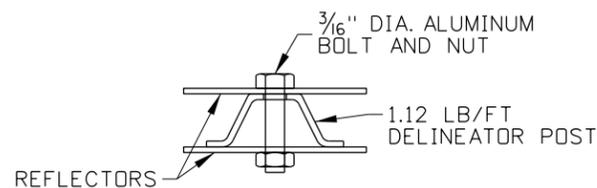
DETAIL A



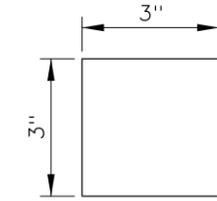
DETAIL B



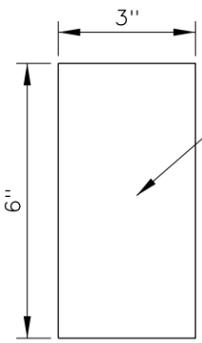
DETAIL C



DETAIL D



SINGLE DELINEATOR OR REFLECTOR



DOUBLE DELINEATOR OR REFLECTOR

AFFIX REFLECTIVE SHEETING TO SHEET ALUMINUM (TYP.) SEE NOTE NOS. 2 AND 3

NOTES

1. SPACE SNOW POLES IN ACCORDANCE WITH DELINEATOR SPACING.
2. REFLECTORS AND DELINEATORS HAVE THE SAME DIMENSIONS AND ARE MADE OF THE SAME MATERIAL, BUT ARE INSTALLED AT DIFFERENT HEIGHTS.
3. ENSURE THAT THE DELINEATOR AND REFLECTOR COLOR MATCHES THE COLOR OF THE ADJACENT EDGE LINE.
4. DO NOT CONNECT MULTIPLE SECTIONS OF RIGID DELINEATOR POLES TO ACHIEVE THE SNOW POLE HEIGHT.
5. DRAWINGS NOT TO SCALE.

REVISIONS									
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY	
1	05-05	MSM							
2	04-14	RDL							

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 628-1_0514.dgn
 DRAWING DATE: DECEMBER, 2002

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

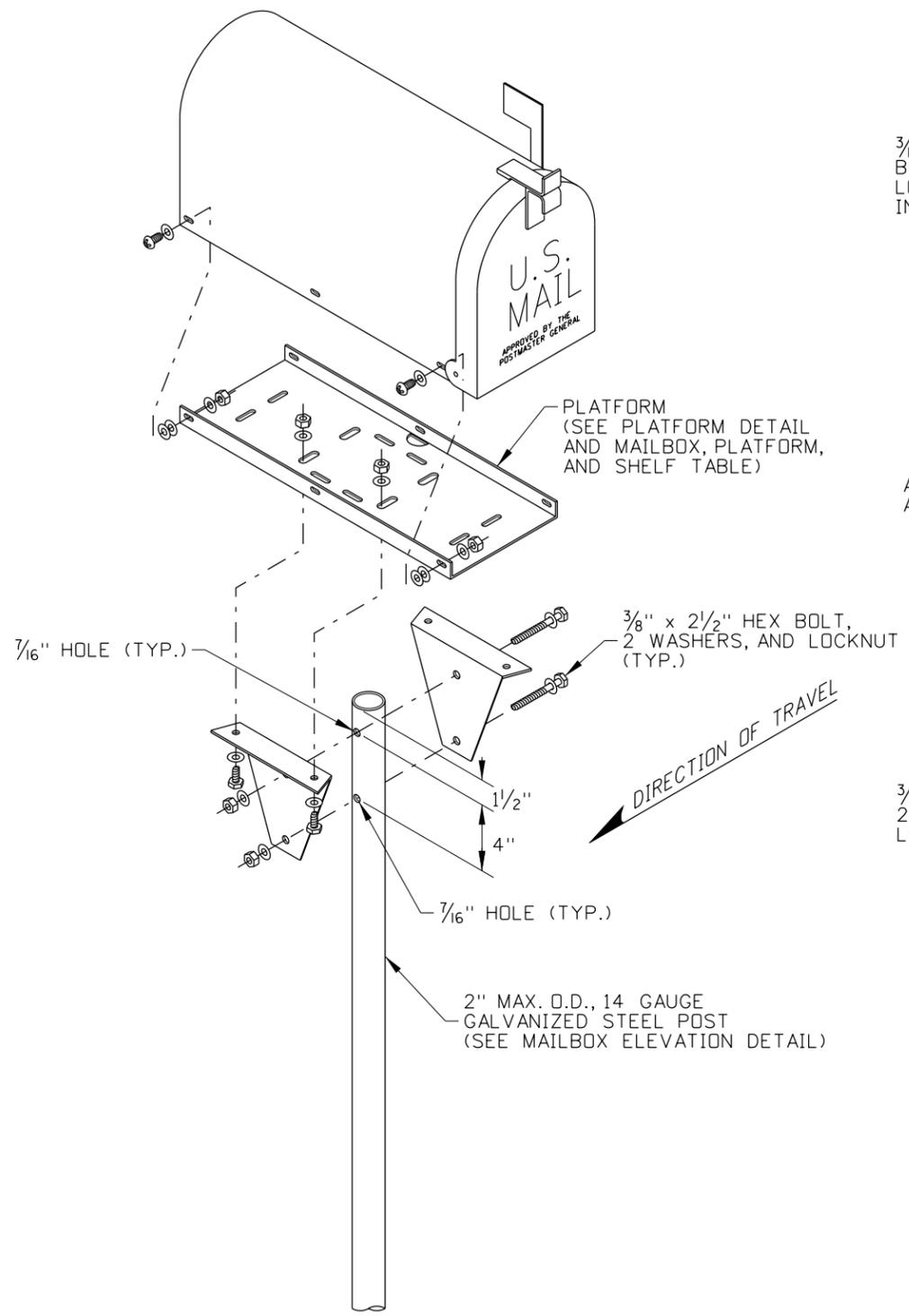
ORIGINAL SIGNED BY: CARL D. MAIN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
SNOW POLES
 REQUIRES STD. DWG. 617-1

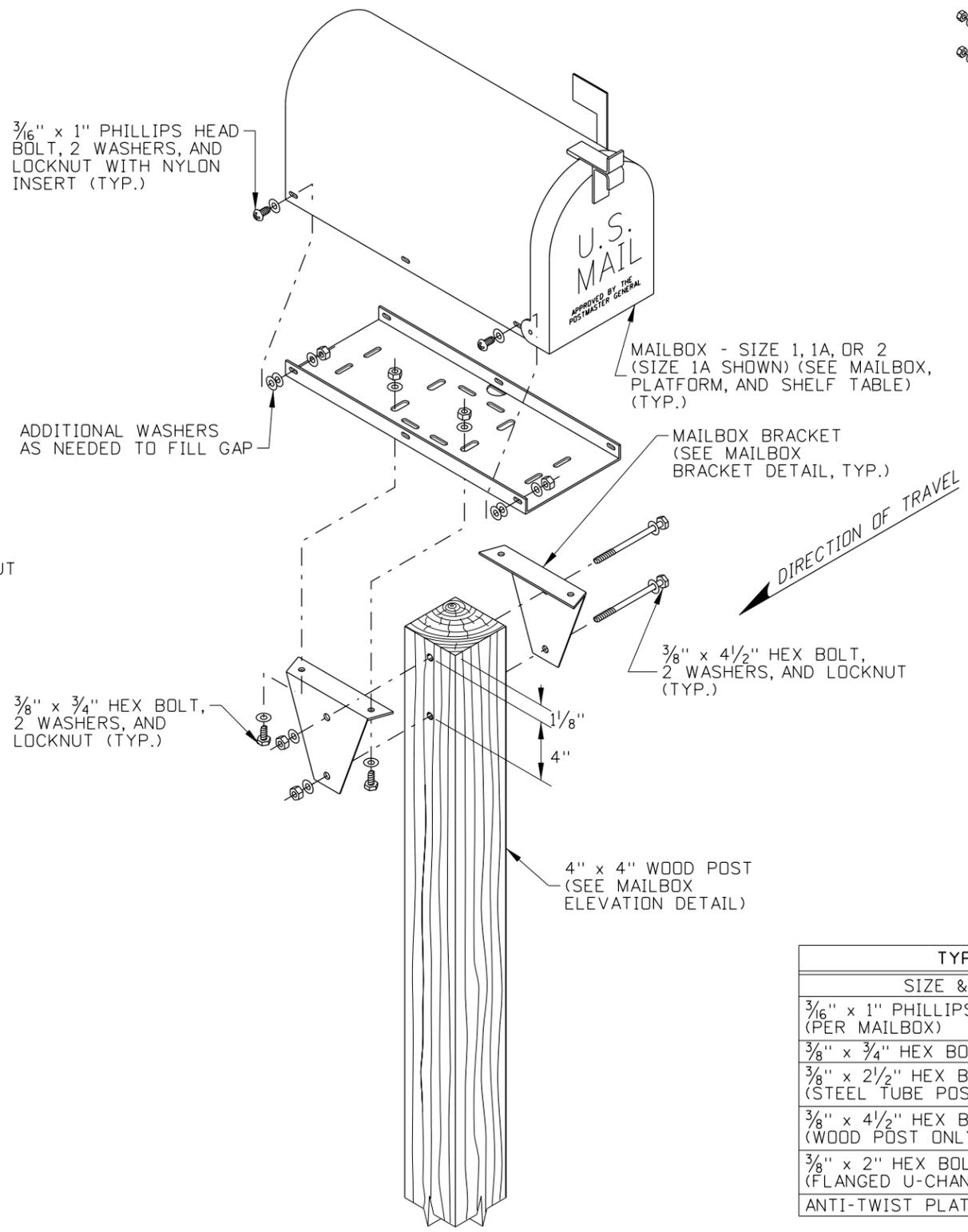
English
 STANDARD DRAWING NO.
628-1
 SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

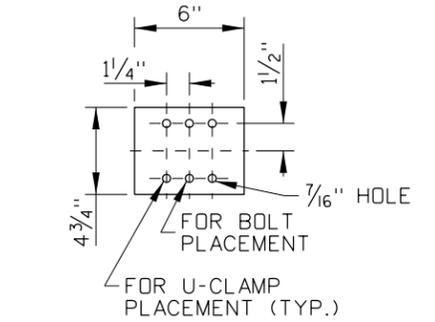
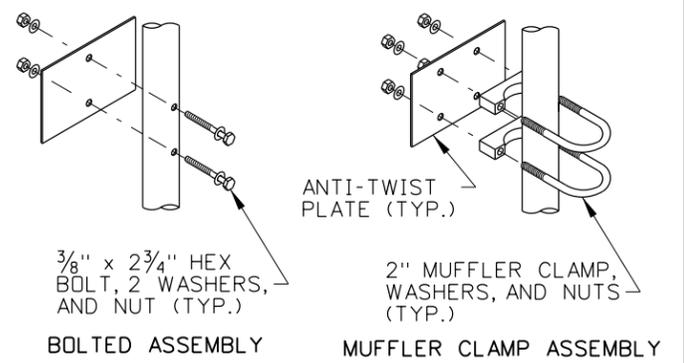
ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 MAY 16, 2014



TYPE A ASSEMBLY
STEEL TUBE POST



TYPE A ASSEMBLY
WOOD POST



ANTI-TWIST PLATE DETAIL

TYPE A ASSEMBLY FASTENERS TABLE			
SIZE & TYPE	QUANTITY	WASHERS	LOCKNUTS
3/16" x 1" PHILLIPS HEAD BOLTS (PER MAILBOX)	4 MIN.	8 MIN.	4 MIN.
3/8" x 3/4" HEX BOLT (BRACKET)	4	8	4
3/8" x 2 1/2" HEX BOLT (STEEL TUBE POST ONLY)	2	4	2
3/8" x 4 1/2" HEX BOLT (WOOD POST ONLY)	2	4	2
3/8" x 2" HEX BOLT (FLANGED U-CHANNEL POST ONLY)	2	4	2
ANTI-TWIST PLATE ASSEMBLY	SEE ANTI-TWIST PLATE DETAIL		

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	7-92	MSM	6	7-10	MGL			
2	7-02	MSM	7	11-11	TEM			
3	7-05	MSM	8	01-13	RDL			
4	12-05	MSM						
5	10-08	JRV						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: 634-1_0113.dgn
 DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

MAILBOXES

REQUIRES SHEETS 2 OF 5, 3 OF 5, 4 OF 5, & 5 OF 5

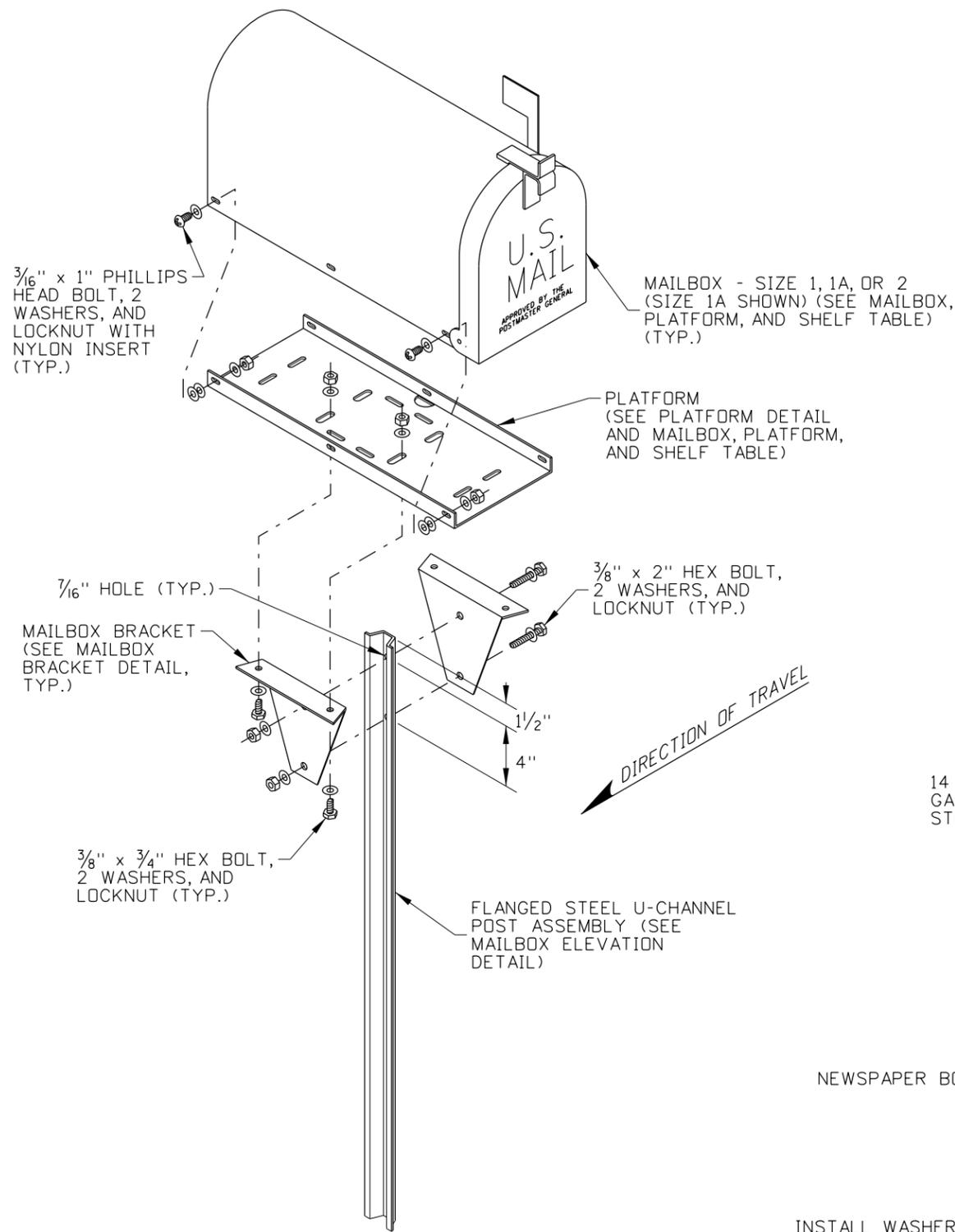
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

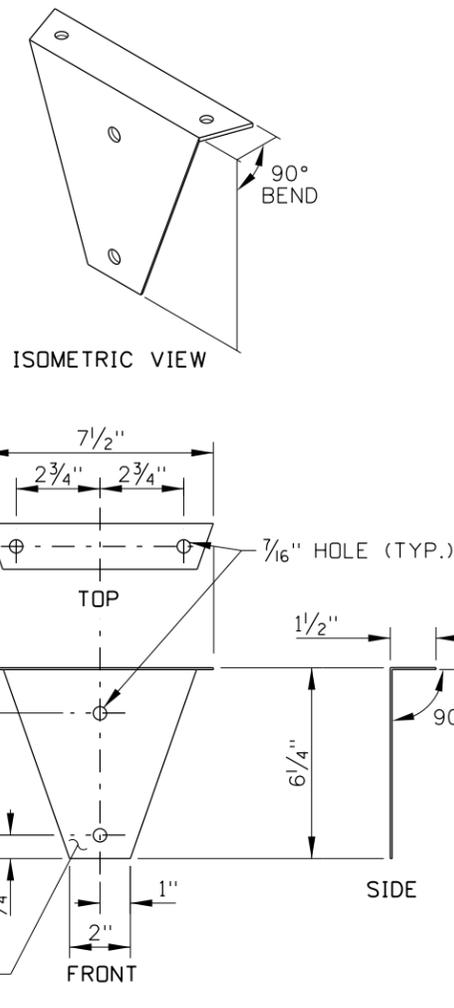
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SHEET 1 OF 5

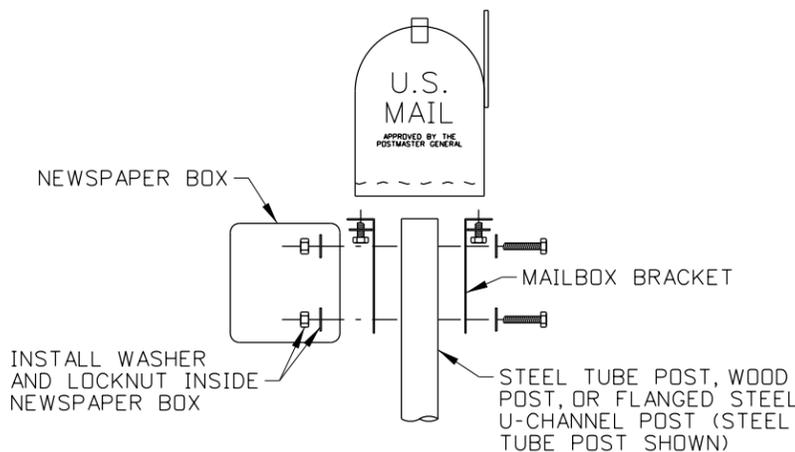
ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: JANUARY 31, 2013



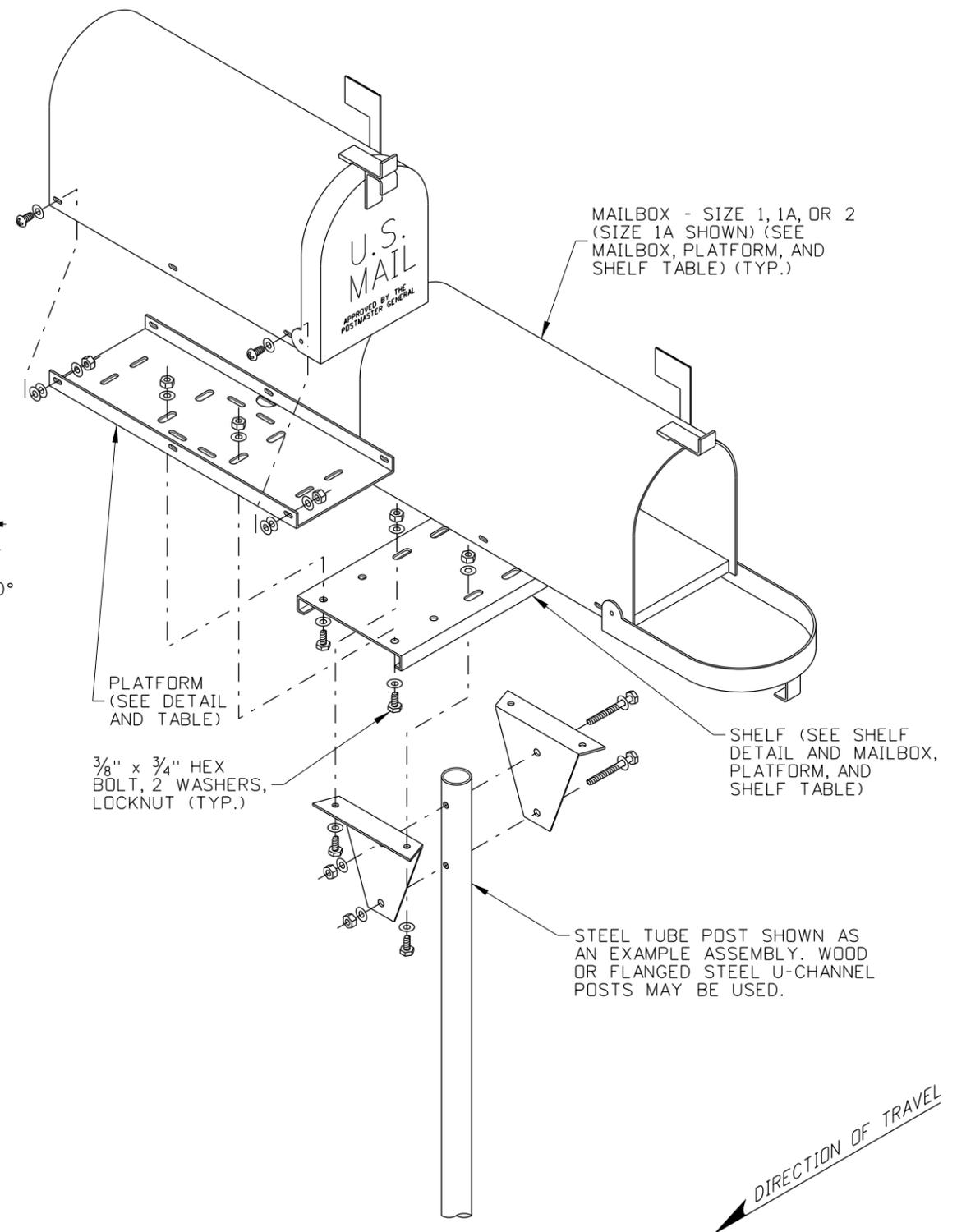
TYPE A ASSEMBLY
FLANGED STEEL U-CHANNEL POST
(2 LB/FT)



MAILBOX BRACKET DETAIL



NEWSPAPER BOX DETAIL
TYPE A ASSEMBLY



TYPE A ASSEMBLY
DOUBLE MAILBOX ASSEMBLY

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
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2	7-02	MSM	7	11-11	TEM			
3	7-05	MSM	8	01-13	RDL			
4	12-05	MSM						
5	10-08	JRV						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 634-1_0113.dgn

DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO



ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

MAILBOXES

REQUIRES SHEETS 1 OF 5, 3 OF 5, 4 OF 5, & 5 OF 5

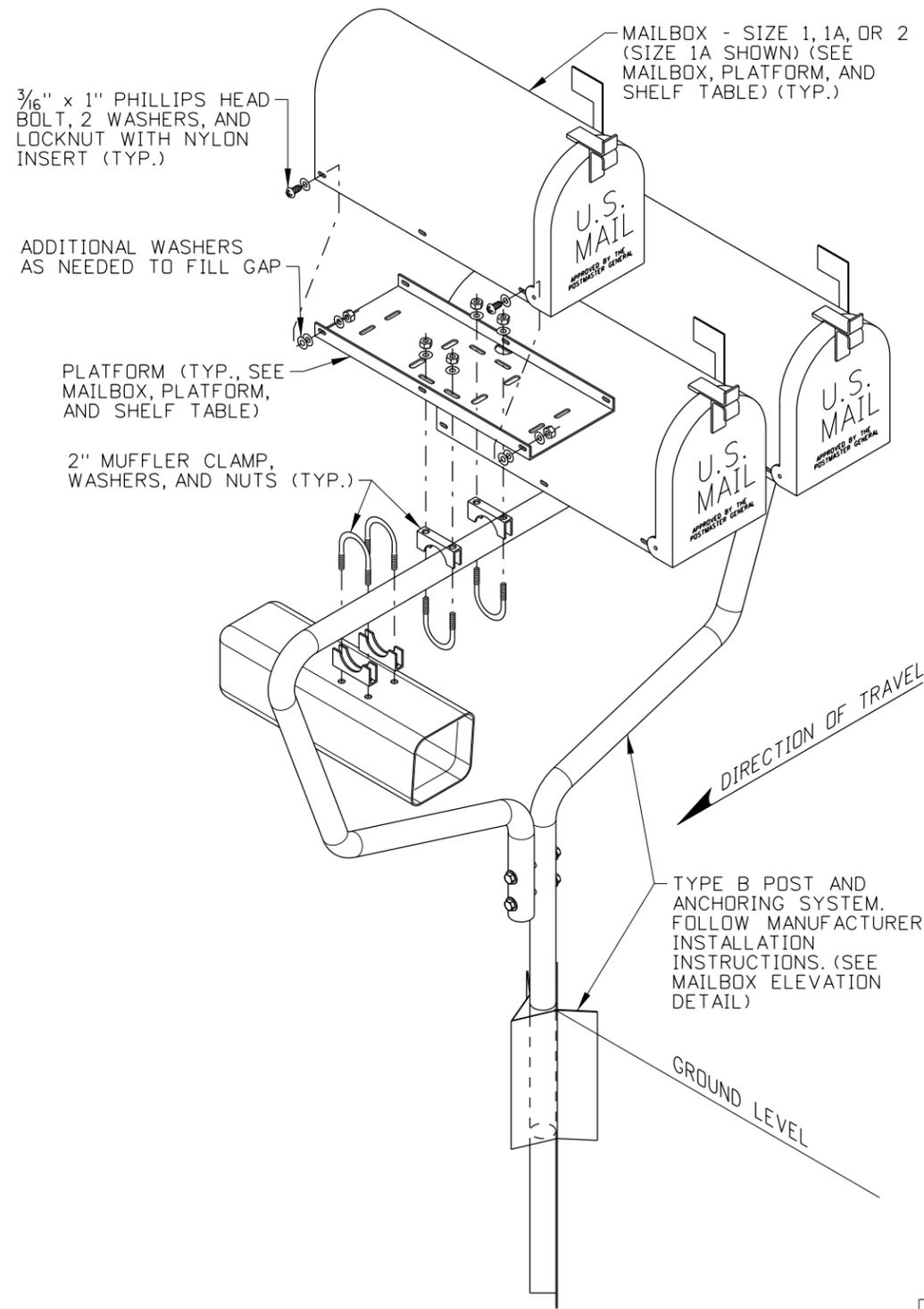
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO. **634-1**

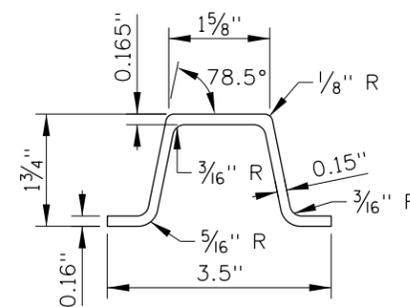
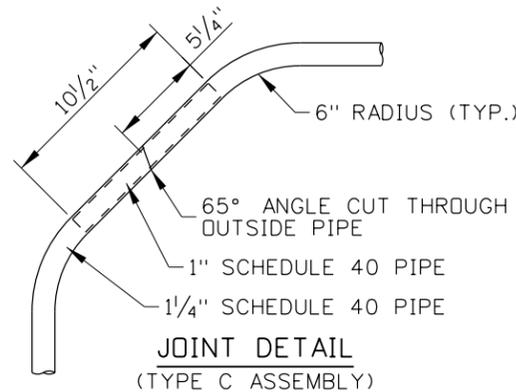
SHEET 2 OF 5

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JANUARY 31, 2013

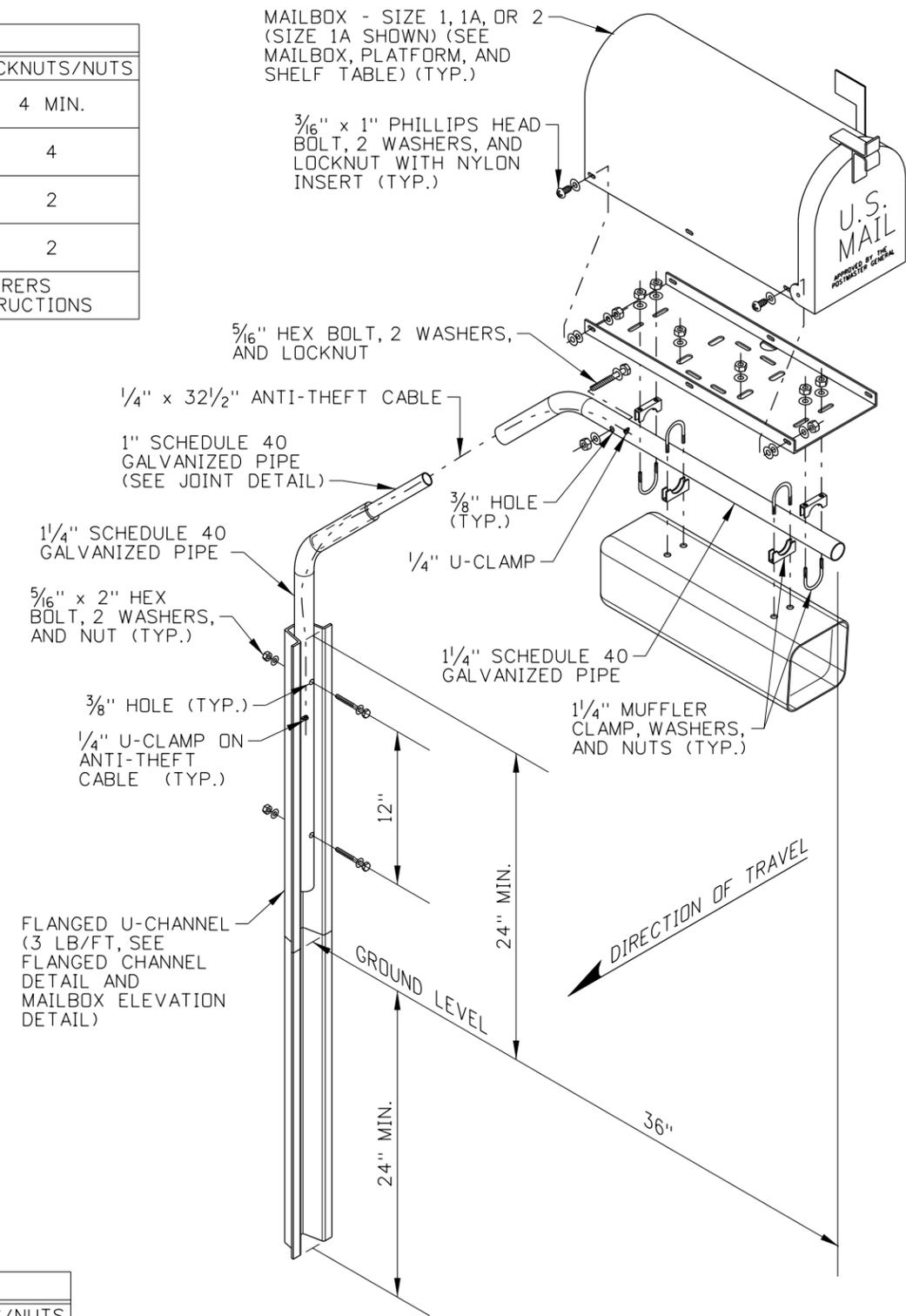


TYPE B ASSEMBLY

TYPE B ASSEMBLY FASTENERS TABLE			
SIZE & TYPE	QUANTITY	WASHERS	LOCKNUTS/NUTS
3/16" x 1" PHILLIPS HEAD BOLT (PER MAILBOX)	4 MIN.	8 MIN.	4 MIN.
2" MUFFLER CLAMP (PER MAILBOX)	2	4	4
2" MUFFLER CLAMP (PER NEWSPAPER BOX)	2	4	2
3/8" x 4 3/4" HEX BOLT (WOOD POST ONLY)	2	4	2
TYPE 2 POST AND ANCHORING SYSTEM	SEE MANUFACTURERS INSTALLATION INSTRUCTIONS		



TYPE C ASSEMBLY FASTENERS TABLE			
SIZE & TYPE	QUANTITY	WASHERS	LOCKNUTS/NUTS
3/16" x 1" PHILLIPS HEAD BOLT	4 MIN.	8 MIN.	4 MIN.
1 1/4" MUFFLER CLAMP	2	4	4
5/16" x 2" HEX BOLT	3	6	3
1/4" U-CLAMP	2	0	4



TYPE C ASSEMBLY

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	7-92	MSM	6	7-10	MGL		
2	7-02	MSM	7	11-11	TEM		
3	7-05	MSM	8	01-13	RDL		
4	12-05	MSM					
5	10-08	JRV					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 634-1_0113.dgn

DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

MAILBOXES

REQUIRES SHEETS 1 OF 5, 2 OF 5, 4 OF 5, & 5 OF 5

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

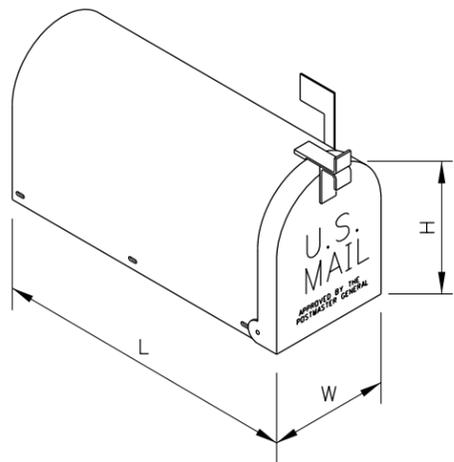
English

STANDARD DRAWING NO. 634-1

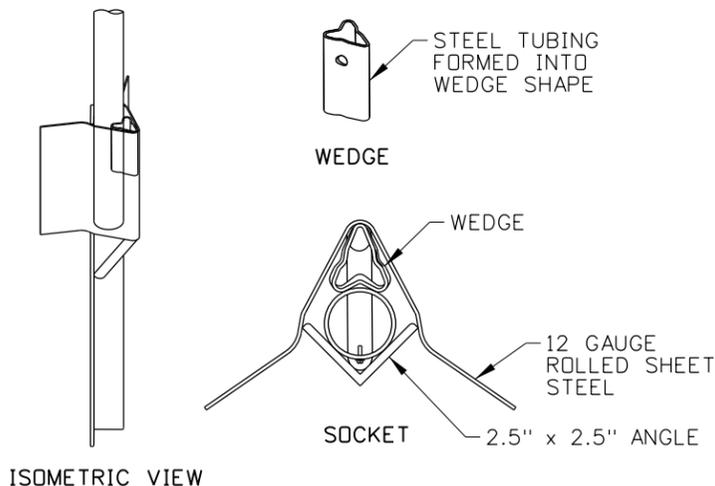
SHEET 3 OF 5

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JANUARY 31, 2013

MAILBOX, PLATFORM, AND SHELF TABLE						
MAILBOX SIZE	MAILBOX DIMENSIONS			PLATFORM DIMENSION		SHELF DIM.
	L	W	H	L _p	W _p	L _s
1	19"	6 1/2"	8 1/2"	17"	6"	15"
1-A	21"	8"	10 1/2"	19"	7 1/2"	16 1/2"
2	23 1/2"	11 1/2"	13 1/2"	21"	11"	20"

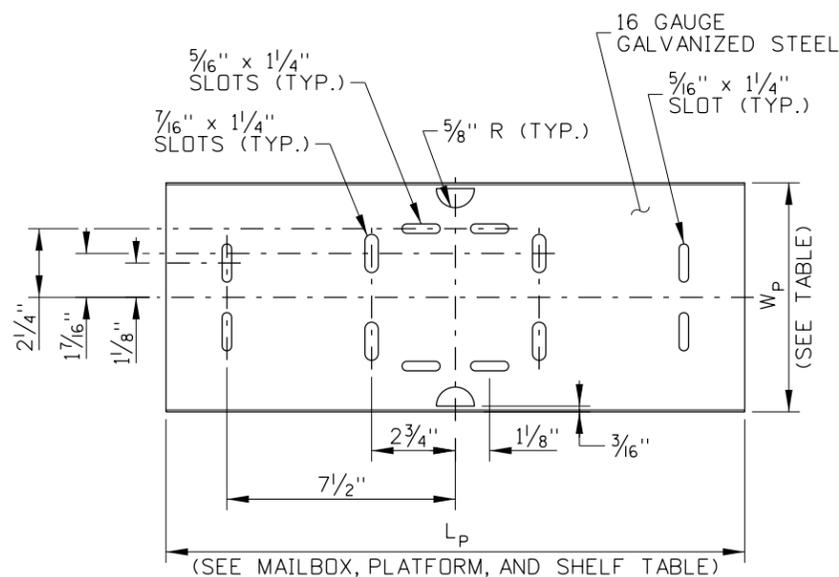


MAILBOX DIMENSIONS

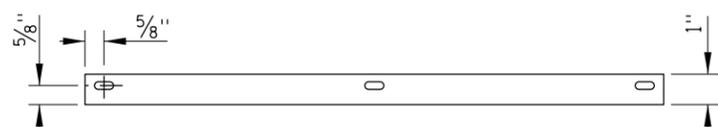


SOCKET AND WEDGE MAILBOX SUPPORT SYSTEM DETAIL

FOR USE WITH TYPE B ASSEMBLY
MAY BE USED WITH TYPE A - STEEL TUBE POST ASSEMBLY
(SEE MANUFACTURER'S INSTALLATION INSTRUCTIONS)

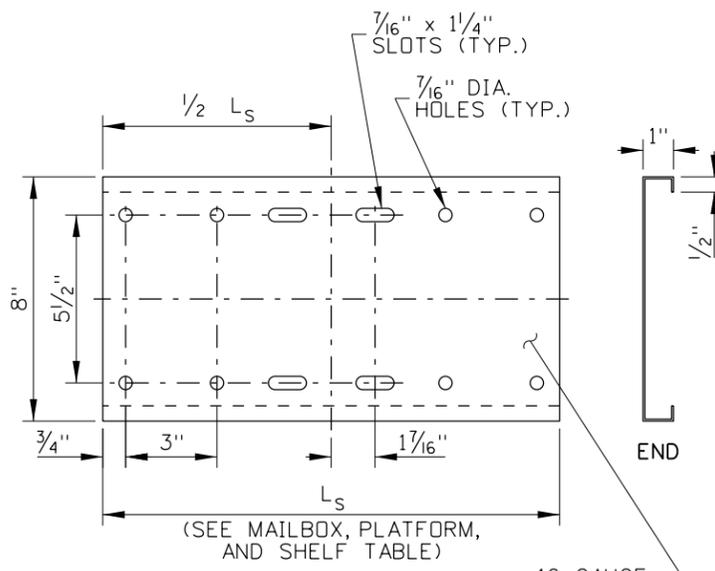


TOP



SIDE

PLATFORM DETAIL
(ONE-PIECE)



TOP

SHELF DETAIL
(FOR TYPE A DOUBLE MAILBOX ASSEMBLIES)

NOTES

1. CONSTRUCT MAILBOX ASSEMBLIES IN ACCORDANCE WITH SECTION 634 - MAILBOX OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
2. SEE STANDARD DRAWING H-4-B FOR MAILBOX PLACEMENT.
3. INSTALL THE MAILBOXES AND ASSEMBLIES WITH THE FASTENERS SHOWN IN THE ASSEMBLY FASTENER TABLES. SOME PLATFORM SLOTS AND HOLES MAY REMAIN UNUSED.
4. CENTER THE MAILBOX ON THE PLATFORM AND ENSURE THAT THE MAILBOX DOOR OPENS. SPACING OF MAILBOX MOUNTING HOLES MAY VARY BETWEEN MANUFACTURERS AND ADDITIONAL HOLES MAY BE DRILLED IN THE MAILBOX, PLATFORM, OR BOTH TO ATTACH THE MAILBOX TO THE PLATFORM.
5. COMMERCIALY AVAILABLE MAILBOXES AND MAILBOX ASSEMBLIES MAY BE SUBSTITUTED FOR THOSE SHOWN IF THEY MEET THE REQUIREMENTS OF THE U.S. POSTMASTER GENERAL AND HAVE SUCCESSFULLY PASSED THE TESTING REQUIREMENTS OF MASH OR NCHRP 350. ADJUSTABLE PLATFORM ALTERNATIVES AND THE SOCKET AND WEDGE MAILBOX SUPPORT SYSTEM ARE EXAMPLES OF COMMERCIALY AVAILABLE PROPRIETARY SYSTEMS THAT MAY BE ACCEPTABLE ALTERNATIVES. OBTAIN THE ENGINEER'S APPROVAL BEFORE INSTALLING ALTERNATIVE MAILBOXES OR ASSEMBLIES AND INSTALL IN ACCORDANCE WITH THE MANUFACTURERS INSTRUCTIONS.
6. USE AN ANTI-TWIST PLATE, SHOWN ON THE ANTI-TWIST PLATE DETAIL. A SOCKET AND WEDGE MAILBOX SUPPORT SYSTEM MAY BE USED IN LIEU OF AN ANTI-TWIST PLATE. IF THE SOCKET AND WEDGE SYSTEM IS USED, FOLLOW THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
7. THE TYPE C ASSEMBLY SHOULD BE USED IN HEAVY SNOW AREAS OR AREAS WHERE SNOW PLOW DAMAGE TO MAILBOXES HAS BEEN OBSERVED OR IS ANTICIPATED.
8. WHEN USED IN HEAVY SNOW AREAS, ONLY ONE MAILBOX IS RECOMMENDED FOR TYPE A ASSEMBLIES. THE TYPE A ASSEMBLY WITH WOOD POSTS IS RECOMMENDED FOR USE IN HEAVY SNOW AREAS. A SNOW SHIELD MAY BE INSTALLED AS SHOWN ON STANDARD DRAWING 634-2.
9. MAILBOX SIZES 1, 1A, AND 2, SHOWN IN THE MAILBOX, PLATFORM, AND SHELF TABLE MAY BE INSTALLED ON THE TYPE A DOUBLE MAILBOX ASSEMBLY IN ANY COMBINATION OF SIZES. WHEN MORE THAN ONE SIZE IS TO BE INSTALLED, USE THE SHELF SIZE FOR THE LARGER MAILBOX.
10. THE TYPE B ASSEMBLY IS A PROPRIETARY SYSTEM THAT MAY BE USED FOR THE INSTALLATION OF TWO OR MORE MAILBOXES. ON TYPE B MAILBOX ASSEMBLIES, INSTALL A MAXIMUM OF FIVE SIZE 1 MAILBOXES, FOUR SIZE 1A MAILBOXES, OR THREE SIZE 2 MAILBOXES. WHEN MORE THAN ONE SIZE IS TO BE INSTALLED, LIMIT THE NUMBER OF MAILBOXES TO THE MAXIMUM NUMBER FOR THE LARGEST SIZE USED.
11. DO NOT INSTALL THE MAILBOX ASSEMBLY IN A CONCRETE FOUNDATION. AN EXCEPTION MAY BE MADE FOR MASH OR NCHRP 350 APPROVED ALTERNATIVE MAILBOX ASSEMBLIES IN ACCORDANCE WITH THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.
12. ENSURE THAT PLATFORM, SHELF, AND BRACKETS ARE GALVANIZED IN ACCORDANCE WITH AASHTO M 232.
13. IF USED, ATTACH THE NEWSPAPER BOX TO THE SUPPORT, DIRECTLY UNDER THE MAILBOX. ENSURE THAT NEWSPAPER BOXES DO NOT EXTEND BEYOND THE FRONT OF THE MAILBOX WHEN THE MAILBOX DOOR IS CLOSED. IN HEAVY SNOW AREAS, LOCATE THE NEWSPAPER BOX ON THE TRAILING SIDE OF THE MAILBOX POST. SEE THE NEWSPAPER BOX DETAIL FOR INSTALLATIONS ON TYPE A MAILBOX ASSEMBLIES.
14. ROUND OR GRIND THE CORNERS OF PLATFORMS, SHELVES, BRACKETS, OR OTHER HARDWARE THAT HAS SHARP PROTRUDING EDGES.
15. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	7-92	MSM	6	7-10	MGL			
2	7-02	MSM	7	11-11	TEM			
3	7-05	MSM	8	01-13	RDL			
4	12-05	MSM						
5	10-08	JRV						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: 634-1_0113.dgn
DRAWING DATE: SEPTEMBER, 1993

IDAHO
TRANSPORTATION
DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

MAILBOXES

REQUIRES SHEETS 1 OF 5,
2 OF 5, 3 OF 5, & 5 OF 5

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

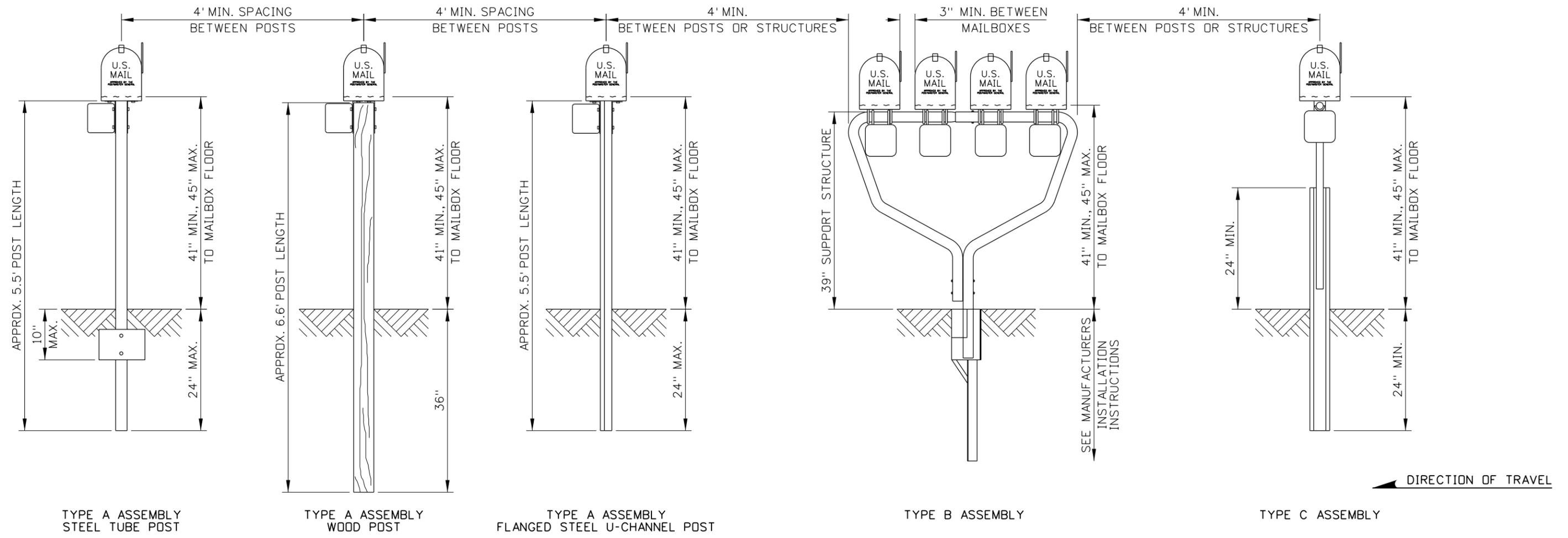
English

STANDARD DRAWING NO.

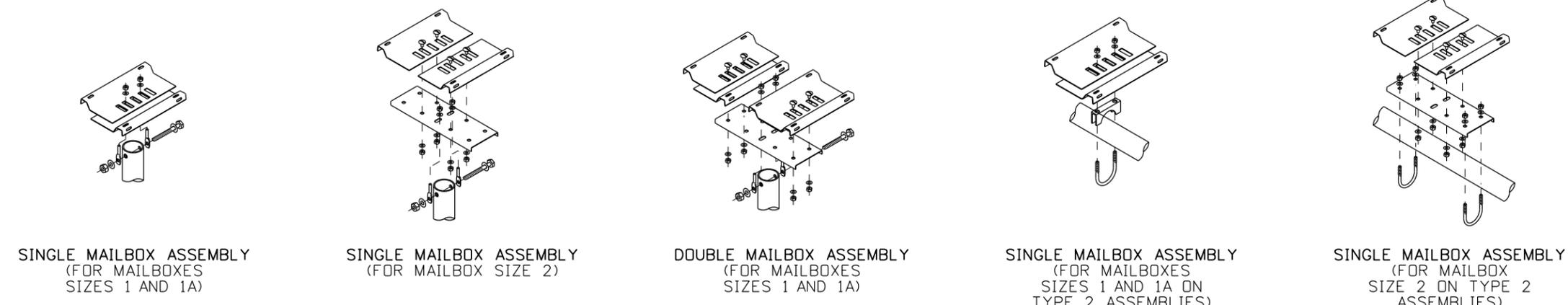
634-1

SHEET 4 OF 5

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
JANUARY 31, 2013



MAILBOX ELEVATION DETAIL



ADJUSTABLE PLATFORM ALTERNATIVES

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	7-92	MSM	6	7-10	MGL			
2	7-02	MSM	7	11-11	TEM			
3	7-05	MSM	8	01-13	RDL			
4	12-05	MSM						
5	10-08	JRV						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 634-1_0113.dgn

DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

MAILBOXES

REQUIRES SHEETS 1 OF 5, 2 OF 5, 3 OF 5, & 4 OF 5

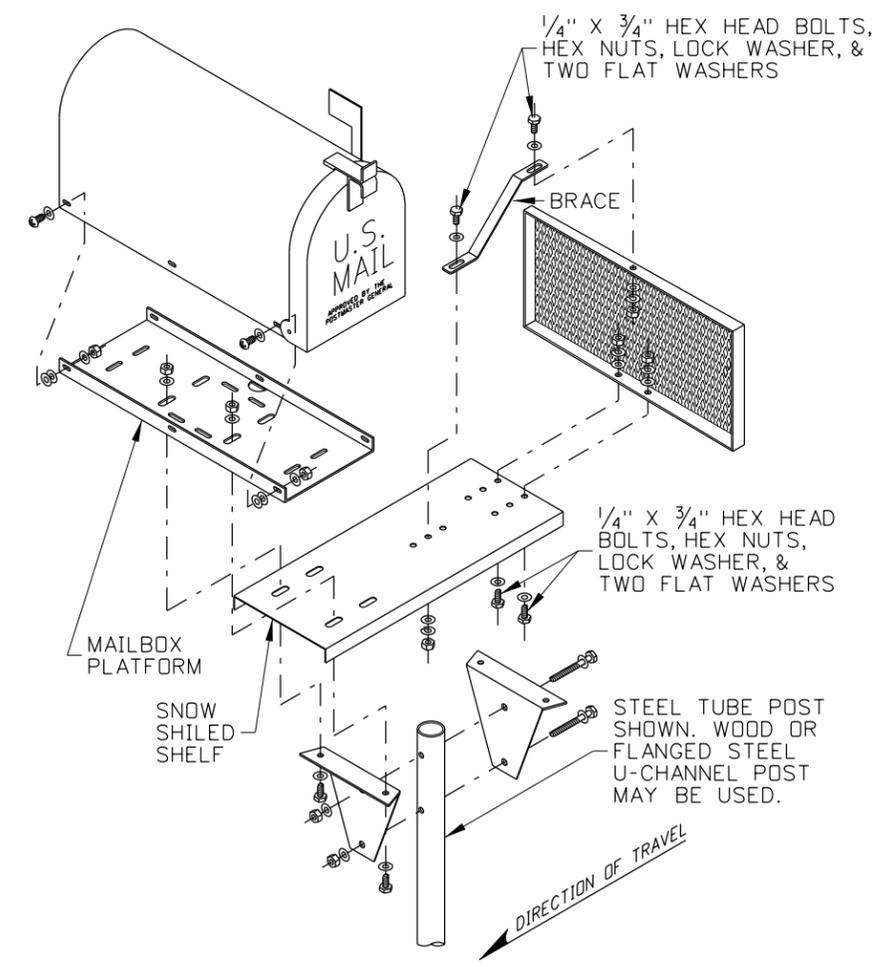
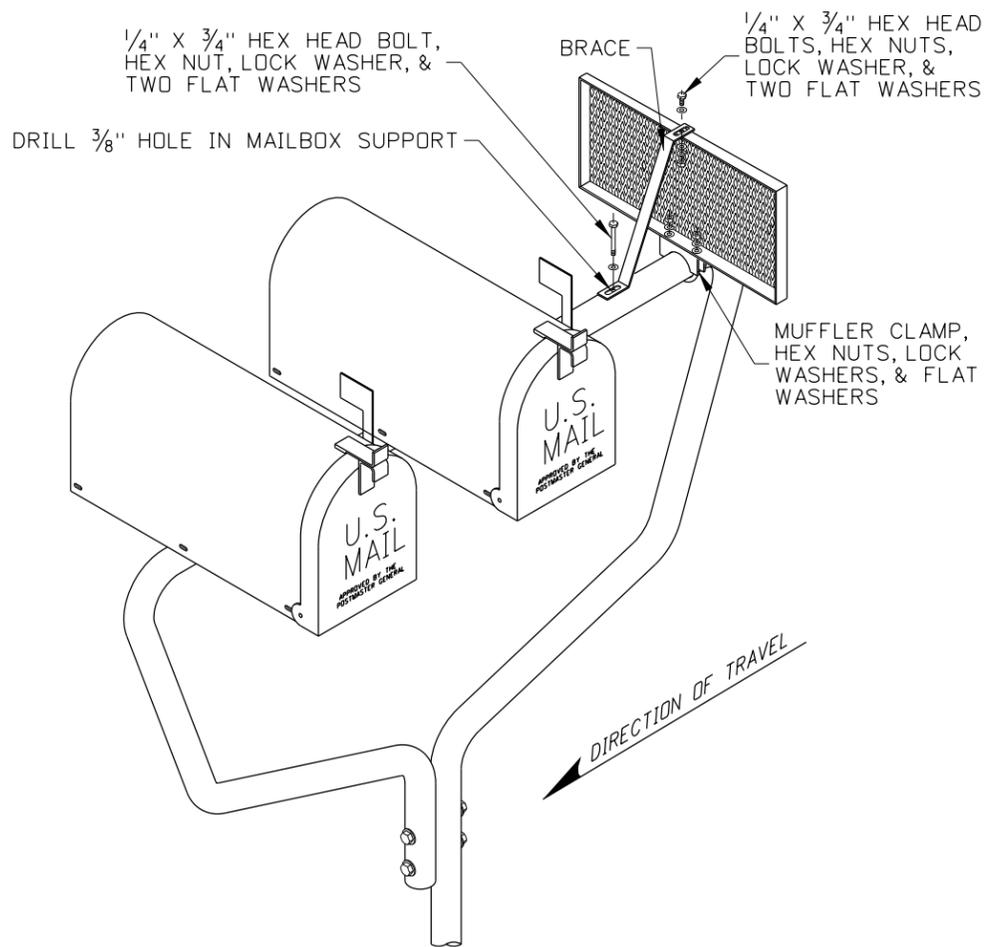
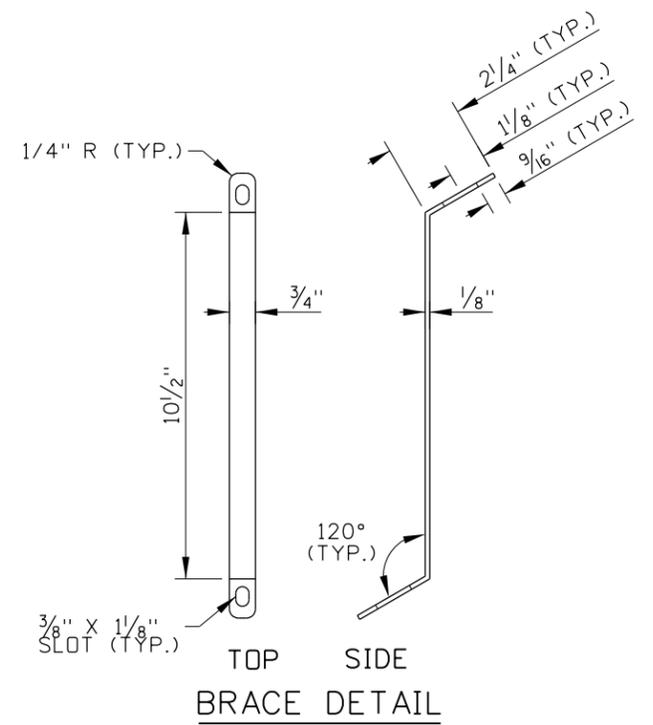
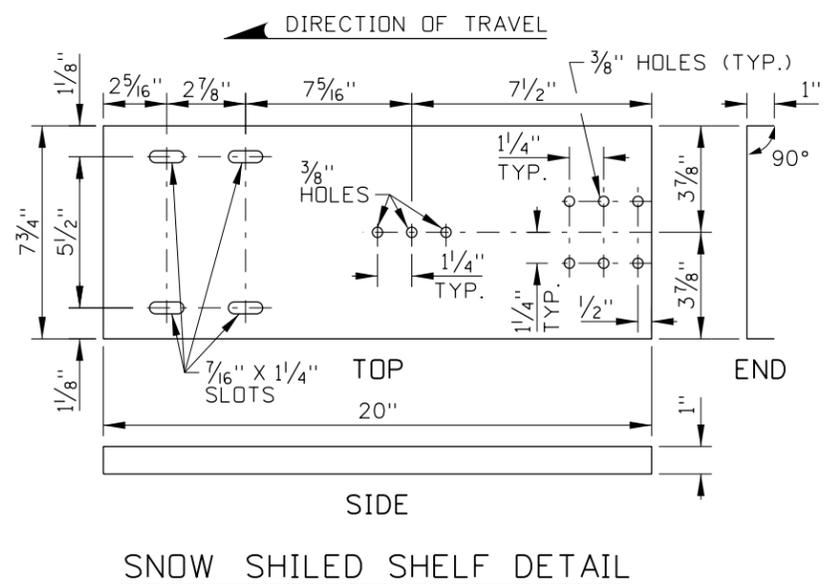
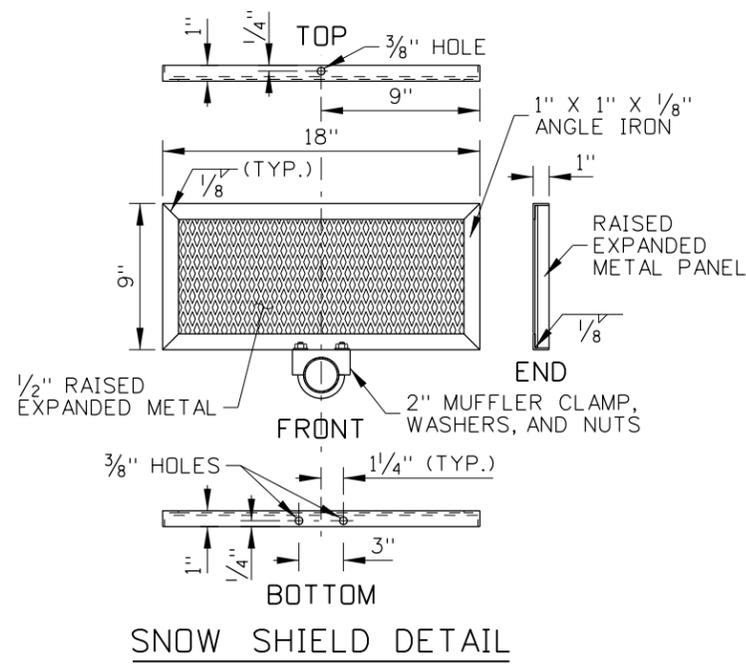
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO. 634-1

SHEET 5 OF 5

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JANUARY 31, 2013



- NOTES**
1. SEE THE MAILBOX STANDARD DRAWING FOR MAILBOX INSTALLATION DETAILS
 2. ROUND OR GRIND THE SHARP CORNERS OF THE PLATFORM, SNOW SHIELD SHELF, AND BRACE.
 3. WHEN A NEWSPAPER BOX IS INSTALLED, ENSURE THAT BOX IS ON THE TRAILING SIDE OF THE POST.
 4. DRAWING NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 28, 2015

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	07-10	MGL					
2	08-11	RSC					
3	05-15	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: 634-2_0515.dgn

DRAWING DATE: NOVEMBER, 2005

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

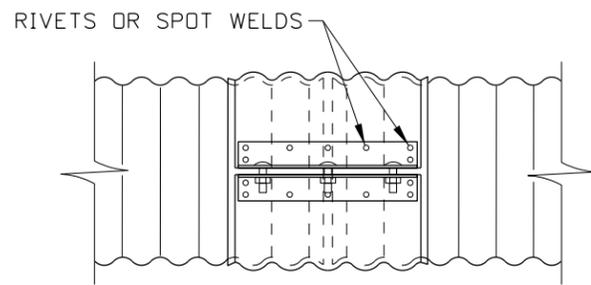
MAILBOX SNOW SHIELD

REQUIRES STD. DWG. 634-1

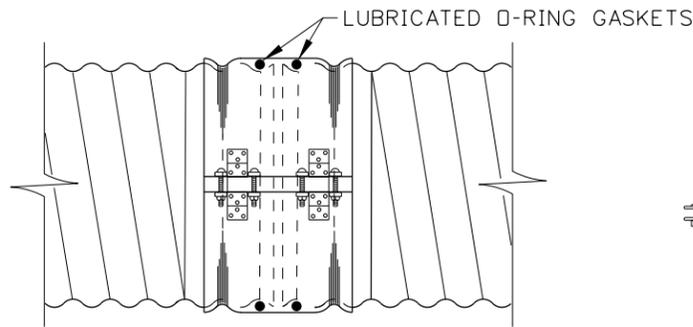
English

STANDARD DRAWING NO. **634-2**

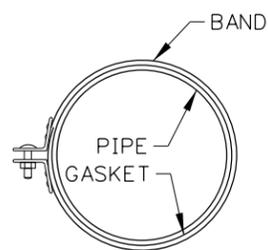
SHEET 1 OF 1



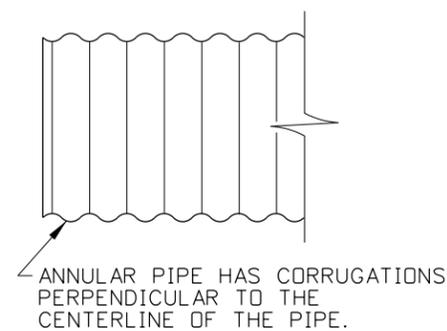
TYPES 1-A & 2-A
ANNULAR COUPLING BAND



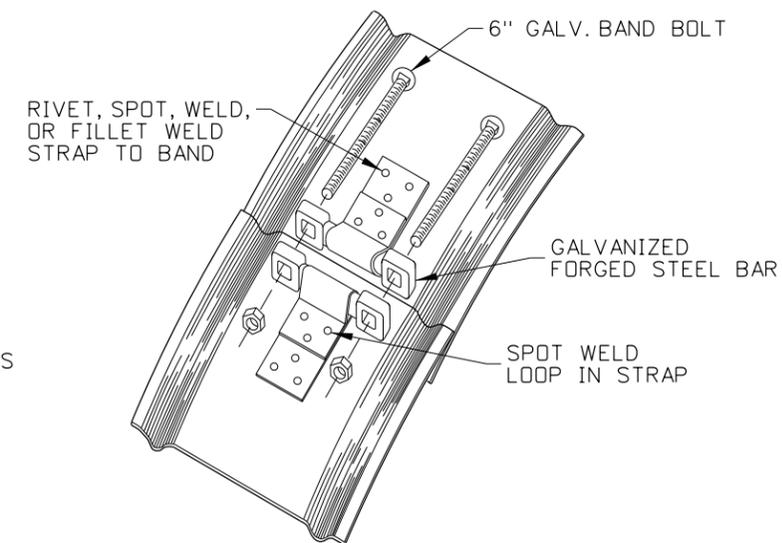
DOUBLE BAR AND STRAP-TYPE 3
HUGGER COUPLING BAND



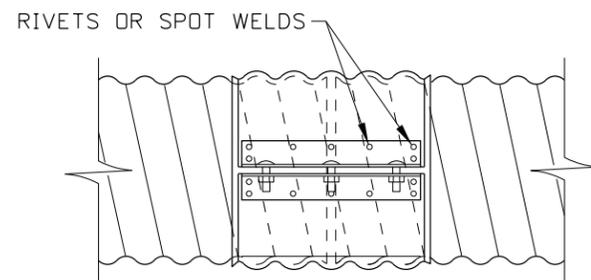
TYPE 1
SINGLE PIECE BAND



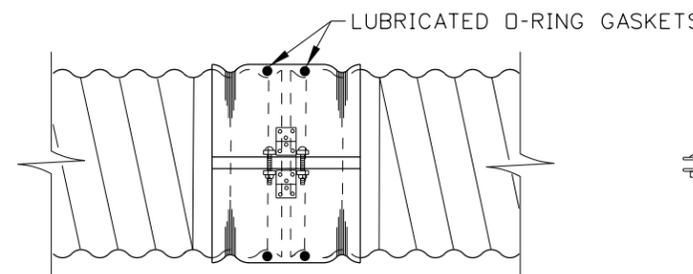
ANNULAR CMP



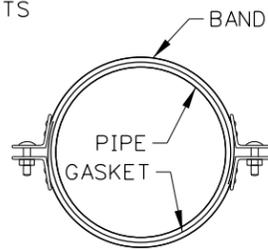
BAND TYPE 3
BAR & STRAP COUPLING
(SINGLE STRAP)



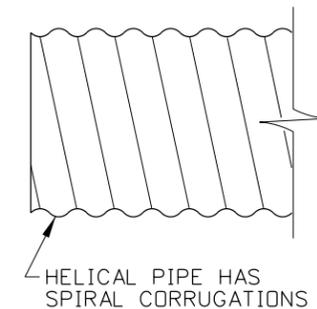
TYPES 1-B & 2-B
HELICAL COUPLING BAND



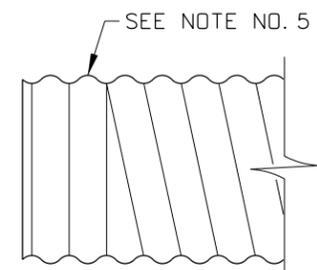
SINGLE BAR AND STRAP-TYPE 3
HUGGERL COUPLING BAND



TYPE 2
TWO PIECE BAND



HELICAL CMP



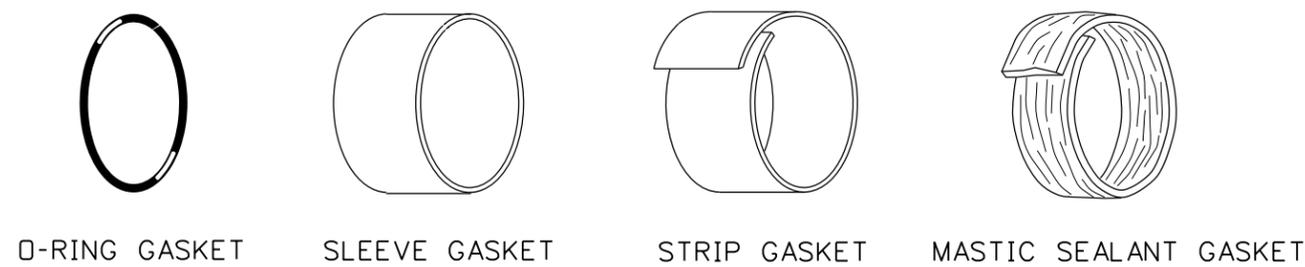
REFORMED HELICAL CMP

NOTES

1. THE REFORMED ENDS OF HELICAL CORRUGATED METAL PIPE MADE TO ACCEPT ANNULAR COUPLING BANDS SHALL BE UNIFORM AND SMOOTH IN APPEARANCE. PIPE WITH IRREGULAR REFORMED ENDS ARE NOT ACCEPTABLE.
2. SLEEVE AND STRIP GASKETS FOR COUPLING BANDS TYPE 1-A AND 1-B SHALL EXCEED THE WIDTH OF THE BAND BY A MINIMUM OF 1/4" ON BOTH EDGES. THE GASKETS SHALL FIT SNUGLY AROUND THE PIPES PRIOR TO INSTALLATION OF THE BAND.
3. ALL WELDS AND/OR EXPOSED FERROUS METAL ON COUPLING BANDS AND BAND CONNECTING HARDWARE SHALL BE REPAIRED IN ACCORDANCE WITH AASHTO M 36.
4. STEEL BAND THICKNESS SHALL BE AT LEAST 1/2 THE THICKNESS OR GAUGE OF THE PIPE. ALUMINUM BANDS SHALL BE THE SAME THICKNESS AS THE PIPE.
5. THE JOINTS FOR SIPHONS AND SEWERS SHALL BE WATERTIGHT AND PRESSURE TESTED PRIOR TO ACCEPTANCE, AS REQUIRED IN THE STANDARD SPECIFICATIONS.
6. TO PREVENT GALVANIC ACTION WHEN BANDS AND PIPES ARE OF AN UNLIKE METAL, THE BANDS SHALL BE ASPHALT COATED.
7. GASKET MATERIALS ARE NOT TO BE ALTERED, SEWN, OR PATCHED. THE USE OF SEALANTS AND/OR LUBRICANTS WITH BAND GASKETS MUST BE AS THE MANUFACTURER SPECIFIES. THE QUALITY AND CHEMICAL COMPOSITION OF SEALANTS AND LUBRICANTS WILL BE AS THE MANUFACTURER REQUIRES. CONTACT THE MANUFACTURER FOR DETAILS.
8. SPOT WELDED OR FILLET WELDED STRAPS ON BANDS SHALL BE OF EQUAL STRENGTH TO RIVETED STRAPS.
9. ALL RECOMMENDATIONS IN THE PIPE COUPLING BAND TABLE ARE TO BE CONSIDERED MINIMAL.
10. NOT TO SCALE.

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
MILFORD L. MILLER
DATE ORIGINAL SIGNED:
MARCH 4, 2005



STANDARD CORRUGATED STEEL PIPE GASKET TYPES

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	02-76		6	03-05	MSM			
2	02-77							
3	09-93	MSM						
4	12-95	MSM						
5	06-02	MSM						

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
706-6_0305.dgn

DRAWING DATE:
APRIL, 1961

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING

**CORRUGATED METAL PIPE
WATERTIGHT COUPLING BANDS**

REQUIRES SHEET 2 OF 2

English

STANDARD DRAWING NO.
706-6

SHEET 1 OF 2

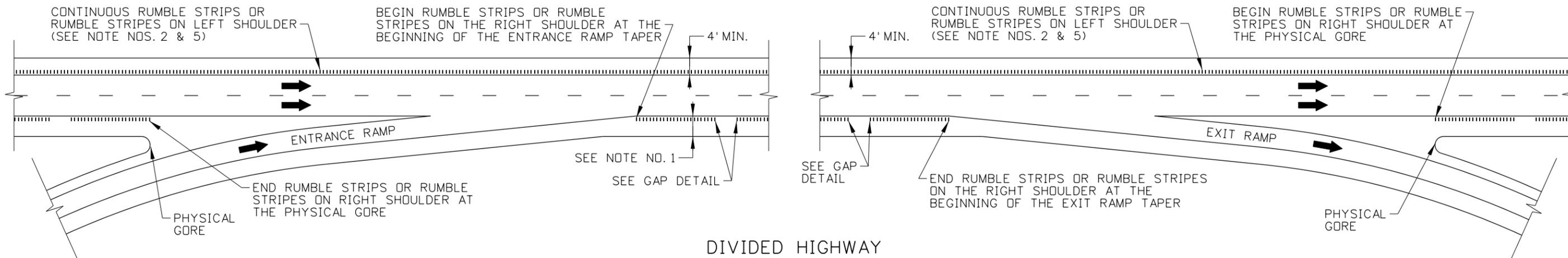
PIPE COUPLING BAND TABLE						PIPE CORRUGATION STYLE			SIPHON	* CULVERT	IRRIGATION	SEWER	UNDERDRAIN
COUPLING TYPE	CORRUGATIONS	PIPE SIZE	COUPLING WIDTH	COUPLING BOLTS (NO.) DIA.	GASKET TYPE	ANNULAR PIPE	REFORMED HELICAL	HELICAL PIPE					
TYPE 1-A ANNULAR COUPLING BAND	1/2" x 1/4" & 2 3/8" x 1/2"	6"-10"	7" (1 PIECE)	(3) 3/8"	SLEEVE	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	12"-15"	7" (1 PIECE)	(3) 1/2"	SLEEVE	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	18"-24"	12" (1 PIECE)	(3) 1/2"	SLEEVE	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	30"-42"	24" (1 PIECE)	(5) 5/8"	SLEEVE	X	X		X	X		X	
TYPE 1-B HELICAL COUPLING BAND	1/2" x 1/4" & 2 3/8" x 1/2"	6"-10"	7" (1 PIECE)	(3) 3/8"	SLEEVE OR STRIP			X	X	X		X	
	2 3/8" x 1/2" & 3" x 1"	12"-15"	7" (1 PIECE)	(3) 1/2"	SLEEVE OR STRIP			X	X	X		X	
	2 3/8" x 1/2" & 3" x 1"	18"-24"	12" (1 PIECE)	(3) 1/2"	SLEEVE OR STRIP			X	X	X		X	
	2 3/8" x 1/2" & 3" x 1"	30"-42"	24" (1 PIECE)	(5) 5/8"	SLEEVE OR STRIP			X	X	X		X	
TYPE 2-A ANNULAR COUPLING BAND	1/2" x 1/4" & 2 3/8" x 1/2"	6"-10"	7" (1 PIECE)	(4) 3/8"	SLEEVE, STRIP OR MASTIC	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	12"-15"	7" (1 PIECE)	(4) 3/8"	SLEEVE, STRIP OR MASTIC	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	18"-24"	12" (1 PIECE)	(6) 1/2"	SLEEVE, STRIP OR MASTIC	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	30"-42"	24" (1 PIECE)	(8) 1/2"	SLEEVE, STRIP OR MASTIC	X	X		X	X	X	X	
TYPE 2-B HELICAL COUPLING BAND	1/2" x 1/4" & 2 3/8" x 1/2"	6"-10"	7" (1 PIECE)	(4) 3/8"	SLEEVE, STRIP OR MASTIC			X	X	X		X	
	2 3/8" x 1/2" & 3" x 1"	12"-15"	7" (1 PIECE)	(4) 3/8"	SLEEVE, STRIP OR MASTIC			X	X	X		X	
	2 3/8" x 1/2" & 3" x 1"	18"-24"	12" (1 PIECE)	(6) 1/2"	SLEEVE, STRIP OR MASTIC			X	X	X		X	
	2 3/8" x 1/2" & 3" x 1"	30"-42"	24" (1 PIECE)	(8) 1/2"	SLEEVE, STRIP OR MASTIC			X	X	X		X	
TYPE 3 HUGGER COUPLING BAND	2 3/8" x 1/2" & 3" x 1"	12"-48" (GALV.)	7 1/2" (STRAP)	(2) 6" x 1/2"	O-RING	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	54"-96" (GALV.)	10 1/2" (2 STRAP)	(4) 6" x 5/8"	O-RING	X	X		X	X	X	X	
	2 3/8" x 1/2" & 3" x 1"	102"-144" (GALV.)	12" (3 STRAP)	(6) 6" x 7/8"	O-RING	X	X		X	X	X	X	

* WATERTIGHT BANDS ARE NOT REQUIRED ON CULVERT INSTALLATIONS UNLESS SPECIFIED BY THE PLANS OR SPECIAL PROVISIONS

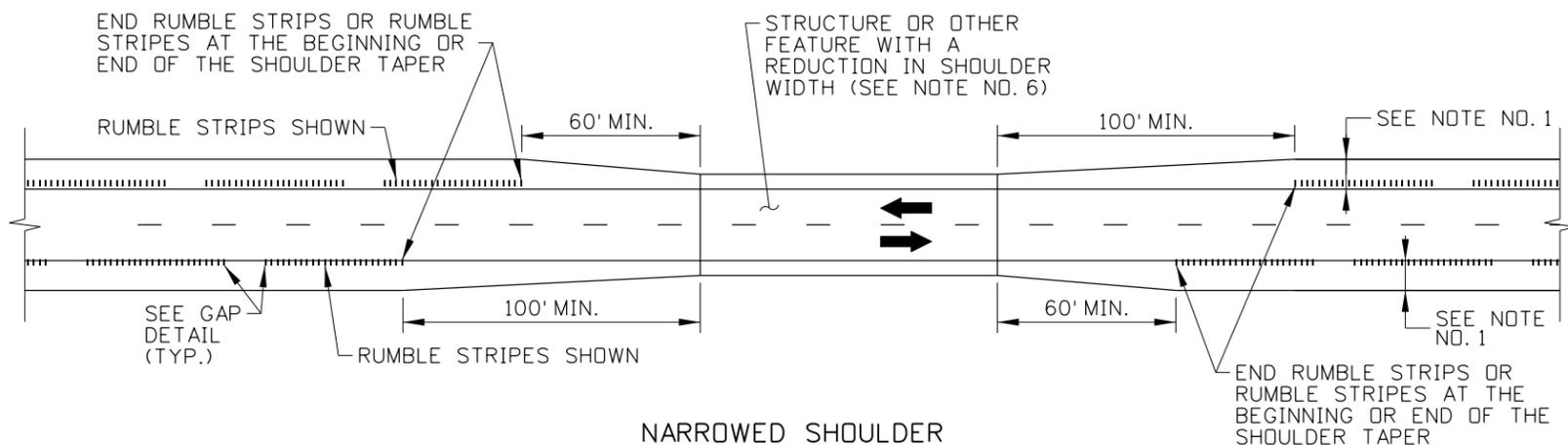
ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
MILDRD L. MILLER
DATE ORIGINAL SIGNED:
MARCH 4, 2005

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REVISIONS																																																																												
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY																																																																				
1	02-76		6	03-05	MSM																																																																							
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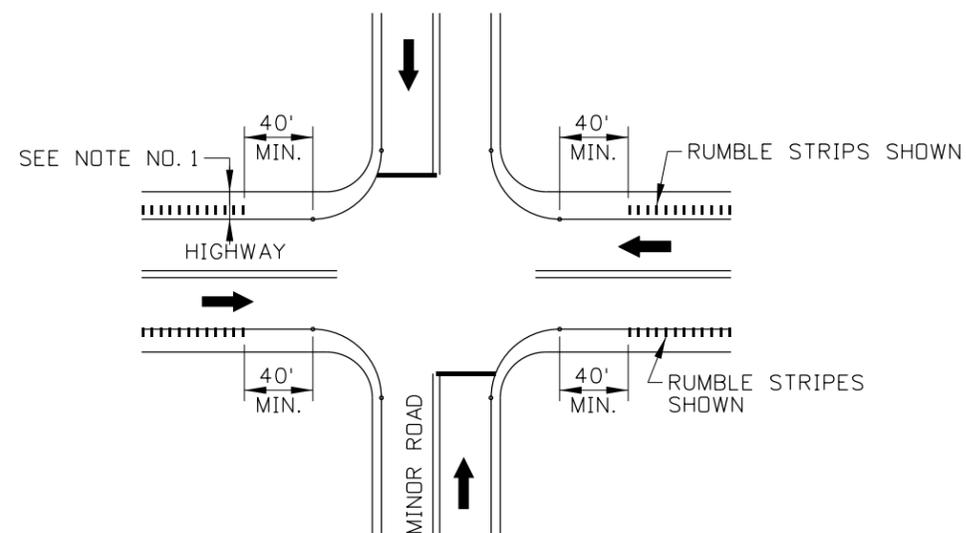


DIVIDED HIGHWAY

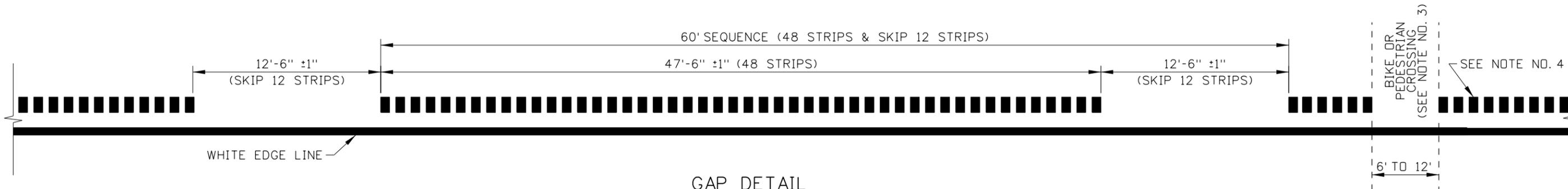


NARROWED SHOULDER

TWO-LANE HIGHWAY



INTERSECTION



GAP DETAIL

RUMBLE STRIPS SHOWN. ALSO APPLICABLE TO RUMBLE STRIPES.
(SEE NOTE NOS. 2, 3, & 4)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-02	HEB						
2	12-04	MSM						
3	09-11	JDA						
4	04-14	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: c2a_0514.dgn
DRAWING DATE: NOVEMBER, 2000

IDAHO TRANSPORTATION DEPARTMENT



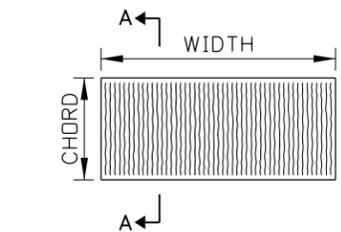
BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
SHOULDER RUMBLE STRIPS AND RUMBLE STRIPES

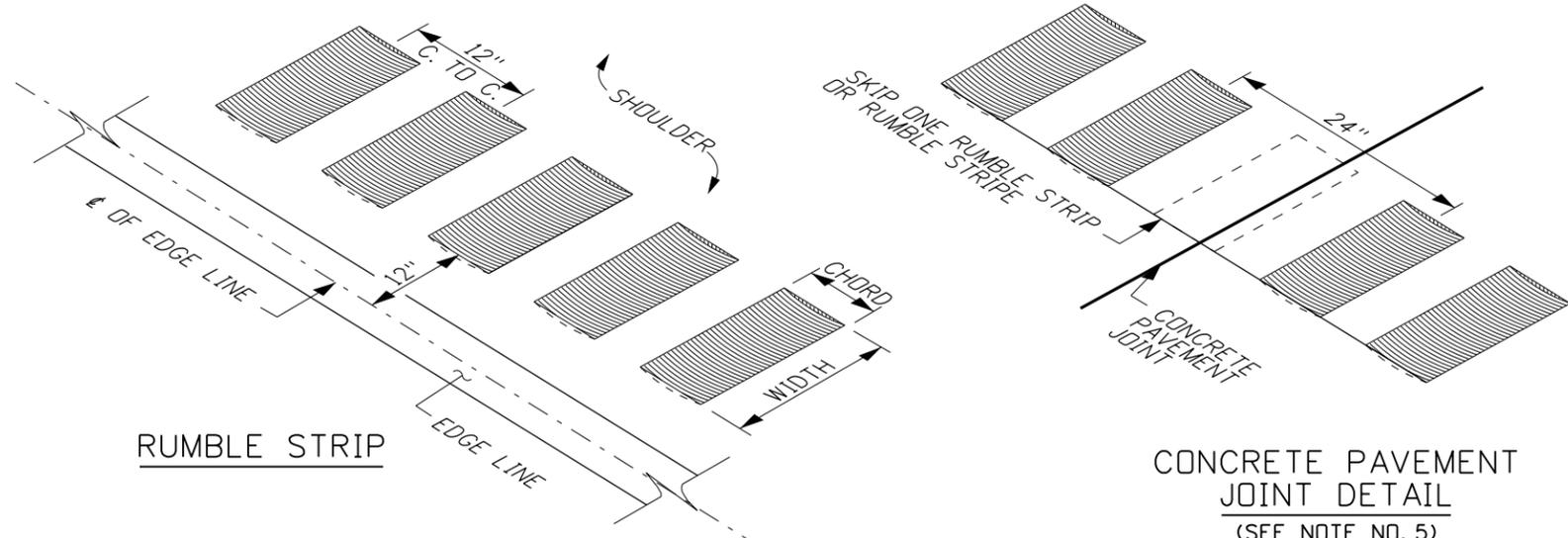
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STANDARD DRAWING NO.
C-2-A
SHEET 1 OF 2

ORIGINAL SIGNED BY: TED E. MASON
DATE: MAY 8, 2014



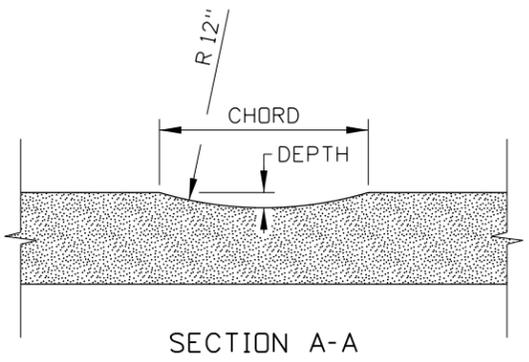
RUMBLE STRIP AND RUMBLE STRIPE DETAIL

RUMBLE STRIP AND RUMBLE STRIPE DIMENSION TABLE						
SHOULDER WIDTH	RUMBLE STRIP			RUMBLE STRIPE		
	WIDTH	DEPTH	CHORD	WIDTH	DEPTH	CHORD
2' TO <4'	-	-	-	6"	3/8" TYP. 1/2" MAX.	±6"
4' TO 8'	12"	1/2" TYP. 5/8" MAX.	±7"	12"	3/8" TYP. 1/2" MAX.	±6"
>8'	16"	1/2" TYP. 5/8" MAX.	±7"	16"	3/8" TYP. 1/2" MAX.	±6"

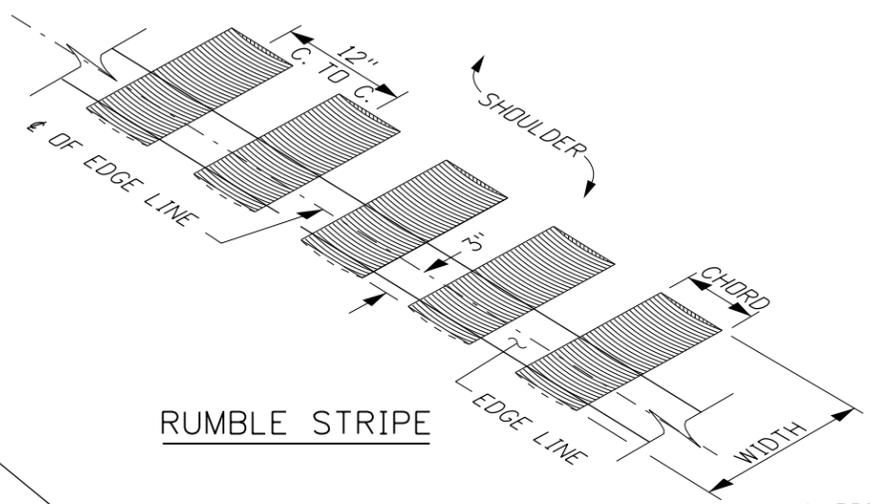


RUMBLE STRIP

CONCRETE PAVEMENT JOINT DETAIL
(SEE NOTE NO. 5)



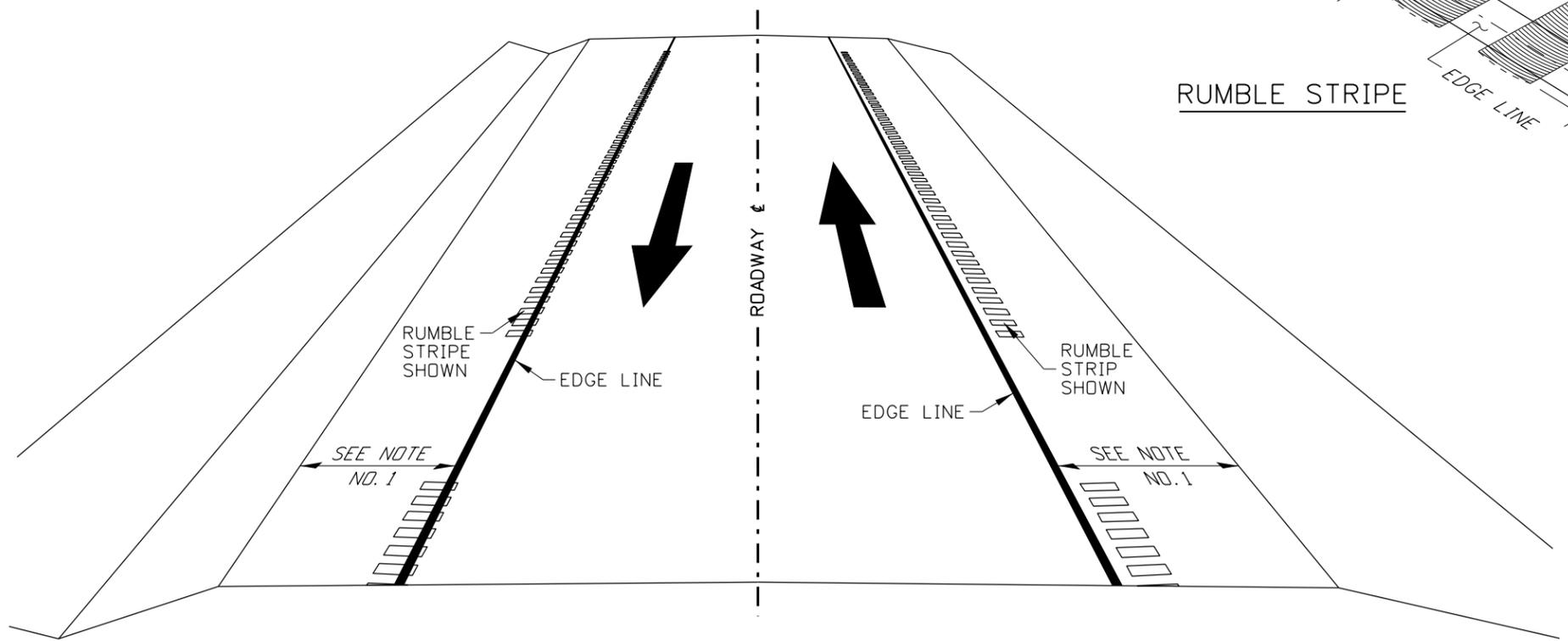
SECTION A-A



RUMBLE STRIPE

NOTES

1. PROVIDE RUMBLE STRIPS OR RUMBLE STRIPES AS SHOWN ON THE PROJECT PLANS AND IN ACCORDANCE WITH THE RUMBLE STRIP AND RUMBLE STRIPE DIMENSION TABLE.
2. PROVIDE CONTINUOUS RUMBLE STRIPS OR RUMBLE STRIPES ON THE LEFT SHOULDER (ADJACENT TO OR IN LINE WITH A YELLOW EDGE LINE) OF DIVIDED HIGHWAYS. PROVIDE PERIODIC GAPS ON RIGHT SHOULDERS (ADJACENT TO OR IN LINE WITH A WHITE EDGE LINE) TO ALLOW BICYCLISTS TO MOVE ACROSS THE RUMBLE STRIP OR RUMBLE STRIPE PATTERN AS NEEDED.
3. IN AREAS WHERE BICYCLISTS OR PEDESTRIANS ARE EXPECTED TO CROSS THE RUMBLE STRIP OR RUMBLE STRIPE, PROVIDE A 6 FOOT TO 12 FOOT GAP.
4. WHEN THE SEQUENCE OF RUMBLE STRIPS OR RUMBLE STRIPES AND GAPS IS INTERRUPTED, RESTART THE SEQUENCE WITH 48 RUMBLE STRIPS OR RUMBLE STRIPES.
5. OMIT RUMBLE STRIPS OR RUMBLE STRIPES ON CONCRETE PAVEMENT JOINTS (LONGITUDINAL OR LATERAL).
6. OMIT RUMBLE STRIPS OR RUMBLE STRIPES ON BRIDGES AND BRIDGE APPROACH SLABS.
7. DRAWINGS NOT TO SCALE.



EXAMPLE TWO-LANE HIGHWAY

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-02	HEB						
2	12-04	MSM						
3	09-11	JDA						
4	04-14	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: c2a_0514.dgn
DRAWING DATE: NOVEMBER, 2000

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

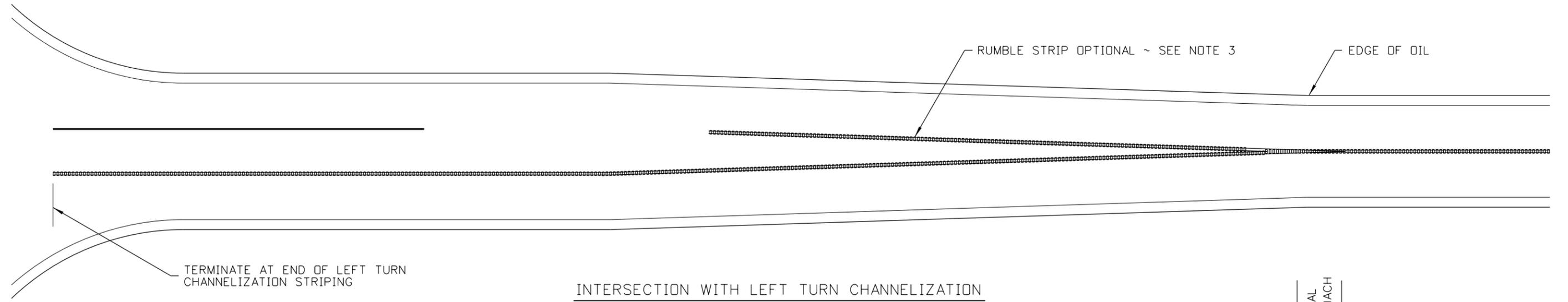
ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
SHOULDER RUMBLE STRIPS AND RUMBLE STRIPES

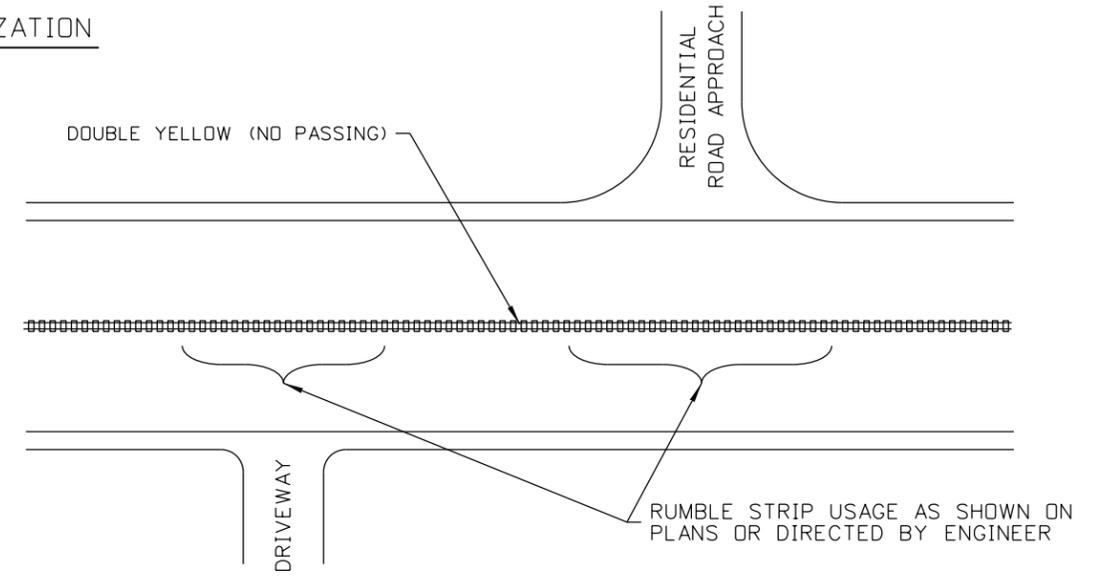
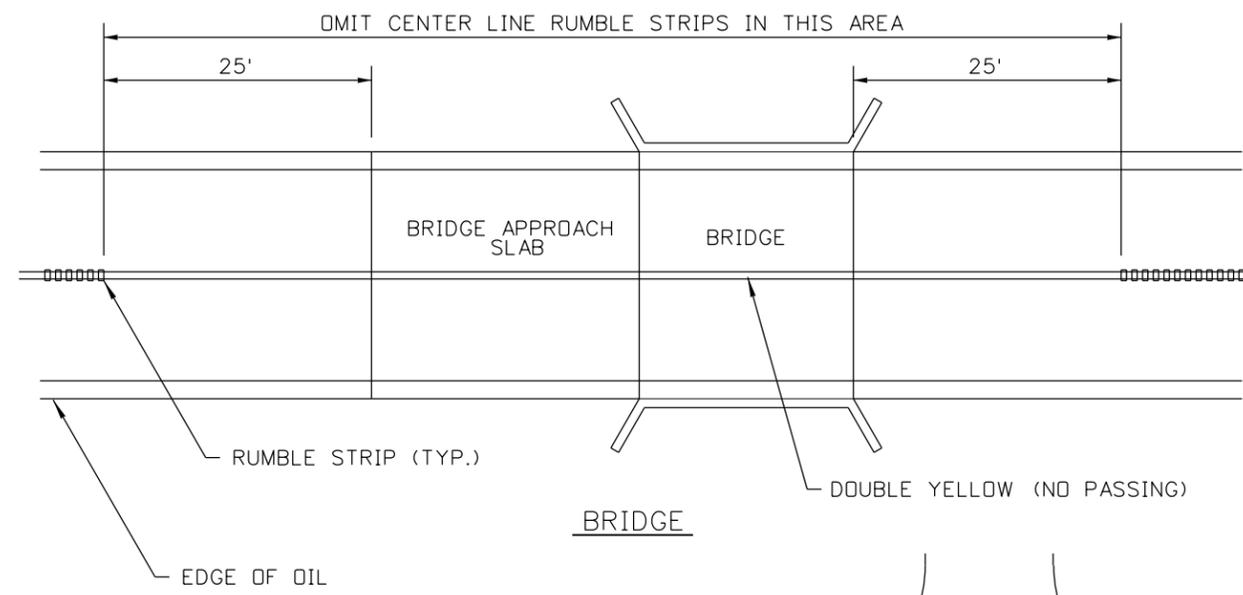
English
STANDARD DRAWING NO.
C-2-A
SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

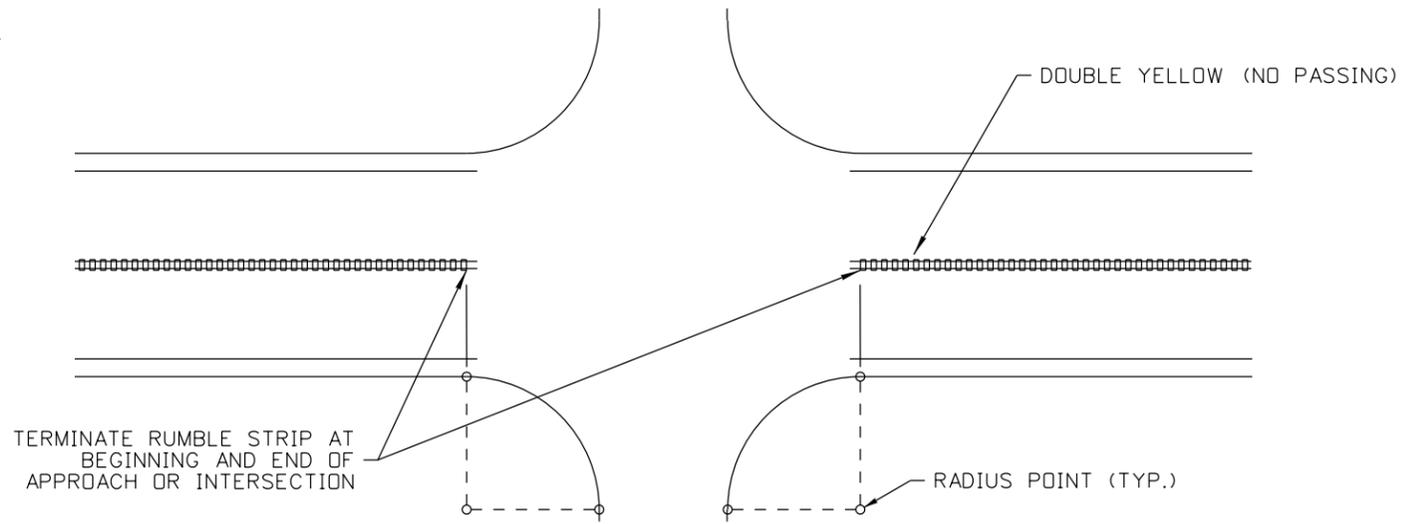
ORIGINAL SIGNED BY: TED E. MASON
DATE ORIGINAL SIGNED: MAY 8, 2014



INTERSECTION WITH LEFT TURN CHANNELIZATION



PRIVATE ROAD APPROACHES



PUBLIC ROAD APPROACHES

NOTES

1. CENTERLINE RUMBLE STRIPS SHALL NOT BE INSTALLED IN PASSING AREAS UNLESS SPECIFIED ON THE PLANS OR APPROVED BY THE ENGINEER.
2. RUMBLE STRIPS ARE NOT ALLOWED ON STRUCTURES OR APPROACH SLABS.
3. WHEN DIRECTED BY THE ENGINEER, RUMBLE STRIPS MAY BE INSTALLED ALONG THE TURN POCKET TAPER WHERE THERE IS A HISTORY OF REAR END COLLISIONS IN THE TURN POCKET.
4. NOT TO SCALE

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: c2c_0911.dgn
 DRAWING DATE: SEPTEMBER, 2011

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

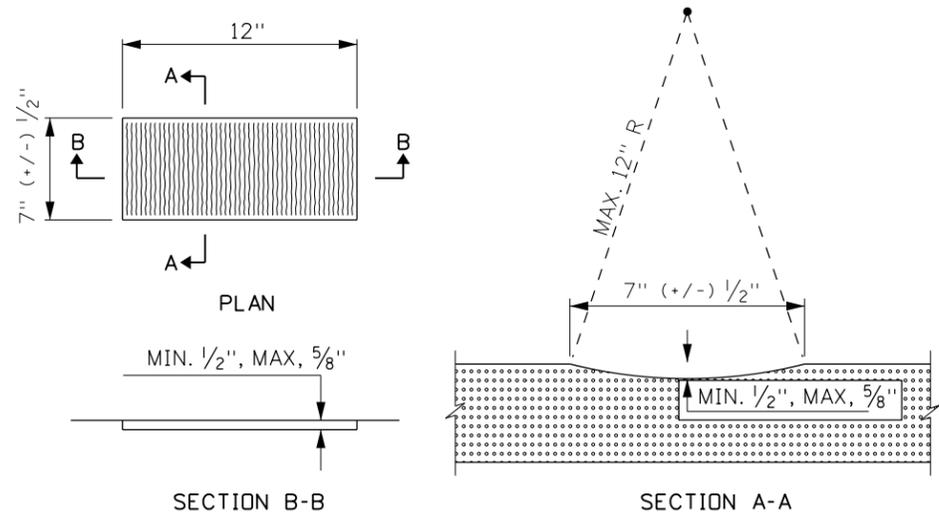
STANDARD DRAWING
CENTERLINE RUMBLE STRIPS FOR TWO-WAY ROADWAYS
 REQUIRES SHEET 2 OF 2

English
 STANDARD DRAWING NO.
C-2-C
 SHEET 1 OF 2

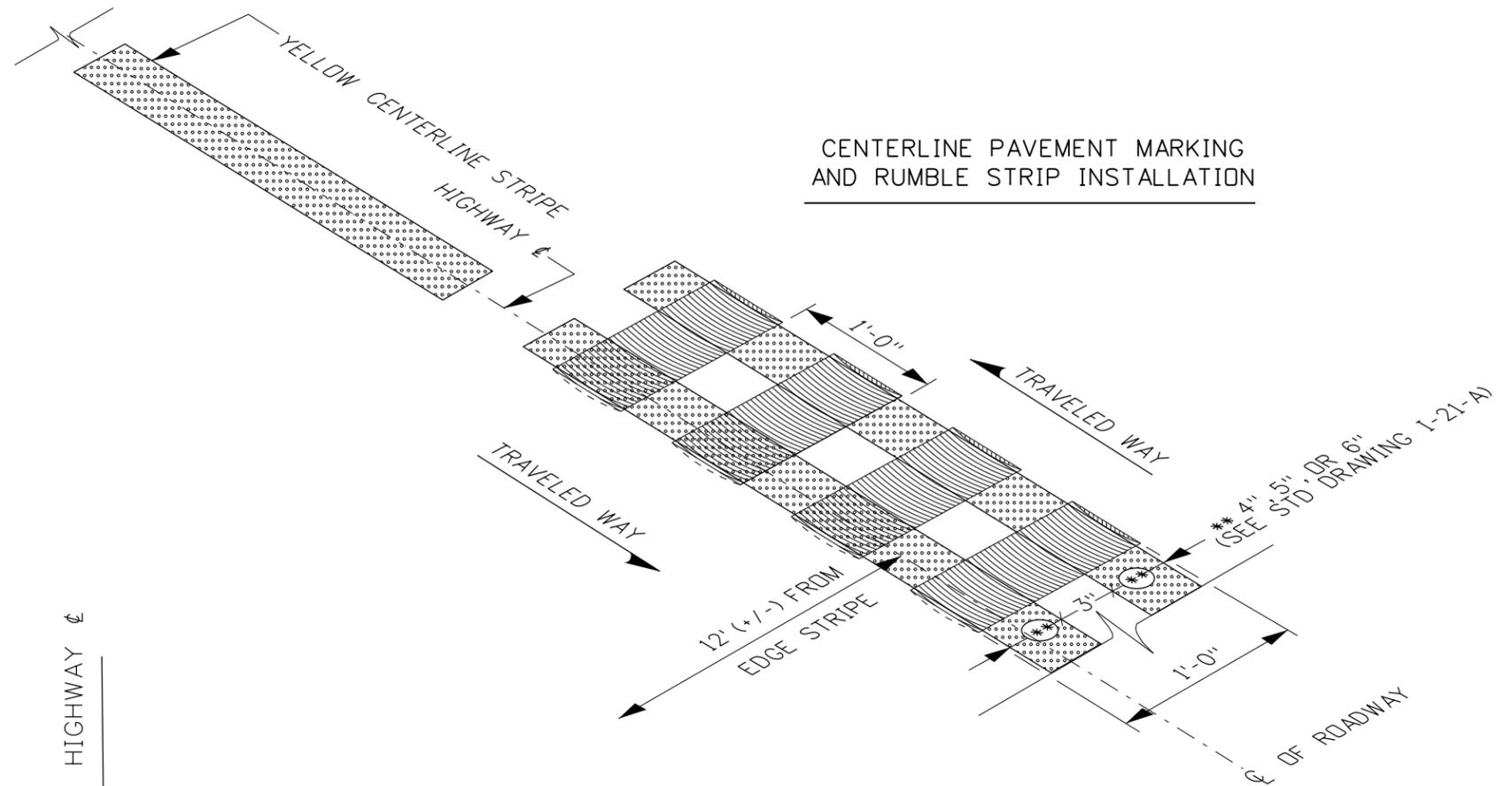
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 DATE: TED E. MASDN
 SEPTEMBER 13, 2011

CENTERLINE PAVEMENT MARKING AND RUMBLE STRIP INSTALLATION



RUMBLE STRIP DETAILS

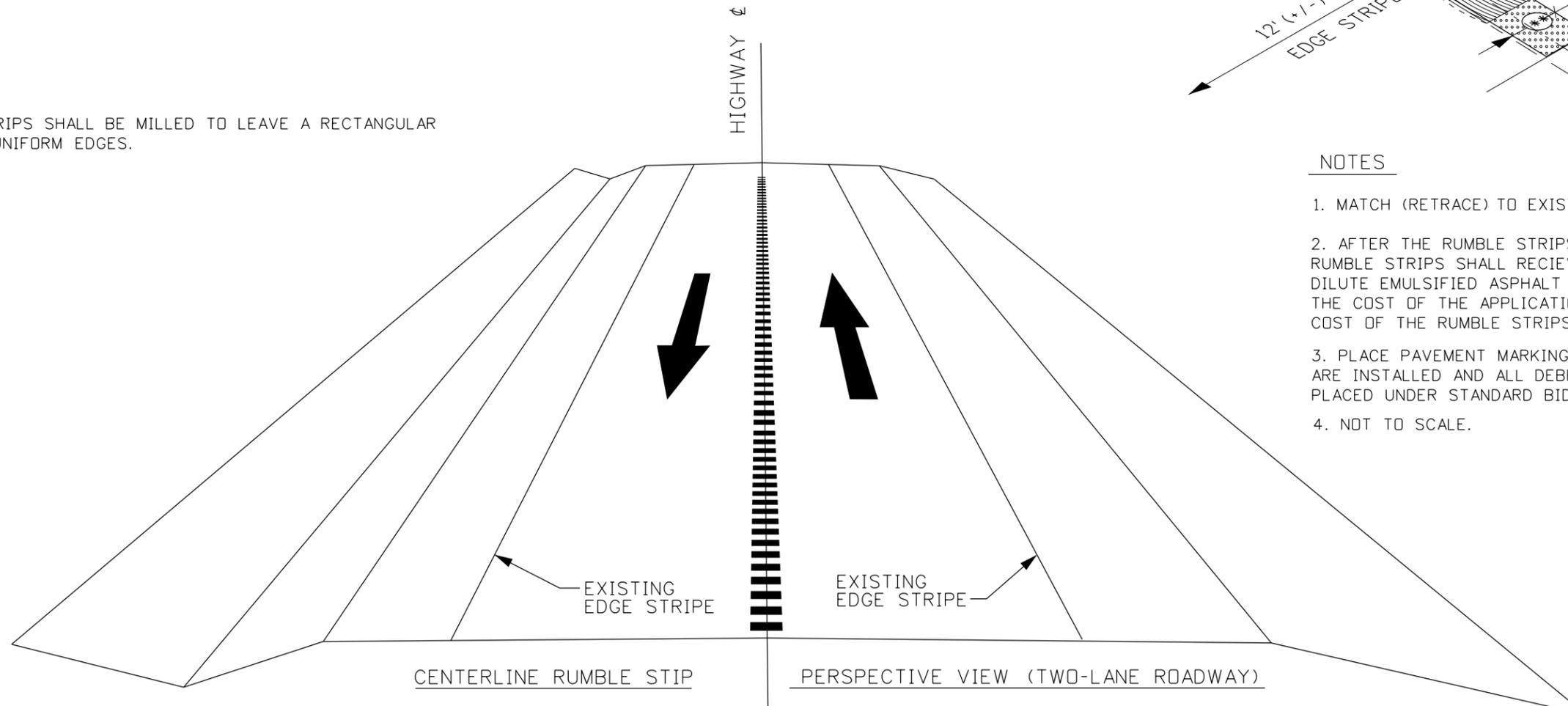


NOTES

1. MATCH (RETRACE) TO EXISTING PAVEMENT MARKING LOCATIONS.
2. AFTER THE RUMBLE STRIPS HAVE BEEN CLEANED, THE RUMBLE STRIPS SHALL RECEIVE AN APPLICATION OF CSS-1 DILUTE EMULSIFIED ASPHALT AT THE RATE OF 0.08 GAL/SY. THE COST OF THE APPLICATION SHALL BE INCIDENTAL TO COST OF THE RUMBLE STRIPS.
3. PLACE PAVEMENT MARKINGS AFTER CENTERLINE RUMBLE STRIPS ARE INSTALLED AND ALL DEBRIS IS CLEARED. PAVEMENT MARKINGS PLACED UNDER STANDARD BID ITEM S900-60A OR BY STATE FORCES.
4. NOT TO SCALE.

NOTES

1. RUMBLE STRIPS SHALL BE MILLED TO LEAVE A RECTANGULAR SHAPE WITH UNIFORM EDGES.



CENTERLINE RUMBLE STRIP

PERSPECTIVE VIEW (TWO-LANE ROADWAY)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: DATE: TED E. MASDN SEPTEMBER 13, 2011

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: c2c_0911.dgn
 DRAWING DATE: SEPTEMBER, 2011

IDAHO TRANSPORTATION DEPARTMENT

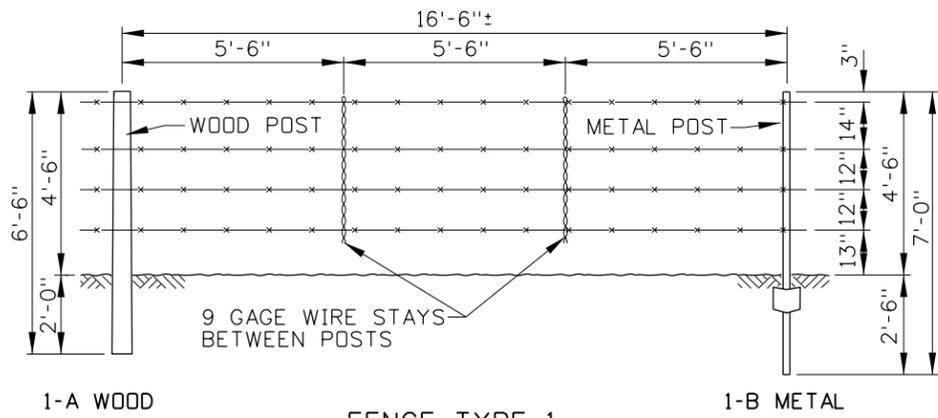


BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
CENTERLINE RUMBLE STRIPS FOR TWO-WAY ROADWAYS
 REQUIRES SHEET 1 OF 2

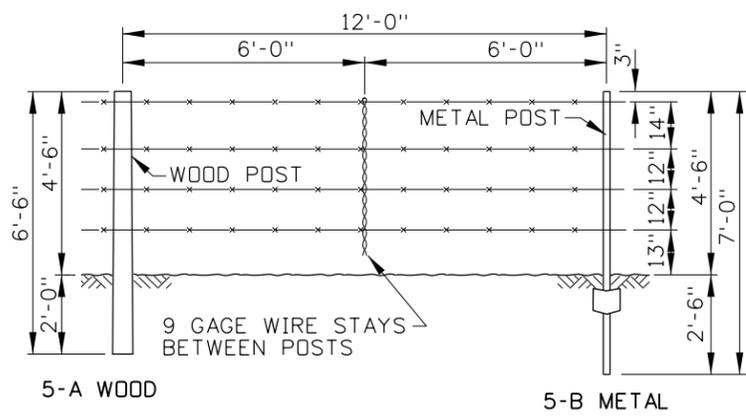
English
 STANDARD DRAWING NO.
C-2-C
 SHEET 2 OF 2



1-A WOOD

FENCE TYPE 1

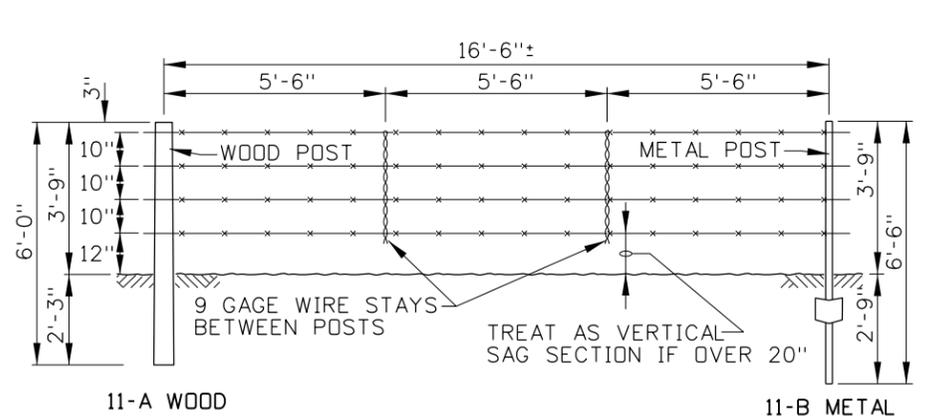
1-B METAL



5-A WOOD

FENCE TYPE 5

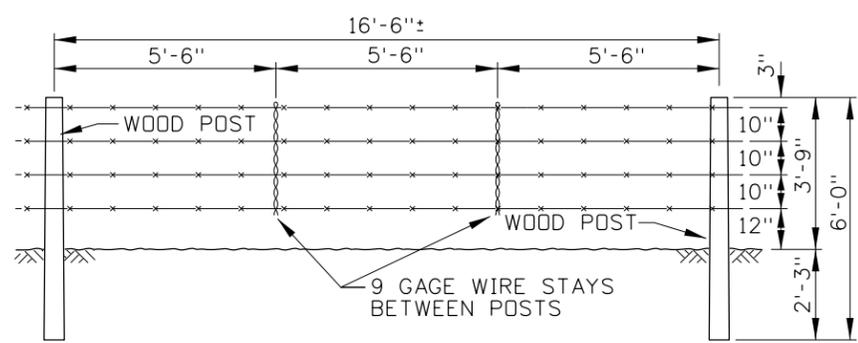
5-B METAL



11-A WOOD

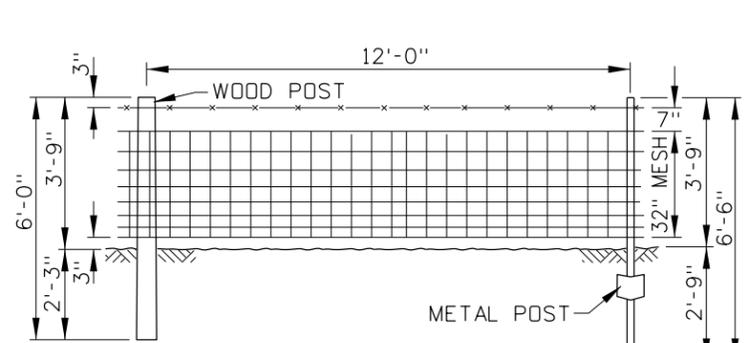
FENCE TYPE 11

11-B METAL



DROP FENCE TYPE 6

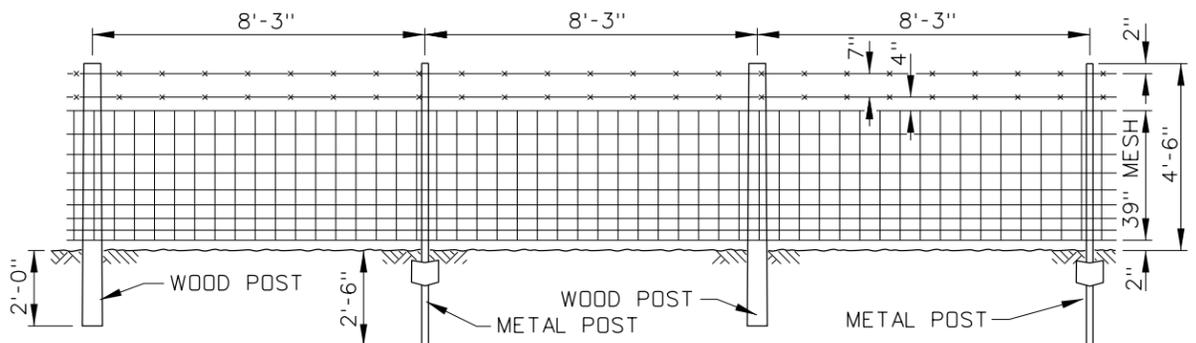
(SEE WOOD POST STAPLE DETAIL, SHEET 2 OF 3)



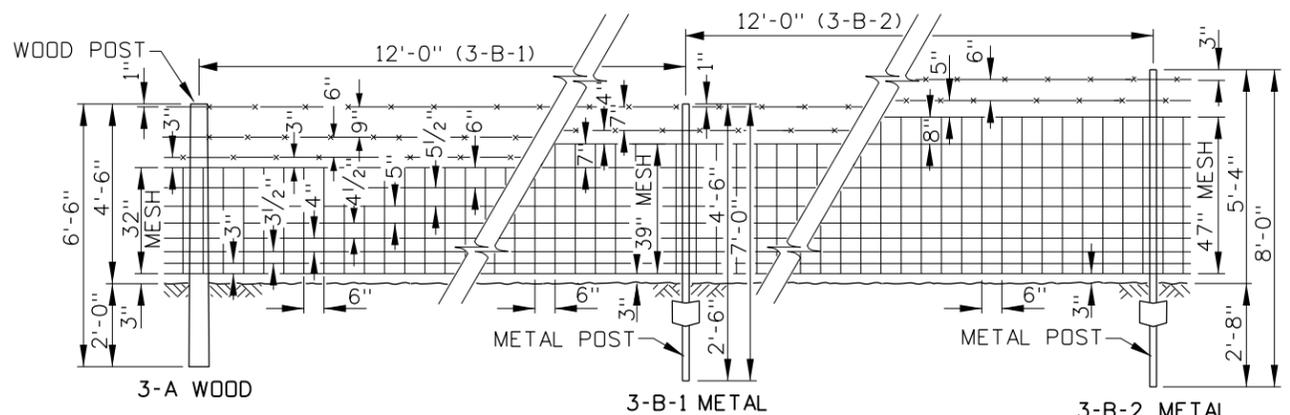
33-A WOOD

FENCE TYPE 33

33-B METAL



FENCE TYPE 2



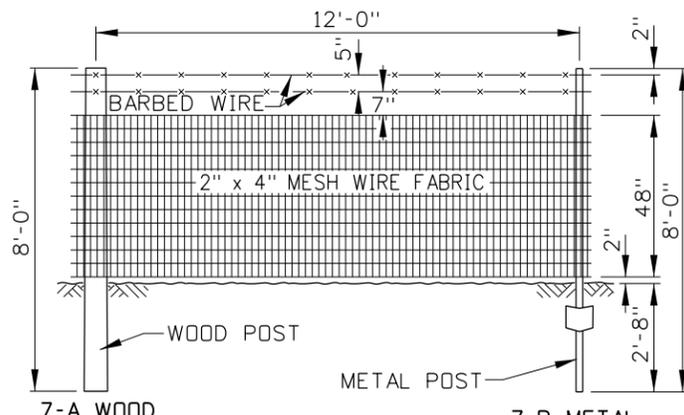
FENCE TYPE 3 WILL HAVE THE MESH HT. SHOWN AFTER THE POST MATERIAL SUFFIX i.e., TYPE 3-A (32"), OR TYPE 3-B-1 (39"), TYPE 3-B-2 (47").

FENCE TYPE 3

3-A WOOD

3-B-1 METAL

3-B-2 METAL

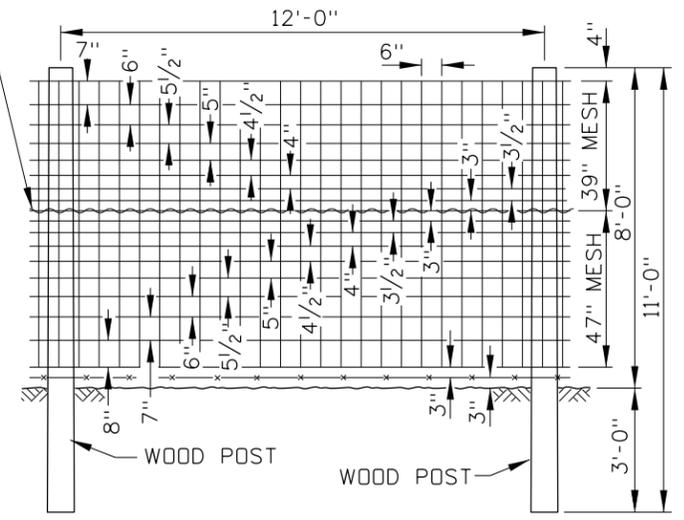


7-A WOOD

FENCE TYPE 7

7-B METAL

WRAP THE TIE WITH 11 GAGE WIRE, ONE WRAP PER EACH 6" OF MESH SECTION. OTHER METHODS MAY BE USED WITH PRIOR APPROVAL OF THE ENGINEER.



DEER PROOF FENCE TYPE 8

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
16	9-10	PLR	6	3-80		11	1-97	MSM
17	12-12	RDL	7	7-84		12	11-00	MSM
3	2-74		8	5-90	GB	13	11-01	MSM
4	2-77		9	12-92	MSM	14	5-04	MSM
5	1-78		10	9-93	MSM	15	10-04	MSM

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: f2a_1212.std
 DRAWING DATE: FEBRUARY, 1973

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
STANDARD BARBED, WOVEN, MESH, COMBINATION WIRE FENCES, & FENCING DETAILS
 REQUIRES SHEETS 2 OF 3 & 3 OF 3

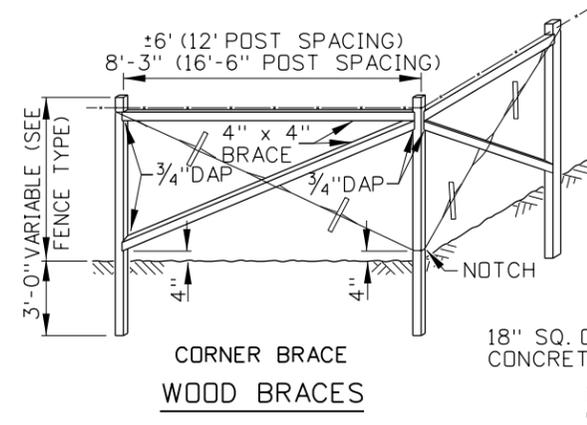
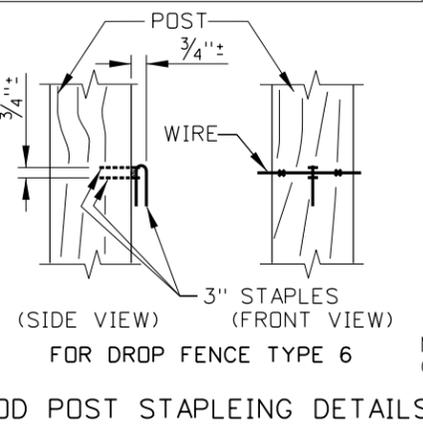
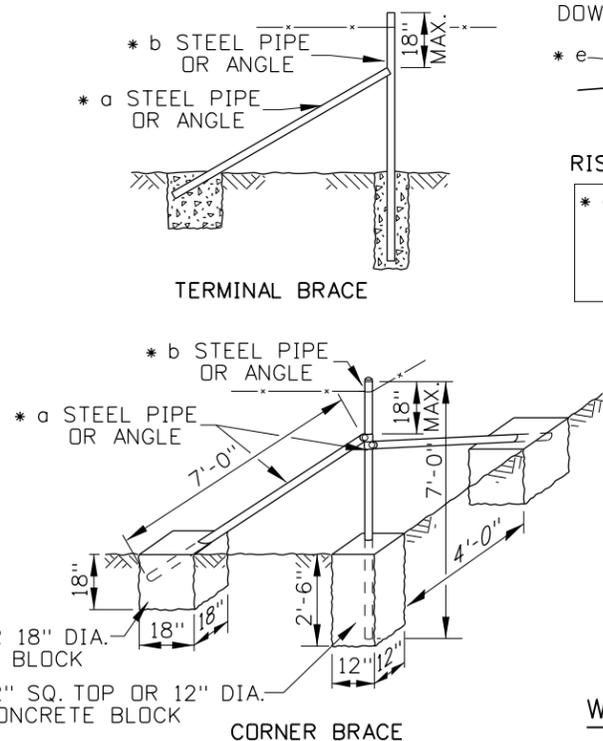
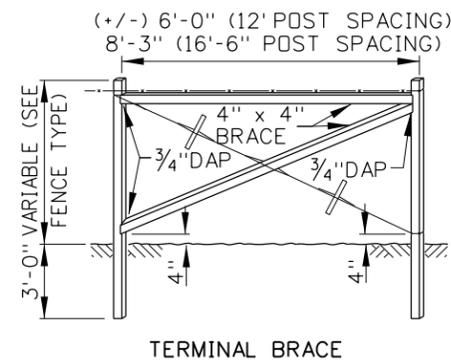
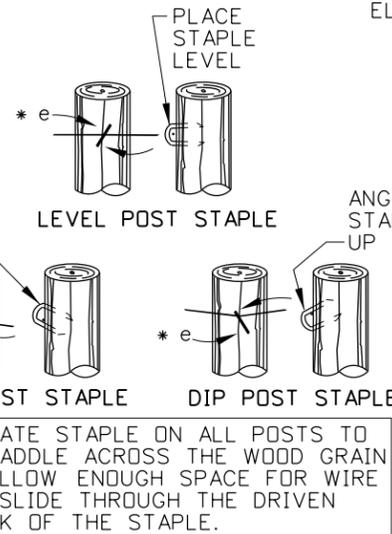
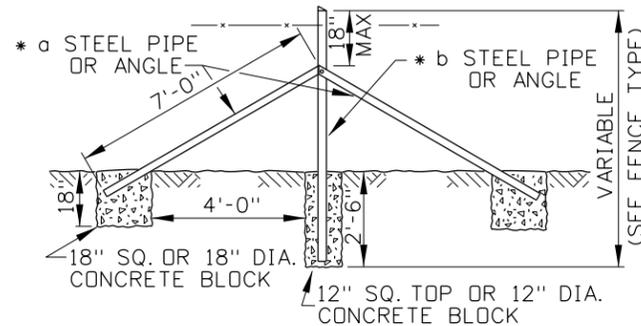
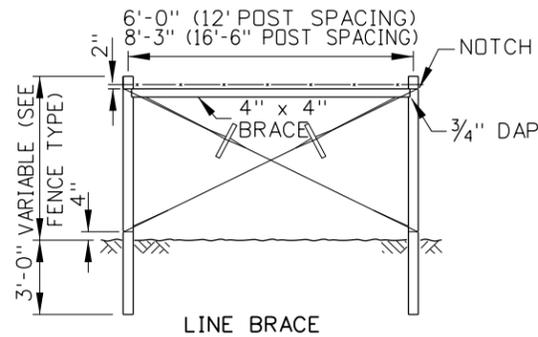
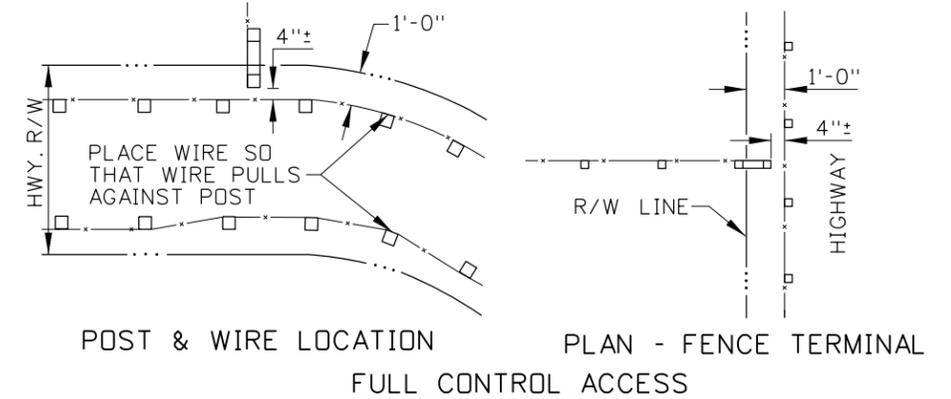
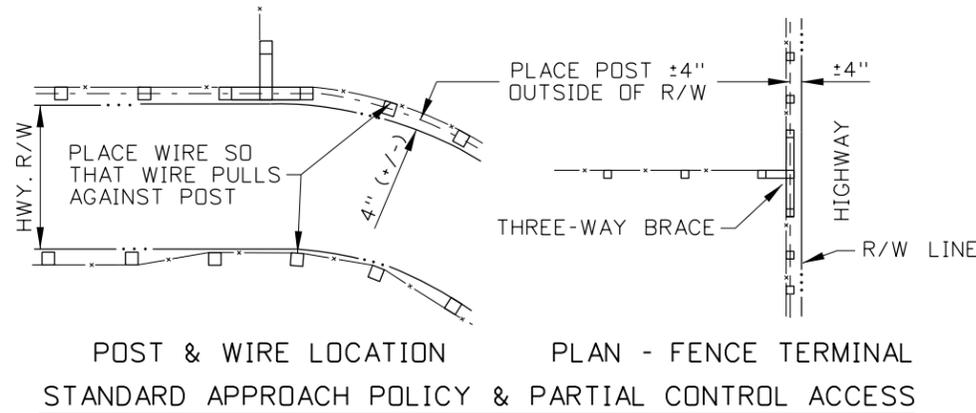
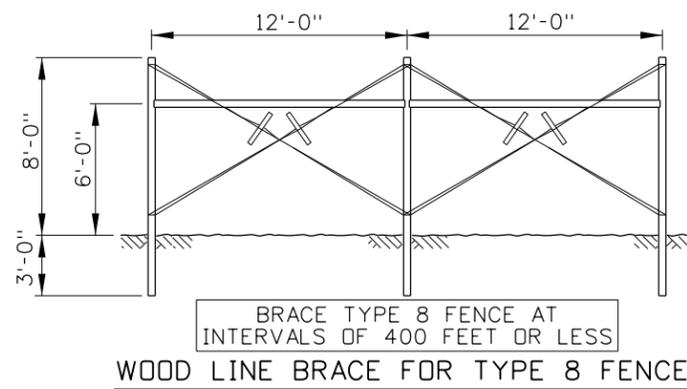
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO.
F-2-A

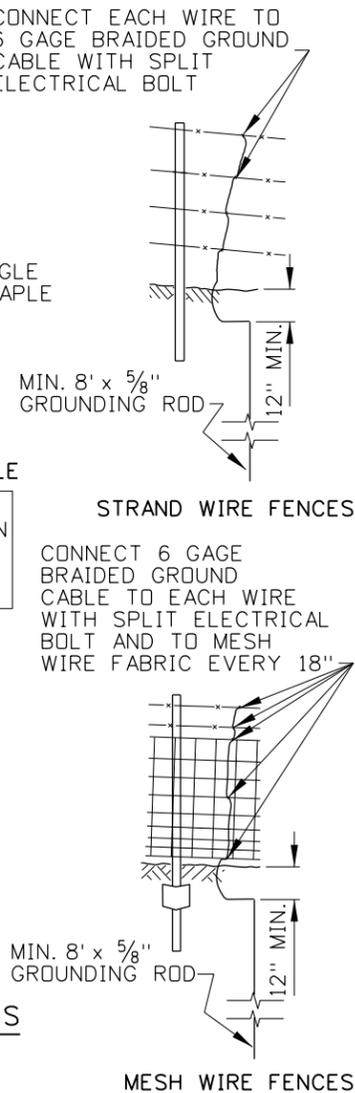
SHEET 1 OF 3

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 DECEMBER 17, 2012



* a 2" x 2" x 1/4" ANGLE OR 1.625" O.D. STD. STEEL PIPE BRACE.
 * b 2 1/2" x 2 1/2" x 1/4" ANGLE OR 2.375" O.D. STD. STEEL PIPE POST.

METAL BRACES DETAILS



kV	* c GROUNDING INTERVAL	FENCE DISTANCE FROM TRANSMISSION £	FENCE TYPE
500	200'	0' - 100'	ALL
500	500'	100' - 200'	ALL
345	400'	0' - 100'	ALL
345	1000'	100' - 150'	ALL
>230	500'	50' - 100'	ALL
100-230	120'	WITHIN R/W	ALL
<100	NONE	WITHIN R/W	W/METAL POSTS
	1/4 Mi.	WITHIN R/W	W/WOOD POSTS

* c FENCE SECTIONS SHORTER THAN THE GROUNDING INTERVAL IN LENGTH SHALL BE GROUNDING ONCE.

NOTES

1. WHEN A FENCE LINE APPROACHES A DITCH, GULLY, OR DEPRESSION, PLACE THE LAST POST ON LEVEL GROUND CLOSE ENOUGH TO THE EDGE OF THE DROP-OFF THAT THE WIRE MAY BE STRUNG TO A POST IN THE DEPRESSION WITHOUT TOUCHING THE GROUND.
2. WHEN THE DEPTH OF A DEPRESSION ON A TYPE 1, 5, OR 11 FENCE EXCEEDS THE TOTAL VERTICAL WIRE SPACING OVER A MAXIMUM HORIZONTAL RUN OF 2 FENCE SECTIONS, CONSTRUCT AN EXTRA FENCE SECTION THROUGH THE DEPRESSION. EXTRA LINE BRACES AND A DEADMAN ARE TO BE INCLUDED IN THIS APPLICATION. SEE THE SPECIAL APPLICATIONS FOR BARBED WIRE FENCES DETAIL.
3. WHEN A TYPE 1 GATE IS USED IN A SPECIAL APPLICATION FOR BARBED WIRE FENCES, AS SHOWN ON THE DETAIL, EXTRA LINE BRACES AND THE ATTACHED UNDER TIMBER, WIRE, AND WIRE STAYS ARE INCLUDED. THE HORIZONTAL WIRES ON THE UNDER TIMBER ARE NOT TO BE STAPLED BUT WRAPPED AROUND BRACE POST TWICE, THEN AROUND THE WIRE ITSELF.
4. THE SPECIAL APPLICATIONS FOR BARBED WIRE FENCES DETAIL MAY BE USED FOR WOVEN WIRE AND MESH WIRE FENCE TYPES 2, 3, 7, AND 33 WITH PRIOR APPROVAL BY THE ENGINEER OR AS SHOWN ON THE PLANS. A TYPE 2 GATE SHOULD BE USED WITH THESE FENCES. BARBED WIRE MAY BE USED THROUGH THE DEPRESSIONS OR FEATURE. HOWEVER, THE WIRES MUST MATCH THE WOVEN/MESH WIRE SPACING AS PRACTICABLE. DO NOT ATTACH THE UNDER TIMBER TO A TYPE 2 GATE.
5. WHEN WOOD BRACES ARE USED AND THE EXTERIOR FENCE CORNER ANGLE EXCEEDS 30°, USE DOUBLE PANELS ON THE CORNER BRACE. INSTALL DOUBLE PANELS FOR LINE AND TERMINAL BRACES IN ACCORDANCE WITH THE FENCE BRACE TABLE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: DECEMBER 17, 2012

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
16	9-10	PLR	6	3-80		11	1-97	MSM
17	12-12	RDL	7	7-84		12	11-00	MSM
3	2-74		8	5-90	GB	13	11-01	MSM
4	2-77		9	12-92	MSM	14	5-04	MSM
5	1-78		10	9-93	MSM	15	10-04	MSM

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: f2a_1212.std
 DRAWING DATE: FEBRUARY, 1973

IDAHO TRANSPORTATION DEPARTMENT

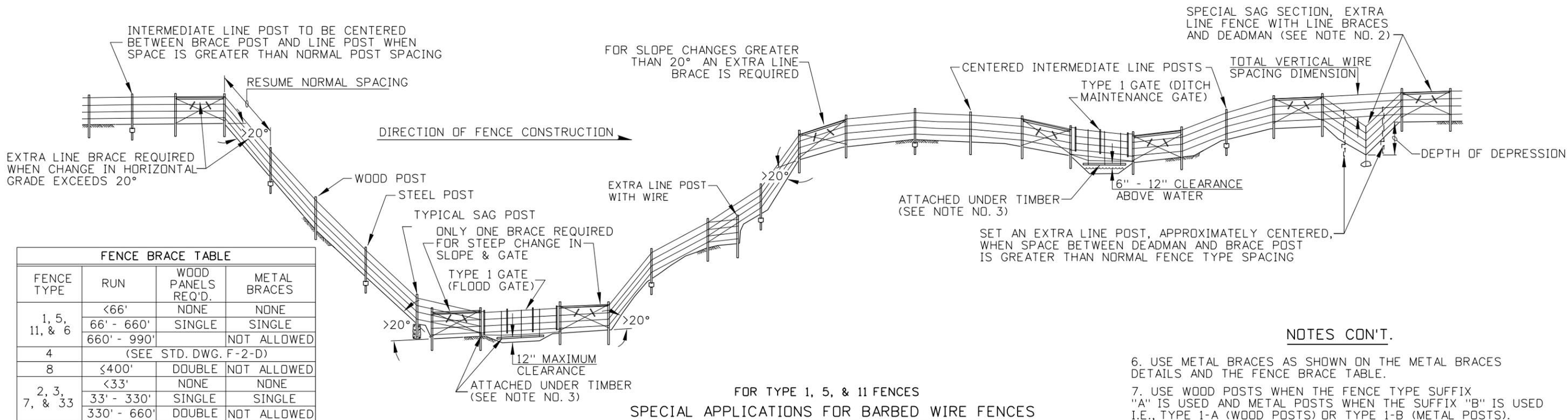
BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
STANDARD BARBED, WOVEN, MESH, COMBINATION WIRE FENCES, & FENCING DETAILS
 REQUIRES SHEETS 1 OF 3 & 3 OF 3

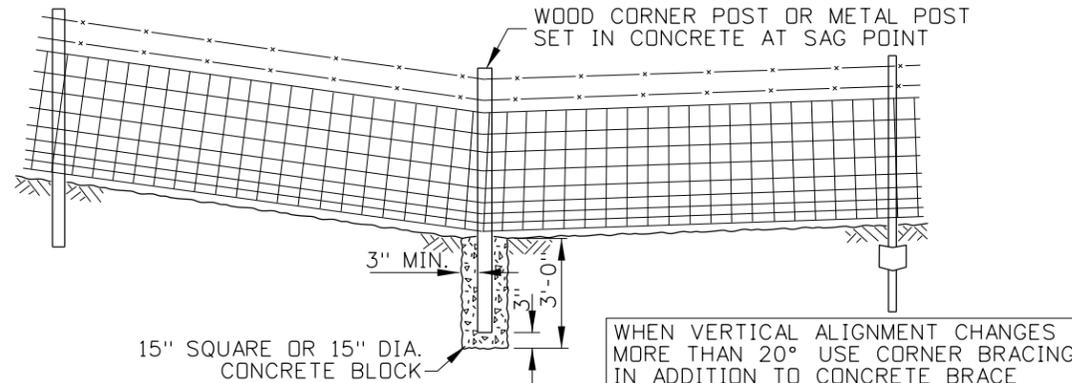
English
 STANDARD DRAWING NO.
F-2-A
 SHEET 2 OF 3



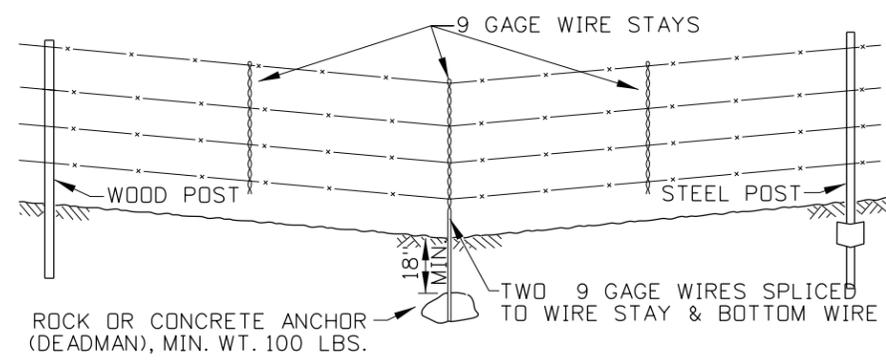
FENCE BRACE TABLE			
FENCE TYPE	RUN	WOOD PANELS REQ'D.	METAL BRACES
1, 5, 11, & 6	<66'	NONE	NONE
	66' - 660'	SINGLE	SINGLE
	660' - 990'		NOT ALLOWED
4	(SEE STD. DWG. F-2-D)		
8	≤400'	DOUBLE	NOT ALLOWED
2, 3, 7, & 33	<33'	NONE	NONE
	33' - 330'	SINGLE	SINGLE
	330' - 660'	DOUBLE	NOT ALLOWED

FOR TYPE 1, 5, & 11 FENCES
SPECIAL APPLICATIONS FOR BARBED WIRE FENCES

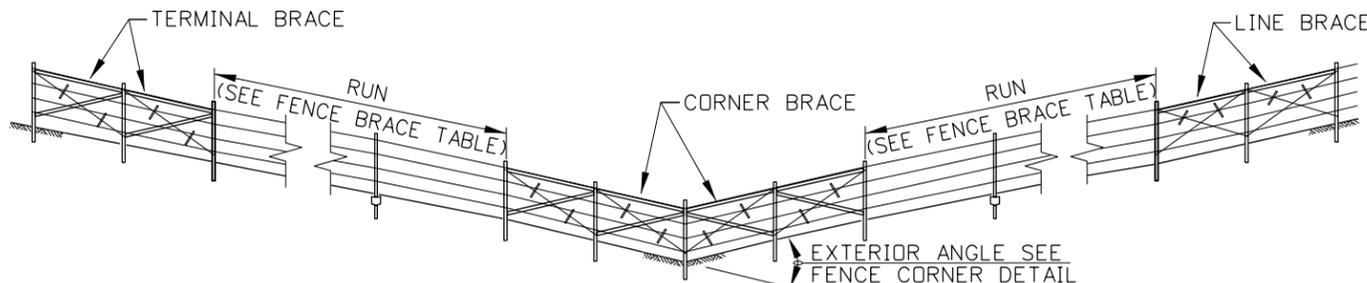
- NOTES CONT.**
- USE METAL BRACES AS SHOWN ON THE METAL BRACES DETAILS AND THE FENCE BRACE TABLE.
 - USE WOOD POSTS WHEN THE FENCE TYPE SUFFIX "A" IS USED AND METAL POSTS WHEN THE SUFFIX "B" IS USED I.E., TYPE 1-A (WOOD POSTS) OR TYPE 1-B (METAL POSTS).
 - STAPLE ALTERNATING MESH WIRES ON WOOD POSTS EXCEPT FOR SAG SECTIONS WHERE ALL WIRES WILL BE STAPLED. INSTALL FOUR WIRE CLAMPS PER POST FOR MESH WIRE ON STEEL POSTS SHALL EXCEPT IN SAG SECTIONS WHERE THREE ADDITIONAL CLAMPS PER POST ARE REQUIRED.
 - PLACE ONE STAPLE PER WIRE PER POST FOR BARBED WIRE ON WOOD POSTS AND TWO STAPLES PER WIRE PER POST ON BRACES IN SAG SECTIONS. SECURELY WRAP WIRE ENDS AROUND A POST AT A BRACE OR SPLICE IN LINE. PLACE ONE WIRE CLAMP PER WIRE PER POST FOR BARBED WIRE ON METAL POSTS.
 - ATTACH ANCHOR PLATES TO METAL POSTS UNLESS THE POST IS SET IN SOLID ROCK. GROUT DRILL HOLES FOR METAL POSTS SET IN SOLID ROCK.
 - ENSURE THAT THE TOP OF THE FENCE DOES NOT PROJECT ABOVE THE TOP OF THE PARAPET OR RAILING WHEN A FENCE TIES INTO A BRIDGE PARAPET OR RAILING.
 - CONSTRUCT WOVEN WIRE AND BARBED WIRE FENCES IN ACCORDANCE WITH SECTION 610 - FENCES AND CONSTRUCT METAL POSTS, BARBED WIRE, MESH WIRE, AND WOVEN WIRE IN ACCORDANCE WITH 708.09 THRU 708.12 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
 - GROUND BARBED, WOVEN, MESH, AND COMBINATION WIRE FENCES IN ACCORDANCE WITH THE FENCE GROUNDING TABLE AND THE FENCE GROUNDING DETAIL. GROUND TYPE 2 GATES FALLING WITHIN THESE AREAS WITH A FLEXIBLE GROUNDING CABLE ATTACHED TO THE GATE FABRIC. ATTACH THE CABLE TO A SEPARATE FENCE GROUNDING SYSTEM ON THE SWING SIDE OF THE GATE. DO NOT GROUND TYPE 1 GATES.
 - NOT TO SCALE.



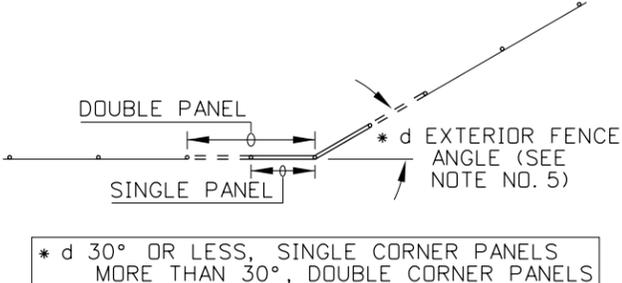
TYPICAL SAG SECTION FOR WOVEN WIRE, MESH, OR COMBINATION FENCES



TYPICAL SAG SECTION - BARBED WIRE FENCES



DOUBLE BRACE PANELS



FENCE CORNER ANGLE

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
16	9-10	PLR	6	3-80		11	1-97
17	12-12	RDL	7	7-84		12	11-00
3	2-74		8	5-90	GB	13	11-01
4	2-77		9	12-92	MSM	14	5-04
5	1-78		10	9-93	MSM	15	10-04

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: f2a_1212.std
DRAWING DATE: FEBRUARY, 1973

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

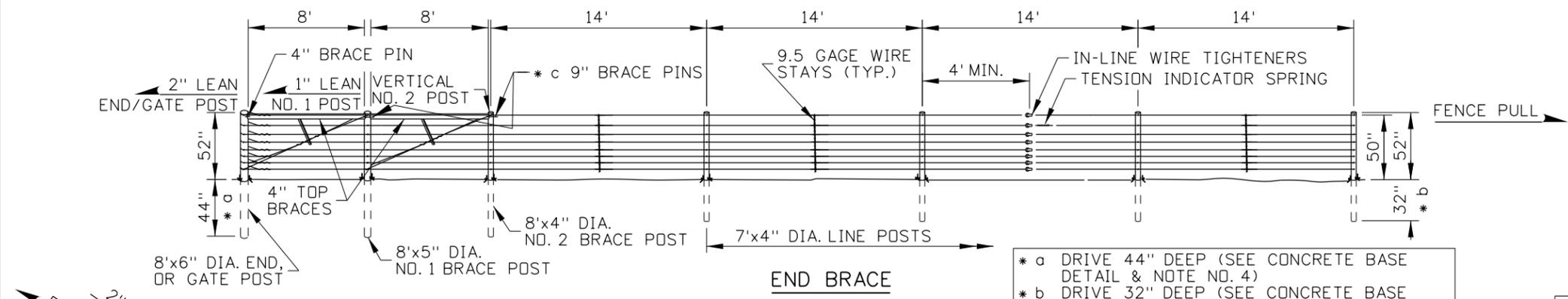
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
STANDARD BARBED, WOVEN, MESH, COMBINATION WIRE FENCES, & FENCING DETAILS
REQUIRES SHEETS 1 OF 3 & 2 OF 3

English
STANDARD DRAWING NO.
F-2-A
SHEET 3 OF 3

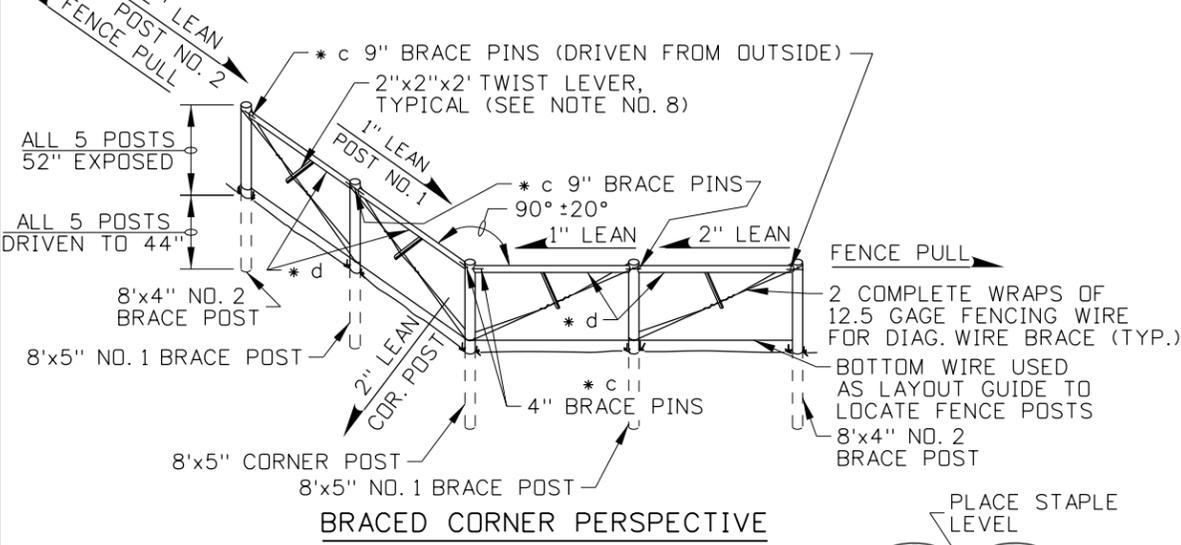
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 17, 2012



FENCE GROUNDING TABLE		
kV	* GROUNDING INTERVAL	FENCE DISTANCE FROM TRANSMISSION ϵ
500	200'	<100'
500	500'	100' - 200'
345	400'	<100'
345	1000'	100' - 150'
>230	500'	50' - 100'
100-230	400'	WITHIN R/W
<100	1/4 MI.	WITHIN R/W

* GROUND FENCE SECTIONS THAT ARE SHORTER THAN THE GROUNDING INTERVAL ONCE.

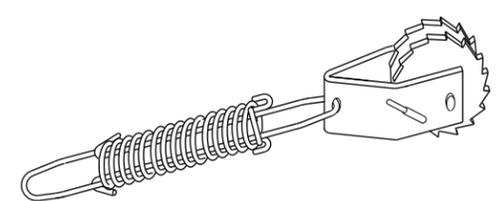
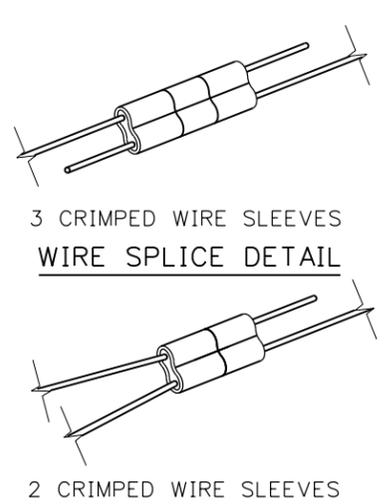
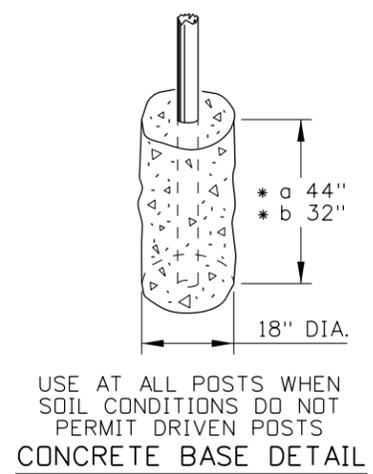
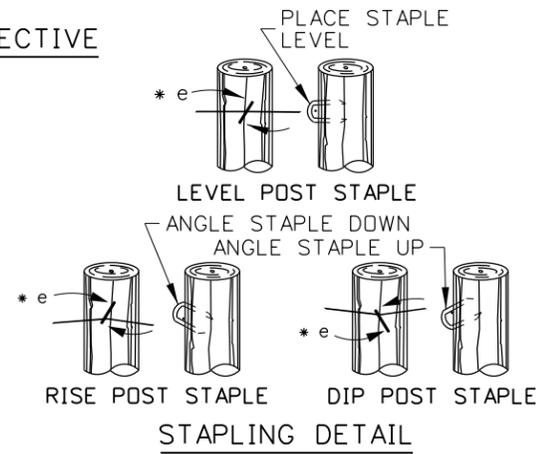
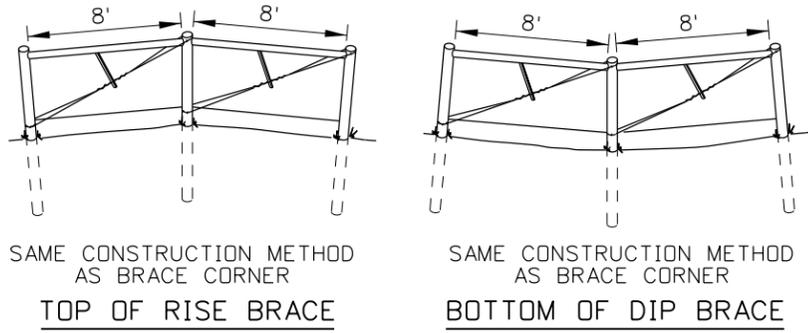


- * a DRIVE 44" DEEP (SEE CONCRETE BASE DETAIL & NOTE NO. 4)
- * b DRIVE 32" DEEP (SEE CONCRETE BASE DETAIL & NOTE NO. 4)
- * c INSTALL 3/8" DIA. GALVANIZED STEEL BRACE PINS WITH THE LENGTH SHOWN. PRE DRILL TIMBERS.
- * d 7'-11" x 4" OUTSIDE HORIZ. TIMBERS.
- * e ROTATE STAPLE ON POSTS TO STRADDLE ACROSS THE WOOD GRAIN AND ALLOW ENOUGH SPACE FOR WIRE TO SLIDE THROUGH THE BACK OF THE STAPLE.

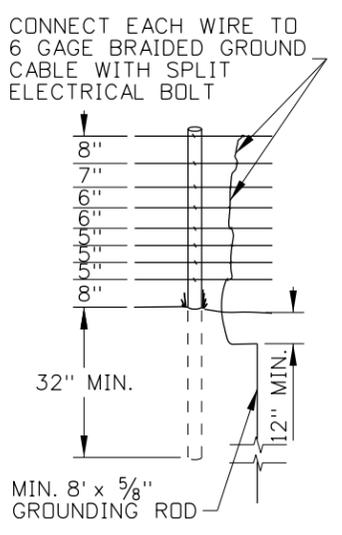
MAXIMUM LENGTH OF WIRE PER IN-LINE TIGHTENER TABLE		
LEVEL TERRAIN		UNEVEN TERRAIN
STRAIGHT	4000'	REDUCE LENGTHS SHOWN BY 250' FOR EACH MAJOR RISE OR DIP.
ONE 90° CORNER	3000'	
TWO 90° CORNERS	2000'	
THREE 90° CORNERS	1500'	
FOUR 90° CORNERS	1000'	

NOTES

1. INSTALL FENCE IN ACCORDANCE WITH THE PUBLICATION HOW TO BUILD FENCES WITH USS MAX-TEN 200 HIGH-TENSILE FENCE WIRE, UNLESS OTHERWISE SPECIFIED.
2. PRESSURE TREAT WOOD POSTS AND STAYS IN ACCORDANCE WITH AASHTO M 133. MEASURE TIMBER DIAMETERS SHOWN AT THE SMALL END.
3. TO ALLOW FOR EXPANSION AND CONTRACTION, DO NOT STAPLE THE WIRE TIGHT TO THE POSTS. THE STAPLES ARE 1 3/4" - 9 GAGE WITH SLASH CUT POINTS. ENSURE THAT THE STAPLES ARE ZINC COATED IN ACCORDANCE WITH ASTM A 116, CLASS 1.
4. END POSTS, BRACE POSTS AND LINE POSTS ARE RECOMMENDED TO BE DRIVEN INTO THE GROUND WHERE SOIL CONDITIONS PERMIT. SEE CONCRETE BASE FOR INSTALLATION WHERE SOIL CONDITIONS DO NOT PERMIT DRIVEN POSTS.
5. ENSURE THAT BRACE PINS, WIRE CLIPS, TENSION INDICATOR SPRINGS, AND IN-LINE TIGHTENERS ARE ZINC COATED IN ACCORDANCE WITH ASTM A116, CLASS 3.
6. USE 12.5 GAGE STEEL FENCE WIRE WITH A MINIMUM OF 200,000 PSI TENSILE STRENGTH. ENSURE THAT THE WIRE IS ZINC COATED IN ACCORDANCE WITH ASTM A116, CLASS 3.
7. PLACE THE IN-LINE WIRE TIGHTENERS AS CLOSE TO THE CENTER OF THE FENCE RUN AS PRACTICABLE. PLACE TENSION INDICATOR SPRING(S) ON THE SECOND WIRE FROM THE TOP.
8. ACHIEVE PROPER TENSION ON THE DIAGONAL BRACE WIRE BY TWISTING THE WIRES 3 (MIN.) TO 5 (MAX.) TURNS. SECURELY FASTEN THE TWIST LEVER TO THE TOP HORIZONTAL TIMBER.
9. LINE WIRES SHOULD BE STAPLED TO THE LINE POSTS ONLY AFTER TAKING UP PRELIMINARY TENSION OF APPROXIMATELY 150 LBS. ON EACH WIRE.
10. STRING LINE WIRES ON THE LIVESTOCK SIDE OF THE FENCE, EXCEPT ON CURVES AND CORNERS. ON CURVES AND CORNERS STRING THE LINE WIRES ON THE OUTSIDE.
11. GROUND HIGH TENSION WIRE ACCORDING TO THE FENCE GROUNDING TABLE AND AS SHOWN ON GROUNDING DETAIL.
12. NOT TO SCALE.



COMPRESSION OF THE INDICATOR SPRING BY 1 3/4" WILL INDICATE A TENSION OF APPROXIMATELY 250 LBS. ±10 LBS.



GROUNDING DETAIL

TENSION INDICATOR SPRING WITH IN-LINE TIGHTENER

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	1-97	MSM					
2	10-00	MSM					
3	10-04	MSM					
4	12-12	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: f2b_1212.std
 DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

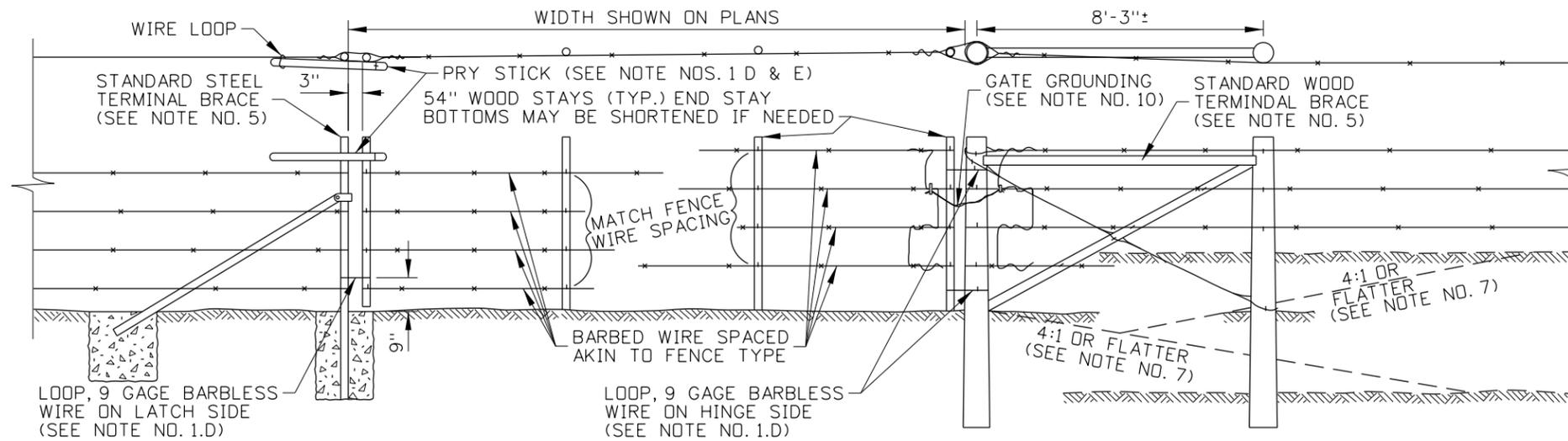
STANDARD DRAWING

HIGH TENSION 8 WIRE FENCE

English
 STANDARD DRAWING NO.
F-2-B
 SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

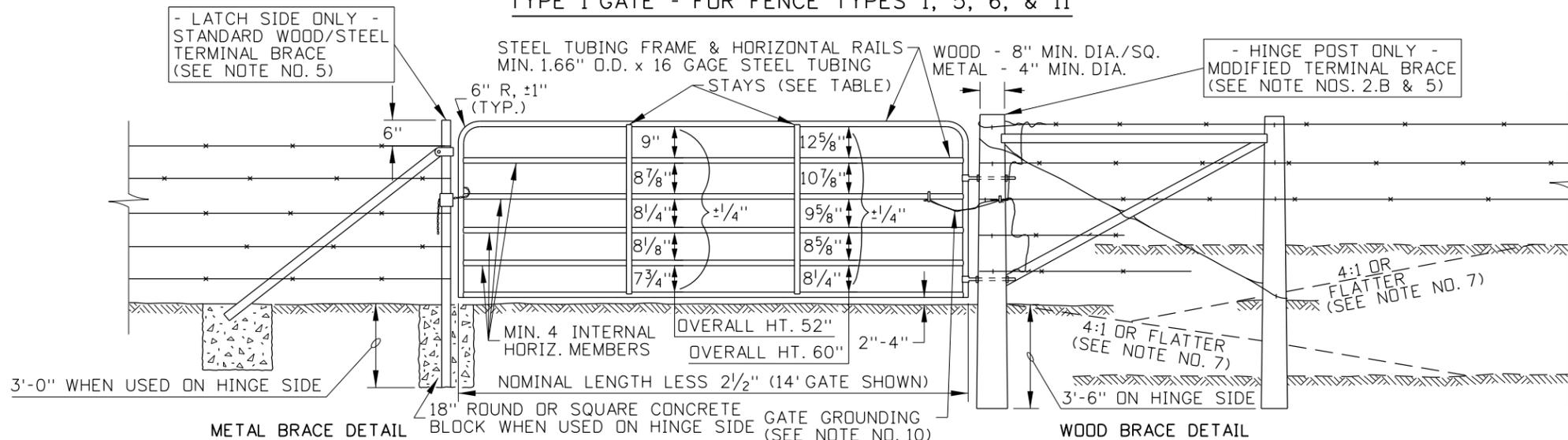
ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: DECEMBER 17, 2012



METAL BRACE DETAIL

WOOD BRACE DETAIL

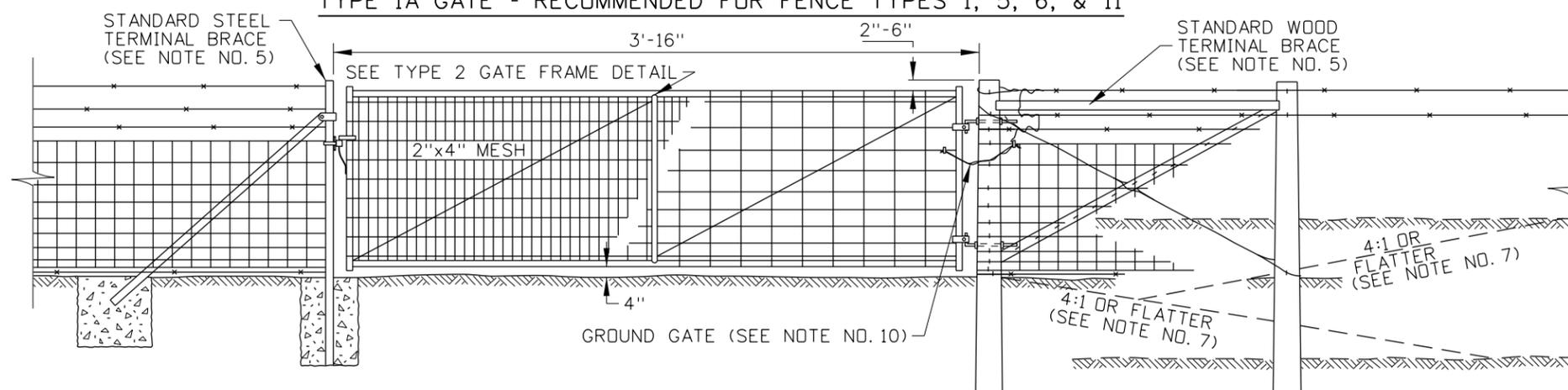
TYPE 1 GATE - FOR FENCE TYPES 1, 5, 6, & 11



METAL BRACE DETAIL

WOOD BRACE DETAIL

TYPE 1A GATE - RECOMMENDED FOR FENCE TYPES 1, 5, 6, & 11



METAL BRACE DETAIL

WOOD BRACE DETAIL

TYPE 2 GATE - FOR FENCE TYPES 2, 3, 7, 8, & 33

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: JANUARY 31, 2013

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	9-76		6	10-04	MSM		
2	5-95	MSM	7	12-12	RDL		
3	8-97	MSM					
4	6-02	MSM					
5	6-03	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: f2c_0213.std
 DRAWING DATE: JANUARY, 1962

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

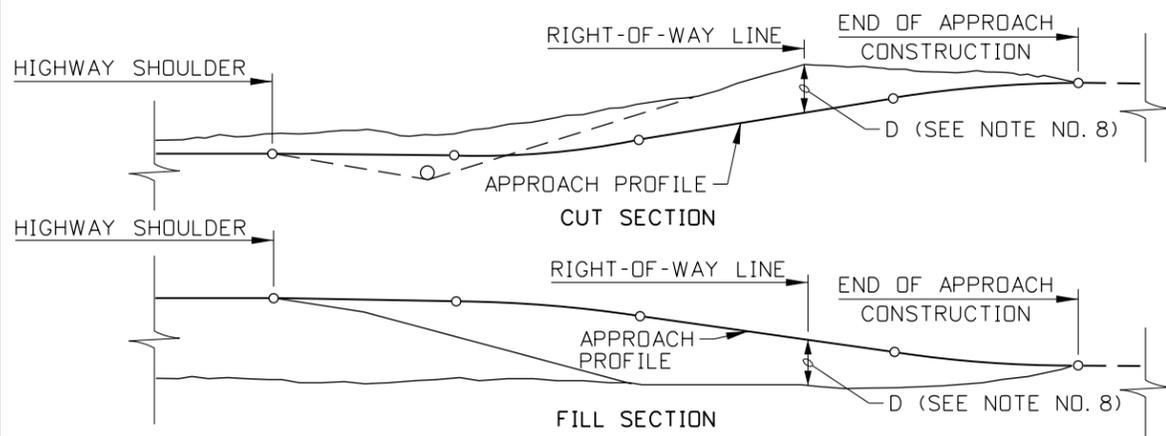
ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
GATE TYPES 1, 1A, & 2
 REQUIRES SHEET 2 OF 2 & STD. DWG. F-2-A

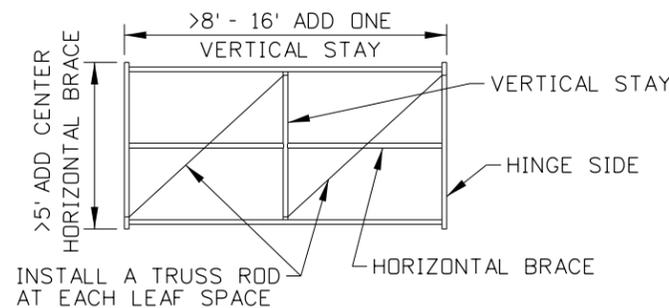
English
 STANDARD DRAWING NO.
F-2-C
 SHEET 1 OF 2

NOTES

1. TYPE 1 GATES:
 - A. USE FOR FENCE TYPES 1, 5, 6, & 11.
 - B. USE A SECTION OF METAL FENCE POST OR ROUND WOOD POST 2 1/2" TO 3" IN DIAMETER. PLACE LARGER WOODEN STAYS AT THE GATE ENDS.
 - C. ENSURE THAT PRY STICK ARE A 24" LENGTH OF HARDWOOD TOOL HANDLE.
 - D. ATTACH WIRE LOOPS AND PRY STICK WIRE WITH A DOUBLE WOVEN 9 GAGE BARBLESS WIRE OR A SUITABLE CHAIN. ADJUST THE LOOPS AND PRY STICK SO THAT THE GATE IS TAUT WHEN CLOSED. FASTEN THE LOOPS TO THE ADJACENT LATCH/HINGE POST.
 - E. STAPLE THE STAYS AND END POSTS TO THE CONNECTING WIRES.
 - F. ENSURE THAT THE GATE BRACES MATCH THE ADJACENT FENCE TYPE.
2. TYPE 1A GATES:
 - A. USE WITH FENCE TYPES 1, 5, 6, & 11. THE USE OF TYPE 1A GATES IN PLACE OF TYPE 2 GATES REQUIRES THE APPROVAL OF THE ENGINEER AND THE ADJACENT PROPERTY OWNER(S).
 - B. TYPE 1A GATES REQUIRE A MODIFIED METAL OR WOODEN BRACE. USE OF THE METAL BRACE REQUIRES A 4" MINIMUM PIPE (1/4" WALL) ON THE HINGE POST. USE OF THE WOODEN BRACE REQUIRES A MINIMUM 8" SQUARE OR SMALL END DIAMETER FOR THE HINGE POST. DO NOT USE BAR ANGLES ON TUBE GATE TERMINALS. WOOD HINGE POSTS ARE 8' AND METAL HINGE POSTS ARE 7'-6" IN LENGTH. THE METAL HINGE POST REQUIRES AN 18" SQUARE OR ROUND ANCHOR BLOCK.
 - C. ENSURE THAT HINGES FOR TYPE 1A GATES WIDER THAN 10' HAVE LEVELING THREADS ON A MINIMUM 3/4" DIAMETER ROD.
 - D. ENSURE THAT LATCHES FOR TYPE 1A GATES ARE LOCKABLE AND NON-SAGGING ON THE LATCH SIDE WHEN LATCHED.
 - E. ENSURE THAT TYPE 1A GATES SWING 180° UNLESS OTHERWISE SPECIFIED.
3. TYPE 2 GATES:
 - A. USE FOR FENCE TYPES 2, 3, 7, 8, & 33.
 - B. ENSURE THAT GATE FRAMES ARE FABRICATED WITH A 1.05 INCH O.D. COLD ROLLED OR DRAWN GALVANIZED STEEL TUBING WITH A WALL THICKNESS OF 0.095 INCHES OR 1 INCH GALVANIZED PIPE.
 - C. USE 12.5 GAGE (MINIMUM) GALVANIZED WIRE MESH.
 - D. EQUIP GATE WITH AN ADJUSTABLE DIAGONAL TRUSS ROD.
 - E. USE GALVANIZED MALLEABLE STEEL HINGES AND LATCHES.
 - F. CONSTRUCT GATES FOR TYPE 7 FENCING WITH A 2" x 4" MESH.
 - G. ENSURE THAT GATES FOR TYPE 8 FENCING HAVE 3 SETS OF HINGES AND A HORIZONTAL BRACE MEMBER.
 - H. ENSURE THAT TYPE 2 GATE FRAMES ARE SHOP WELDED. PAINT WELDS WITH 702.02 PAINT FORMULA NO.2. THE TRUSS ROD TIGHTENER AND NON-TIGHTENING END OF THE TRUSS ROD MAY BE WELDED TO THE GATE.
 - I. ENSURE THAT TYPE 2 GATE FRAMES HAVE EXTRA VERTICAL STAY(S) AND A CENTERED HORIZONTAL BRACE WELDED IN PLACE IN ACCORDANCE WITH THE TYPE 2 GATE FRAME DETAIL. EVENLY SPACE THE VERTICAL STAY(S) ON THE GATE. ENSURE THAT EACH LEAF SPACE HAS A TRUSS ROD.
4. TYPE 3 GATES:
 - A. TYPE 3 GATES ARE FOR CHAIN LINK FENCES ONLY. SEE STANDARD DRAWING F-2-D.
5. GATES REQUIRE A LIKE PAIR OF METAL OR WOOD TERMINAL BRACES AS DETAILED ON STANDARD DRAWING F-2-A (SHEET 2 of 3). GATE TYPE 1A REQUIRES A LARGER HINGE POST ON THE TERMINAL BRACE.
6. PROVIDE A DROP ROD, LATCH, CHAIN, OR SNAP, APPROVED BY THE ENGINEER, BETWEEN THE GATES WHEN TWO TYPE 1A OR 2 GATES ARE USED FOR A SINGLE OPENING.
7. PROVIDE 4:1 OR FLATTER SIDE SLOPES ON THE VEHICLE APPROACH TO PROVIDE FOR INSTALLATION OF THE CONNECTING FENCE.
8. D = DEPTH AT RIGHT-OF-WAY LINE. WHEN D IS 5' OR LESS, INSTALL GATES AT THE RIGHT-OF-WAY LINE. WHEN D IS MORE THAN 5', INSTALL GATES AT THE END OF THE APPROACH CONSTRUCTION OR AS DIRECTED BY THE ENGINEER. ANGLE AND INSTALL RIGHT-OF-WAY FENCE ALONG THE EDGE OF THE APPROACH CUT OR FILL SLOPE. CONSTRUCT APPROACHES IN ACCORDANCE WITH STD. DWG. H-4-A.
9. ALTERNATE DESIGNS OF TYPE 1A AND TYPE 2 GATES MAY BE USED. PRIOR APPROVAL OF THE SHOP DRAWINGS BY THE ENGINEER IS REQUIRED BEFORE USING ALTERNATE GATE DESIGNS.
10. GROUND GATES ACCORDING TO THE GATE GROUNDING TABLE AND GATE GROUNDING DETAIL. ENSURE THAT GROUNDED GATES HAVE A FLEXIBLE COPPER CABLE ATTACHING THE GATE AND FENCE WIRING ON THE HINGE SIDE OF THE GATE.
11. NOT TO SCALE.



VEHICLE APPROACH GATE INSTALLATION DETAIL

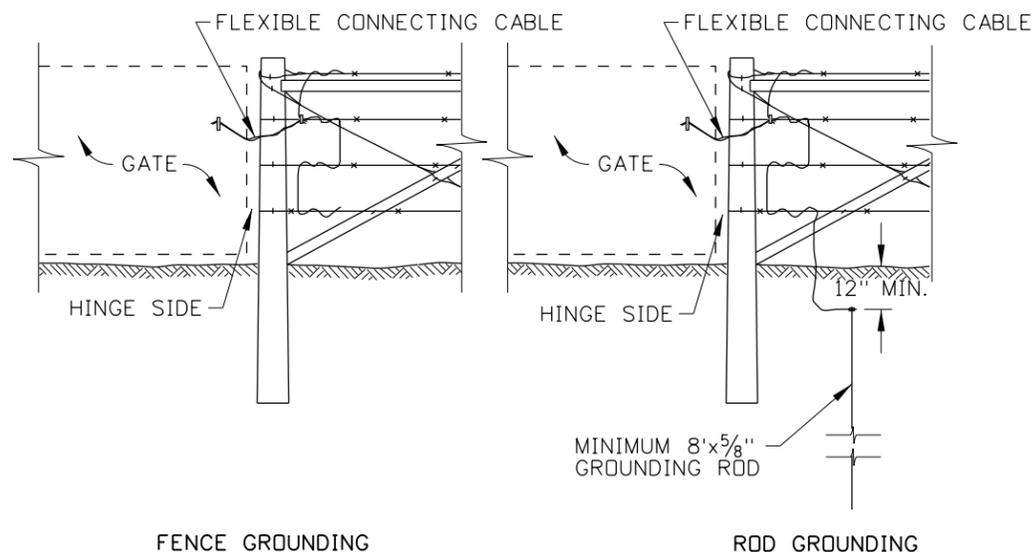


TYPE 2 GATE FRAME DETAIL
(SEE NOTE NO. 3.1)

GATE GROUNDING TABLE			
kV	GATE DISTANCE FROM TRANSMISSION £	GATE TYPE	* GROUNDING TYPE
500	<100'	1, 1A, 2	ROD
500	100' - 200'	1, 1A, 2	FENCE
345	<100'	1A, 2	ROD
345	100' - 150'	1A, 2	FENCE
>230	50' - 100'	1A, 2	FENCE
100-230	WITHIN R/W	NONE	NONE
<100	WITHIN R/W	NONE	NONE

* SEE GATE GROUNDING DETAIL

GATE STAY & WEIGHT TABLE			
GATE TYPE	WIDTH	NO. STAYS	GATE WT. (MIN. LBS.)
TYPE 1	4'-6'	0	N/A
	8'-12'	1	N/A
	14'-16'	2	N/A
TYPE 1A	4'	0	37
	6'	0	50
	8'	1	68
	10'	1	81
	12'	1	95
TYPE 2	14'	2	113
	16'	2	126
TYPE 2	SEE TYPE 2 GATE FRAME DETAIL		



GATE GROUNDING DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	9-76		6	10-04	MSM		
2	5-95	MSM	7	12-12	RDL		
3	8-97	MSM					
4	6-02	MSM					
5	6-03	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: f2c_0213.std
DRAWING DATE: JANUARY, 1962

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

GATE TYPES 1, 1A, & 2

REQUIRES SHEET 1 OF 2 & STD. DWG. F-2-A

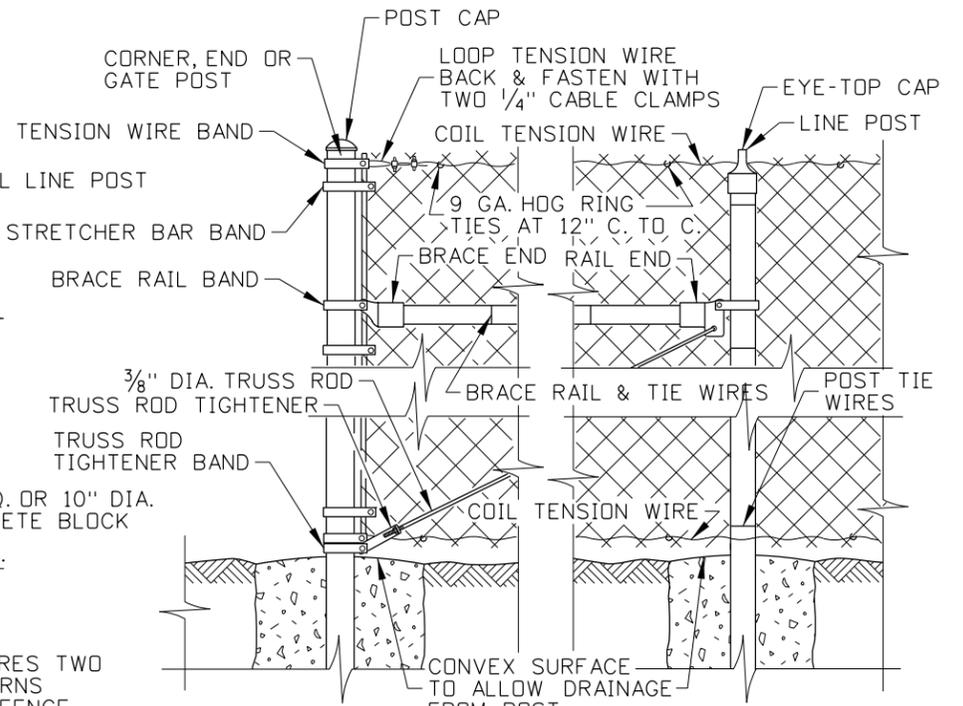
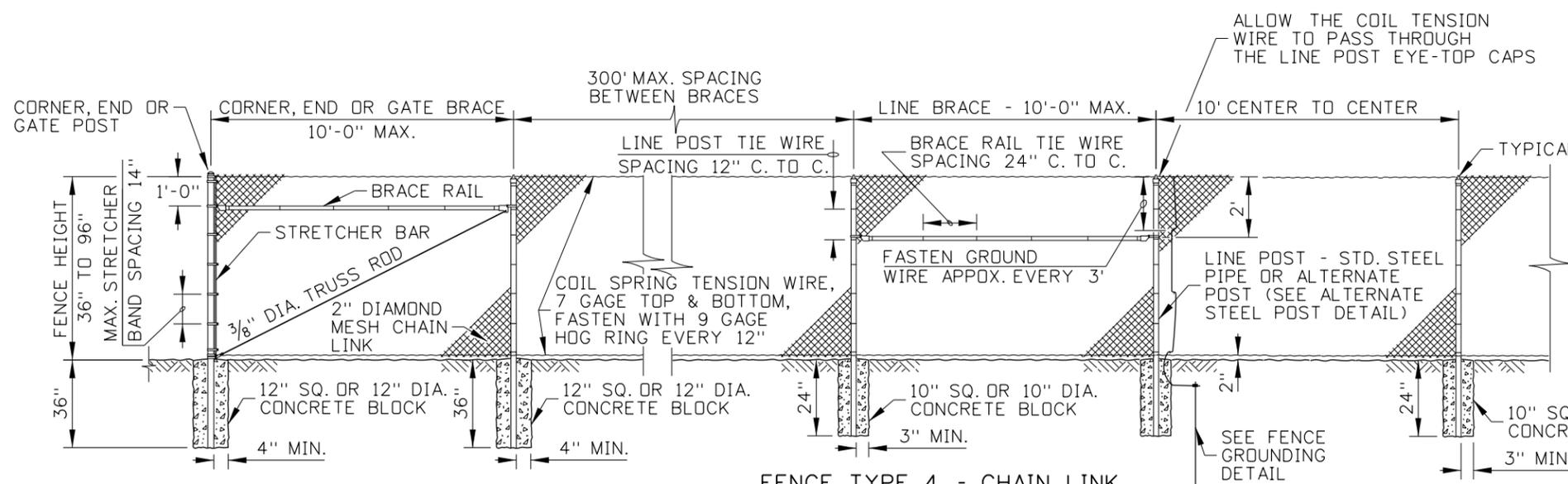
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

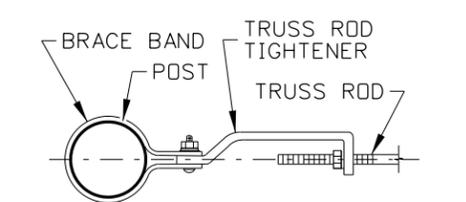
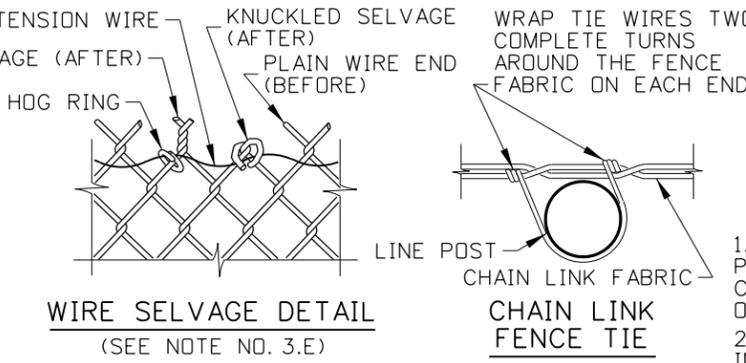
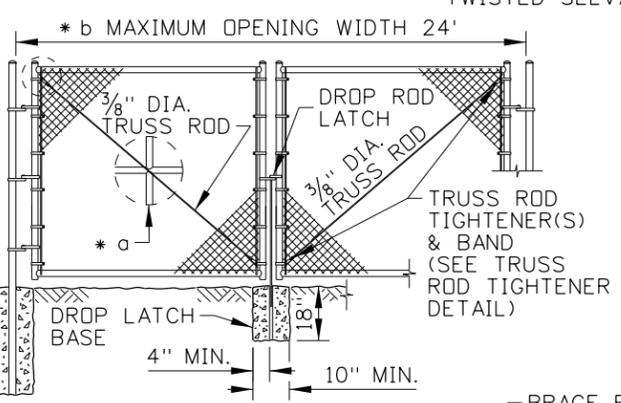
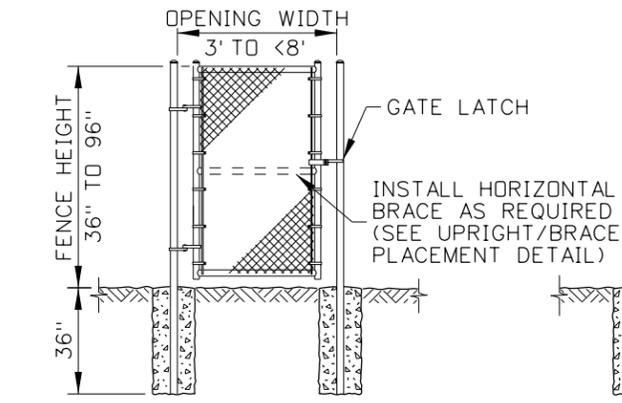
STANDARD DRAWING NO. **F-2-C**

SHEET 2 OF 2

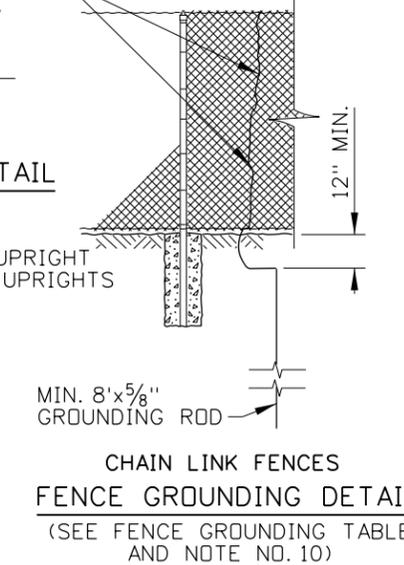
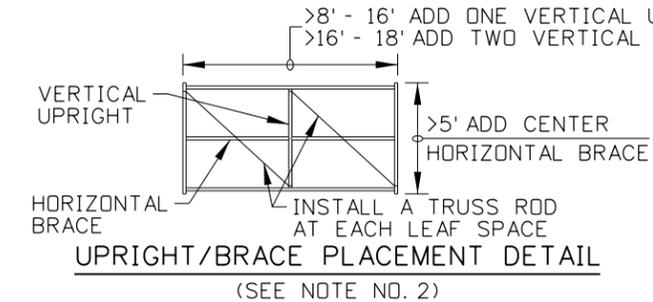
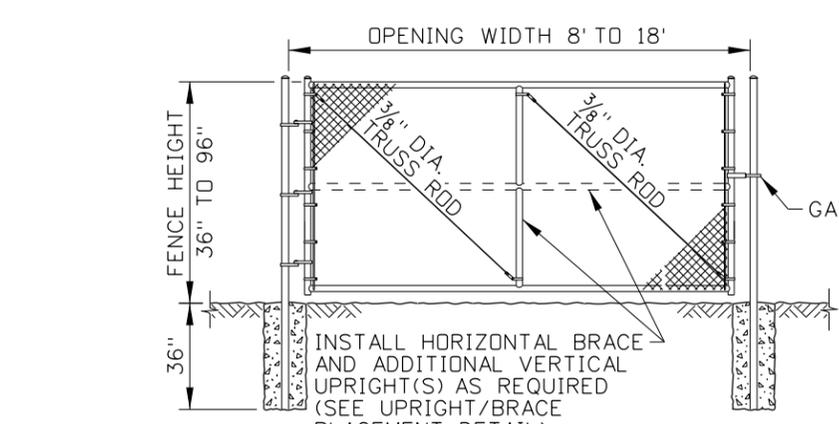
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: JANUARY 31, 2013



- * a INSTALL HORIZONTAL BRACE & VERTICAL UPRIGHT(S) AS REQUIRED (SEE UPRIGHT/BRACE PLACEMENT DETAIL)
- * b INSTALL TWO NARROW SINGLE OR TWO WIDE SINGLE LEAVES WITH DROP ROD FORK, GUIDE, & BASE.



6 GAGE BRAID COPPER GROUND CABLE CONNECTED TO WIRE MESH WITH A MIN. OF 3 SPLIT ELECTRICAL BOLTS APPROXIMATELY EVERY 18"



CHAIN LINK DETAIL

NOTES

1. SHOP WELD TYPE 3 GATES. PAINT WELDS IN ACCORDANCE WITH 707.02, PAINT FORMULA NO. 2 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. THE TRUSS ROD TIGHTENER AND THE NON-TIGHTENING END OF THE TRUSS ROD MAY BE WELDED TO THE GATE.
2. SPACE THE VERTICAL UPRIGHT(S) EVENLY ON THE GATE LEAF AND INSTALL A TRUSS ROD(S) AS SHOWN ON THE UPRIGHT/BRACE PLACEMENT DETAIL. SPACE HORIZONTAL BRACE(S) EVENLY ON THE GATE LEAF.
3. CONSTRUCT CHAIN LINK FENCE IN ACCORDANCE WITH 708.13, CHAIN LINK FENCE OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
 - A. SPACE POSTS EQUAL DISTANCES APART. 10' MAXIMUM SPACING UNLESS OTHERWISE DIRECTED ON PLANS OR BY THE ENGINEER.
 - B. SECURELY FASTEN THE POST CAPS TO THE POSTS.
 - C. SECURELY FASTEN THE BRACE RAILS AND TRUSS RODS TO POST WITH BRACE BANDS WITH THREADED TAKE-UP ON THE TRUSS RODS.
 - D. STRETCH THE FENCE FABRIC SMOOTH SO THAT IT HAS A UNIFORM APPEARANCE.
 - E. SELVAGE THE PLAIN WIRE ENDS ON THE TOP AND BOTTOM OF THE CHAIN LINK FABRIC BY THE TWISTED OR KNUCKLED METHOD. SEE WIRE SELVAGE DETAIL.
 - F. SET THE POSTS IN CONCRETE UNLESS OTHERWISE DIRECTED ON THE PLANS.
4. ADJUST THE POST TOP ELEVATIONS TO PROVIDE A SMOOTH VISUAL FENCE PROFILE. INSTALL CORNER POSTS AT HORIZONTAL BREAKS IN THE FENCE OF 15° OR MORE.
5. THE DESIGN OF CHAIN LINK HARDWARE MAY VARY SOMEWHAT FROM THAT SHOWN. ENSURE THAT HARDWARE AND MATERIALS USED ON A SINGLE INSTALLATION ARE UNIFORM AND COMPATIBLE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	1-97	MSM					
2	12-01	MSM					
3	1-04	MSM					
4	10-04	MSM					
5	12-12	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: f2d_0213.std
 DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

CHAIN LINK FENCE FENCE TYPE 4

REQUIRES SHEET 2 OF 2

English

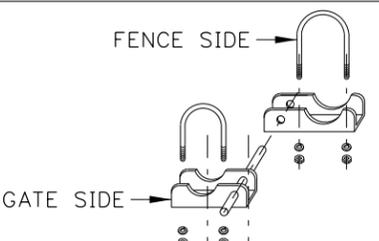
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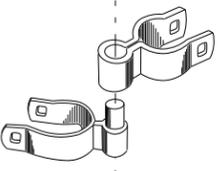
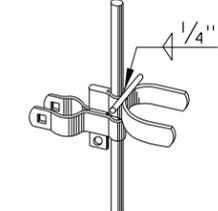
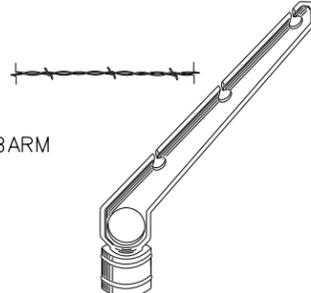
F-2-D

SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: JANUARY 31, 2013

HARDWARE ITEM DESCRIPTION	STANDARD REQUIREMENTS
BRACE POST 	(SEE NOTE NO. 3)
CORNER, END AND GATE POSTS 	(SEE NOTE NO. 3)
LINE POST (INTERMEDIATE POST) 	(SEE NOTE NO. 3)
POST CAP 	CAST NON-FERROUS ALLOY OR GALVANIZED PRESSED STEEL CAP MUST FIT SNUGLY ON POST AND GATE TOP
EYE-TOP CAP 	GALVANIZED PRESSED STEEL MIN. 3/32" THICKNESS OR GALVANIZED MALLEABLE FERROUS ALLOY
STRECHER BAR BAND 	CLASS 1 - MIN. 1/8" x 3/4" MIN. GALVANIZED STEEL CLASS 2 - MIN. 3/32" x 5/16" MIN. GALVANIZED STEEL
TENSION WIRE/BRACE BAND 	CLASS 1 - MIN. 1/8" x 3/4" MIN. GALVANIZED STEEL CLASS 2 - MIN. 3/32" x 5/16" MIN. GALVANIZED STEEL
BAND BOLT 	CLASS 1 - 5/16" DIA. x 1 3/4" GALV. CARRIAGE BOLT CLASS 2 - 3/8" DIA. x 1 1/4" GALV. CARRIAGE BOLT, (LOCK WASHER & FLAT WASHER FOR EACH BAND)
BRACE RAIL/TOP RAIL 	MIN. 1 3/8" DIA. (SEE NOTE NO. 3)
RAIL END 	GALVANIZED PRESSED STEEL OR GALVANIZED MALLEABLE FERROUS ALLOY MIN. 3/8" THICKNESS ON BACK BOLTING APPENDAGE
BRACE END 	GALVANIZED PRESSED STEEL OR GALVANIZED MALLEABLE FERROUS ALLOY MIN. 3/8" THICKNESS ON BACK BOLTING APPENDAGE
TRUSS ROD TIGHTENER 	CLASS 1 - MIN. 3/8" FORMED GALVANIZED STEEL CLASS 2 - MIN. 1/4" FORMED GALVANIZED STEEL
TRUSS ROD 	3/8" GALVANIZED, NC TREADED ROD, LOCK WASHER, & FLAT WASHER WITH TWO 90° BENDS OPPOSITE OF TREADED END
TOP RAIL SLEEVE 	GALVANIZED STEEL, NOT TO BE USED ON R/W FENCES, MUST MEET REQUIRED PIPE THICKNESSES
TENSION BAR 	CLASS 1 - MIN. 1/8" x 3/4" GALVANIZED STEEL CLASS 2 - MIN. 1/8" x 5/16" GALVANIZED STEEL
FENCE FABRIC 	2" GALVANIZED DIAMOND MESH STEEL FABRIC, (SEE NOTE NO. 3)
TIE WIRES 	MIN. 9 GAGE ALUMINUM WITH ONE HOOKED END
COIL TENSION WIRE 	MIN. 7 GAGE. (SEE NOTE NO. 3)
GATE FORK LATCH 	MIN. 1/8" GALVANIZED PRESSED STEEL OR MALLEABLE FERROUS ALLOY. ONE LATCH PER EACH SINGLE GATE WITH BENT MIN. 3/8" DIA. ATTACHMENT BOLT, WASHER & NUT.
HEAVY GATE HINGE 	MIN. 1/8" GALVANIZED PRESSED STEEL WITH TWO 3/8" U-BOLTS, LOCK WASHER & NUTS PER HINGE. USE 2 HINGES PER GATE LEAF UP TO 8' IN WIDTH AND 3 HINGES PER GATE LEAF WIDTHS GREATER THAN 8' (THESE HINGES ARE RECOMMENDED FOR MAINTENANCE & COMMERCIAL INSTALLATIONS).

HARDWARE ITEM DESCRIPTION (CON'T.)	STANDARD REQUIREMENTS
RESIDENTIAL GATE HINGE 	MIN. 1/8" GALVANIZED PRESSED STEEL WITH 3/8" DIA. x 3" CARRIAGE BOLTS, LOCK WASHER & NUTS PER HINGE. USE 2 HINGES PER GATE LEAF UP TO 6' IN HEIGHT AND 3 HINGES PER GATE LEAF HEIGHTS GREATER THAN 6'.
INDUSTRIAL DROP ROD FORK & GUIDE 	MIN. 1/8" GALVANIZED PRESSED STEEL. DROP ROD GUIDE INCLUDES 3/8" x 3" CARRIAGE BOLT WITH LOCK WASHER & NUT. DROP ROD FORK IS TO BE WELDED TO ROD & PAINTED WITH AN APPROVED ZINC RICH PAINT.
BARBED WIRE & 3-WIRE BARBARM 	BARBED WIRE: 14 GAGE SPACED GALVANIZED MEDIUM CARBON STEEL WIRE WITH BARBS SPACED AT 5" C. TO C. GALVANIZING SHALL CONFORM TO APPLICABLE A.S.T.M. DES. A-121-66 FOR ZINC-COATED & AASHTO M 280 SPECIFICATIONS. 3-WIRE BARBARM: BARBWARE ARM (ONE PIECE "Z" CUT) FITS 1 5/8" O.D. POST, 1 5/8" TOP RAIL" FITS 2" O.D. POST, 1 5/8" TOP RAIL" FITS 2 1/2" O.D. POST, 1 5/8" TOP RAIL" FITS 3" O.D. POST, 1 5/8" TOP RAIL"

kV	* GROUNDING INTERVAL	FENCE DISTANCE FROM TRANSMISSION £	FENCE TYPE
500	1, 1A, 2	<100'	4
500	1, 1A, 2	100' - 200'	4
345	1A, 2	<100'	4
345	1A, 2	100' - 150'	4
>230	1A, 2	50' - 100'	4
100-230	NONE	WITHIN R/W	4
<100	NONE	WITHIN R/W	4

* FENCE SECTIONS THAT ARE SHORTER THAN THE GROUNDING INTERVAL SHALL BE GROUNDED ONCE.

NOTES CON'T.

- THE MINIMUM FENCE HEIGHT IS 8' WHEN INSTALLING SECURITY FENCING USING THE 3-WIRE BARBARM & BARBED WIRE. INSTALL THE TOP RAIL ON SECURITY FENCES USING THE 3-WIRE BARBARM. DO NOT USE RAZOR WIRE WITH 3-WIRE BARBARM.
- THE ENGINEER MUST APPROVE CHAIN LINK HARDWARE PRIOR TO INSTALLATION.
- A TOP RAIL MAY BE USED ON CHAIN LINK FENCES CONSTRUCTED OUTSIDE OF THE HIGHWAY RIGHT-OF-WAY. THE TOP RAIL IS INCIDENTAL TO THE COST OF THE FENCE.
- LATH USED FOR VISUAL SCREENING, CANTILEVER GATES, ROLLER GATES, OR SPECIAL HARDWARE ITEM(S) AS SHOWN ON THE PLANS MUST BE APPROVED BY THE ENGINEER PRIOR TO INSTALLATION.
- GROUND CHAIN LINK FENCES IN ACCORDANCE WITH THE FENCE GROUNDING TABLE AND THE FENCE GROUNDING DETAIL. GROUND CHAIN LINK GATES WITH A FLEXIBLE GROUNDING CABLE ATTACHED FROM THE GATE FABRIC TO THE FENCE FABRIC ON THE HINGE SIDE OF THE GATE.
- NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
JANUARY 31, 2013

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	1-97	MSM						
2	12-01	MSM						
3	1-04	MSM						
4	10-04	MSM						
5	12-12	RDL						

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HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

CHAIN LINK FENCE FENCE TYPE 4

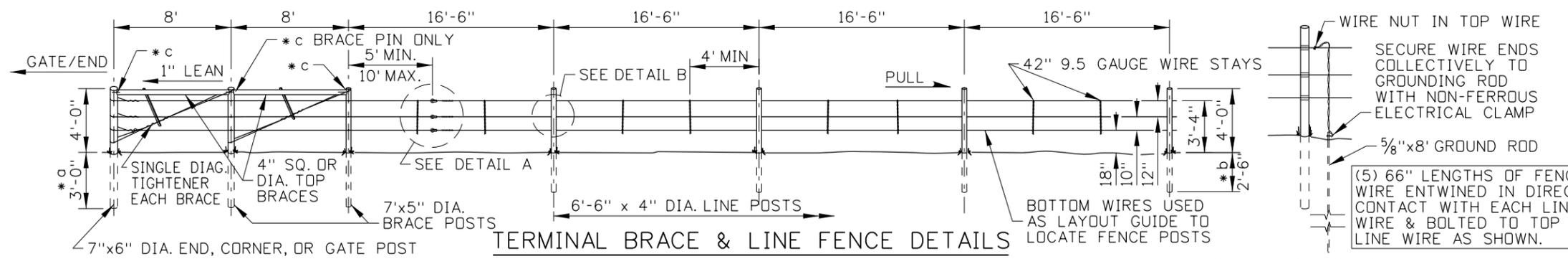
REQUIRES SHEET 1 OF 2

English

STANDARD DRAWING NO.

F-2-D

SHEET 2 OF 2



FENCE GROUNDING TABLE		
kV	* GROUNDING INTERVAL	FENCE DISTANCE FROM TRANSMISSION ϵ
500	200'	<100'
500	500'	100' - 200'
345	400'	<100'
345	1000'	100' - 150'
>230	500'	50' - 100'
100-230	400'	WITHIN R/W
<100	1/4 MI.	WITHIN R/W

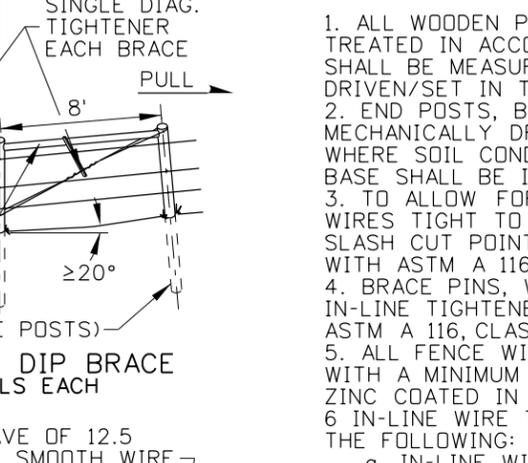
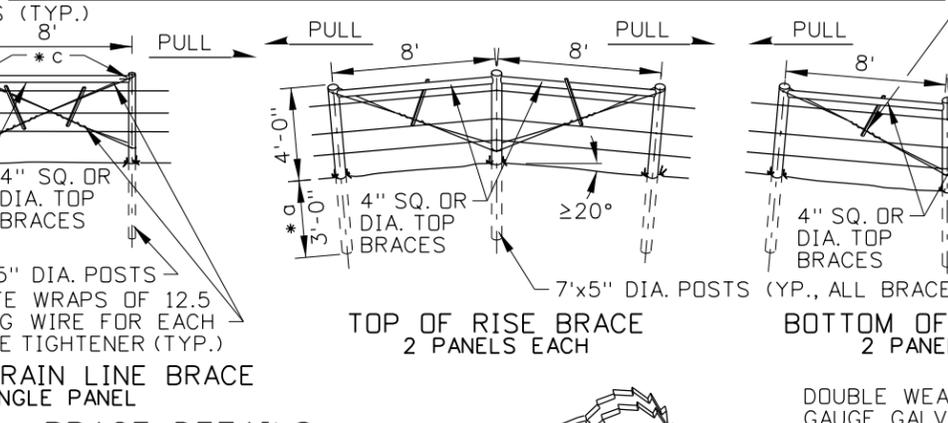
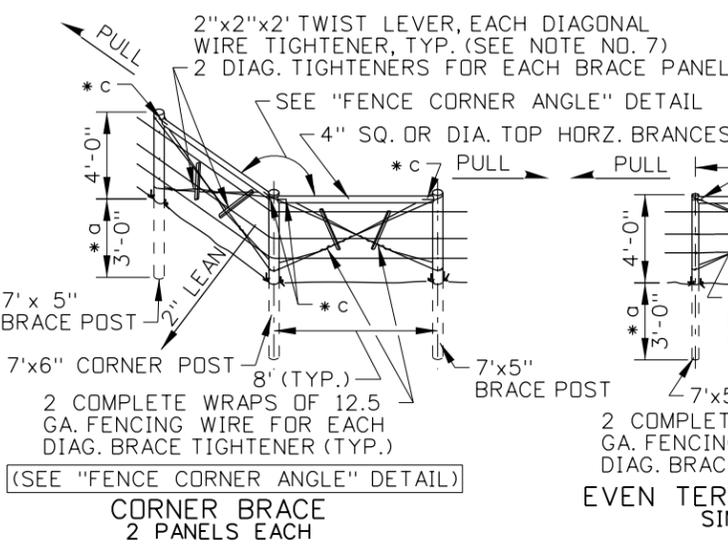
* FENCE SECTIONS THAT ARE LESS IN LENGTH THAN THE GROUNDING INTERVAL SHALL BE GROUNDING ONCE.

SUB-NOTES

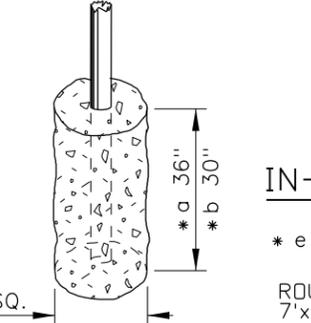
* a DRIVEN DEPTH 36" (SEE CONCRETE BASE DETAIL & NOTE NO. 2).
 * b DRIVEN DEPTH 30" (SEE CONCRETE BASE DETAIL & NOTE NO. 2).
 * c BRACE PINS ARE 3/8" DIA. GALVANIZED STEEL, DRILL TIMBERS TO INSTALL OR 10" GALV. SPIKES MAY BE USED AT BRACE END POSTS.

GROUNDING DETAIL

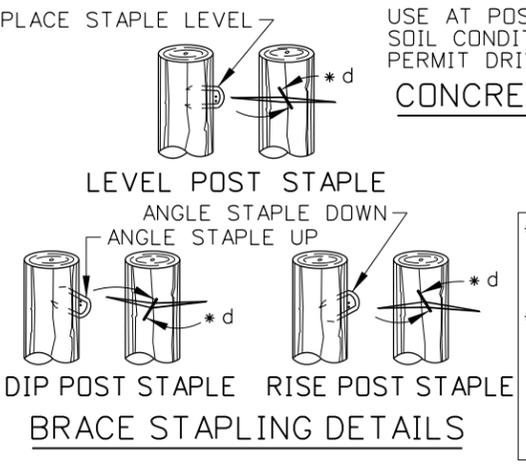
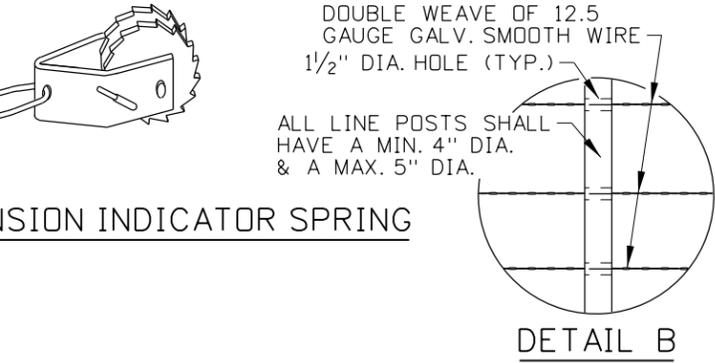
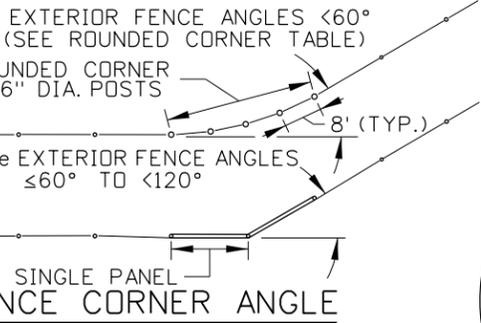
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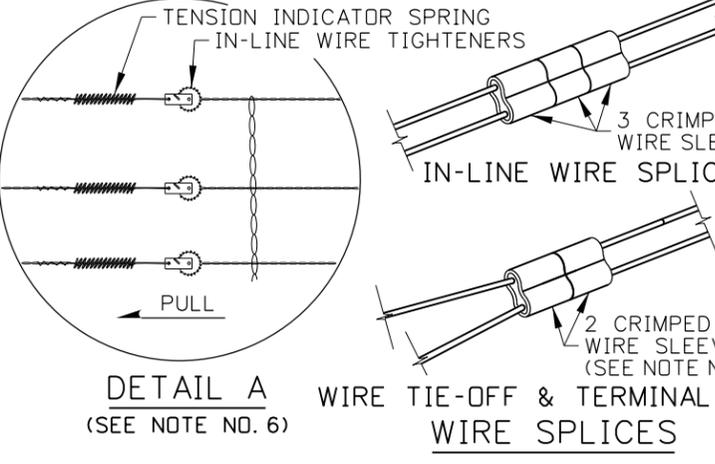
ROUNDED CORNER TABLE	
EXT. COR. ANGLE	MIN. NO. CORNER POSTS
0° - 20°	3
>20° - 40°	4
>40° - 60°	5



IN-LINE WIRE TIGHTENER & TENSION INDICATOR SPRING



* d ROTATE STAPLE ON BRACE POSTS TO STRADDLE ACROSS THE WOOD GRAIN, ALLOW ENOUGH SPACE FOR WIRES TO SLIDE THROUGH THE DRIVEN BACK OF THE STAPLE.
 * e WHEN THE EXTERIOR FENCE ANGLE IS 60° OR LESS, USE THE ROUNDED FENCE CORNER (SEE TABLE) WITH 7'x6" POSTS. FOR EXTERIOR FENCE ANGLES GREATER THAN & EQUAL TO 60° AND LESS THAN 120° USE (1) CORNER BRACE. FOR EXTERIOR ANGLES GREATER THAN 120° A COMBINATION (2) CORNER BRACES ARE REQUIRED.



- ALL WOODEN POSTS AND HORIZONTAL BRACES SHALL BE PRESSURE TREATED IN ACCORDANCE WITH AASHTO M 133. TIMBER DIAMETERS SHOWN SHALL BE MEASURED AT THE SMALL END. THE SMALL ENDS SHALL BE DRIVEN/SET IN THE SOIL.
- END POSTS, BRACE POSTS AND LINE POSTS ARE RECOMMENDED TO BE MECHANICALLY DRIVEN INTO THE GROUND WHERE SOIL CONDITIONS PERMIT. WHERE SOIL CONDITIONS DO NOT PERMIT DRIVEN POSTS THE CONCRETE BASE SHALL BE INSTALLED (SEE CONCRETE BASE DETAIL).
- TO ALLOW FOR EXPANSION AND CONTRACTION, DO NOT STAPLE THE WIRES TIGHT TO THE BRACE POSTS. THE STAPLES ARE 1 3/4" - 9 GAGE WITH SLASH CUT POINTS. THE STAPLES SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A 116, CLASS 1.
- BRACE PINS, WIRE STAYS, SPIKES, TENSION INDICATOR SPRINGS, AND IN-LINE TIGHTENERS SHALL HAVE A ZINC COATING IN ACCORDANCE WITH ASTM A 116, CLASS 3.
- ALL FENCE WIRE SHALL BE BARBLESS DOUBLE WEAVE 12.5 GAGE STEEL WITH A MINIMUM OF 57,000 PSI TENSILE STRENGTH. THE WIRE SHALL BE ZINC COATED IN ACCORDANCE WITH ASTM A 116, CLASS 3.
- IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRINGS SHALL MEET THE FOLLOWING:
 - IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRINGS SHALL BE USED WHEN CALLED FOR IN THE PLANS.
 - THE IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRING SHALL BE A SEPARATE PAY ITEM.
 - IN-LINE WIRE TIGHTENERS AND TENSION INDICATOR SPRINGS ARE TO BE USED AS A UNIT.
 - TIGHTENERS ARE TO BE PLACED ON ALL THREE WIRE SETS. TIGHTENING FOR STRAIGHT RUNS SHOULD BE 80 TO 100 LBS. AND ON CRESTS AND DIPS SHOULD BE 50 TO 75 LBS. ROUNDED CORNERS ARE TIGHTENED THE SAME AS STRAIGHT RUNS.
 - TIGHTENERS ARE TO BE PLACED 5' TO 10' FROM A BRACE.
 - IN LINE WIRE TIGHTENERS SHALL BE INSTALLED BETWEEN EACH SET OF CORNER, EVEN TERRAIN LINE, AND RISE/DIP BRACES.
- PROPER TENSION ON THE DIAGONAL BRACE TIGHTENERS IS TO BE ACCOMPLISHED BY TWISTING A MINIMUM OF 3 TO 5 TURNS. EACH DIAGONAL BRACE WIRE TIGHTENER SHALL CONSIST OF (2) COMPLETE WRAPS OF FENCE WIRE (THE WIRE TIE-OFF SHOULD BE OFFSET FROM THE POSITION OF THE TWIST LEVER). THE TWIST LEVER SHOULD BE SECURELY FASTENED AGAINST THE HORIZONTAL BRACE RAIL OR THE OPPOSING DIAGONAL BRACE TIGHTENER.
- LINE WIRES SHOULD BE STAPLED TO THE BRACE POSTS ONLY AFTER TAKING UP PRELIMINARY TENSION OF APPROXIMATELY 50-80 LBS. ON EACH WIRE SET.
- LINE WIRES SHALL BE STRUNG ON THE OUTSIDE (WILDLIFE SIDE) OF EVEN TERRAIN LINE BRACES AND RISE/DIP BRACES. LINE WIRES SHALL ALWAYS BE STRUNG ON THE EXTERIOR ANGLE SIDE OF CORNER BRACES.
- THE MAXIMUM FENCE RUN BETWEEN BRACE PANELS SHALL BE 1320 FEET.
- ALL WILDLIFE FENCE LINE WIRE SHALL BE GROUNDING ACCORDING TO THE "FENCE GROUNDING TABLE" ACCORDING TO THE METHOD SHOWN ON "GROUNDING DETAIL".
- IN-LINE WIRE SPICES SHALL BE SPLICED ACCORDING TO THE METHOD SHOWN IN THE "WIRE SPLICES" DETAIL. WIRE TIE-OFFS AND TERMINAL ENDS MAY BE SPLICED OR WRAPPED.
- NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	10-05	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: f2e_1005.dgn
 DRAWING DATE: JANUARY, 2004

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

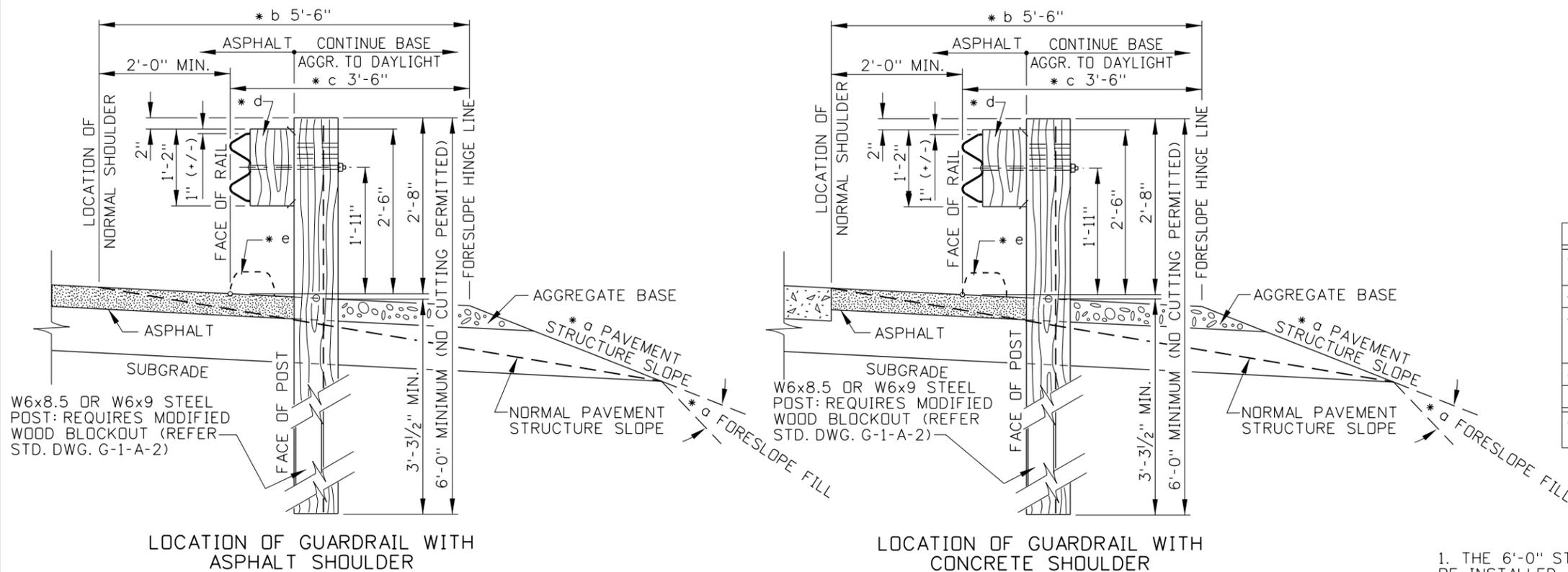
ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING
WILDLIFE FENCE FENCE TYPE 9

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRD L. MILLER
 DATE ORIGINAL SIGNED: OCTOBER 17, 2005

English
 STANDARD DRAWING NO. F-2-E
 SHEET 1 OF 1



LOCATION OF GUARDRAIL WITH ASPHALT SHOULDER
 LOCATION OF GUARDRAIL WITH CONCRETE SHOULDER
STANDARD GUARDRAIL & SLOPE TREATMENT - TYPE A INSTALLATION

SLOPE REQUIREMENTS (MINIMUM)	
* a	PAVEMENT STRUCTURE SLOPE SAME AS FORESLOPE BUT NOT STEEPER THAN 2:1.
* b	4'-8" MIN. IN DIFFICULT TERRAIN.
* c	1'-0" MIN. FROM BACK OF POST TO FORESLOPE HINGE LINE IN DIFFICULT TERRAIN.
* d	BLOCKOUT TYPE, SEE STD. DWG. G-1-A-3
USE OF CURB	
* e	SEE NOTE NO. 5 (REFER TO STD. DWG. G-1-A-2)

NOTES

1. THE 6'-0" STANDARD POST DESIGN (TYPE A INSTALLATION) SHALL BE INSTALLED UNLESS THE 7'-4" POST ALTERNATE DESIGN (TYPE B INSTALLATION) IS SPECIFIED ON THE PLANS. TYPE B INSTALLATION SHALL ONLY BE USED WHEN ALL OTHER REMEDIES HAVE BEEN ELIMINATED BECAUSE OF ENVIRONMENTAL CONSIDERATIONS OR DIFFICULT ROADSIDE CONDITIONS. WHEN USED THE FOLLOWING CONDITIONS MUST BE MET:

- I. APPROVAL OF USE IN CONCEPT REVIEW PROCESS. THE BALLAST AND FORESLOPE SHALL BE 2:1 OR FLATTER BEGINNING AT THE BACK OF THE GUARDRAIL POST.
- II. THE SOIL FOUNDATION OF EACH POST SHALL BE COMPACTED TO A MINIMUM OF 95% OF STANDARD DENSITY.
- III. SURFACING SHALL CONTINUE BEHIND THE POST AND IF DISTURBED DURING INSTALLATION IT SHALL BE REPAIRED OR REPLACED.
- IV. ON ROADS SURFACED WITH A BST, A 0.2' MIN. THICKNESS OF ASPHALT SURFACING SHALL BE PLACED AROUND EACH POST AND A V. 2'-0" MINIMUM PLACED LONGITUDINALLY WITH GUARDRAIL.

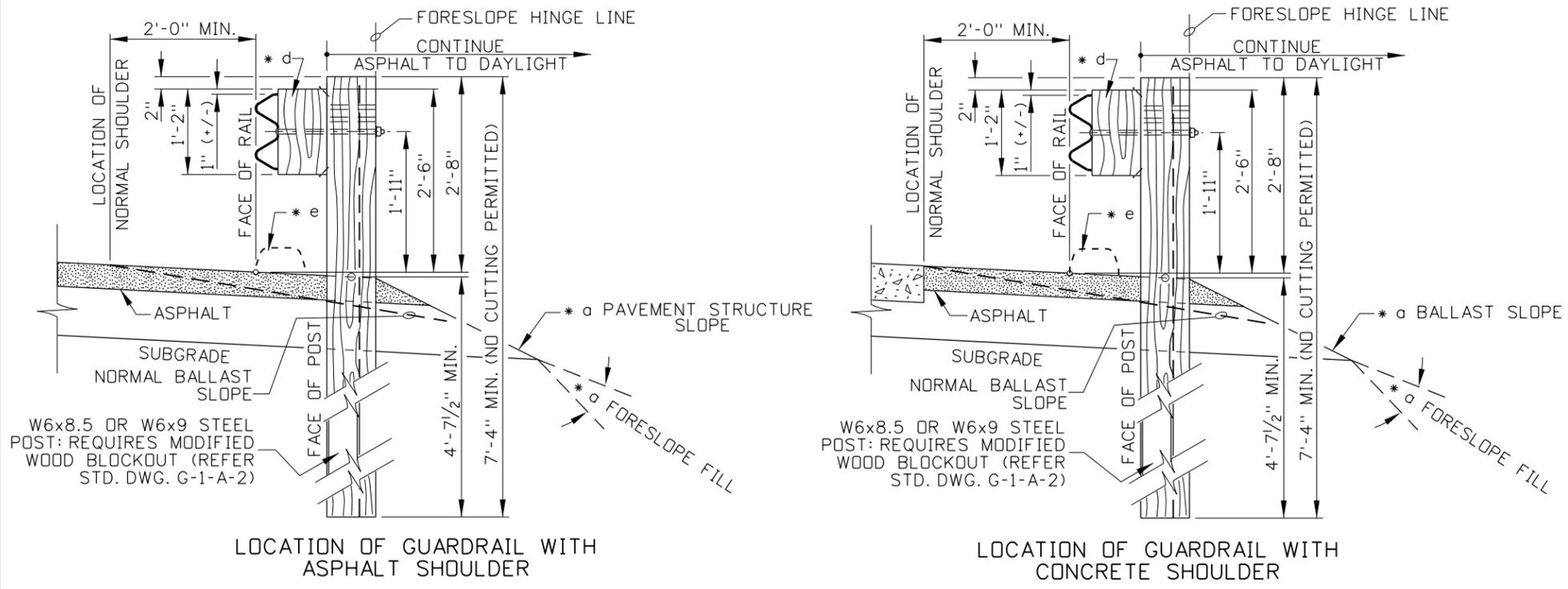
2. THE SLOPE OF THE SURFACE BETWEEN THE EDGE OF THE SHOULDER AND THE HINGE LINE SHOULD BE THE SAME AS THE ADJACENT ROADWAY SLOPE.

3. THE GUARDRAIL POSTS SHALL BE PLUMBED AND SET VERTICALLY. REFER TO SECTION 612 - GUARDRAIL, OF THE ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

4. GUARDRAIL POST SPACING SHALL BE 6'-3" C.T.C. UNLESS OTHERWISE SHOWN.

5. WHEN CURB IS CALLED FOR THE CURB FACE SHALL BE LOCATED ALONG THE FACE OF RAIL. REFER TO STANDARD DRAWING G-1-A-2 FOR CURB INSTALLATION DETAILS AND STANDARD DRAWING H-1 FOR CURB TYPES.

6. NOT TO SCALE.



LOCATION OF GUARDRAIL WITH ASPHALT SHOULDER
 LOCATION OF GUARDRAIL WITH CONCRETE SHOULDER
7'-4" POST ALTERNATE & SLOPE TREATMENTS - TYPE B INSTALLATION

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
3	07-92	MSM	8	02-00	MSM	13	12-03	MSM
4	02-96	MSM	9	06-00	MSM	14	10-04	MSM
5	01-97	WC	10	08-00	MSM	15	04-06	MSM
6	06-97	MSM	11	06-01	MSM	15	08-10	MGL
7	07-98	RG	12	10-02	MSM	16	08-11	RSC

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1a1_0811.dgn
 DRAWING DATE: MAY, 1989

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

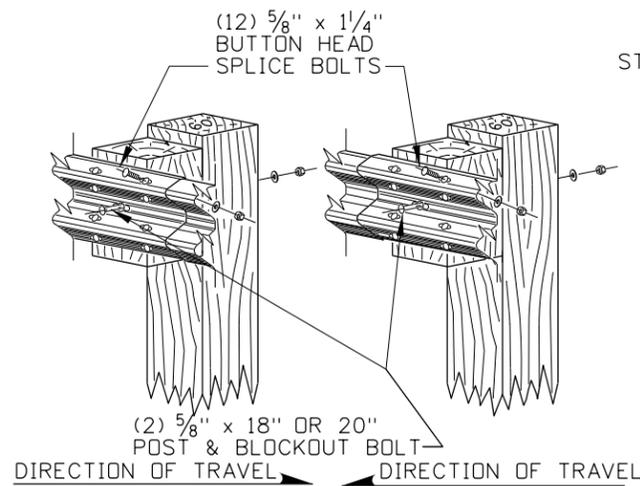
ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL SLOPE TREATMENT TYPES A & B

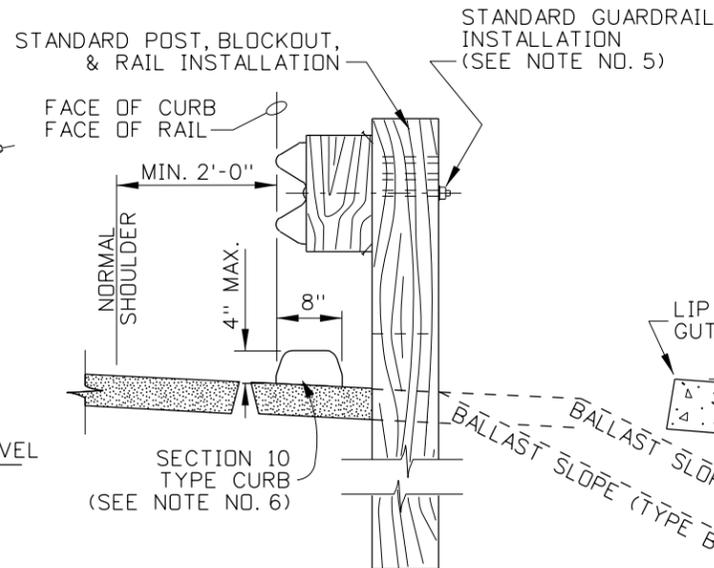
English
 STANDARD DRAWING NO.
G-1-A-1
 SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

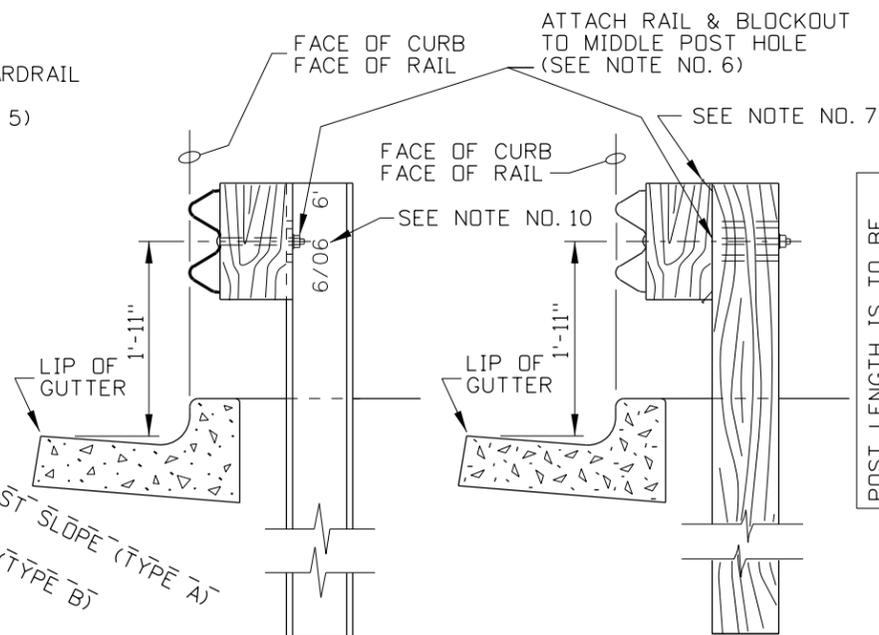
ORIGINAL SIGNED BY:
 RYAN SCOTT CARNIE
 DATE ORIGINAL SIGNED:
 AUGUST 26, 2011



W-BEAM LAPPING DETAILS
(STANDARD WOOD POST INSTALLATION SHOWN)

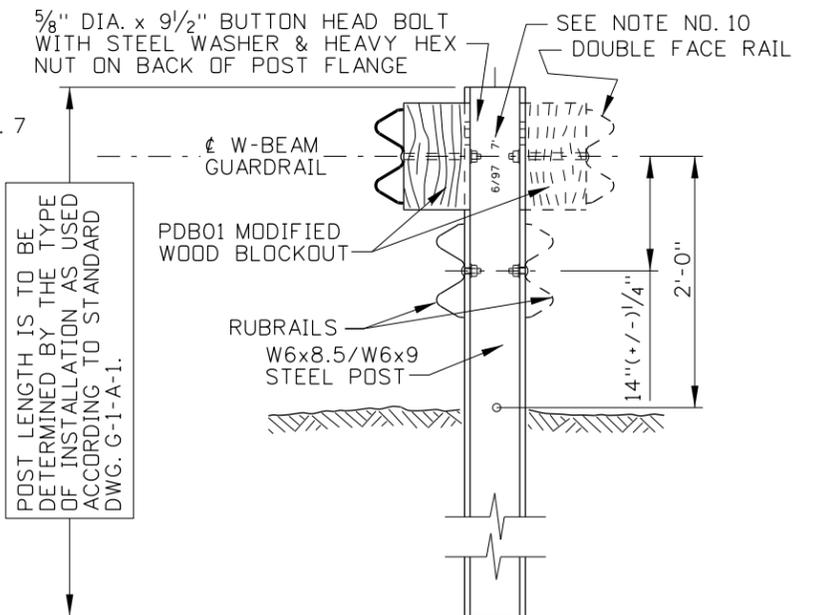


CURB ONLY



STEEL POST

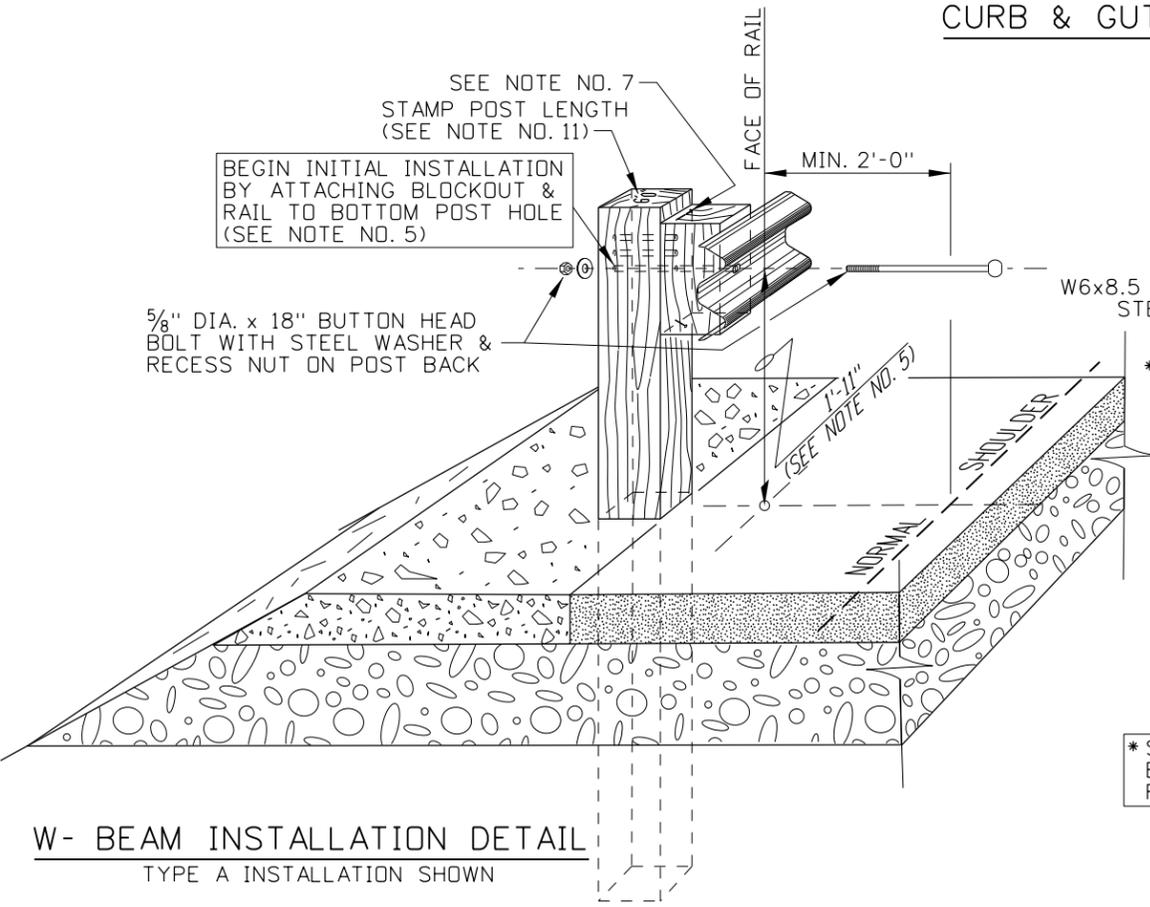
WOOD POST



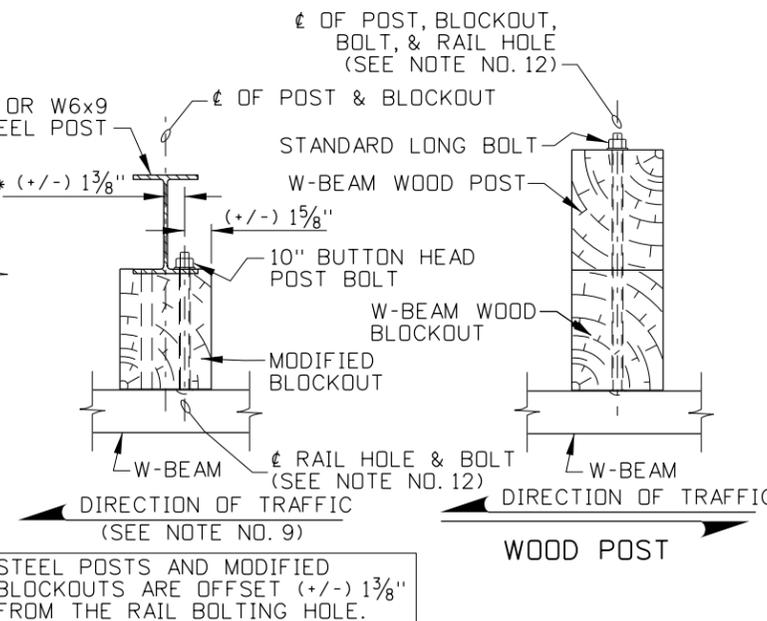
MEDIAN BARRIER DETAIL

NOTES

1. STEEL GUARDRAIL POSTS SHALL CONFORM TO THE "SPECIFICATIONS" OF THE WIDE-FLANGE GUARDRAIL POST (PWE01-04) IN THE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
2. ALL W-BEAM METAL GUARDRAIL WILL BEGIN AND END WITH A TERMINAL.
3. A SINGLE W-BEAM GUARDRAIL INSTALLATION: POSTS MAY BE WOOD OR STEEL, HOWEVER THE LINE POSTS SHALL BE CONTIGUOUS OF EITHER WOOD OR STEEL. WOOD POSTS SHALL BE OF CONTIGUOUS SIZES SUCH AS, 6"x8" POSTS WITH 6"x8" BLOCKOUTS OR WITH 8"x8" POSTS WITH 8"x8" BLOCKOUTS. BLOCKOUT MATERIAL MAY VARY (REFER TO STD. DWG. G-1-A-3).
4. W-BEAM METAL GUARDRAIL SHALL BE LAPPED IN THE DIRECTION OF TRAFFIC TO PREVENT RAIL SNAGGING.
5. INITIAL RAIL AND BLOCKOUT BOLTING TO THE POST SHALL BEGIN IN THE LOWEST POST HOLE FOR BOTH WOOD AND STEEL POSTS EXCEPT FOR URBAN CURB AND GUTTER INSTALLATIONS (SEE NOTE NO. 7). SUBSEQUENTLY THE RAIL AND BLOCKOUT SHOULD BE RAISED IN CONJUNCTION WITH THE RISE OF THE PAVEMENT SURFACE DUE TO OVERLAYS AND SEAL COATS. NORMALLY RAISING SHOULD OCCUR WHEN THE VERTICAL DISTANCE IS LESS THAN 1'-9" ALONG THE FACE OF RAIL FROM THE CENTERLINE OF BOLT TO ROADWAY SURFACE.
6. WHEN CURB AND GUTTER IS USED IN AN URBAN SETTING WITH W-BEAM GUARDRAIL, BOLT THE RAIL IN THE MIDDLE POST HOLE. ON STANDARD GUARDRAIL INSTALLATIONS THE TYPE SECTION 10 CURB IS USED EXCLUSIVELY.
7. THE WOODEN BLOCKOUTS SHALL BE TOE-NAILED TO THE WOODEN POST WITH 16d GALVANIZED NAILS TO RESTRICT BLOCK ROTATION.
8. GUARDRAIL POST SPACING SHALL BE 6'-3" C.T.C. UNLESS OTHERWISE SHOWN.
9. POST BOLTS FOR THE MODIFIED BLOCKOUT AND STEEL POST SHALL BE PLACED ON WEB HOLE ON THE APPROACHING TRAFFIC SIDE.
10. WHEN STEEL GUARDRAIL POSTS ARE INSTALLED, THE DATE (MONTH/YEAR) AND POST LENGTH SHALL BE STAMPED IN A CONSPICUOUS PLACE NEAR THE TOP AND BETWEEN THE WEBS OF THE POST. THE CHARACTERS SHALL BE 1/4" TO 3/8" IN HEIGHT.
11. WOODEN POSTS SHALL BE STAMPED OR SCRIBED WITH THE LENGTH (EITHER FEET OR INCHES IS ACCEPTABLE) OF THE POST ON THE TOP SURFACE. THE STAMPED LETTERING SHALL BE APPROXIMATELY 1 1/2" HIGH AND 1/4" DEEP. IF THE LETTERING IS DISTURBED DURING INSTALLATION IT SHALL BE RE-STAMPED.
12. ALL POST SPACING MEASUREMENTS ARE MADE ALONG THE (BACK OF RAIL) FROM CENTERLINE OF THE USED BOLT HOLE TO CENTERLINE OF THE USED BOLT HOLE.
13. NOT TO SCALE.



W-BEAM INSTALLATION DETAIL
TYPE A INSTALLATION SHOWN



W-BEAM BOLTING DETAILS

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-00	MSM	6	05-06	MSM		
2	06-01	MSM	7	08-10	MGL		
3	12-01	MSM					
4	09-03	MSM					
5	10-04	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1a2_1210.dgn
DRAWING DATE: JUNE, 1997

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

W-BEAM GUARDRAIL INSTALLATION ASSEMBLIES

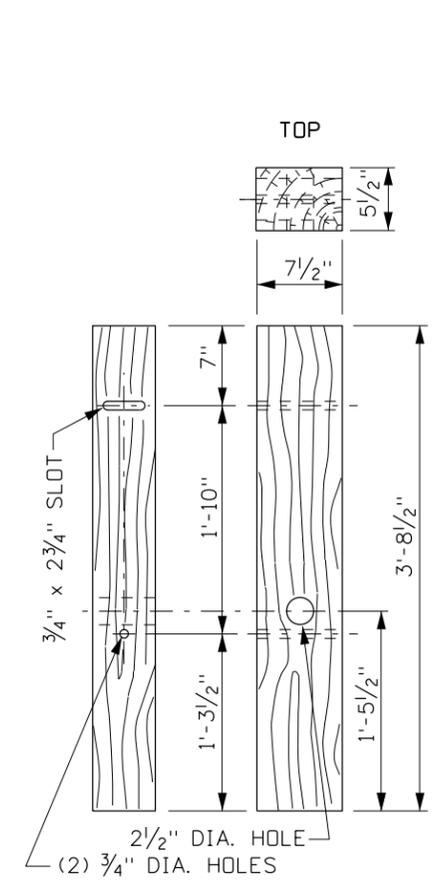
English

STANDARD DRAWING NO.
G-1-A-2

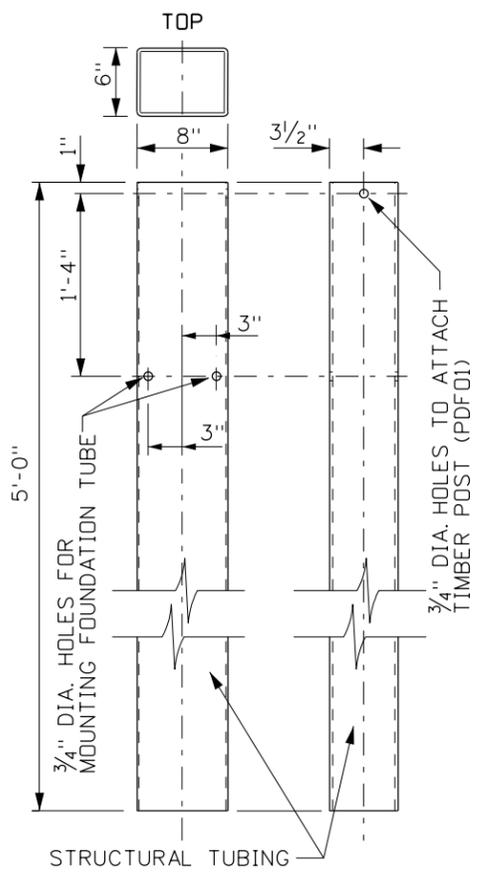
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

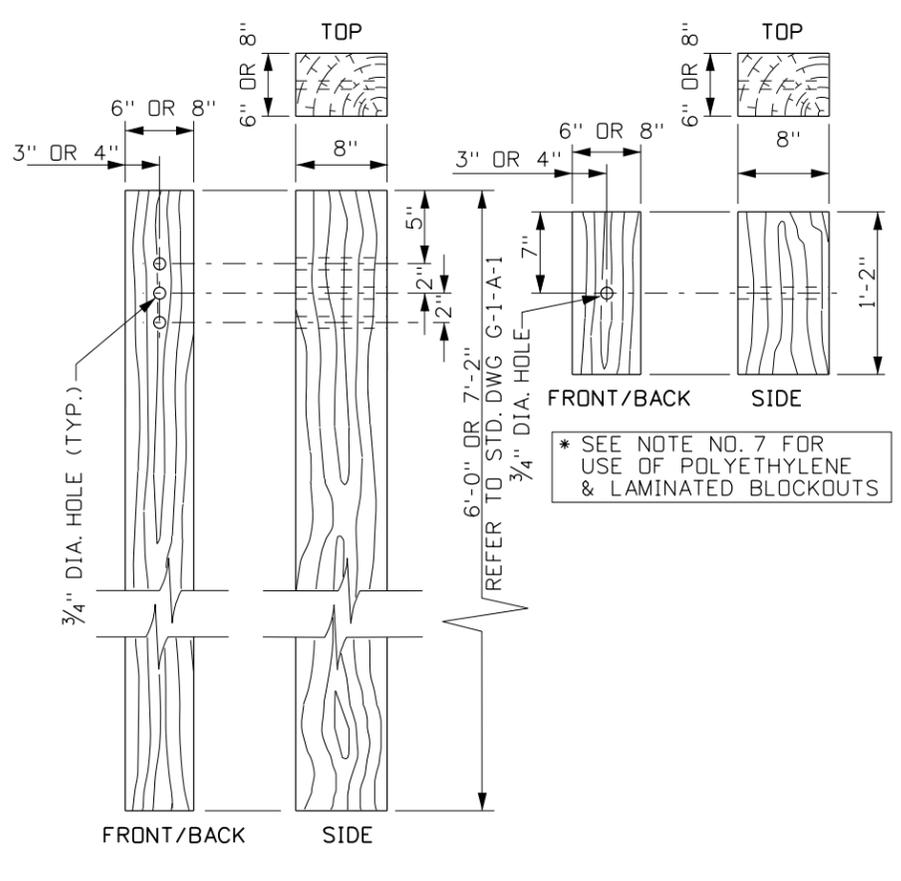
ORIGINAL SIGNED BY:
DATE: TED E. MASDN
DECEMBER 6, 2010



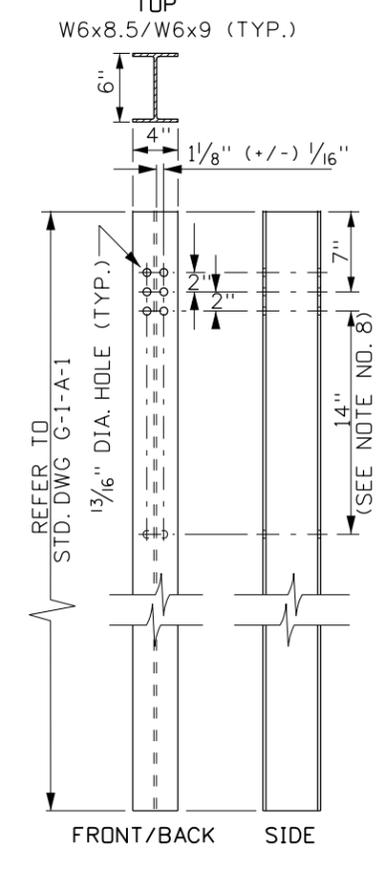
MODIFIED BCT TIMBER POST



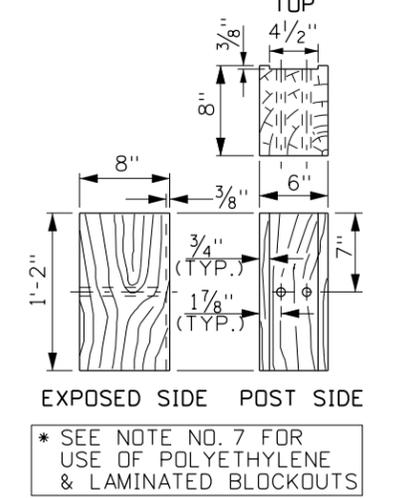
FOUNDATION TUBE
ITEM NO. PTE05



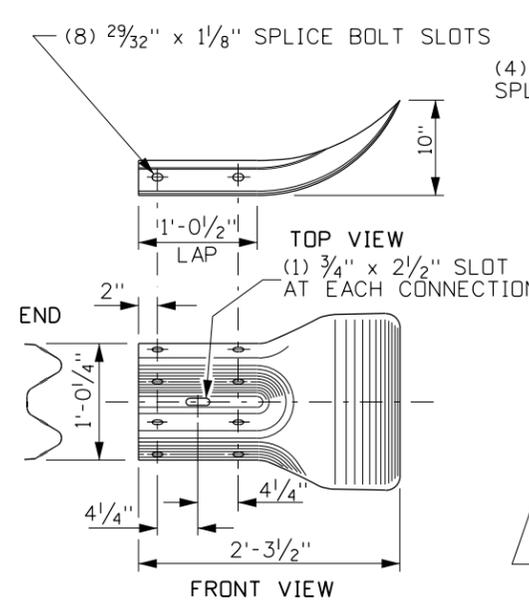
*** WOODEN GUARDRAIL POST & BLOCKOUT**



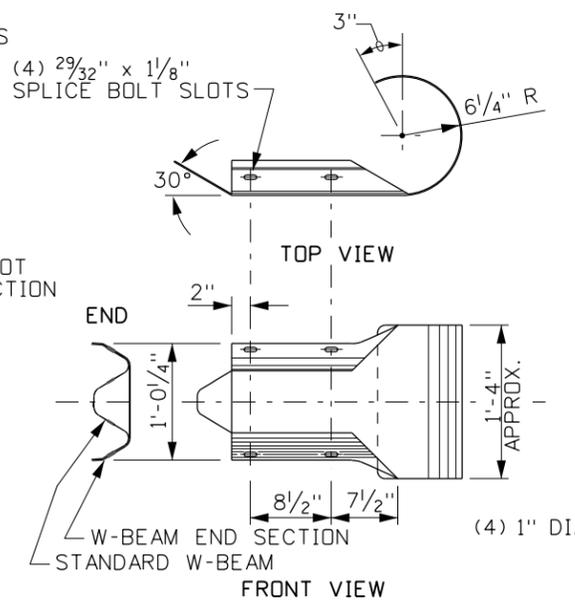
*** STEEL GUARDRAIL POST & MODIFIED BLOCKOUT**



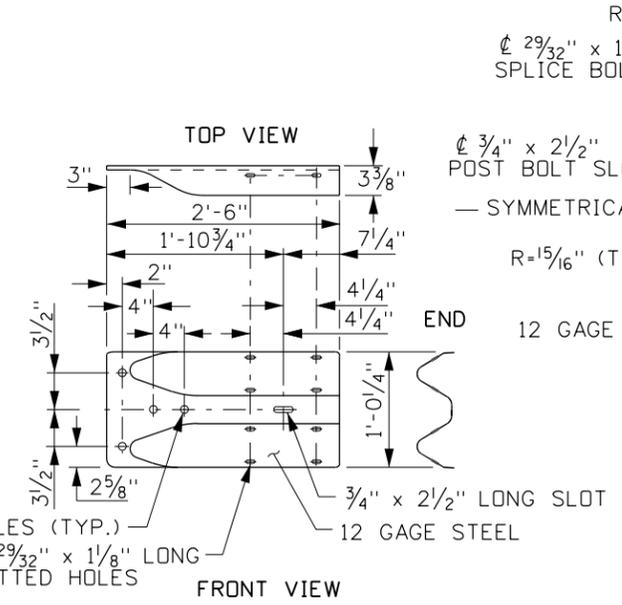
EXPOSED SIDE POST SIDE
* SEE NOTE NO. 7 FOR USE OF POLYETHYLENE & LAMINATED BLOCKOUTS



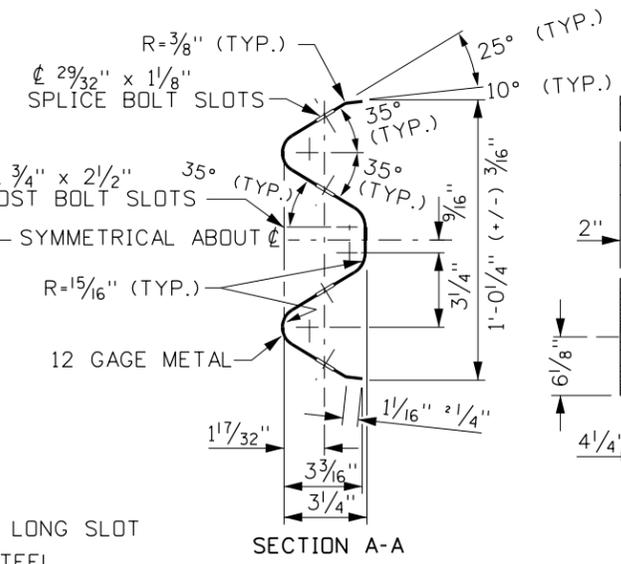
W-BEAM END SECTION (FLARED)
ITEM NO. RWE01a



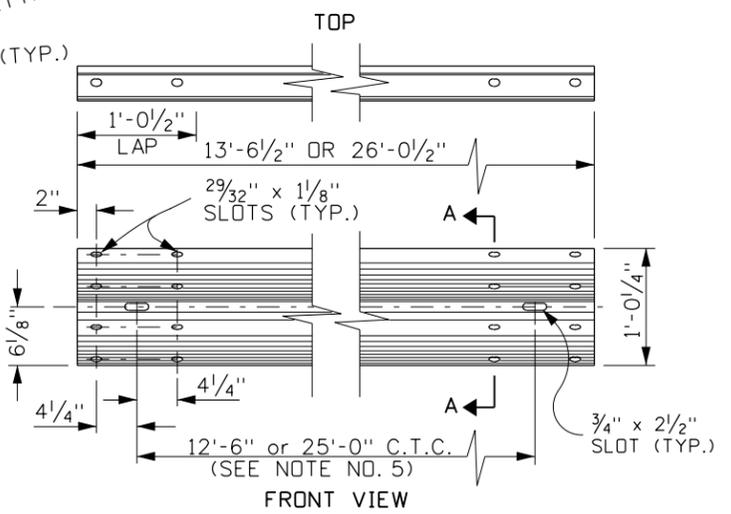
W-BEAM END SECTION (ROUNDED)
ITEM NO. RWE03a



W-BEAM TERMINAL CONNECTOR
ITEM NO. RWE02a



SECTION A-A



W-BEAM RAIL DETAILS
ITEM NO. RWM02a-b

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: DATE: TED E. MASDN OCTOBER 26, 2010

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-96	MSM	5	12-04	MSM		
2	06-97	MSM	6	05-06	MSM		
3	07-00	MSM	7	05-07	MSM		
4	12-01	MSM	8	11-08	JRV		
5	06-04	MSM	9	10-10	PLR		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1a3_1210.dgn
DRAWING DATE: JUNE, 1996

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

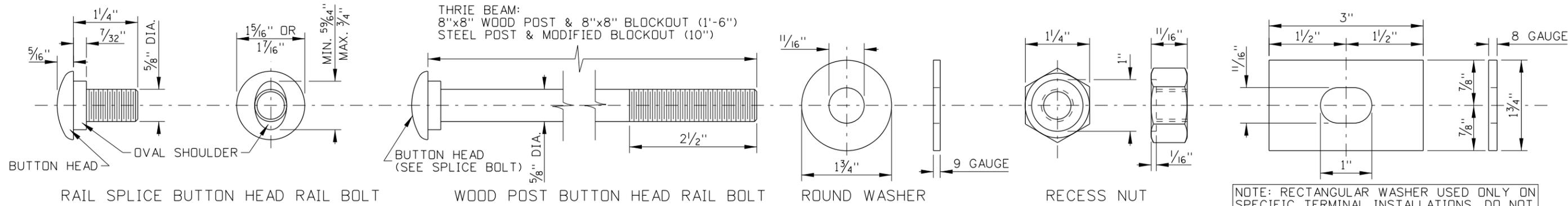
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
W-BEAM GUARDRAIL POSTS, BLOCKOUTS, & HARDWARE
REQUIRES SHEET 2 OF 2

English
STANDARD DRAWING NO.
G-1-A-3
SHEET 1 OF 2

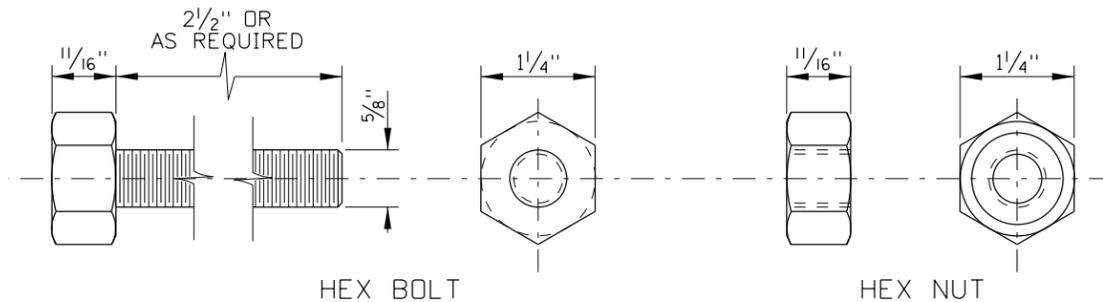
W-BEAM:
 6"x8" WOOD POST & 6"x8" BLOCKOUT (1'-6")
 8"x8" WOOD POST & 8"x8" BLOCKOUT (1'-6")
 STEEL POST & MODIFIED BLOCKOUT (10")

THRIE BEAM:
 8"x8" WOOD POST & 8"x8" BLOCKOUT (1'-6")
 STEEL POST & MODIFIED BLOCKOUT (10")



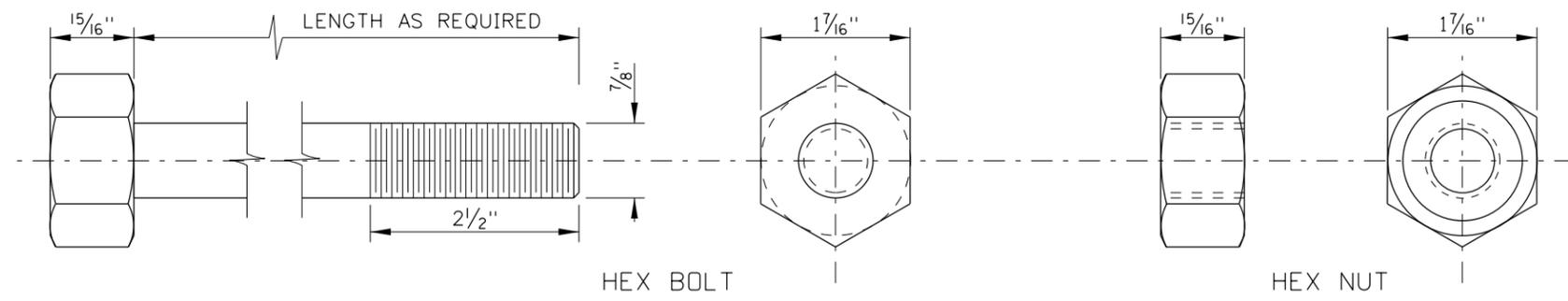
NOTE: RECTANGULAR WASHER USED ONLY ON SPECIFIC TERMINAL INSTALLATIONS. DO NOT USE ON REGULAR GUARDRAIL INSTALLATIONS

BOLTING HARDWARE



STEEL POST BOLTING HARDWARE

ITEM NO. FBX16a



HIGH STRENGTH BOLTING HARDWARE

ITEM NO. FBX16b-36b

NOTES

1. ALL GUARDRAIL BOLTING HARDWARE AND ACCESSORIES SHALL CONFORM TO THE SPECIFICATIONS AS INDICATED IN THE AASHTO "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
2. THE BOLTING HARDWARE SHOWN IS USED FOR BOTH W-BEAM AND THRIE BEAM INSTALLATIONS.
3. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1a4_0406.dgn
 DRAWING DATE: APRIL, 2006

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

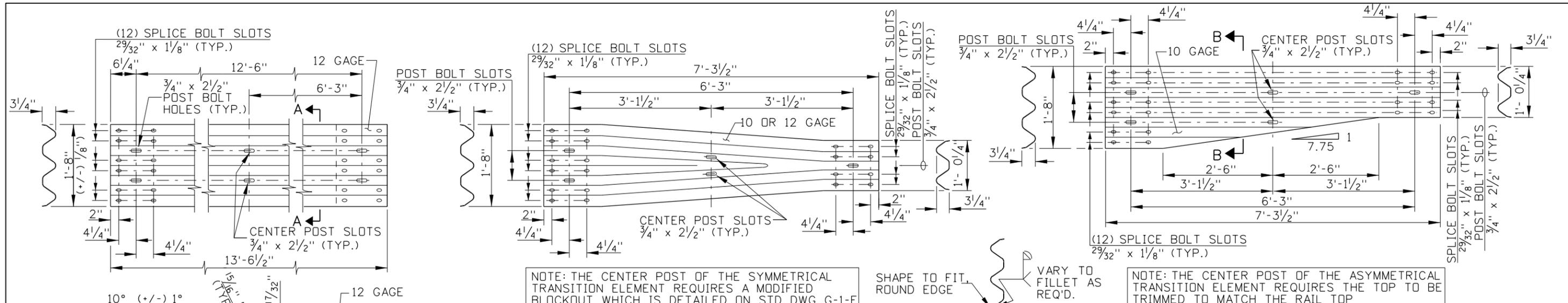
ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: STEVEN HUTCHINSON
 CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL BOLTING HARDWARE FOR W-BEAM & THRIE BEAM

English
 STANDARD DRAWING NO.
G-1-A-4
 SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER
 DATE ORIGINAL SIGNED: APRIL 26, 2006



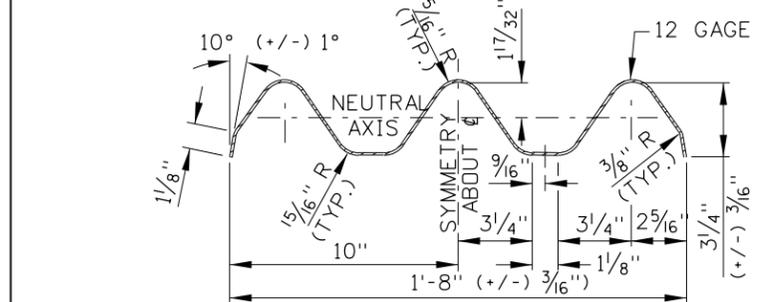
NOTE: THE CENTER POST OF THE SYMMETRICAL TRANSITION ELEMENT REQUIRES A MODIFIED BLOCKOUT WHICH IS DETAILED ON STD. DWG. G-1-E

NOTE: THE CENTER POST OF THE ASYMMETRICAL TRANSITION ELEMENT REQUIRES THE TOP TO BE TRIMMED TO MATCH THE RAIL TOP

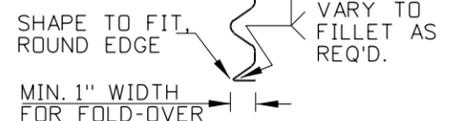
SYMMETRICAL TRANSITION ELEMENT
(ITEM NO. RWT01a-b)

ASYMMETRICAL TRANSITION ELEMENT
(SEE NOTE NO. 7)

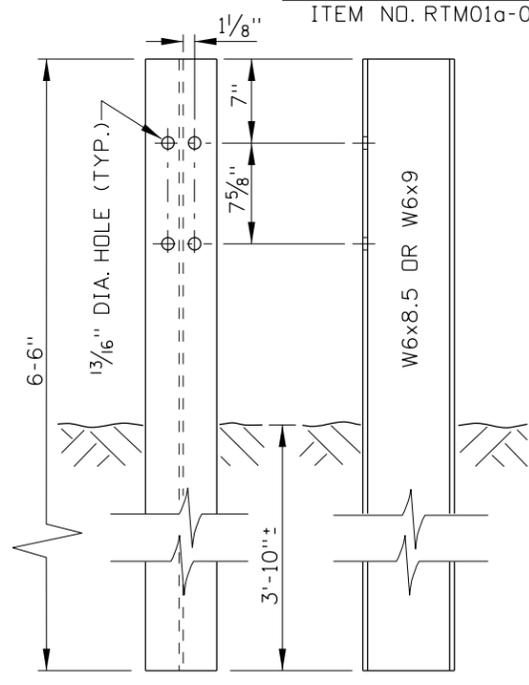
THRIE BEAM TO W-BEAM TRANSITION SECTIONS



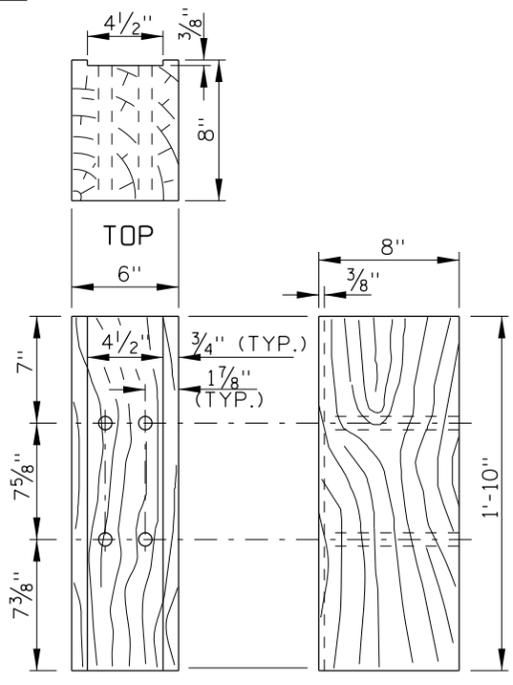
SECTION A-A
THRIE BEAM RAIL
ITEM NO. RTM01a-02b



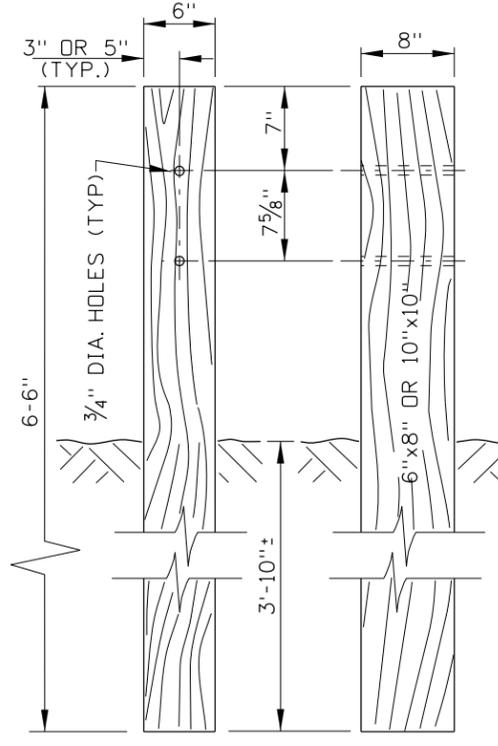
SECTION B-B



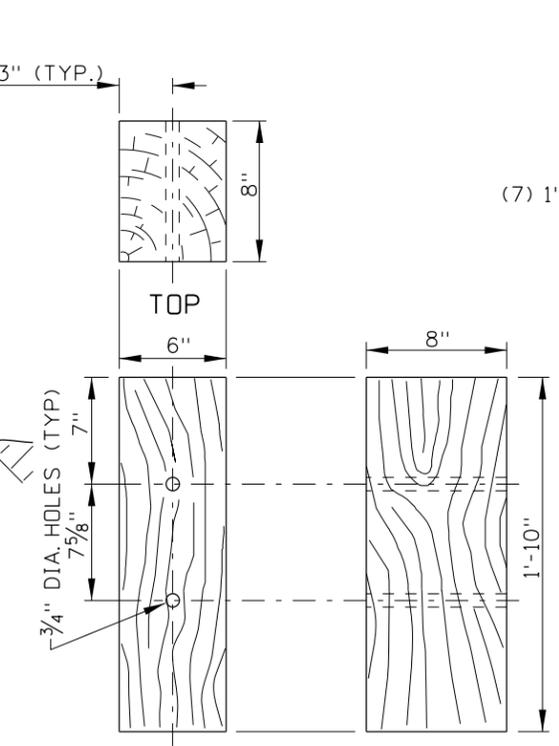
FRONT/BACK SIDE
THRIE BEAM
STANDARD STEEL POST
NCHRP 350,TL-3



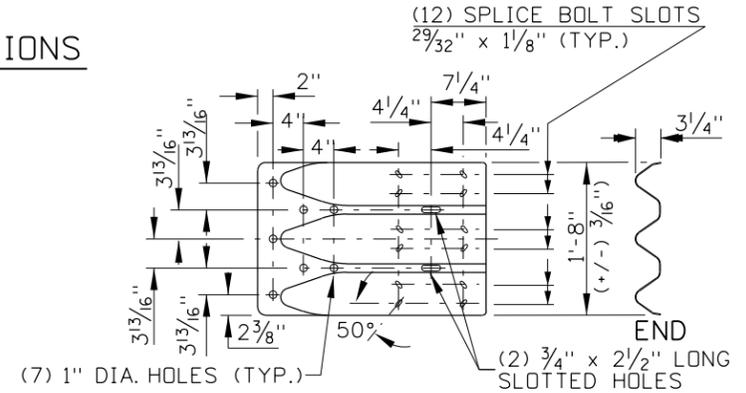
FRONT SIDE
THRIE BEAM
STEEL POST BLOCKOUT
NCHRP 350,TL-3



FRONT SIDE
THRIE BEAM
STANDARD WOOD POST
NCHRP 350,TL-3



FRONT SIDE
THRIE BEAM
WOOD POST BLOCKOUT
NCHRP 350,TL-3



ELEVATION
PLAN
THRIE BEAM TERMINAL
CONNECTOR DETAILS
(ITEM NO. RTE01b)

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	05-07	MSM					
2	10-10	PLR					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1a5_1010.dgn
DRAWING DATE: MAY, 2006

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

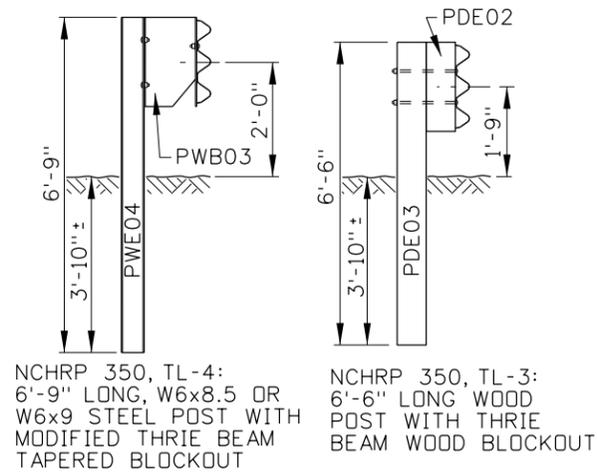
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
THRIE BEAM GUARDRAIL
REQUIRES SHEET 2 OF 2

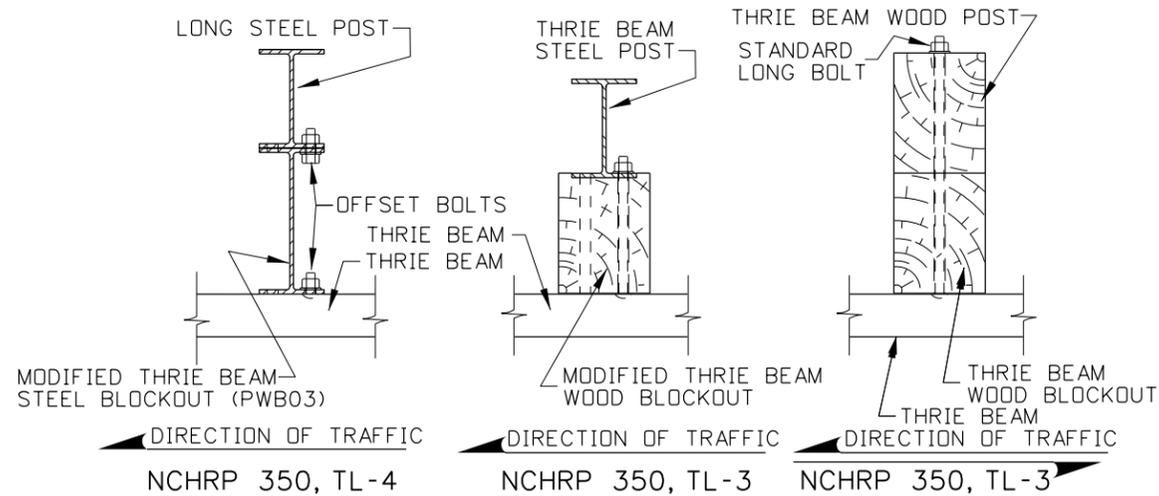
English
STANDARD DRAWING NO.
G-1-A-5
SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

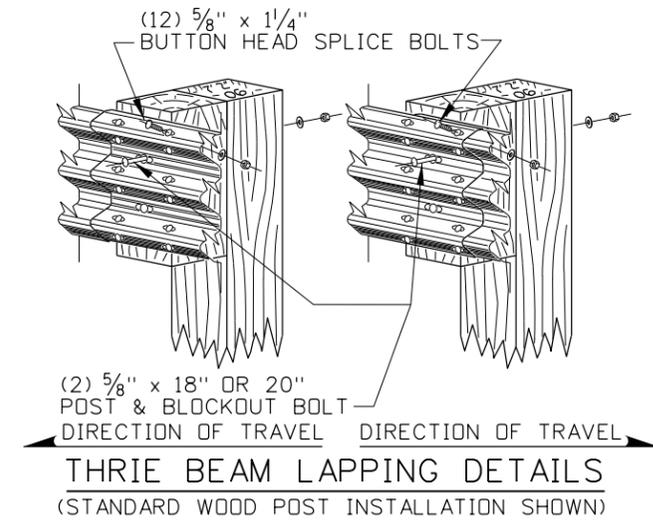
ORIGINAL SIGNED BY:
DATE: TED E. MASON
OCTOBER 26, 2010



NCHRP 350 DETAILS



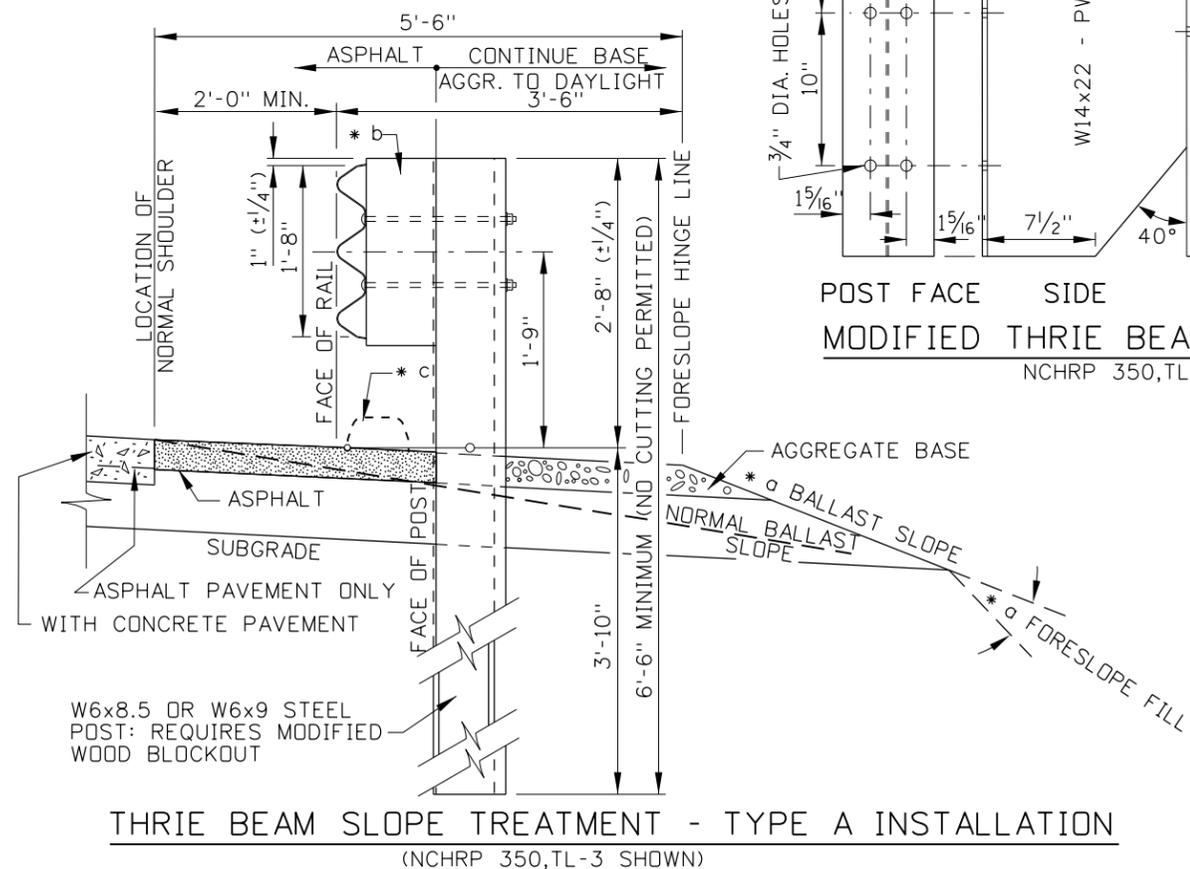
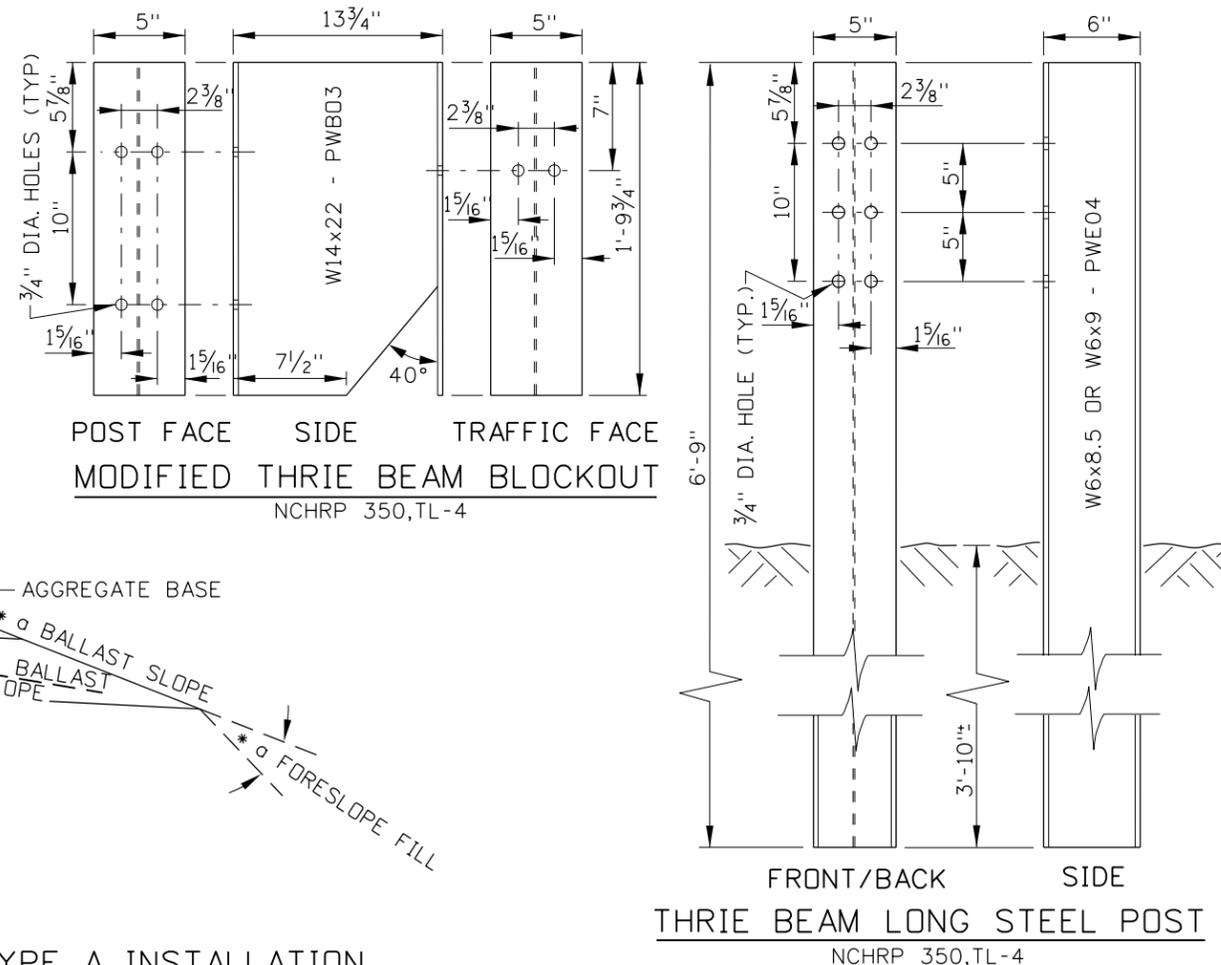
THRIE BEAM BOLTING DETAILS



NOTES

- ALL GUARDRAIL AND ACCESSORIES SHALL CONFORM TO THE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
- THRIE BEAM RAIL AND TERMINAL SECTIONS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M180, CLASS A, TYPE 2 WITH THE EXCEPTION THAT ALL RAIL AND TERMINAL SECTIONS SHALL BE GALVANIZED AFTER FABRICATION WITH FABRICATION TO INCLUDE FORMING, CUTTING, SHEARING, PUNCHING, DRILLING, BENDING, WELDING, AND RIVETING.
- NO TERMINAL HARDWARE OR TERMINAL ACCESSORY SHALL BE FIELD OR OTHERWISE MODIFIED. SLIGHT FIELD FITTING MODIFICATIONS ARE ALLOWED ON STANDARD GUARDRAIL INSTALLATIONS. ANY DRILLING, CUTTING (NOT BY HEAT), OR PUNCHING TO STANDARD GUARDRAIL ITEMS SHALL BE PAINTED WITH TWO COATS OF FORMULA 14-82 ZINC SILICATE PAINT.
- TIMBER POSTS AND BLOCKS SHALL BE TREATED. REFER TO SECTION 710 - TIMBER AND PRESERVATIVES, OF THE "ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION".
- ALL GUARDRAIL SHALL BE LAPPED IN THE DIRECTION OF THE NEAREST TRAFFIC LANE TO PREVENT SNAGGING.
- THE THRIE BEAM ASYMMETRICAL TRANSITION ELEMENT (SEE NOTE NO. 5) SHALL BE FABRICATED FROM A RAW SECTION OF THRIE BEAM GUARDRAIL AND THE TAPERED TOP SHALL BE CUT WITH A METAL SAW (NOT WITH HEAT).
- USE OF OTHER MANUFACTURER'S VERSIONS OF THE ASYMMETRICAL AND SYMMETRICAL THRIE BEAM TRANSITION SECTIONS AS SHOWN ARE ALLOWED; HOWEVER, THE OTHER VERSIONS SHALL HAVE THE SAME SLOT AND HOLE CONFIGURATION AND BE CONSTRUCTED OF A MINIMUM 10 GAGE GALVANIZED STEEL.
- WHEN CURB IS CALLED FOR THE CURB FACE SHALL BE LOCATED ALONG THE FACE OF RAIL (SEE THE "TYPICAL CURB WITH GUARDRAIL INSTALLATION" DETAIL). REFER TO STANDARD DWG. H-1 FOR CURB DETAILS
- WHEN STEEL GUARDRAIL POSTS ARE INSTALLED, THE DATE (MONTH & YEAR) AND POST LENGTH SHALL BE STAMPED IN A CONSPICUOUS PLACE NEAR THE TOP AND BETWEEN THE WEBS OF THE POST. THE CHARACTERS SHALL BE 1/4" TO 3/8" IN HEIGHT.
- THRIE BEAM STEEL GUARDRAIL POSTS SHALL CONFORM TO THE "SPECIFICATIONS" OF THE WIDE-FLANGE GUARDRAIL POST (PWE01-04) IN THE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
- THRIE BEAM GUARDRAIL POSTS MAY BE WOOD OR STEEL. STEEL POSTS AND WOOD POSTS MAY HAVE ONLY WOOD BLOCKOUTS TO COMPLY WITH NCHRP 350, TL-3 REQUIREMENTS. NCHRP 350, TL-4 REQUIRES A 6'-9" STEEL POST AND THE MODIFIED THRIE BEAM (STEEL) BLOCKOUT.
- NOT TO SCALE.

SLOPE REQUIREMENTS (MINIMUM)	
* a	BALLAST SLOPE SAME AS FORESLOPE BUT NOT STEEPER THAN 2:1.
* b	SEE NOTE NO. 11
USE OF CURB	
* c	SEE NOTE NO. 8



REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	05-07	MSM					
2	10-10	PLR					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: g1a5_1010.dgn

DRAWING DATE: MAY, 2006

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

THRIE BEAM GUARDRAIL

REQUIRES SHEET 1 OF 2

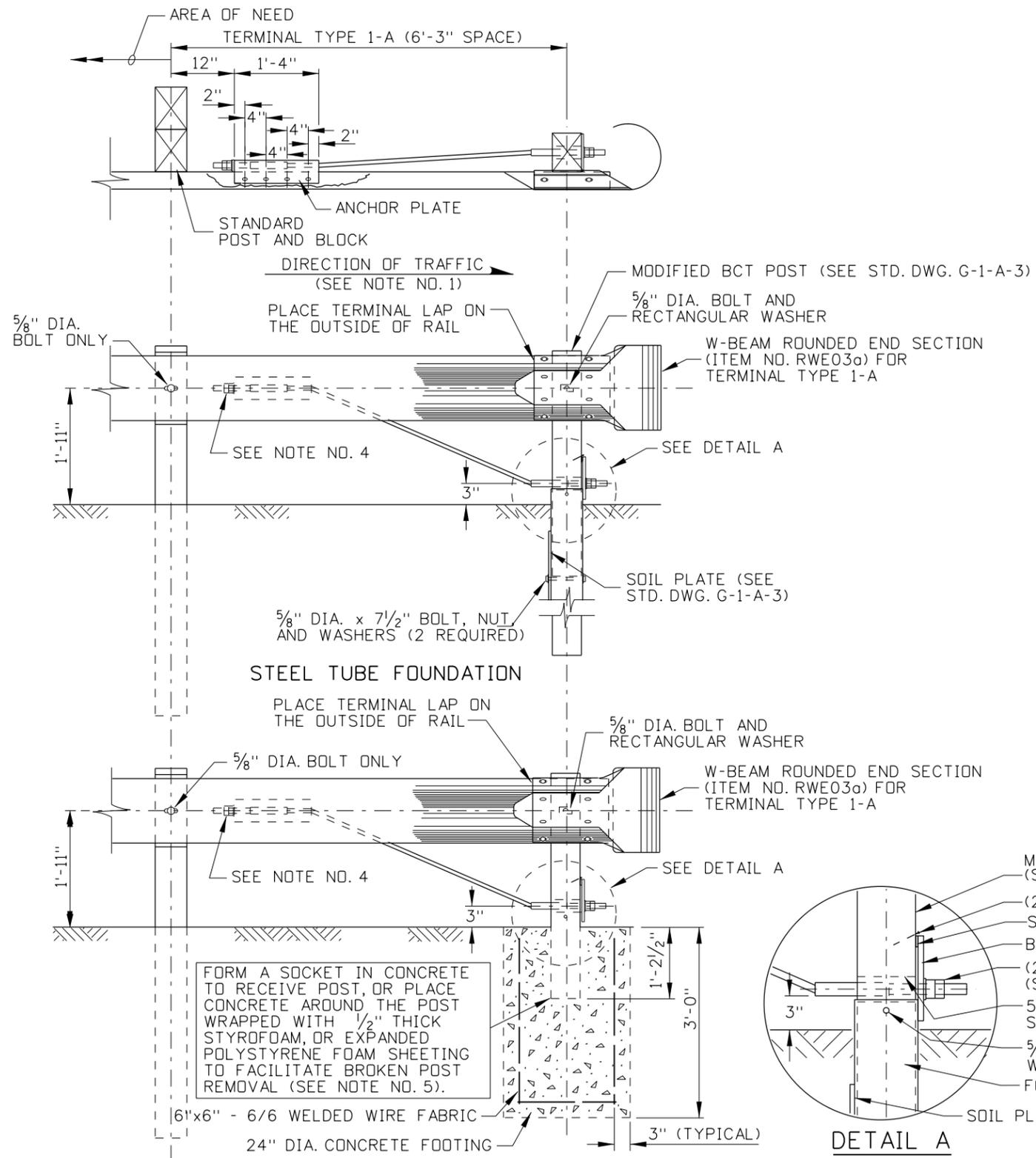
English

STANDARD DRAWING NO. G-1-A-5

SHEET 2 OF 2

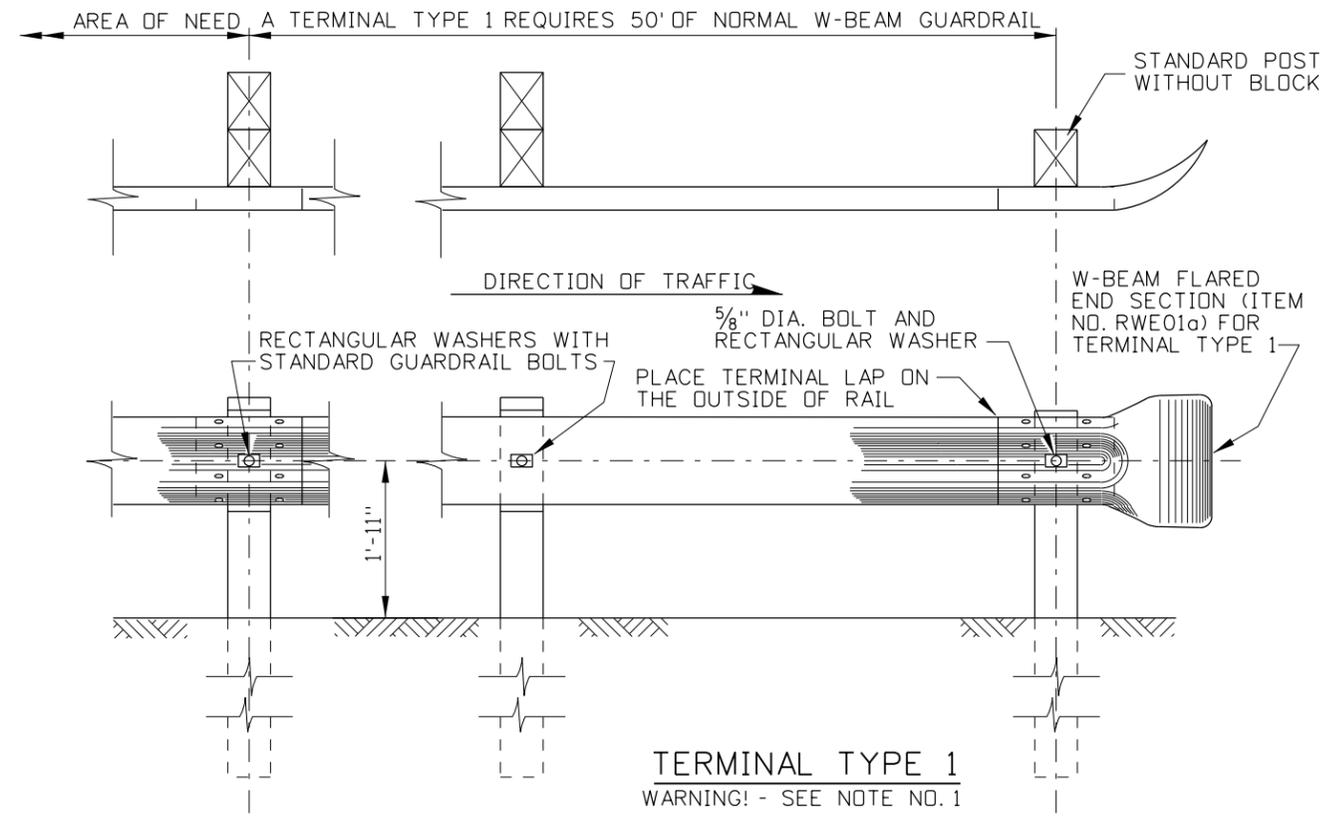
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: DATE: TED E. MASDN OCTOBER 26, 2010



FORM A SOCKET IN CONCRETE TO RECEIVE POST, OR PLACE CONCRETE AROUND THE POST WRAPPED WITH 1/2" THICK STYROFOAM, OR EXPANDED POLYSTYRENE FOAM SHEETING TO FACILITATE BROKEN POST REMOVAL (SEE NOTE NO. 5).

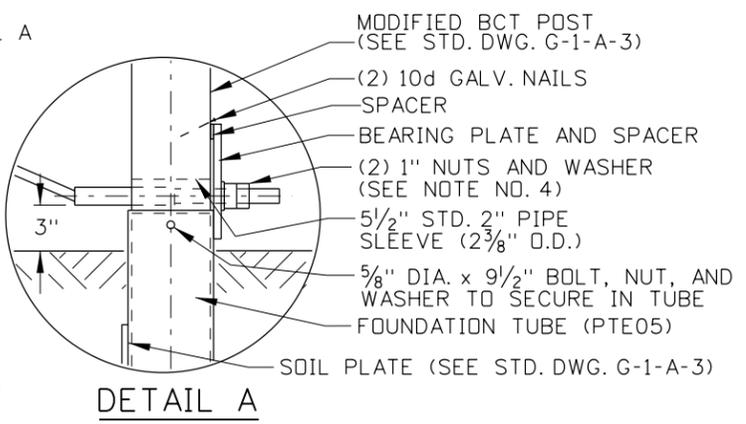
**CONCRETE FOUNDATION
TERMINAL TYPE 1-A**
WARNING! - SEE NOTE NO. 1



TERMINAL TYPE 1
WARNING! - SEE NOTE NO. 1

NOTES

1. THE TYPE 1 AND TYPE 1-A TERMINALS DO NOT MEET ANY NCHRP 350 REQUIREMENTS. THESE TERMINALS MAY ONLY BE USED WHERE NOT EXPOSED TO APPROACHING TRAFFIC.
2. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 FOR W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE AND ACCESSORY SPECIFICATIONS.
3. A MODIFIED BCT POST (SEE STD. DWG. G-1-A-3) IS ACCEPTABLE WHEN THE CONCRETE FOUNDATION IS USED.
4. THE OUTSIDE NUT ON EACH END OF THE ANCHOR CABLE SHALL BE TORQUED TO A MINIMUM OF 100 FT. - LBS. AGAINST THE INSIDE NUT.
5. FILL THE VOID BETWEEN THE INSIDE OF THE FOUNDATION TUBE AND POST WITH EXPANDED RIGID POLYSTYRENE PLASTIC FOAM.
6. NOT TO SCALE.



DETAIL A

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	01-00	MSM					
2	07-03	MSM					
3	12-04	MSM					
4	05-06	MSM					
5	09-10	MGL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1b_1010.dgn
DRAWING DATE: JUNE, 1996

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

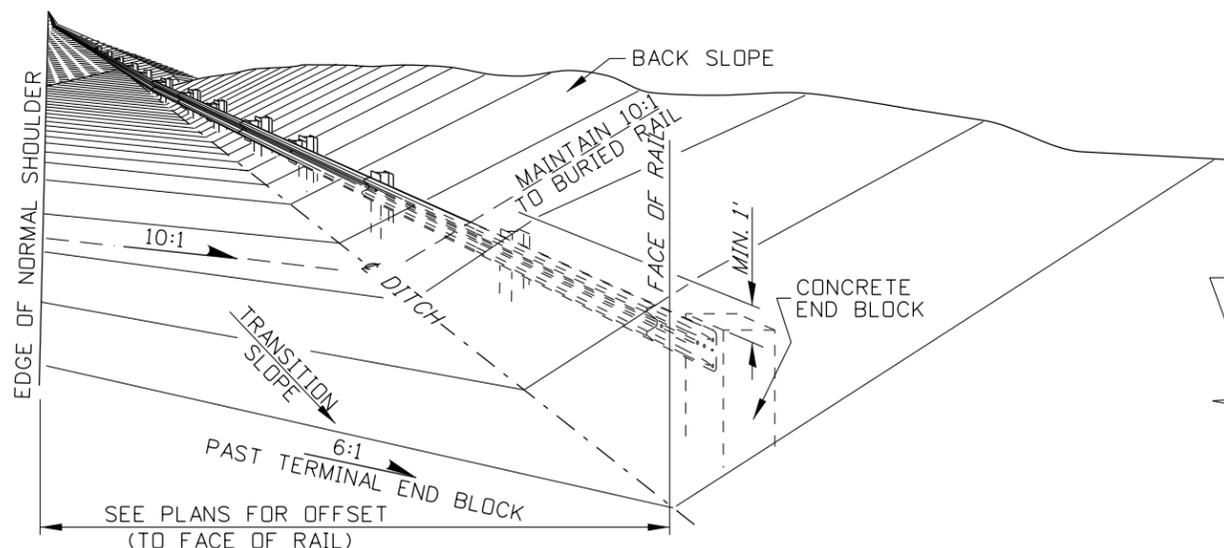
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
**GUARDRAIL TERMINALS
TYPE 1 & 1-A**
REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

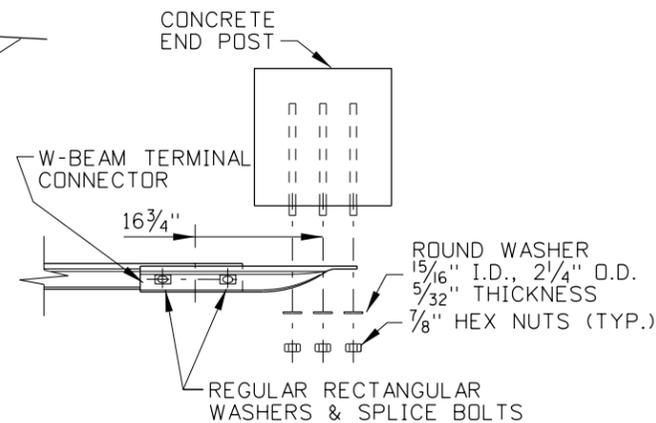
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English
STANDARD DRAWING NO.
G-1-B
SHEET 1 OF 1

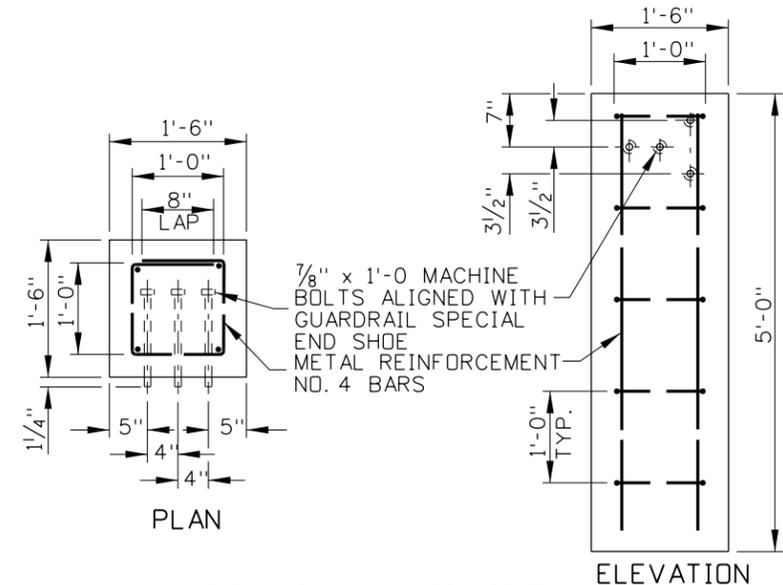
ORIGINAL SIGNED BY:
DATE: TED E. MASDN
OCTOBER 26, 2010



PERSPECTIVE VIEW
(SEE NOTE NO. 7)



POST CONNECTION DETAIL

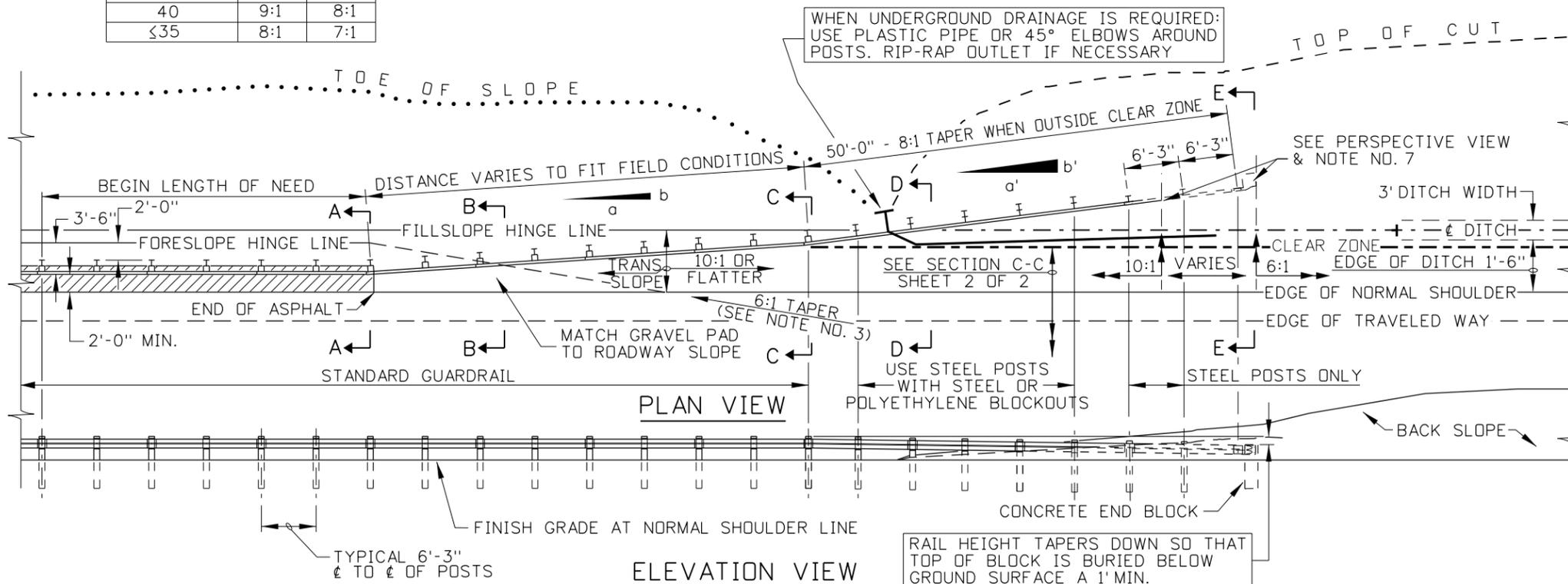


CONCRETE END POST

NOTES

- REFER TO STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 FOR INSTALLATION DETAILS, DETAILS OF GUARDRAIL, GUARDRAIL POSTS, POST BLOCKS, POST SPACING, AND GUARDRAIL BOLTING HARDWARE.
- CARRY THE GUARDRAIL AT THE INITIAL TAPER ($\alpha:b$) WHILE MAINTAINING THE CENTER OF THE RAIL, ALONG THE FACE OF RAIL, AT A HEIGHT OF 1'-11" FROM THE 10:1 ROADWAY FORESLOPE SURFACE. ONCE THE CLEAR ZONE IS TRAVERSED BEGIN THE SECONDARY TAPER ($\alpha':b'$) AND BEGIN TO LOWER THE RAIL SO THAT THE CONCRETE BLOCK WILL HAVE A MINIMUM SOIL COVER OF 1'.
- THE SURFACE BETWEEN THE FORESLOPE HINGE LINE AND THE FILL SLOPE HINGE LINE SHALL TRANSITION FROM THE TRAILING ROADWAY FORESLOPE TO A 10:1 OR FLATTER SLOPE.
- A SIDE DRAIN MUST BE INSTALLED WHERE THE DITCH CANNOT BE GRADED TO DRAIN OR HAS INADEQUATE CAPACITY. TO ACCOMMODATE A SIDE DRAIN PIPE THROUGH THE GUARDRAIL POSTS USE A BURIED FLEXIBLE PLASTIC PIPE OR 45° ELBOWS OF METAL OR CONCRETE PIPE.
- THE CONCRETE END BLOCKS MAY BE PRECAST OR CAST-IN-PLACE.
- THE PAYMENT FOR METAL TERMINAL SECTION TYPE 2 SHALL BE LIMITED TO THE CONCRETE END POST, METAL W-BEAM RUBRAIL, TERMINAL CONNECTOR, POST CONNECTION HARDWARE, AND ANY EXCAVATION AND/OR BACKFILL REQUIRED.
- TRANSITION THE FORESLOPE FROM 10:1 TO 6:1 BETWEEN THE BURIED RAIL PORTION AND THE CONCRETE END BLOCK. WHEN THE DESTINATION FORESLOPE IS LESS THAN 6:1 CONTINUE THE TRANSITION FORESLOPE PAST THE CONCRETE END BLOCK.
- THE PAYMENT FOR METAL TERMINAL SECTION TYPE 2-A SHALL BE LIMITED TO THE CONCRETE END BLOCK, METAL W-BEAM RUBRAIL, TERMINAL END CONNECTOR, POST CONNECTION HARDWARE, AND ANY EXCAVATION AND/OR BACKFILL REQUIRED.
- NOT TO SCALE.

TABLE OF MAXIMUM TAPERS		
DESIGN SPEED (mph)	TAPERS	
	$\alpha:b$	$\alpha':b'$
75	16:1	8:1
70	15:1	8:1
65	14:1	8:1
60	13:1	8:1
55	12:1	8:1
50	11:1	8:1
45	10:1	8:1
40	9:1	8:1
≤35	8:1	7:1



ELEVATION VIEW

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-96	MSM	5	10-04	MSM		
2	08-00	MSM	6	04-06	MSM		
3	06-01	MSM	7	06-07	MSM		
4	07-03	MSM	8	10-10	PLR		
5	10-03	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1c1_1210.dgn
DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

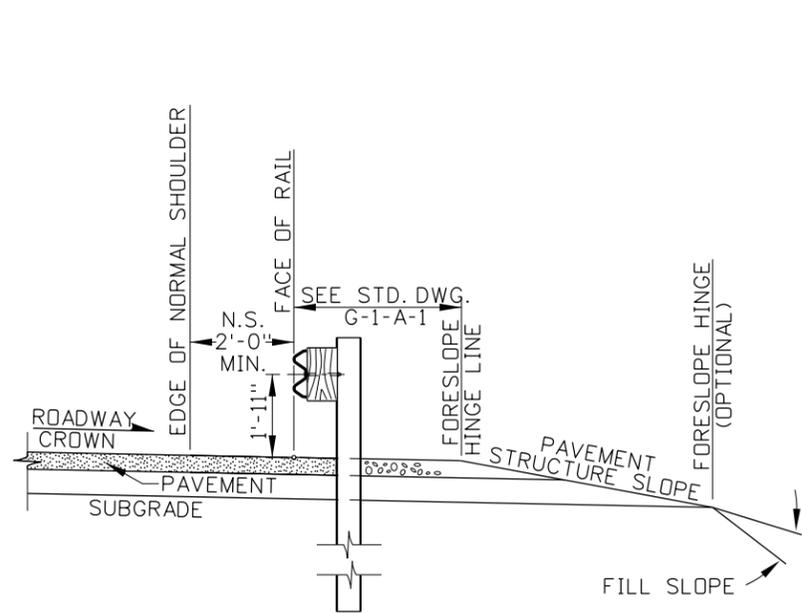
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 2-A, WITH 10:1 OR FLATTER FORESLOPE
REQUIRES SHEET 2 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

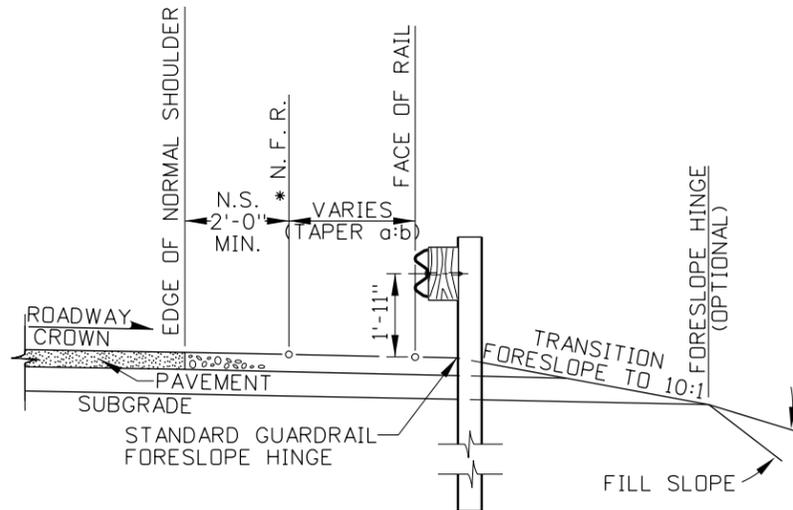
English
STANDARD DRAWING NO.
G-1-C-1
SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

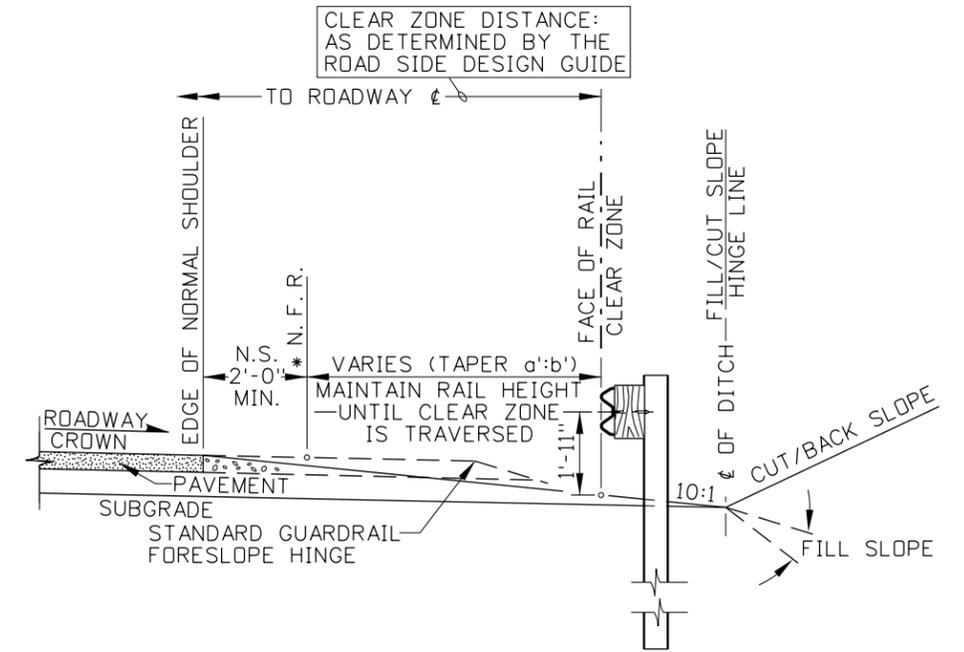
ORIGINAL SIGNED BY:
DATE: TED E. MASDN
DECEMBER 6, 2010



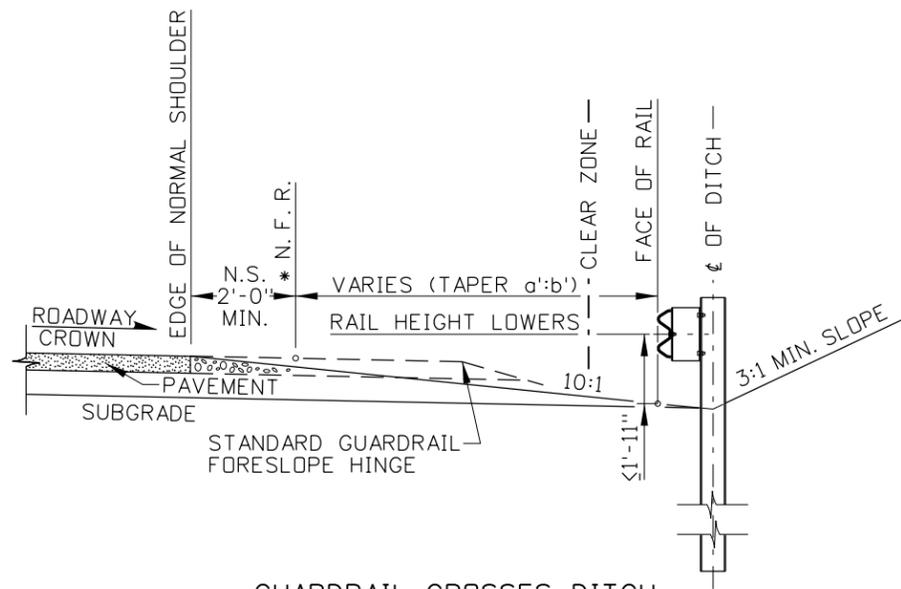
BEGINNING OF INITIAL TAPER
SECTION A-A



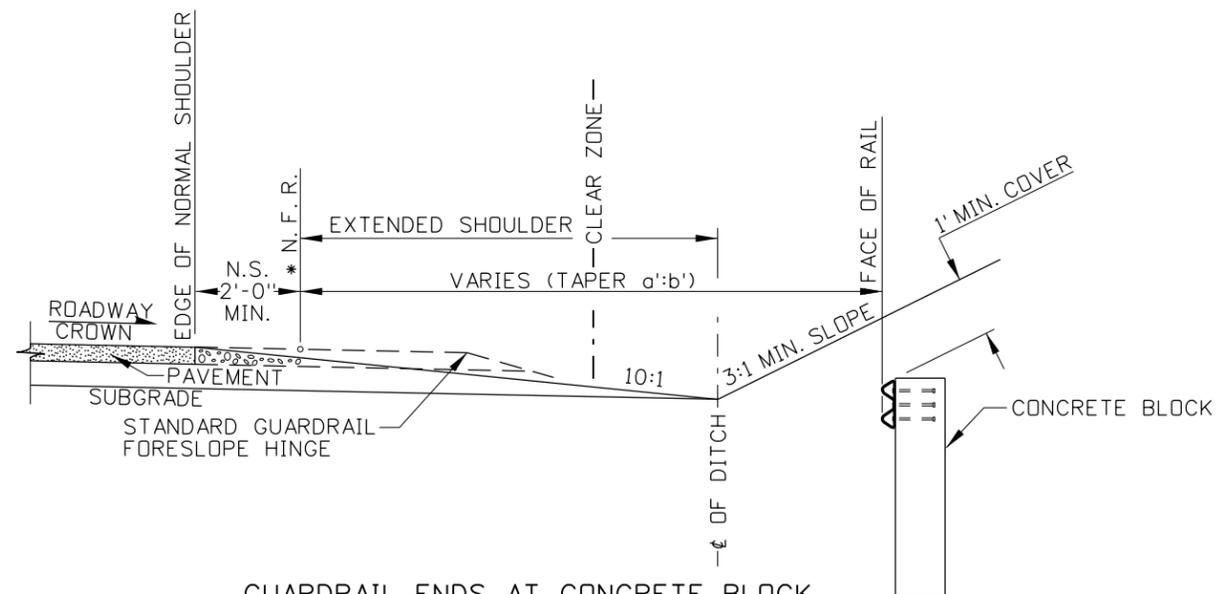
GUARDRAIL ENTERS TRANSITION FORESLOPE
SECTION B-B



BEGINNING OF SECOND TAPER AT CLEAR ZONE
SECTION C-C



GUARDRAIL CROSSES DITCH
SECTION D-D



GUARDRAIL ENDS AT CONCRETE BLOCK
SECTION E-E

SUBNOTES
 * a NORMAL FACE OF RAIL (N. F. R.)
 * b NORMAL SHOULDER (N. S.)

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	02-96	MSM	5	10-04	MSM			
2	08-00	MSM	6	04-06	MSM			
3	06-01	MSM	7	06-07	MSM			
4	07-03	MSM	8	10-10	PLR			
5	10-03	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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 DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

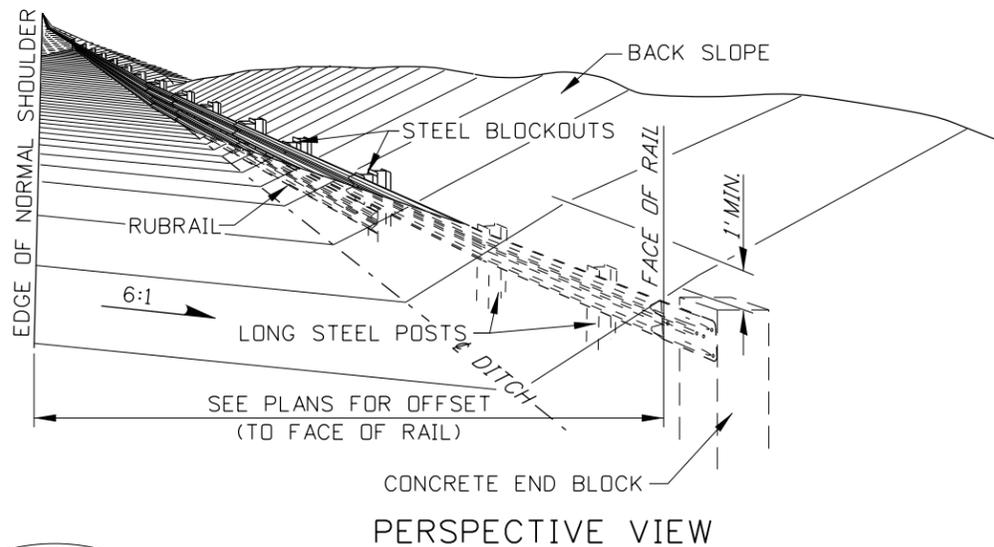
ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 2-A, WITH 10:1 OR FLATTER FORESLOPE
 REQUIRES SHEET 1 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

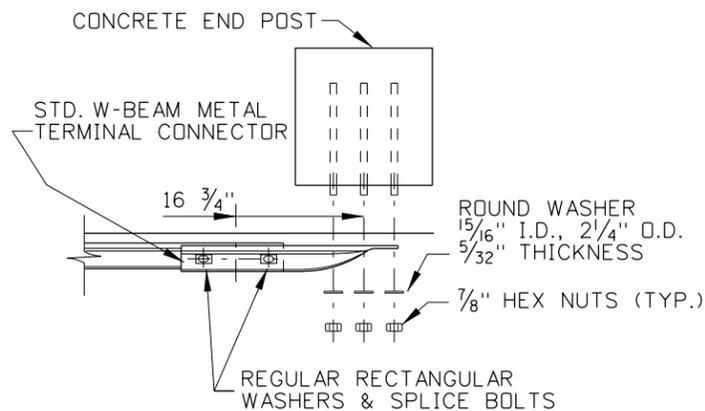
English
 STANDARD DRAWING NO.
G-1-C-1
 SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

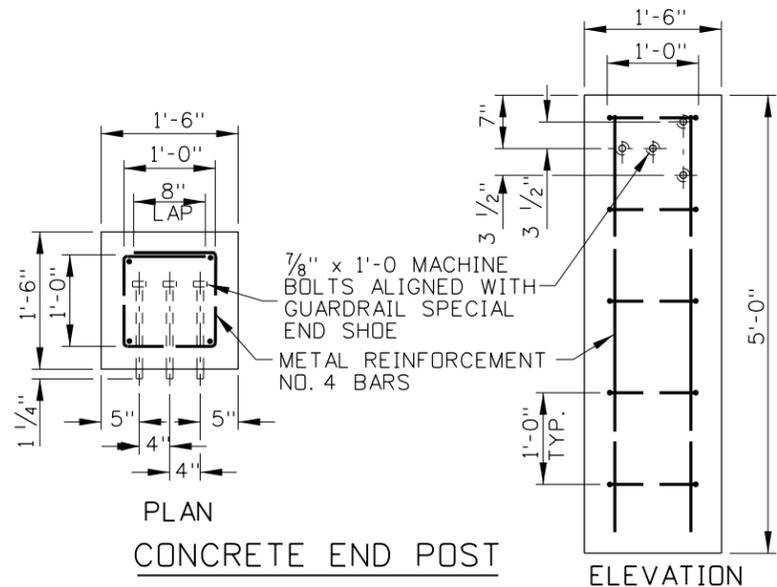
ORIGINAL SIGNED BY:
 DATE: TED E. MASDN
 DECEMBER 6, 2010



PERSPECTIVE VIEW

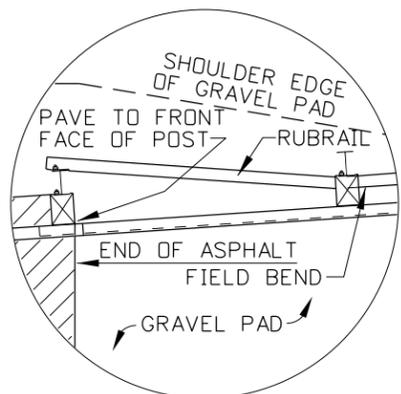


POST CONNECTION DETAIL



NOTES

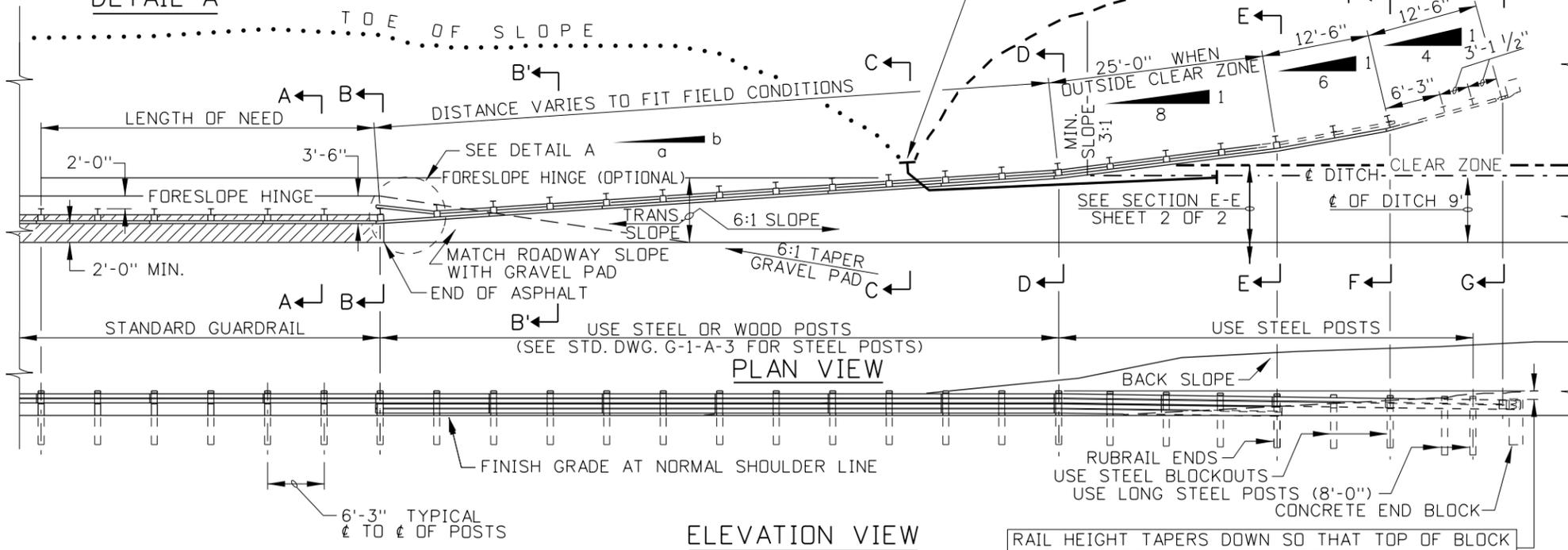
- REFER TO STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 FOR INSTALLATION DETAILS, DETAILS OF GUARDRAIL ACCESSORIES & HARDWARE.
- CARRY THE GUARDRAIL AT THE INITIAL TAPER (a:b) UNTIL THE DITCH IS TRAVERSED, THEN COMMENCE WITH THE SECONDARY TAPERS (8:1, 6:1, & 4:1) FOR 37'-6".
- MAINTAIN THE CENTER OF THE TOP RAIL, ALONG THE FACE OF RAIL, AT A HEIGHT OF 1'-11" FROM A POINT 2'-0" OUTSIDE OF THE NORMAL SHOULDER (THE SAME HEIGHT AS THE TRAILING "STANDARD GUARDRAIL") THROUGH THE INITIAL TAPER (SEE NOTE NO. 5). AT THE COMMENCEMENT OF THE SECONDARY TAPER (8:1) BEGIN TO LOWER THE RAIL SO THAT THE CONCRETE BLOCK WILL HAVE A MINIMUM SOIL COVER OF 1'.
- THE HEIGHT OF THE RUBRAIL, AT THE RUBRAIL CENTER, ALONG THE FACE OF THE RUBRAIL, SHALL NOT EXCEED 2'-0" (+/-) 1/2" FROM THE ROADWAY FORESLOPE (SEE SECTION D-D) AT ANY POINT ALONG THE TERMINAL.
- WHILE MAINTAINING THE HEIGHT OF THE GUARDRAIL AT 1'-11", DO NOT EXCEED THE 2'-0" (+/-) 1/2" HEIGHT OF THE RUBRAIL ABOVE THE ROADWAY FORESLOPE. NOT EXCEEDING THE MAXIMUM HEIGHT OF THE RUBRAIL SHALL TAKE PRECEDENCE OVER THE GUARDRAIL HEIGHT OF 1'-11"; THEREFORE, THE GUARDRAIL SHALL BE LOWERED BELOW THE 1'-11" TO NOT EXCEED THE MAXIMUM 2'-0" (+/-) 1/2" RUBRAIL HEIGHT.
- THE SLOPE OF THE SURFACE BETWEEN THE ROADWAY SHOULDER LINE AND THE HINGE SHALL BE TRANSITIONED FROM THE ADJACENT ROADWAY SLOPE TO A 6:1 OR FLATTER SLOPE.
- A SIDE DRAIN MUST BE INSTALLED WHERE A DITCH CANNOT BE GRADED TO DRAIN THROUGH THE TERMINAL OR HAS INADEQUATE CAPACITY. TO ACCOMMODATE A SIDE DRAIN PIPE THROUGH THE GUARDRAIL POSTS USE A BURIED FLEXIBLE PLASTIC PIPE OR 45° ELBOWS OF METAL OR CONCRETE PIPE.
- THE CONCRETE END BLOCK MAY BE PRECAST OR CAST-IN-PLACE.
- THE PAYMENT FOR METAL TERMINAL SECTION TYPE 2-B SHALL BE LIMITED TO THE CONCRETE END BLOCK, METAL W-BEAM RUBRAIL, TERMINAL END CONNECTOR, POST CONNECTION HARDWARE, AND ANY EXCAVATION AND/OR BACKFILL REQUIRED.
- NOT TO SCALE.



DETAIL A

TABLE OF MAXIMUM TAPERS	
DESIGN SPEED (mph)	TAPER a:b
75	16:1
70	15:1
65	14:1
60	13:1
55	12:1
50	11:1
45	10:1
40	9:1
≤35	8:1

WHEN UNDERGROUND DRAINAGE IS REQUIRED: USE PLASTIC PIPE OR 45° ELBOWS AROUND POSTS. RIP-RAP OUTLET IF NECESSARY



ELEVATION VIEW

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	11-00	MSM	6	09-10	MGL		
2	06-01	MSM					
3	11-03	MSM					
4	09-04	MSM					
5	04-06	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1c2_1210.dgn
DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

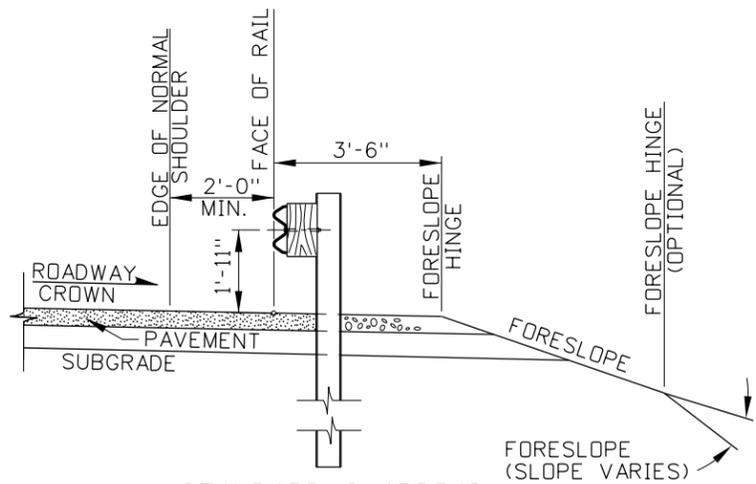
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 2-B, FOR LESS THAN 10:1 TO 6:1 FORESLOPE
REQUIRES SHEET 2 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

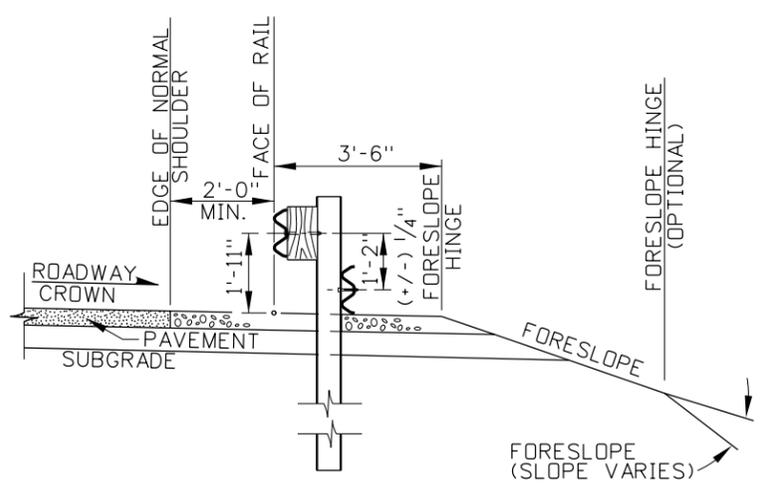
English
STANDARD DRAWING NO.
G-1-C-2
SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

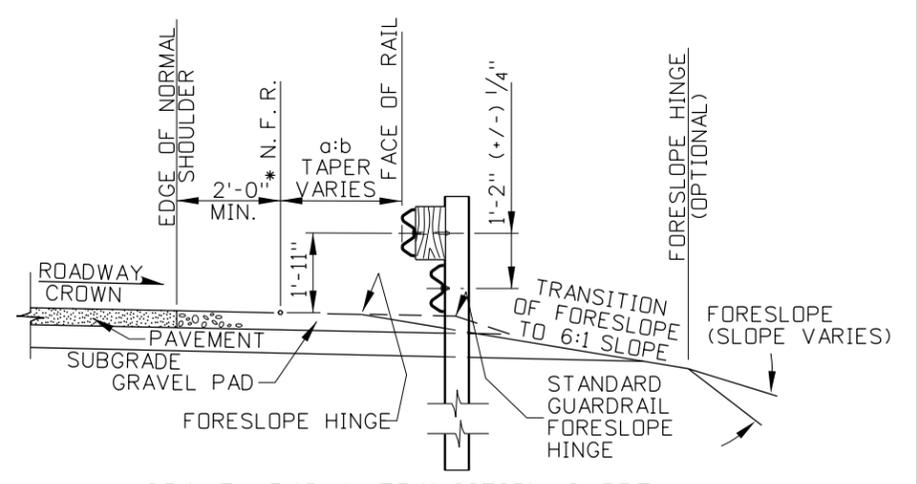
ORIGINAL SIGNED BY:
DATE: TED E. MASDN
DECEMBER 6, 2010



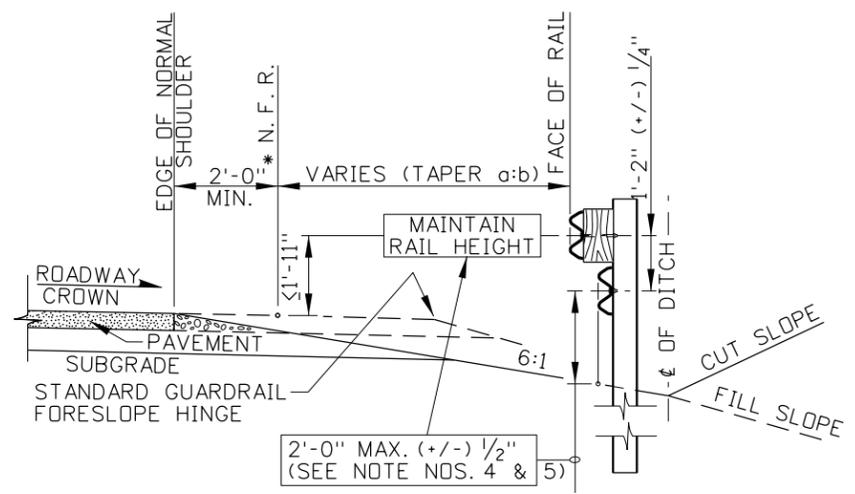
STANDARD GUARDRAIL
SECTION A-A



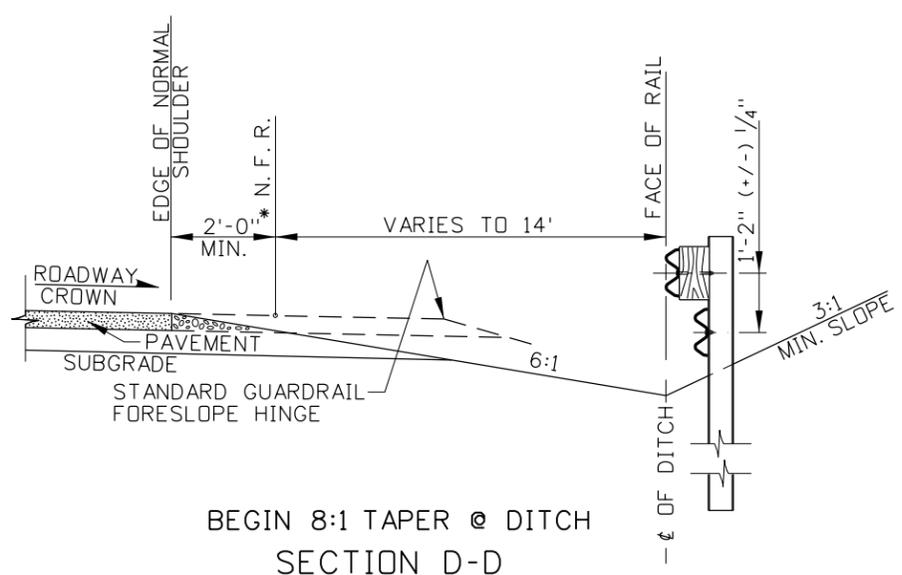
BEGIN RUBRAIL & INITIAL TAPER (a:b)
SECTION B-B



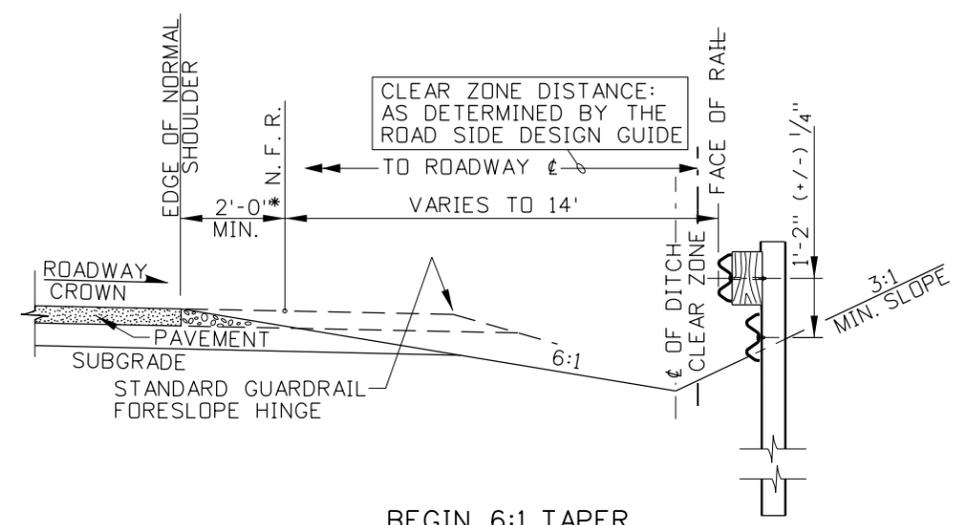
GRAVEL PAD & TRANSITION SLOPE
SECTION B'-B'



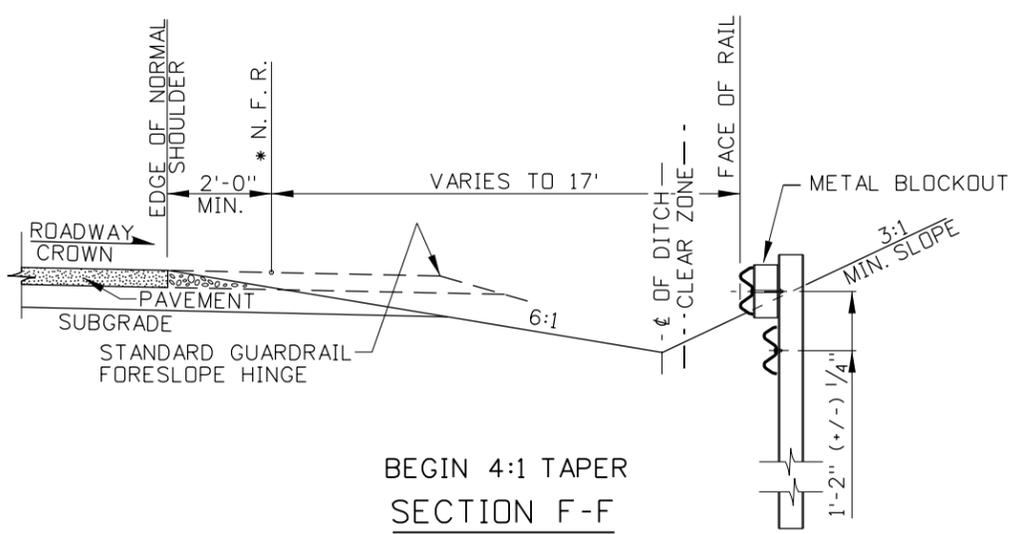
END OF FILL SLOPE/BEGINNING OF CUT SLOPE
SECTION C-C



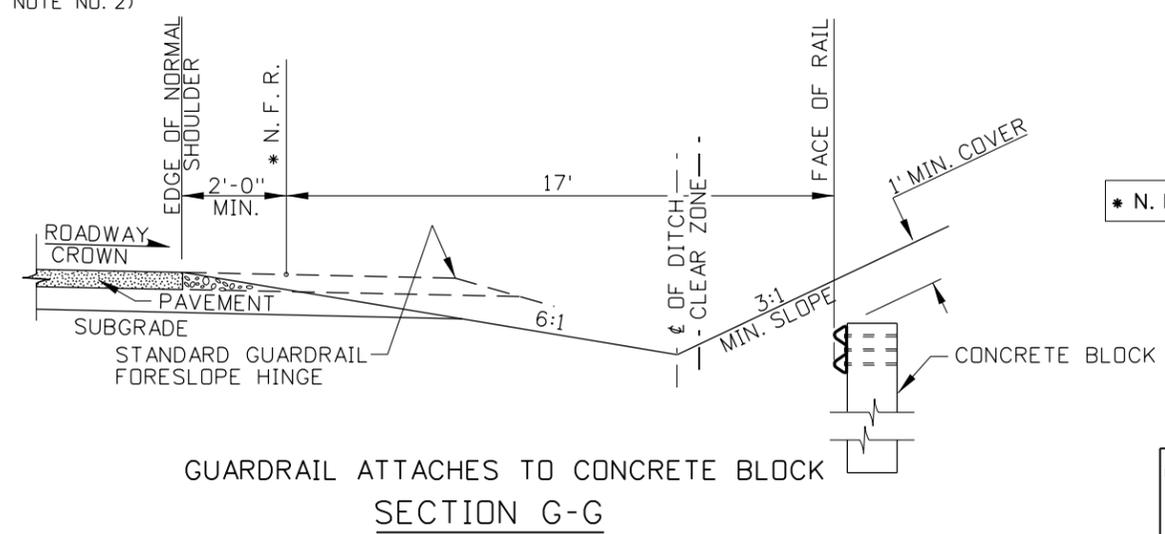
BEGIN 8:1 TAPER @ DITCH
SECTION D-D
(SEE NOTE NO. 2)



BEGIN 6:1 TAPER
SECTION E-E



BEGIN 4:1 TAPER
SECTION F-F



GUARDRAIL ATTACHES TO CONCRETE BLOCK
SECTION G-G

* N. F. R. (NORMAL FACE OF RAIL)

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	11-00	MSM	6	09-10	MGL		
2	06-01	MSM					
3	11-03	MSM					
4	09-04	MSM					
5	04-06	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1c2_1210.dgn
DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 2-B, FOR LESS THAN 10:1 TO 6:1 FORESLOPE
REQUIRES SHEET 1 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

English
STANDARD DRAWING NO.
G-1-C-2
SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

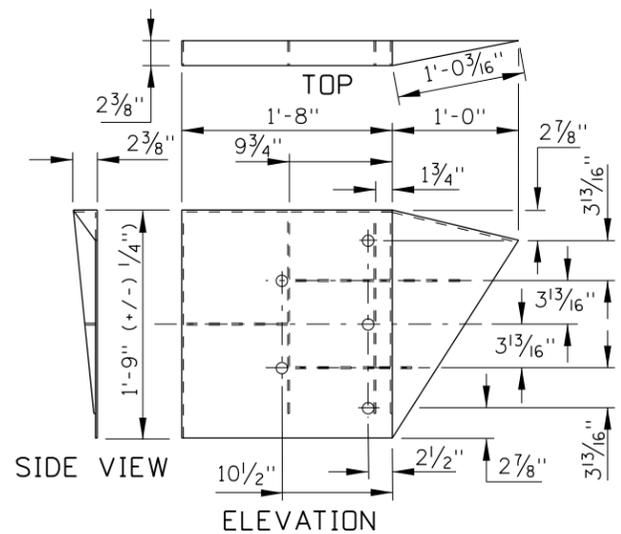
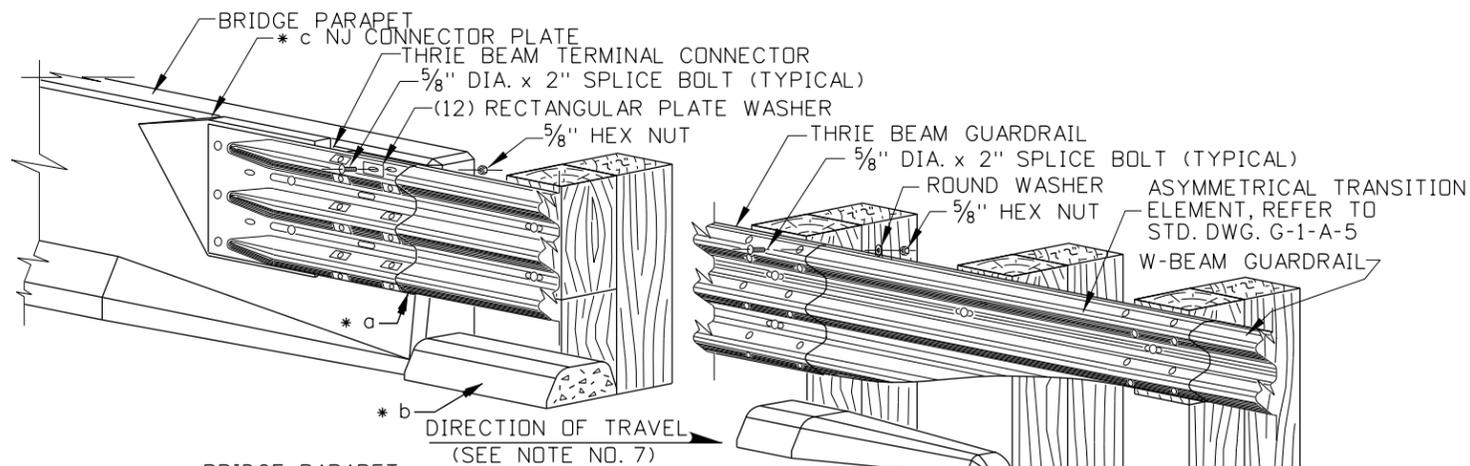
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DATE: ORIGINAL SIGNED: DECEMBER 6, 2010

SPECIFICATION NOTES

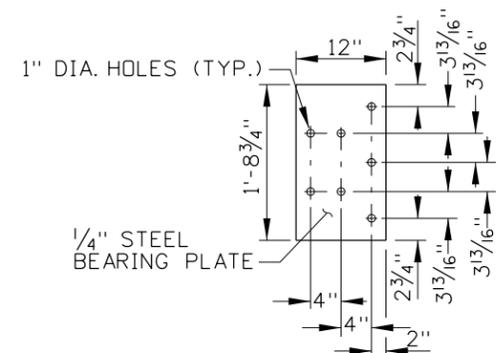
1. ALL STEEL SHALL CONFORM TO ASTM A 36.
2. FLAT PLATE PANELS ARE 3/16" THICK.
3. STIFFENERS ARE 1/4" PLATE STEEL.
4. ALL HOLE DIAMETERS ARE 1".
5. WELD COMPONENTS WITH E60 WELDING ROD.
6. GALVANIZE.

WELDING INSTRUCTIONS

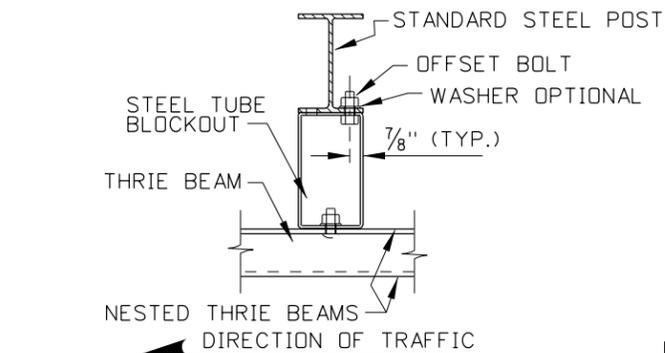
- (I) STIFFENERS LOCATED ON THE OUTSIDE EDGES OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS: 3/16" CONTINUOUS BACK WELD ON EXTERNAL SIDES AND 3/16" FILLET WELD BY 1" LONG SPACE AT 2" ON INTERNAL SIDES.
- (II) STIFFENERS LOCATED ON THE INSIDE OF THE COVER PLATES SHALL BE WELDED AS FOLLOWS: 3/16" FILLET WELD BY 1" LONG SPACED AT 2".
- (III) RECTANGULAR AND TRIANGULAR COVER PLATES SHALL BE WELDED TOGETHER WITH A 3/16" CONTINUOUS BACK WELD ON BOTH SIDES.



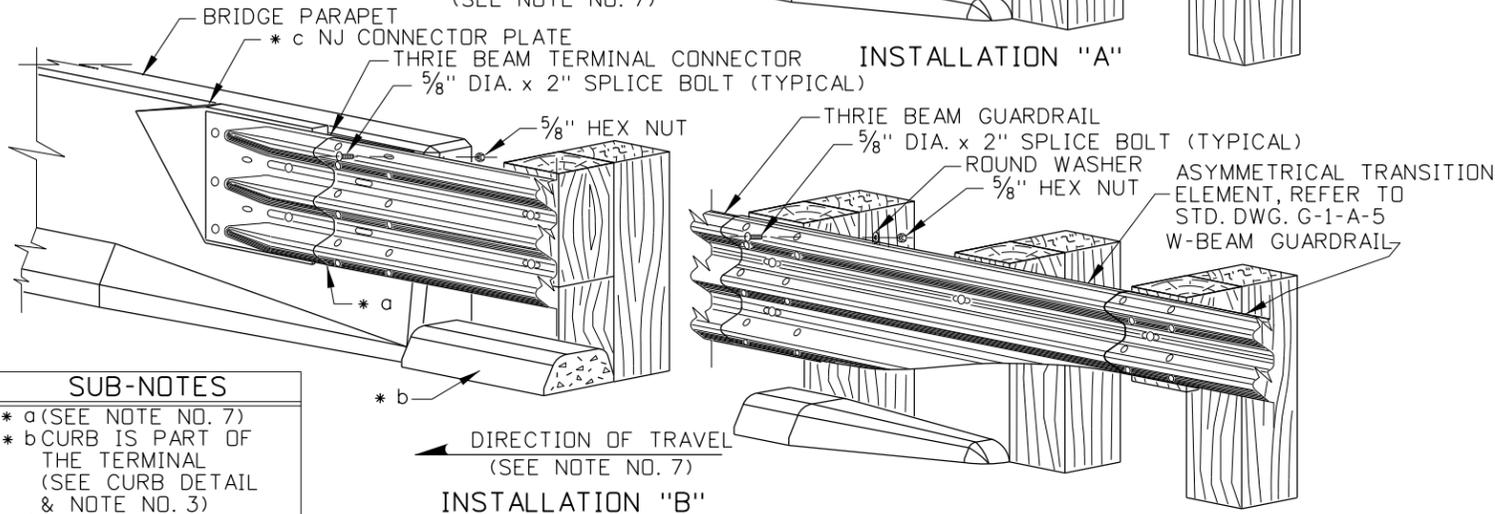
NEW JERSEY CONNECTOR PLATE
(TO BE PLACED ON INSIDE PARAPET FACE ONLY)



THRIE BEAM CONNECTOR PLATE
ITEM NO. FPB07

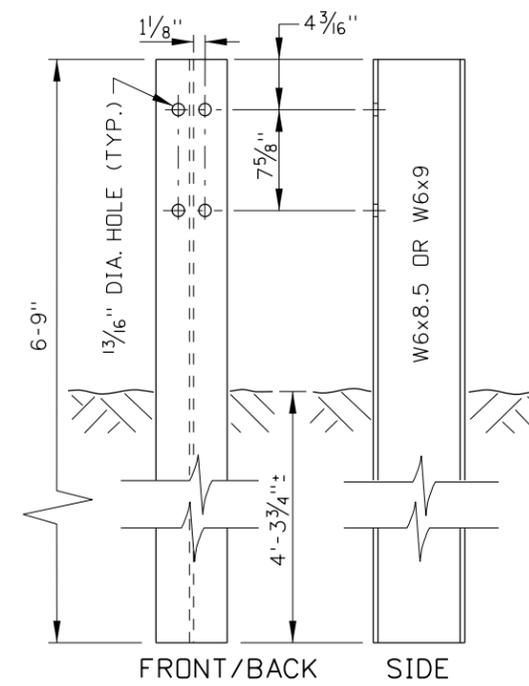


TYPE 3 STL. TUBE BOLTING DETAIL
(SEE NOTE NOS. 10 & 11)

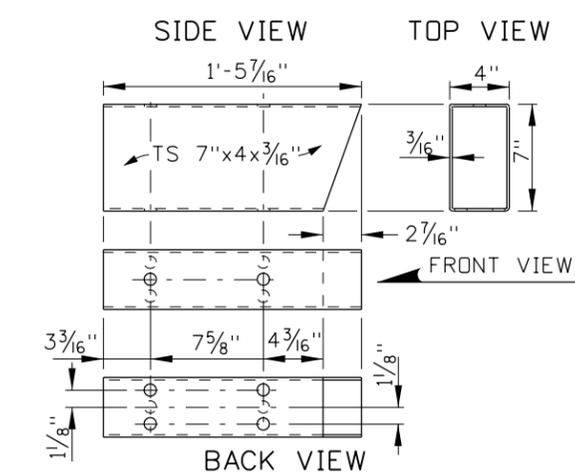


THRIE BEAM TO W-BEAM INSTALLATION
(WOOD POST INSTALLATION SHOWN)

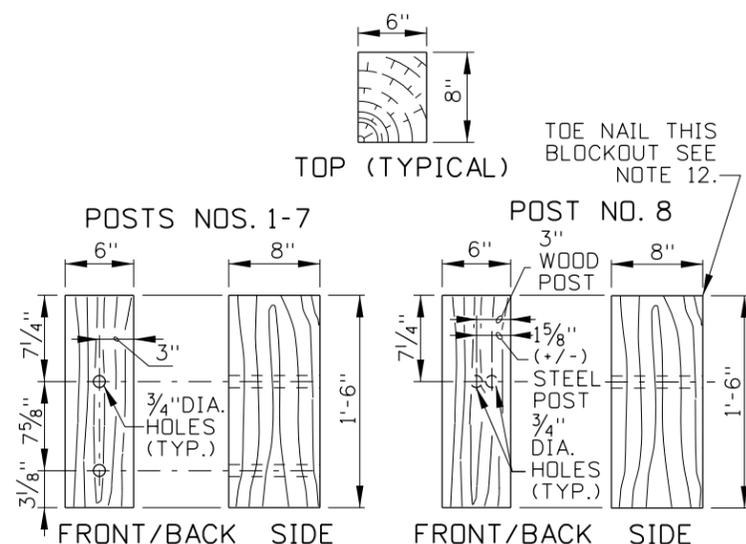
- SUB-NOTES**
- * a (SEE NOTE NO. 7)
 - * b CURB IS PART OF THE TERMINAL (SEE CURB DETAIL & NOTE NO. 3)
 - * c THE NJ CONN. PLATE IS FOR SLANTED PARAPET FACES ONLY



THRIE BEAM TUBE BLOCKOUT
STEEL POST
NCHRP 350, TL-3



TYPE 3 STEEL TUBE BLOCKOUT



TYPE 3 WOOD BLOCKOUT DETAILS

NOTES

1. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-5 AND IS SUBJECT TO THE W-BEAM GUARDRAIL AND THRIE BEAM INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS.
2. ALL THRIE BEAM BARRIER RAIL AND ACCESSORIES SHALL CONFORM TO THE SPECIFICATIONS CONTAINED WITHIN THE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
3. TYPE 3 TERMINALS REQUIRE THE INSTALLATION OF CURB SECTION 10 AT THE BASE AND ALONG THE FACE OF POSTS NO. 1 THRU 7 (SEE STD. DWG. H-1 FOR CURB DETAILS).
4. ALL FIELD DRILLED WOODEN W-BEAM AND THRIE BEAM ACCESSORIES SHALL BE PAINTED WITH AN APPROVED PRESERVATIVE.
5. NO PUNCHING, DRILLING, CUTTING, OR WELDING WILL BE PERMITTED ON ANY METAL W-BEAM, THRIE BEAM OR GALVANIZED ACCESSORY.
6. THE TYPE 3 TERMINAL SHALL BE USED WITH PARAPETS DETAILED ON STANDARD DRAWINGS G-2-C, G-2-D, AND BRIDGE DRAWING TYPE IV STANDARD CONCRETE PARAPET WITH THRIE BEAM GUARDRAIL. REFER TO STANDARD DRAWINGS G-2-C AND G-2-D FOR CONCRETE TRANSITION BARRIER OR CONCRETE TRANSITION PARAPET BARRIER.
7. WHEN ATTACHING THRIE BEAM AND W-BEAM RAIL TO THE SYMMETRICAL TRANSITION ELEMENT LAP THE RAIL IN THE DIRECTION OF THE NEAREST TRAFFIC LANE TO PREVENT SNAGGING.
8. FIELD WARPING THE THRIE BEAM END TO THE SLOPED FACE OF THE CONCRETE PARAPET IS NOT ALLOWED. THE NEW JERSEY CONNECTOR PLATE WITH THRIE BEAM CONNECTOR PLATE SHALL BE USED.
9. ALL THRIE BEAM GUARDRAIL POSTS NOS. 1-7 SHALL BE EITHER WOOD WITH WOOD BLOCKOUTS OR STEEL WITH STEEL TUBE BLOCKOUTS, POST NO. 8 SHALL BE WOOD OR STEEL WITH MODIFIED WOOD BLOCKOUT.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN SCOTT CARNIE
DATE ORIGINAL SIGNED: AUGUST 26, 2011

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
2	06-96	MSM	7	09-03	MSM	12	11-06
3	07-00	MSM	8	11-03	MSM	13	05-07
4	10-00	MSM	9	06-04	MSM	14	11-08
5	06-01	MSM	10	11-04	MSM	15	09-10
6	05-02	MSM	11	04-06	MSM	16	08-11

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1e_0811.dgn
DRAWING DATE: JUNE, 1988

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

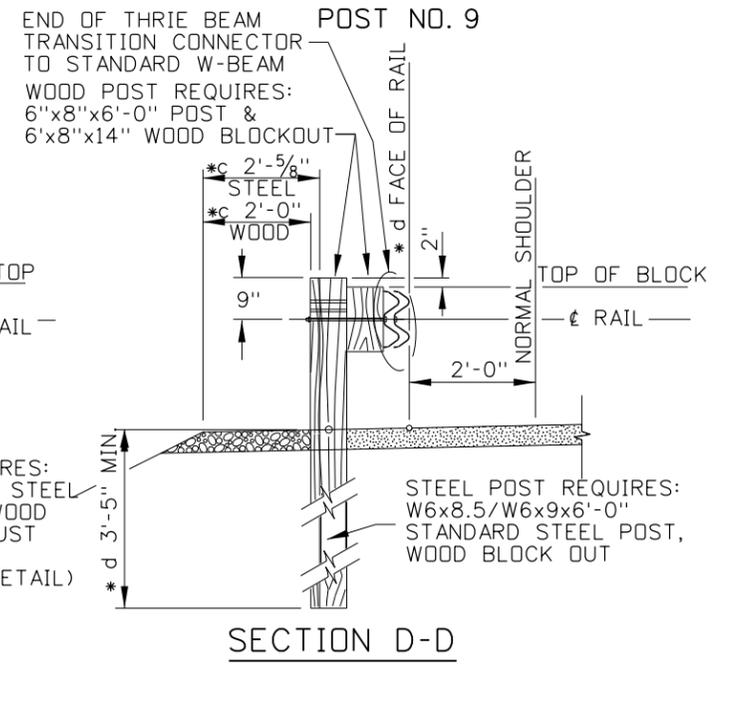
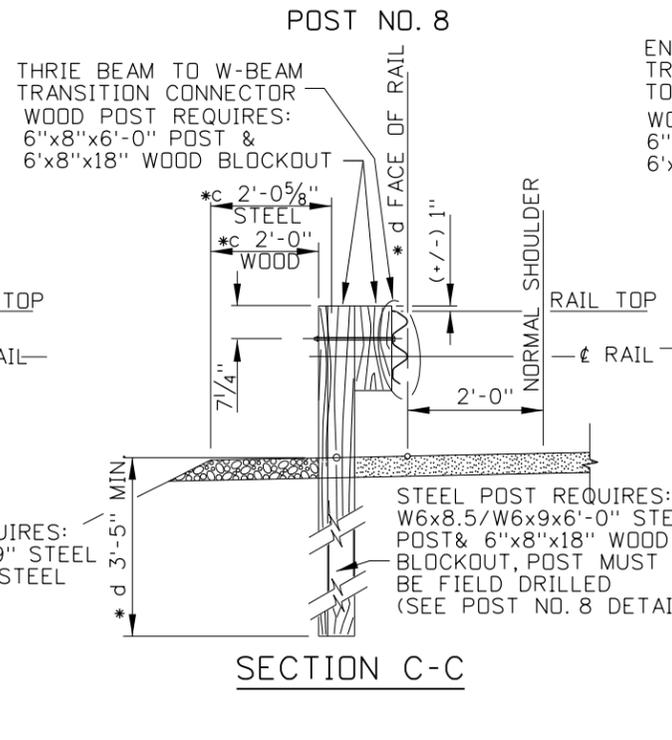
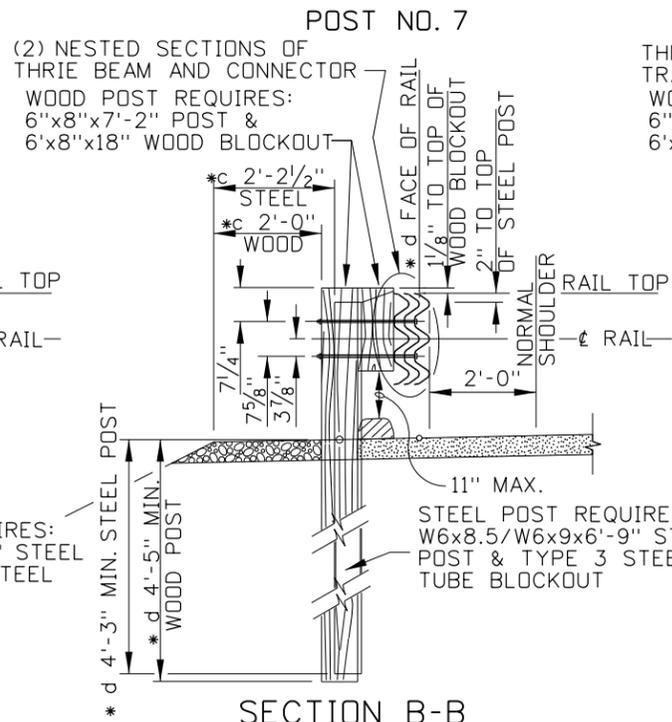
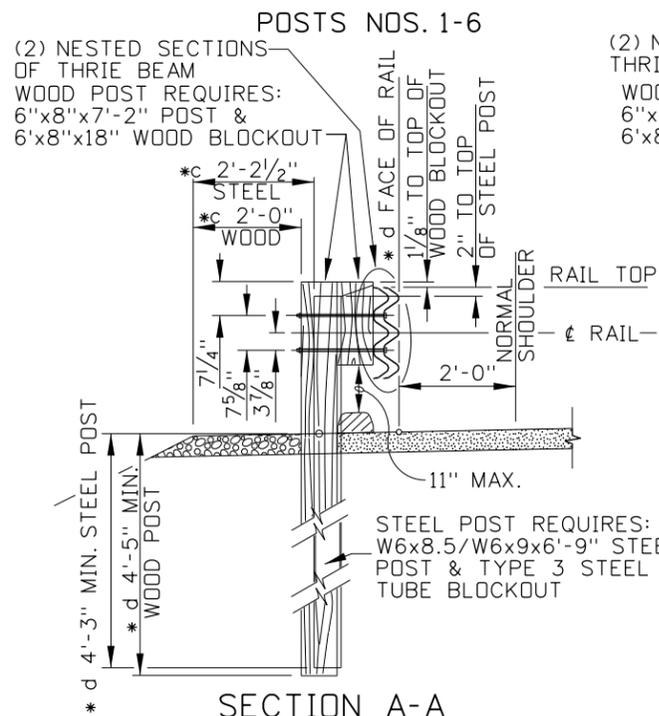
GUARDRAIL TERMINAL TYPE 3

REQUIRES SHEET 2 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-5 & 615-1

English

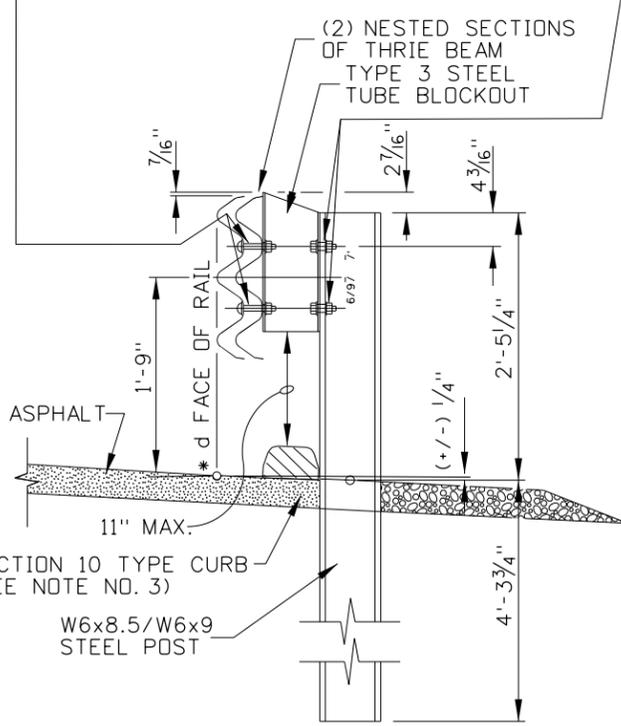
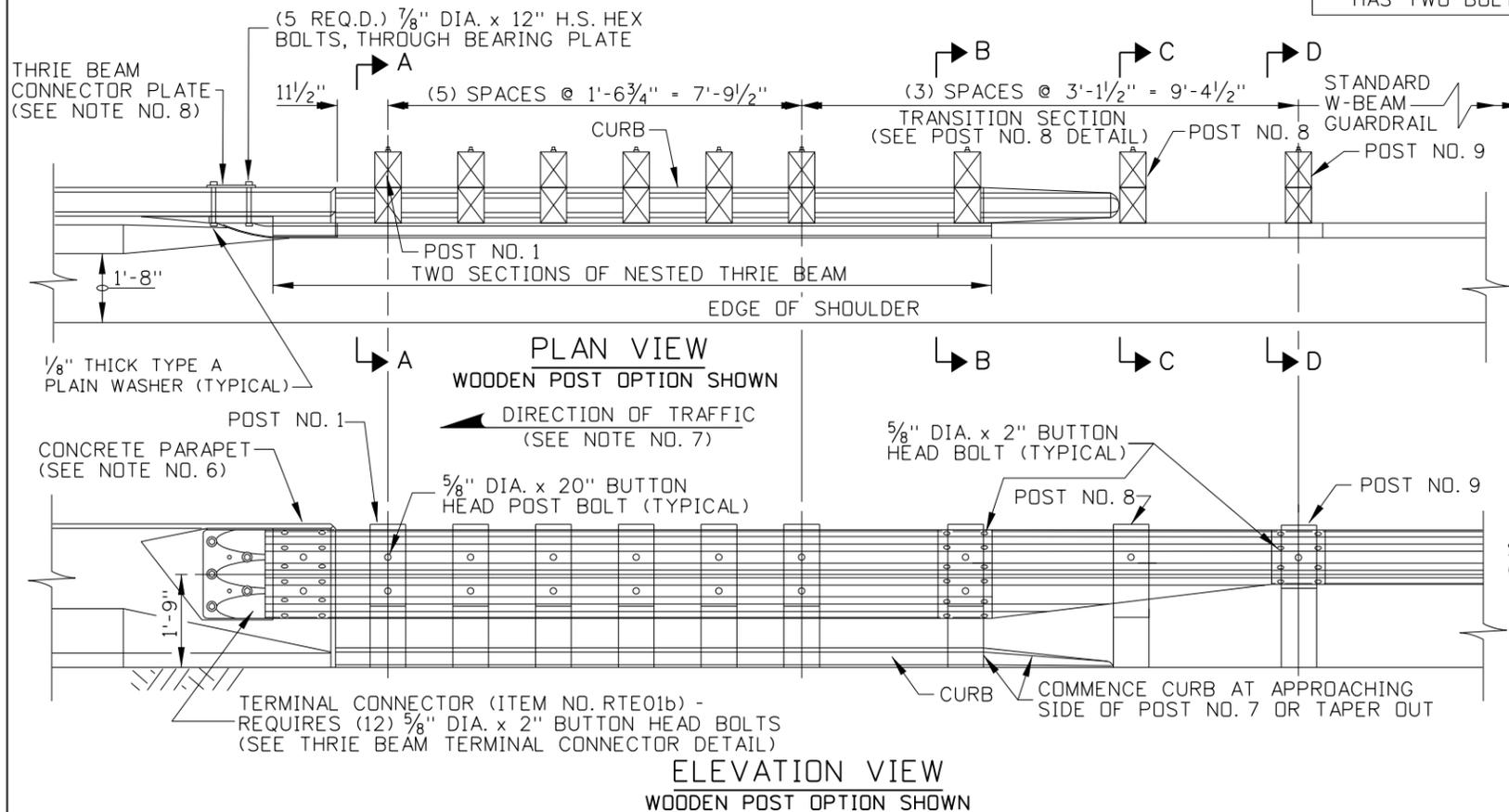
STANDARD DRAWING NO. **G-1-E**

SHEET 1 OF 2



* f (2) 5/8" DIA. x 2 1/2" BUTTON HEAD BOLT EACH ON RAIL SIDE, STEEL WASHER & HEAVY HEX NUT ON BACK OF POST FLANGE, EACH POST HAS TWO BOLT CONNECTIONS.

* f (2) 5/8" DIA. x 1 1/2" HEX HEAD BOLT EACH ON RAIL SIDE, STEEL WASHER & HEAVY HEX NUT ON BACK OF POST FLANGE, EACH POST HAS TWO BOLT CONNECTIONS



- SUB-NOTES**
- * c A TYPE 3 TERMINAL REQUIRES THE TYPE A INSTALLATION ONLY (SEE STD. DWG. G-1-A-1).
 - * d ALL RAIL, POST, & BLOCKOUT MEASUREMENTS ARE MADE ALONG THE "FACE OF RAIL" FROM THE ROADWAY SURFACE, EXCEPT THE POST DEPTH WHICH IS MEASURED FROM WHERE THE INSIDE FACE OF THE POST MEETS THE ROADWAY SURFACE PLANE.
 - * e WHEN LINE POSTS CHANGE FROM WOOD TO STEEL OR STEEL TO WOOD THE POST SPACING MUST BE SHIFTED TO ALIGN WITH THE BOLT HOLES ON THE RAIL.
 - * f RECTANGULAR WASHERS ONLY REQUIRED ON THE TERMINAL CONNECTOR INSTALLATION "A".

- NOTES CONT.**
10. THE BOLT(S) OF THE TYPE 3 STEEL TUBE BLOCKOUT SHALL BE PLACED ON THE APPROACHING TRAFFIC SIDE (SEE TYPE 3 STEEL TUBE BOLTING DETAIL).
 11. STEEL FOR TYPE 3 STEEL TUBE BLOCKOUT SHALL MEET ASTM A 500 GRADE B REQUIREMENTS.
 12. THE WOODEN BLOCKOUTS SHALL BE TOE-NAILED TO THE WOODEN POST WITH 16d GALVANIZED NAILS TO RESTRICT BLOCK ROTATION.
 13. NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
2	06-96	MSM	7	09-03	MSM	12	11-06
3	07-00	MSM	8	11-03	MSM	13	05-07
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5	06-01	MSM	10	11-04	MSM	15	09-10
6	05-02	MSM	11	04-06	MSM	16	08-11

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1e_0811.dgn
 DRAWING DATE: JUNE, 1988

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

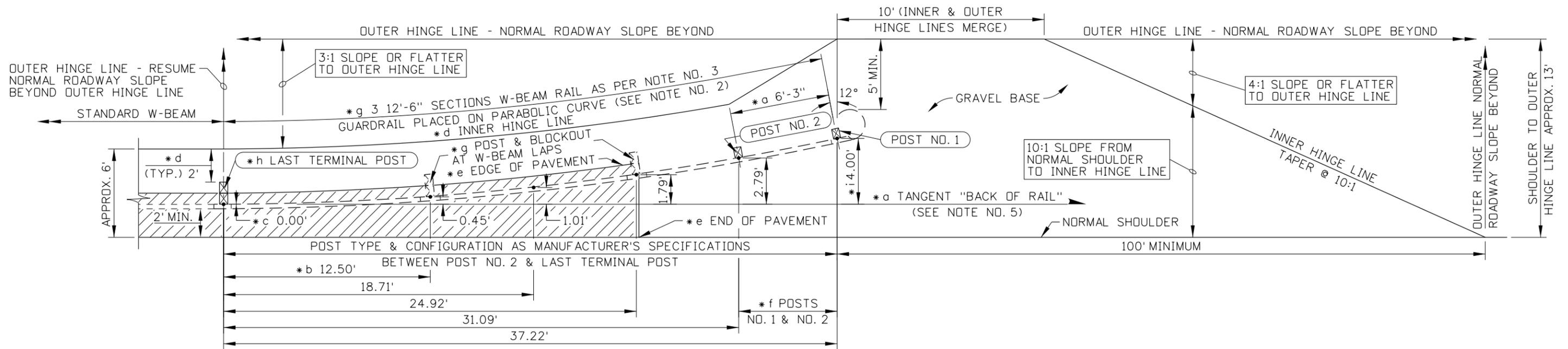
ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 3
 REQUIRES SHEET 2 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-5 & 615-1

English
 STANDARD DRAWING NO.
G-1-E
 SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 RYAN SCOT CARNIE
 DATE: AUGUST 26, 2011

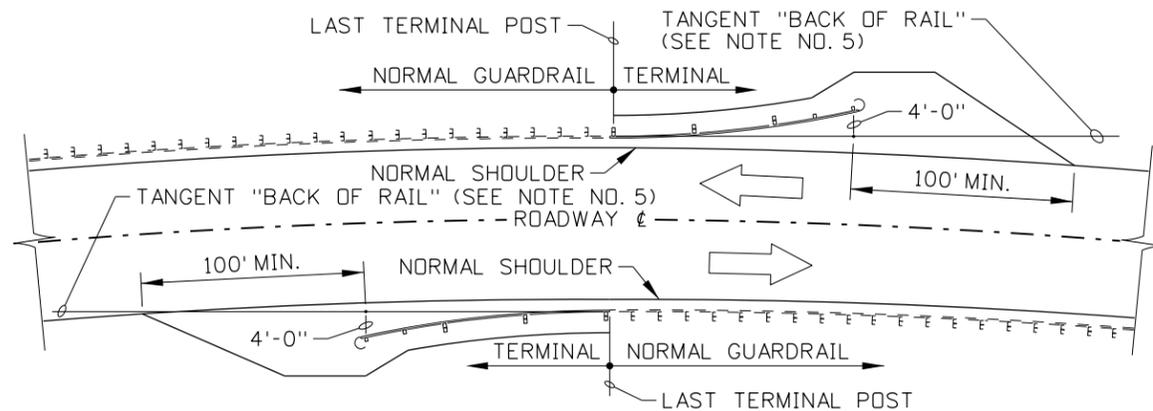


PLAN VIEW

SUB-NOTES	
*a ALL POST SPACING MEASUREMENTS ARE MADE ALONG THE (BACK OF RAIL).	*e PAVE ALONG THE FACE OF THE POSTS TO THE APPROACHING EDGE OF THE SUBSEQUENT POST (POST NO. 3) BEYOND POST NO. 2, THEN RETURN TO THE NORMAL SHOULDER.
*b TANGENT DISTANCE IS MEASURED BEGINNING AT THE LAST TERMINAL POST'S HORIZONTAL CENTERLINE TO A POINT ALONG THE TANGENT (BACK OF RAIL) WHICH CORRESPONDS TO THE RAILS POINT OF OFFSET MEASUREMENT.	*f POSTS NO. 1 & NO. 2 ARE WOODEN BREAKAWAY WITH STEEL FOUNDATION TUBES W/O BLOCKOUTS OR AS MANUFACTURER'S INSTRUCTIONS.
*c OFFSET DISTANCE IS MEASURED FROM THE POINT ALONG THE TANGENT (BACK OF RAIL). TO A POINT ON THE BACK OF THE CURVED TERMINAL RAIL (SEE SUB-NOTE "*b").	*g POST & BLOCKOUT REQUIRED AT GUARDRAIL LAPS.
*d THE INNER HINGE LINE IS 2' BEHIND THE BACK OF THE GUARDRAIL TERMINAL POSTS (NOTE: POST NO. 2 HAS NO BLOCKOUT USE 2'-7 1/2").	*h THE LAST TERMINAL POST - BEGIN STANDARD GUARDRAIL INSTALLATION (SEE STD. DWGS. G-1-A-1 THROUGH G-1-A-4).
	*i USE OF THE 3.00' OFFSET IS NOT ALLOWED. WITH A TYPE 5 TERMINAL. IN A LIMITED SPACE SITUATION USE A TYPE 10 TERMINAL (SEE STD. DWG. G-1-M).

NOTES

1. TERMINAL TYPE 5 ALTERNATES "A" AND "B" ARE INTERCHANGEABLE AND ARE TO BE INSTALLED AT THE INSTALLERS DISCRETION. SEE STANDARD DRAWING G-1-F-2 FOR TERMINAL TYPE 5 ALTERNATE "B".
2. THE TERMINAL TYPE 5 ALTERNATE "A" MUST FOLLOW THE PARABOLIC CURVE SHOWN AND THE TOTAL LAYOUT MUST MEET OR EXCEED THE PERFORMANCE CRITERIA SET FORTH IN NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350, TL-3 "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE OF HIGHWAY FEATURES".
3. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 AND IS SUBJECT TO THE W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS. FOR ERECTION DETAILS AND INFORMATION SPECIFIC TO THIS TERMINAL SEE THE INFORMATION PROVIDED BY THE MANUFACTURER.
4. THE OUTSIDE NUT ON EACH END OF THE ANCHOR CABLE SHALL BE TORQUED TO A MINIMUM OF 100 FT.-LBS. AGAINST THE INSIDE NUT (OUTSIDE NUTS NOT SUPPLIED WITH PROPRIETARY TERMINAL).
5. WHEN A TERMINAL TYPE 5 ALTERNATE "A" IS CONSTRUCTED ON A HORIZONTAL CURVE, PLACE THE TERMINAL OFF OF THE "TANGENT (BACK OF RAIL)". DO NOT PLACE THE TYPE 5 TERMINAL TYPE "A" ON THE INSIDE OF A GREATER THAN 8° HORIZONTAL CURVE.
6. NOT TO SCALE.



CURVED ROADWAY TERMINAL PLACEMENT

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: MILDRED L. MILLER
DATE ORIGINAL SIGNED: MAY 2, 2006

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	05-96	MSM	6	10-04	MSM			
2	06-97	MSM	7	05-06	MSM			
3	08-98	MSM						
4	01-00	MSM						
5	01-03	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: g1f1_0506.dgn

DRAWING DATE: APRIL, 1995

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING

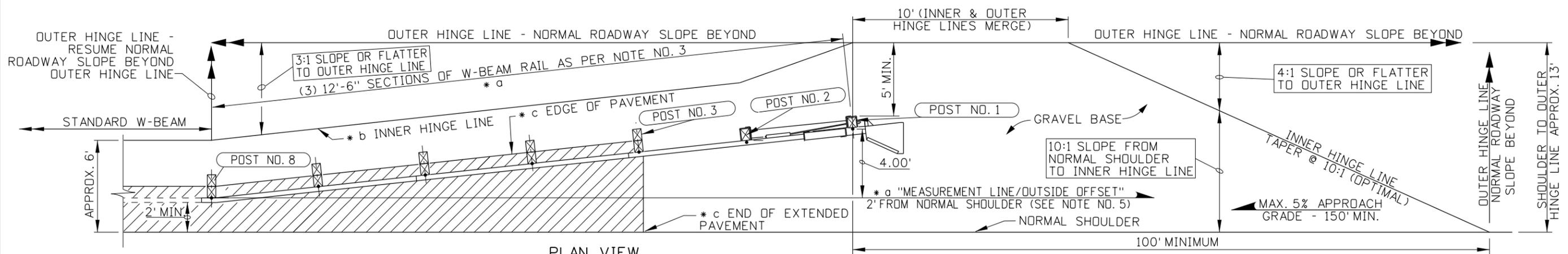
GUARDRAIL TERMINAL TYPE 5 ALTERNATE "A"

REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

English

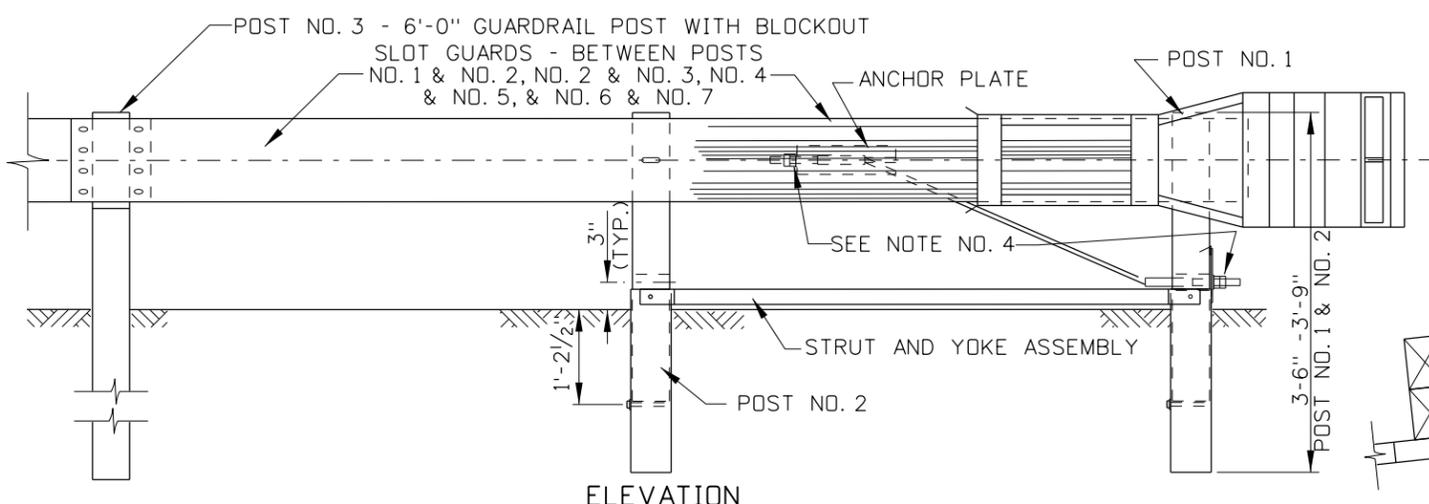
STANDARD DRAWING NO. **G-1-F-1**

SHEET 1 OF 1

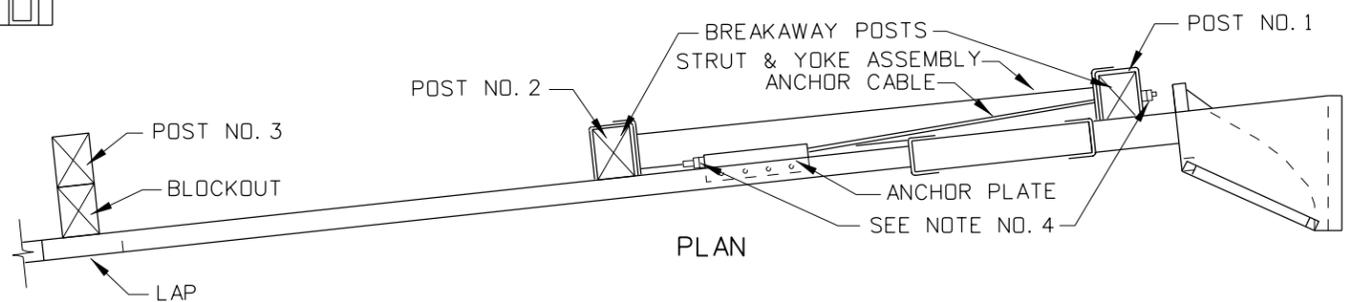


PLAN VIEW

- * a INSTALLATION OF POST SPACING REFER TO MANUFACTURES SPECIFICATIONS PER APPROVED LIST.
- * b THE INNER HINGE LINE IS 2' BEHIND THE BACK OF GUARDRAIL POSTS NO. 3 THROUGH NO. 8 (2'-7 1/2" FOR POST NO. 2)
- * c PAVE ALONG THE FACE OF THE POSTS TO THE EDGE OF POST NO. 3 THEN RETURN TO THE NORMAL SHOULDER.



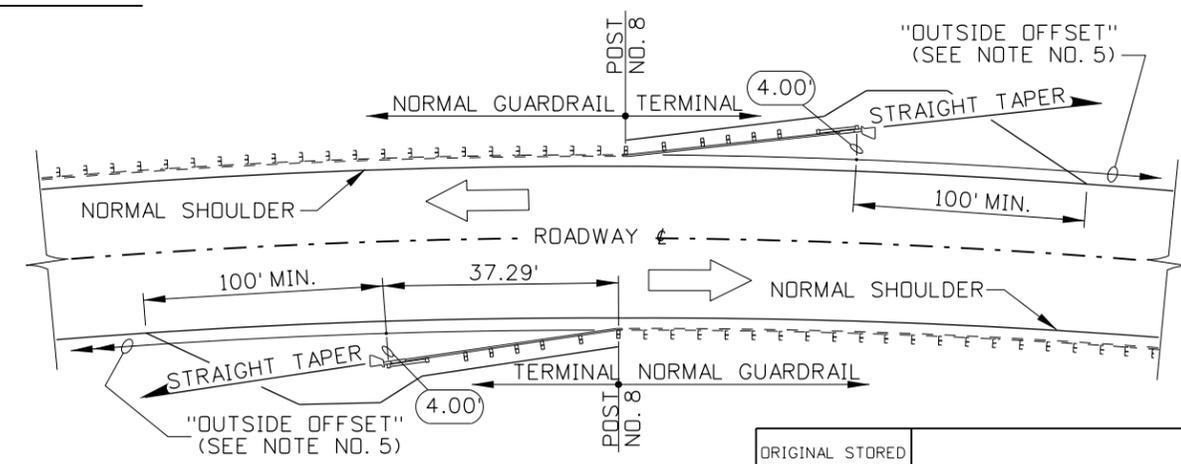
ELEVATION



BUFFERED END & ANCHORAGE ASSEMBLY

NOTES

1. TERMINAL TYPE 5 ALTERNATE "A" AND "B" ARE INTERCHANGEABLE AND ARE TO BE INSTALLED AT THE INSTALLERS DISCRETION. SEE STANDARD DRAWING G-1-F-1 FOR TERMINAL TYPE 5 ALTERNATE "A".
2. THE TERMINAL TYPE 5 ALTERNATE "B" FOLLOWS A STRAIGHT TAPER AS SHOWN AND THE TOTAL LAYOUT MUST MEET OR EXCEED THE PERFORMANCE CRITERIA SET FORTH IN NATIONAL COOPERATIVE RESEARCH PROGRAM REPORT 350, TL-3 "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE OF HIGHWAY FEATURES".
3. FOR INSTALLATION DETAILS OF GUARDRAIL, POSTS, BLOCKOUTS, AND FITTINGS REFER TO STANDARD DRAWING G-1-A-1 THROUGH G-1-A-4. FOR ERECTION DETAILS SPECIFIC TO THIS AND OTHER TERMINALS SEE THE INFORMATION PROVIDED BY THE MANUFACTURER.
4. THE OUTSIDE NUT ON EACH END OF THE ANCHOR CABLE SHALL BE TORQUED TO A MINIMUM OF 100 ft. - lbs. AGAINST THE INSIDE NUT (OUTSIDE NUTS NOT SUPPLIED WITH PROPRIETARY TERMINAL).
5. WHEN A TERMINAL TYPE 5 ALTERNATE "B" IS CONSTRUCTED ON A HORIZONTAL CURVE, USE THE ALTERNATE METHOD DESCRIBED IN ITEM "* d" FOR ESTABLISHMENT OF THE POST PLACEMENTS. POST NO. 1 IS 4.00' OUTSIDE OF THE "OUTSIDE OFFSET", 2' OUTSIDE OF THE NORMAL SHOULDER. DO NOT PLACE THE TERMINAL TYPE 5 ALTERNATE "B" ON THE INSIDE OF A GREATER THAN 8° HORIZONTAL CURVE.
6. NOT TO SCALE.



CURVED ROADWAY TERMINAL PLACEMENT

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: TED E. MASON
DATE ORIGINAL SIGNED: OCTOBER 26, 2010

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	01-03	MSM					
2	10-04	MSM					
3	05-06	MSM					
4	09-10	MGL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1f2_1010.dgn
DRAWING DATE: FEBRUARY, 2000

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

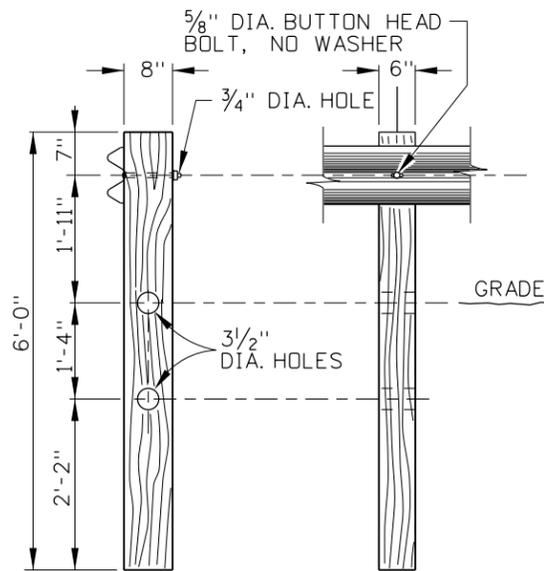
GUARDRAIL TERMINAL TYPE 5 ALTERNATE "B"

REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

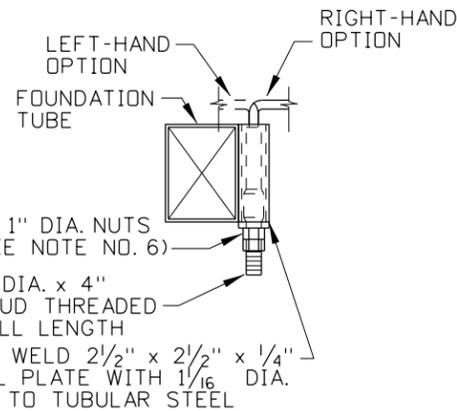
English

STANDARD DRAWING NO.
G-1-F-2

SHEET 1 OF 1



MODIFIED CRT TIMBER POST



ANCHOR DETAIL
(SEE NOTE NO. 9)

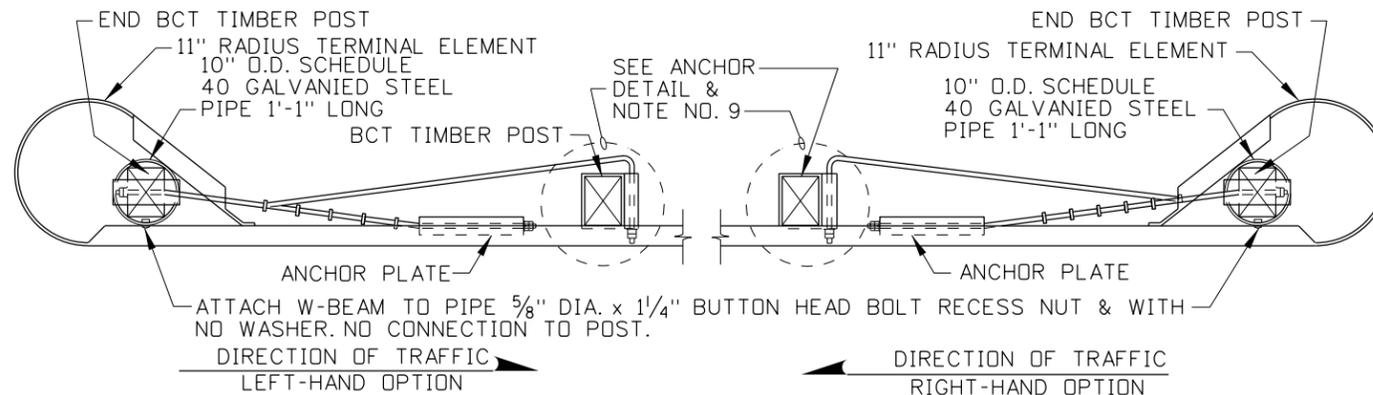


TABLE OF MAXIMUM TAPERS

DESIGN SPEED	TAPER
70	15:1
60	13:1
50	11:1
40	9:1

PLACEMENT TABLE

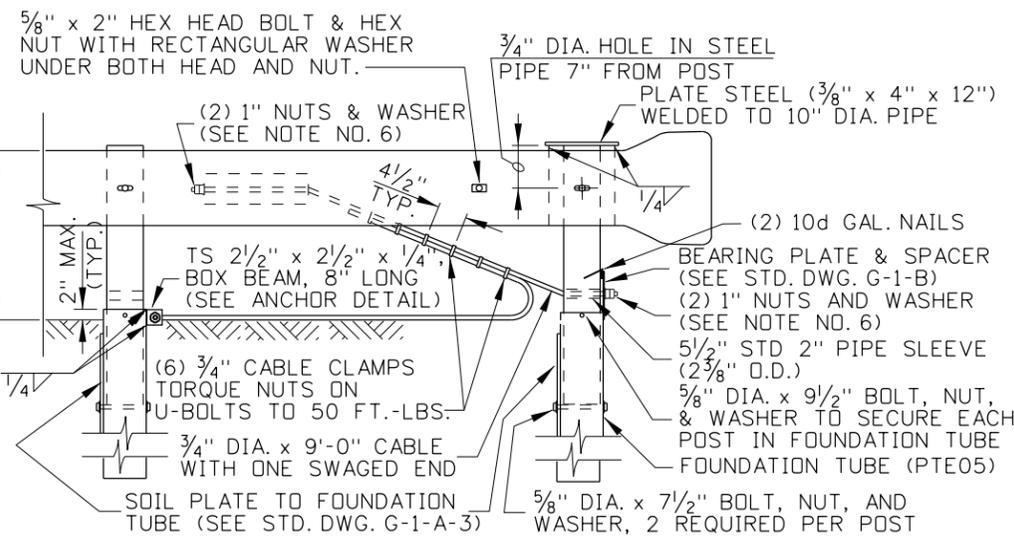
DELTA ANGLE	RAIL RADIUS	NO. RAIL SECTIONS	NO. CRT POSTS	AREA FREE OF FIXED OBJECTS	
				L	W
75° -105°	8'	1	5	25'	15'
75° -105°	16'	2	7	30'	15'
75° -105°	24'	3	9	40'	20'
75° -80°	32'	3	9	40'	20'
>80° -100°	32'	4	11	40'	20'
>100° -105°	32'	5	13	40'	20'

NOTES

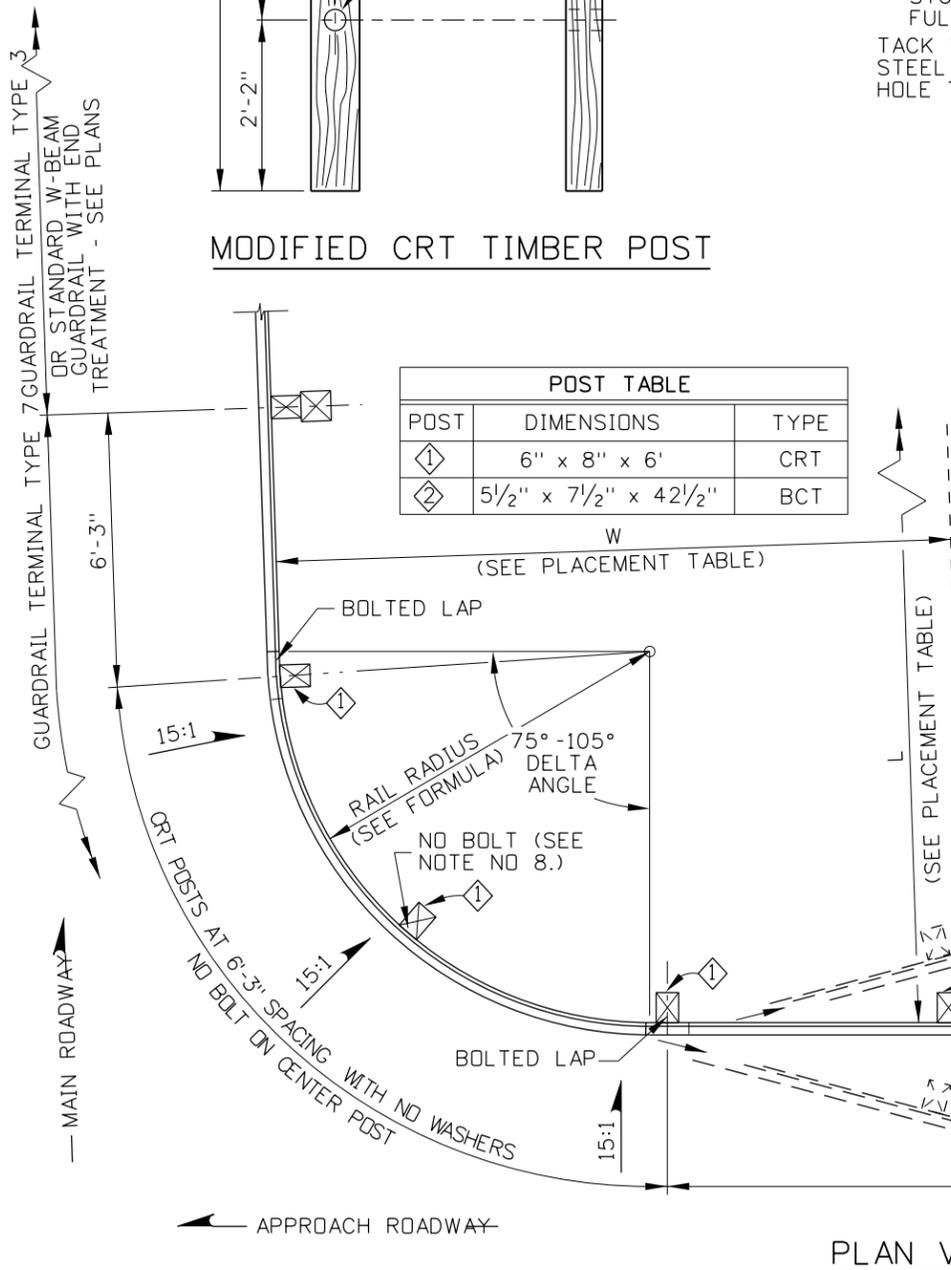
1. THE TYPE 8 TERMINAL SHALL ONLY BE USED OUTSIDE THE CLEAR ZONE OR WHEN THE APPROACH ROADWAY SPEED IS 35 MPH OR LESS. OTHERWISE AN APPROPRIATE NCHRP 350 TERMINAL IS REQUIRED.
2. THE GUARDRAIL ALONG THE APPROACH ROADWAY MAY BE ANGLED 15° TO EITHER SIDE OF THE PERPENDICULAR AXIS TO THE MAIN ROADWAY. HOWEVER, FLARE RATES ALONG ROADWAYS WITH 35 MPH OR GREATER SPEEDS MUST FOLLOW STANDARD TAPER RATES (SEE "TABLE OF MAXIMUM TAPERS").
3. THE ROADWAY IN FRONT THE CURVED PORTION OF THE TERMINAL SHALL BE 15:1 OR FLATTER. GRADE TERRAIN TO A 10:1 SLOPE OR FLATTER FOR 2' BEYOND THE GUARDRAIL POST, THEN A 2:1 OR FLATTER SLOPE. A 6:1 OR FLATTER SLOPE IS DESIRABLE. IF THE FILL HEIGHT IS GREATER THAN 30' OTHER SOLUTIONS SHOULD BE CONSIDERED. AN AREA FREE OF FIXED OBJECTS SHALL BE MAINTAINED BEHIND THE GUARDRAIL.
4. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 AND IS SUBJECT TO THE W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS.
5. ALL TERMINAL HARDWARE ITEMS SHALL MEET THE SPECIFICATIONS IN THE "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE" (CURRENT EDITION). ALL WELDING SHALL MEET THE REQUIREMENTS OF THE AMERICAN WELDING SOCIETY.
6. WHEN FASTENING THE CABLE ENDS THE OUTSIDE NUTS SHALL BE TORQUED AGAINST INSIDE NUTS A MINIMUM OF 100 FT.-LBS.
7. ALL CURVED GUARDRAIL SHALL BE SHOP BENT, FIELD BENDING WILL NOT BE ALLOWED.
8. ALL CURVED RAIL SECTIONS SHALL BE 12'-6" IN LENGTH AND BOLTED TO THE POSTS ONLY AT THE LAPS.
9. THE ANCHOR CABLE FROM POST #1 TO POST #2 MUST BE ATTACHED ON THE FAR SIDE OF THE FOUNDATION TUBE FOR LEFT-HAND INSTALLATIONS.
10. NOT TO SCALE.

POST TABLE

POST	DIMENSIONS	TYPE
①	6" x 8" x 6"	CRT
②	5 1/2" x 7 1/2" x 42 1/2"	BCT



ELEVATION
TERMINAL TYPE 8
(RIGHT-HAND OPTION SHOWN)



PLAN VIEW

REVISIONS

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	05-90	GB	6	05-06	MSM			
2	04-93	MSM	7	11-06	MSM			
3	04-99	MSM	8	09-10	MGL			
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5	12-04	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1h_1010.dgn
DRAWING DATE: MAY, 1989

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

GUARDRAIL TERMINALS
TYPE 7 & 8

REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

English

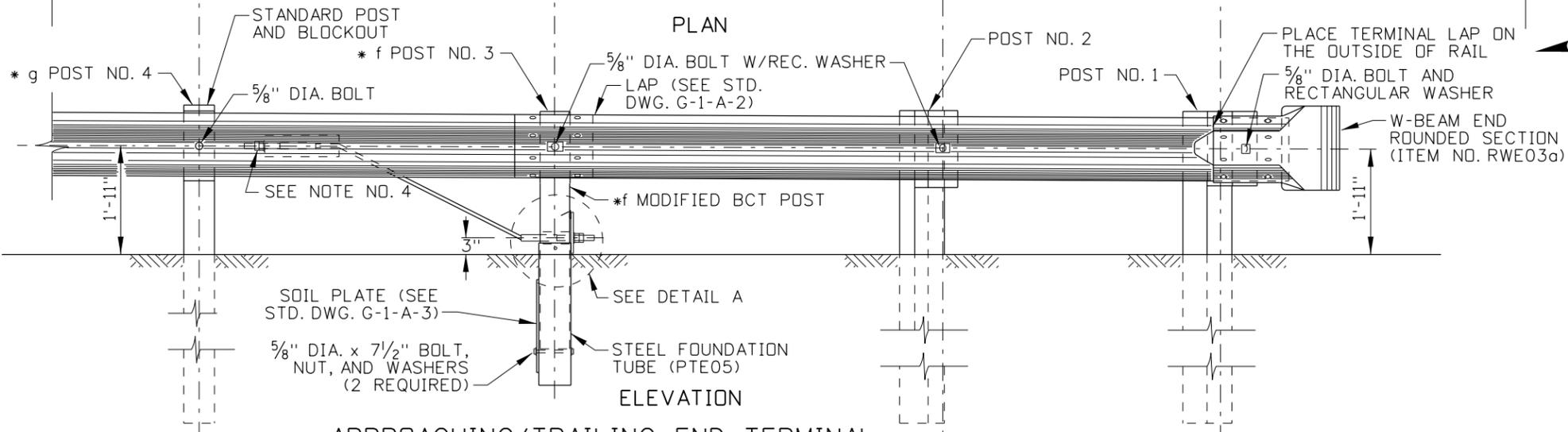
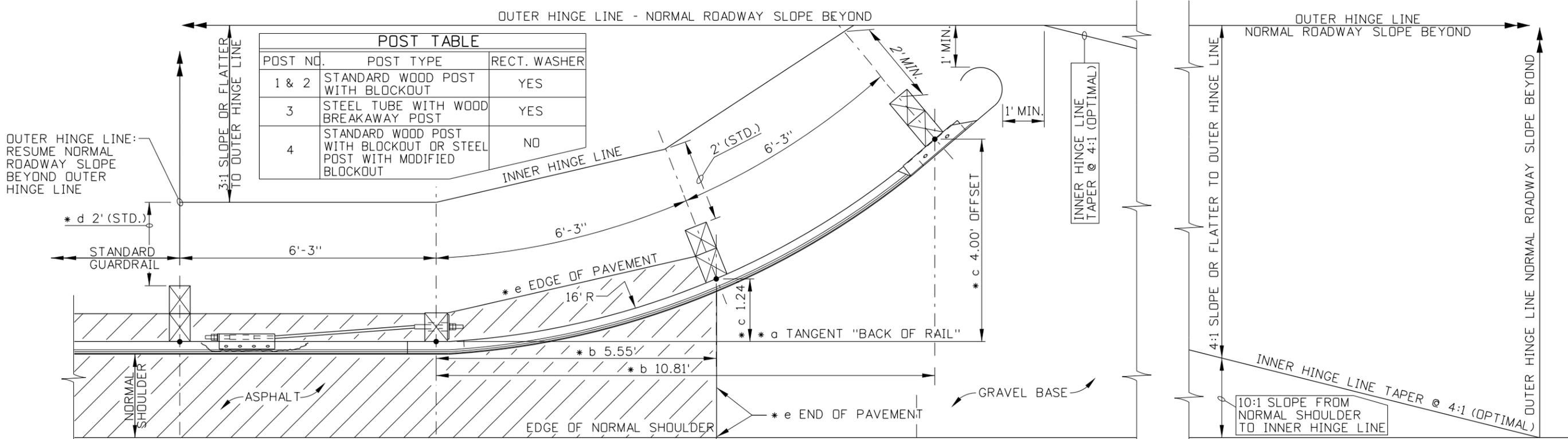
STANDARD DRAWING NO.

G-1-H

SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

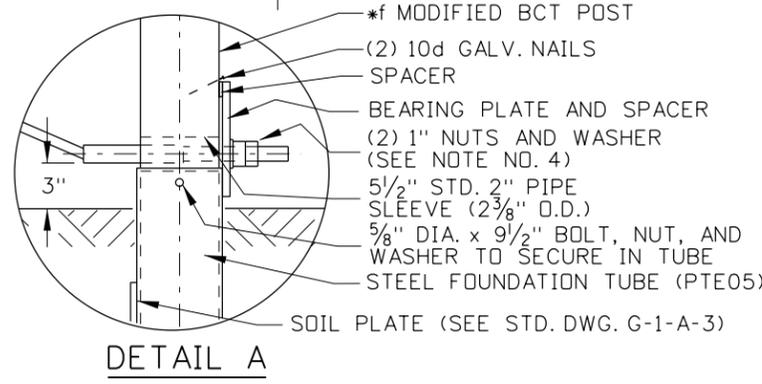
ORIGINAL SIGNED BY:
DATE: TED E. MASON
OCTOBER 26, 2010



APPROACHING/TRAILING END TERMINAL

SUB-NOTES

- * a ALL POST SPACING MEASUREMENTS ARE MADE ALONG THE (BACK OF RAIL).
- * b TANGENT DISTANCE IS MEASURED BEGINNING AT THE LAST TERMINAL POST'S HORIZONTAL CENTERLINE TO A POINT ALONG THE TANGENT (BACK OF RAIL) WHICH CORRESPONDS TO THE RAILS POINT OF OFFSET MEASUREMENT.
- * c OFFSET DISTANCE IS MEASURED FROM THE POINT ALONG THE TANGENT (BACK OF RAIL) (SEE SUB-NOTE "* b") TO A POINT BACK OF THE TERMINAL RAIL.
- * d THE INNER HINGE LINE IS 2' BEHIND THE BACK OF THE GUARDRAIL TERMINAL POSTS. A 1' DISTANCE IS ALLOWED IN DIFFICULT TERRAIN (SEE STD. DWG. G-1-A-1).
- * e PAVE ALONG THE FACE OF THE POSTS TO THE APPROACHING EDGE OF THE SUBSEQUENT POST (POST NO. 3) BEYOND POST NO. 2, THEN RETURN TO THE NORMAL SHOULDER.
- * f WOODEN BREAKAWAY POST WITH STEEL FOUNDATION TUBE (SEE STD DWG G-1-A-3).
- * g THE LAST TERMINAL POST - BEGIN STANDARD GUARDRAIL INSTALLATION (SEE STD. DWGS. G-1-A-1 THROUGH G-1-A-4).



- NOTES**
1. THE TYPE 11 TERMINAL MAY BE INSTALLED ON ROADWAYS WITH A MAXIMUM POSTED SPEED OF 40 MPH OR LESS.
 2. THE TYPE 11 TERMINAL CAN BE USED AS AN APPROACH OR END TERMINAL (SEE STD. DWG. G-1-A-3 FOR LAPPING DETAILS).
 3. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 FOR STANDARD GUARDRAIL INSTALLATION REQUIREMENTS, AND HARDWARE/ACCESSORY SPECIFICATIONS.
 4. THE OUTSIDE NUTS ON EACH END OF THE ANCHOR CABLE SHALL BE TORQUED TO A MINIMUM OF 100 FT. - LBS. AGAINST THE INSIDE NUTS.
 5. FILL THE VOID BETWEEN STEEL TUBE AND POST WITH EXPANDED RIGID POLYSTYRENE PLASTIC FOAM.
 6. W-BEAM IS LAPPED AWAY FROM THE APPROACHING TRAFFIC.
 7. FOUNDATION TUBE AND BLOCKOUT DIMENSIONS SHALL BE AS INDICATED IN THE AASHTO "A GUIDE TO STANDARDIZED HIGHWAY BARRIER HARDWARE".
 8. NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	12-04	MSM					
2	05-06	MSM					
3	09-10	MGL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1i_1010.dgn
 DRAWING DATE: JUNE, 2003

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

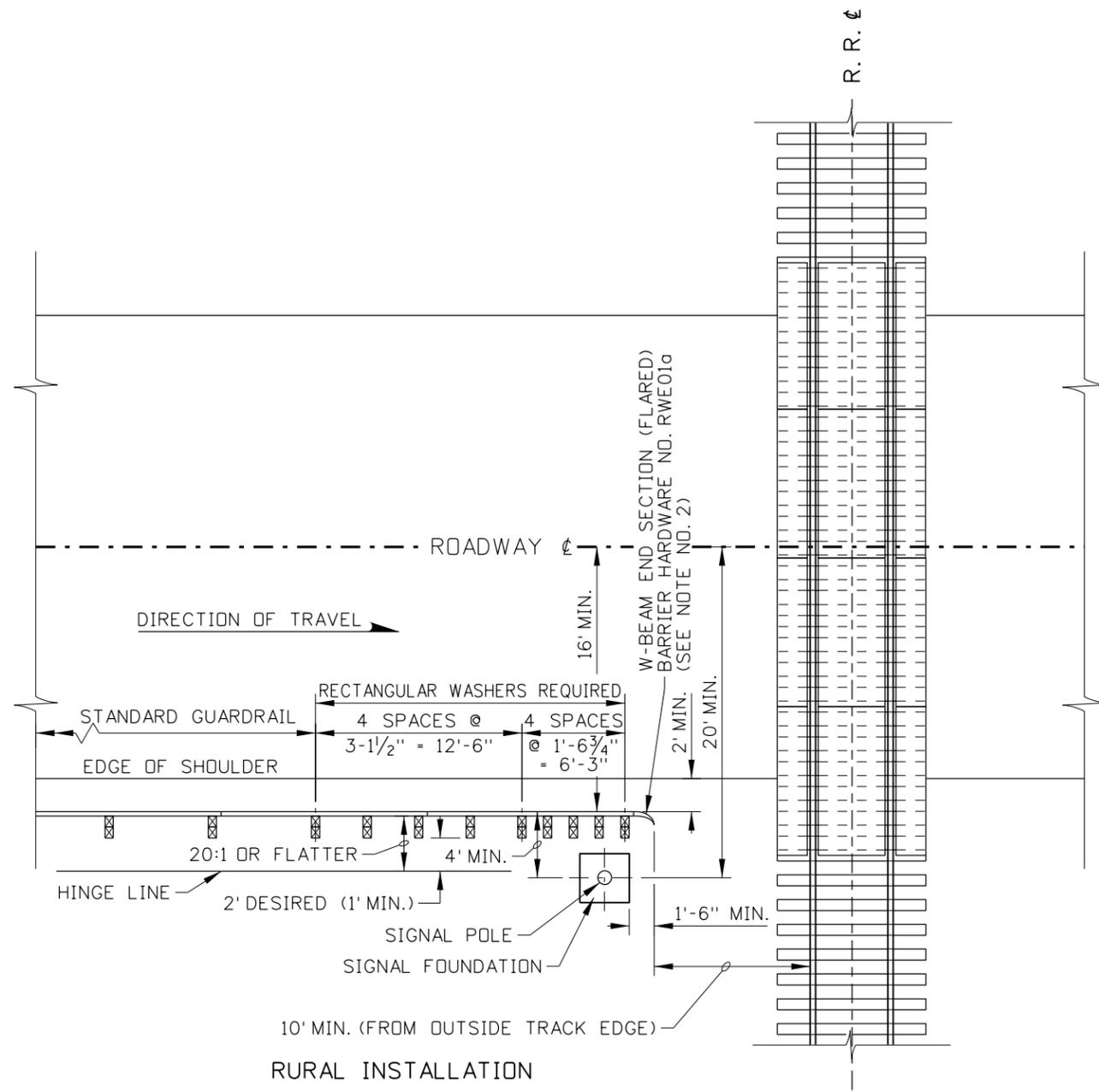
ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 11
 REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

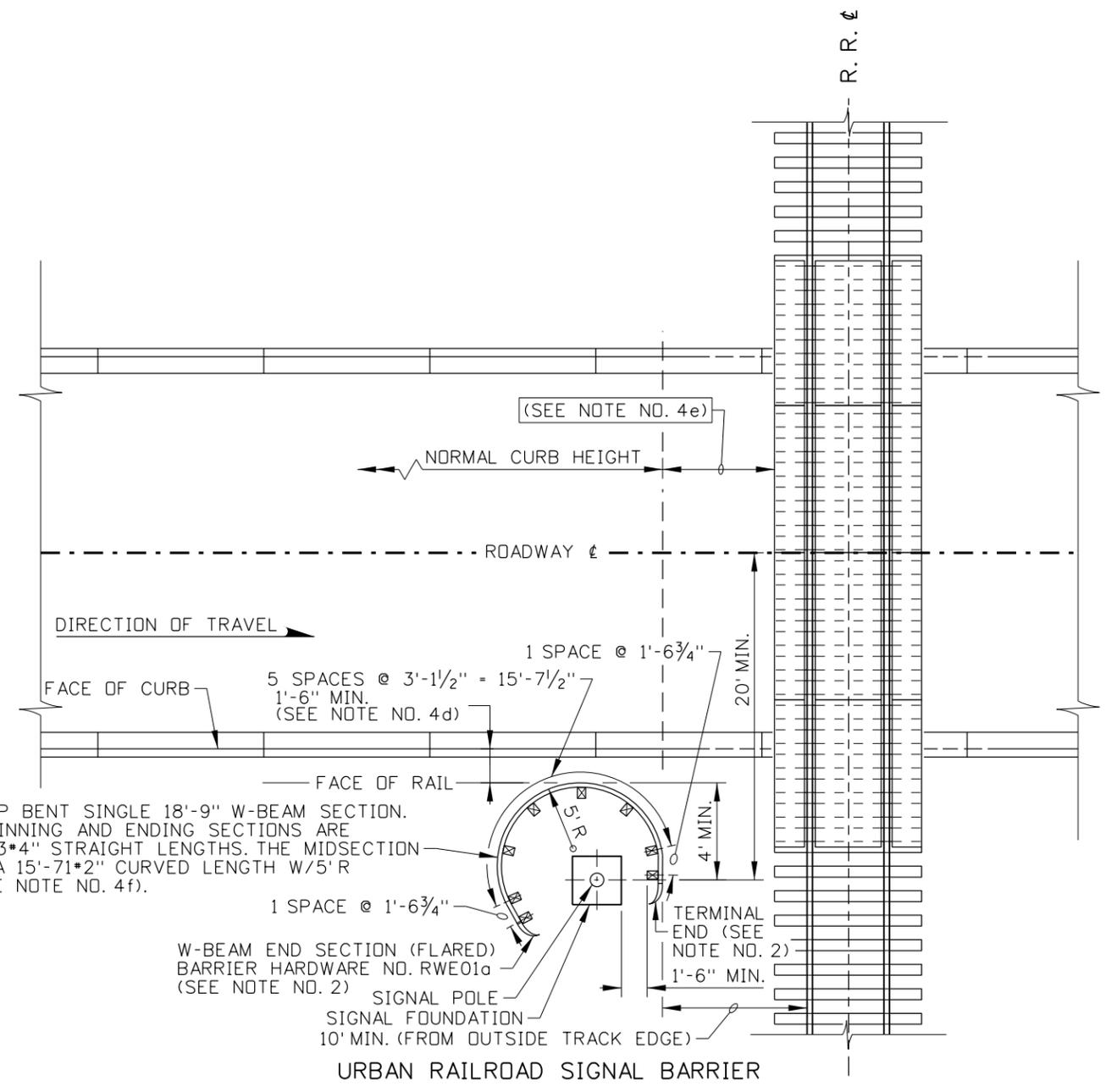
English
 STANDARD DRAWING NO.
G-1-I
 SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: TED E. MASDN
 DATE ORIGINAL SIGNED: OCTOBER 26, 2010



RURAL INSTALLATION
TERMINAL TYPE 4-A



URBAN RAILROAD SIGNAL BARRIER
TERMINAL TYPE 4-B
(SEE NOTE NO. 4)

NOTES

1. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 AND IS SUBJECT TO THE W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS.
2. THE COST OF TERMINAL ENDS SHALL BE INCLUDED IN THE COST OF THESE INSTALLATION(S). THE TERMINAL TYPE 4-B SHALL BE PAID FOR ONLY AS W-BEAM GUARDRAIL.
3. RECTANGULAR WASHERS ARE REQUIRED ON ALL BOLTS EXCEPT THE TERMINAL END CONNECTIONS.
4. WHEN A TERMINAL TYPE 4-B IS TO BE INSTALLED THE FOLLOWING CRITERIA MUST BE MET:
 - A. THE NEED FOR GUARDRAIL SHALL NOT BE BASED SOLELY UPON THE RAILROAD CROSSING FEATURES AT A CROSSING, BUT MUST BE REQUESTED BY THE RAILROAD.
 4. CONT'D.
 - B. THE POSTED SPEED IS 40 MPH OR LESS.
 - C. PEDESTRIAN TRAFFIC SHALL BE ACCOMMODATED WITH NORMAL WIDTH SIDEWALKS.
 - D. WHEN NO PEDESTRIAN TRAFFIC IS PRESENT THE FACE OF RAIL SHALL BE A MINIMUM OF 1'-6" BEHIND THE FACE OF CURB.
 - E. THE CURB AND/OR GUTTER SHALL BE TAPERED AND FLATTENED TO MATCH FINISH GRADE AT THE EDGE OF PLANKING (REFER TO STANDARD DRAWING R-2).
 - F. THE METAL RAIL SHALL BE ATTACHED DIRECTLY TO THE POSTS WITHOUT BLOCKOUTS.
5. NOT TO SCALE.

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
MILDRD L. MILLER
DATE ORIGINAL SIGNED:
MAY 3, 2006

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	04-93	MSM	6	05-06	MSM			
2	12-95	GET						
3	10-00	MSM						
4	06-04	MSM						
5	10-04	MSM						

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
gij_0506.dgn

DRAWING DATE:
APRIL, 1990

**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING

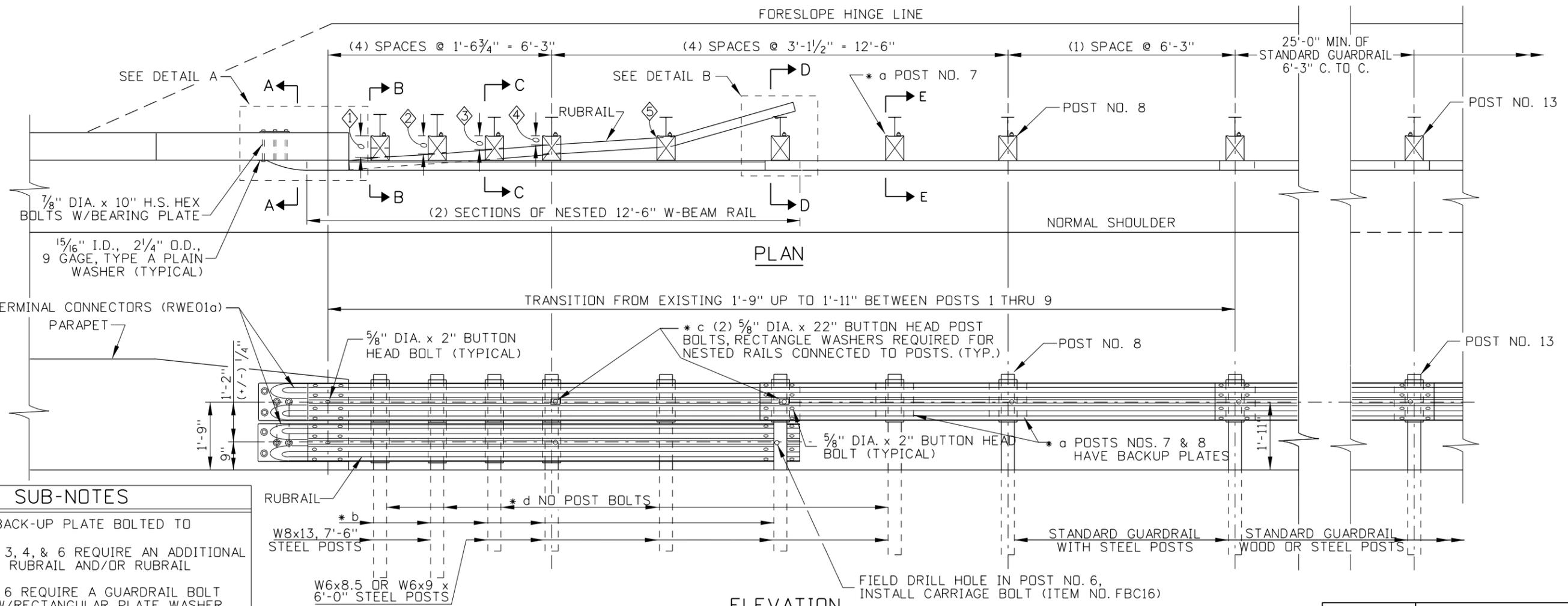
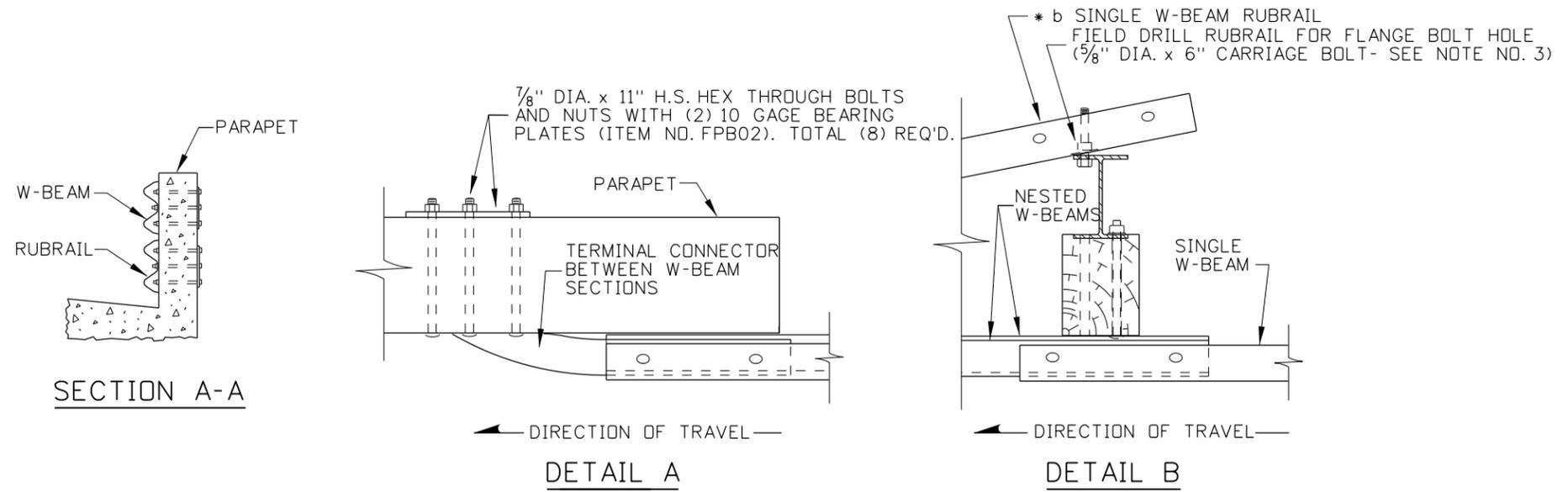
**GUARDRAIL TERMINAL
TYPES 4-A & 4-B**

REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4
(WITH CURB/GUTTER STD. DWG. R-2)

English

STANDARD DRAWING NO.
G-1-J

SHEET 1 OF 1



- SUB-NOTES**
- * a AT POST NO. 7 BACK-UP PLATE BOLTED TO BLOCK ONLY.
 - * b POSTS NOS. 1, 2, 3, 4, & 6 REQUIRE AN ADDITIONAL HOLE TO ATTACH RUBRAIL AND/OR RUBRAIL BLOCKOUTS.
 - * c POSTS NOS. 4 & 6 REQUIRE A GUARDRAIL BOLT & RECESS NUT W/RECTANGULAR PLATE WASHER UNDER THE BOLT HEAD AND A STEEL WASHER UNDER THE NUT.
 - * d DO NOT BOLT W-BEAM OR RUBRAIL W-BEAM TO POSTS NOS. 1, 2, 3, 5, & 7.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	07-92	MSM	6	05-06	MSM		
2	08-00	MSM	7	09-10	PLR		
3	01-01	MSM					
4	06-01	MSM					
5	10-04	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1k_1010.dgn
 DRAWING DATE: MARCH, 1992

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

GUARDRAIL TERMINAL TYPE 9

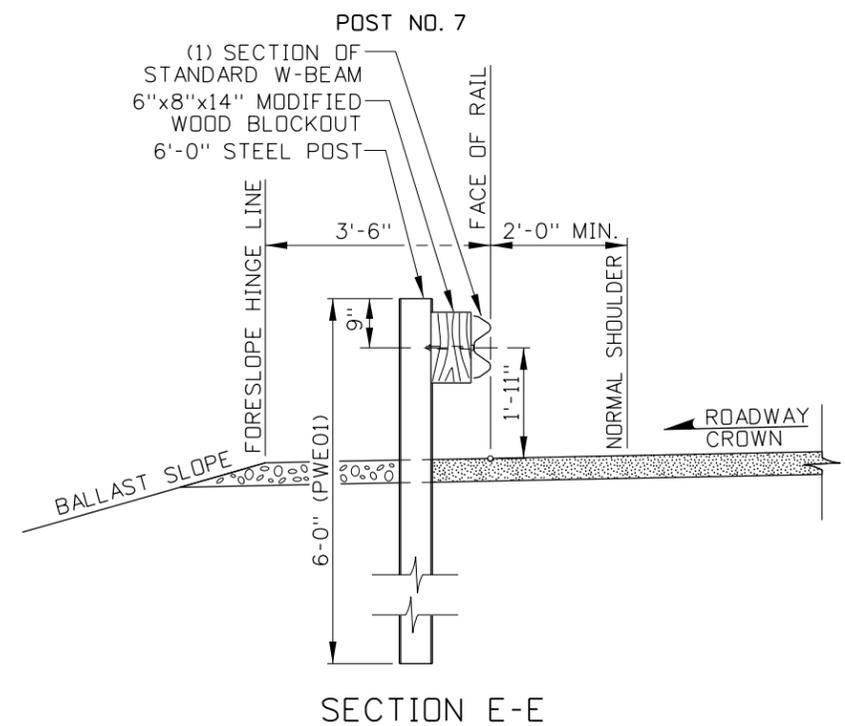
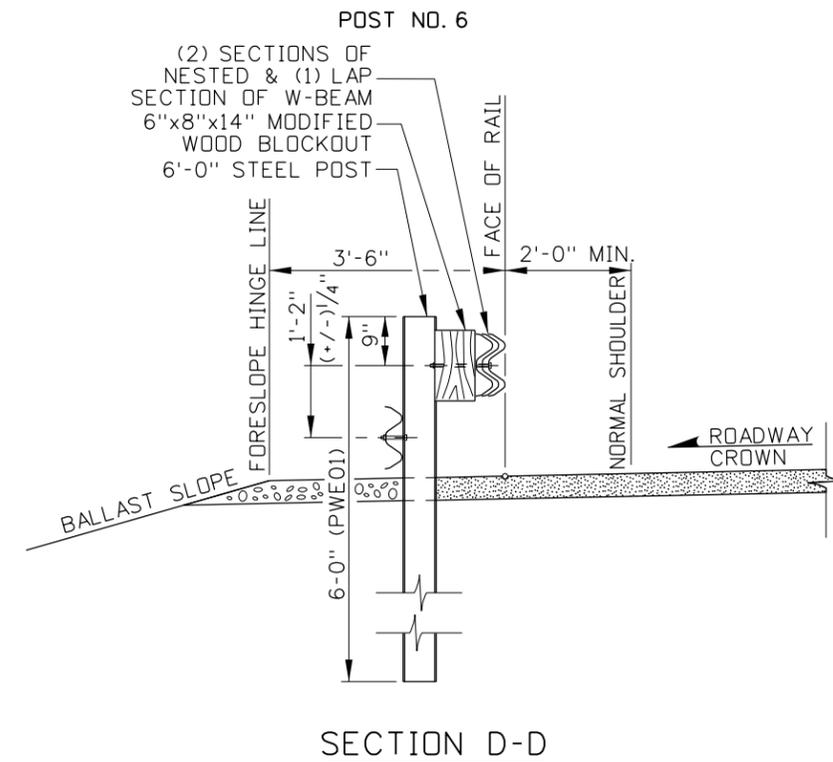
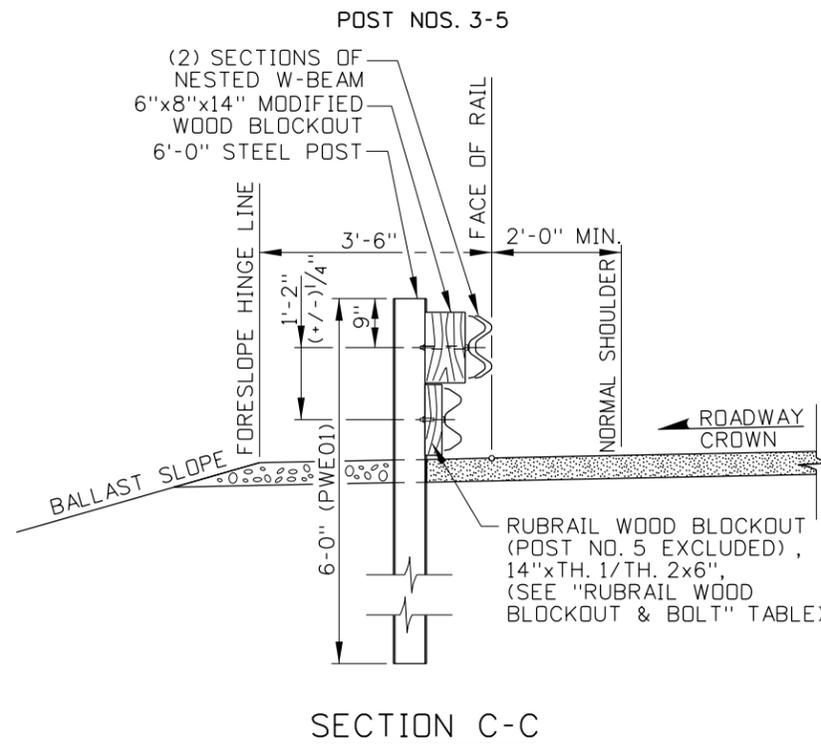
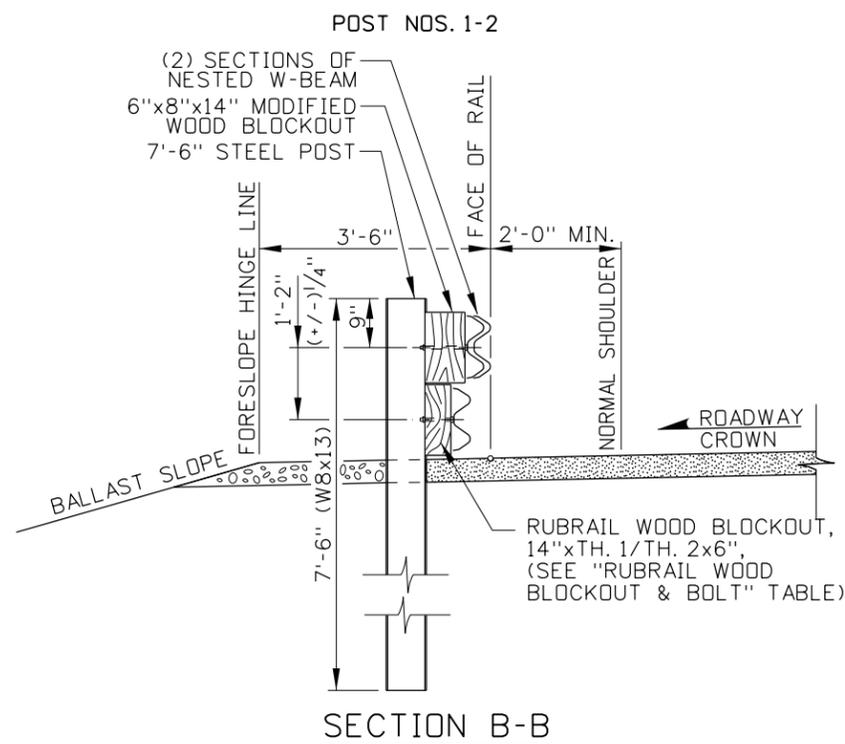
REQUIRES SHEET 2 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

English

STANDARD DRAWING NO.
G-1-K

SHEET 1 OF 2

ORIGINAL SIGNED BY: TED E. MASDN
 DATE ORIGINAL SIGNED: OCTOBER 26, 2010



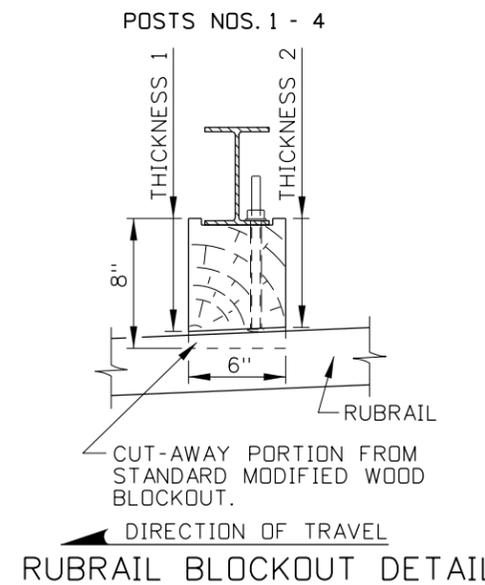
**TABLE OF
MAXIMUM TAPERS**

DESIGN SPEED (mph)	TAPER
75	16:1
70	15:1
65	14:1
60	13:1
55	12:1
50	11:1
45	10:1
40	9:1
<35	8:1

RUBRAIL WOOD BLOCKOUT & BOLTS

POST NO.	* THICKNESS 1	* THICKNESS 2	BOLT SIZE
1	7 1/4"	6 3/4"	5/8" DIA. x 10"
2	6"	5 1/2"	5/8" DIA. x 8"
3	4 3/4"	4 1/4"	5/8" DIA. x 8"
4	3 1/2"	3"	5/8" DIA. x 6"
5	NO BLOCKOUT		5/8" DIA. x 4"
6	RUBRAIL END POST		5/8" DIA. x 4"

* SEE RUBRAIL BLOCKOUT DETAIL



NOTES

1. THIS TERMINAL IS TO BE USED AS A RETROFIT FOR THE OLD STYLE TYPE 3 TERMINALS. FOR NEW INSTALLATION USE TYPE 3 TERMINAL AS SHOWN ON STD. DWG. G-1-E.
2. SEE STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 FOR INSTALLATION DETAILS, POST AND BLOCKOUT DETAILS FOR W-BEAM GUARDRAIL AND GUARDRAIL HARDWARE.
3. ALL BOLTS FOR RUBRAIL BEAM AND WOOD BLOCKOUTS WILL HAVE A MINIMUM OF 5" OF COURSE THREADING.
4. W-BEAM MEASUREMENTS ARE MADE ALONG THE FACE OF RAIL FROM THE CENTER OF RAIL TO THE ROADWAY SURFACE. RUBRAIL MEASUREMENTS ARE FROM THE CENTER OF RAIL TO THE CENTER OF RUBRAIL.
5. GUARDRAIL FOR END SHOE SHALL BE LAPPED IN THE DIRECTION OF NEAREST TRAFFIC LANE TO PREVENT SNAGGING. SEE DETAILS A & B.
6. THE RUBRAIL MAY BE SHOP BENT TO FACILITATE INSTALLATION.
7. USE THE "TABLE OF MAXIMUM TAPERS" WHEN TAPERING GUARDRAIL TO MATCH BRIDGE PARAPET.
8. NOT TO SCALE.

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
TED E. MASDN
DATE ORIGINAL SIGNED:
OCTOBER 26, 2010

REVISIONS

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	07-92	MSM	6	05-06	MSM			
2	08-00	MSM	7	09-10	PLR			
3	01-01	MSM						
4	06-01	MSM						
5	10-04	MSM						

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
g1k_1010.dgn

DRAWING DATE:
MARCH, 1992

**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

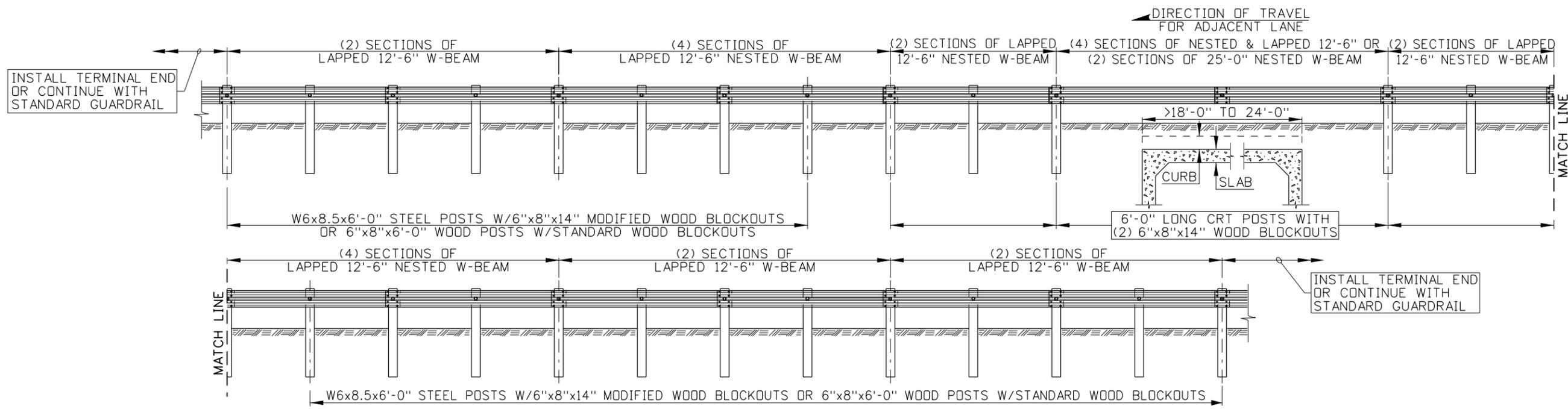
**GUARDRAIL TERMINAL
TYPE 9**

REQUIRES SHEET 1 OF 2 &
STD. DWGS. G-1-A-1 THRU G-1-A-4

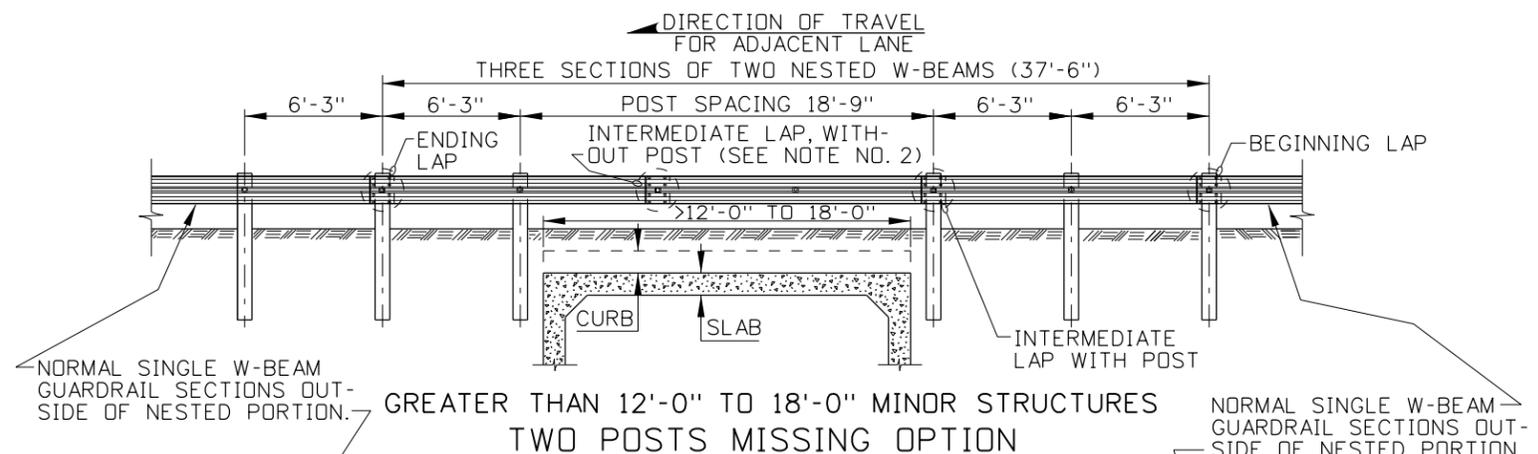
English

STANDARD DRAWING NO.
G-1-K

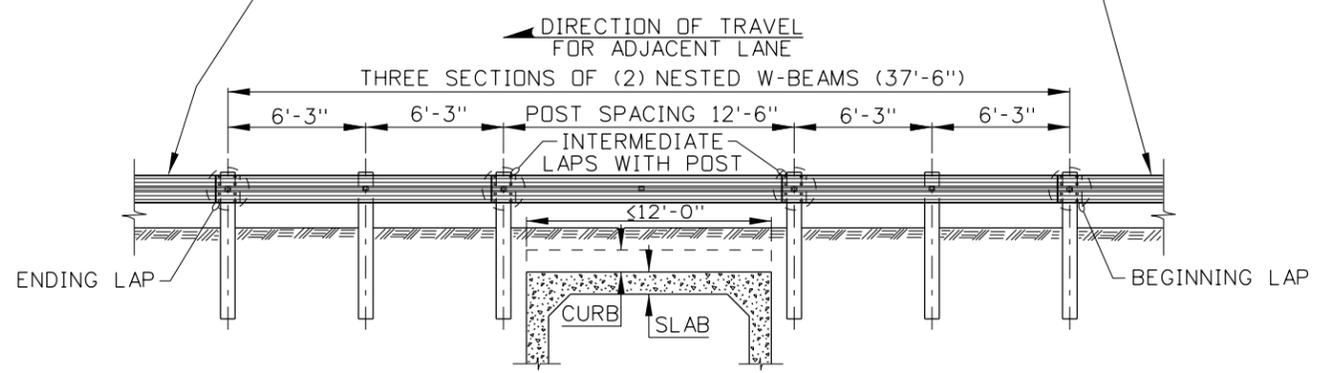
SHEET 2 OF 2



GREATER THAN 18'-0" TO 24'-0" MINOR STRUCTURES
THREE POSTS MISSING OPTION



GREATER THAN 12'-0" TO 18'-0" MINOR STRUCTURES
TWO POSTS MISSING OPTION



12' AND LESS MINOR STRUCTURES
ONE POST MISSING OPTION

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	08-00	MSM	6	09-10	PLR			
2	06-01	MSM						
3	05-03	MSM						
4	10-04	MSM						
5	04-06	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1l_1010.dgn
DRAWING DATE: JULY, 1992

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

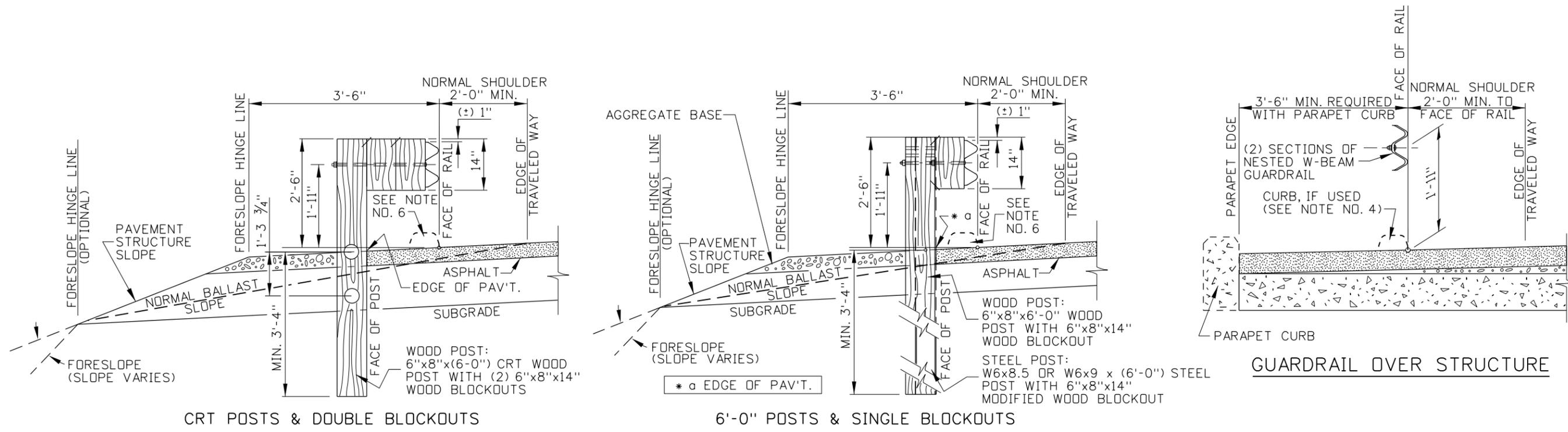
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL INSTALLATION FOR MINOR STRUCTURES & LARGE CULVERTS
REQUIRES SHEET 2 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

English
STANDARD DRAWING NO.
G-1-L
SHEET 1 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
DATE: TED E. MASDON
OCTOBER 26, 2010

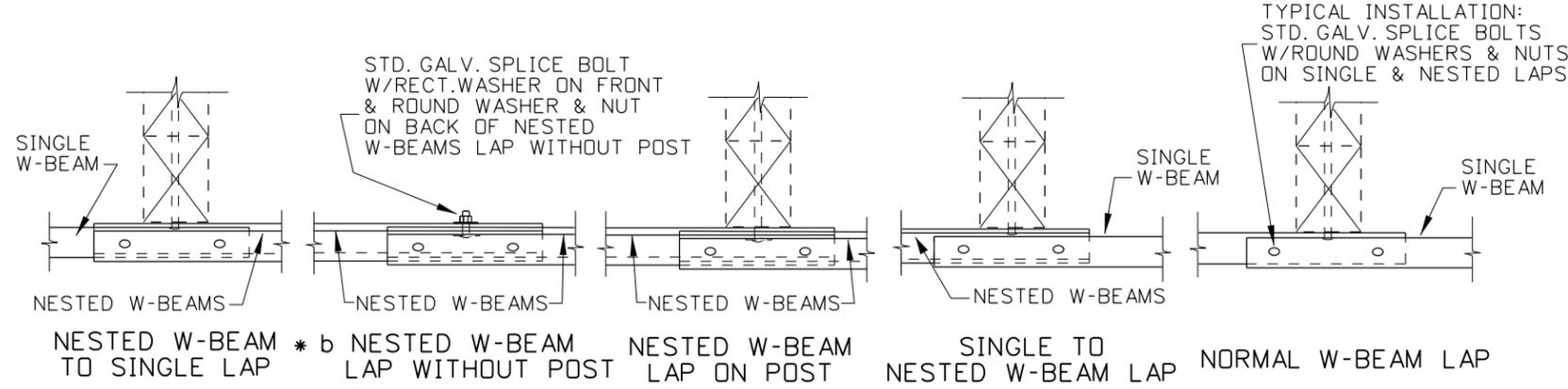


CRT POSTS & DOUBLE BLOCKOUTS

6'-0" POSTS & SINGLE BLOCKOUTS

GUARDRAIL OVER STRUCTURE

TYPE A INSTALLATION



DIRECTION OF TRAVEL
LAPPING DETAILS

NOTES

1. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 AND IS SUBJECT TO THE W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS.
2. 25'-0" RAIL MAY BE USED TO ELIMINATE THE INTERMEDIATE LAP AT THE STRUCTURE.
3. REFER TO ITD BRIDGE STANDARD DRAWINGS FOR STRUCTURES GREATER THAN 24'.
4. REFER TO STANDARD DRAWING H-1-A WHEN CURB IS USED WITH THIS TERMINAL.
5. THE 3 POST ON EITHER SIDE OF OPENING NEED TO MAINTAIN A MINIMUM 3'-4" EMBEDMENT DEPTH. TO ACHIEVE THIS EMBEDMENT DEPTH, MOUNT RAIL AND BLOCKOUTS FLUSH WITH THE TOP OF THE POST WHILE KEEPING A 29" TOP OF RAIL HEIGHT.
6. NOT TO SCALE.

* b WARNING: STAGGERED LAPS ARE NOT ALLOWED (NESTED RAIL ENDS SHALL BE LAPED AT THE SAME LOCATION).

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-00	MSM	6	09-10	PLR		
2	06-01	MSM					
3	05-03	MSM					
4	10-04	MSM					
5	04-06	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g1l_1010.dgn
DRAWING DATE: JULY, 1992

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

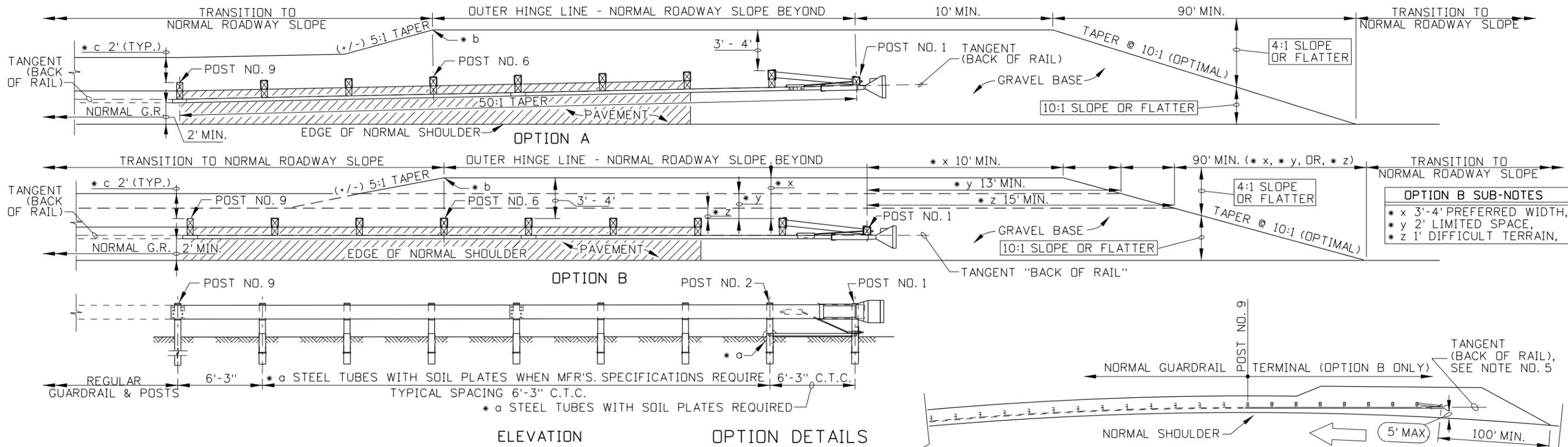
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL INSTALLATION FOR MINOR STRUCTURES & LARGE CULVERTS
REQUIRES SHEET 1 OF 2 & STD. DWGS. G-1-A-1 THRU G-1-A-4

English
STANDARD DRAWING NO.
G-1-L
SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

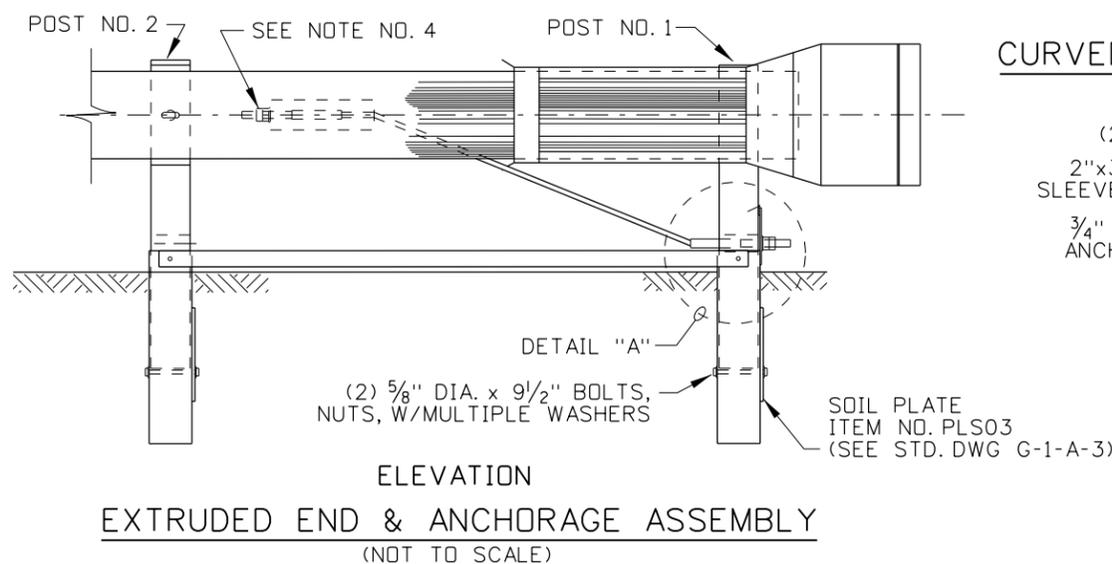
ORIGINAL SIGNED BY: TED E. MASDN
DATE ORIGINAL SIGNED: DECEMBER 6, 2010



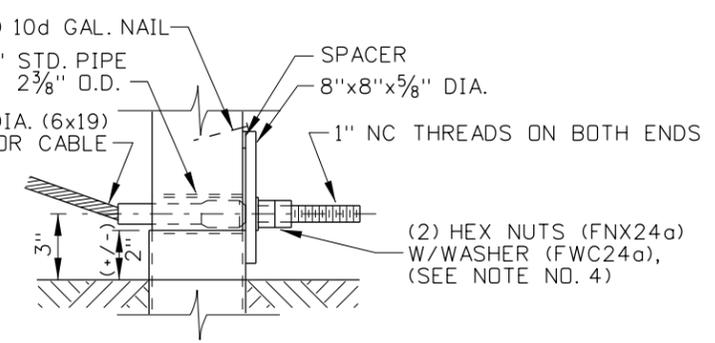
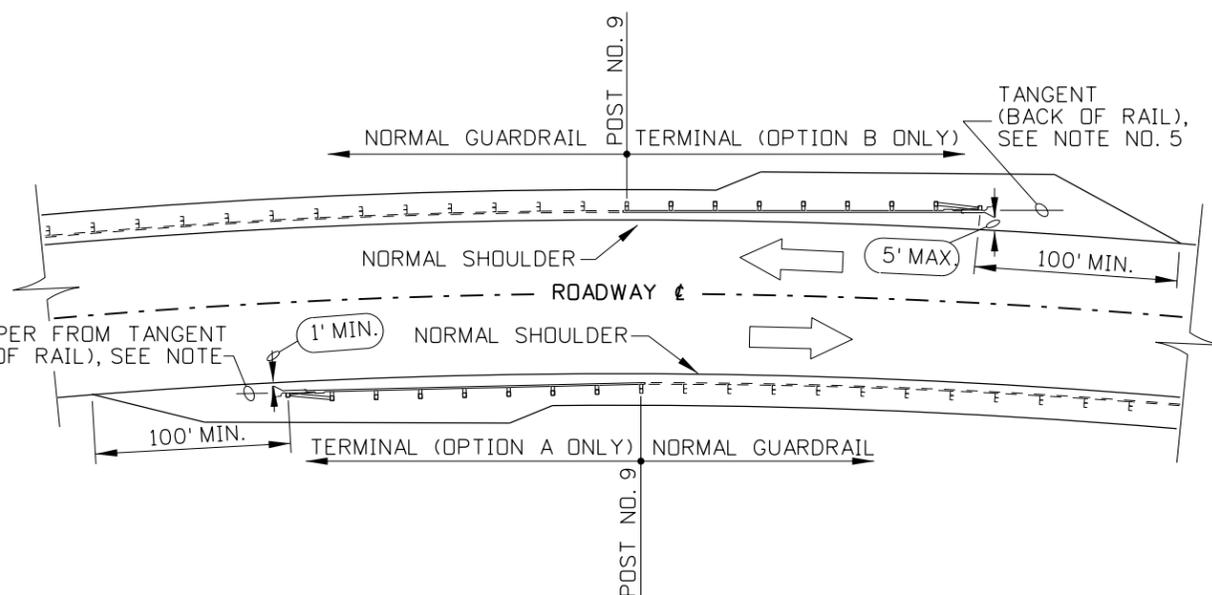
NOTES

- ON TANGENT OR STRAIGHT SECTIONS OF ROADWAY "OPTION A" IS THE PREFERRED INSTALLATION. "OPTION B" IS TO BE INSTALLED WHEN SPACE DOES NOT PERMIT "OPTION A". "OPTION B" HAS THREE SUB-OPTIONS (* x, * y, & * z), * x IS THE MOST PREFERRED SUB-OPTION.
- THE TERMINAL TYPE 10 MUST FOLLOW A STRAIGHT LINE OR A 50:1 STRAIGHT LINE TAPER AS SHOWN. THE TOTAL LAYOUT MUST MEET OR EXCEED THE REQUIREMENTS SET FORTH IN NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM REPORT 350 (TL-3), "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE OF HIGHWAY FEATURES".
- FOR INSTALLATION DETAILS OF GUARDRAIL, POSTS, BLOCKOUTS, AND FITTINGS REFER TO STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4. THE EXTRUDED HEAD, AND OTHER ITEMS SHOWN IN THE DETAILS ARE FOR THE ET-2000 TERMINAL. FOR END TREATMENT DETAILS SPECIFIC TO THIS AND OTHER TERMINALS SEE THE INFORMATION PROVIDED BY THE MANUFACTURER. THE LIST OF VIABLE TERMINAL ENDS ARE: ET-2000, BEST, SKT 350, AND LET. AN "EQUIVALENT" TYPE 10 TERMINAL MUST MEET THE REQUIREMENTS FOR USE AS A "NCHRP 350 (TL-3) APPROVED TERMINAL".
- THE OUTSIDE NUTS ON THE ANCHOR CABLE SHALL BE TORQUED AGAINST INSIDE NUT A MINIMUM OF 100 ft./lbs.
- WHEN A TYPE 10 TERMINAL IS CONSTRUCTED ON A HORIZONTAL CURVE, PLACE THE TERMINAL OFF OF THE "TANGENT (BACK OF RAIL)". PLACE "OPTION A" ON A 50:1 TAPER FROM THE TANGENT (BACK OF RAIL) AT POST NO. 9. USE "OPTION B" ON OUTSIDE CURVES AND "OPTION A" ON INSIDE CURVES. DO NOT PLACE THE TYPE 10 TERMINAL ON THE INSIDE OF A GREATER THAN 8° HORIZONTAL CURVE.
- NOT TO SCALE.

SUB- NOTES	
* a	TOP OF STEEL TUBES SHALL BE EXPOSED SAME AS POST NO. 1 (SEE DETAIL "A")
* b	END GUARDRAIL PAD AT ϵ OF POST NO. 6, USE (+/-) 5:1 TAPER BACK TO BALLAST SHOULDER
* c	1' MIN. IN DIFFICULT TERRAIN (SEE STD. DWG. G-1-A-1)



CURVED ROADWAY TERMINAL PLACEMENT



ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	06-01	MSM					
2	01-04	MSM					
3	12-04	MSM					
4	05-06	MSM					
5	09-10	PLR					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1m_1010.dgn
 DRAWING DATE: JANUARY, 2000

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

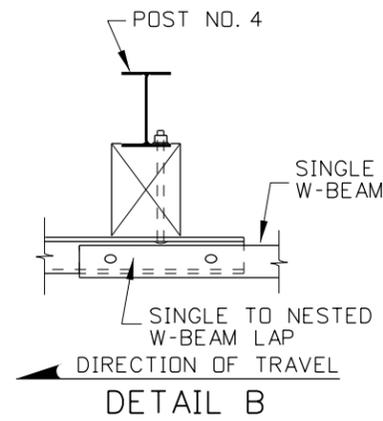
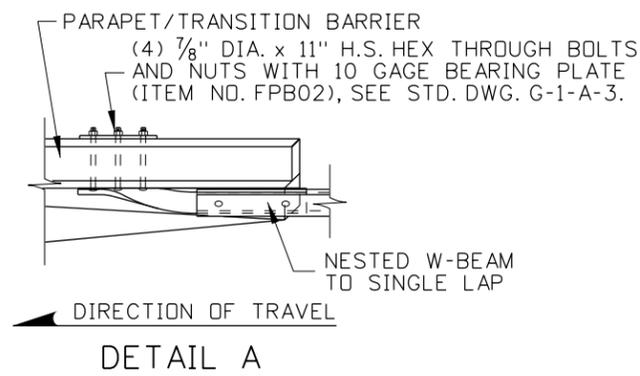
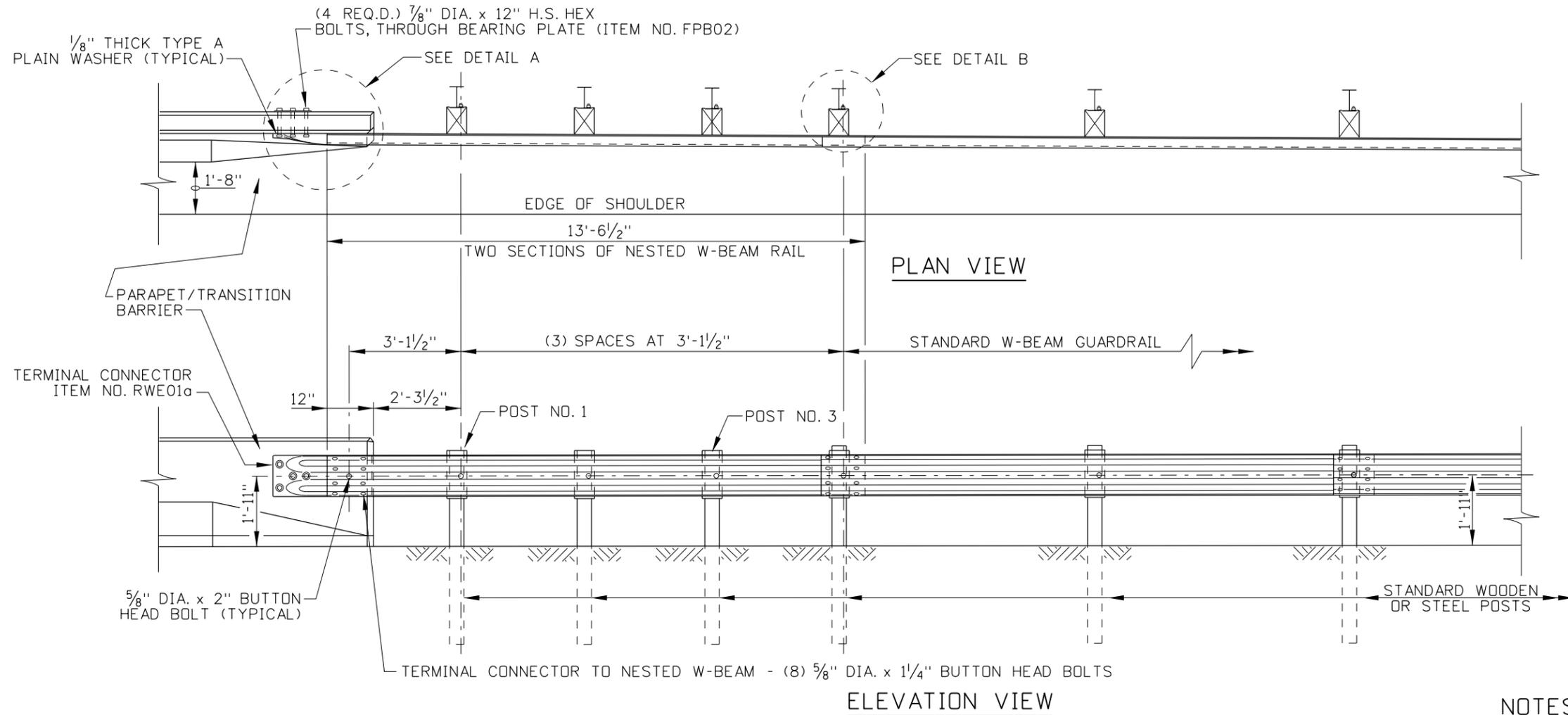
ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
GUARDRAIL TERMINAL TYPE 10
 REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

English
 STANDARD DRAWING NO.
G-1-M
 SHEET 1 OF 1

ORIGINAL SIGNED BY:
 DATE: TED E. MASON
 OCTOBER 26, 2010



NOTES

1. THE TYPE 12 TERMINAL MAY BE INSTALLED AS AN APPROACH OR END TERMINAL ON ROADWAYS WITH A MAXIMUM POSTED SPEED OF 45 MPH OR LESS.
2. THIS DRAWING REQUIRES STANDARD DRAWINGS G-1-A-1 THROUGH G-1-A-4 AND IS SUBJECT TO THE W-BEAM GUARDRAIL INSTALLATION REQUIREMENTS AND HARDWARE/ACCESSORY SPECIFICATIONS.
3. ALL GUARDRAIL INCLUDING THE TERMINAL CONNECTOR SHALL BE LAPPED IN THE DIRECTION OF NEAREST TRAFFIC LANE TO PREVENT SNAGGING, SEE DETAILS A & B.
4. THE TERMINAL TYPE 12 AS SHOWN MEETS THE REQUIREMENTS SET FORTH IN NATIONAL COOPERATIVE HIGHWAY RESEARCH PROGRAM (NCHRP) REPORT 350 FOR TL-2, "RECOMMENDED PROCEDURES FOR THE SAFETY PERFORMANCE OF HIGHWAY FEATURES".
5. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	05-06	MSM						
2	09-10	PLR						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g1n_1010.dgn
 DRAWING DATE: NOVEMBER, 2005

**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
**GUARDRAIL TERMINAL
 TYPE 12**

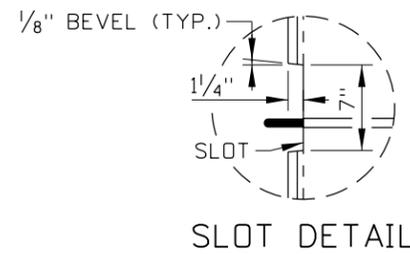
REQUIRES STD. DWGS. G-1-A-1 THRU G-1-A-4

English
 STANDARD DRAWING NO.
G-1-N
 SHEET 1 OF 1

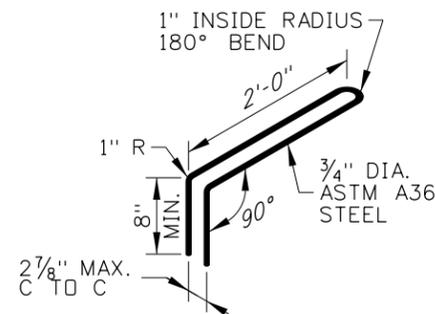
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 DATE: TED E. MASDON
 OCTOBER 26, 2010

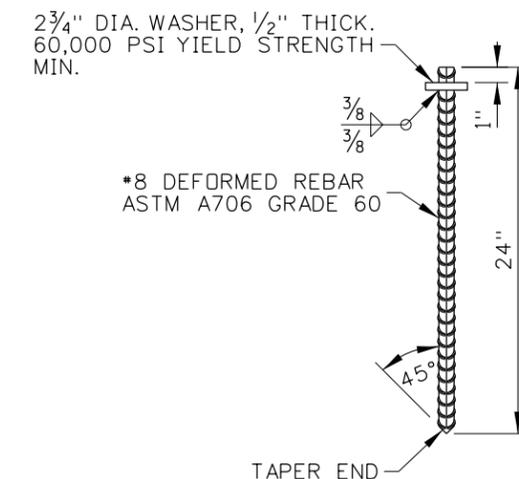
TERMINAL TYPE A REINFORCING STEEL TABLE (SEE NOTE NOS. 1, 2, & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL BAR.	NO. 5	1	
V-1	VERTICAL BAR.	NO. 5	1	



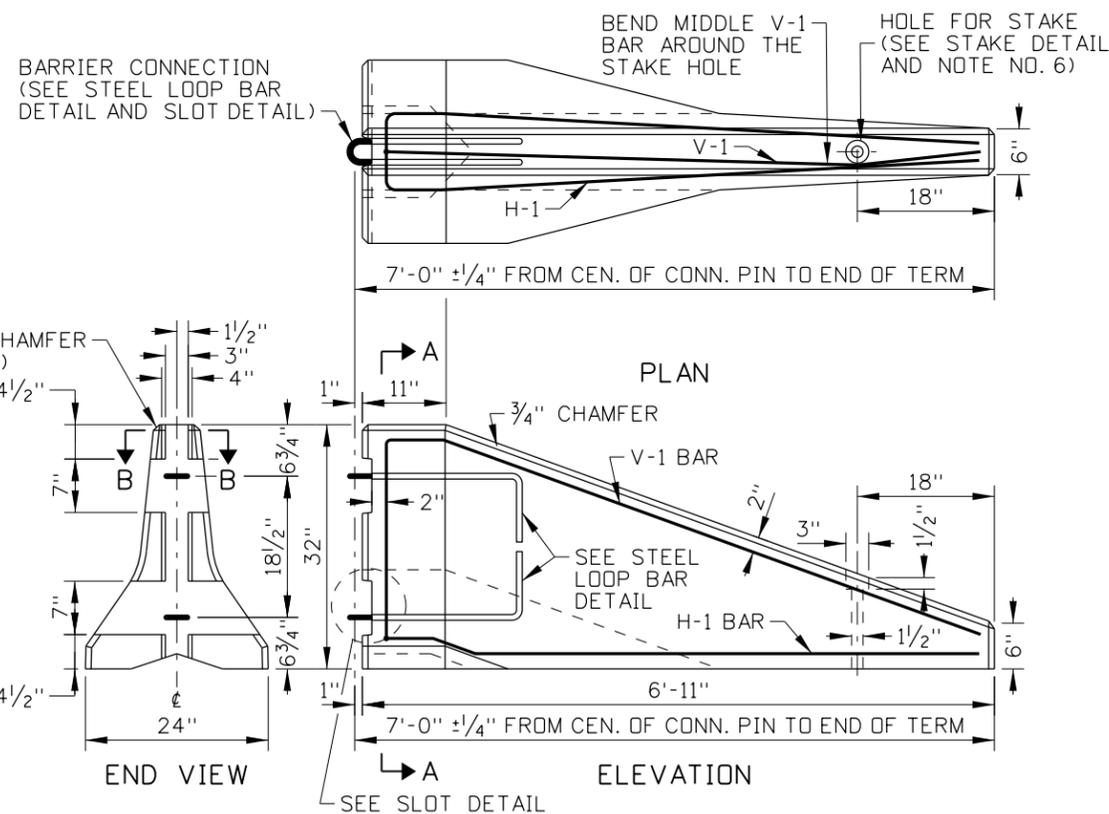
SLOT DETAIL



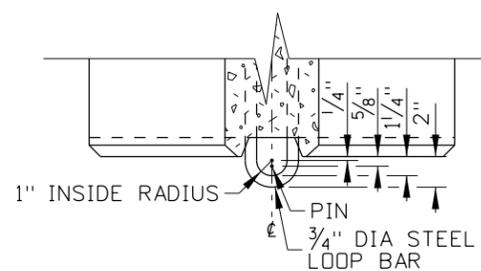
STEEL LOOP BAR DETAIL



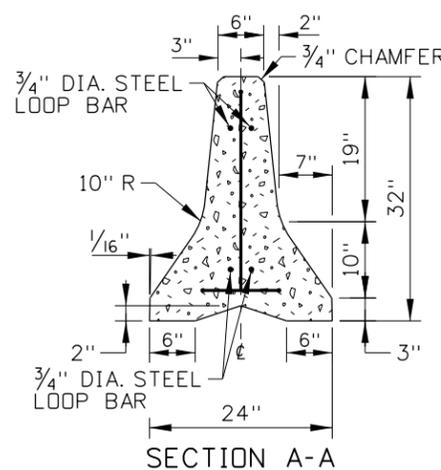
STAKE DETAIL



TERMINAL TYPE A



SECTION B-B



NOTES

1. PRECAST USING CLASS 30 CONCRETE. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. ONLY USE THE TYPE A TERMINAL ON ADJACENT TO ONCOMING TRAFFIC WHEN THE TERMINAL IS PLACED OUTSIDE OF THE CLEAR-ZONE. ONLY USE THE TYPE A TERMINAL ON THE TRAILING END OF A BARRIER IF THE TERMINAL IS OUTSIDE OF THE CLEAR-ZONE OF TRAVEL LANES IN THE OPPOSING DIRECTION.
5. THE TYPE B TERMINAL MAY BE USED WITHIN THE CLEAR-ZONE WHEN TRAFFIC SPEEDS ARE 40 MPH OR LESS AND AND SPACE IS LIMITED BY RIGHT-OF-WAY CONSTRAINTS OR THE OTHER ROADSIDE FEATURES THAT PRECLUDE USING A GUARDRAIL TERMINAL OR CRASH CUSHION.
6. STAKE THE TERMINALS AT THE TAPERED END. STAKE TERMINAL B IN THE STAKE SLOTS WHEN THE CONNECTING BARRIER IS STAKED. ENSURE THAT THE STAKES DO NOT PROTRUDE BEYOND THE EXTERIOR OF THE TERMINAL SURFACE.
7. PIN CONNECT THE TERMINALS TO BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
8. DRAWING NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	01-86	GB	6	12-92	MSM	11	09-10
2	08-86	GB	7	09-93	MSM	12	11-14
3	06-87	GB	8	02-96	MSM		
4	04-89	GB	9	01-00	MSM		
5	01-91	GB	10	12-04	MSM		

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
g2a_1114.dgn

DRAWING DATE:
NOVEMBER, 1974

IDAHO
TRANSPORTATION
DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN for
STANDARDS ENGINEER

STANDARD DRAWING
CONCRETE BARRIER
TERMINALS
REQUIRES SHEET 2 OF 2

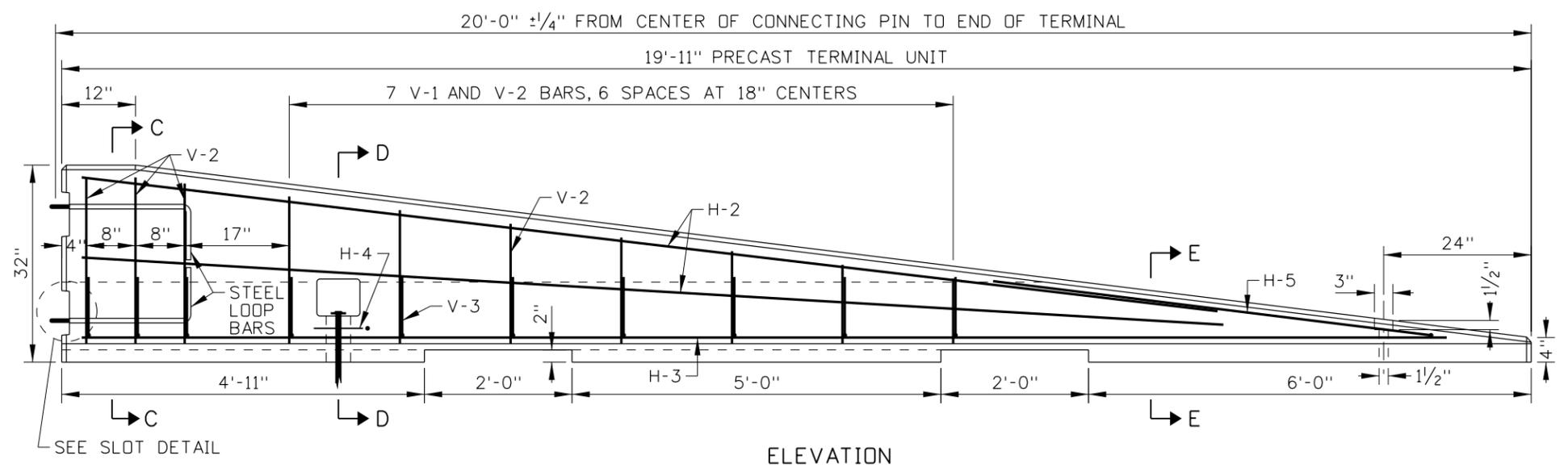
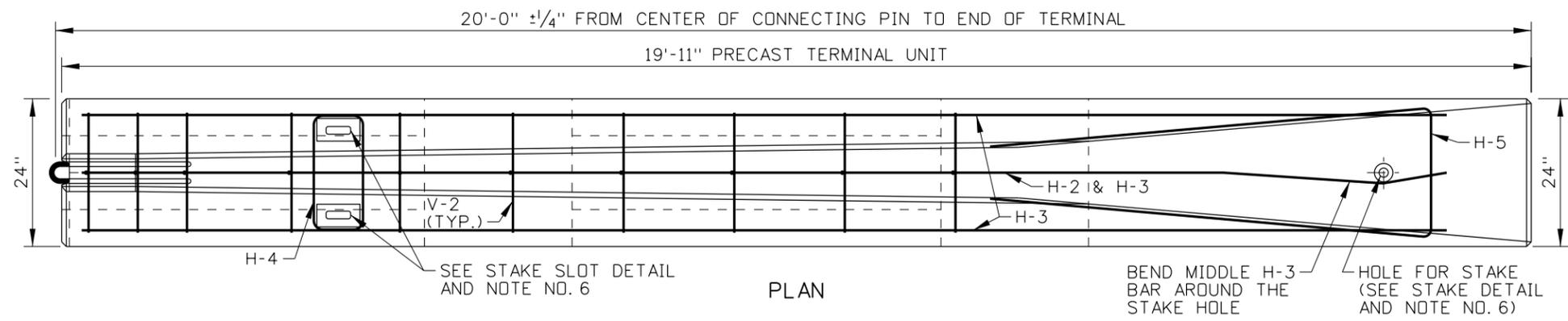
English
STANDARD DRAWING NO.
G-2-A
SHEET 1 OF 2

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

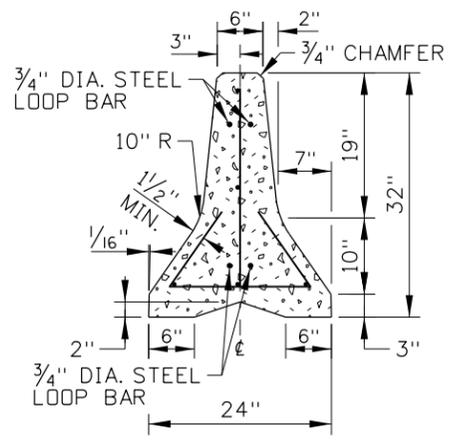
ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE: ORIGINAL SIGNED:
DECEMBER 1, 2014

TERMINAL TYPE B REINFORCING STEEL TABLE
(SEE NOTE NOS. 1, 2, & 3)

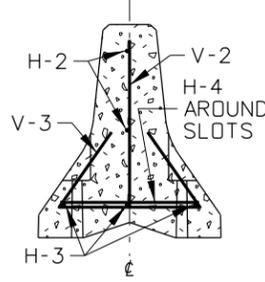
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH																				
H-2	HORIZONTAL BAR. TIED TO V-1 BARS.	NO. 5	2	15'-6"																				
H-3	HORIZONTAL BAR. TIED TO V2 BARS.	NO. 5	3	18'-6"																				
H-4	HORIZONTAL BAR. 1 AROUND EACH SLOTS BETWEEN V-1 BARS.	NO. 4	2	<p>18 1/2" 1" MIN. OVRLP. 1" MIN. COVER 1 1/2" R (TYP.) SLOTS 5'-3" TOTAL BAR LENGTH</p>																				
H-5	HORIZONTAL BAR. AT END OF BARRIER ALONG TOP SLOPE.	NO. 5	1	<p>6'-0" 21" 85° 13'-9" TOTAL BAR LENGTH</p>																				
V-2	VERTICAL BAR.	NO. 5	10	<table border="1"> <thead> <tr> <th>L (IN.)</th> <th>QTY.</th> </tr> </thead> <tbody> <tr><td>26</td><td>2</td></tr> <tr><td>25</td><td>1</td></tr> <tr><td>23</td><td>1</td></tr> <tr><td>21</td><td>1</td></tr> <tr><td>19</td><td>1</td></tr> <tr><td>17</td><td>1</td></tr> <tr><td>15</td><td>1</td></tr> <tr><td>12</td><td>1</td></tr> <tr><td>10</td><td>1</td></tr> </tbody> </table> <p>3'-7 1/2" TOTAL BAR LENGTH</p>	L (IN.)	QTY.	26	2	25	1	23	1	21	1	19	1	17	1	15	1	12	1	10	1
L (IN.)	QTY.																							
26	2																							
25	1																							
23	1																							
21	1																							
19	1																							
17	1																							
15	1																							
12	1																							
10	1																							
V-3	VERTICAL BAR. TIE TO V-1 AND H-2 BARS.	NO. 5	10	<p>19 1/2" 12" 55°</p>																				



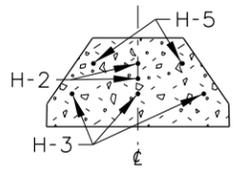
ELEVATION
TERMINAL TYPE B



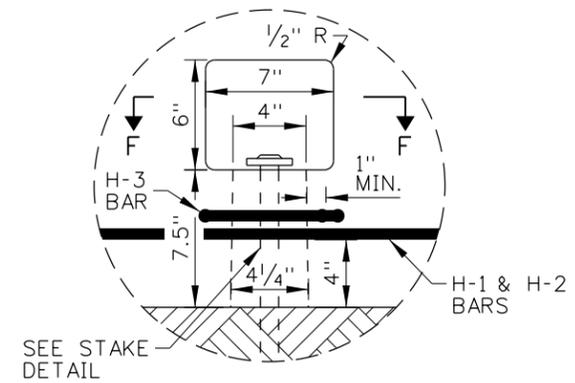
SECTION C-C
(ALSO SEE END VIEW ON SHEET 1)



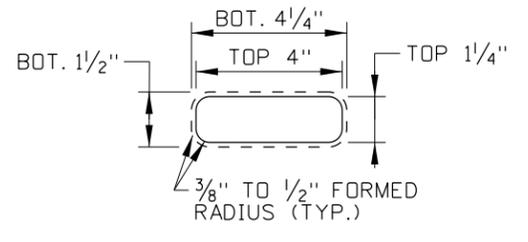
SECTION D-D



SECTION E-E



STAKE SLOT DETAIL



SECTION F-F

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS							
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2	08-86	GB	7	09-93	MSM	12	11-14
3	06-87	GB	8	02-96	MSM		
4	04-89	GB	9	01-00	MSM		
5	01-91	GB	10	12-04	MSM		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g2a_1114.dgn
DRAWING DATE: NOVEMBER, 1974

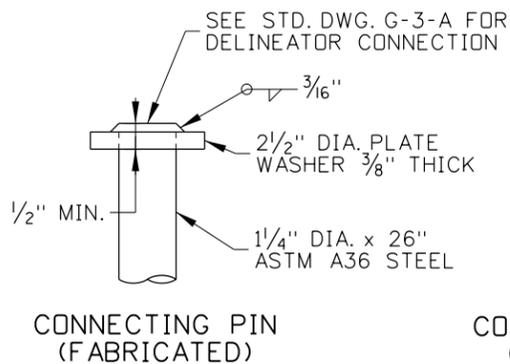
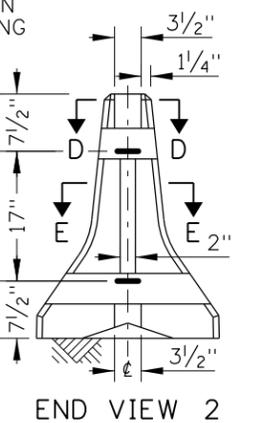
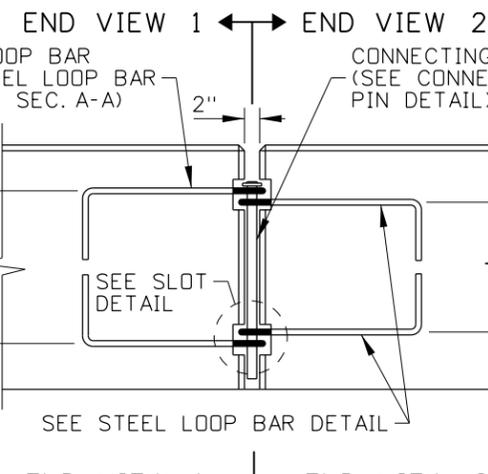
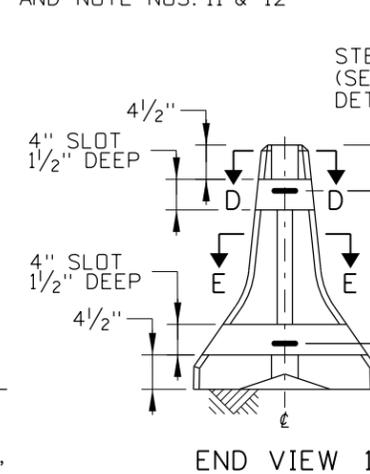
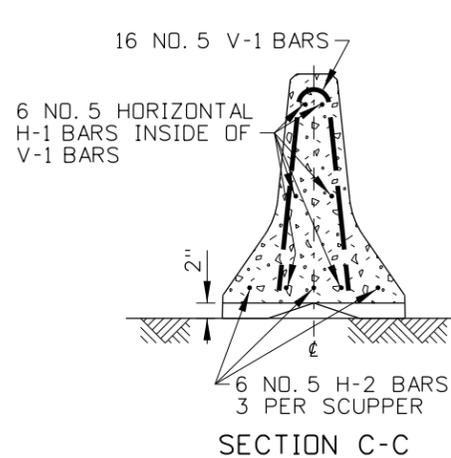
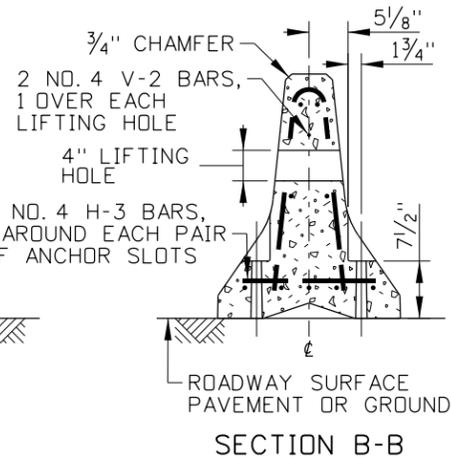
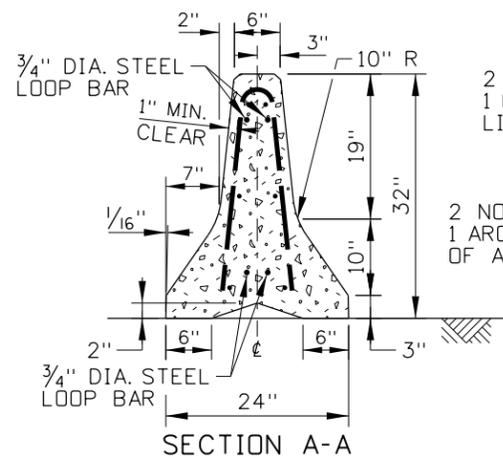
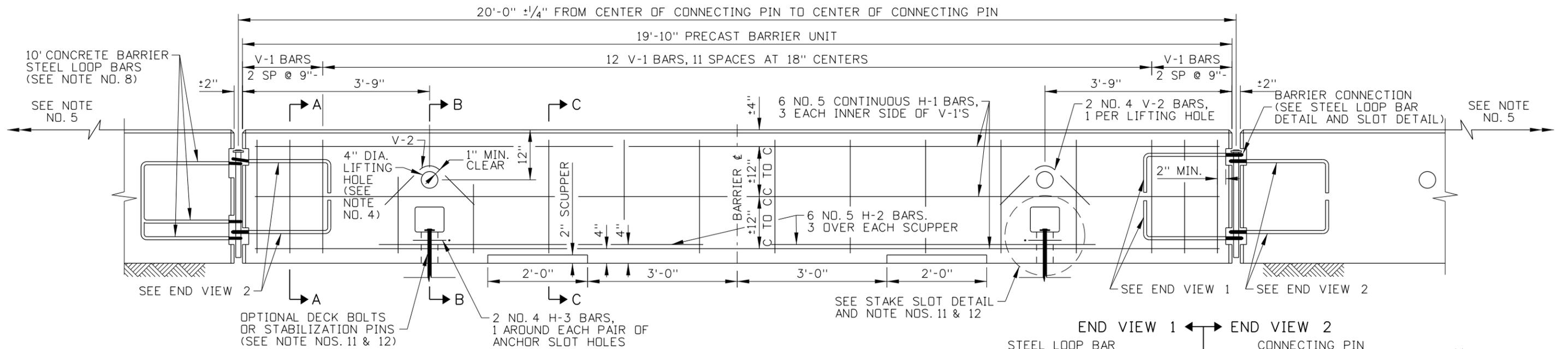
IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN for STANDARDS ENGINEER

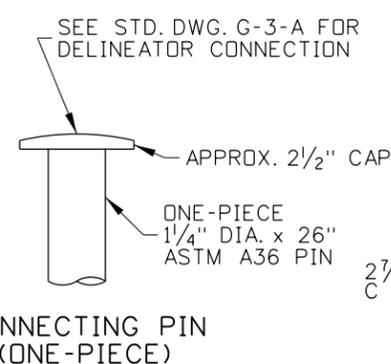
STANDARD DRAWING
CONCRETE BARRIER TERMINALS
REQUIRES SHEET 1 OF 2

English
STANDARD DRAWING NO. G-2-A
SHEET 2 OF 2

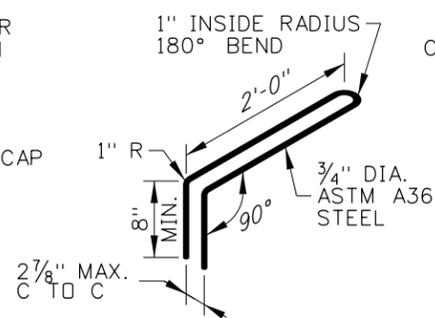
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: DECEMBER 1, 2014



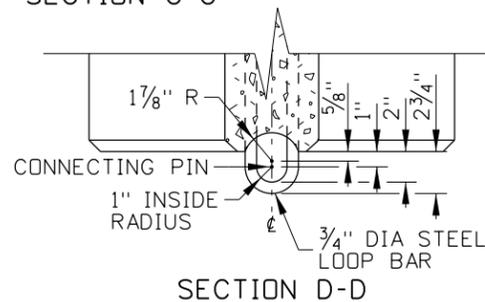
CONNECTING PIN DETAIL
(SEE NOTE NO. 6)



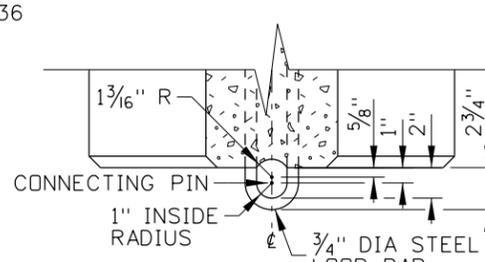
CONNECTING PIN
(ONE-PIECE)



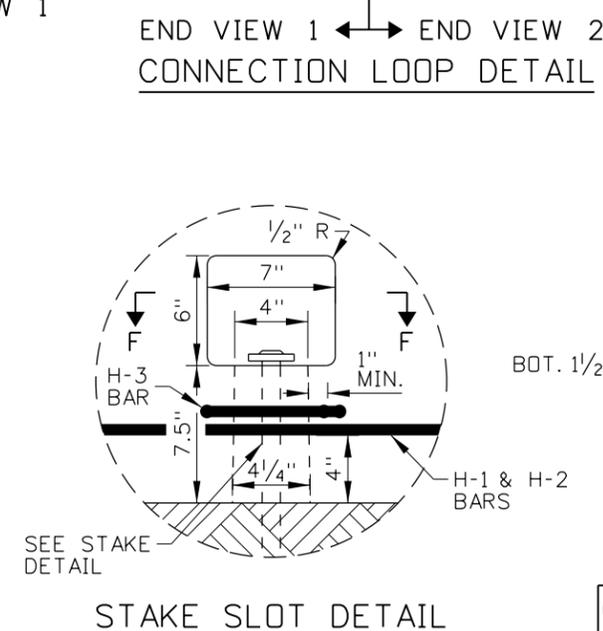
STEEL LOOP BAR DETAIL



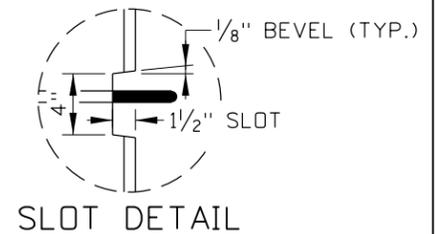
SECTION D-D



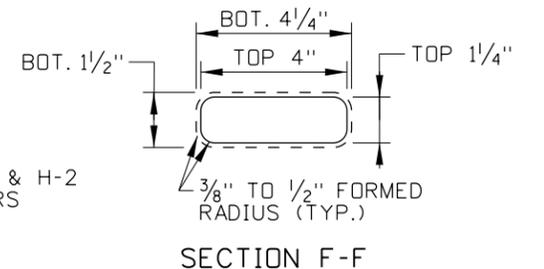
SECTION E-E



STAKE SLOT DETAIL



SLOT DETAIL



SECTION F-F

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
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2	12-01	MSM	7	10-04	MSM		
3	07-02	MSM	8	09-10	PLR		
4	07-03	MSM	9	03-13	RDL		
5	09-03	MSM	10	04-14	RDL		

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CADD FILE NAME: g2a1_0514.dgn
DRAWING DATE: NOVEMBER, 1999

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

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DESIGN/TRAFFIC SERVICES ENGINEER

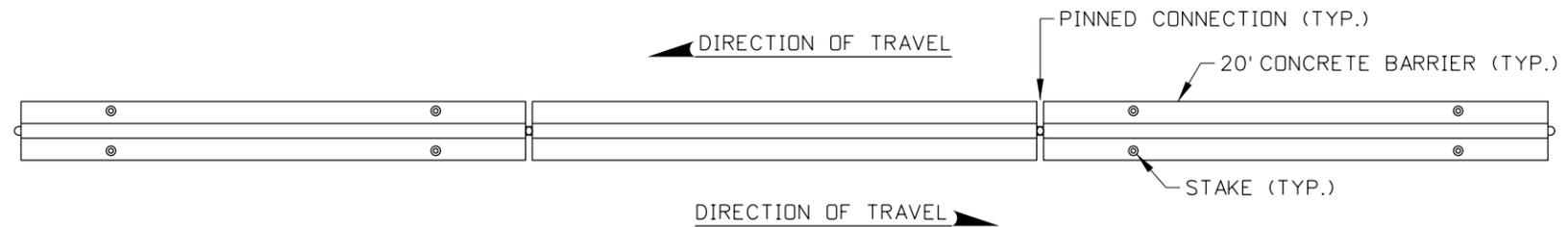
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20' CONCRETE BARRIER
REQUIRES SHEET 2 OF 3 AND 3 OF 3

English
STANDARD DRAWING NO.
G-2-A-1
SHEET 1 OF 3

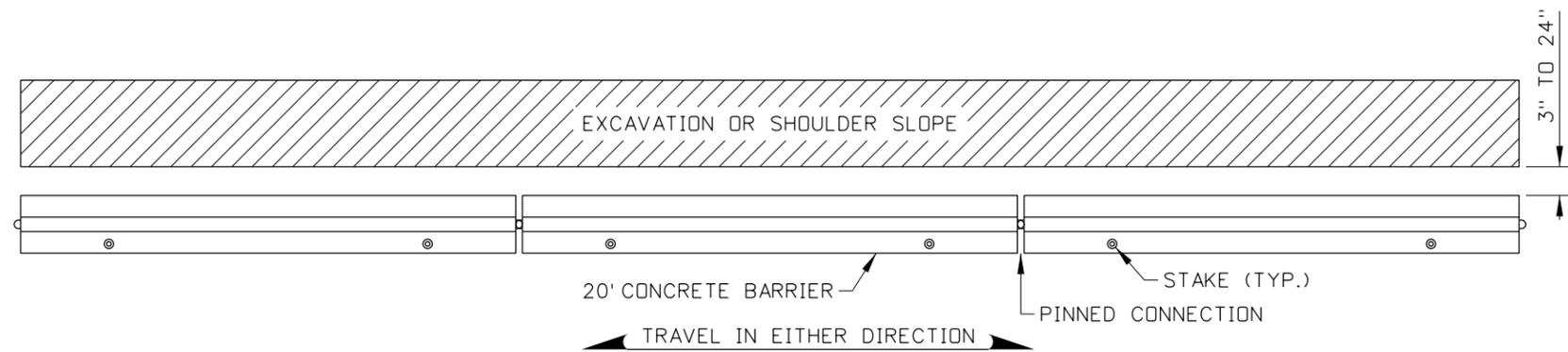
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: MAY 16, 2014

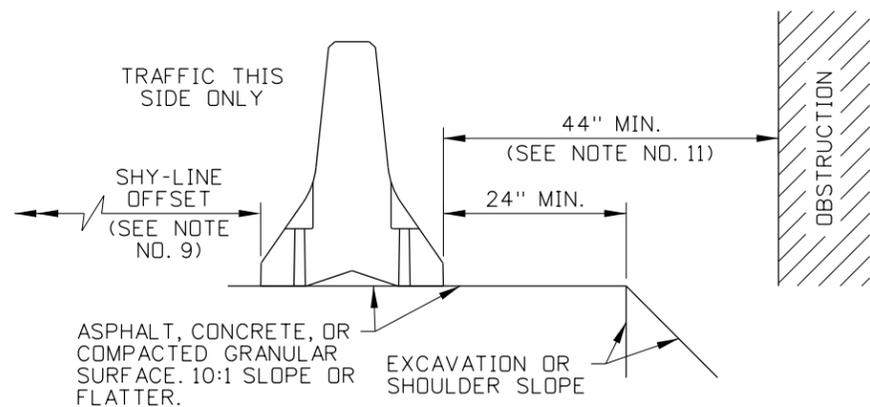
REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL BAR. TIED INSIDE V-1 BARS.	NO. 5	6	19'-3"
H-2	HORIZONTAL BAR. 3 CENTERED ABOVE EACH SCUPPER.	NO. 5	6	6'-6"
H-3	HORIZONTAL BAR. 1 AROUND EACH SLOTS BETWEEN V-1 BARS.	NO. 4	2	
V-1	VERTICAL BAR. 3 AT EACH END AND SPACED 18 7/8" THEREAFTER	NO. 5	16	
V-2	VERTICAL BAR. 1 OVER EACH LIFTING HOLE.	NO. 4	2	



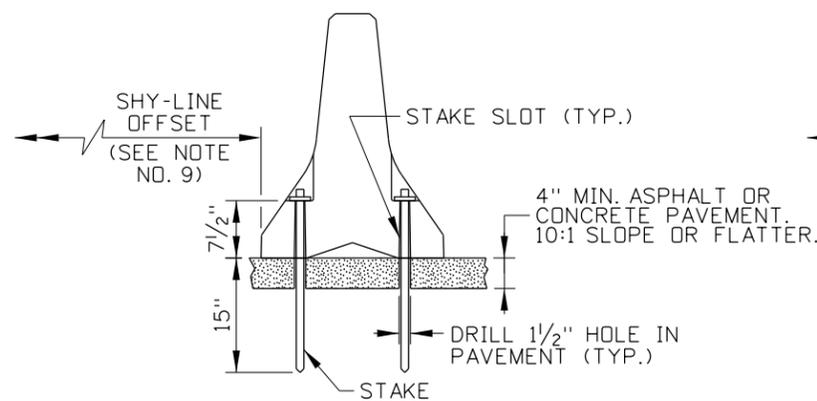
STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
(SEE NOTE NO. 11)



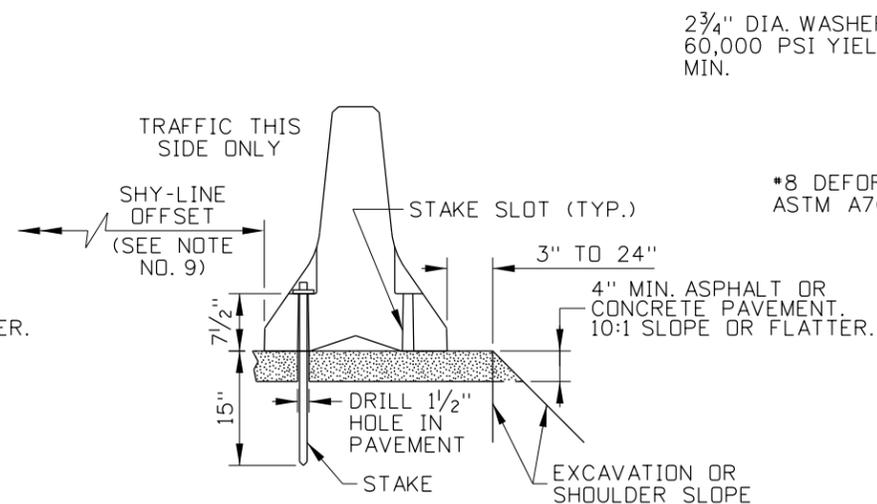
STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 11)



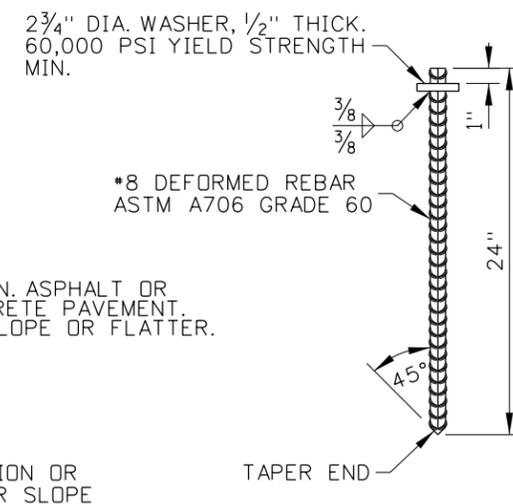
NON-STAKED BARRIER
SHOWN ADJACENT TO EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 11)



STAKED MEDIAN BARRIER
SEE STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
(SEE NOTE NO. 11)



STAKED SHOULDER BARRIER
SEE STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 11)



STAKE DETAIL

REVISIONS							
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2	12-01	MSM	7	10-04	MSM		
3	07-02	MSM	8	09-10	PLR		
4	07-03	MSM	9	03-13	RDL		
5	09-03	MSM	10	04-14	RDL		

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CADD FILE NAME: g2a1_0514.dgn
DRAWING DATE: NOVEMBER, 1999

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STANDARD DRAWING

20' CONCRETE BARRIER

REQUIRES SHEET 1 OF 3 AND 3 OF 3

English

STANDARD DRAWING NO.

G-2-A-1

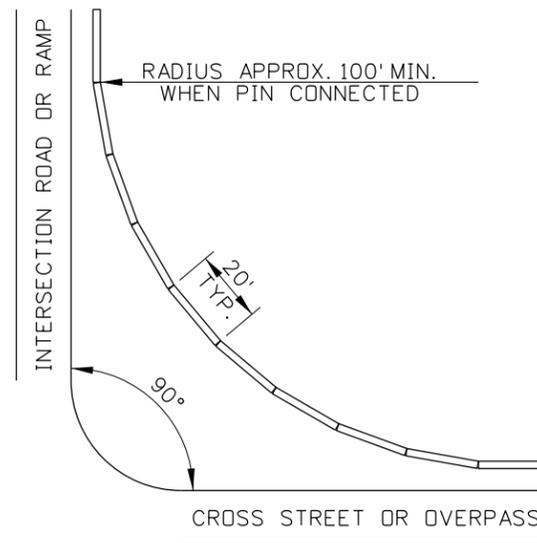
SHEET 2 OF 3

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
MAY 16, 2014

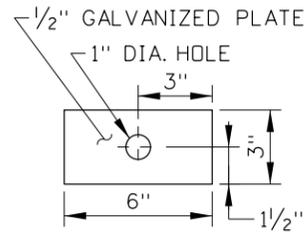
NOTES

CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE				
DESIGN SPEED (MPH)	SHY-LINE OFFSET (FT)	BARRIER FLARE RATE		
		INSIDE SHY LINE	AT OR BEYOND SHY LINE NOT STAKED	STAKED
70	9	30:1	15:1	20:1
60	8	26:1	14:1	18:1
55	7	24:1	12:1	16:1
50	6.5	21:1	11:1	14:1
45	6	18:1	10:1	12:1
40	5	16:1	8:1	10:1
30	4	13:1	7:1	8:1

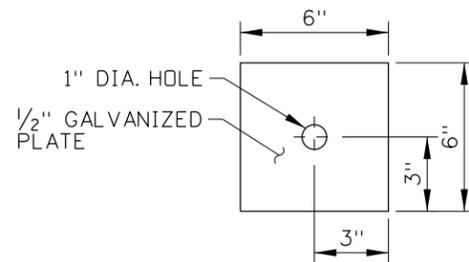


CURVED LAYOUT DETAIL
(SEE NOTE NO. 7)

1. PRECAST USING CLASS 40A CONCRETE. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. A 4" WHITE PVC SLEEVE MAY BE USED TO FORM THE LIFTING HOLE. IF USED, LEAVE THE PVC SLEEVE IN PLACE.
5. TERMINATE THE BARRIER WITH A CRASHWORTHY END TREATMENT. ACCEPTABLE END TREATMENTS MAY INCLUDE TAPERING THE BARRIER OUTSIDE OF THE CLEAR ZONE, TRANSITION TO W-BEAM OR THRIE-BEAM GUARDRAIL, A CRASH CUSHION, OR CONNECTION TO A BRIDGE PARAPET.
6. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
7. PIN CONNECTED 20' CONCRETE BARRIERS MAY BE ANGLED APPROXIMATELY 10° AT CONNECTIONS. TEN BARRIER UNITS, ANGLED 10° BETWEEN UNITS, ARE NEEDED TO COMPLETE A 90° TURN.
8. WHEN CONNECTING 20' CONCRETE BARRIER TO 10' CONCRETE BARRIER, THE EXPOSED STEEL LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT.
9. ENSURE THAT THE BARRIER IS OFFSET 20" FROM THE EDGE OF NORMAL SHOULDER WHEN TRANSITIONING TO OR FROM W-BEAM OR THRIE-BEAM GUARDRAIL.
10. WHEN INTRODUCING THE CONCRETE BARRIER, FLARE THE BARRIER IN ACCORDANCE WITH THE CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE.
11. THE BARRIER CAN BE INSTALLED WITH OR WITHOUT STAKES.
 - A. WHEN INSTALLED WITHOUT STAKES, ALLOW FOR 44" OF DEFLECTION BEHIND THE BARRIER.
 - B. WHEN INSTALLED AS A MEDIAN BARRIER (BETWEEN TWO-WAY TRAFFIC) ON HIGHWAYS WITH LESS THAN 24" BETWEEN THE EDGE OF TRAVELED WAY AND THE BARRIER, USE FOUR STAKES IN EVERY OTHER PANEL WITH END PANELS STAKED.
 - C. WHEN PLACED 3" TO 24" FROM THE EDGE OF AN EXCAVATION OR SHOULDER HINGE POINT, USE TWO STAKES PER PANEL ALONG THE TRAFFIC SIDE.
 - D. ON BRIDGE DECKS, USE ANCHOR BOLTS OR DECK BOLTS IN LIEU OF STAKES. USE FOUR BOLTS PER BARRIER SEGMENT. ENSURE THAT ANCHOR BOLTS ARE EMBEDDED A MINIMUM DEPTH OF 6" OR PER THE INSTALLATION INSTRUCTIONS OF THE BONDING MATERIAL.
 - E. DO NOT STAKE OR BOLT BARRIER UNITS THAT EXTEND ACROSS BRIDGE EXPANSION JOINTS.
12. THE FOLLOWING APPLY WHEN STAKES, ANCHOR BOLTS, OR DECK BOLTS ARE USED:
 - A. ENSURE THAT THE STAKES OR BOLTS DO NOT PROTRUDE BEYOND THE EXTERIOR FACE OF THE BARRIER SURFACE.
 - B. DO NOT DRILL ANCHOR HOLES INTO PRESTRESSED CONCRETE DECK PANELS.
 - C. ENSURE THAT BRIDGE DECK ANCHOR HOLES ARE DRILLED OR CORED SMOOTH AND ROUND.
 - D. DO NOT USE EXPANSION ANCHORS.
 - E. TIGHTEN DECK BOLTS DOWN WELL. BOLT LENGTH SHOULD ALLOW AT LEAST ONE COURSE OF THREADS TO SHOW OUTSIDE OF THE NUT WHEN TIGHTENED.
13. DRAWINGS NOT TO SCALE.

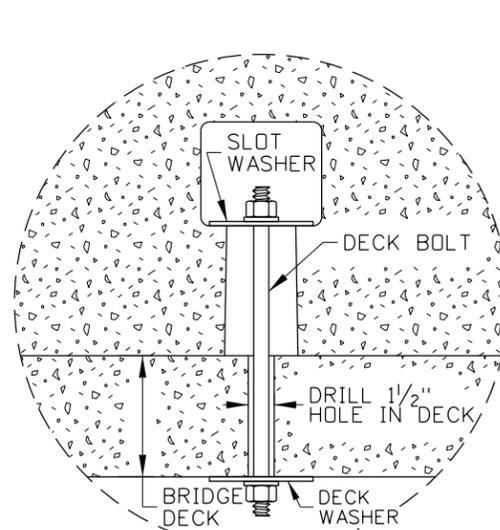


SLOT WASHER

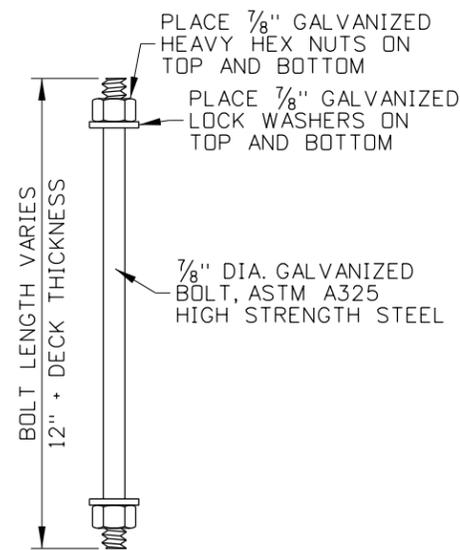


DECK WASHER

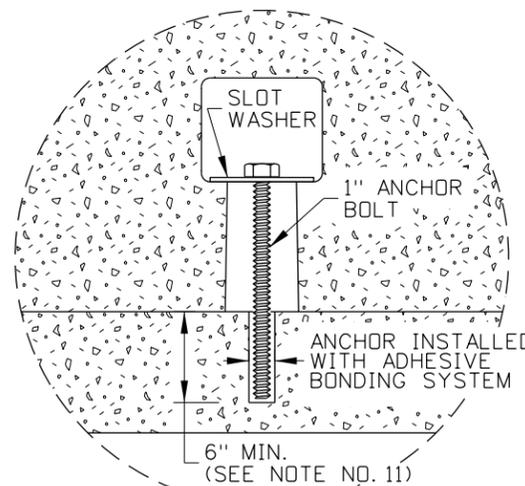
WASHER DETAILS



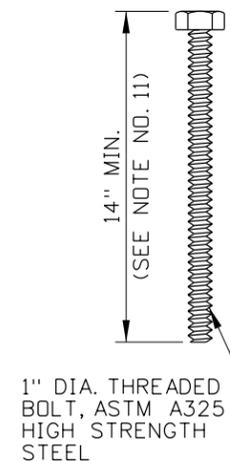
DECK BOLT ASSEMBLY



DECK BOLT



ANCHOR BOLT ASSEMBLY



ANCHOR BOLT

BRIDGE DECK ANCHOR DETAILS
(SEE NOTE NOS. 11 AND 12)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 16, 2014

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
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2	12-01	MSM	7	10-04	MSM		
3	07-02	MSM	8	09-10	PLR		
4	07-03	MSM	9	03-13	RDL		
5	09-03	MSM	10	04-14	RDL		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g2a1_0514.dgn
DRAWING DATE: NOVEMBER, 1999

IDAHO TRANSPORTATION DEPARTMENT

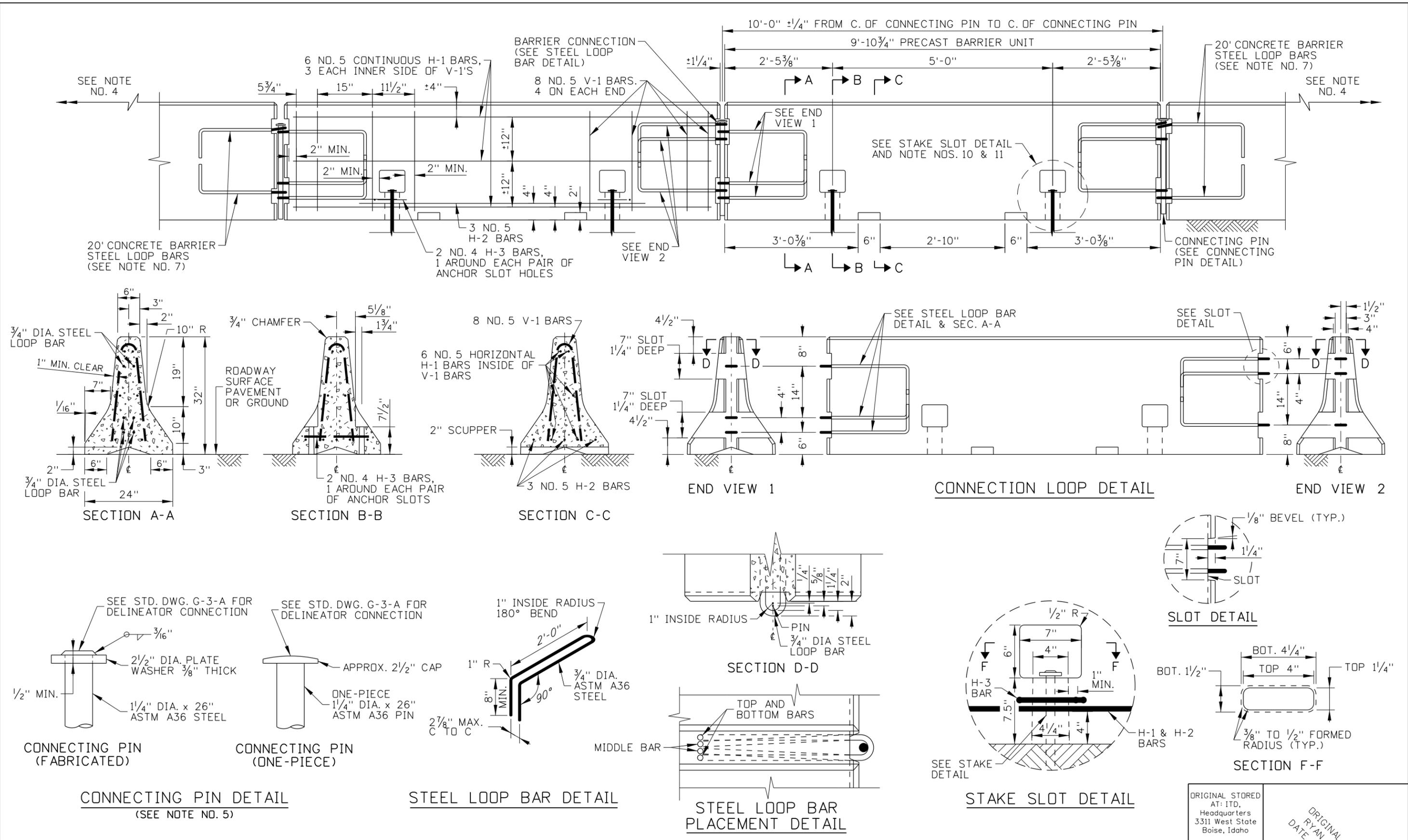


BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
20' CONCRETE BARRIER
REQUIRES SHEET 1 OF 3 AND 2 OF 3

English
STANDARD DRAWING NO.
G-2-A-1
SHEET 3 OF 3



REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	6-02	MSM	6	03-13	RDL		
2	7-03	MSM	7	04-14	RDL		
3	6-04	MSM					
4	11-04	MSM					
5	9-10	PLR					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: g2a2_0514.dgn

DRAWING DATE: APRIL, 2002

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DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

10' CONCRETE BARRIER

REQUIRES SHEETS 2 OF 3 & 3 OF 3

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

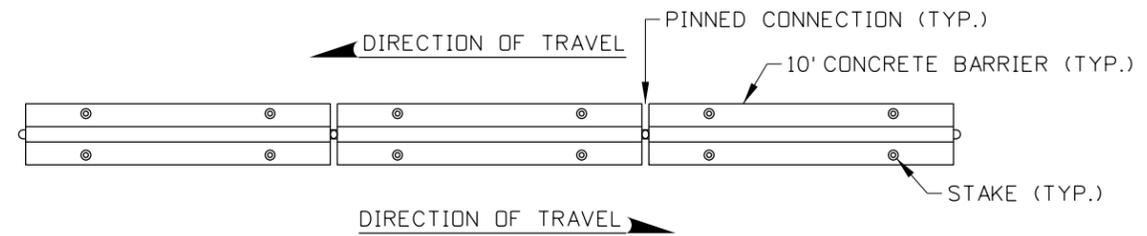
English

STANDARD DRAWING NO. **G-2-A-2**

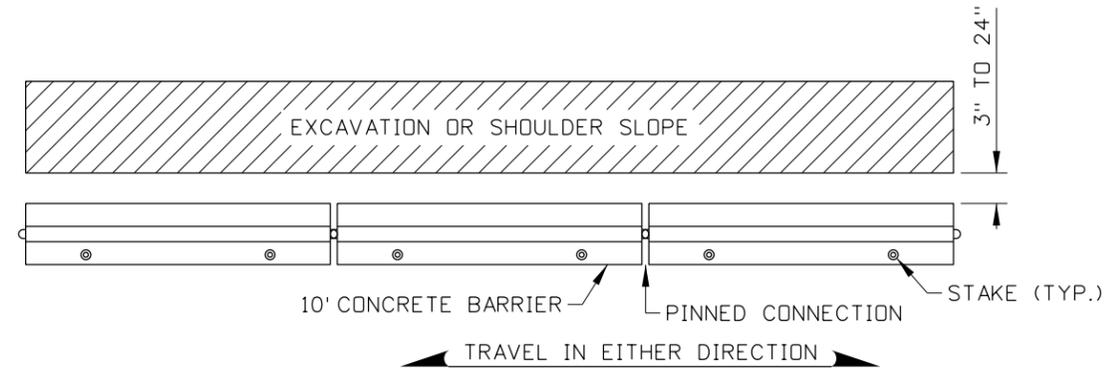
SHEET 1 OF 3

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: MAY 16, 2014

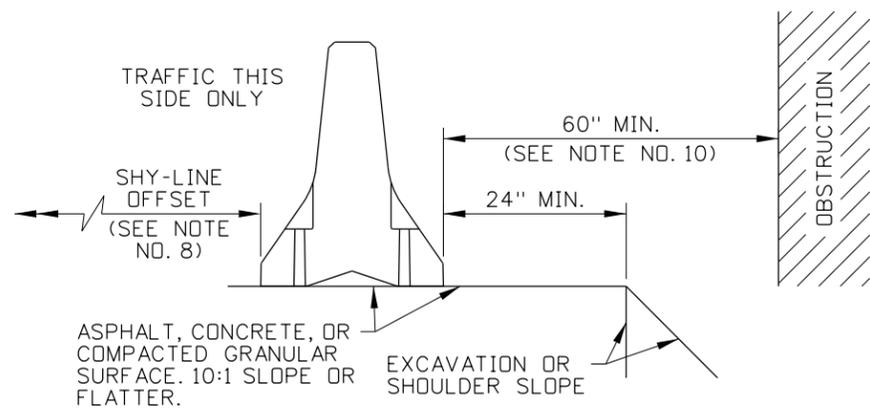
REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL BAR. TIED INSIDE V-1 BARS.	NO. 5	6	9'-6"
H-2	HORIZONTAL BAR. 3 CENTERED ABOVE EACH SCUPPER.	NO. 5	3	6'-6"
H-3	HORIZONTAL BAR. 1 AROUND EACH SLOTS BETWEEN V-1 BARS.	NO. 4	2	
V-1	VERTICAL BAR. 3 AT EACH END AND 2 AT EACH SCUPPER	NO. 5	8	



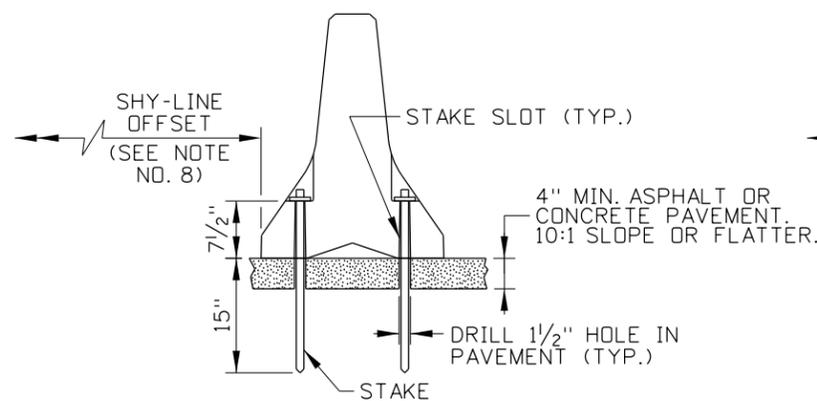
STAKING CONFIGURATION FOR TWO-WAY TRAFFIC
(SEE NOTE NO. 10)



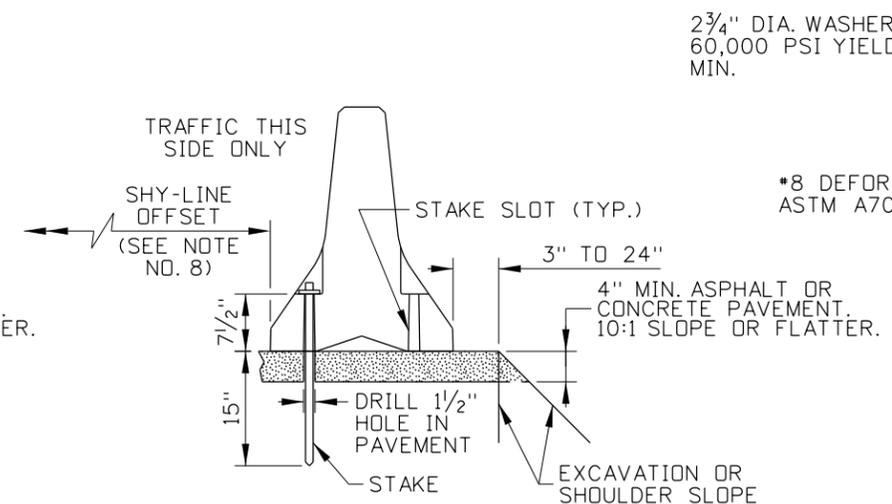
STAKING CONFIGURATION ADJACENT TO AN EXCAVATION OR SHOULDER SLOPE
(SEE NOTE NO. 10)



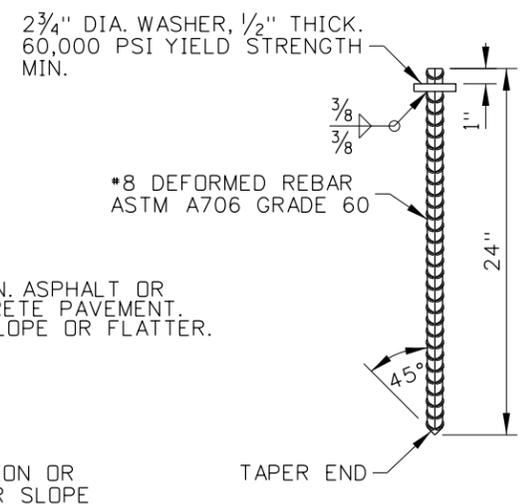
NON-STAKED BARRIER
SHOWN ADJACENT TO EXCAVATION
OR SHOULDER SLOPE
(SEE NOTE NO. 10)



STAKED MEDIAN BARRIER
SEE STAKING CONFIGURATION FOR
TWO-WAY TRAFFIC
(SEE NOTE NO. 10)



STAKED SHOULDER BARRIER
SEE STAKING CONFIGURATION
ADJACENT TO AN EXCAVATION OR
SHOULDER SLOPE
(SEE NOTE NO. 10)



STAKE DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	6-02	MSM	6	03-13	RDL		
2	7-03	MSM	7	04-14	RDL		
3	6-04	MSM					
4	11-04	MSM					
5	9-10	PLR					

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY
CADD FILE NAME:
g2g2_0514.dgn
DRAWING DATE:
APRIL, 2002

**IDAHO
TRANSPORTATION
DEPARTMENT**

BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
10' CONCRETE BARRIER
REQUIRES SHEETS 1 OF 3 & 3 OF 3

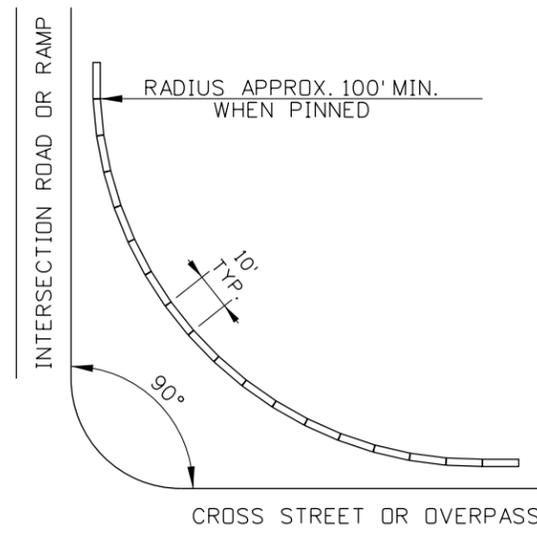
ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

English
STANDARD DRAWING NO.
G-2-A-2
SHEET 2 OF 3

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
MAY 16, 2014

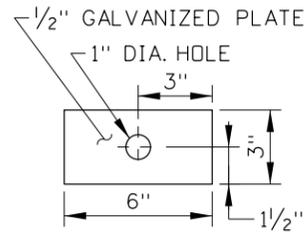
NOTES

CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE				
DESIGN SPEED (MPH)	SHY-LINE OFFSET (FT)	BARRIER FLARE RATE		
		INSIDE SHY LINE	AT OR BEYOND SHY LINE NOT STAKED	STAKED
70	9	30:1	15:1	20:1
60	8	26:1	14:1	18:1
55	7	24:1	12:1	16:1
50	6.5	21:1	11:1	14:1
45	6	18:1	10:1	12:1
40	5	16:1	8:1	10:1
30	4	13:1	7:1	8:1

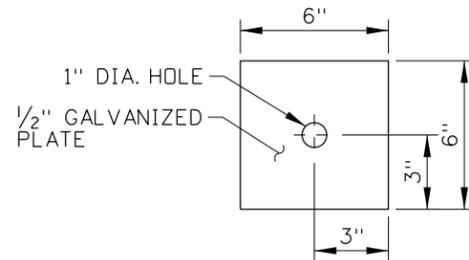


CURVED LAYOUT DETAIL
(SEE NOTE NO. 6)

1. PRECAST USING CLASS 40A CONCRETE. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. TERMINATE THE BARRIER WITH A CRASHWORTHY END TREATMENT. ACCEPTABLE END TREATMENTS MAY INCLUDE TAPERING THE BARRIER OUTSIDE OF THE CLEAR ZONE, TRANSITION TO W-BEAM OR THRIE-BEAM GUARDRAIL, A CRASH CUSHION, OR CONNECTION TO A BRIDGE PARAPET.
5. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
6. PIN CONNECTED 10' CONCRETE BARRIERS MAY BE ANGLED APPROXIMATELY 5.5° AT CONNECTIONS. SIXTEEN BARRIER UNITS, ANGLED 5.5° BETWEEN UNITS, ARE NEEDED TO COMPLETE A 90° TURN.
7. WHEN CONNECTING 10' CONCRETE BARRIER TO 20' CONCRETE BARRIER, THE EXPOSED STEEL LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT.
8. ENSURE THAT THE BARRIER IS OFFSET 20" FROM THE EDGE OF NORMAL SHOULDER WHEN TRANSITIONING TO OR FROM W-BEAM OR THRIE-BEAM GUARDRAIL.
9. WHEN INTRODUCING THE CONCRETE BARRIER, FLARE THE BARRIER IN ACCORDANCE WITH THE CONCRETE BARRIER SHY-LINE OFFSET AND FLARE RATE TABLE.
10. THE BARRIER CAN BE INSTALLED WITH OR WITHOUT STAKES.
 - A. WHEN INSTALLED WITHOUT STAKES, ALLOW FOR 60" OF DEFLECTION BEHIND THE BARRIER.
 - B. WHEN INSTALLED AS A MEDIAN BARRIER (BETWEEN TWO-WAY TRAFFIC) ON HIGHWAYS WITH LESS THAN 24" BETWEEN THE EDGE OF TRAVELED WAY AND THE BARRIER, USE FOUR STAKES IN EVERY PANEL.
 - C. WHEN PLACED 3" TO 24" FROM THE EDGE OF AN EXCAVATION OR SHOULDER HINGE POINT, USE TWO STAKES PER PANEL ALONG THE TRAFFIC SIDE.
 - D. ON BRIDGE DECKS, USE ANCHOR BOLTS OR DECK BOLTS IN LIEU OF STAKES. USE FOUR BOLTS PER BARRIER SEGMENT. ENSURE THAT ANCHOR BOLTS ARE EMBEDDED A MINIMUM DEPTH OF 6" OR PER THE INSTRUCTIONS FOR THE BONDING MATERIAL.
 - E. DO NOT STAKE OR BOLT BARRIER UNITS THAT EXTEND ACROSS BRIDGE EXPANSION JOINTS.
11. THE FOLLOWING APPLY WHEN STAKES, ANCHOR BOLTS, OR DECK BOLTS ARE USED:
 - A. ENSURE THAT THE STAKES OR BOLTS DO NOT PROTRUDE BEYOND THE EXTERIOR FACE OF THE BARRIER SURFACE.
 - B. DO NOT DRILL ANCHOR HOLES INTO PRESTRESSED CONCRETE DECK PANELS.
 - C. ENSURE THAT BRIDGE DECK ANCHOR HOLES ARE DRILLED OR CORED SMOOTH AND ROUND.
 - D. DO NOT USE EXPANSION ANCHORS.
 - E. TIGHTEN DECK BOLTS DOWN WELL. BOLT LENGTH SHOULD ALLOW AT LEAST ONE COURSE OF THREADS TO SHOW OUTSIDE OF THE NUT WHEN TIGHTENED.
12. DRAWINGS NOT TO SCALE.

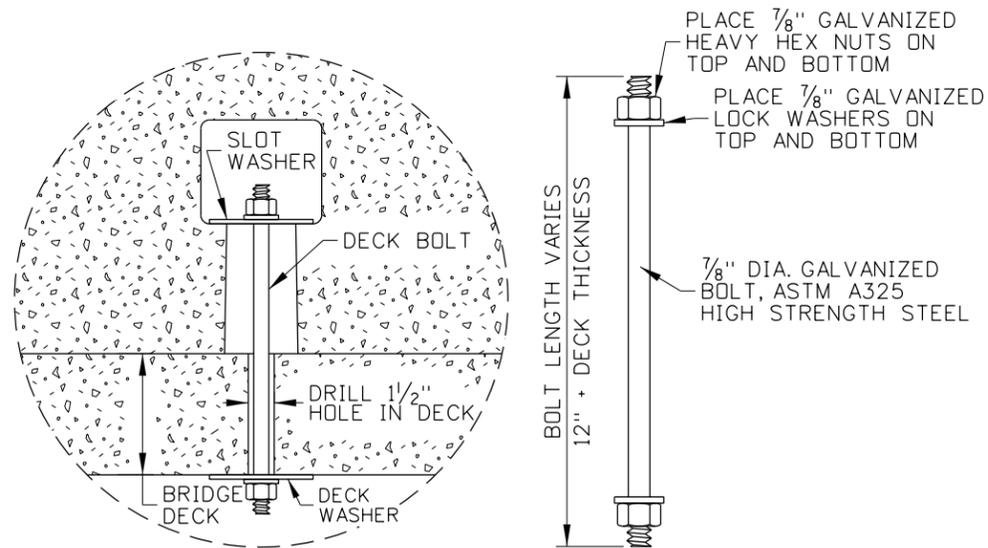


SLOT WASHER

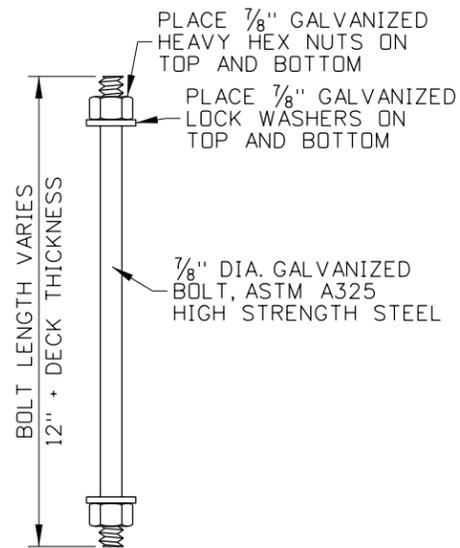


DECK WASHER

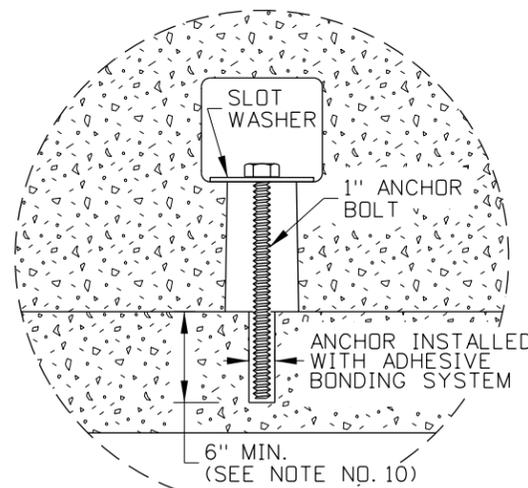
WASHER DETAILS



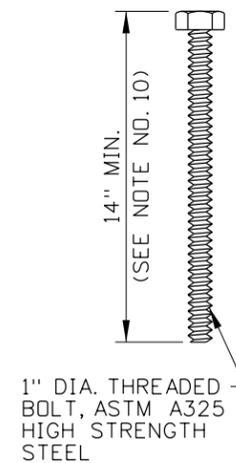
DECK BOLT ASSEMBLY



DECK BOLT



ANCHOR BOLT ASSEMBLY



ANCHOR BOLT

BRIDGE DECK ANCHOR DETAILS
(SEE NOTE NOS. 11 AND 12)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 16, 2014

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	6-02	MSM	6	03-13	RDL		
2	7-03	MSM	7	04-14	RDL		
3	6-04	MSM					
4	11-04	MSM					
5	9-10	PLR					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
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DRAWING DATE: APRIL, 2002

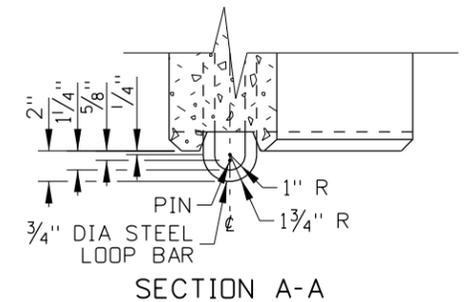
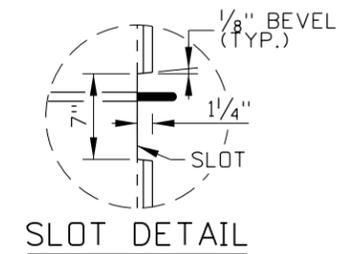
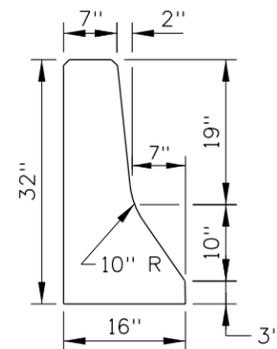
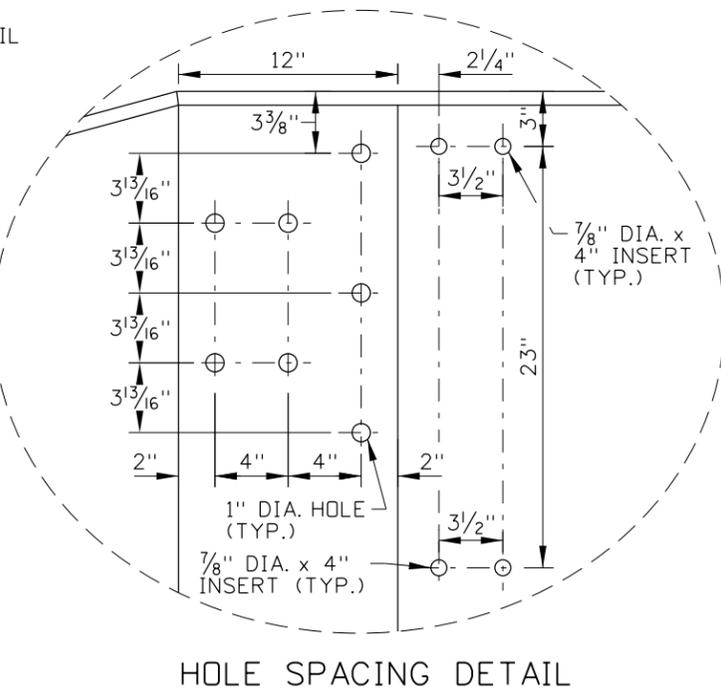
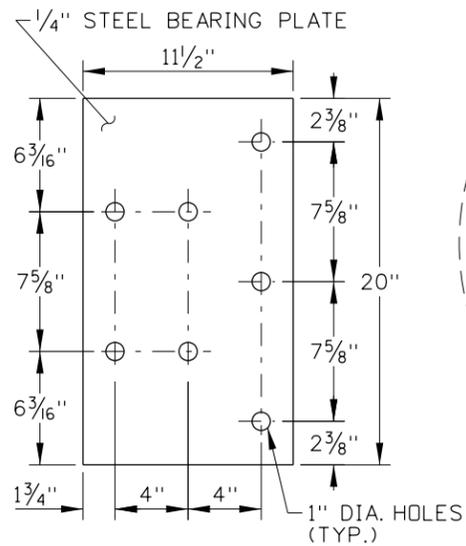
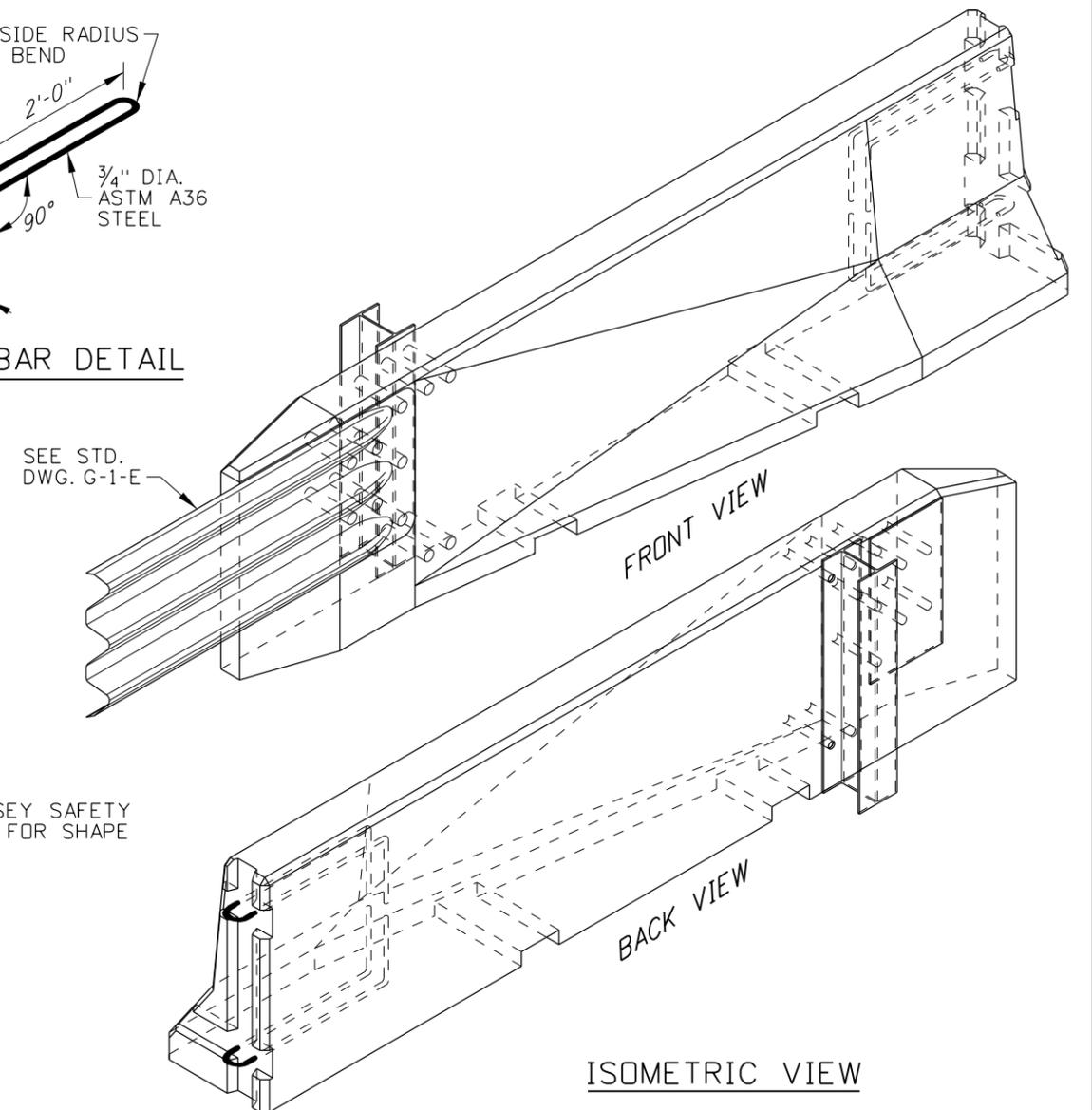
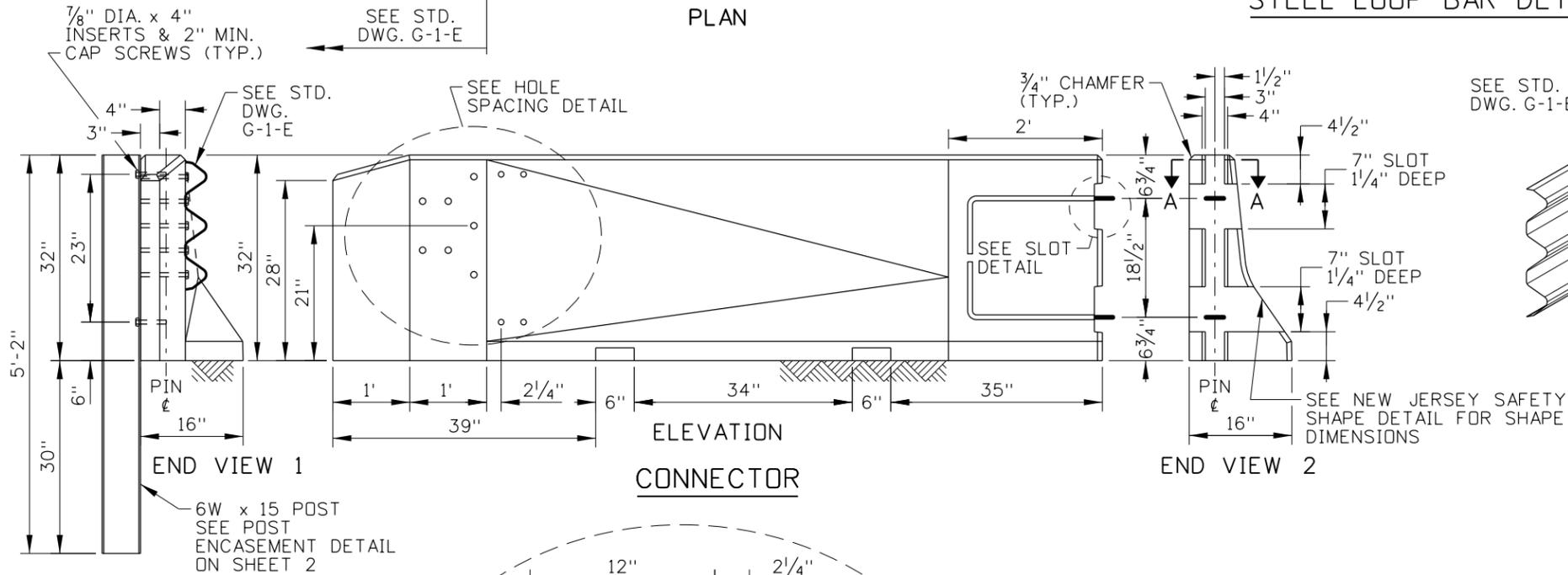
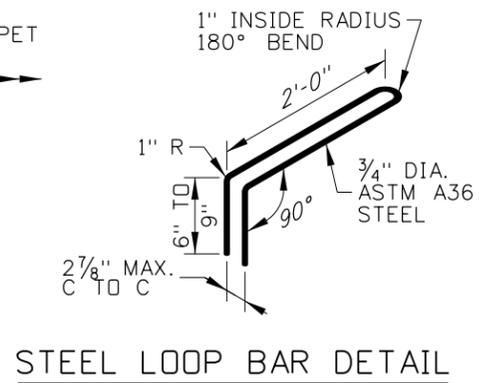
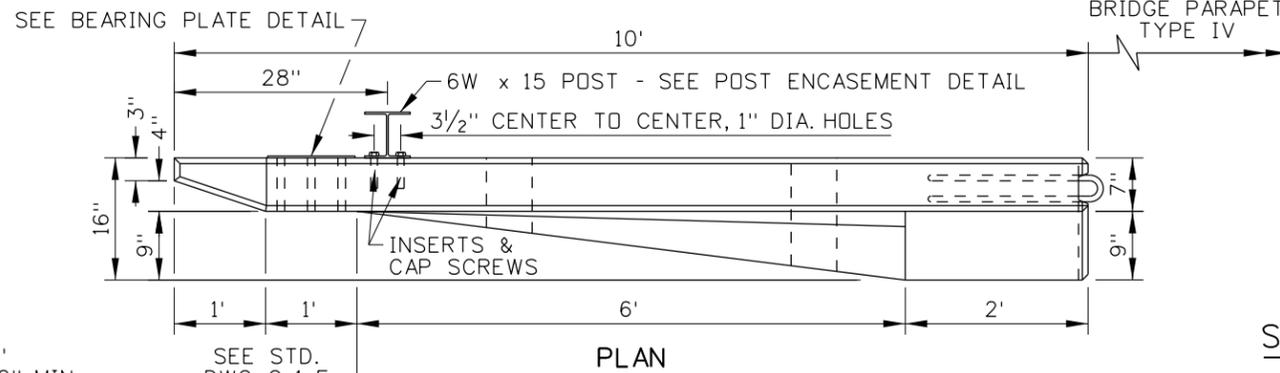
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
10' CONCRETE BARRIER
REQUIRES SHEETS 1 OF 3 & 2 OF 3

English
STANDARD DRAWING NO.
G-2-A-2
SHEET 3 OF 3



BEARING PLATE DETAIL

HOLE SPACING DETAIL

NEW JERSEY SAFETY SHAPE DETAIL

SLOT DETAIL

ISOMETRIC VIEW

SECTION A-A

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	7-78		6	1-91	GB	11	12-02
2	6-80		7	12-92	MSM	12	12-04
3	1-82		8	4-94	MSM	13	10-10
4	5-82		9	2-96	MSM	14	10-13
5	7-88	GB	10	5-99	MSM		

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g2c_1113.dgn
 DRAWING DATE: AUGUST, 1977

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: TOM COLE
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

CONCRETE PARAPET TO THRIE BEAM GUARDRAIL CONNECTOR

REQUIRES SHEET 2 OF 2 & STD. DWG. G-1-E

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

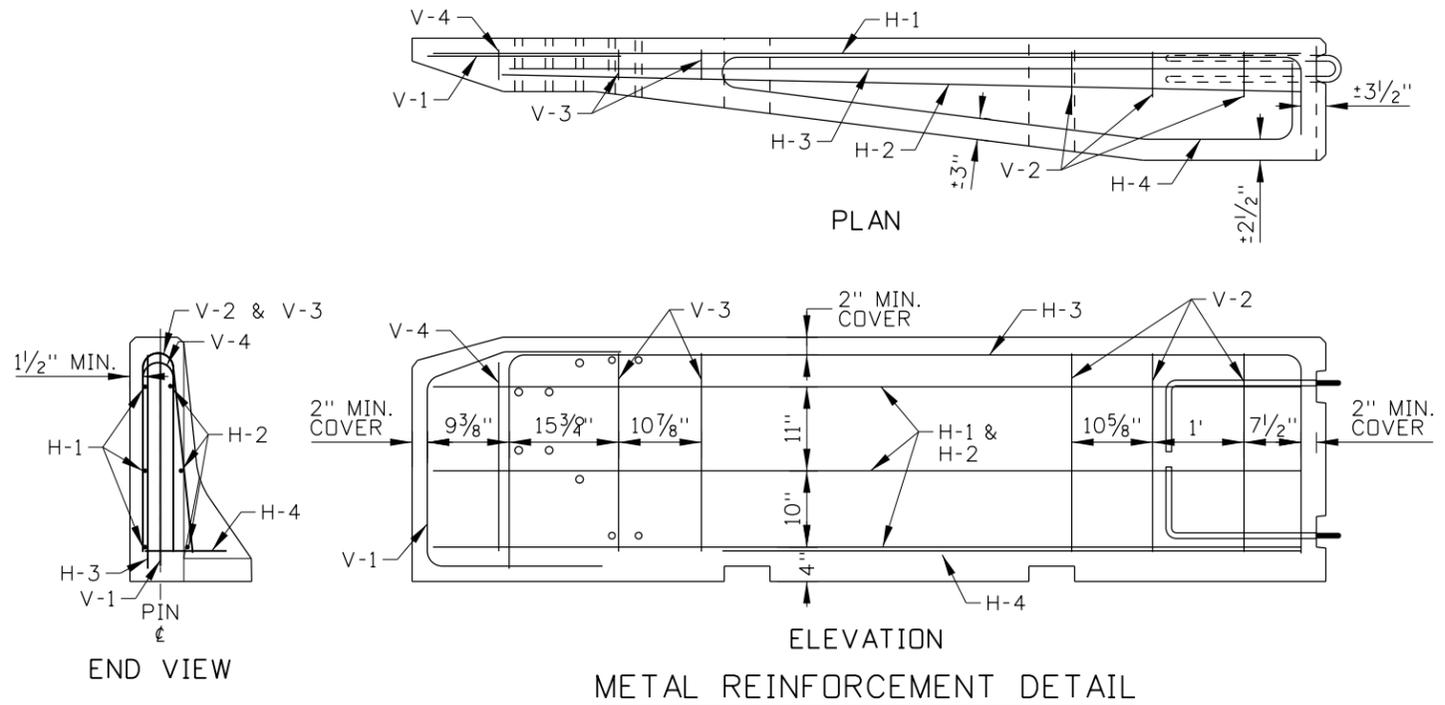
English

STANDARD DRAWING NO. **G-2-C**

SHEET 1 OF 2

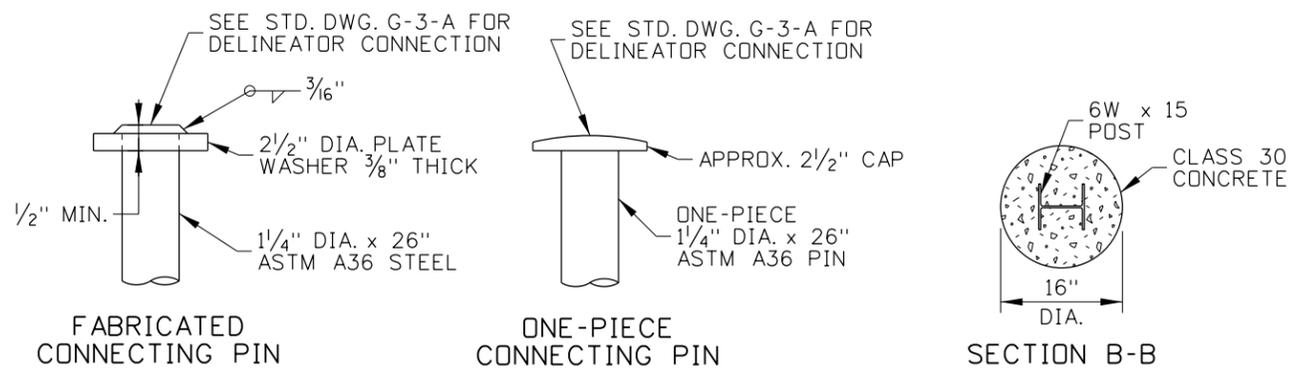
ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: NOVEMBER 6, 2013

REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)					
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	BAR LENGTH	SKETCH
H-1	HORIZONTAL IN BARRIER - TIED TO INSIDE BACK OF V-2, V-3, & V-4 BARS	NO. 5	3	9'-6"	
H-2	HORIZONTAL IN BARRIER - TIED TO INSIDE FRONT OF V-2, V-3, & V-4 BARS	NO. 5	3	8'-9"	
H-3	TIED UNDER V-2, V-3 AND V-4 AND SET BETWEEN STEEL LOOP BARS. TOP TIED ON V-1.	NO. 5	1	13'-0"	
H-4	HORIZONTAL IN BARRIER BASE - FRONT END TIED TO V-1 BOTTOM	NO. 5	1	14'-6"	
V-1	VERTICAL IN BARRIER END - TIED TO H-3 AND TOP OF LOOP V-4	NO. 5	1	6'-0"	
V-2	VERTICAL IN BARRIER - AT TRAILING END	NO. 5	3	4'-9"	
V-3	VERTICAL IN BARRIER	NO. 5	2	4'-8"	
V-4	VERTICAL IN BARRIER AT APPROACHING END OF BARRIER	NO. 5	1	4'-6"	



NOTES

- CONNECTOR MAY BE PRECAST AS SHOWN OR AS A MIRROR IMAGE FOR USE WITH TRAFFIC TRAVELING IN THE OPPOSITE DIRECTION.
- PRECAST USING CONCRETE CLASS 40A. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
- ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
- THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS. THE DIMENSIONS SHOWN ON THE METAL REINFORCEMENT DETAIL ARE MEASURED FROM CENTER OF BAR TO CENTER OF BAR.
- ANCHOR THE CONNECTOR WITH THE ATTACHMENT POST AND CONNECT TO A BRIDGE PARAPET USING A CONNECTING PIN.
- WHEN CONNECTING TO AN EXISTING BRIDGE PARAPET, THE EXPOSED STEEL LOOP BARS MAY NEED TO BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT.
- PROVIDE CAP SCREWS IN ACCORDANCE WITH ASTM A325. ENSURE THAT INSERTS AND CAP SCREWS ARE GALVANIZED.
- PROVIDE THRIE BEAM GUARDRAIL IN ACCORDANCE WITH STANDARD DRAWING G-1-A-5 AND GUARDRAIL TERMINAL TYPE 3 IN ACCORDANCE WITH STANDARD DRAWING G-1-E.
- NOT TO SCALE.



CONNECTING PIN DETAIL
(SEE NOTE NO. 5)

POST ENCASEMENT DETAIL

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

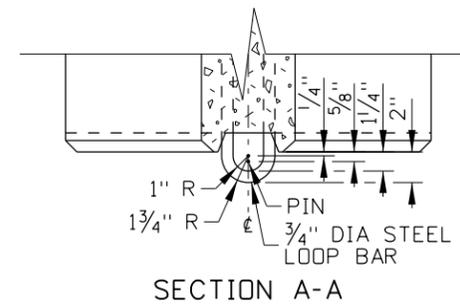
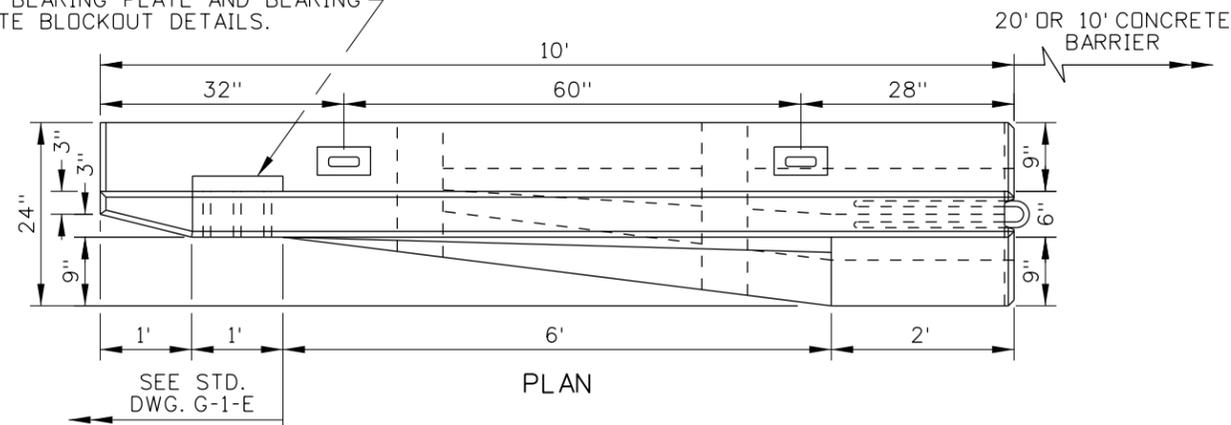
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: NOVEMBER 6, 2013

REVISIONS								SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY	IDAHO TRANSPORTATION DEPARTMENT 	ORIGINAL SIGNED BY: TOM COLE HIGHWAYS PROGRAM OVERSIGHT ENGINEER ORIGINAL SIGNED BY: TOM COLE CHIEF ENGINEER	STANDARD DRAWING CONCRETE PARAPET TO THRIE BEAM GUARDRAIL CONNECTOR REQUIRES SHEET 1 OF 2 & STD. DWG. G-1-E	English STANDARD DRAWING NO. G-2-C SHEET 2 OF 2
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE					
1	7-78		6	1-91	GB	11	12-02	MSM				
2	6-80		7	12-92	MSM	12	12-04	MSM				
3	1-82		8	4-94	MSM	13	10-10	PLR				
4	5-82		9	2-96	MSM	14	10-13	RDL				
5	7-88	GB	10	5-99	MSM							

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DRAWING DATE: AUGUST, 1977

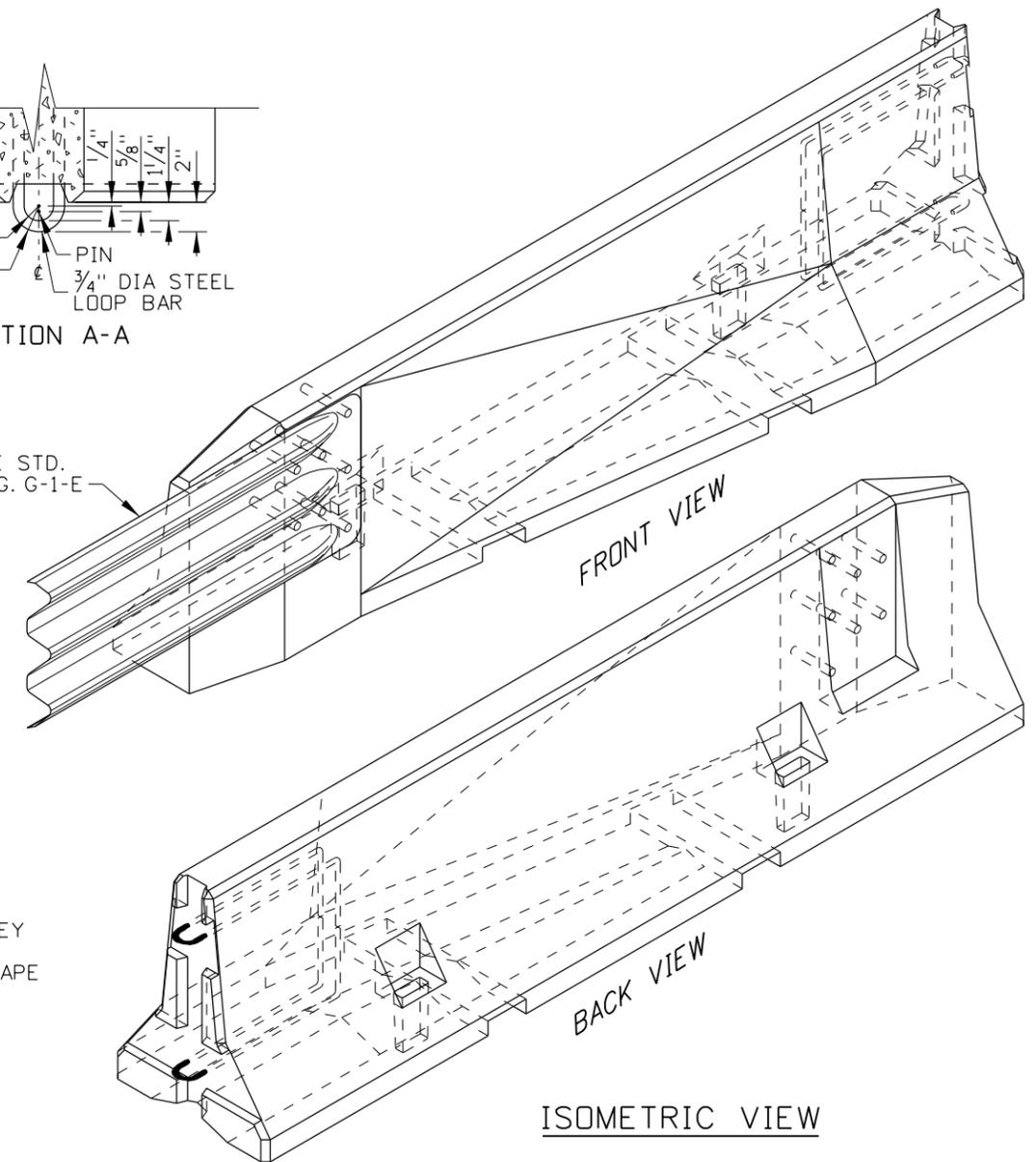
BOISE IDAHO

BLOCKOUT FOR BEARING PLATE.
SEE BEARING PLATE AND BEARING
PLATE BLOCKOUT DETAILS.



SECTION A-A

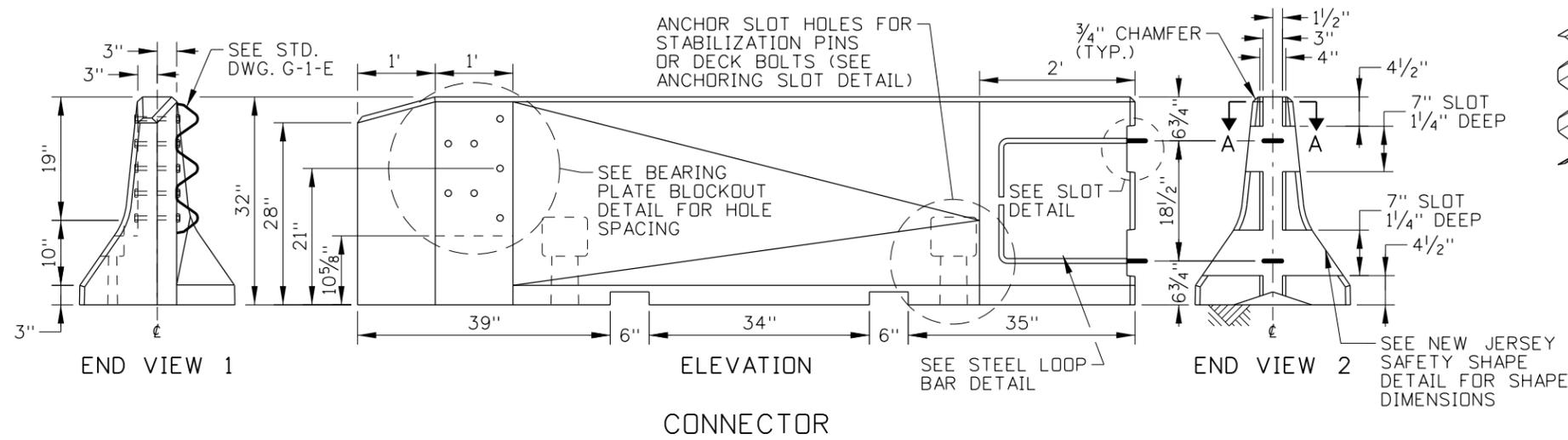
SEE STD.
DWG. G-1-E



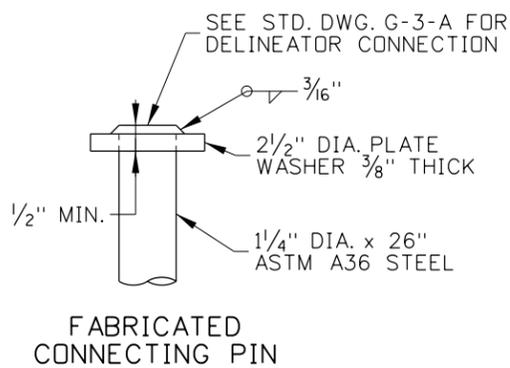
FRONT VIEW

BACK VIEW

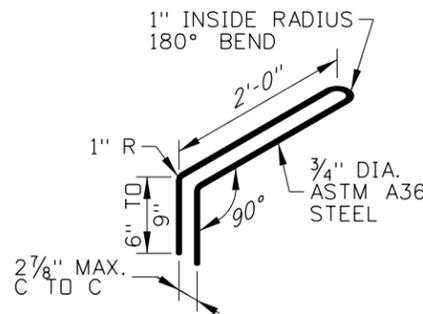
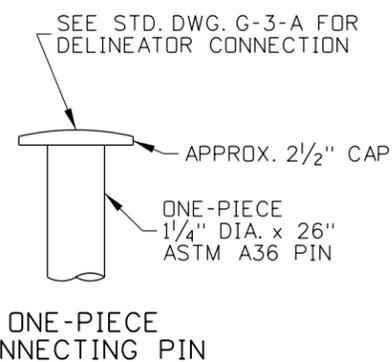
ISOMETRIC VIEW



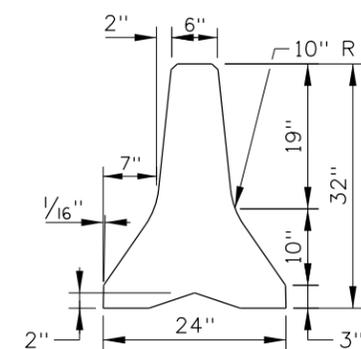
CONNECTOR



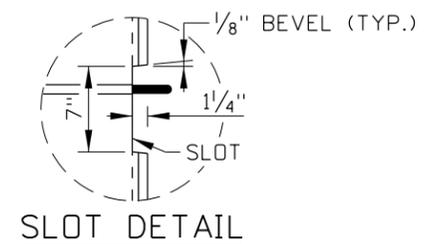
CONNECTING PIN DETAIL
(SEE NOTE NO. 5)



STEEL LOOP BAR DETAIL



NEW JERSEY SAFETY SHAPE DETAIL



SLOT DETAIL

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
NOVEMBER 6, 2013

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	6-80		6	12-94	MSM	11	11-04
2	5-82		7	2-96	MSM	12	10-13
3	7-88	GB	8	5-99	MSM		
4	1-91	GB	9	10-02	MSM		
5	12-92	MSM	10	4-04	MSM		

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
g2d_1113.dgn

DRAWING DATE:
AUGUST, 1977

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: TOM COLE
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

**CONCRETE BARRIER TO THRIE
BEAM GUARDRAIL CONNECTOR**

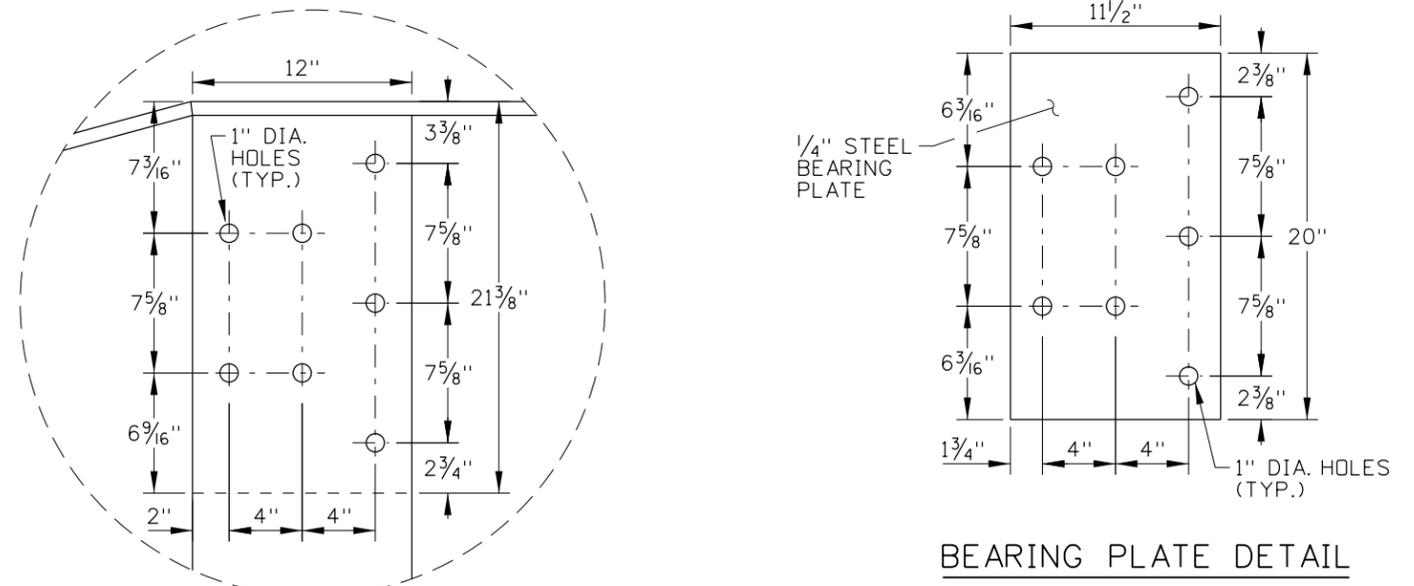
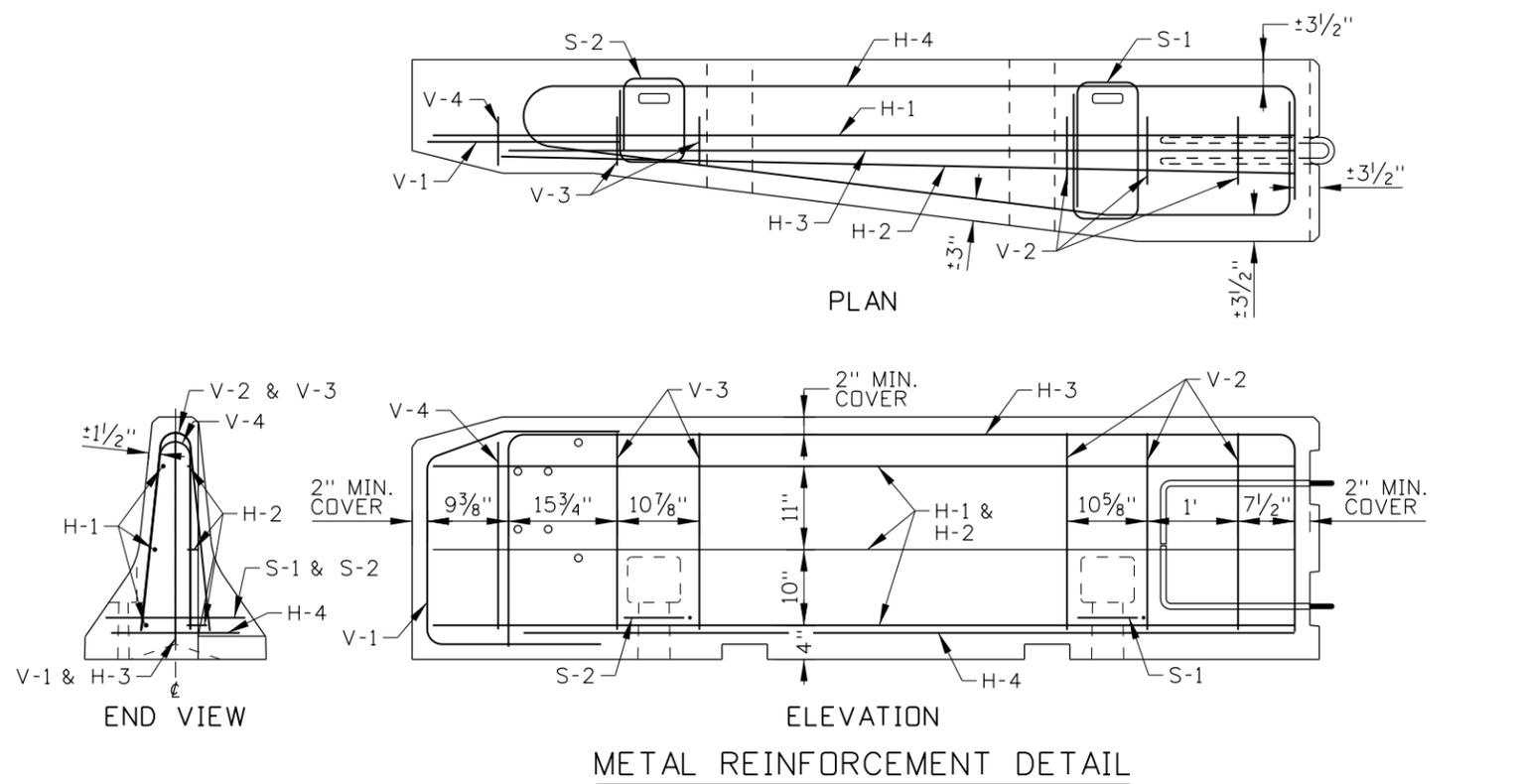
REQUIRES SHEETS 2 OF 3, 3 OF 3,
& STD. DWG. G-1-E

English

STANDARD DRAWING NO.
G-2-D

SHEET 1 OF 3

REINFORCING STEEL TABLE (SEE NOTE NOS. 2, 3, & 4)						
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	BAR LENGTH	SKETCH	
H-1	HORIZONTAL IN BARRIER - TIED TO INSIDE BACK OF V-2, V-3, & V-4 BARS	NO. 5	3	9'-6"		
H-2	HORIZONTAL IN BARRIER - TIED TO INSIDE FRONT OF V-2, V-3, & V-4 BARS	NO. 5	3	8'-9"		
H-3	TIED UNDER V-2, V-3 AND V-4 AND SET BETWEEN STEEL LOOP BARS. TOP TIED ON V-1.	NO. 5	1	13'-0"		
H-4	HORIZONTAL IN BARRIER BASE - FRONT END TIED TO V-1 BOTTOM	NO. 5	1	20'-0"		
V-1	VERTICAL IN BARRIER END - TIED TO H-3 AND TOP OF LOOP V-4	NO. 5	1	6'-0"		
V-2	VERTICAL IN BARRIER - AT TRAILING END. TWO CENTERED OVER TRAILING ANCHOR SLOT	NO. 5	3	4'-9"		
V-3	VERTICAL IN BARRIER. TWO CENTERED OVER APPROACHING SLOT	NO. 5	2	4'-9"		
V-4	VERTICAL IN BARRIER AT APPROACHING END OF BARRIER	NO. 5	1	4'-6"		
S-1	HORIZONTAL AROUND TRAILING ANCHOR SLOT	NO. 4	1	5'-3"		
S-2	HORIZONTAL AROUND APPROACHING ANCHOR SLOT	NO. 4	1	3'-8"		



REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	6-80		6	12-94	MSM	11	11-04
2	5-82		7	2-96	MSM	12	10-13
3	7-88	GB	8	5-99	MSM		
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SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: g2d_1113.dgn

DRAWING DATE: AUGUST, 1977

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: TOM COLE
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

CONCRETE BARRIER TO THRIE BEAM GUARDRAIL CONNECTOR

REQUIRES SHEETS 1 OF 3, 3 OF 3, & STD. DWG. G-1-E

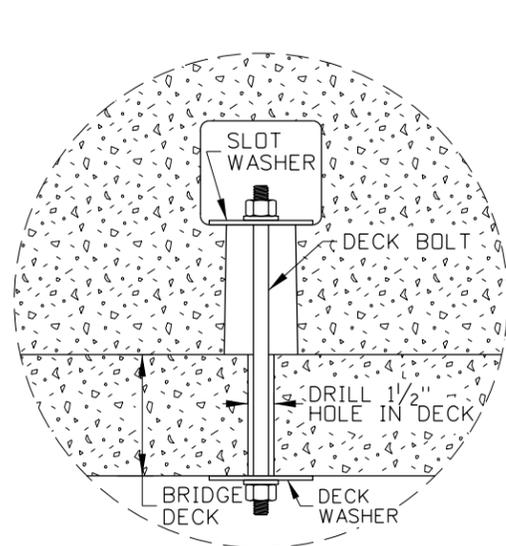
English

STANDARD DRAWING NO. **G-2-D**

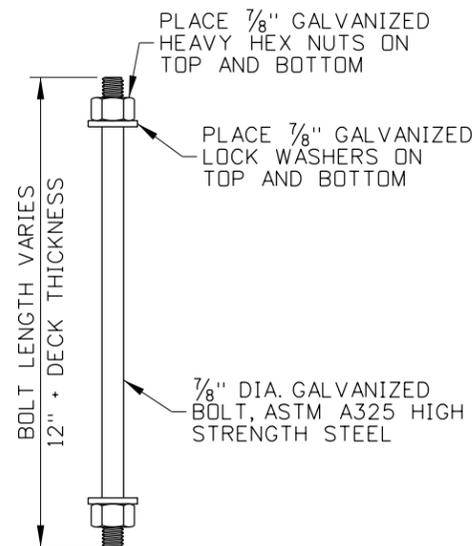
SHEET 2 OF 3

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

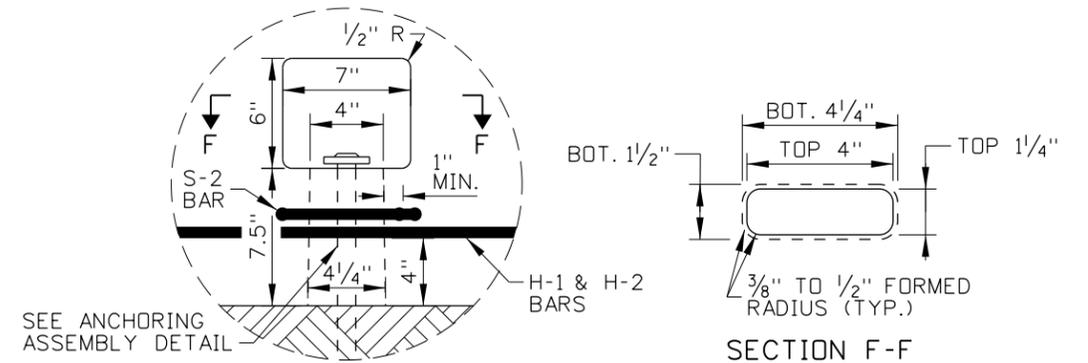
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: NOVEMBER 6, 2013



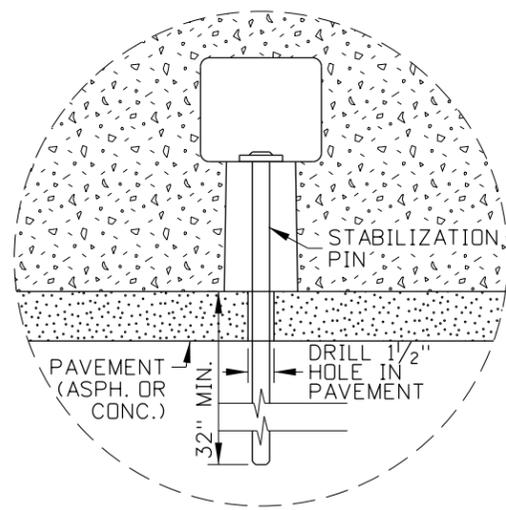
DECK BOLT ANCHORING



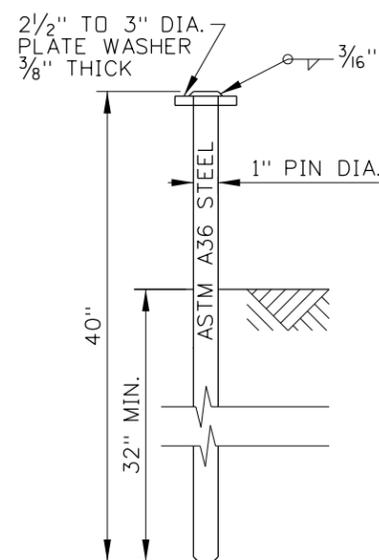
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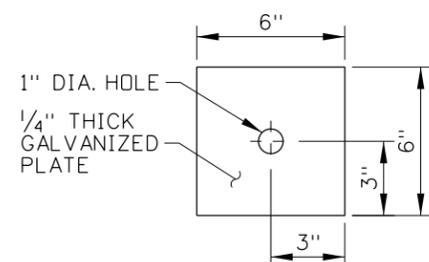
ANCHORING SLOT DETAIL
(SEE NOTE NO. 5)



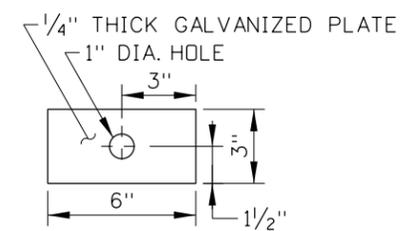
STABILIZATION PIN ANCHORING



STABILIZATION PIN



DECK WASHER



SLOT WASHER

NOTES

- CONNECTOR MAY BE PRECAST AS SHOWN OR AS A MIRROR IMAGE FOR USE WITH TRAFFIC TRAVELING IN THE OPPOSITE DIRECTION.
- PRECAST USING CONCRETE CLASS 40A. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
- ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
- THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS. THE DIMENSIONS SHOWN ON THE METAL REINFORCEMENT DETAIL ARE MEASURED FROM CENTER OF BAR TO CENTER OF BAR.
- ANCHOR THE CONNECTOR TO THE PAVEMENT STRUCTURE SECTION OR BRIDGE DECK USING STABILIZATION PINS OR DECK BOLTS AND CONNECT TO 10' OR 20' CONCRETE BARRIER USING A CONNECTING PIN.
- WHEN CONNECTING TO 10' OR 20' CONCRETE BARRIER, THE EXPOSED STEEL LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT.
- PROVIDE THRIE BEAM GUARDRAIL IN ACCORDANCE WITH STANDARD DRAWING G-1-A-5 AND GUARDRAIL TERMINAL TYPE 3 IN ACCORDANCE WITH STANDARD DRAWING G-1-E.
- NOT TO SCALE.

ANCHORING ASSEMBLY DETAIL
(SEE NOTE NO. 5)

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: NOVEMBER 6, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	6-80		6	12-94	MSM	11	11-04	MSM
2	5-82		7	2-96	MSM	12	10-13	RDL
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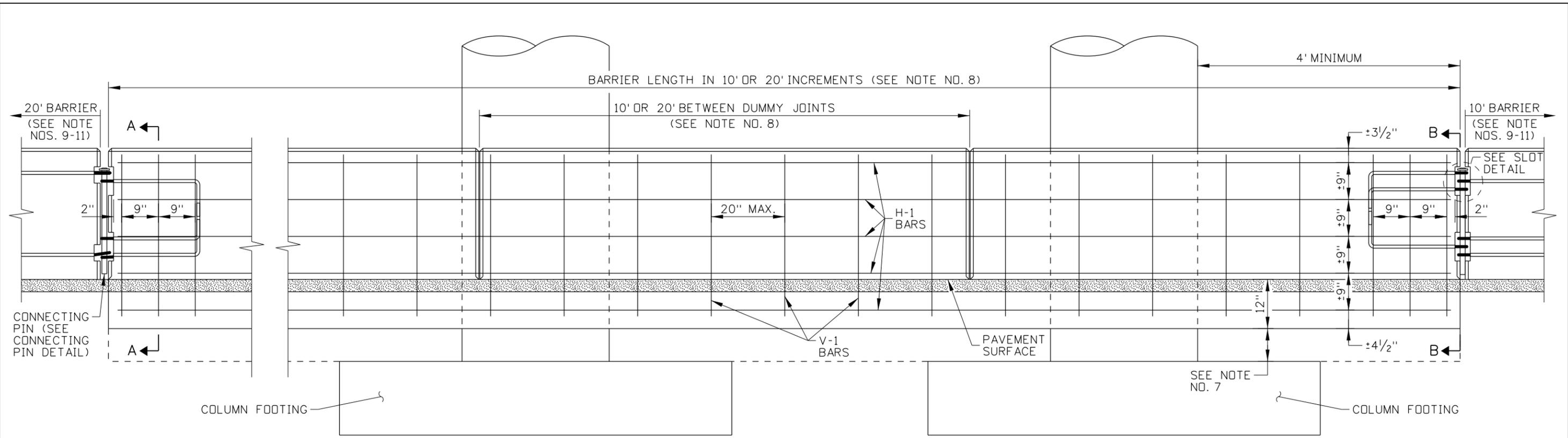
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g2d_1113.dgn
DRAWING DATE: AUGUST, 1977

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

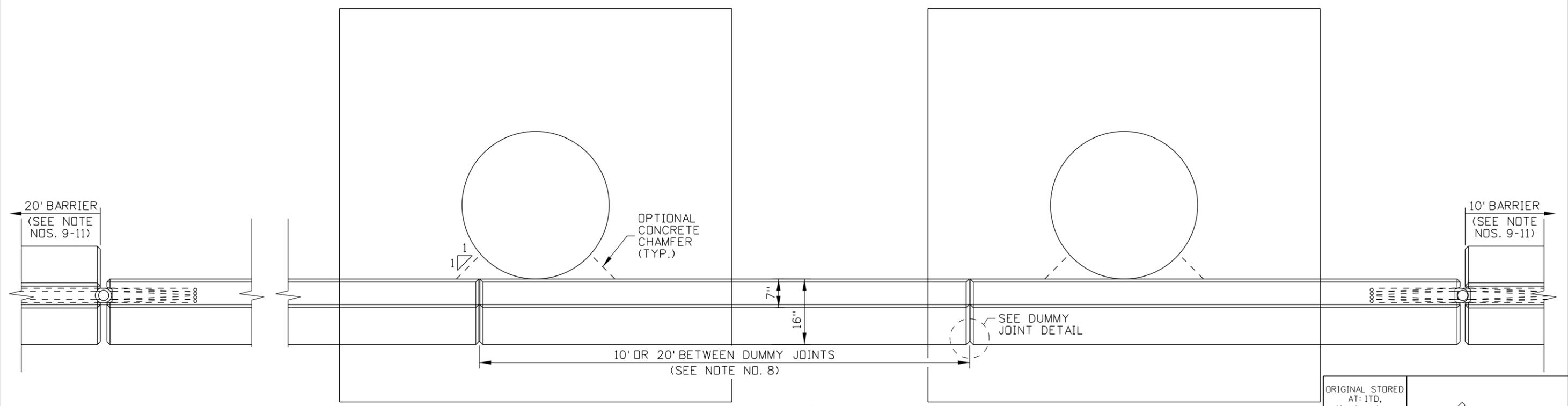
ORIGINAL SIGNED BY: TOM COLE
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
CONCRETE BARRIER TO THRIE BEAM GUARDRAIL CONNECTOR
REQUIRES SHEETS 1 OF 3, 2 OF 3, & STD. DWG. G-1-E

English
STANDARD DRAWING NO.
G-2-D
SHEET 3 OF 3



ELEVATION



PLAN

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: MAY 9, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
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2	9-93	MSM	7	04-13	RDL			
3	3-00	MSM						
4	6-03	MSM						
5	8-05	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: g2h_0613.std

DRAWING DATE: MARCH, 1992

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

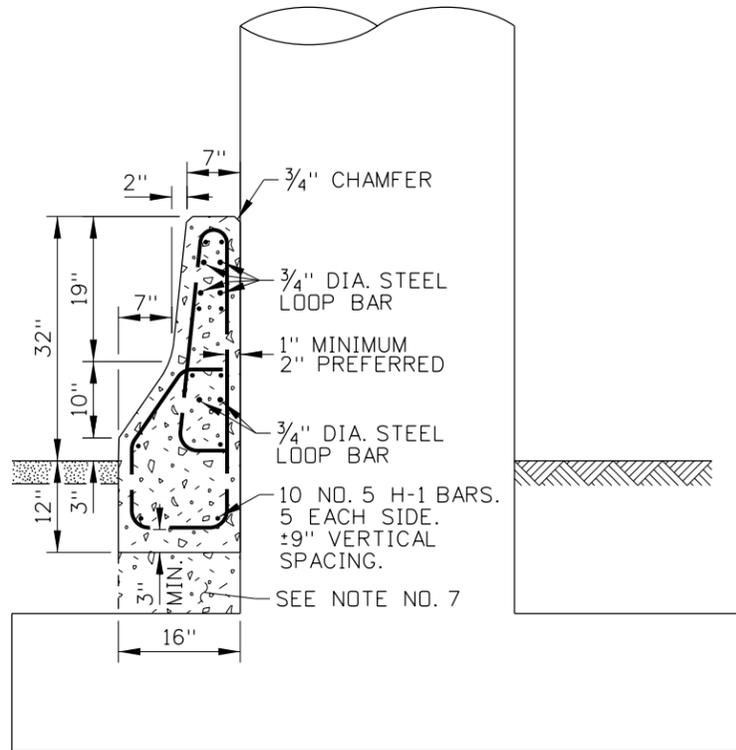
SPECIAL CAST-IN-PLACE CONCRETE BARRIER

REQUIRES SHEET 2 OF 2 & STD. DWG. G-2-A-1 OR G-2-A-2

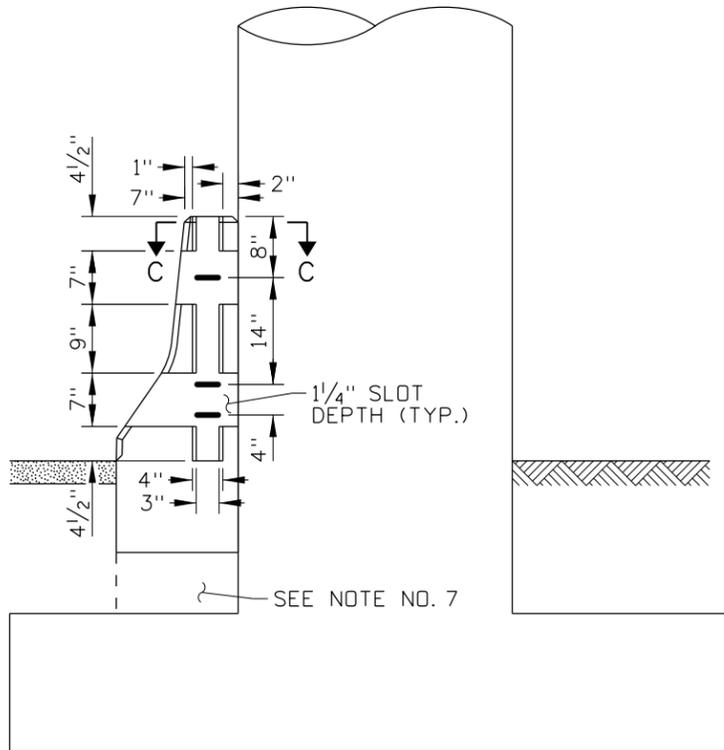
English

STANDARD DRAWING NO. **G-2-H**

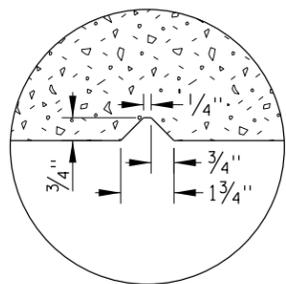
SHEET 1 OF 2



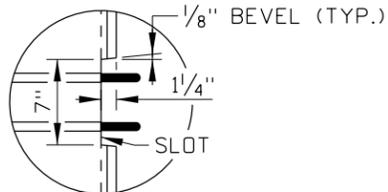
SECTION A-A



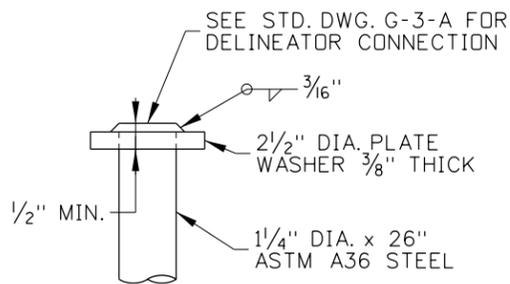
SECTION B-B (END VIEW)
SEE NOTE NO. 10



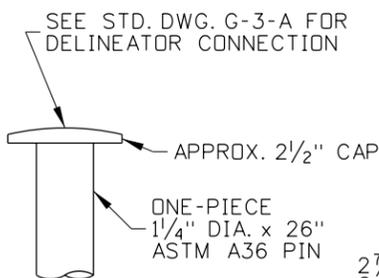
DUMMY JOINT DETAIL



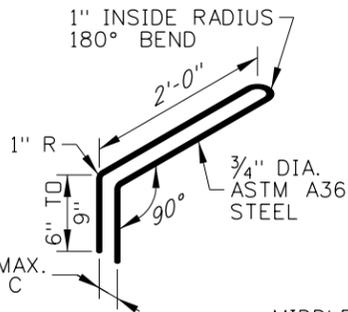
SLOT DETAIL
SEE NOTE NO. 10



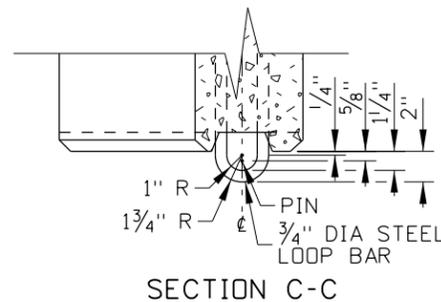
FABRICATED CONNECTING PIN



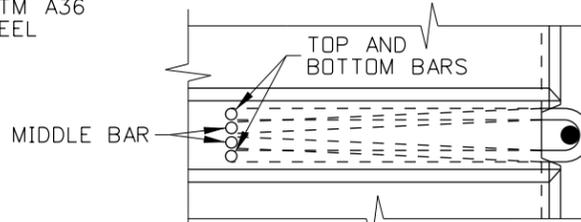
ONE-PIECE CONNECTING PIN



STEEL LOOP BAR DETAIL



SECTION C-C



STEEL LOOP BAR PLACEMENT DETAIL

REINFORCING STEEL TABLE				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL IN BARRIER - TIED INSIDE V-1 BARS	NO. 5	10	VARIES - SEE NOTE NO. 3
V-1	VERTICAL IN BARRIER	NO. 4	VARIES WITH LENGTH	5'-4" TOTAL BAR LENGTH 25" 2" R 6° 2" R 26"
V-2	VERTICAL IN BARRIER - 3 AT EACH END AND 2 AT EACH SCUPPER	NO. 4	VARIES WITH LENGTH	5' TOTAL BAR LENGTH 8" 10" 34.5° 2" R 2" R 2" R 2" R 8" 19"

NOTES

- CAST-IN-PLACE USING CONCRETE CLASS 40A. ENSURE THAT THE BARRIER IS FLUSH AGAINST THE ADJACENT COLUMN. DO NOT PLACE FORMS ADJACENT TO THE COLUMN.
- USE EPOXY COATED REINFORCING STEEL IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
- PROVIDE CONTINUOUS HORIZONTAL REINFORCING STEEL FOR BARRIER LENGTHS OF 40' OR LESS. OVERLAP REINFORCING STEEL AT LEAST 24" FOR BARRIER LENGTHS GREATER THAN 40'. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
- ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
- THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
- MEASURE BARRIER HEIGHT ON ROADWAY SIDE.
- WHEN THE CONCRETE BARRIER IS EXTENDED TO THE COLUMN FOOTING, THE CONTRACTOR MAY RETURN TO THE NORMAL BARRIER HEIGHT BETWEEN FOOTINGS OR CONTINUE THE EXTENDED BARRIER DEPTH FOR THE LENGTH OF THE BARRIER.
- PROVIDE DUMMY JOINTS EVERY 10' UNLESS CONNECTING TO 20' CONCRETE BARRIER. WHEN CONNECTING TO 20' BARRIER, PROVIDE DUMMY JOINTS EVERY 20'. ROUND UP THE BARRIER LENGTH OF NEED TO THE NEXT 10' OR 20' INTERVAL.
- TERMINATE THE BARRIER WITH A CRASHWORTHY TERMINAL OR TRANSITION TO 20' OR 10' PRECAST CONCRETE BARRIER. ACCEPTABLE TERMINALS MAY INCLUDE TAPERING THE BARRIER OUTSIDE OF THE CLEAR ZONE, CONNECTION TO W-BEAM OR THRIE-BEAM GUARDRAIL, OR CONNECTION TO A CRASH CUSHION.
- WHEN TRANSITIONING TO 20' OR 10' PRECAST CONCRETE BARRIER, MATCH THE SLOT SIZE AND STEEL LOOP BAR CONFIGURATION. IF NECESSARY, THE EXPOSED STEEL LOOP BARS MAY BE BENT (MECHANICALLY, NOT WITH HEAT) TO FIT. PIN CONNECT WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
- WHEN TRANSITIONING TO 20' OR 10' PRECAST CONCRETE BARRIER, ENSURE THAT THE BARRIER FACES ALIGN. IF NECESSARY, SET THE PRECAST BARRIER ON A GROUT LEVELING PAD TO ENSURE PROPER HORIZONTAL AND VERTICAL ASLIGNMENT.
- NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 9, 2013

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	12-92	MSM	6	5-07	MSM		
2	9-93	MSM	7	04-13	RDL		
3	3-00	MSM					
4	6-03	MSM					
5	8-05	MSM					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g2h_0613.std
DRAWING DATE: MARCH, 1992

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

SPECIAL CAST-IN-PLACE CONCRETE BARRIER

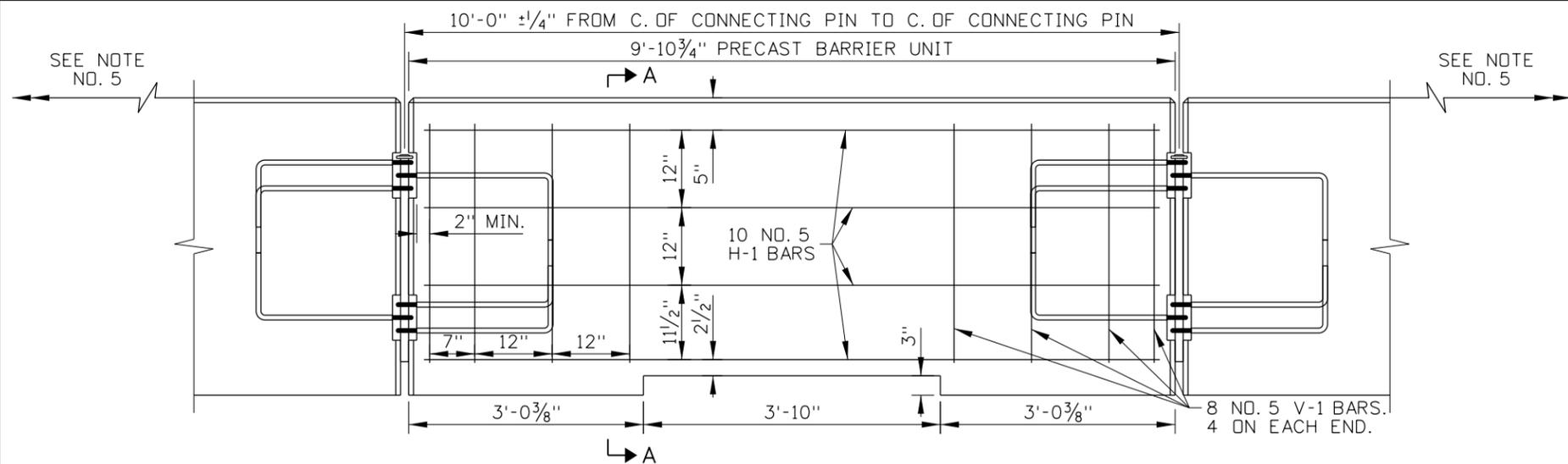
REQUIRES SHEET 1 OF 2 & STD. DWG. G-2-A-1 OR G-2-A-2

English

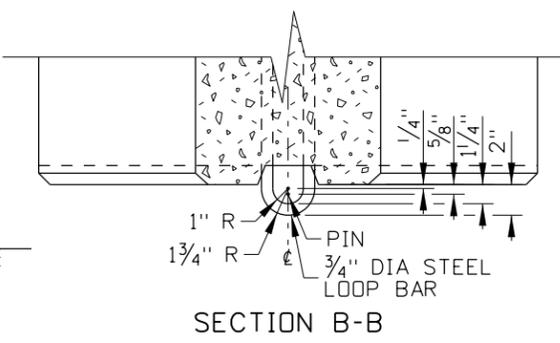
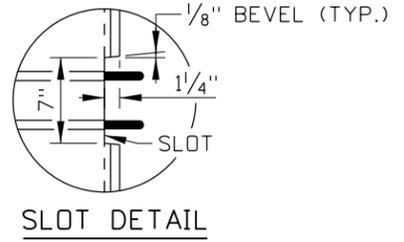
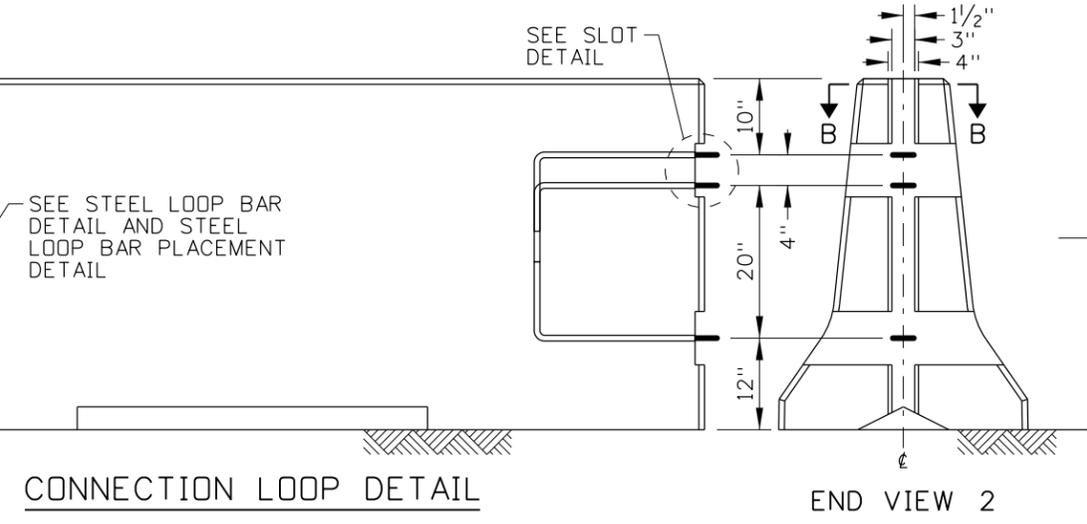
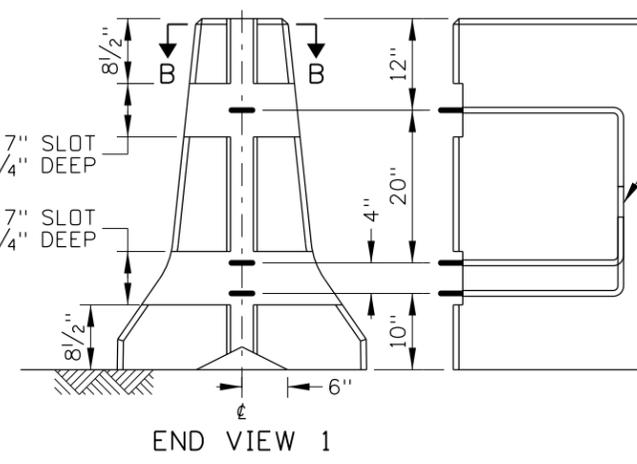
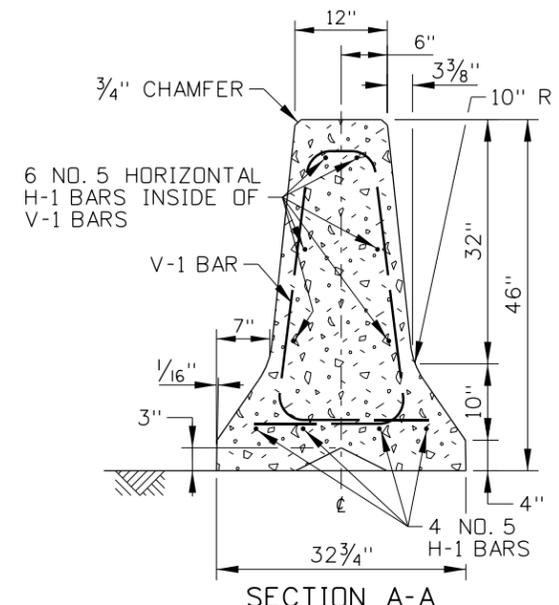
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G-2-H

SHEET 2 OF 2

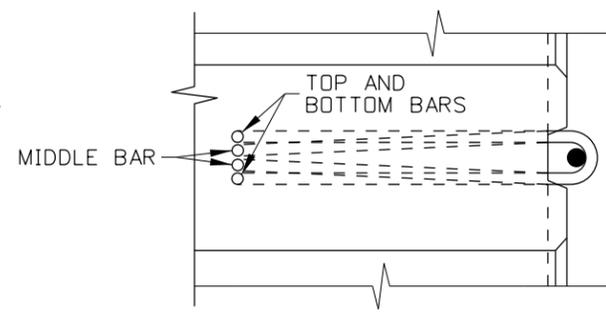
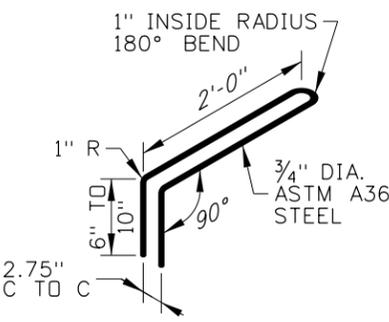
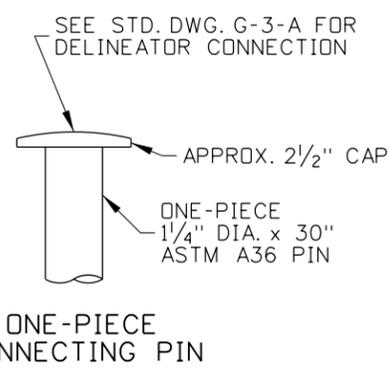
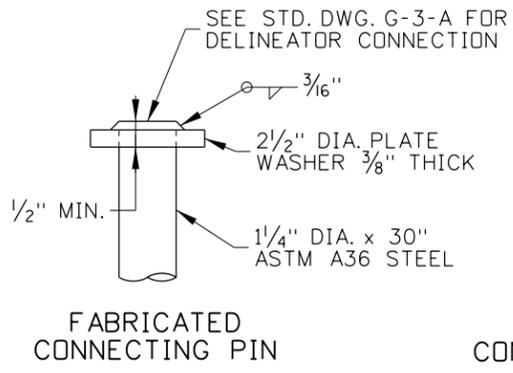


REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL INSIDE BARRIER - TIED INSIDE AND UNDERNEATH V-1 BARS	NO. 5	10	9'-6"
V-1	VERTICAL IN BARRIER - 4 AT EACH END	NO. 5	8	4'-9" TOTAL BAR LENGTH 2'-5 5/8" (top width) 10" OVER-LAP 1'-11" (height) 3" R (TYP.) (radius)



NOTES

1. PRECAST USING CONCRETE CLASS 40A. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE STEEL REINFORCING TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
5. TRANSITION THE TALL CONCRETE MEDIAN BARRIER TO THE 32" HEIGHT 20' OR 10' CONCRETE BARRIER OR TERMINATE THE BARRIER WITH A CRASHWORTHY TERMINAL. ACCEPTABLE TERMINALS MAY INCLUDE CONNECTION TO W-BEAM OR THRIE-BEAM GUARDRAIL, OR CONNECTION TO A CRASH CUSHION. TRANSITION TO THE 32" HEIGHT 20' OR 10' CONCRETE BARRIER USING THE TALL TO STANDARD TRANSITION BARRIER SHOWN ON STANDARD DRAWING G-2-I-2.
6. WHEN PLACED IN NARROW PAVED MEDIANS, PLACE REFLECTORS ON BOTH SIDES OF THE BARRIER.
7. NOT TO SCALE.



CONNECTING PIN DETAIL
(SEE NOTE NO. 4)

STEEL LOOP BAR DETAIL

STEEL LOOP BAR PLACEMENT DETAIL

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	04-13	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: g2i1_0613.std
DRAWING DATE: OCTOBER, 2004

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

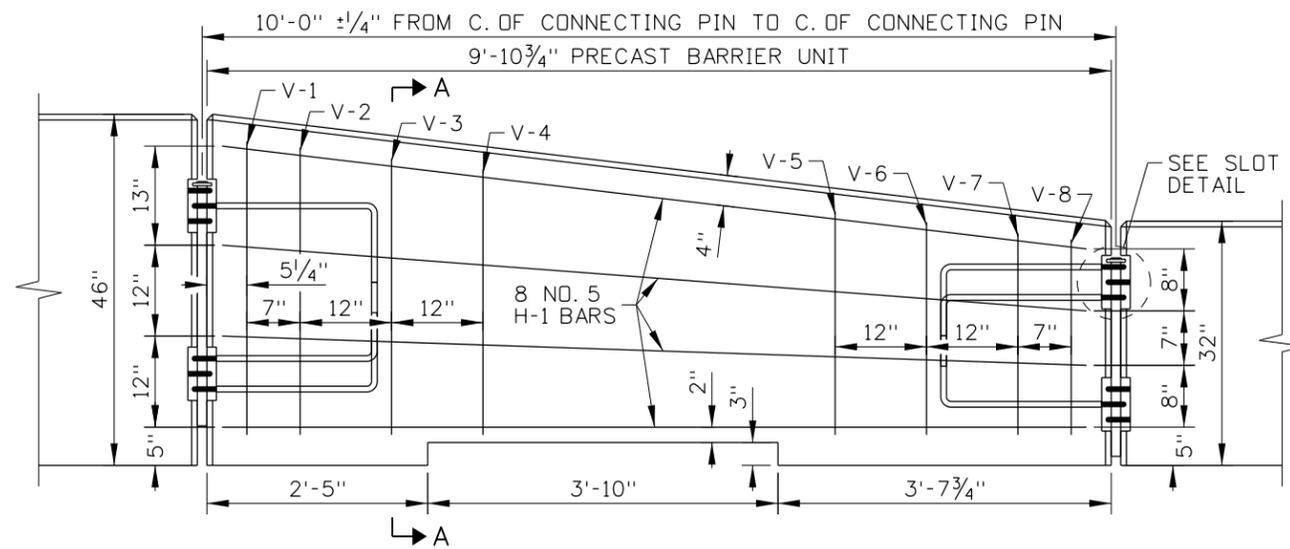
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
TALL CONCRETE MEDIAN BARRIER

English
STANDARD DRAWING NO.
G-2-I-1
SHEET 1 OF 1

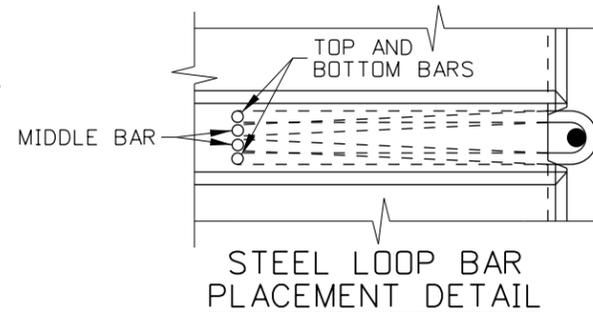
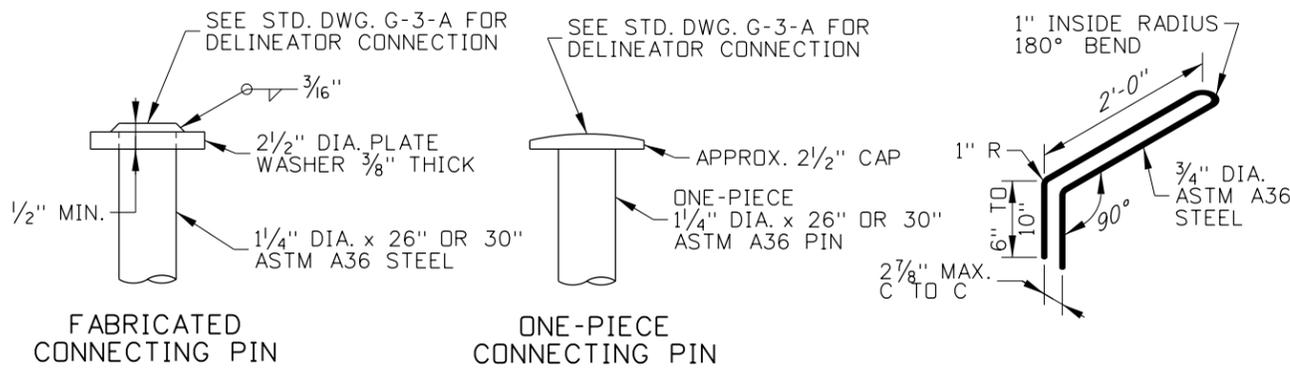
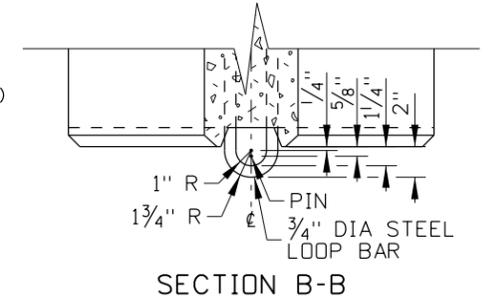
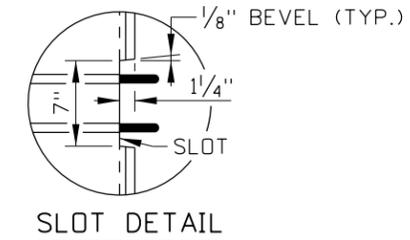
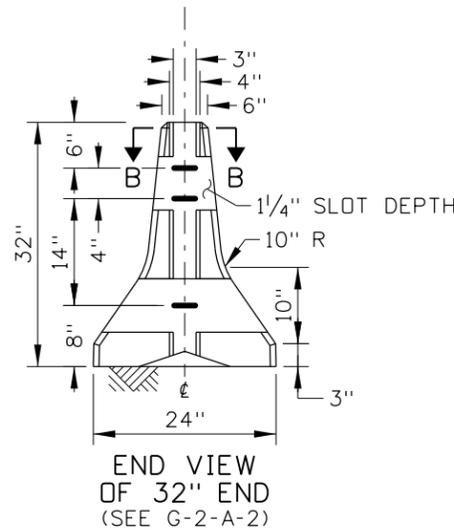
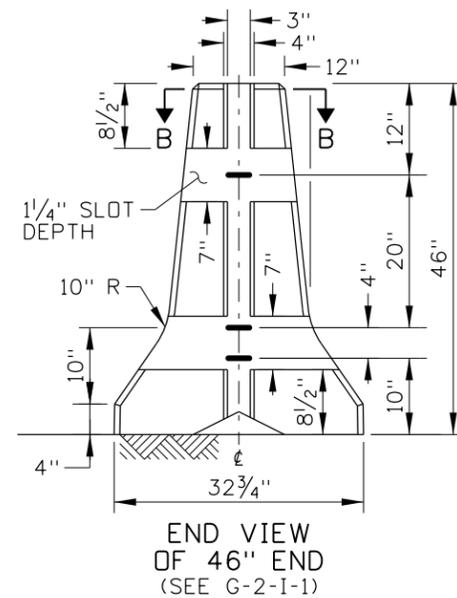
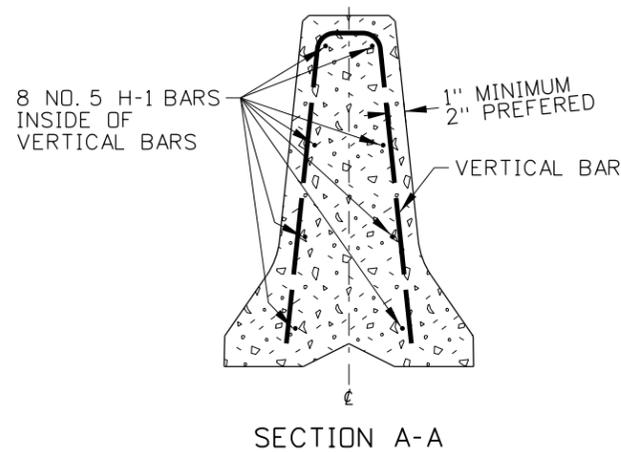
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: MAY 9, 2013



REINFORCING STEEL TABLE (SEE NOTE NOS. 2 & 3)				
MARK	LOCATION	BAR SIZE	NUMBER OF BARS	SKETCH
H-1	HORIZONTAL INSIDE BARRIER - TIED INSIDE AND UNDER-NEATH V-1 BARS	NO. 5	8	9'-6"
V-1, V-2, V-3, V-4, V-5, V-6, V-7, V-8	VERTICAL IN BARRIER - 4 AT EACH END (SEE VERTICAL METAL REINFORCEMENT DIMENSIONS TABLE)	NO. 5	8	

VERTICAL REINFORCING STEEL DIMENSIONS								
MARK	V-1	V-2	V-3	V-4	V-5	V-6	V-7	V-8
TOTAL LENGTH	7'-1"	6'-11 1/2"	6'-8"	6'-4 1/2"	5'-4 1/2"	5'-0 1/2"	4'-10 1/2"	4'-9 1/2"
A	3'-2"	3'-1 1/2"	3'	2'-10 1/2"	2'-5 1/2"	2'-4"	2'-2 1/2"	2'-2"
B	3 1/2"	3"	2 1/2"	2"	0"	0"	0"	0"



NOTES

1. PRECAST USING CONCRETE CLASS 40A. ENSURE THAT REINFORCING STEEL IS IN ACCORDANCE WITH SECTION 708 - METALS OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION. PROVIDE 2" MINIMUM CONCRETE COVER OVER REINFORCING STEEL UNLESS OTHERWISE NOTED.
2. ENSURE THAT REINFORCING STEEL BENDS ARE MADE IN ACCORDANCE WITH THE LATEST A.C.I. STANDARD PRACTICES AND AASHTO SPECIFICATIONS.
3. THE DIMENSIONS SHOWN IN THE REINFORCING STEEL TABLE ARE MEASURED FROM OUTSIDE-TO-OUTSIDE (O. TO O.) OF BENDS OR BAR ENDS UNLESS OTHERWISE NOTED.
4. PIN CONNECT BARRIER UNITS WHEN POSTED HIGHWAY SPEEDS ARE 35 MPH OR HIGHER.
5. WHEN PLACED IN NARROW PAVED MEDIANS, PLACE REFLECTORS ON BOTH SIDES OF THE BARRIER.
6. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 9, 2013

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	04-13	RDL					

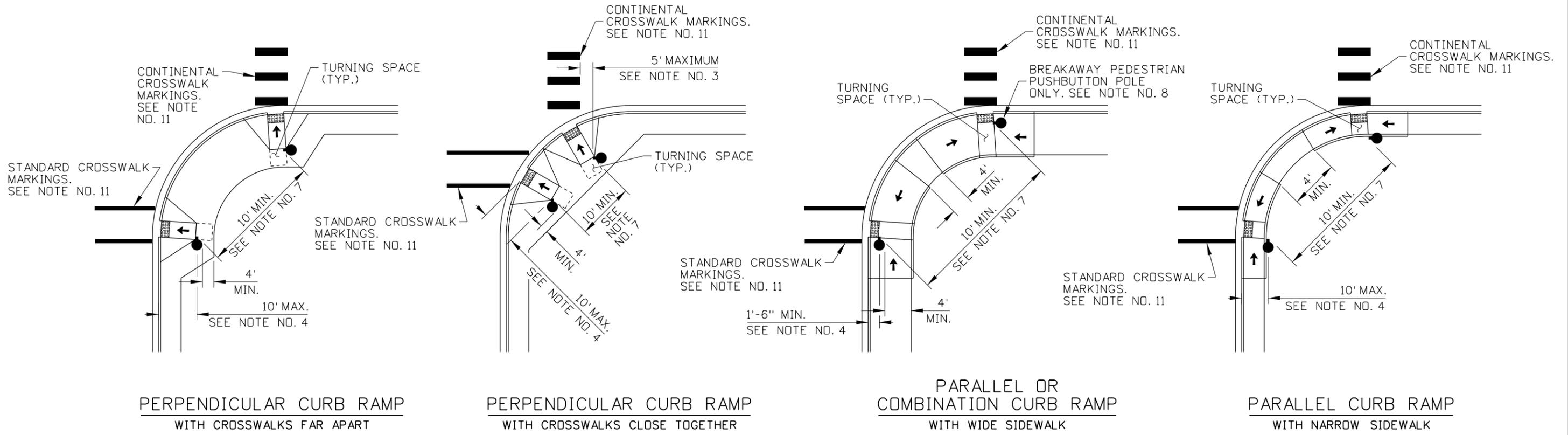
SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: g2i2_0613.std
 DRAWING DATE: OCTOBER, 2004

IDAHO TRANSPORTATION DEPARTMENT
 BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

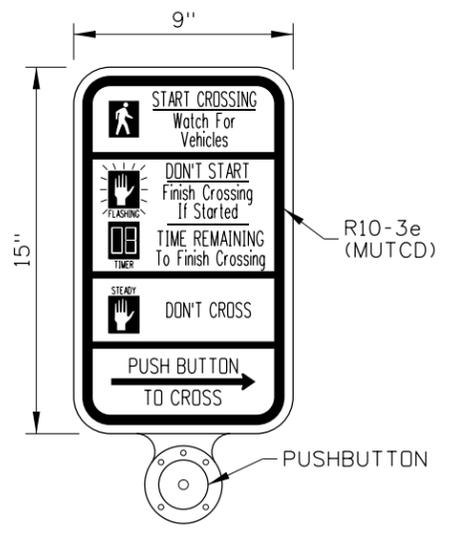
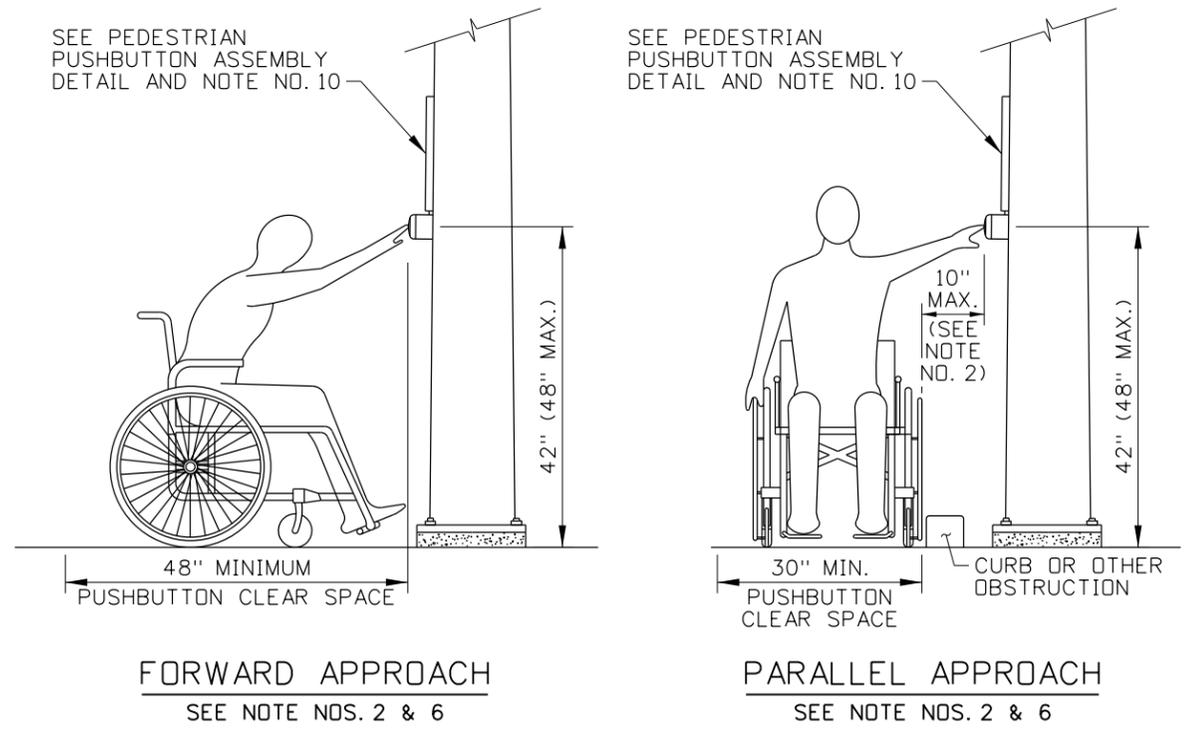
STANDARD DRAWING
 TALL TO STANDARD CONCRETE BARRIER TRANSITION
 REQUIRES STD. DWG. G-2-A-2 & G-2-I-1

English
 STANDARD DRAWING NO. G-2-I-2
 SHEET 1 OF 1

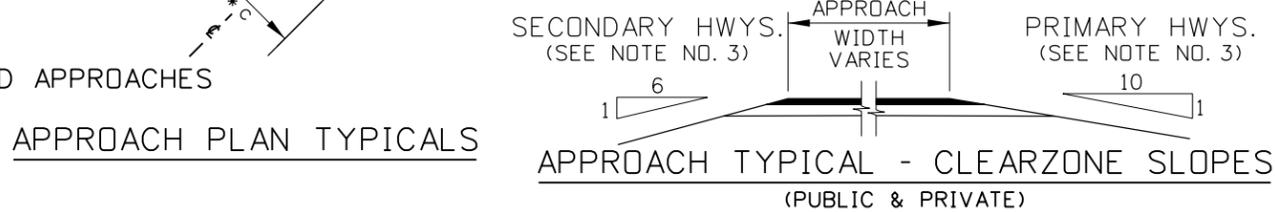
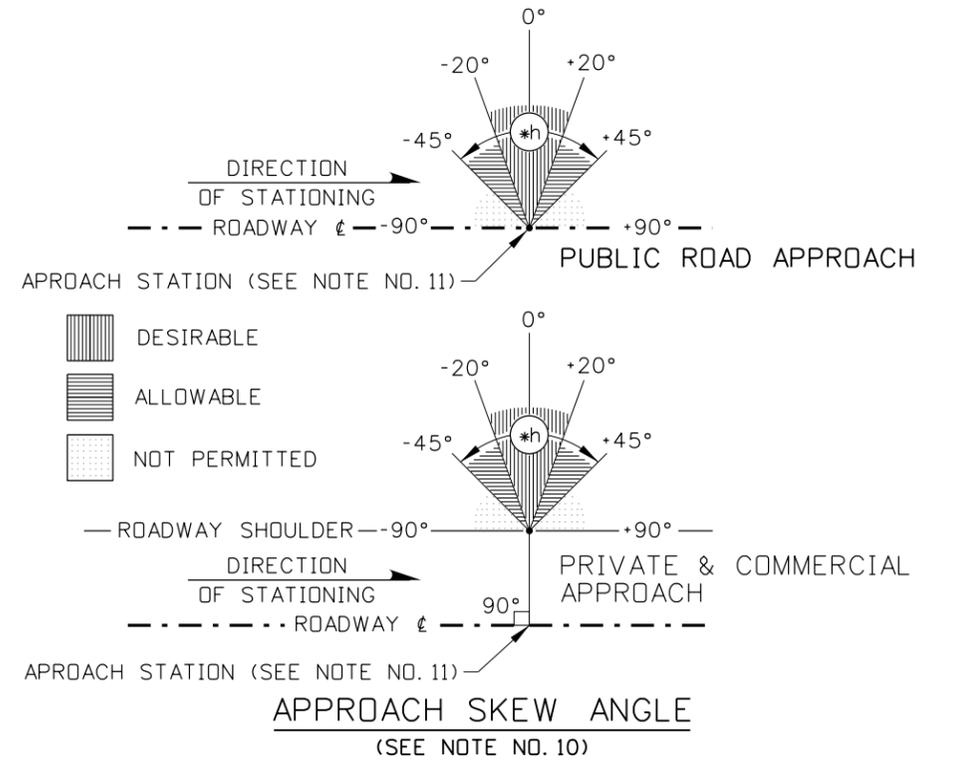
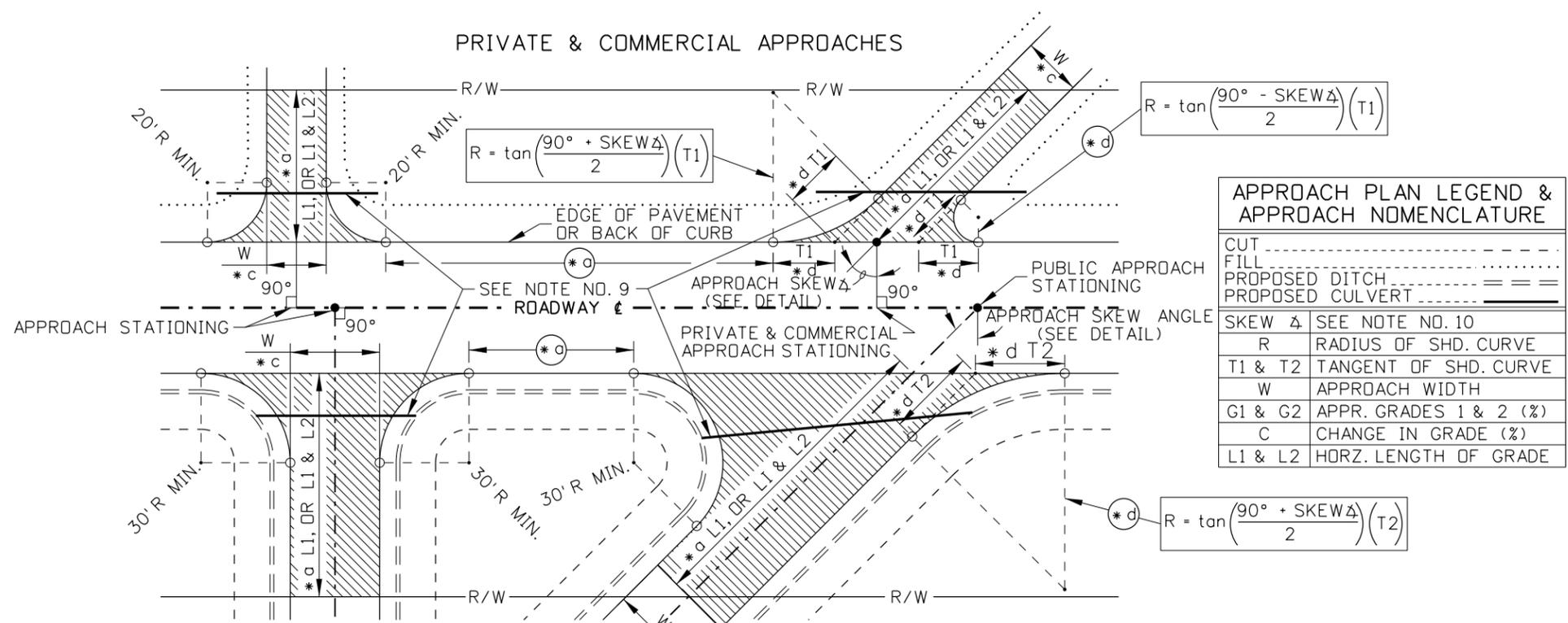


NOTES

- FOUR TYPICAL CONFIGURATIONS ARE SHOWN. FOR OTHER CONFIGURATIONS, THE MAXIMUM AND MINIMUM DIMENSIONS SHOWN REMAIN APPLICABLE. WHERE CURB AND CURB RAMPS ARE NOT PRESENT, MEASURE FROM THE EDGE OF TRAVELED WAY.
- PROVIDE A PUSHBUTTON CLEAR SPACE, WITH 30" BY 48" MINIMUM DIMENSIONS, ADJACENT TO PEDESTRIAN PUSHBUTTONS. ENSURE THAT THE CLEAR SPACE SURFACE IS FIRM, STABLE, AND SLIP RESISTANT. POSITION THE CLEAR SPACE SO THE PUSHBUTTON CAN BE ACCESSED WITH EITHER A FORWARD OR PARALLEL APPROACH. AN OBSTRUCTION, UP TO 10" IN DEPTH, BETWEEN THE CLEAR SPACE AND THE PUSHBUTTON IS PERMITTED FOR A PARALLEL APPROACH. WHERE CURB RAMPS ARE USED, THE TURNING SPACE FOR THE CURB RAMP MAY DOUBLE AS THE CLEAR SPACE.
- PLACE PUSHBUTTON BETWEEN THE EDGE OF THE CROSSWALK LINE (EXTENDED) FARTHEST FROM THE CENTER OF THE INTERSECTION AND THE SIDE OF A CURB RAMP (IF PRESENT), BUT NOT MORE THAN 5' FROM THE SAID CROSSWALK LINE.
- PLACE PUSHBUTTON BEHIND THE FACE OF CURB OR OUTSIDE THE EDGE OF TRAVELED WAY A MINIMUM DISTANCE OF 1'-6" AND A MAXIMUM DISTANCE OF 10'.
- ENSURE THAT THE FACE OF THE PUSHBUTTON IS PARALLEL TO THE CROSSWALK TO BE USED.
- MOUNT THE PUSHBUTTON 42" ABOVE THE CLEAR SPACE. THE MAXIMUM MOUNTING HEIGHT IS 48".
- PROVIDE A MINIMUM DISTANCE OF 10' BETWEEN PEDESTRIAN PUSHBUTTONS. WHERE THERE ARE PHYSICAL CONSTRAINTS ON A PARTICULAR CORNER THAT MAKE IT IMPRACTICAL TO PROVIDE THE 10' SEPARATION BETWEEN THE TWO PEDESTRIAN PUSHBUTTONS, THE PUSHBUTTONS MAY BE PLACED CLOSER TOGETHER OR ON THE SAME POLE.
- PUSHBUTTONS MAY BE INSTALLED ON A SIGNAL POLE OR PEDESTRIAN PUSHBUTTON POLES. ENSURE THAT POLES WITHIN 10' OF THE FACE OF CURB OR EDGE OF TRAVELED WAY HAVE BREAKAWAY FEATURES.
- INSTALL ACCESSIBLE PEDESTRIAN SIGNALS WHEN RECOMMENDED BY AN ENGINEERING STUDY.
- USE MODULAR OR CAST PEDESTRIAN PUSHBUTTON ASSEMBLIES. DO NOT USE H FRAME PEDESTRIAN PUSHBUTTON ASSEMBLIES. USE THE R10-3e(MUTCD) SIGN ON THE PUSHBUTTON ASSEMBLY.
- CROSSWALK MARKINGS MAY VARY.
- DRAWINGS NOT TO SCALE.



<table border="1"> <thead> <tr> <th colspan="8">REVISIONS</th> </tr> <tr> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>NO.</th> <th>DATE</th> <th>BY</th> <th>NO.</th> <th>DATE</th> <th>BY</th> </tr> </thead> <tbody> <tr> <td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td><td> </td> </tr> </tbody> </table>								REVISIONS								NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY										SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY CADD FILE NAME: h2c_0614.dgn DRAWING DATE: MAY, 2014	IDAHO TRANSPORTATION DEPARTMENT BOISE IDAHO	ORIGINAL SIGNED BY: CARL D. MAIN DESIGN/TRAFFIC SERVICES ENGINEER	STANDARD DRAWING PEDESTRIAN PUSHBUTTON PLACEMENT	ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho English STANDARD DRAWING NO. H-2-C SHEET 1 OF 1	ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE: JUNE 17, 2014
REVISIONS																																							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY																															

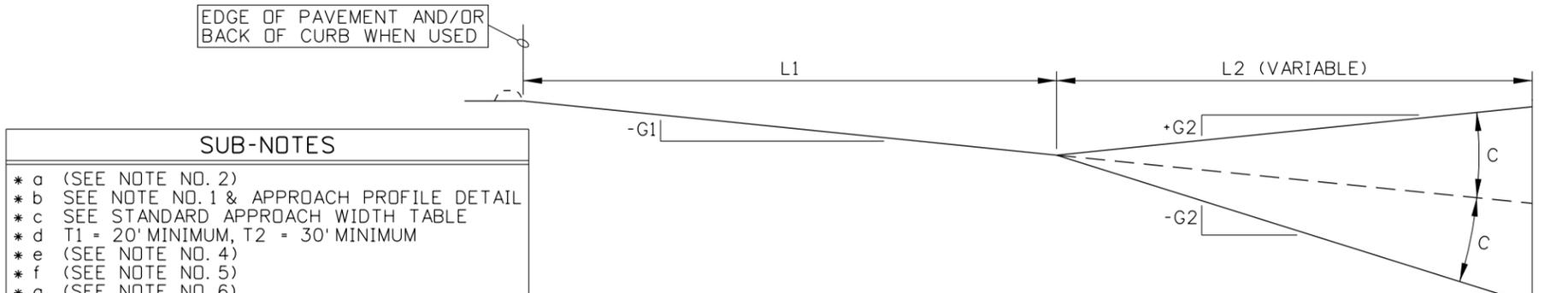


APPROACH GRADE TABLE

TRAFFIC TYPE	GRADE PARAMETER		MAX. CHANGE IN GRADE C	MINIMUM LENGTH L1
	G1 (RANGE)	G2 (MAX.)		
HIGH VOLUME (COMMERCIAL, INDUSTRIAL)	-2% TO -3%	±5%	±3% (*e)	40'
LOW VOLUME (COMMERCIAL, INDUSTRIAL)	-2% TO -5%	±8%	±6%	40'
SINGLE RESIDENTIAL, FARMYARD, FIELD	-2% TO -8%	±15% *g	VEHICLE CLEARANCE	10'
MULTIPLE RESIDENTIAL	-2% TO -8%	±15% *g	±6%	20'
PUBLIC ROAD	-2%	*f	±2%	20'

STANDARD APPROACH WIDTH TABLE

APPR. TYPE	POSTED SPEED (mph)		<35		>35	
	MIN./MAX. WIDTH	MIN.	MAX.	MIN.	MAX.	
MULTIPLE RESIDENTIAL		28'	40'	28'	40'	
SINGLE RESIDENTIAL, FARMYARD, FIELD		12'	40'	20'	40'	
COMMERCIAL (ONE-WAY)		15'	30'	20'	30'	
COMMERCIAL (TWO-WAY)		25'	40'	25'	40'	
PUBLIC ROAD		28'	N/A	28'	N/A	



SUB-NOTES

- * a (SEE NOTE NO. 2)
- * b SEE NOTE NO. 1 & APPROACH PROFILE DETAIL
- * c SEE STANDARD APPROACH WIDTH TABLE
- * d T1 = 20' MINIMUM, T2 = 30' MINIMUM
- * e (SEE NOTE NO. 4)
- * f (SEE NOTE NO. 5)
- * g (SEE NOTE NO. 6)
- * h THE APPROACH Δ IS TO FALL WITHIN THE ALLOWABLE OR DESIRABLE LIMITS. THE DESIRABLE LIMIT IS CONSIDERED THE "SAFEST OPTION."

REVISIONS

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	01-00	MSM	6	12-05	MSM			
2	01-02	MSM	7	06-07	MSM			
3	07-02	MSM						
4	10-02	MSM						
5	08-04	MSM						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: h4a_0607.dgn

DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
CHIEF ENGINEER

STANDARD DRAWING

RURAL APPROACHES (PRIVATE, COMMERCIAL, & PUBLIC)

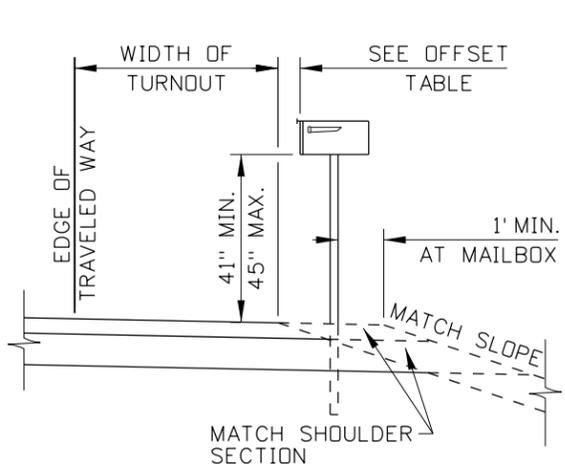
English

STANDARD DRAWING NO. H-4-A

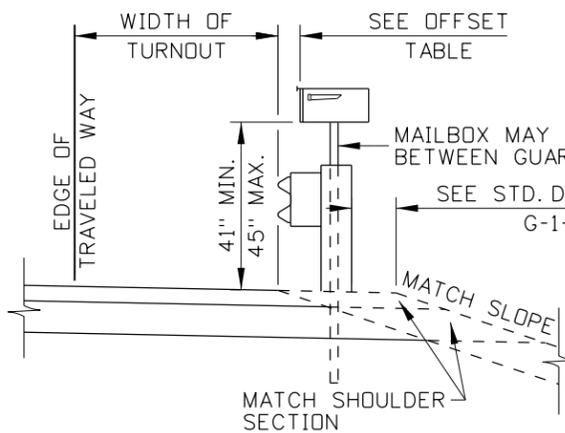
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

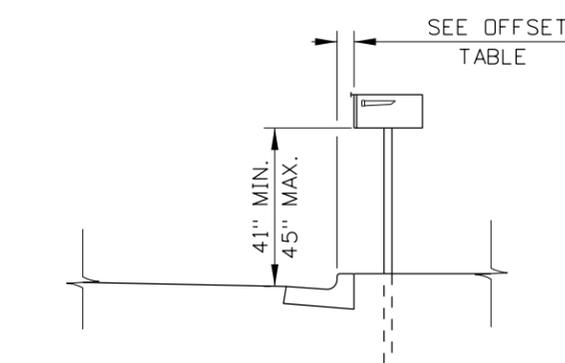
ORIGINAL SIGNED BY: MILDRED L. MILLER
DATE ORIGINAL SIGNED: JUNE 19, 2007



INSTALLATION AT MAILBOX TURNOUT



INSTALLATION BEHIND GUARDRAIL



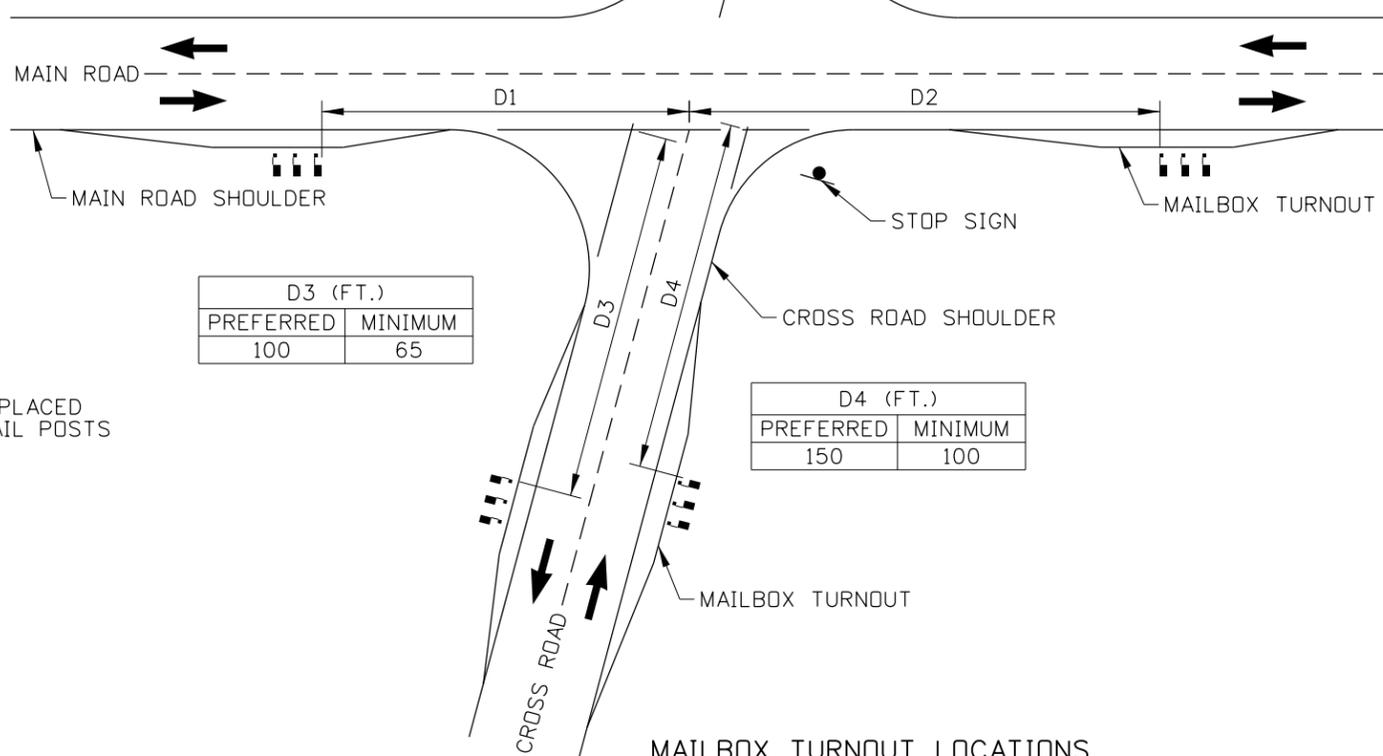
INSTALLATION ON CURBED RESIDENTIAL STREET

TYPICAL MAILBOX INSTALLATIONS

THROUGH ROAD SPEED (MPH)	* D1 (FT.)	
	$nV_c V_m \leq 4000$	$nV_c V_m > 4000$
35	65	200
>55	65	295

THROUGH ROAD SPEED (MPH)	* D2 (FT.)		
	$V_c \leq 50$	$50 < \frac{V_c}{1.5n-0.5} \leq 400$	$\frac{V_c}{1.5n-0.5} > 400$
35	65	100	100
>55	150	150	200

* n = NUMBER OF MAILBOXES AT MAIL STOP
 V_c = ADT ON CROSS ROAD
 V_m = ADT ON MAIN ROAD



MAILBOX TURNOUT LOCATIONS

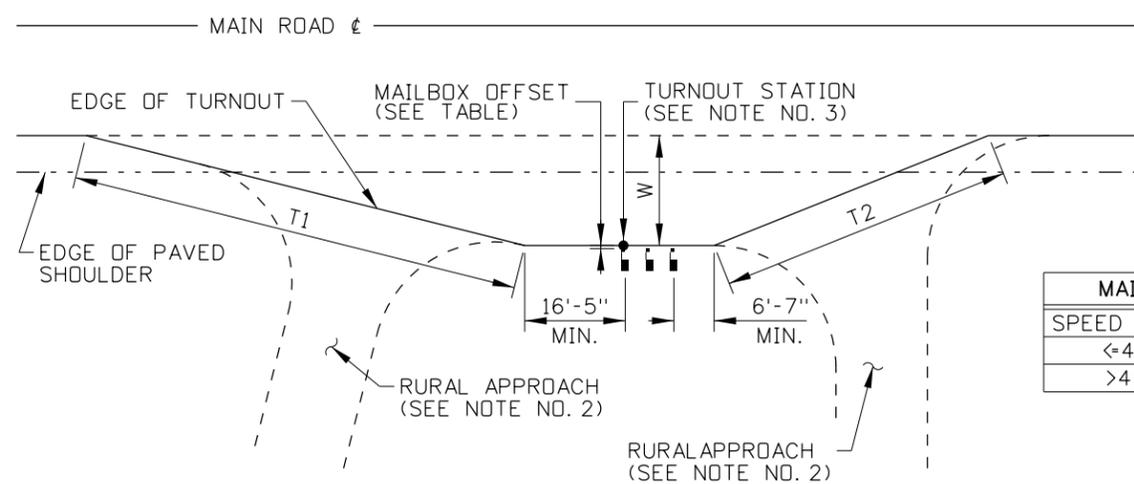
D3 (FT.)	
PREFERRED	MINIMUM
100	65

D4 (FT.)	
PREFERRED	MINIMUM
150	100

ADT	TURNOUT WIDTH (FT.)		MAILBOX OFFSET (IN.)	
	PREFERRED	MINIMUM	PREFERRED	MINIMUM
>10,000	>12	8	6 TO 8	0
1,500 TO 10,000	12	8		
400 TO 1,500	10	8		
<400	8	6		
RESIDENTIAL STREET (NO CURB)	6	0		6
RESIDENTIAL STREET (WITH CURB)	NOT APPLICABLE		8 TO 12	6

NOTES

1. LOCATE MAILBOX TURNOUT SO THAT THE TAPERS DO NOT OVERLAP THE INTERSECTION CURVE RADII.
2. CONSTRUCT MAILBOX ASSEMBLIES IN ACCORDANCE WITH STANDARD DRAWING H-5-A. CONSTRUCT RURAL APPROACHES IN ACCORDANCE WITH STANDARD DRAWING H-4-A.
3. MEASURE MAILBOX TURNOUT STATION AND OFFSET AT THE EDGE OF THE TURNOUT PERPENDICULAR TO THE FIRST MAILBOX.
4. NOT TO SCALE.



MAILBOX TURNOUT

MAILBOX TAPER		
SPEED (MPH)	T1	T2
<=40	4:1	2.5:1
>40	20:1	12:1

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	11-02	MSM					
2	06-05	MSM					
3	01-13	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: h4b_0213.std
 DRAWING DATE: SEPTEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

MAILBOX TURNOUT & INSTALLATION

REQUIRES STD. DWG. H-4-A

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: JANUARY 31, 2013

English

STANDARD DRAWING NO. **H-4-B**

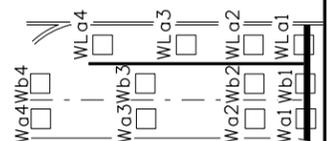
SHEET 1 OF 1

POSITION

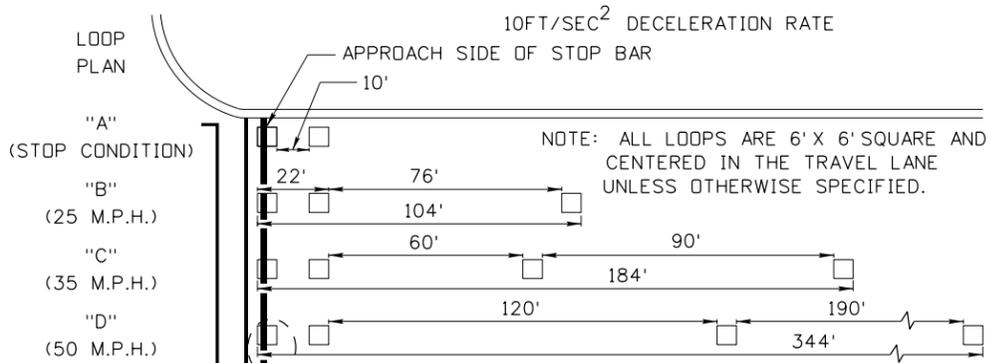
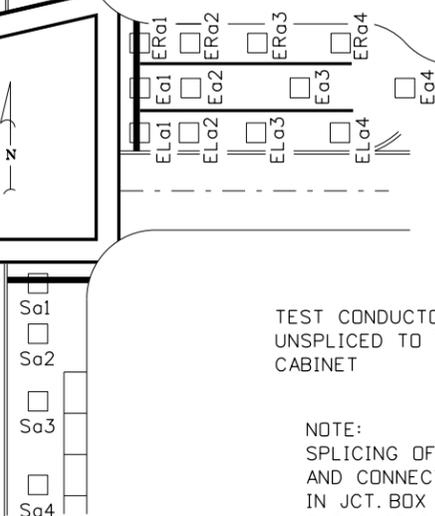
- MAGNETIC ORIENTATION OF APPROACHING TRAVEL LANE.
N = NORTH, S = SOUTH, ETC.
- VEHICULAR MOVEMENT IN TRAVEL LANE: L = LEFT TURN; R = RIGHT TURN; NO ENTRY = THROUGH
- LANE DESIGNATION FOR EACH MOVEMENT: a-z IN ASCENDING ORDER, a BEING NEAREST THE CURB OR EDGE OF PAVEMENT.

- Na4
- Na3
- Na2
- Na1

4. LOOP NUMBER IN EACH TRAVEL LANE: 1 - 4 IN ASCENDING ORDER, 1 BEING THE LOOP NEAREST THE STOP BAR.
- LOOP NUMBERING PROCEDURE EXAMPLE
- | | | | |
|---|---|---|---|
| W | L | a | 3 |
| 1 | 2 | 3 | 4 |

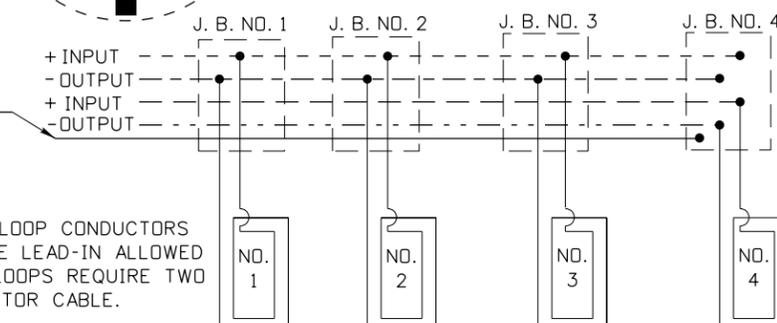


LOOP NUMBERING SYSTEM



DETECTOR LOOP SPACING PLAN

THE 1' DIMENSION SHALL BE USED WITH/WITHOUT A CROSSWALK.



TEST CONDUCTOR: UNSPLICED TO THE CABINET

NOTE: SPlicing of multiple loop conductors and connection to the lead-in allowed in JCT. BOX ONLY. ALL LOOPS REQUIRE TWO TURNS OF FOUR CONDUCTOR CABLE.

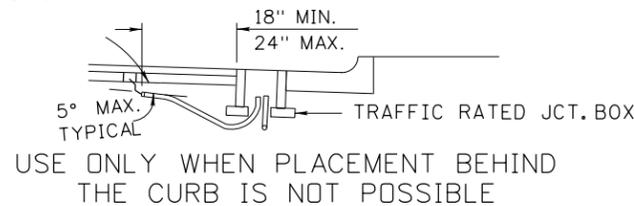
THE LOOPS IN EACH LANE SHALL BE WOUND IN THE SAME DIRECTION.

DUAL PURPOSE LOOP SHALL BE LAST LOOP IN SYSTEM

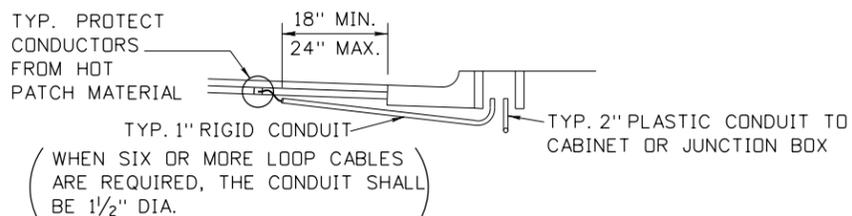
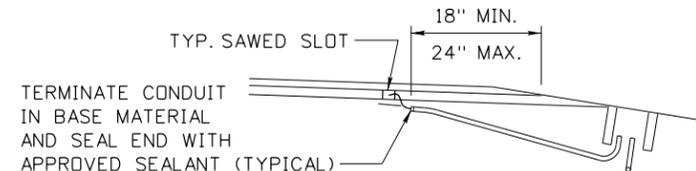
LOOP SYSTEM AND JUNCTION BOX WIRING DIAGRAM

LOOP CONDUCTOR INSTALLATION

- NOTES:
- METHOD "C" MAY BE USED ONLY WITH PRE-FORMED LOOPS.
 - HYDRO CLEAN AND AIR DRY SLOTS AFTER CUTTING AND PRIOR TO CABLE INSTALLATION.
 - BED LOOP CONDUCTORS IN SEALANT FOR TOTAL ENCAPSULATION.
 - SEAT LOOP CONDUCTORS IN SLOT WITH A BLUNT INSTRUMENT.

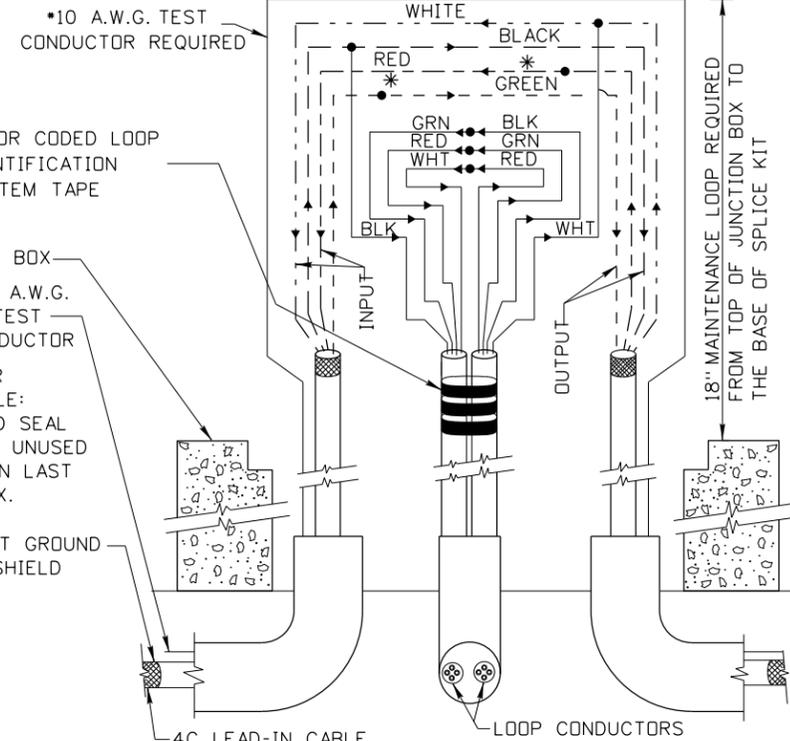


USE ONLY WHEN PLACEMENT BEHIND THE CURB IS NOT POSSIBLE



JUNCTION BOX AND CONDUIT LOCATION

- NOTES:
- ALL CONDUCTOR SPLICES SHALL BE SOLDERED AND WATERPROOFED WITH AN APPROVED SPLICE KIT.
 - THE FOIL SHIELD SHALL BE INSULATED TO PREVENT GROUNDING AT THE JUNCTION BOX.
 - * SPLICE DUAL PURPOSE LOOPS TO THE RED AND GREEN CONDUCTORS.



LOOP SPLICE DETAIL AT JUNCTION BOX

LANE NO.	TAPE COLOR
1	BLACK
2	WHITE
3	RED
4	GREEN
5	ORANGE
6	BLUE

IN ASCENDING ORDER - BLACK SHALL BE USED FOR THE LANE NEAREST THE CURB OR EDGE OF PAVEMENT.

EXAMPLE: CONDUCTORS FOR LOOP 1 LANE 1 REQUIRE 1 BAND OF BLACK TAPE.

CONDUCTORS FOR LOOP 3 LANE 4 REQUIRE 3 BANDS OF GREEN TAPE.

COLOR CODED LOOP IDENTIFICATION SYSTEM

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN
DATE ORIGINAL SIGNED: JULY 12, 2010

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	12-93	HEB	6	08-08	NQB		
2	12-94	HEB	7	07-10	HEB		
3	03-96	HEB					
4	07-03	HEB					
5	08-06	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i5_0710.dgn

DRAWING DATE: DECEMBER, 1994

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

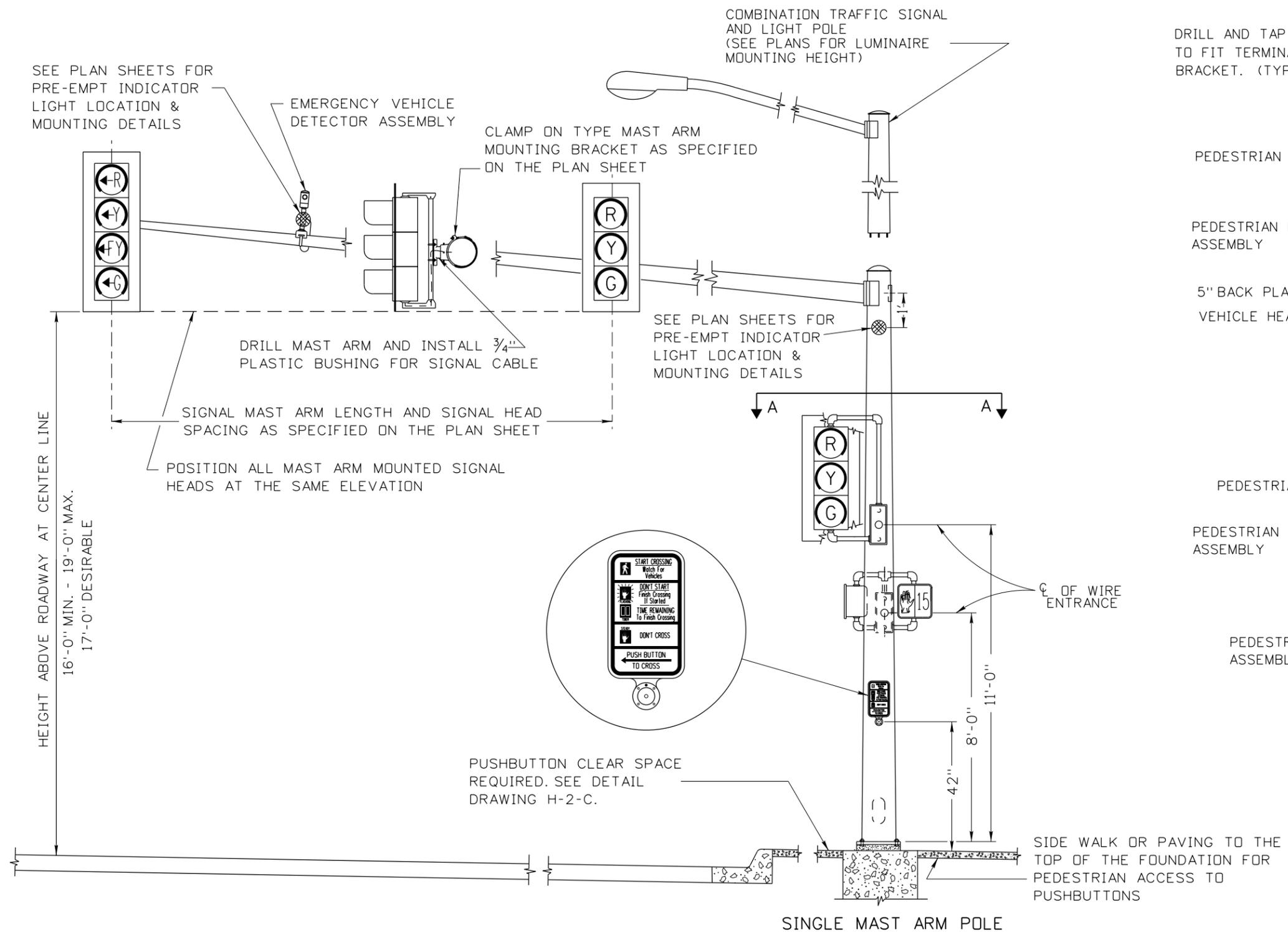
LOOP DETECTORS

10FT/SEC² DECELERATION RATE

English

STANDARD DRAWING NO. I-5

SHEET 1 OF 1



NOTES:

- THIS DRAWING SHOWS TYPICAL INSTALLATION DETAILS ONLY. SEE PLAN SHEETS FOR QUANTITY OF SIGNAL AND LIGHTING COMPONENTS TO BE INSTALLED.
- ORIENTATION OF SIGNAL COMPONENTS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON THE PLAN SHEETS.
- SEE STANDARD DRAWING "I-7-C-1" & STANDARD DRAWING "I-7-C-2" FOR FOUNDATION DETAILS.
- ALL SIGNAL COMPONENTS SHALL BE LEVELED AFTER THE POLE HAS BEEN PLUMBED.
- SPECIFIC LOCATION OF EACH POLE INSTALLATION SHALL BE AS INDICATED ON THE PROJECT PLAN SHEETS.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-94	HEB	6	04-14	HEB			
2	12-01	NQB						
3	07-05	HEB						
4	08-06	HEB						
5	07-10	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i6a_0414.dgn

DRAWING DATE: AUGUST, 1994

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

MAST ARM TRAFFIC SIGNAL POLES

REQUIRES STD. DWG. H-2-C

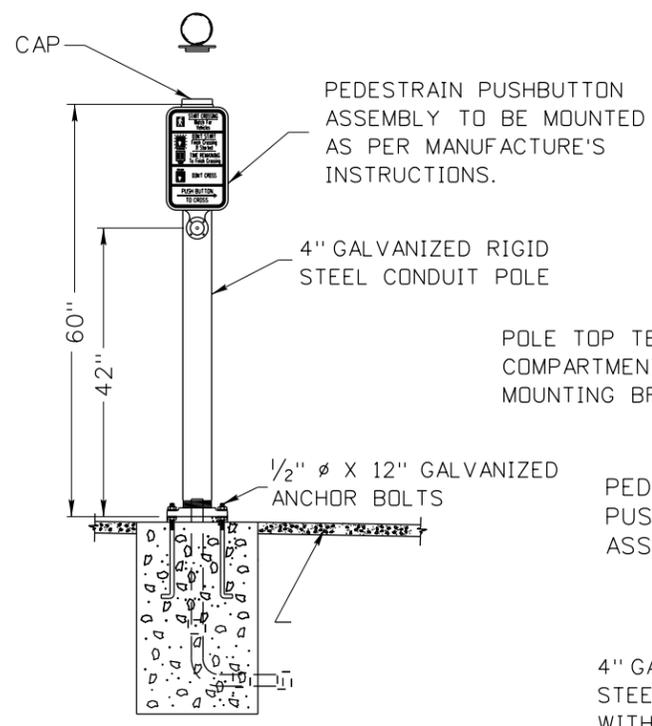
English

STANDARD DRAWING NO.
I-6-A

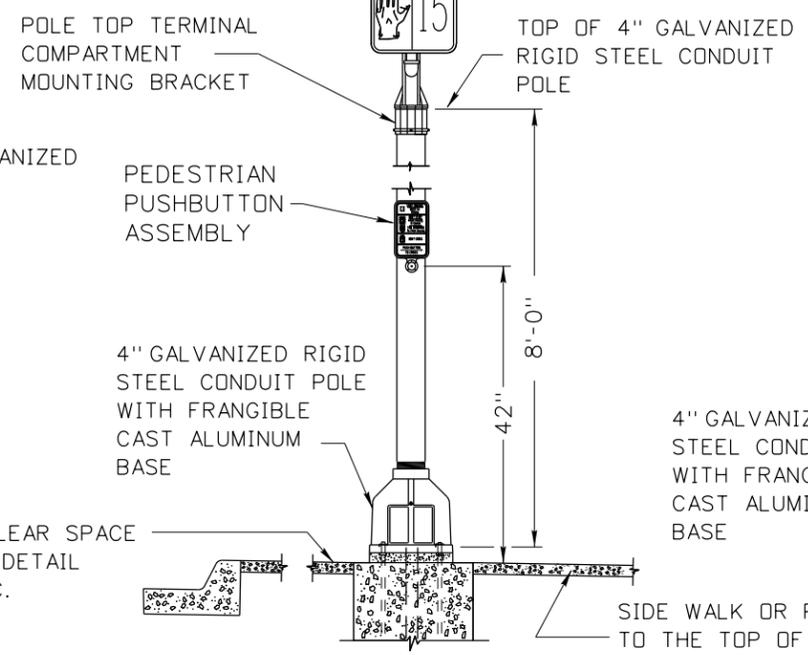
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

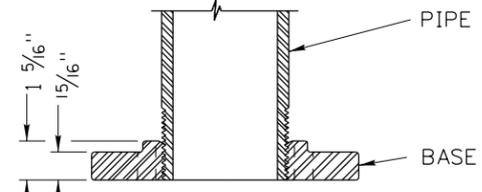
ORIGINAL SIGNED BY:
ROBERT KOEBERLEIN
DATE ORIGINAL SIGNED:
APRIL 25, 2014



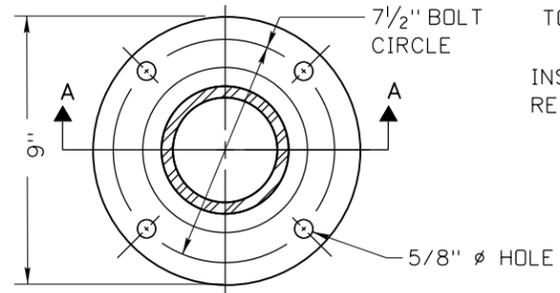
PEDESTRIAN PUSHBUTTON POLE



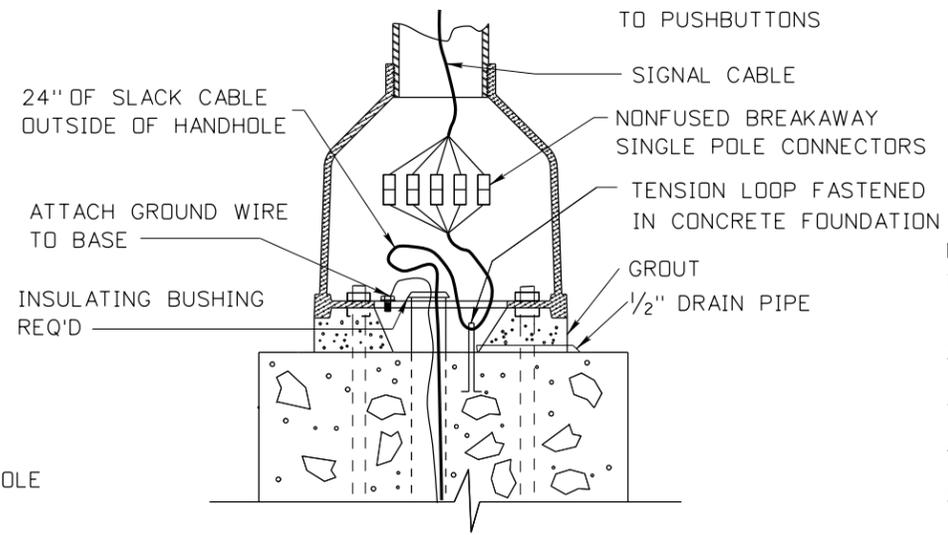
PEDESTRIAN SIGNAL



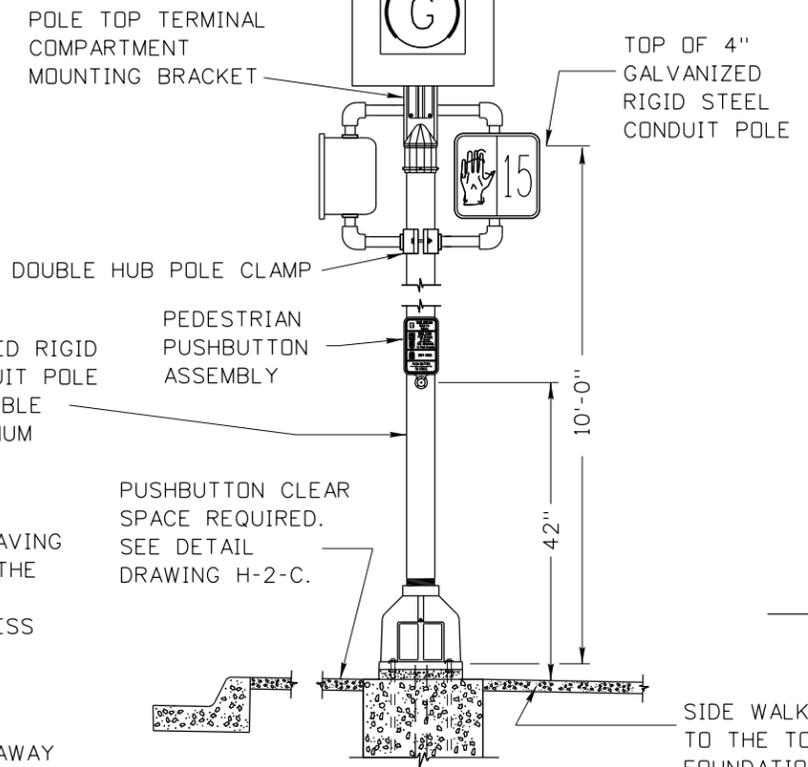
SECTION A-A



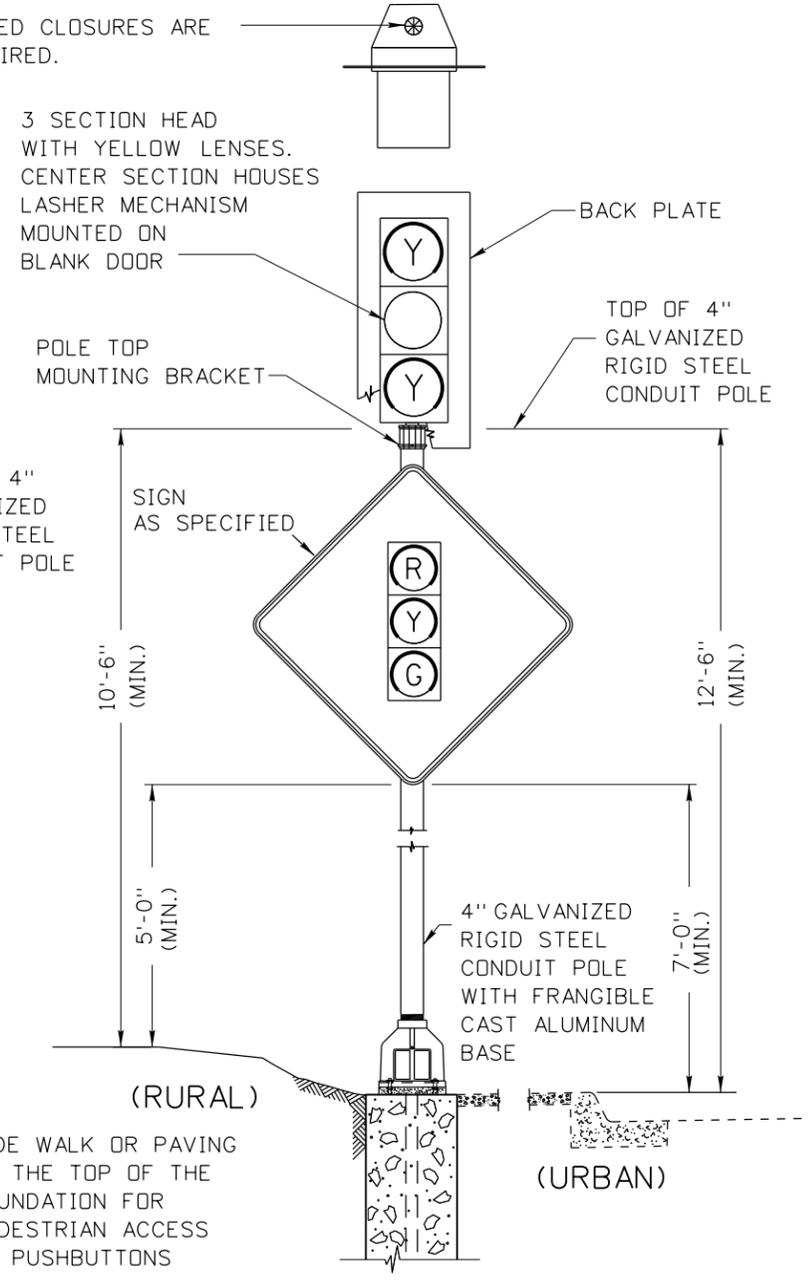
FRANGIBLE CAST IRON PIPE FLANGE



TYPICAL SIGNAL PEDESTAL CONNECTOR INSTALLATION



VEHICLE AND PEDESTRIAN SIGNAL



HAZARD IDENTIFICATION BEACON

- NOTES:
1. THIS DRAWING SHOWS TYPICAL INSTALLATION DETAILS ONLY. SEE PLAN SHEETS FOR QUANTITY AND LOCATION OF SIGNAL AND LIGHTING COMPONENTS TO BE INSTALLED.
 2. ORIENTATION OF SIGNAL COMPONENTS SHALL BE AS SHOWN UNLESS OTHERWISE SPECIFIED ON THE PLAN SHEETS.
 3. SEE STANDARD DRAWING "I-7-C" & STANDARD DRAWING "I-7-C-2" FOR FOUNDATION DETAILS.
 4. ALL SIGNAL COMPONENTS SHALL BE LEVELED AFTER THE POLE HAS BEEN PLUMBED.
 5. SPECIFIC LOCATION OF EACH POLE INSTALLATION SHALL BE AS INDICATED ON THE PROJECT PLAN SHEETS.
 6. ALL CONDUIT ELBOWS USED IN CONCRETE BASES SHALL BE STEEL.
 7. STEEL CONDUIT SHALL BE USED TO EXTEND ELBOWS BEYOND CONCRETE FOUNDATION.
 8. SPARE STUB OUTS SHALL BE TERMINATED WITH A STEEL COUPLING AND PLASTIC PUSH PLUG AT BOTH ENDS.

PEDESTRIAN PUSHBUTTON MOUNTING
PEDESTRIAN PUSHBUTTON ASSEMBLIES ARE TO BE MOUNTED AS PER MANUFACTURER'S INSTRUCTIONS.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	12-94	HEB	6	04-14	HEB		
2	08-06	NQB					
3	12-07	HEB					
4	07-09	HEB					
5	07-10	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i6b_0414.dgn
DRAWING DATE: AUGUST, 1994

IDAHO TRANSPORTATION DEPARTMENT



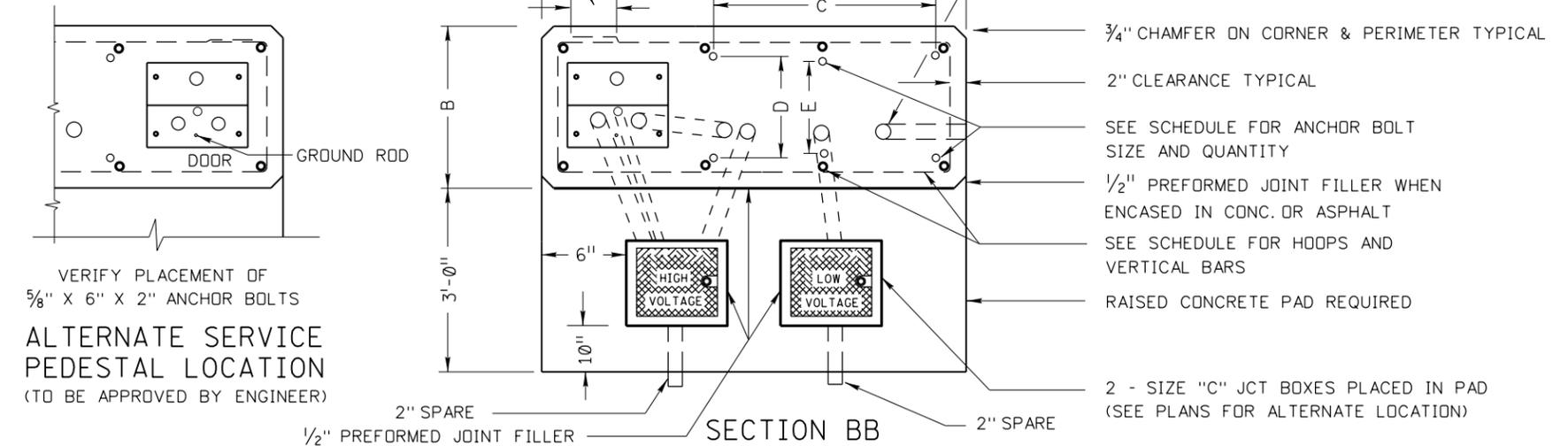
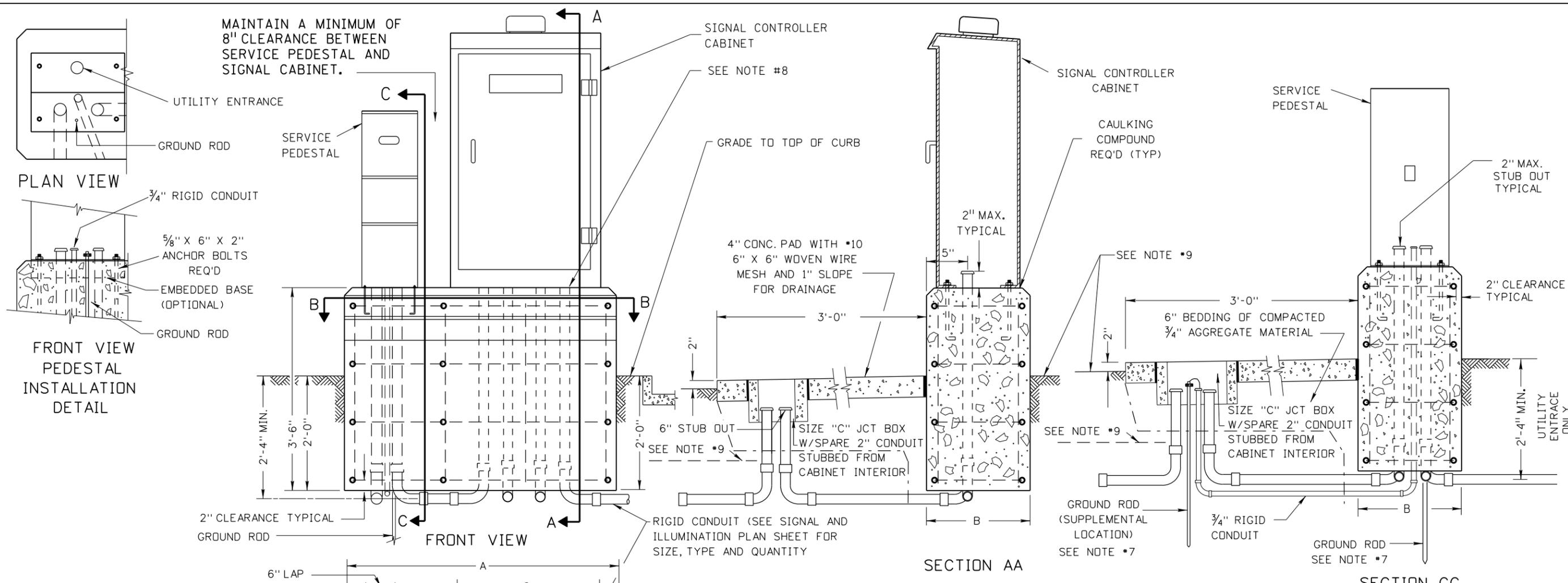
BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
FRANGIBLE CAST BASE TRAFFIC SIGNAL POLES
REQUIRES STD. DWG. H-2-C

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho
English
STANDARD DRAWING NO.
I-6-B
SHEET 1 OF 1

ORIGINAL SIGNED BY:
ROBERT KOEBERLEIN
DATE ORIGINAL SIGNED:
APRIL 25, 2014



- NOTES:
1. THE FOUNDATION SHALL BE LOCATED AS INDICATED ON THE PROJECT PLAN SHEETS.
 2. FOUNDATION REBAR CAGES MAY BE WELDED IF THE REBAR CONFORMS TO ASTM A706/A706M AND ALL WELDING CONFORMS TO ANSI/AWS D1.4 (STRUCTURAL WELDING CODE - REINFORCING STEEL).
 3. ALL CONDUITS, ELBOWS, AND COUPLINGS WITHIN AND PROTRUDING FROM THE FOUNDATION SHALL BE RIGID STEEL. THE REMAINING CONDUITS SHALL BE AS SHOWN ON THE PLANS.
 4. STUBOUTS SHALL BE TERMINATED WITH A STEEL BONDING BUSHING.
 5. FOAM PLUG REQUIRED AT BOTH ENDS OF SPARE CONDUITS.
 6. GROUND IN ACCORDANCE WITH N.E.C.
 7. CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT CAUSE MODIFICATION OF THE CABINETS.
 8. GRADE AREA TO PROVIDE DRAINAGE AWAY FROM CABINET FOUNDATION.
 9. 6" WIDE ELECTRICAL HAZARD TAPE INSTALLED 1'-0" ABOVE CONDUIT (TYPICAL OF ALL CONDUIT PLACED IN GROUND).
 10. IF SUPPLIED, USE SERVICE PEDESTAL BASE FOR ANCHOR BASE TEMPLATE.
 11. NOT TO SCALE

FOUNDATION SCHEDULE																		
CABINET AND SERVICE PEDESTAL																		
CABINET TYPE	FOUNDATION TYPE	A	B	C	D	E	HOOPS			VERTICAL RODS		CU. YDS. CONC. FOUNDATION PAD	CABINET ANCHOR BOLTS		SERVICE PEDESTAL ANCHOR BOLTS			
							NO.	SIZE	LIN. FT.	NO.	SIZE		LIN. FT.	QNTY.	SIZE	QNTY.	SIZE	
SIGNAL	M	5'-6"	1'-8"	-	-	1'-0"	4	#4	54'-0"	8	#4	25'-4"	1.2	.2	2	3/4" X 18" X 2 1/4"	4	5/8" X 6" X 2"
	P & R	6'-8"	2'-5"	3'-4 3/4"	1'-6 1/2"	-	4	#4	69'-4"	8	#4	25'-4"	2.1	.25	4	3/4" X 18" X 2 1/4"	4	5/8" X 6" X 2"

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-96	NQB					
2	12-04	HEB					
3	05-05	HEB					
4	05-14	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i7a10514.dgn

DRAWING DATE: DECEMBER, 1994

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

SIGNAL CABINET & SERVICE PEDESTAL FOUNDATION DETAILS

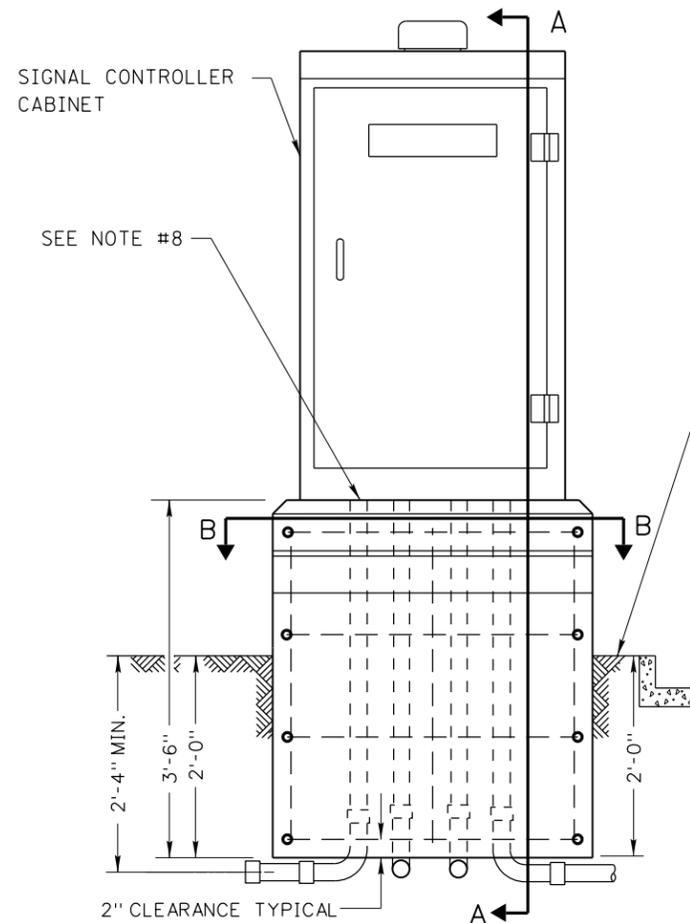
English

STANDARD DRAWING NO. **I-7-A-1**

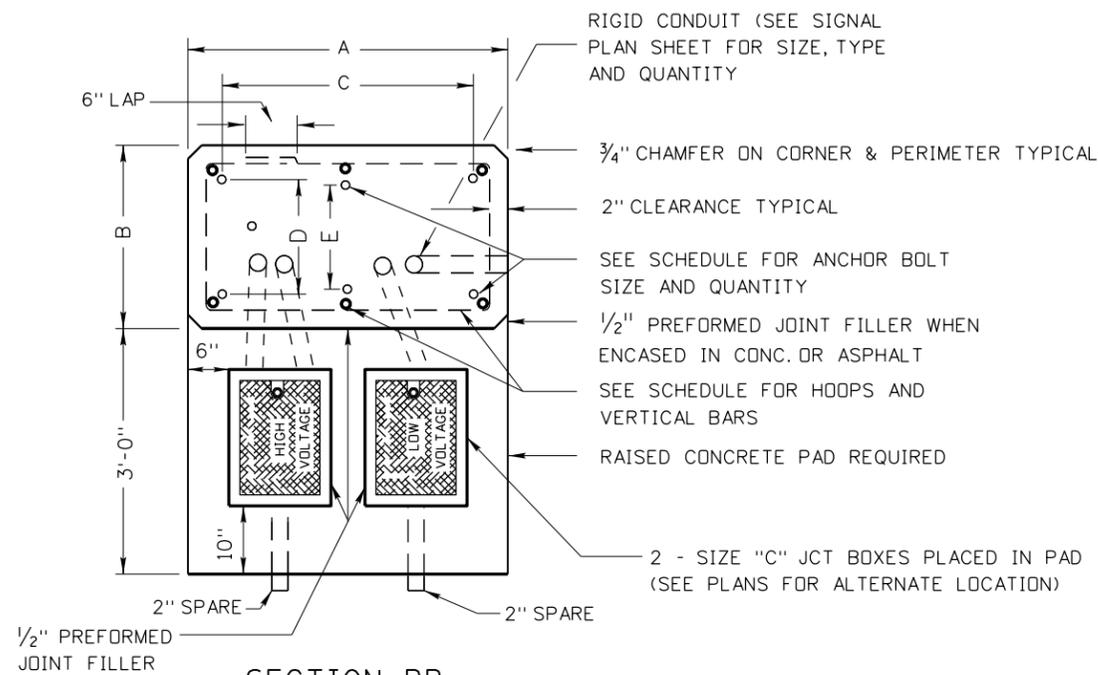
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

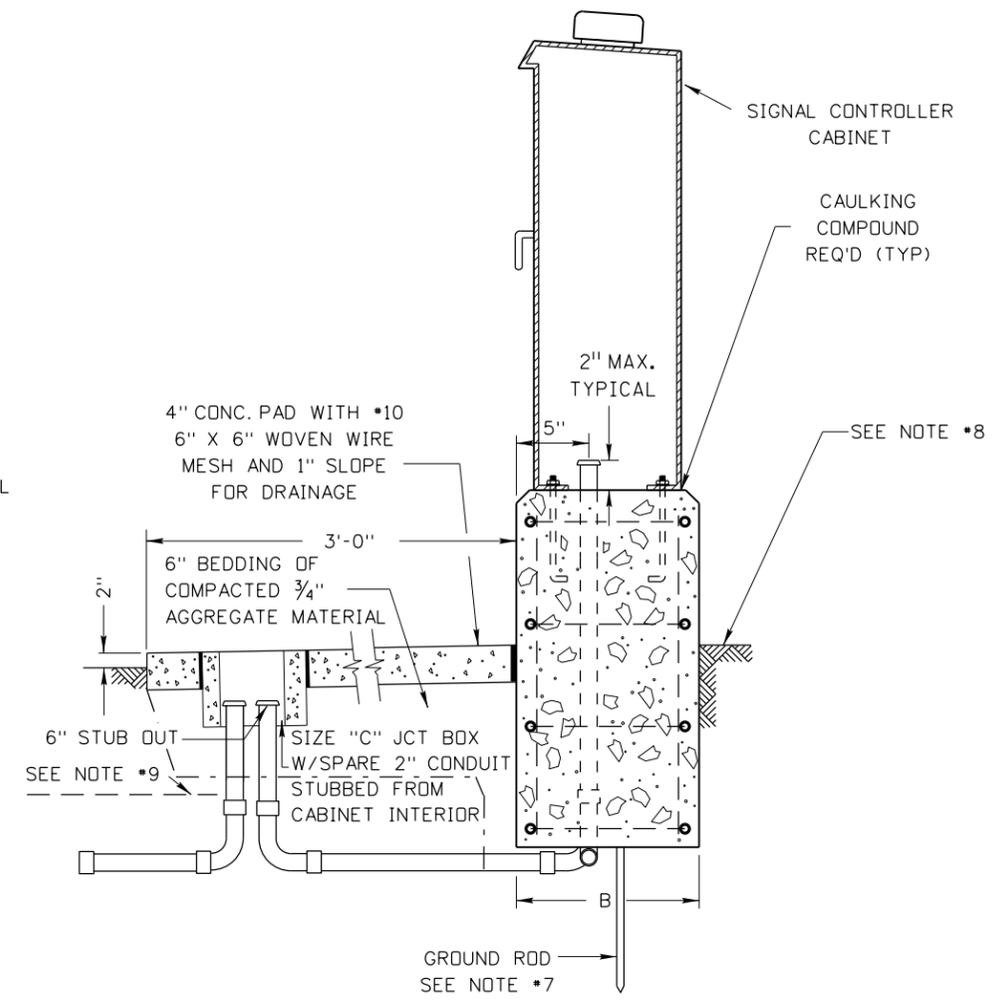
ORIGINAL SIGNED BY: ROBERT KOEBERLEIN
DATE ORIGINAL SIGNED: JUNE 19, 2014



FRONT VIEW



SECTION BB



SECTION AA

NOTES:

1. THE FOUNDATION SHALL BE LOCATED AS INDICATED ON THE PROJECT PLAN SHEETS.
2. FOUNDATION REBAR CAGES MAY BE WELDED IF THE REBAR CONFORMS TO ASTM A706/A706M AND ALL WELDING CONFORMS TO ANSI/AWS D1.4 (STRUCTURAL WELDING CODE - REINFORCING STEEL).
3. ALL CONDUITS, ELBOWS, AND COUPLINGS WITHIN AND PROTRUDING FROM THE FOUNDATION SHALL BE RIGID STEEL. THE REMAINING CONDUITS SHALL BE AS SHOWN ON THE PLANS.
4. STUBOUTS SHALL BE TERMINATED WITH A STEEL BONDING BUSHING.
5. FOAM PLUG REQUIRED AT BOTH ENDS OF SPARE CONDUITS.
6. GROUND IN ACCORDANCE WITH N.E.C.
7. CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT CAUSE MODIFICATION OF THE CABINETS.
8. GRADE AREA TO PROVIDE DRAINAGE AWAY FROM CABINET FOUNDATION.
9. 6" WIDE ELECTRICAL HAZARD TAPE INSTALLED 1'-0" ABOVE CONDUIT (TYPICAL OF ALL CONDUIT PLACED IN GROUND).
10. NOT TO SCALE.

CABINET FOUNDATION SCHEDULE

CABINET TYPE	FOUNDATION TYPE	A	B	C	D	E	HOOPS			VERTICAL RODS			CU. YDS. CONC.		CABINET ANCHOR BOLT	
							NO.	SIZE	LIN. FT.	NO.	SIZE	LIN. FT.	FOUNDATION	PAD	QNTY.	SIZE
SIGNAL	M	2'-9"	1'-8"	-	-	1'-0"	4	#4	32'-0"	6	#4	19'-0"	.6	.14	2	3/4" X 18" X 2 1/4"
	P & R	3'-11"	2'-5"	3'-4 3/4"	1'-6 1/2"	-	4	#4	47'-4"	6	#4	19'-0"	1.23	.14	4	3/4" X 18" X 2 1/4"

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i7a20514.dgn
 DRAWING DATE: MAY, 2014

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

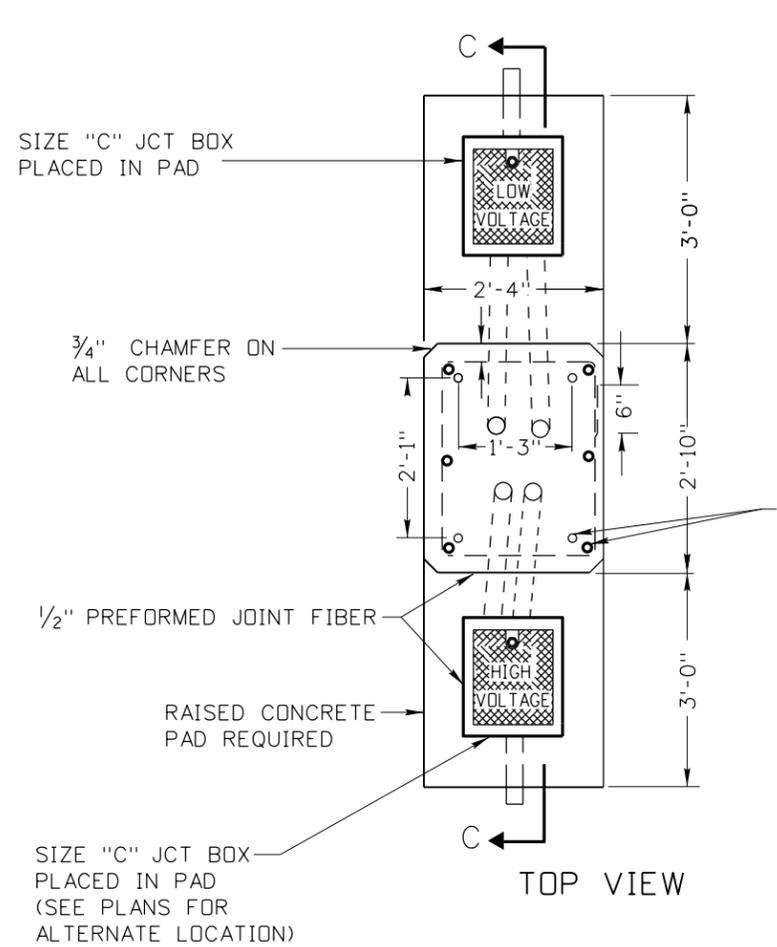
ORIGINAL SIGNED BY: CARL D. MAIN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
SIGNAL CABINET FOUNDATION DETAIL

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

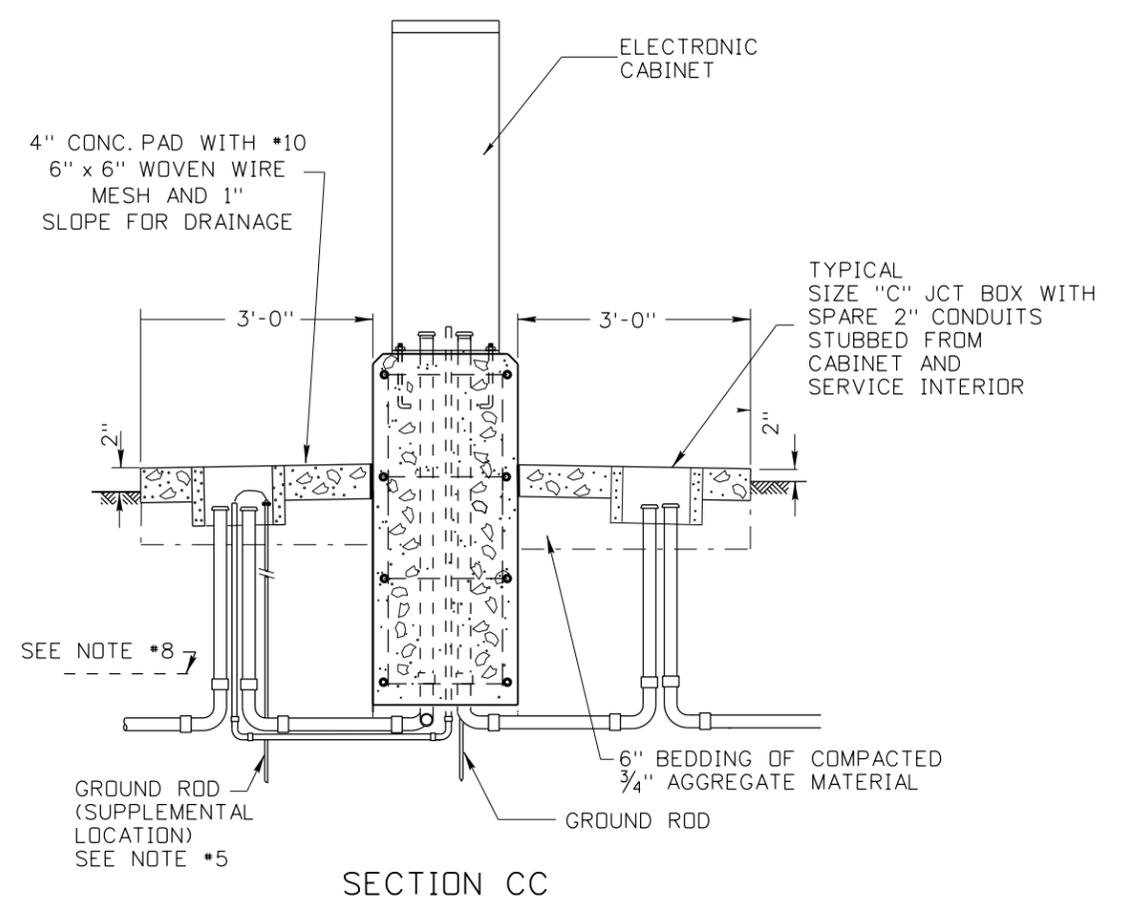
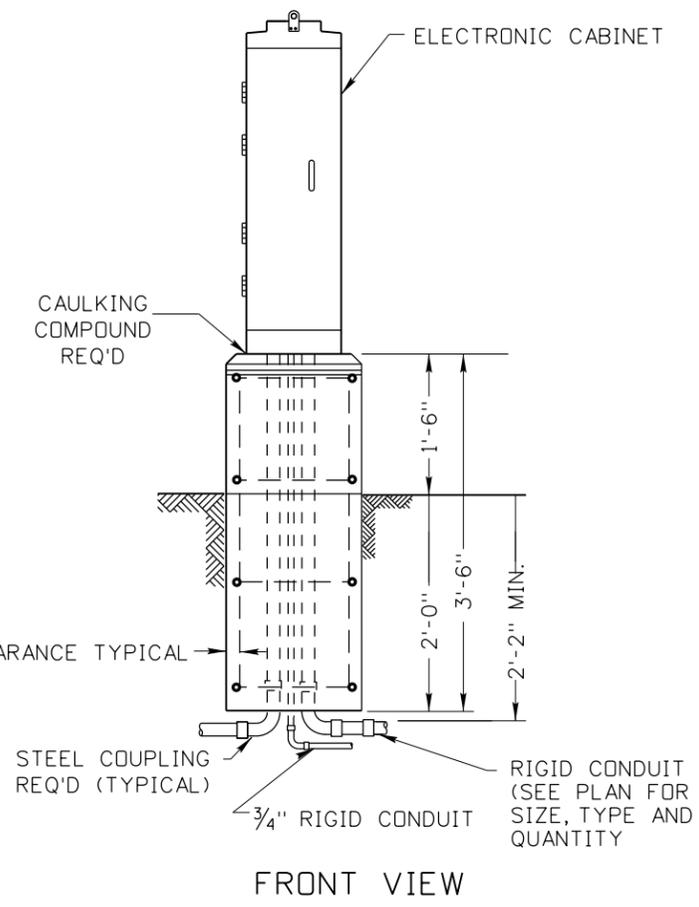
English
 STANDARD DRAWING NO.
I-7-A-2
 SHEET 1 OF 1

ORIGINAL SIGNED BY:
 ROBERT KOEBERLEIN
 DATE ORIGINAL SIGNED:
 JUNE 19, 2014



SEE FOUNDATION SCHEDULE FOR HOOPS AND VERTICAL REBAR

SEE FOUNDATION SCHEDULE FOR HOOPS AND VERTICAL REBAR



- NOTES:
1. THE FOUNDATION SHALL BE LOCATED AS INDICATED ON THE PLAN SHEETS.
 2. ALL CONDUITS, ELBOWS AND COUPLINGS WITHIN AND PROTRUDING FROM THE FOUNDATION SHALL BE RIGID STEEL. THE REMAINING CONDUITS SHALL BE AS SHOWN ON THE PLANS.
 3. STUBOUTS SHALL BE TERMINATED WITH A STEEL BONDING BUSHING.
 4. PLASTIC PUSH PLUG REQUIRED AT BOTH ENDS OF SPARE CONDUITS.
 5. GROUND IN ACCORDANCE WITH THE N.E.C.
 6. CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT CAUSE MODIFICATION OF THE CABINET.
 7. GRADE TO PROVIDE DRAINAGE AWAY FROM THE CABINET FOUNDATION.
 8. 6" WIDE ELECTRICAL HAZARD TAPE SHALL BE INSTALLED 1'-0" ABOVE THE CONDUIT. (TYPICAL OF ALL CONDUIT PLACED IN GROUND).

ELECTRONIC CABINET FOUNDATION SCHEDULE											
CABINET TYPE	FOUNDATION TYPE	HOOPS			VERTICAL REBAR			CU. YDS. CONC.		CABINET ANCHOR BOLT	
		NO.	SIZE	LIN. FT.	NO.	SIZE	LIN. FT.	FOUNDATION	PAD	QNTY.	SIZE
ELECTRONIC	170/334	4	#4	38'-0"	6	#4	19'-0"	.85	.19	4	1/2" X 12" X 3"

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

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CADD FILE NAME: i7b10414.dgn

DRAWING DATE: FEBRUARY, 2014

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

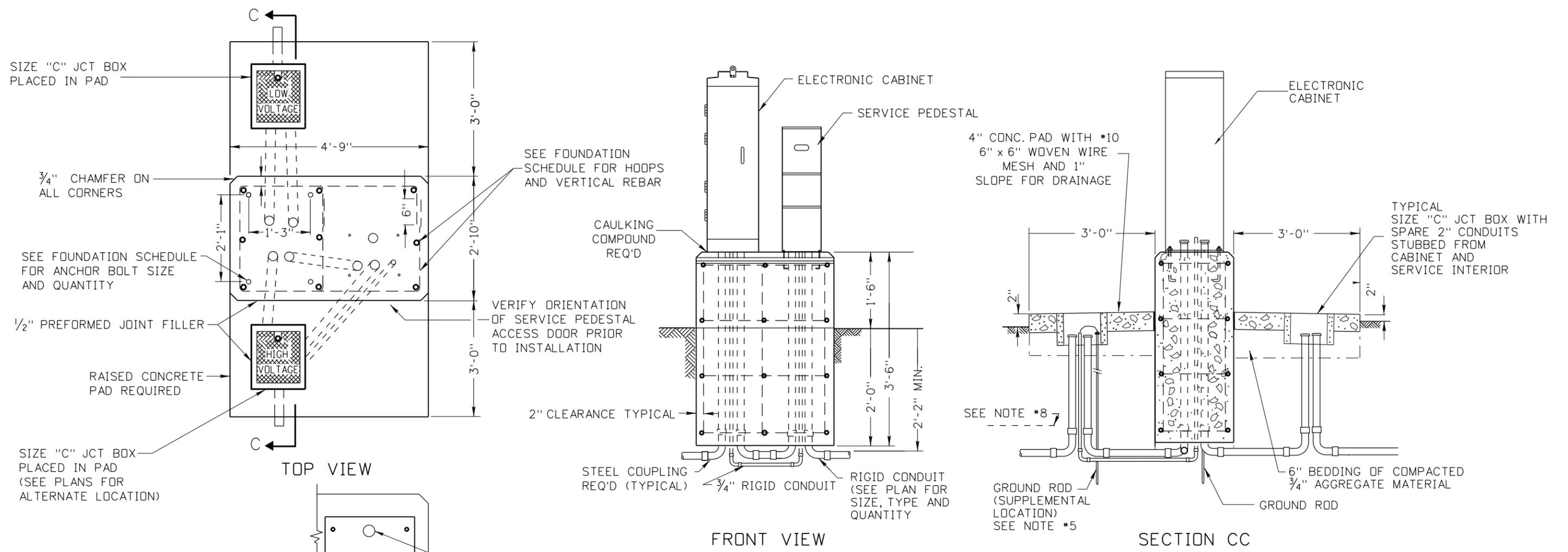
ELECTRONIC CABINET FOUNDATION DETAIL

English

STANDARD DRAWING NO. I-7-B-1

SHEET 1 OF 1

ORIGINAL SIGNED BY: ROBERT KOEBERLEIN
DATE ORIGINAL SIGNED: APRIL 30, 2014



- NOTES:
1. THE FOUNDATION SHALL BE LOCATED AS INDICATED ON THE PLAN SHEETS.
 2. ALL CONDUITS, ELBOWS AND COUPLINGS WITHIN AND PROTRUDING FROM THE FOUNDATION SHALL BE RIGID STEEL. THE REMAINING CONDUITS SHALL BE AS SHOWN ON THE PLANS.
 3. STUBOUTS SHALL BE TERMINATED WITH A STEEL BONDING BUSHING.
 4. PLASTIC PUSH PLUG REQUIRED AT BOTH ENDS OF SPARE CONDUITS.
 5. GROUND IN ACCORDANCE WITH THE N.E.C.
 6. CONDUIT SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT CAUSE MODIFICATION OF THE CABINET.
 7. GRADE TO PROVIDE DRAINAGE AWAY FROM THE CABINET FOUNDATION.
 8. 6" WIDE ELECTRICAL HAZARD TAPE SHALL BE INSTALLED 1'-0" ABOVE THE CONDUIT. (TYPICAL OF ALL CONDUIT PLACED IN GROUND).
 9. FOUNDATION REBAR CAGES MAY BE WELDED IF THE REBAR CONFORMS TO ASTM A706/A706M AND WELDING CONFORMS TO ANSI/AWS D1.4. (STRUCTURAL WELLING CODE - REINFORCING STEEL).
 10. USE SERVICE PEDESTAL BASE FOR ANCHOR BASE TEMPLATE.

FRONT VIEW
PEDESTAL INSTALLATION DETAIL

ELECTRONIC CABINET AND SERVICE PEDESTAL FOUNDATION SCHEDULE													
CABINET TYPE	FOUNDATION TYPE	HOOPS			VERTICAL REBAR			CU. YDS. CONC. FOUNDATION		CABINET ANCHOR BOLTS		SERVICE PEDESTAL ANCHOR BOLTS	
		NO.	SIZE	LIN. FT.	NO.	SIZE	LIN. FT.	FOUNDATION	PAD	QNTY.	SIZE	QNTY.	SIZE
ELECTRONIC	170/334	4	4 x 2	86'-2"	9	*4	27'-8"	1.74	.35	4	1/2" X 12" X 3"	4	5/8" X 6" X 2"

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	08-96	HEB						
2	02-14	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i7b20414.dgn
 DRAWING DATE: DECEMBER, 1994

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

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 DESIGN/TRAFFIC SERVICES ENGINEER

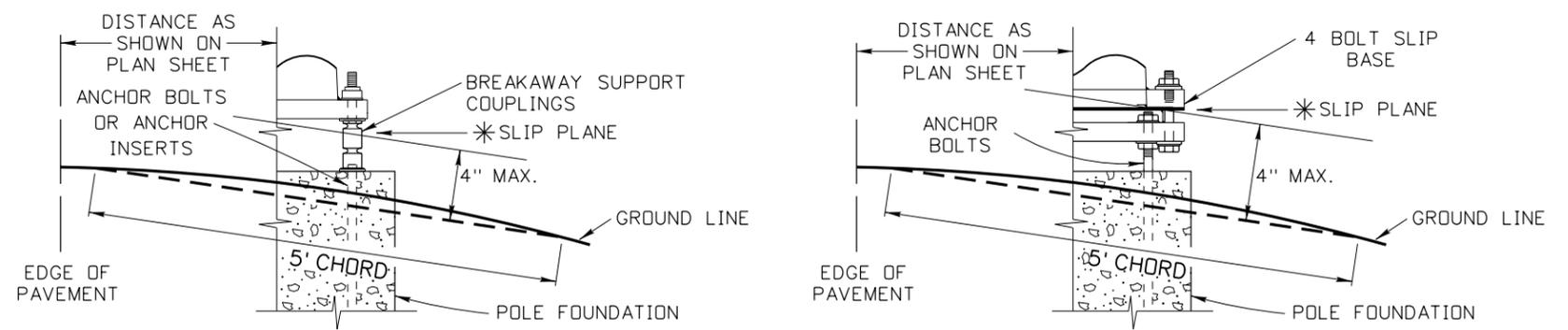
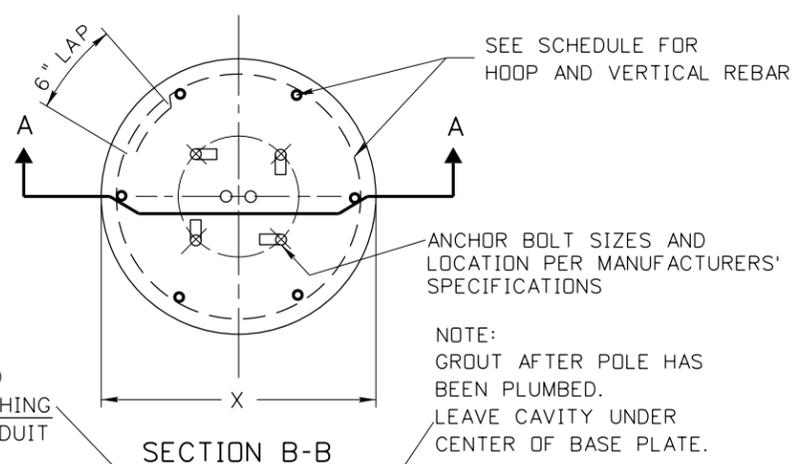
STANDARD DRAWING
ELECTRONIC CABINET & SERVICE PEDESTAL FOUNDATION DETAIL

English
 STANDARD DRAWING NO.
I-7-B-2
 SHEET 1 OF 1

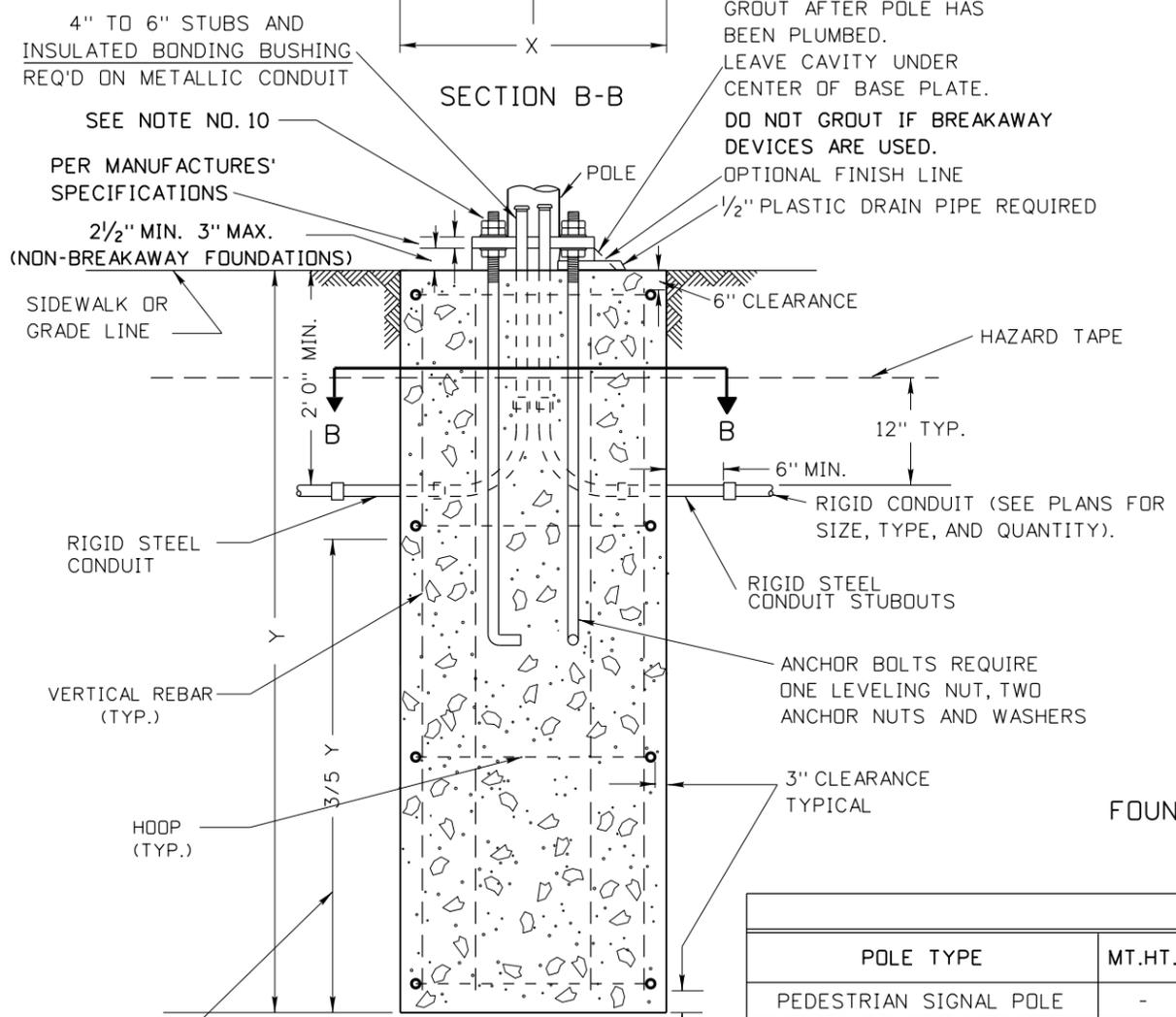
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 ROBERT KOEBERLEIN
 DATE ORIGINAL SIGNED:
 APRIL 25, 2014

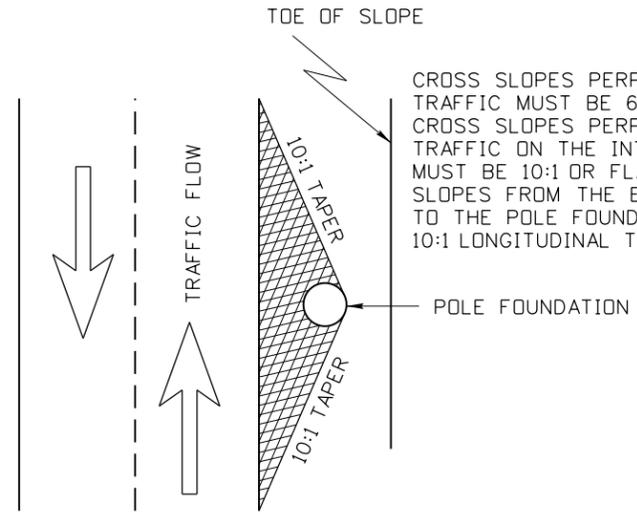
* THE SLIP PLANE OF A BREAK AWAY POLE FOUNDATION SHALL NOT BE MORE THAN 4 INCHES FROM A 5.0 FOOT CHORD PERPENDICULAR TO THE CONTROL LINE OF THE ROADWAY. THE CHORD SHALL INTERSECT THE SIDE SLOPE ON EACH SIDE OF THE FOUNDATION.



BREAKAWAY SUPPORT CLEARANCE DIAGRAMS



FOUNDATION GRADING / SLOPE TREATMENT



CROSS SLOPES PERPENDICULAR TO THE FLOW OF TRAFFIC MUST BE 6:1 OR FLATTER. CROSS SLOPES PERPENDICULAR TO THE FLOW OF TRAFFIC ON THE INTERSTATE SYSTEM MUST BE 10:1 OR FLATTER. SLOPES FROM THE EDGE OF THE ROADWAY TO THE POLE FOUNDATION SHOULD HAVE A 10:1 LONGITUDINAL TAPER

NOTES:

1. THE FOUNDATIONS SHALL BE LOCATED AS INDICATED ON THE PROJECT PLAN SHEETS.
2. FOUNDATION REBAR CAGES MAY BE WELDED IF THE STEEL REBAR CONFORMS TO ASTM A706/A706M AND ALL WELDING CONFORMS TO ANSI/AWS D1.4 (STRUCTURAL WELDING CODE - REINFORCING STEEL).
3. REBAR IN POLE FOUNDATIONS SHALL BE 60 KSI STEEL.
4. STEEL TEMPLATE REQUIRED FOR ANCHOR BOLT PLACEMENT.
5. SPARE STUBOUTS WHEN SHOWN ON PLAN SHEETS SHALL BE TERMINATED WITH A STEEL COUPLING AND FOAM PLUG AT BOTH ENDS.
6. CLASS 40 CONCRETE SHALL BE USED IN POLE FOUNDATIONS.
7. FOUNDATION CONCRETE SHALL ACHIEVE 100% STRENGTH AND CURE FOR A MINIMUM OF 7 DAYS BEFORE ANY LOADING IS APPLIED.
8. FILLER JOINT MATERIAL WILL BE PLACED AROUND POLE FOUNDATION WHEN POLE FOUNDATION IS IN CONTACT WITH SIDEWALK.
9. ELEVATION OF TOP OF POLE FOUNDATION SHALL MATCH THE ADJACENT PAVEMENT EDGE OR SIDEWALK ELEVATION.
10. ANCHOR BASE ASSEMBLIES SHALL BE INSTALLED AND TIGHTENED IN ACCORDANCE WITH SUBSECTION 619.03 OF THE ITD STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE SUPPLEMENTAL SPECIFICATIONS.

POLE FOUNDATION SCHEDULE												
POLE TYPE	MT.HT.	MASTARM LENGTH	FOUNDATION TYPE	X	Y	HOOPS			VERTICAL REBAR			CU. YDS. CONCRETE
						NO.	SIZE	LIN.FT.	NO.	SIZE	LIN.FT.	
PEDESTRIAN SIGNAL POLE	-	-	A	2'-0"	5'-0"	4	#4	20'-10"	6	#4	25'-6"	.6
LIGHT POLE	30'	ALL	A	2'-0"	5'-0"	4	#4	20'-10"	6	#4	25'-6"	.6
LIGHT POLE	35'	ALL	B	2'-6"	7'-0"	4	#4	27'-2"	6	#6	37'-6"	1.3
LIGHT POLE	40'-50'	ALL	C	3'-0"	8'-0"	5	#4	41'-10"	8	#6	58'-0"	2.1
SIGNAL POLE		20' - 45'	D	3'-0"	9'-0"	5	#4	41'-10"	8	#6	66'-0"	2.4
PEDESTRIAN PUSHBUTTON POLE	4'-0"	-	E	1'-6"	2'-6"	-	-	-	-	-	-	.2
DUAL MAST ARM SIGNAL POLE	-	ALL	F	3'-0"	12'-0"	8	#5	66'-10"	12	#6	135'-0"	3.1
SIGNAL POLE	-	50' - 55'	F	3'-0"	12'-0"	8	#5	66'-10"	12	#6	135'-0"	3.1

THE LOWER 3/5 OF THE FOUNDATION TO BE PLACED AGAINST UNDISTURBED SOIL UNLESS OTHERWISE APPROVED BY THE ENGINEER. THE UPPER 2/5 OF THE FOUNDATION MAY BE FORMED AS NEEDED.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

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 CADD FILE NAME: i7c_1215.dgn
 DRAWING DATE: DECEMBER, 2015

IDAHO TRANSPORTATION DEPARTMENT

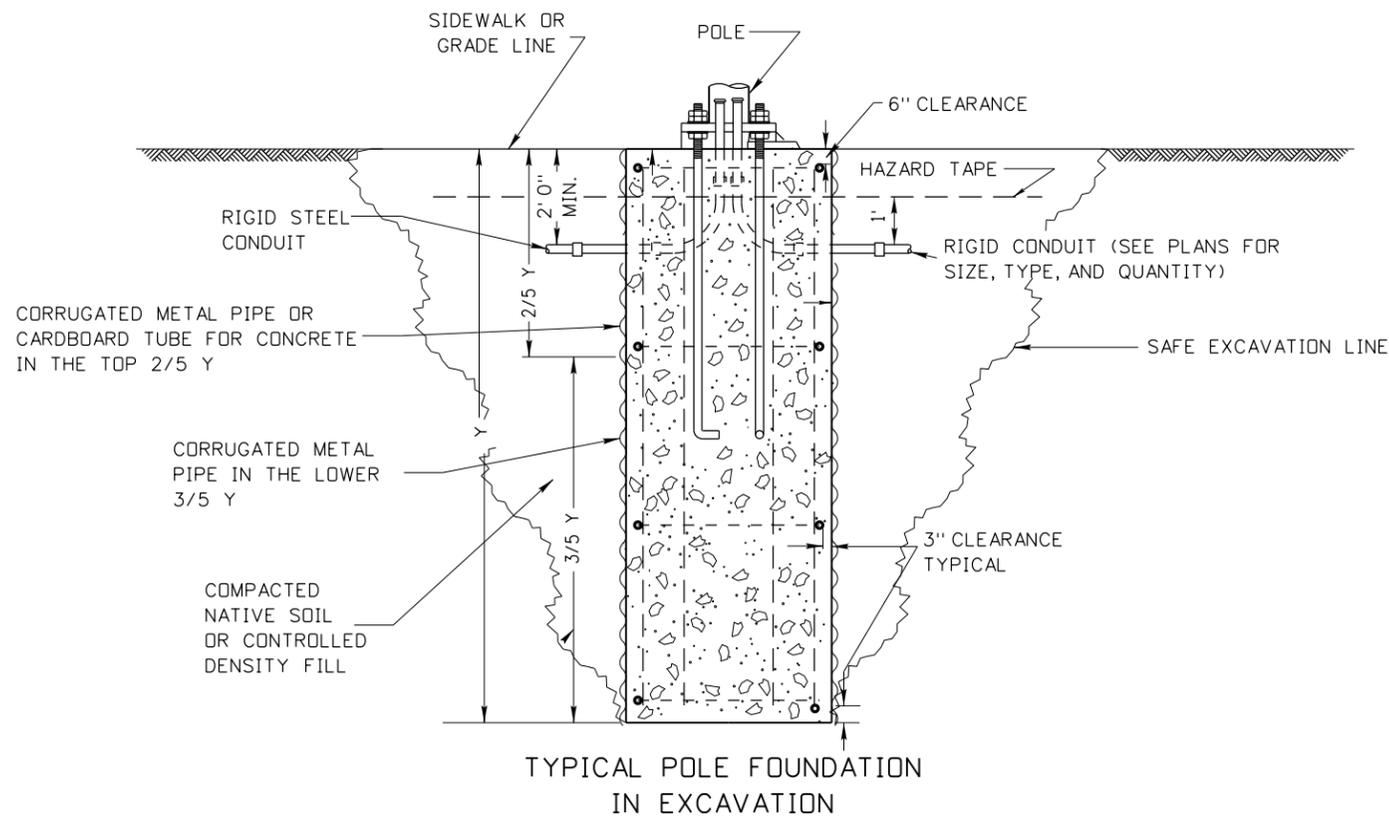
BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
MAST ARM SIGNAL POLE, LIGHTING POLE AND PEDESTRIAN POLE FOUNDATION DETAILS
 REQUIRES SHEET 2 OF 2

English
 STANDARD DRAWING NO. I-7-C
 SHEET 1 OF 2

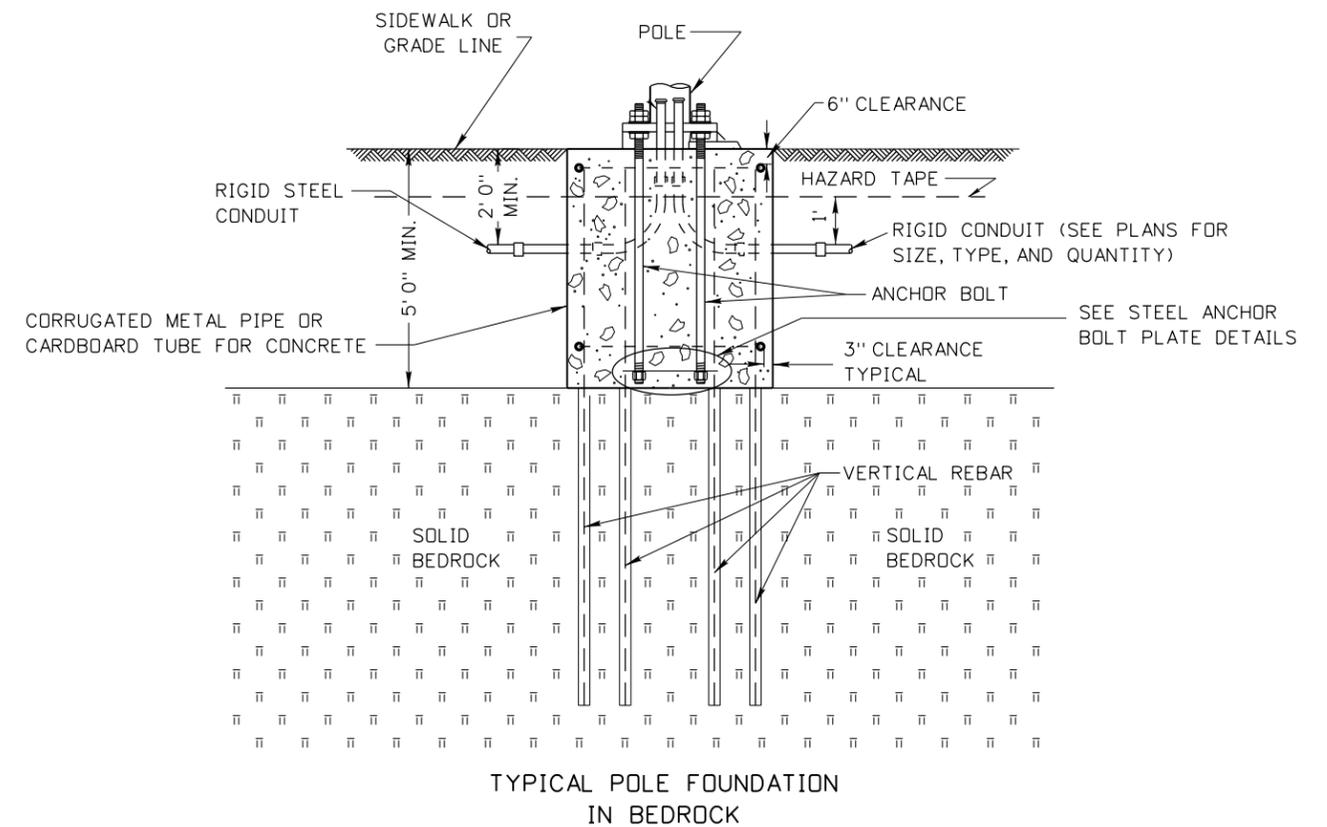
ORIGINAL SIGNED BY: TRJ BUJ
 DATE ORIGINAL SIGNED: DECEMBER 4, 2015



TYPICAL POLE FOUNDATION
IN EXCAVATION

EXCAVATION NOTES:

1. IF CORRUGATED METAL PIPE IS USED UP TO SIDEWALK OR GRADE LINE, CUT OUT HOLE FOR THE CONDUITS WILL BE EQUAL TO THE DIAMETER OF CONDUIT OR CONDUITS PLUS ONE INCH.
2. WHEN NATIVE SOIL IS USED FOR BACKFILL, IT SHALL BE COMPACTED IN ACCORDANCE WITH SUBSECTION 210.03 OF THE IDAHO STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND SUPPLEMENTAL SPECIFICATIONS.
3. IF CONTROL DENSITY FILL IS USED FOR BACK FILL, IT SHALL HAVE A COMPRESSIVE STRENGTH OF 100 PSI TO 300 PSI.
4. DRAWING NOT TO SCALE.

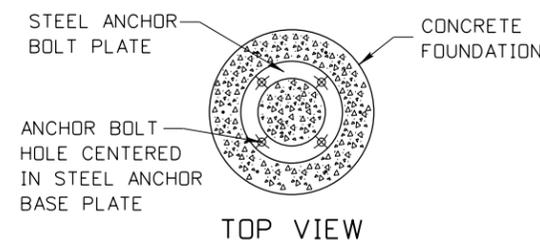


TYPICAL POLE FOUNDATION
IN BEDROCK

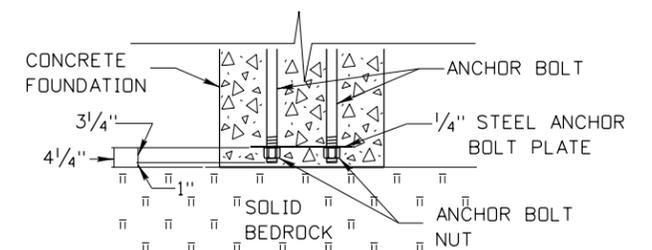
SOLID BEDROCK NOTES:

1. IF DEPTH TO BEDROCK IS LESS THAN 5', NOTIFY THE ENGINEER AND REDESIGN OF THE FOUNDATION MAY BE REQUIRED.
2. SOCKET ALL VERTICAL REBAR FULL LENGTH AS SHOWN IN POLE FOUNDATION SCHEDULE ON SHEET 1 IN BEDROCK. DIAMETERS OF DRILLED HOLES FOR VERTICAL REBAR SHALL BE AT LEAST 2 INCHES. FILL DRILLED HOLES WITH GROUT, 705.02, TYPE B, CLASS 1.
3. EXCAVATION NOTES APPLY TO THIS APPLICATION.
4. DRAWING NOT TO SCALE.

STEEL ANCHOR BOLT PLATE DETAILS



TOP VIEW



SIDE VIEW

ANCHOR BOLT PLATE SCHEDULE		
BOLT CIRCLE	OUTSIDE DIAMETER	INSIDE DIAMETER
17 1/2"	21 1/4"	13 3/4"
18 1/2"	22 1/4"	14 3/4"
22"	26 1/4"	17 3/4"

SEE STANDARD DRAWING I-7-C SHEET 1 FOR DETAILS

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
i7c_1215.dgn

DRAWING DATE:
DECEMBER, 2015

**IDAHO
TRANSPORTATION
DEPARTMENT**

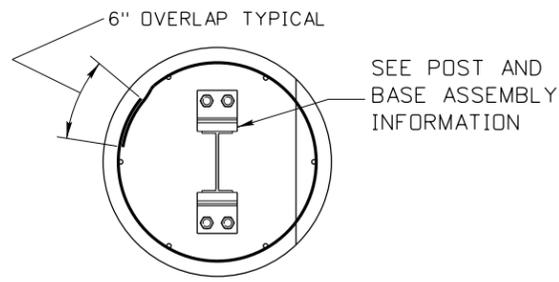
BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

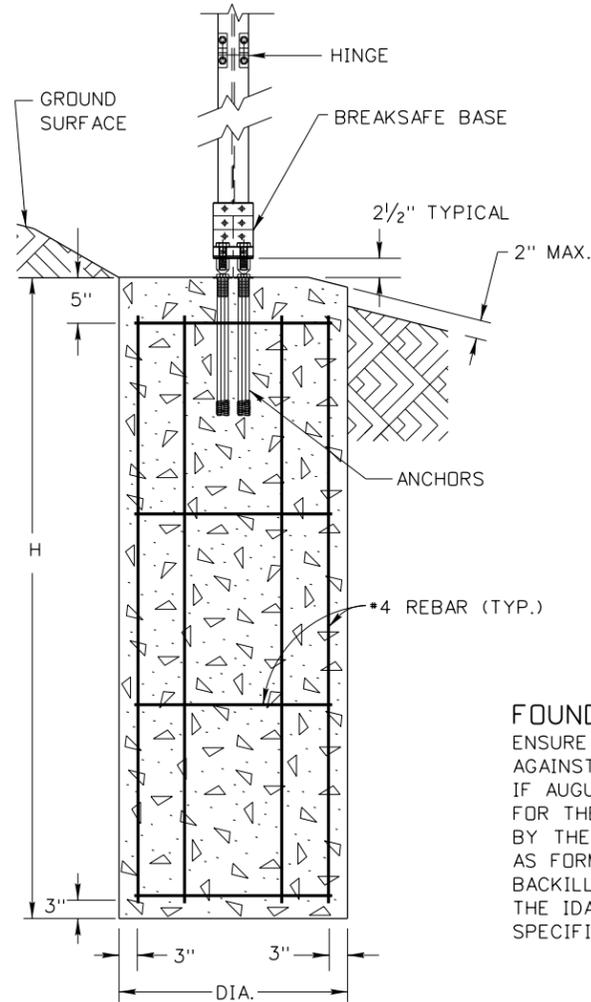
STANDARD DRAWING
**MAST ARM SIGNAL POLE,
LIGHTING POLE AND PEDESTRIAN
POLE FOUNDATION DETAILS**
REQUIRES SHEET 1 OF 2

English
STANDARD DRAWING NO.
I-7-C
SHEET 2 OF 2

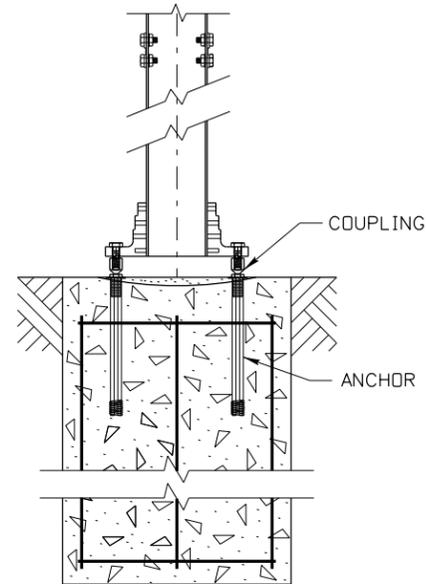
ORIGINAL SIGNED BY:
TRI BUJ
DATE ORIGINAL SIGNED:
DECEMBER 4, 2015



TYPICAL FOUNDATION TOP VIEW



FRONT VIEW



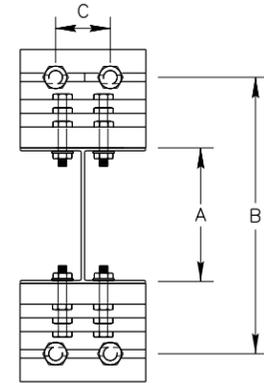
SIDE VIEW

FOUNDATION NOTE:

ENSURE CAST-IN-PLACE FOUNDATION IS PLACED AGAINST IN-SITU (NATIVE) SOILS IN AUGERED HOLE. IF AUGURED HOLE IS NOT POSSIBLE, EXCAVATION FOR THE FOUNDATION CAN BE DONE IF APPROVED BY THE ENGINEER. USE CORRUGATED METAL PIPE AS FORM FOR THE FOUNDATION. PLACE AND COMPACT BACKFILL IN ACCORDANCE TO SUBSECTION 210.03 OF THE IDAHO TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

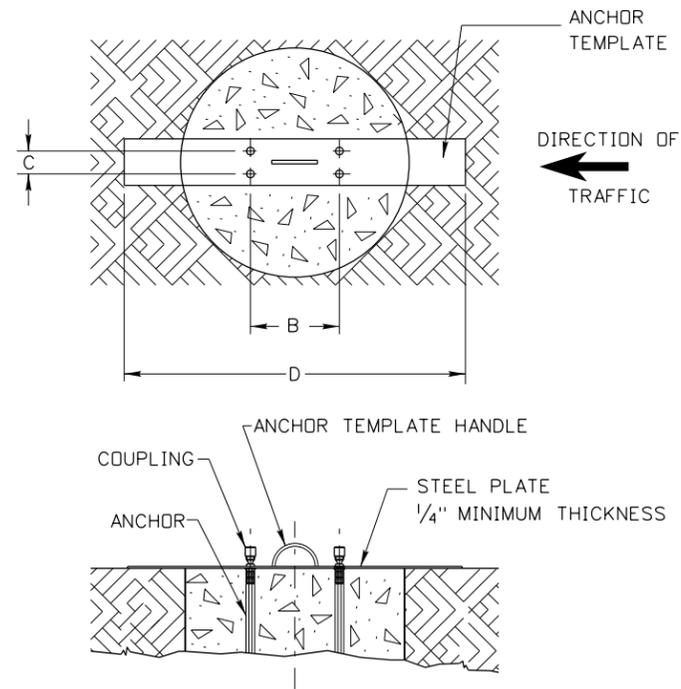
FOUNDATION MATERIAL QUANTITIES

FOUNDATION SIZE	CONCRETE	VERTICAL RODS		HOOPS	
		NO.	LN. FT.	NO.	LN. FT.
24" X 60"	0.6 CU. YDS.	6	26	4	20.85
30" X 84"	1.3 CU. YDS.	6	38	4	27.13
36" X 96"	2.1 CU. YDS.	8	60	5	41.77



POST TYPE	WIDE FLANGE BEAM POST SIZE	WEIGHT LBS. PER FOOT	BREAKSAFE ASSEMBLY MODEL	FOUNDATION SIZE DIA. X H	A DIMENSION	B DIMENSION	C DIMENSION	D ANCHOR TEMPLATE DIMENSIONS
A-1	W6 X 9	9	A16	24" X 60"	5 7/8"	9 3/8"	4 1/4"	6" x 36" x 1/4"
A-2	W8 X 10	10	B525	30" X 84"	7 7/8"	15 7/8"	3"	6" x 40" x 1/4"
A-3	W8 X 13	13	B525	30" X 84"	8"	16"	3"	6" x 40" x 1/4"
A-4	W8 X 18	18	B525	30" X 84"	8 1/8"	16 1/8"	3"	6" x 40" x 1/4"
A-8	W12 X 19	19	B650	36" X 96"	12 1/8"	20 1/8"	4"	6" x 48" x 1/4"
A-9	W14 X 22	22	B650	36" X 96"	13 3/4"	21 3/4"	4"	6" x 48" x 1/4"

SIGN POST AND BASE ASSEMBLY INFORMATION



TYPICAL ANCHOR TEMPLATE FOR TYPE A SIGN POSTS

NOTES:

- SEE SIGNING ERECTION SPECIFICATIONS FOR DIMENSIONS OF EACH SIGN INSTALLATION.
- INSTALL BREAKAWAY SUPPORT SYSTEM PER MANUFACTURERS INSTRUCTIONS.
- USE ANCHOR TEMPLATE TO HOLD THE ANCHORS SOLID AND LEVEL.
- NO PART OF THE FOUNDATION OR NON-BREAKAWAY PART OF THE BASE SHOULD PROTRUDE MORE THAN 2" ABOVE THE GROUND SURFACE.
- FOUNDATION REBAR CAGES MAY BE WELDED IF THE REBAR CONFORMS TO ASTM A706/A706M AND ALL WELDING CONFORMS TO ANSI/AWS D1.4 (STRUCTURAL WELDING CODE - REINFORCING STEEL).
- CURE FOUNDATIONS FOR A MINIMUM OF 7 DAYS BEFORE ANY LOADING IS APPLIED.
- DRAWING NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 28, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i8a_0515.dgn

DRAWING DATE: MAY, 2015

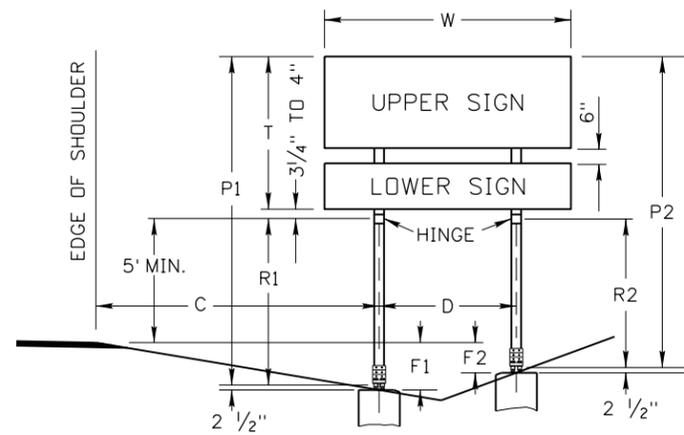
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

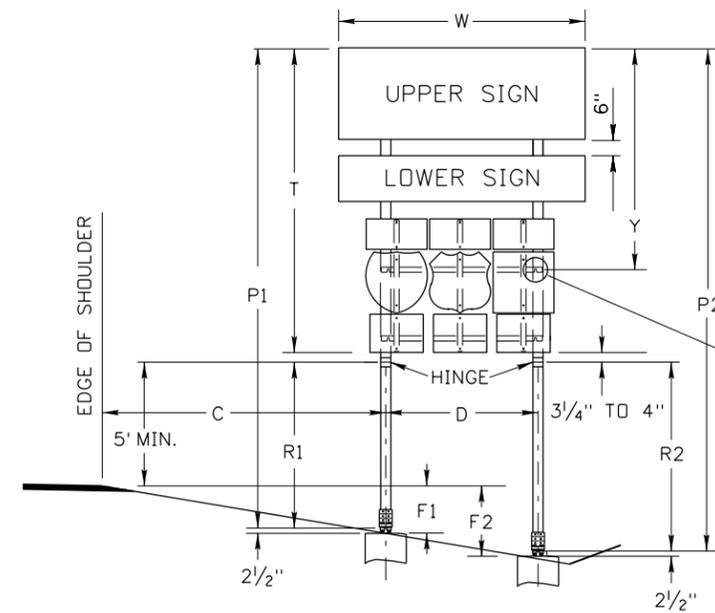
ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BREAKAWAY STEEL SIGN POST INSTALLATION TYPE A
REQUIRES SHEET 2 OF 2

English
STANDARD DRAWING NO.
I-8-A
SHEET 1 OF 2



TYPICAL SIGN INSTALLATION

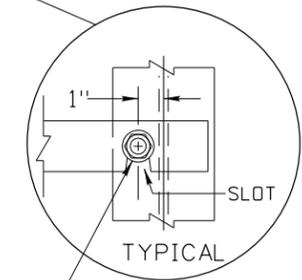


TYPICAL SIGN INSTALLATION WITH ROUTE MARKERS (W8 X 9 & W8 X 10 SIGN POSTS)

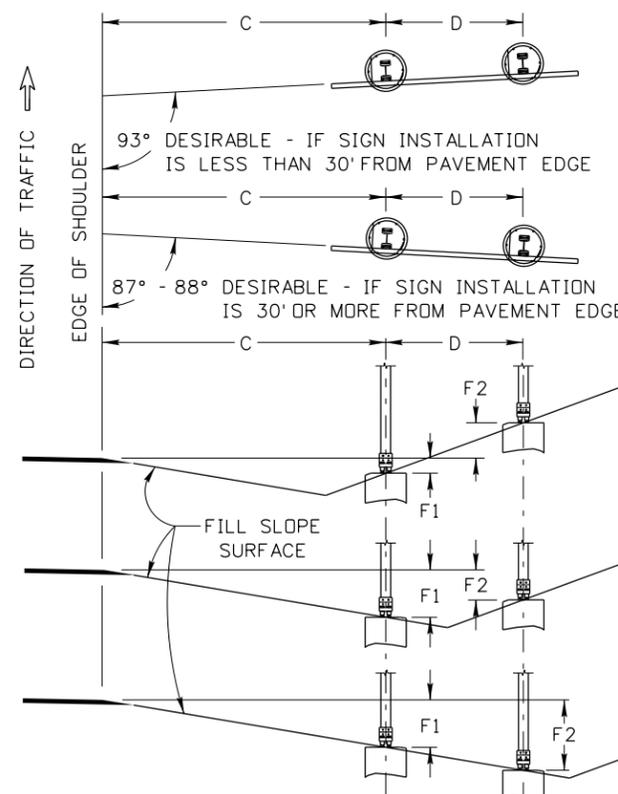
NO. OF SIGNS	SIGN PANEL HEIGHT	Y
1	2'-0"	3'-1"
1	3'-0"	4'-1"
2	2'-0"	5'-7"
2	3'-0"	7'-7"
2	2'-0"	6'-7"
2	3'-0"	6'-7"

NOTE:
INCREASE "Y" DIMENSION 12 1/2" BY WHEN A 24" x 12" AUXILIARY SIGN IS MOUNTED ABOVE THE ROUTE MARKERS ATTACHED TO THE SIGN BRACKETS.

Y DIMENSION INFORMATION



5/16" BOLT WITH WASHERS



TYPICAL FOUNDATION LOCATION

LEGEND

- C DISTANCE FROM EDGE OF SHOULDER TO CENTER LINE OF FIRST POST.
- D POST SPACING.
- F1, F2 VERTICAL DISTANCE FROM TOP OF FOUNDATION TO THE ELEVATION OF THE EDGE OF THE SHOULDER.
- P1 TOTAL POST LENGTH OF FIRST POST.
- P2 TOTAL POST LENGTH OF SECOND POST.
- R1 LENGTH OF FIRST LOWER POST. (7' MIN.)
- R2 LENGTH OF SECOND LOWER POST.
- T OVERALL HEIGHT OF SIGN(S).
- W OVERALL WIDTH OF SIGN(S).
- Y DISTANCE FROM THE TOP OF THE SIGN PANEL TO THE CENTER OF THE UPPER SLOT.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: MAY 28, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i8a_0515.dgn
DRAWING DATE: MAY, 2015

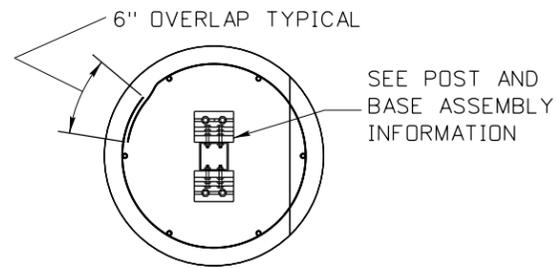
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BREAKAWAY STEEL SIGN POST INSTALLATION TYPE A
REQUIRES SHEET 1 OF 2

English
STANDARD DRAWING NO.
I-8-A
SHEET 2 OF 2

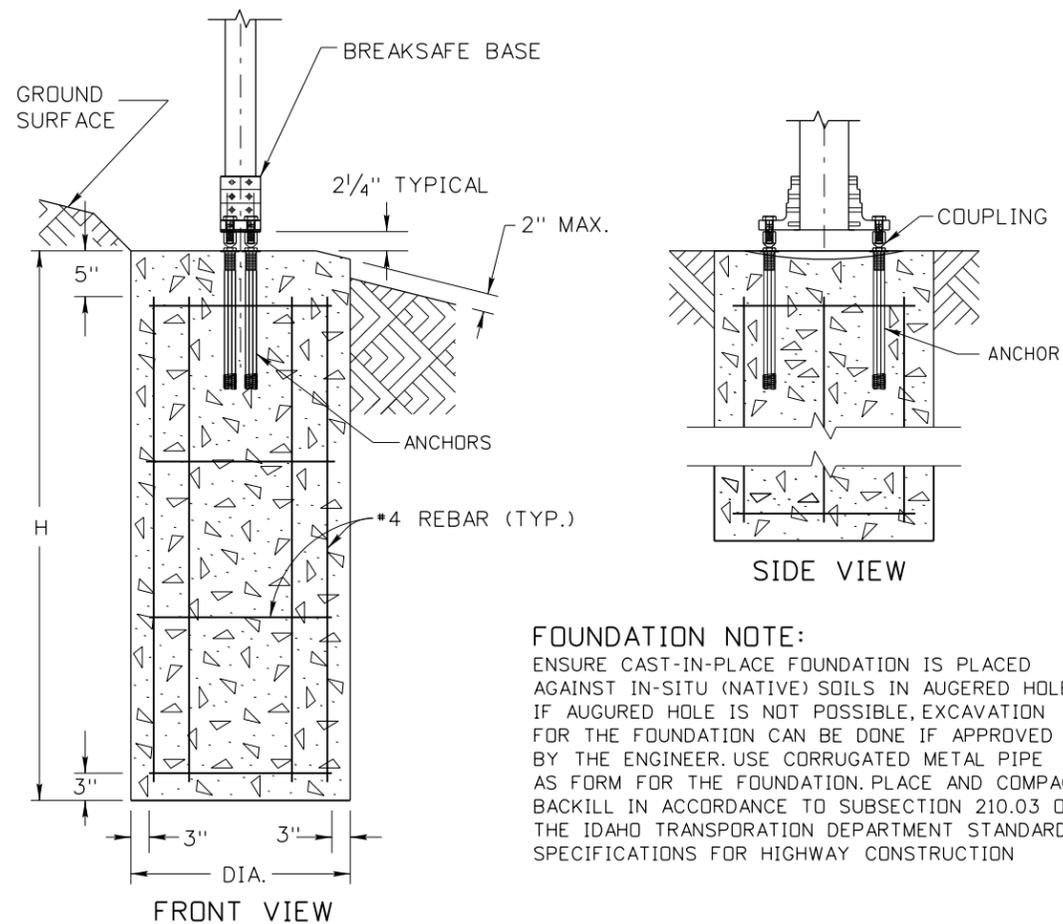


TYPICAL FOUNDATION
TOP VIEW



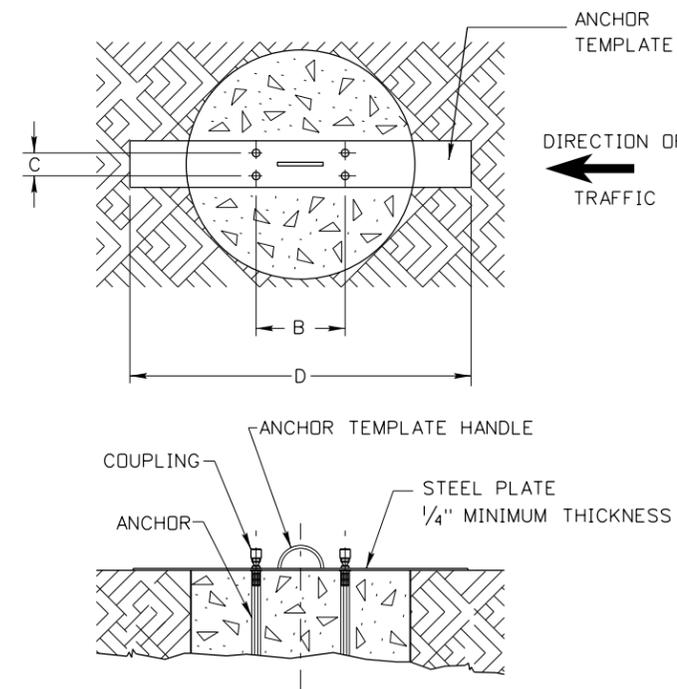
POST TYPE	TUBULAR STEEL POST SIZE	WEIGHT LBS. PER FOOT	BREAKSAFE ASSEMBLY MODEL	FOUNDATION SIZE DIA. X H	A DIMENSION	B DIMENSION	C DIMENSION	D ANCHOR TEMPLATE DIMENSIONS
B-2	4" X 3" X 3/16"	8.15	AS4	24" X 60"	4"	7 1/16"	4 1/4"	6" x 36" x 1/4"
B-3	5" X 5" X 3/16"	11.96	B525	30" X 60"	5"	13"	3"	6" x 40" x 1/4"
B-4	6" X 6" X 3/16"	14.51	B525	30" X 60"	6"	14"	3"	6" x 40" x 1/4"

SIGN POST AND BASE ASSEMBLY INFORMATION



FOUNDATION NOTE:
ENSURE CAST-IN-PLACE FOUNDATION IS PLACED AGAINST IN-SITU (NATIVE) SOILS IN AUGERED HOLE. IF AUGURED HOLE IS NOT POSSIBLE, EXCAVATION FOR THE FOUNDATION CAN BE DONE IF APPROVED BY THE ENGINEER. USE CORRUGATED METAL PIPE AS FORM FOR THE FOUNDATION. PLACE AND COMPACT BACKFILL IN ACCORDANCE TO SUBSECTION 210.03 OF THE IDAHO TRANSPORTATION DEPARTMENT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION

FOUNDATION MATERIAL QUANTITIES					
FOUNDATION SIZE	CONCRETE	VERTICAL RODS		HOOPS	
		NO.	LN. FT.	NO.	LN. FT.
24" X 60"	0.6 CU. YDS.	6	26	4	20.85
30" X 60"	0.9 CU. YDS.	6	26	4	27.13



TYPICAL ANCHOR TEMPLATE FOR TYPE A SIGN POSTS

NOTES

- SEE SIGNING ERECTION SPECIFICATIONS FOR DIMENSIONS OF EACH SIGN INSTALLATION.
- INSTALL BREAKAWAY SUPPORT SYSTEM PER MANUFACTURERS INSTRUCTIONS.
- USE ANCHOR TEMPLATE TO HOLD THE ANCHORS SOLID AND LEVEL.
- NO PART OF THE FOUNDATION OR NON-BREAKAWAY PART OF THE BASE SHOULD PROTRUDE MORE THAN 2" ABOVE THE GROUND SURFACE.
- FOUNDATION REBAR CAGES MAY BE WELDED IF THE REBAR CONFORMS TO ASTM A706/A706M AND ALL WELDING CONFORMS TO ANSI/AWS D1.4 (STRUCTURAL WELDING CODE - REINFORCING STEEL).
- CURE FOUNDATIONS FOR A MINIMUM OF 7 DAYS BEFORE ANY LOADING IS APPLIED.
- THE COST OF BOLTS, NUTS, WASHERS, AND ALUMINUM CLIP ASSEMBLIES NEEDED TO MOUNT THE SIGN(S) IS INCIDENTAL TO BREAKAWAY SIGN POST INSTALLATION TYPE B
- DRAWING NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
MAY 28, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i8d_0515.dgn
DRAWING DATE: MAY, 2015

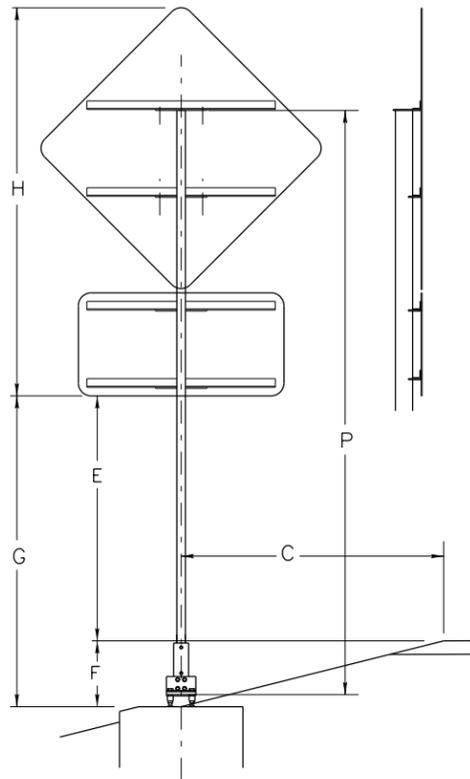
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

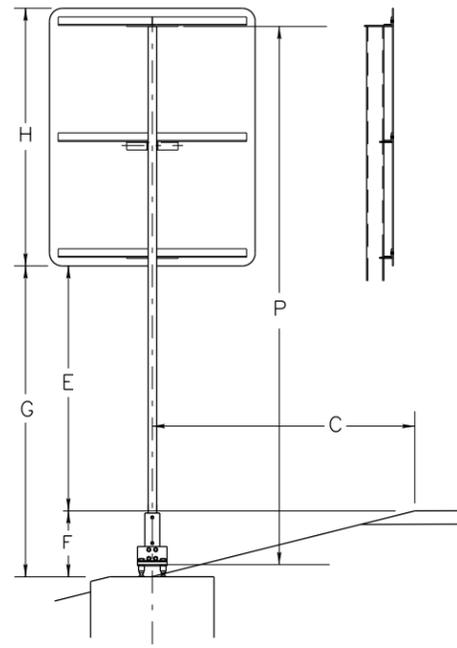
ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BREAKAWAY STEEL SIGN POST INSTALLATION TYPE B
REQUIRES SHEET 2 OF 2

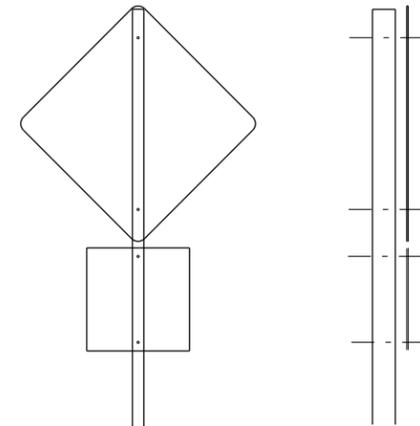
English
STANDARD DRAWING NO.
I-8-D
SHEET 1 OF 2



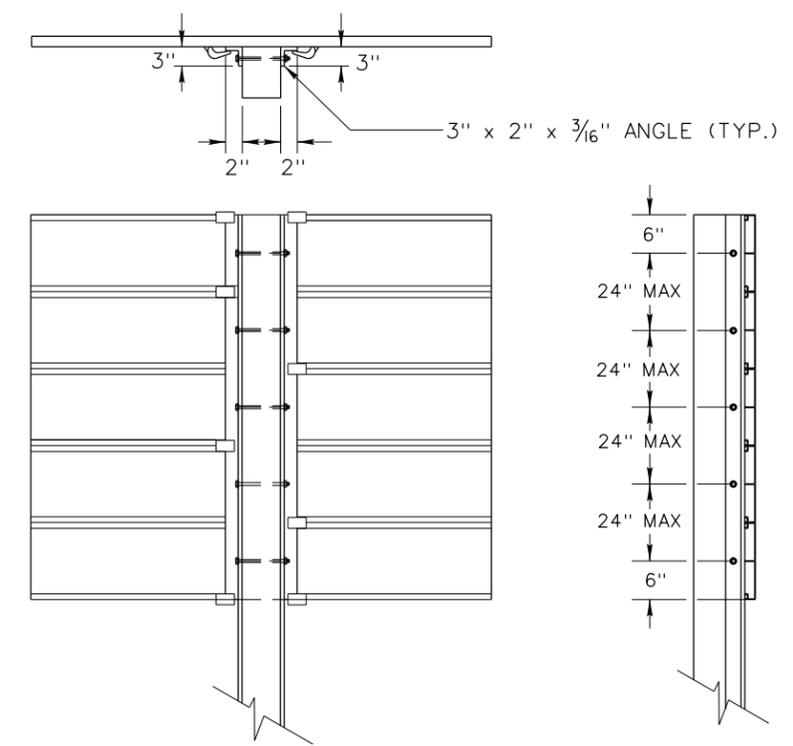
TYPICAL INSTALLATION OF MULTIPLE SIGNS REQUIRING BRACE ANGLES



TYPICAL INSTALLATION OF SIGNS REQUIRING BRACE ANGLES



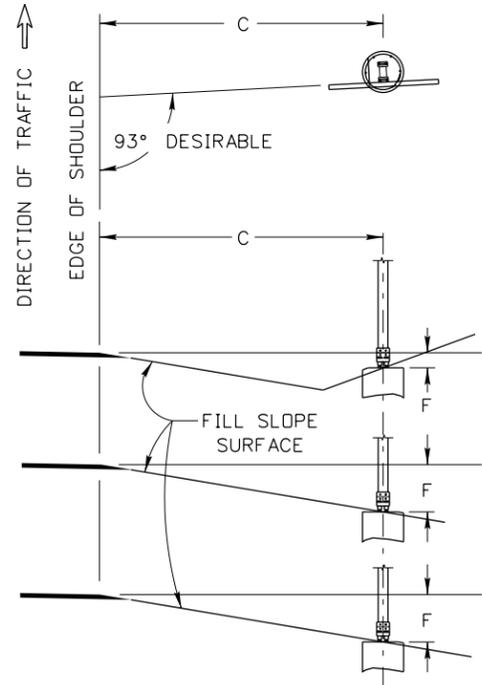
TYPICAL INSTALLATION OF SIGNS NOT REQUIRING BRACE ANGLES



TYPICAL INSTALLATION EXTRUDED ALUMINUM SIGNS

LEGEND

- C DISTANCE FROM EDGE OF SHOULDER TO CENTER LINE OF FIRST POST.
- E THE HEIGHT ABOVE THE EDGE OF FINISHED SHOULDER TO THE BOTTOM OF LOWER SIGN.
- F VERTICAL DISTANCE FROM TOP OF FOUNDATION TO THE ELEVATION OF THE EDGE OF THE SHOULDER.
- G THE DISTANCE FROM THE TOP OF THE FOUNDATION TO THE BOTTOM OF THE LOWER SIGN.
- H THE OVERALL HEIGHT OF SIGNS.
- P TOTAL POST LENGTH.



TYPICAL SIGN ORIENTATION

NOTES

1. REFER TO STANDARD DRAWINGS I-9-A-1, I-9-A-2, I-9-B. AND I-9-C FOR DETAILS OF CLIPS AND BRACE ANGLES.
2. REFER TO STANDARD DRAWING I-10-A FOR INSTALLATION OF EXTRUDED ALUMINUM SIGN PANELS.
3. ENSURE SIGNS 36 INCHES OR GREATER IN WIDTH HAVE BRACE ANGLES.
4. REFER TO STANDARD DRAWING I-12-F FOR HOLE SPACING.
5. DRAWING NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i8d_0515.dgn
 DRAWING DATE: MAY, 2015

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

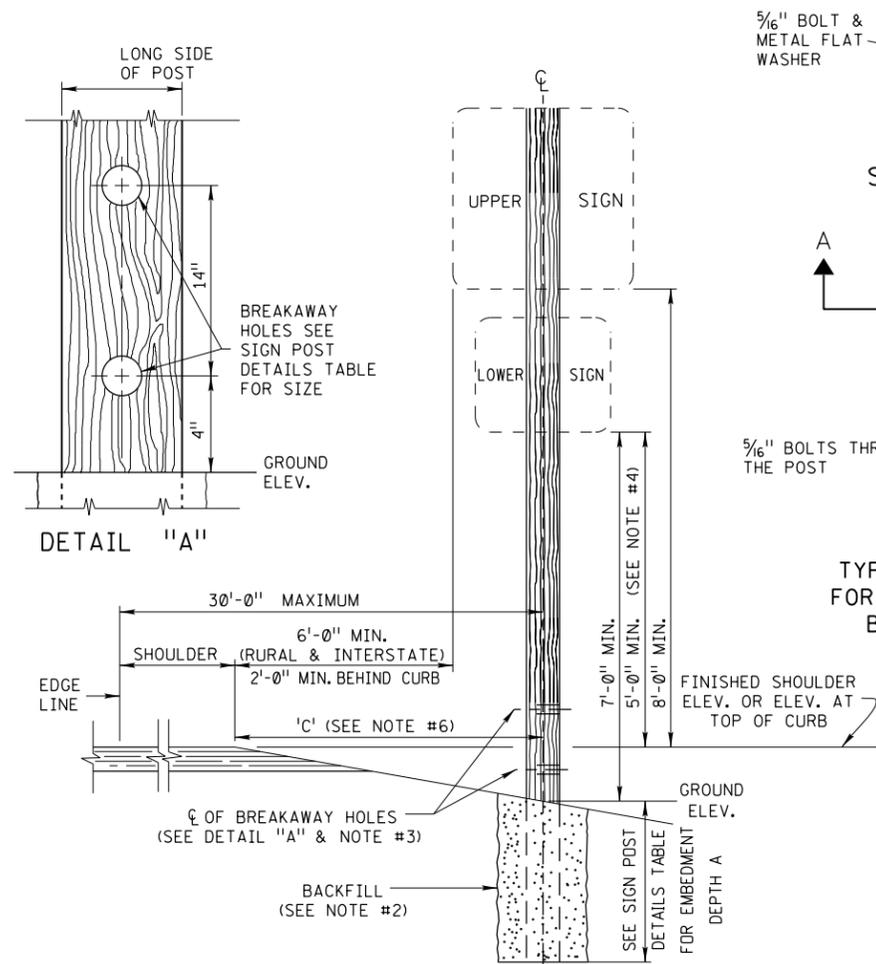
ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BREAKAWAY STEEL SIGN POST INSTALLATION TYPE B
 REQUIRES SHEET 1 OF 2

English
 STANDARD DRAWING NO.
I-8-D
 SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER
 DATE ORIGINAL SIGNED: MAY 28, 2015



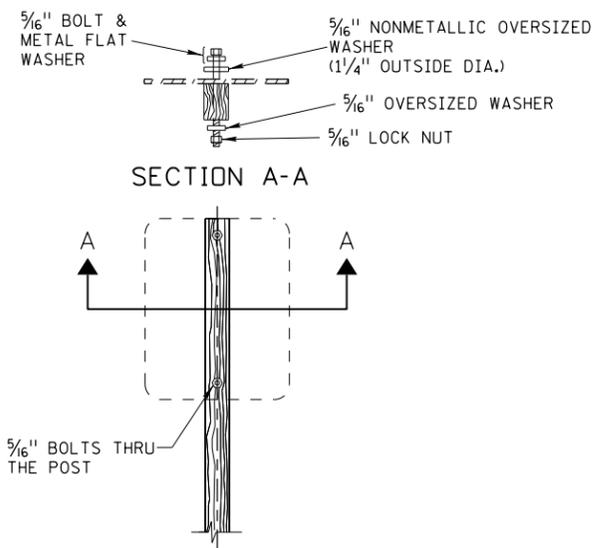
INSTALLATION DETAIL

SIGN POST DETAILS TABLE

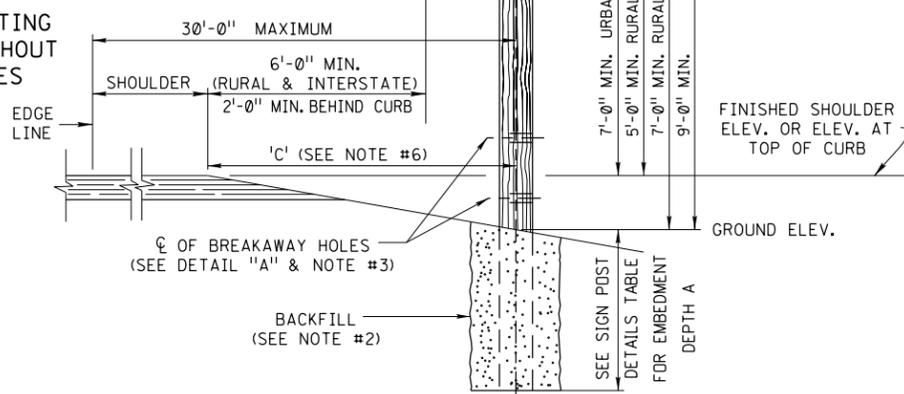
POST TYPE	POST SIZE	EMBEDMENT DEPTH A	NOTCH DEPTH	BREAKAWAY HOLE SIZE
D-1	4"x4"	3'-6"	—	—
D-2	4"x6"	4'-0"	1 3/4"	1 1/2" DIA.
D-3	6"x6"	5'-0"	1 3/4"	2" DIA.
D-4	6"x8"	6'-0"	2 1/2"	3" DIA.
D-5	8"x8"	6'-0"	—	SEE NOTE 2

SIGN POST DETAILS TABLE NOTES:

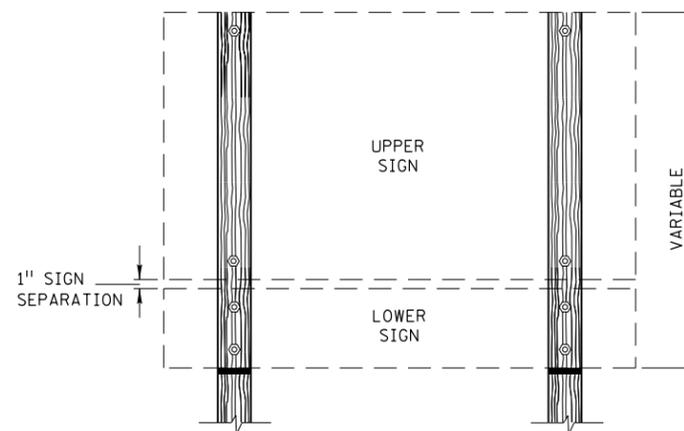
- 7'-0" MIN. CLEAR DISTANCE BETWEEN 6"x6" POSTS OR LARGER. FULL WIDTH SAW CUT NOTCHES ARE REQUIRED ON ALL TWO POST INSTALLATIONS. OMIT NOTCH FOR SINGLE POST INSTALLATIONS.
- NON-BREAKAWAY POST: THE D-5 (8" x 8") POST IS ONLY APPROVED FOR USE OUTSIDE THE CLEAR ZONE OR WITHIN CLEAR ZONE WHEN PROTECTED BY GUARD RAIL OR OTHER NCHRP-350 OR MASH DEVICES.



TYPICAL MOUNTING FOR SIGNS WITHOUT BRACE ANGLES



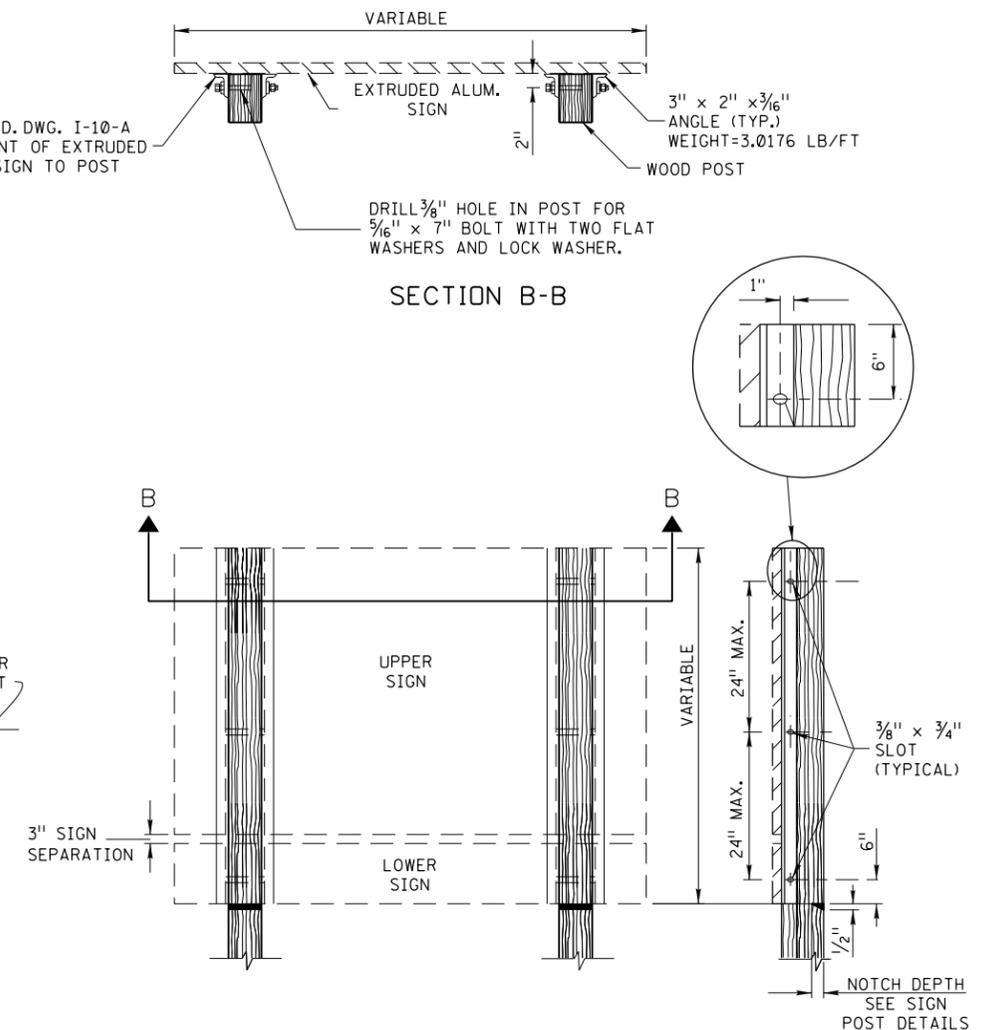
INSTALLATION DETAIL



TYPICAL SHEET ALUMINUM OR PLYWOOD SIGNS MOUNTED ON WOOD POSTS

SHEET ALUMINUM SIGNS MAY REQUIRE THE BRACE ANGLES.

REFER TO STD. DWG. I-10-A FOR ATTACHMENT OF EXTRUDED ALUMINUM SIGN TO POST



TYPICAL EXTRUDED ALUMINUM SIGN MOUNTED ON WOOD POSTS

ANGLES ARE REQUIRED FOR MOUNTING EXTRUDED ALUMINUM PANEL SIGNS.

NOTES:

- PLACE LONG DIMENSION OF POST CROSS SECTION PERPENDICULAR TO THE SIGN FACE.
- BACKFILL SHALL BE APPROVED GRANULAR BORROW.
- BREAKAWAY HOLES SHALL BE FIELD DRILLED. POSTS 4"x6" AND LARGER REQUIRE BREAKAWAY HOLES. THE BREAKAWAY HOLES SHALL BE DRILLED PARALLEL TO THE SIGN FACE.
- IF THE LOWER SIGN IS AN OBJECT MARKER, THE DIMENSION SHALL BE 4'-0".
- POSTS SHALL BE PRESSURE TREATED ACCORDING TO SECTION 710.09.
- SEE SIGNING ERECTION SPECIFICATIONS SHEET IN PLANS FOR 'C' DIMENSION.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-96	HEB					
2	12-13	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i8e_1213.dgn
 DRAWING DATE: NOVEMBER, 1991

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: RYAN LANCASTER for
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
BREAKAWAY SIGN POSTS TYPE D

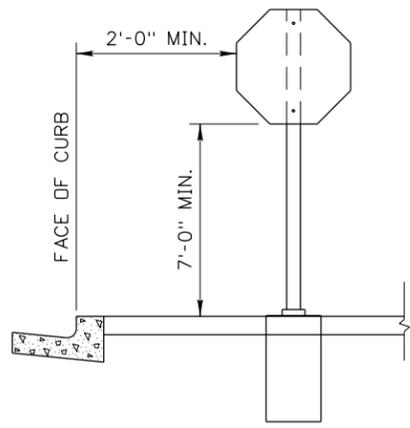
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO.
I-8-E

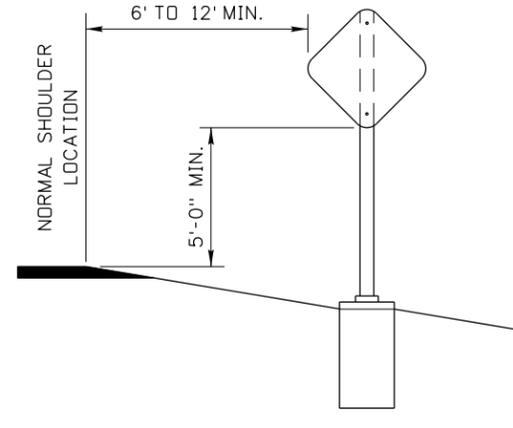
SHEET 1 OF 1

ORIGINAL SIGNED BY:
 DATE: ORIGINAL SIGNED: DECEMBER 6, 2013

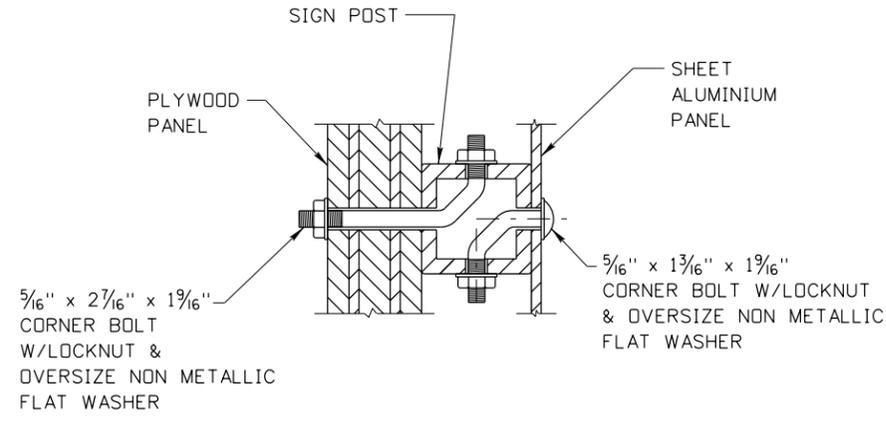


URBAN LOCATIONS
WITH CURB AND GUTTER

SIGN HEIGHT AND LATERAL LOCATION



RURAL LOCATIONS
(SEE NOTE 3 WHEN SOLID ROCK IS ENCOUNTERED)



5/16" x 2 7/16" x 1 9/16"
CORNER BOLT
W/LOCKNUT &
OVERSIZE NON METALLIC
FLAT WASHER

SHEET
ALUMINIUM
PANEL

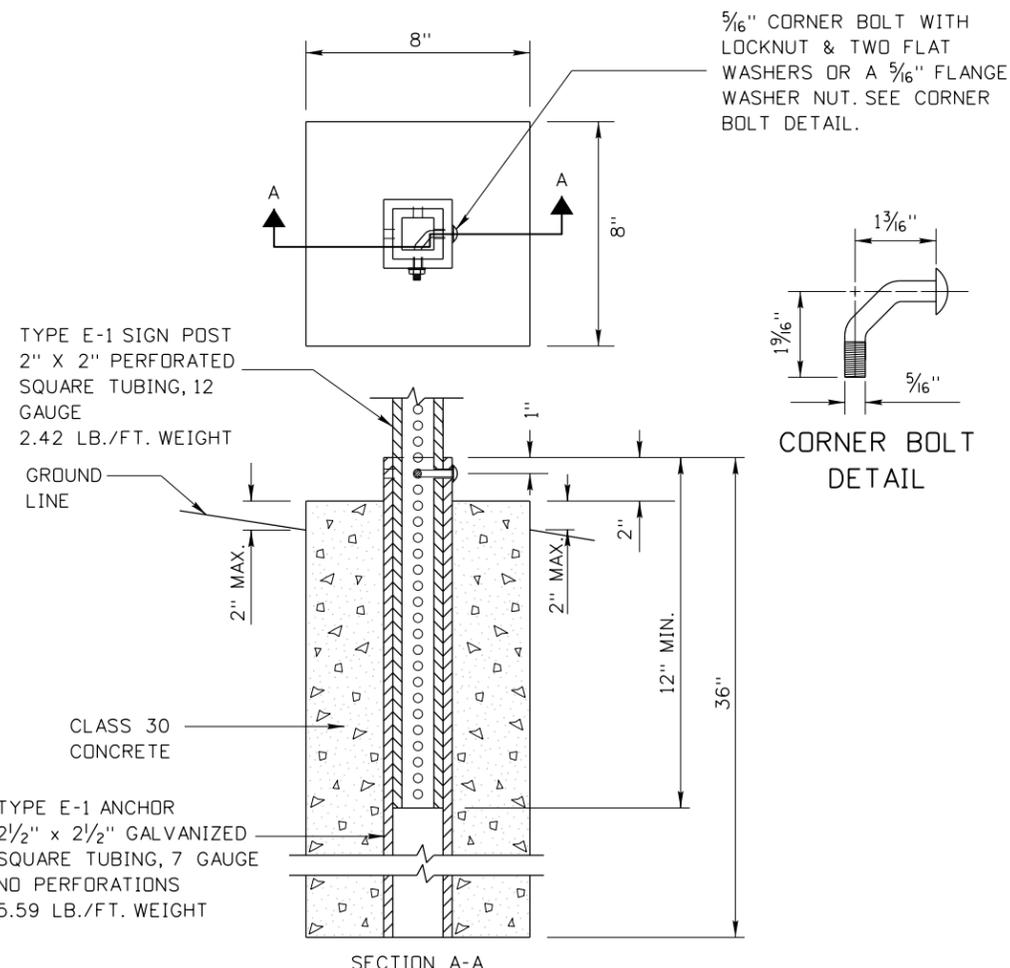
5/16" x 1 3/16" x 1 9/16"
CORNER BOLT W/LOCKNUT
& OVERSIZE NON METALLIC
FLAT WASHER

CORNER BOLTS MAY BE USED WITH BACK TO BACK INSTALLATIONS

BACK TO BACK SIGN MOUNTING DETAILS

NOTES

1. ENSURE THAT THE BOTTOM OF ANCHOR IS KEPT OPEN TO DRAIN.
2. DO NOT USE MORE THAN ONE POST PER SIGN INSTALLATION.
3. INSTALL SIGN POST AND ANCHOR IN FOUNDATION OR GROUT INTO SOLID ROCK. IF INSTALLED IN ROCK, ENSURE THAT THE 2" X 2" POST INSTALLATIONS ARE EMBEDDED 18" ONTO SOLID ROCK AND 2 1/2" X 2 1/2" POST INSTALLATIONS ARE EMBEDDED 24" INTO SOLID ROCK.
4. DO NOT USE BRACE ANGLES.
5. DRAWING NOT TO SCALE.



TYPE E-1 SIGN POST
2" X 2" PERFORATED
SQUARE TUBING, 12
GAUGE
2.42 LB./FT. WEIGHT

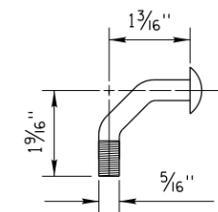
GROUND
LINE

CLASS 30
CONCRETE

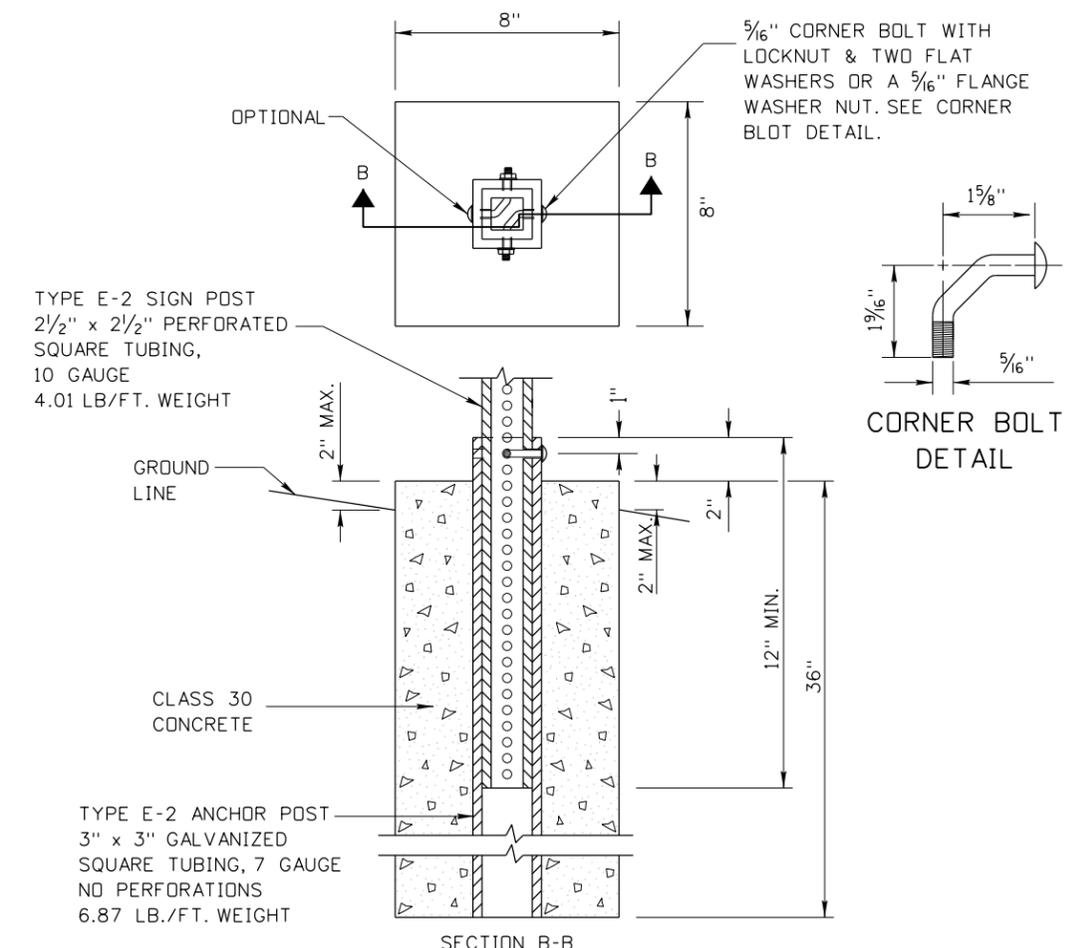
TYPE E-1 ANCHOR
2 1/2" X 2 1/2" GALVANIZED
SQUARE TUBING, 7 GAUGE
NO PERFORATIONS
5.59 LB./FT. WEIGHT

SECTION A-A

5/16" CORNER BOLT WITH
LOCKNUT & TWO FLAT
WASHERS OR A 5/16" FLANGE
WASHER NUT. SEE CORNER
BOLT DETAIL.



CORNER BOLT
DETAIL



TYPE E-2 SIGN POST
2 1/2" X 2 1/2" PERFORATED
SQUARE TUBING,
10 GAUGE
4.01 LB./FT. WEIGHT

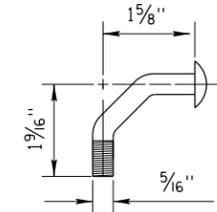
GROUND
LINE

CLASS 30
CONCRETE

TYPE E-2 ANCHOR POST
3" X 3" GALVANIZED
SQUARE TUBING, 7 GAUGE
NO PERFORATIONS
6.87 LB./FT. WEIGHT

SECTION B-B

5/16" CORNER BOLT WITH
LOCKNUT & TWO FLAT
WASHERS OR A 5/16" FLANGE
WASHER NUT. SEE CORNER
BOLT DETAIL.



CORNER BOLT
DETAIL

2" X 2" SIGN POST INSTALLATION DETAILS
TYPE E-1

2 1/2" X 2 1/2" SIGN POST INSTALLATION DETAILS
TYPE E-2

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-92	JEC	6	05-15	HEB		
2	12-94	HEB	7	12-15	HEB		
3	06-99	HEB					
4	12-01	NQB					
5	12-13	HEB					

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
i8f_1215.dgn

DRAWING DATE:
JULY, 1991

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

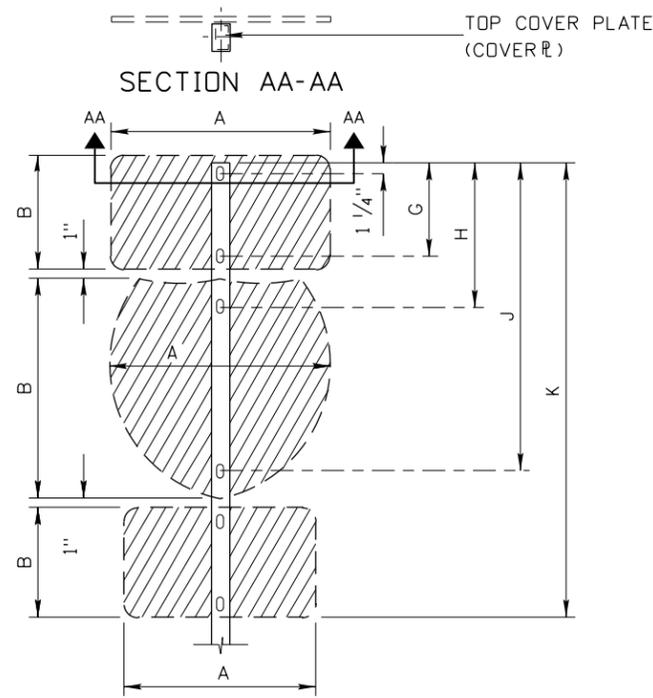
STANDARD DRAWING
**BREAKAWAY STEEL
SIGN POSTS
TYPE E**

English

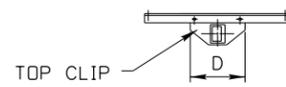
STANDARD DRAWING NO.
I-8-F

SHEET 1 OF 1

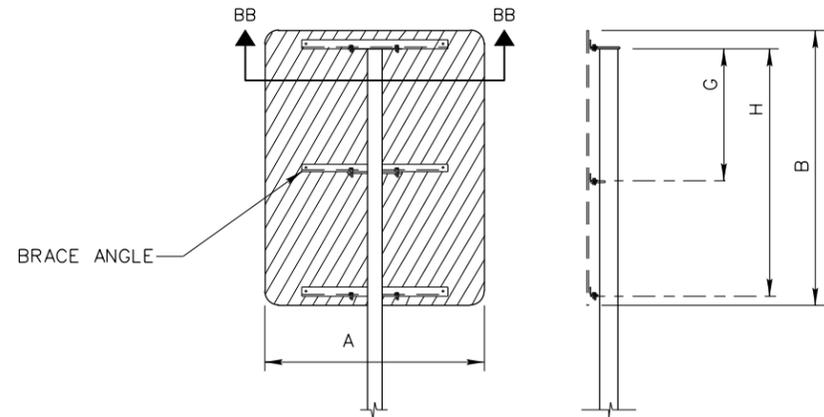
ORIGINAL SIGNED BY:
RYAN D. LANCASTER
DATE ORIGINAL SIGNED:
DECEMBER 17, 2015



4" x 3" POST DETAILS



SECTION BB-BB

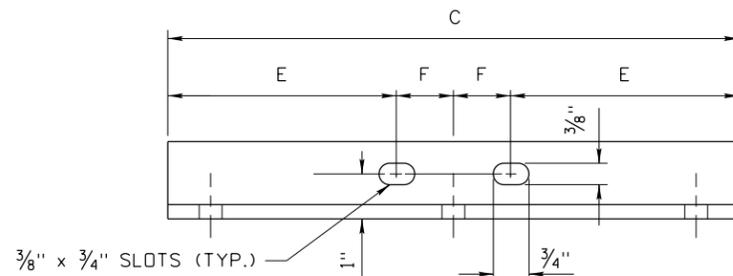


POST AND BRACE ANGLES
4" x 3", 5" x 5", 6" x 6" POSTS

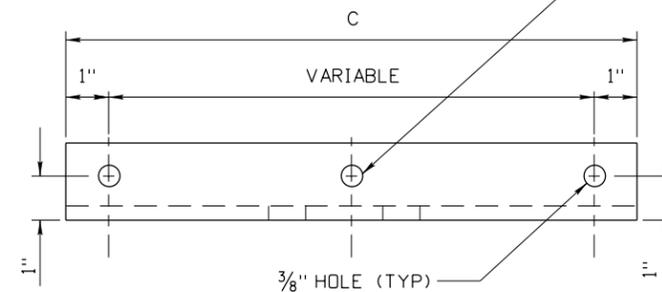
POST AND BRACE ANGLES FOR 4" X 3", 5" X 5", 6" X 6" POSTS									
SIGN DESCRIPTION	SIGN SIZE		C	D	E	F	G	H	WEIGHT IN LBS.
	A	B							
STOP	36"	36"	32"	12"	11"	5"	30"	N/A	14.80
	48"	48"	42"	12"	16"	5"	20"	N/A	19.40
YIELD	60" TRIANGLE		48"	12"	19"	5"	N/A	N/A	13.90
			12"	12"	1"	5"	35"		
SQUARE AND RECTANGULAR SIGNS	36"	48"	32"	12"	11"	5"	42"	N/A	14.80
	48"	60"	32"	12"	11"	5"	27"	54"	22.20
	36"	36"	32"	12"	11"	5"	30"	N/A	14.80
	48"	48"	44"	12"	17"	5"	42"	N/A	22.30
	48"	36"	32"	12"	11"	5"	30"	N/A	14.80
	72"	36"	62"	12"	26"	5"	18"	N/A	28.60
	72"	48"	62"	12"	26"	5"	30"	N/A	28.60
	48"	30"	32"	12"	11"	5"	24"	N/A	14.80
	72"	30"	62"	12"	26"	5"	24"	N/A	28.60
WARNING & AUXL. SIGNS	36"	24"	32"	12"	11"	5"	18"	N/A	14.80
	36"	30"	32"	12"	11"	5"	24"	N/A	14.80
	36"	18"	*	*	*	*	*	N/A	12.00
WARNING	48"	18"	42"	12"	16"	5"	20"	N/A	19.40
	48"	24"	42"	12"	16"	5"	18"	N/A	19.40
	48"	30"	44"	12"	17"	5"	30"	N/A	20.40
WARNING & AUXL. SIGNS	36"	18"	*	*	*	*	*	N/A	12.00
	48"	18"	42"	12"	16"	5"	20"	N/A	19.40
WARNING	48"	24"	42"	12"	16"	5"	18"	N/A	19.40
	60"	36"	44"	12"	17"	5"	30"	N/A	20.40
JUNCTION ASSEMBLY	21"	15"	*	*	*	*	POST TOP CLIP NOT REQ'D-COVER PL ONLY		
	2-24" ROUTE MARKERS		27"	12"	8 1/2"	5"	20"	38"	12.50
SINGLE CARDINAL DIRECT'L ASSY.	30"	15"	26"	12"	8"	5"	N/A	N/A	15.20
	36"	36"	26"	12"	8"	5"	13 1/2"	N/A	
JUNCTION ASSEMBLY	21"	15"	*	*	*	*	POST TOP CLIP NOT REQ'D-COVER PL ONLY		
	3-24" ROUTE MARKERS		54"	12"	21"	5"	20"	38"	25.00

- NOTES:
- WEIGHTS OF BRACE ANGLES DO NOT INCLUDE GALVANIZING.
 - ALL BRACE ANGLES SHALL BE 1 3/4" x 1 3/4" x 1/4" AT 2.77 LBS./FT.
 - THE AUXILIARY SIGNS SHALL BE ATTACHED BY DRILLING THE POST WITH TWO HOLES AND FLUSH MOUNT THE SIGN TO THE FACE OF THE POST.
 - REFER TO STANDARD DRAWINGS I-8-D-1, I-8-D-2 & I-8-D-3.
 - WHEN ONLY ONE BRACE IS REQUIRED, PLACE IN THE CENTER OF THE SIGN.

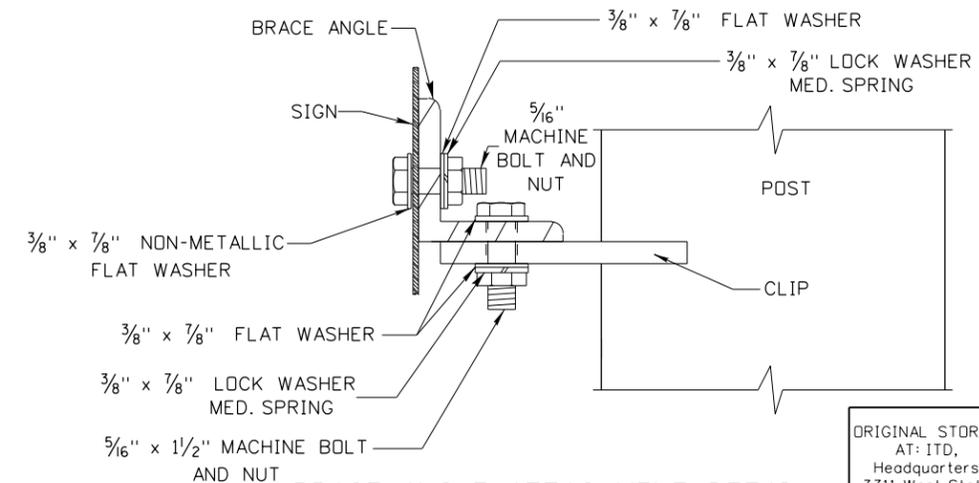
POST DETAILS FOR 4"x3" POSTS						
SIGN DESCRIPTION	SIGN SIZE		G	H	J	K
	A	B				
STOP	30"	30"	25 1/4"	N/A	N/A	28 1/4"
	36"	36"	31 1/4"	N/A	N/A	34 1/4"
YIELD	36" TRIANGLE		25 1/4"	N/A	N/A	30 1/4"
SQUARE AND RECTANGULAR SIGNS	12"	30"	25 1/4"	N/A	N/A	28 1/4"
	24"	36"	18"	N/A	N/A	N/A
	24"	30"	19 1/4"	N/A	N/A	22 1/4"
	24"	30"	25 1/4"	N/A	N/A	28 1/4"
	30"	30"	25 1/4"	N/A	N/A	28 1/4"
	30"	36"	31 1/4"	N/A	N/A	34 1/4"
	36"	24"	19 1/4"	N/A	N/A	22 1/4"
WARNING	18"	DIAMOND	21 1/4"	N/A	N/A	23 1/2"
	30"	DIAMOND	31 1/4"	N/A	N/A	37 1/4"
WARNING & AUXL. SIGNS	30"	DIAMOND	31 1/4"	N/A	N/A	56 1/4"
NO PASS. ZONE	48"	36"	19 1/4"	N/A	N/A	21 1/2"
TRAIL BLAZER ASSEMBLY (ASSY.)	24"	12"	10 1/4"	N/A	N/A	N/A
	24"	24"	N/A	15 3/4"	33 3/4"	51 1/4"
ADV. ROUTE MARKER ASSY.	21"	15"	N/A	N/A	N/A	N/A
SINGLE JCT. ASSY.	24"	24"	19 1/4"	N/A	N/A	38 1/4"
	24"	15"	N/A	24 3/4"	36 3/4"	39 3/4"
HOSPITAL, CAMPING ASSY.	24"	24"	N/A	18 3/4"	36 3/4"	39 3/4"
	24"	24"	19 1/4"	N/A	N/A	29 1/4"
	24"	6"	N/A	24 3/4"	27 3/4"	29 1/4"



NOTE:
CENTER HOLES IN THE BRACE ANGLES ARE REQUIRED ONLY FOR THOSE SIGNS WHERE "A" IS 72" OR GREATER.



BRACE ANGLE DETAIL



BRACE ANGLE ATTACHMENT DETAIL

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-96	HEB	6	12-13	HEB		
2	12-01	NQB					
3	12-07	HEB					
4	07-10	HEB					
5	09-11	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i9a11213.dgn
DRAWING DATE: DECEMBER, 2007

IDAHO TRANSPORTATION DEPARTMENT

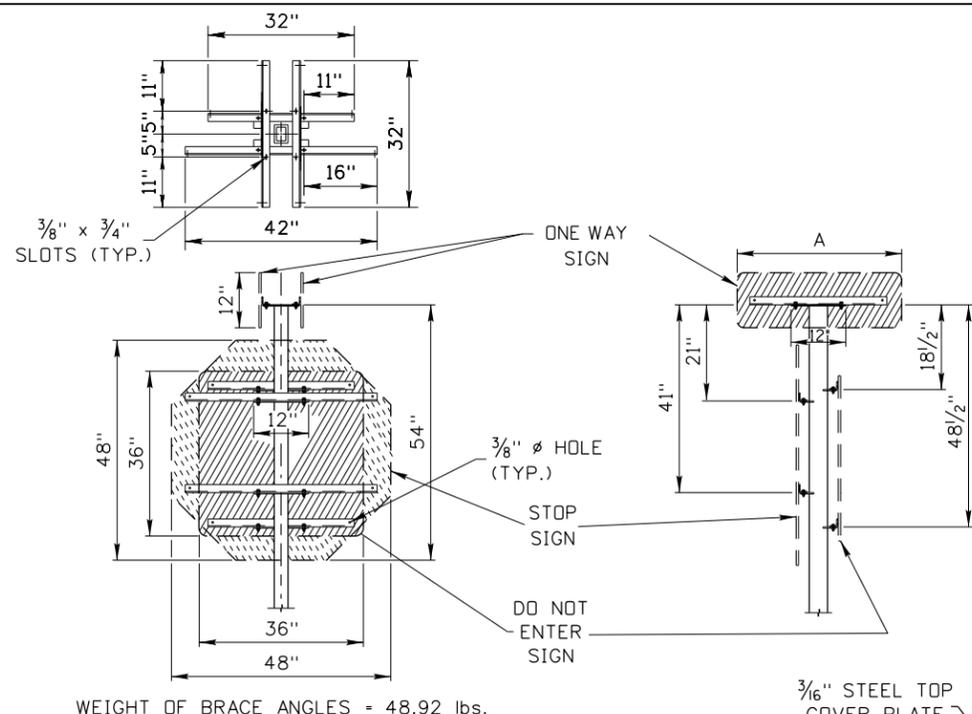
BOISE IDAHO

ORIGINAL SIGNED BY: RYAN LANCASTER for
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
B POST AND BRACE ANGLE DETAIL
REQUIRES STD. DWG. I-9-A-2

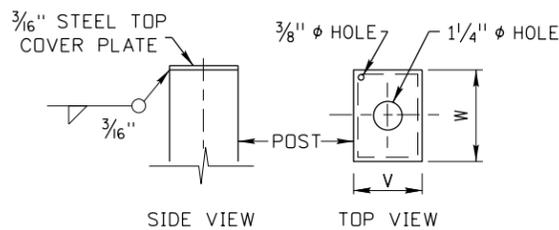
English
STANDARD DRAWING NO.
I-9-A-1
SHEET 1 OF 1

ORIGINAL SIGNED BY:
DATE: ORIGINAL SIGNED:
DECEMBER 6, 2013



WEIGHT OF BRACE ANGLES = 48.92 lbs.

RAMP TERMINAL ASSEMBLY "A"

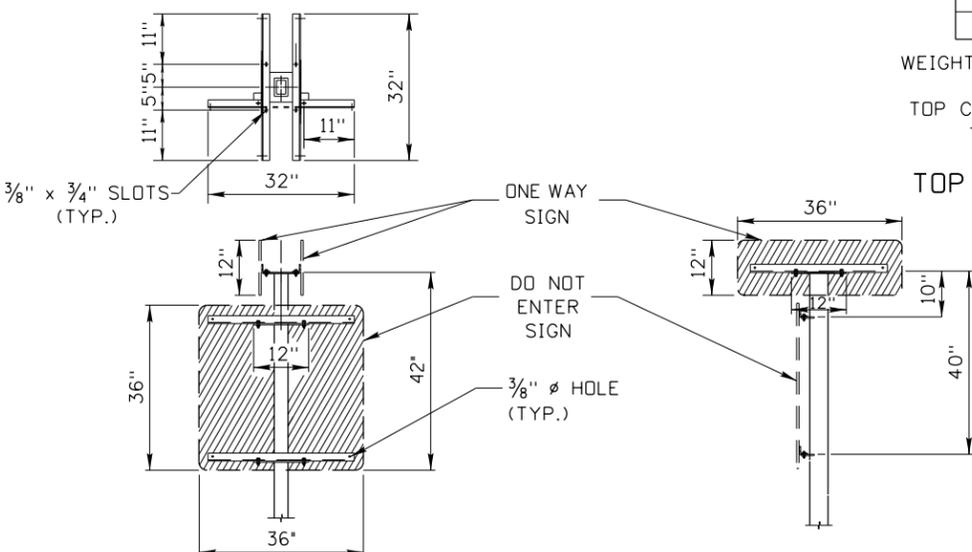


Post Type	Post		Weight, in Lbs. for cover plate
	V	W	
B-2	3"	4"	0.55
B-3	4"	6"	1.25
B-4	4"	8"	1.80

WEIGHTS DO NOT INCLUDE GALVANIZING

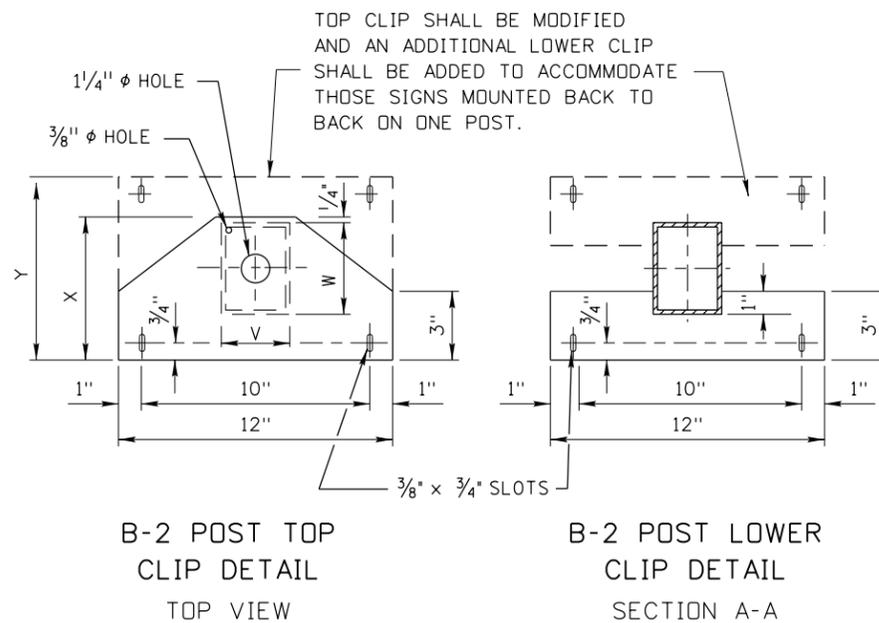
TOP COVER PLATE IS REQUIRED WHEN THERE IS NOT A TOP CLIP

TOP COVER PLATE DETAILS

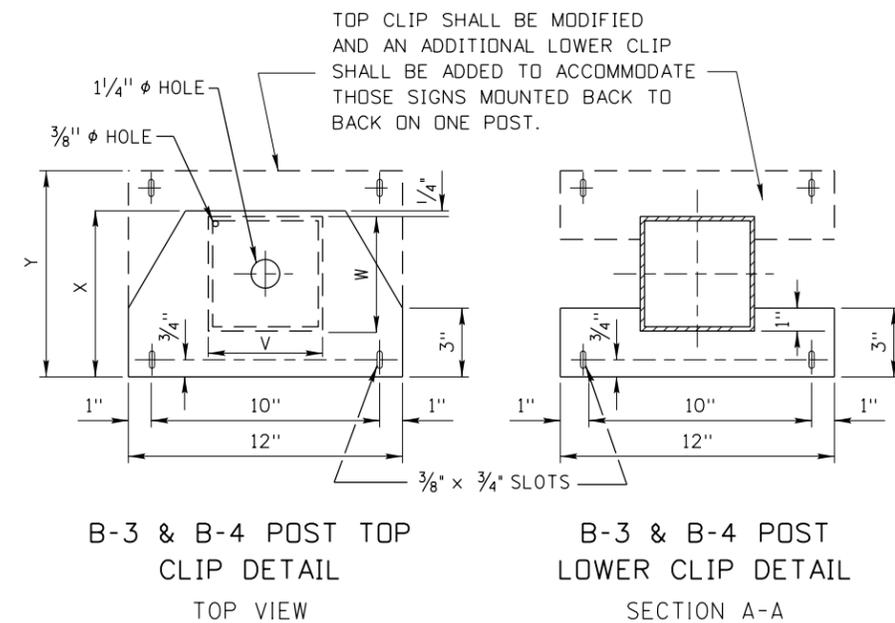


WEIGHT OF BRACE ANGLES = 29.56 lbs.

RAMP TERMINAL ASSEMBLY "B"



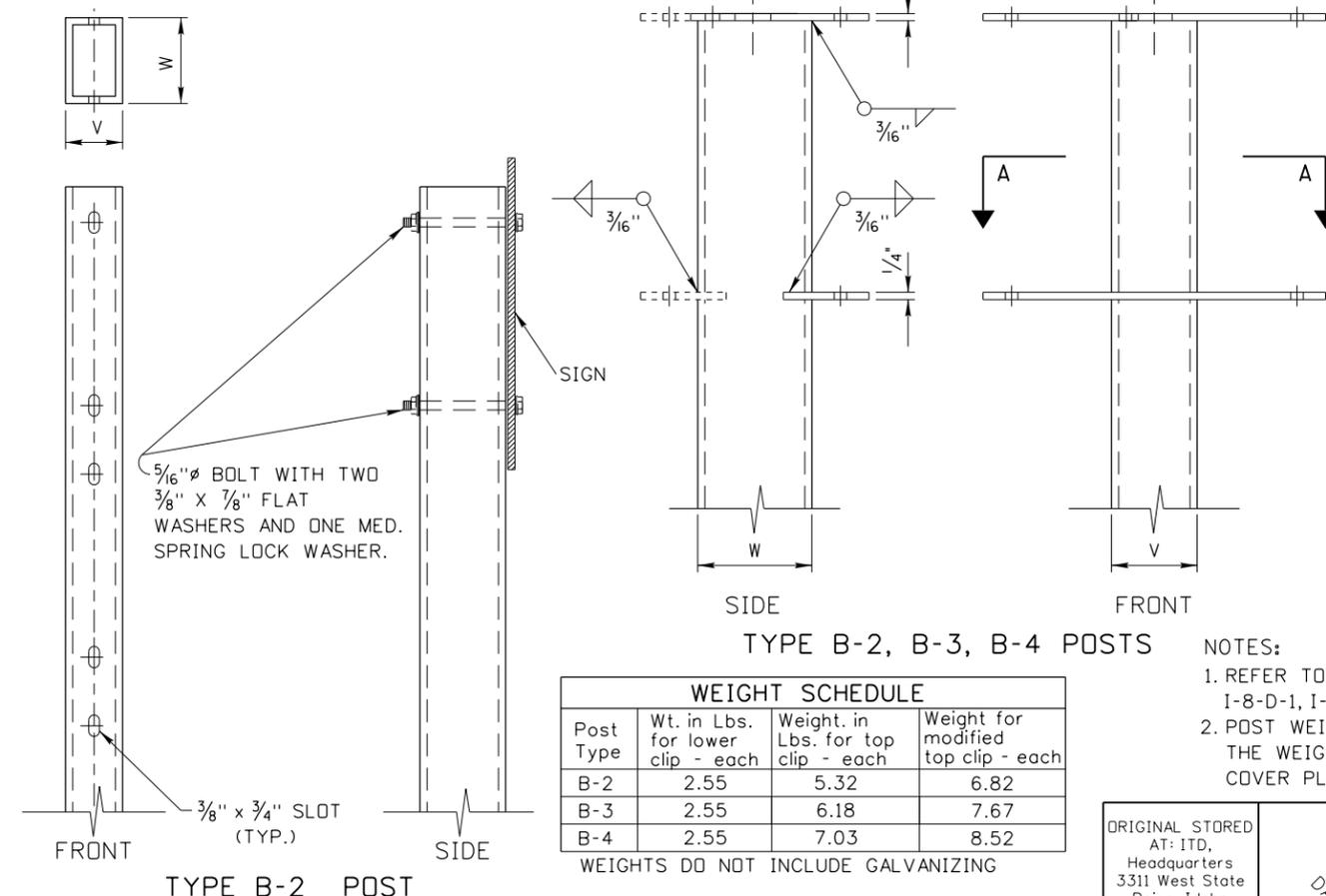
B-2 POST TOP CLIP DETAIL TOP VIEW
B-2 POST LOWER CLIP DETAIL SECTION A-A



B-3 & B-4 POST TOP CLIP DETAIL TOP VIEW
B-3 & B-4 POST LOWER CLIP DETAIL SECTION A-A

Post Type	Post		Top Clip	
	V	W	X	Y
B-2	3"	4"	6 1/4"	8"

Post Type	Post		Top Clip	
	V	W	X	Y
B-3	5"	5"	7 1/4"	9"
B-4	6"	6"	8 1/4"	10"



TYPE B-2 POST

WEIGHT SCHEDULE			
Post Type	Wt. in Lbs. for lower clip - each	Weight. in Lbs. for top clip - each	Weight for modified top clip - each
B-2	2.55	5.32	6.82
B-3	2.55	6.18	7.67
B-4	2.55	7.03	8.52

WEIGHTS DO NOT INCLUDE GALVANIZING

NOTES:

1. REFER TO STANDARD DRAWINGS I-8-D-1, I-8-D-2 & I-8-D-3.
2. POST WEIGHTS SHALL INCLUDE THE WEIGHT OF THE CLIPS OR COVER PLATES IF USED.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN
DATE: ORIGINAL SIGNED: DECEMBER 6, 2013

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	08-96	HEB	6	09-11	HEB		
2	02-98	HEB	7	12-13	HEB		
3	12-01	NQB					
4	12-07	HEB					
5	07-10	HEB					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i9a21213.dgn
DRAWING DATE: DECEMBER, 2007

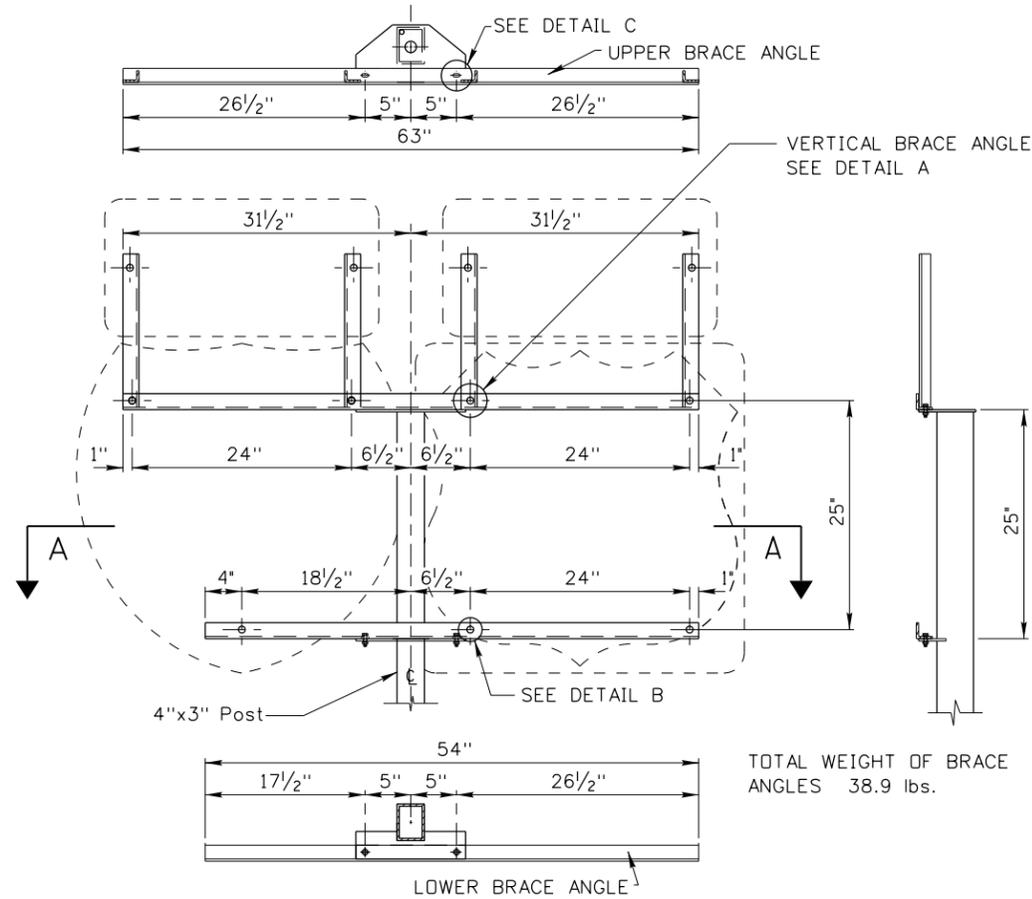
IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: RYAN LANCASTER for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
B POST AND BRACE ANGLE DETAIL
REQUIRES STD. DWG. I-9-A-1

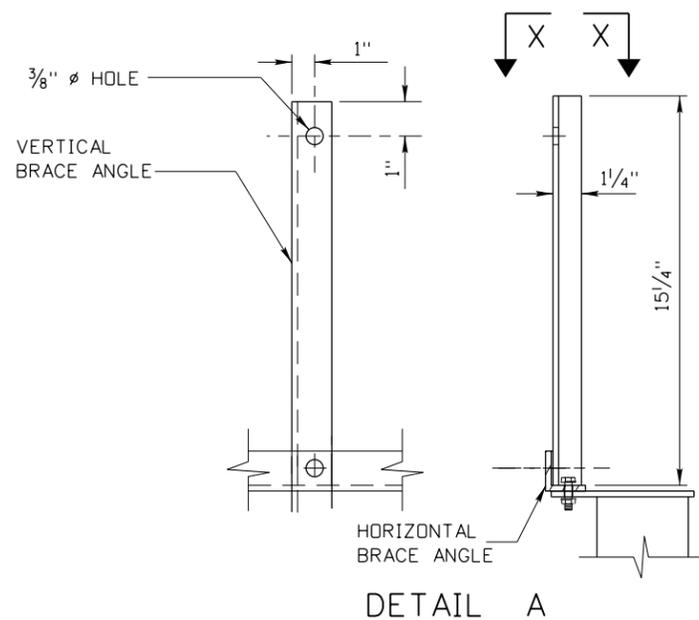
English
STANDARD DRAWING NO. I-9-A-2
SHEET 1 OF 1

TOP VIEW

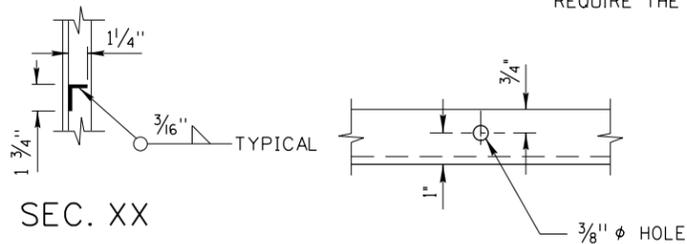


TOTAL WEIGHT OF BRACE ANGLES 38.9 lbs.

SEC. AA



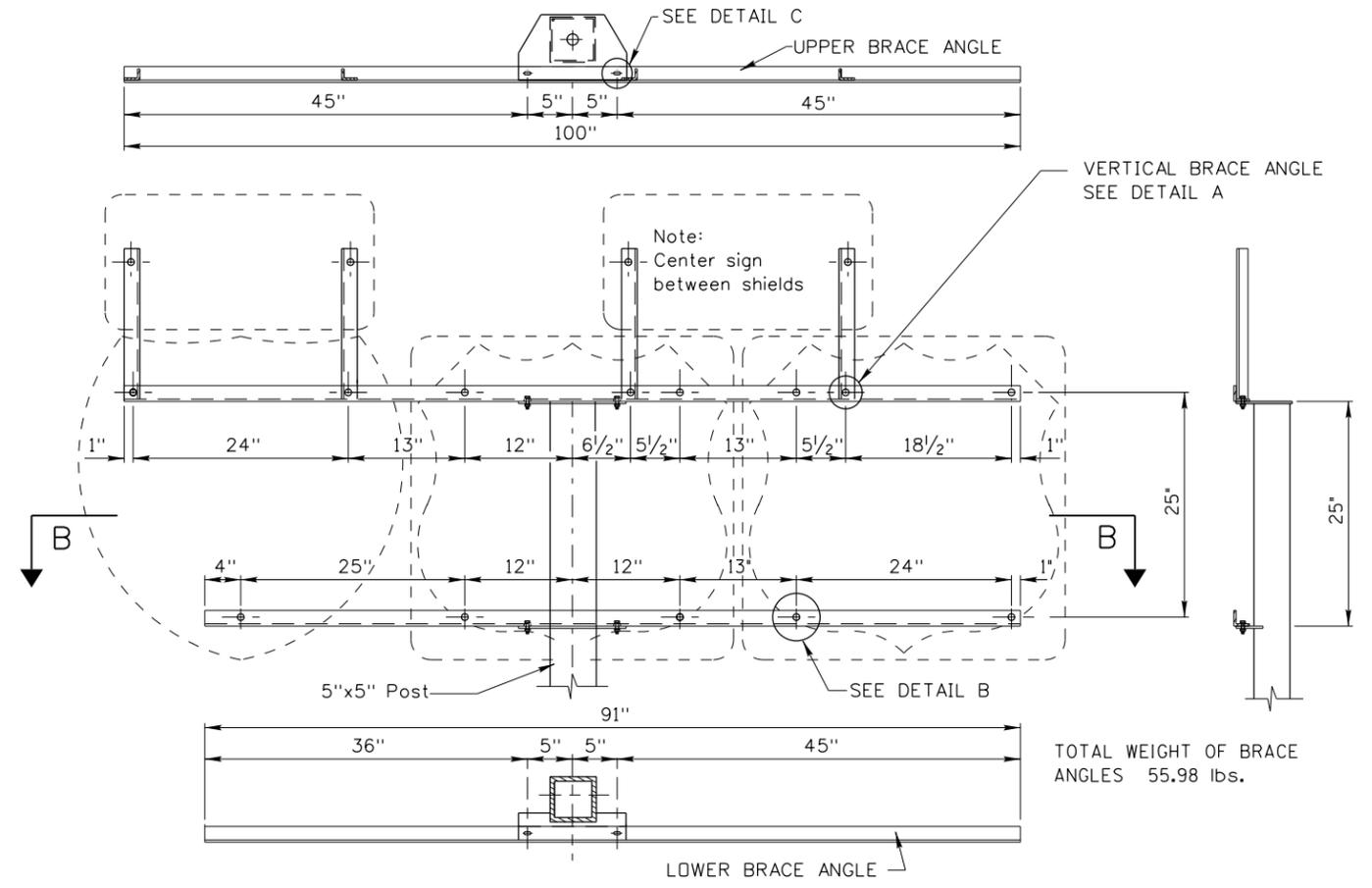
DETAIL A



SEC. XX

DETAIL B

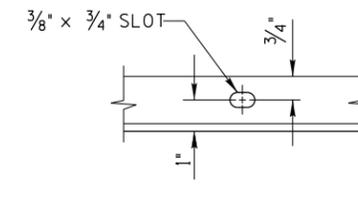
TOP VIEW



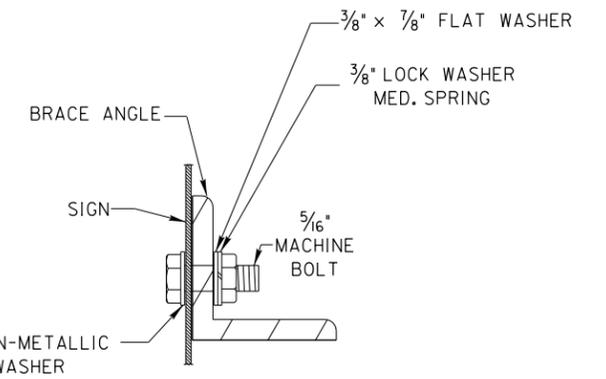
TOTAL WEIGHT OF BRACE ANGLES 55.98 lbs.

SEC. BB

NOTE:
THESE BRACE ANGLE ASSEMBLIES MAY BE MODIFIED TO ACCOMMODATE ADDITIONAL CARDINAL ROUTE MARKERS ABOVE EACH ROUTE SHIELD AS SHOWN ON THE PLANS. CONFIRMING ROUTE MARKERS DO NOT REQUIRE THE VERTICAL BRACE ANGLES.



DETAIL C



TYPICAL SIGN ATTACHMENT DETAIL

NOTES:

1. WEIGHTS OF BRACE ANGLES DO NOT INCLUDE GALVANIZING.
2. ALL BRACE ANGLES SHALL BE 1 3/4" x 1 3/4" x 1/4" AT 2.77 LBS./FT WITH THE EXCEPTION OF THE VERTICAL BRACE ANGLE WHICH SHALL BE 1 3/4" x 1 1/4" x 1/4" AT 2.34 LBS./FT.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN
DATE ORIGINAL SIGNED: SEPTEMBER 23, 2010

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	NQB						
2	07-03	NQB						
3	09-10	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i9b_0910.dgn
DRAWING DATE: AUGUST, 1992

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

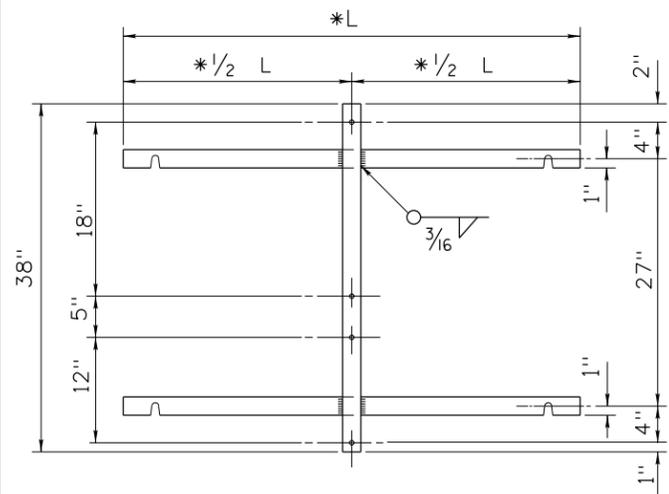
CARDINAL ROUTE MARKER ASSEMBLIES

REQUIRES STD. DWGS. I-8-D

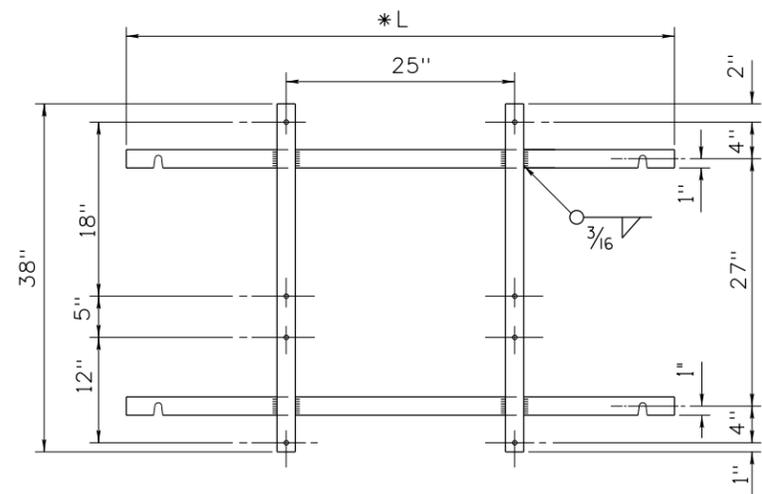
English

STANDARD DRAWING NO. **I-9-B**

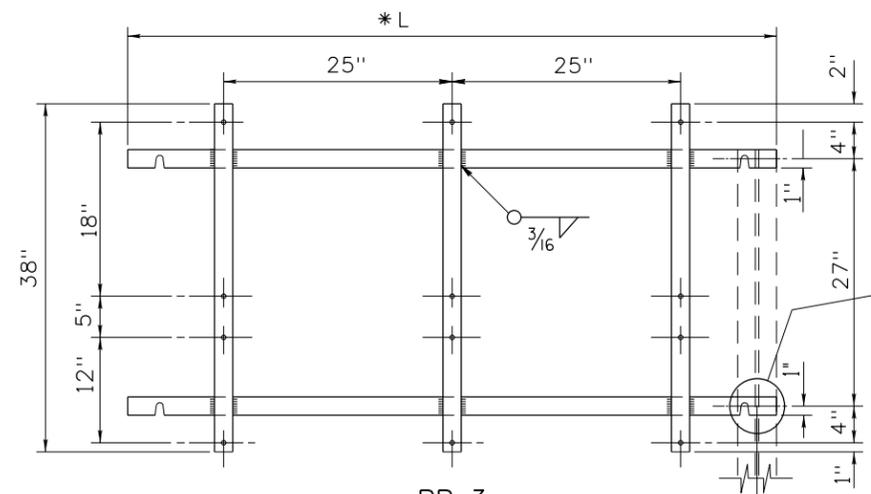
SHEET 1 OF 1



BR-1

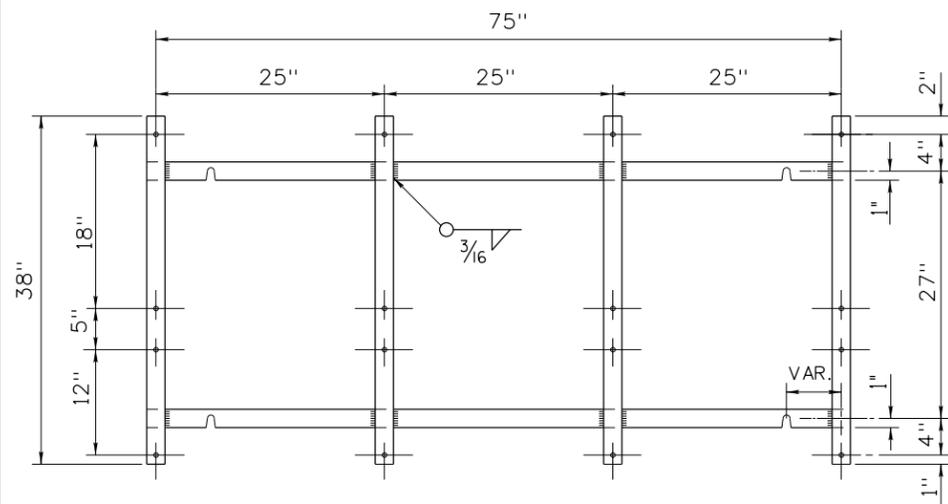


BR-2



BR-3

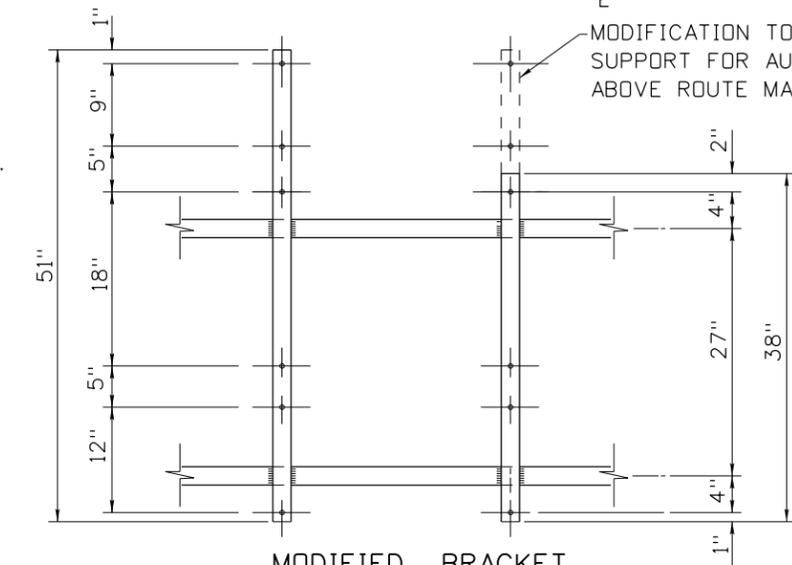
DETAIL OF MOUNTING SLOT TYPICAL



BR-4

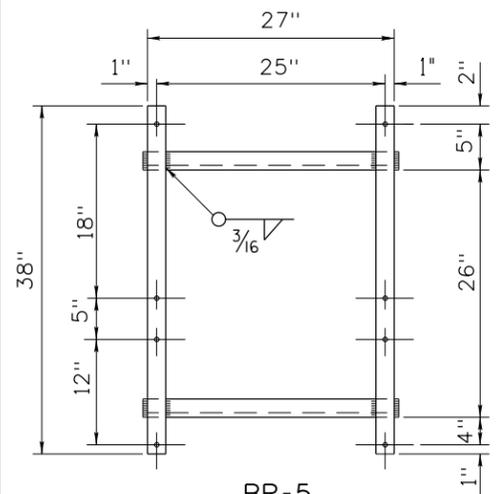
NOTES:

1. BRACKETS BR-1 THRU BR-4 MOUNT ON TYPE A POSTS.
2. BRACKETS BR-5 THRU BR-7 MOUNT ON TYPE B POSTS.
3. BRACKET MATERIALS:
 $\frac{1}{4}$ " x 2" BAR AT 1.70 LBS/FT. FOR ALL VERTICAL SUPPORTS AND FOR HORIZONTAL MEMBERS, BR-1 THRU BR-4.
 $1 \frac{3}{4}$ " x $1 \frac{3}{4}$ " x $\frac{1}{4}$ " ANGLE AT 2.77 LBS/FT. FOR HORIZONTAL MEMBERS, BR-5 THRU BR-7.
4. ALL SIGN MOUNTING HOLES SHALL BE $\frac{3}{8}$ " DIA.
5. BRACKETS SHALL BE ATTACHED TO THE POST BY $\frac{5}{16}$ " DIA. HEX HEAD BOLTS & NUTS WITH TWO FLAT WASHERS AND ONE LOCK WASHER.
- * 6. L BRACKET LENGTH FOR BR-1 THRU BR-3 = ϕ TO ϕ POST SPACING PLUS ONE POST WIDTH.

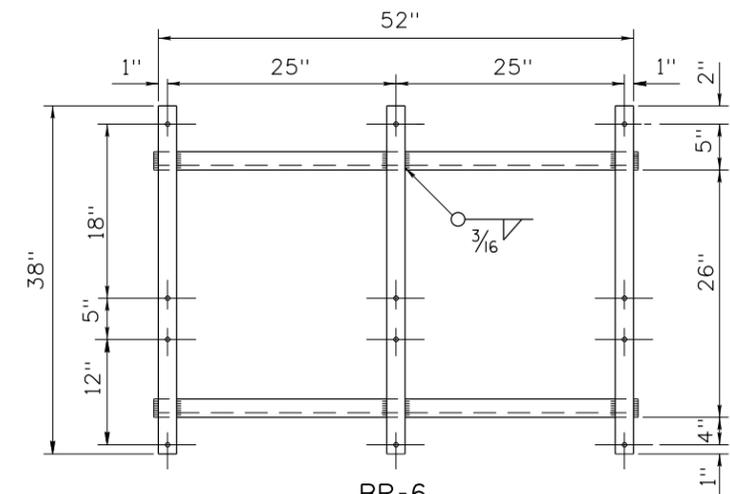


MODIFIED BRACKET (TYPICAL FOR ALL BRACKETS)

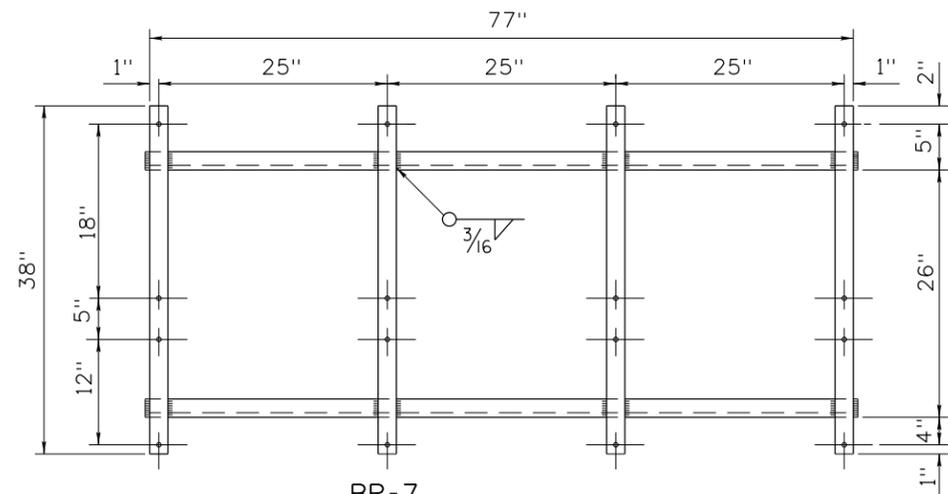
NOTE: FOR BRACKETS THAT REQUIRE THE ABOVE MODIFICATION ADD AN "A" TO THE BRACKET NUMBER: EXAMPLE BR-3A



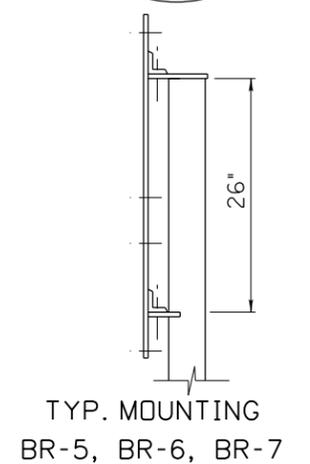
BR-5



BR-6



BR-7



TYP. MOUNTING BR-5, BR-6, BR-7

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	NQB						
2	12-13	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i9c_1213.dgn
 DRAWING DATE: AUGUST, 1994

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

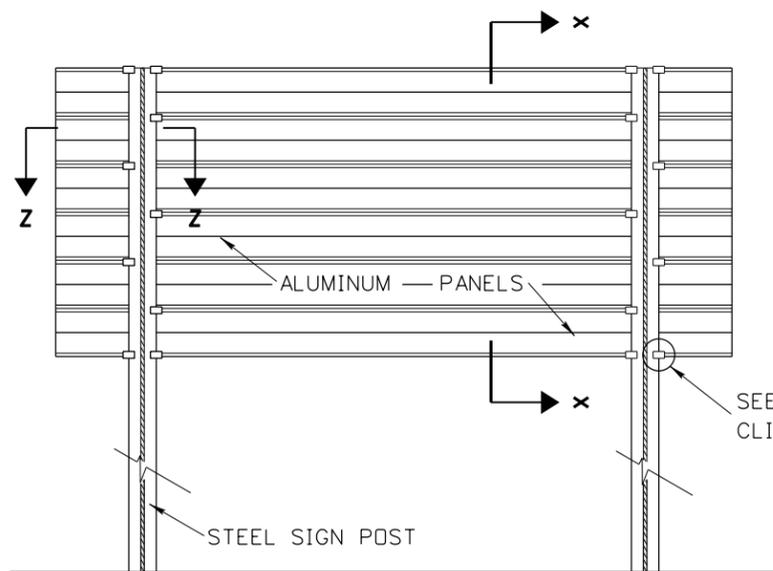
ORIGINAL SIGNED BY: RYAN LANCASTER for
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
ROUTE MARKER BRACKET DETAILS

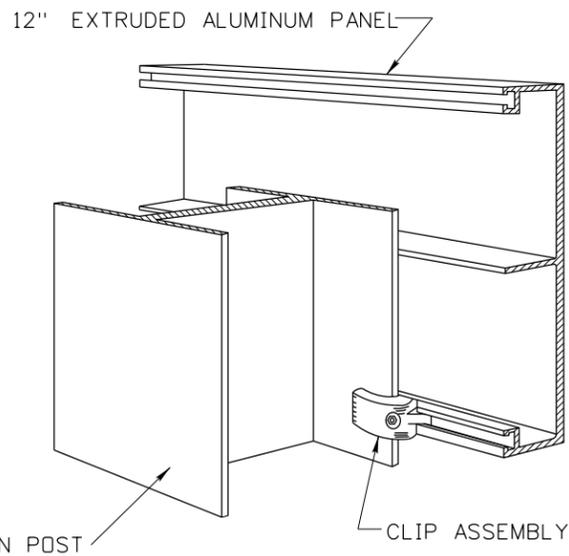
English
 STANDARD DRAWING NO.
I-9-C
 SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

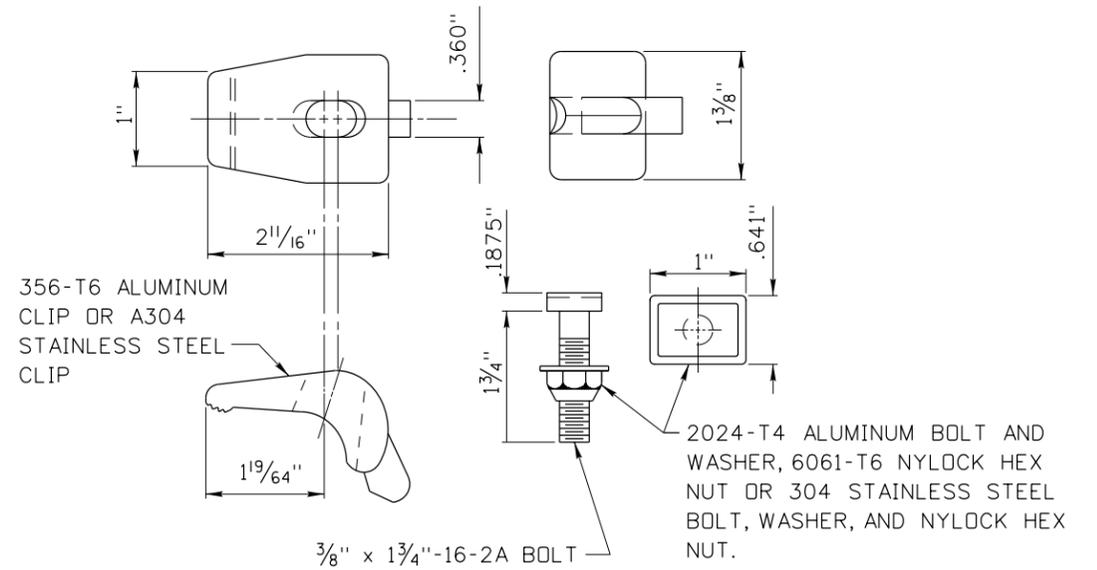
ORIGINAL SIGNED BY:
 DATE: CARL D. MAIN
 DECEMBER 6, 2013



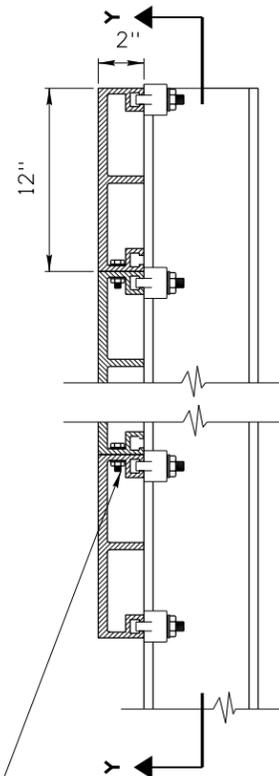
EXTRUDED ALUMINUM SIGN



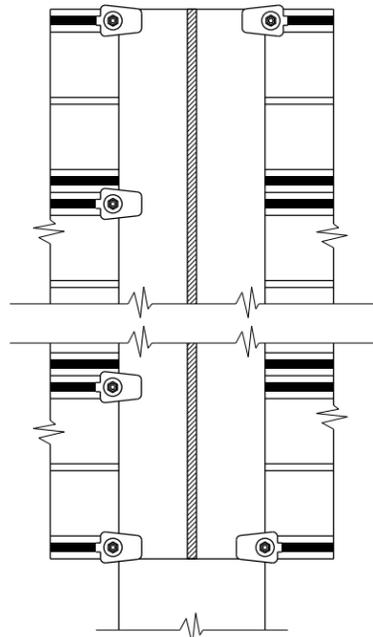
TYPICAL CLIP INSTALLATION



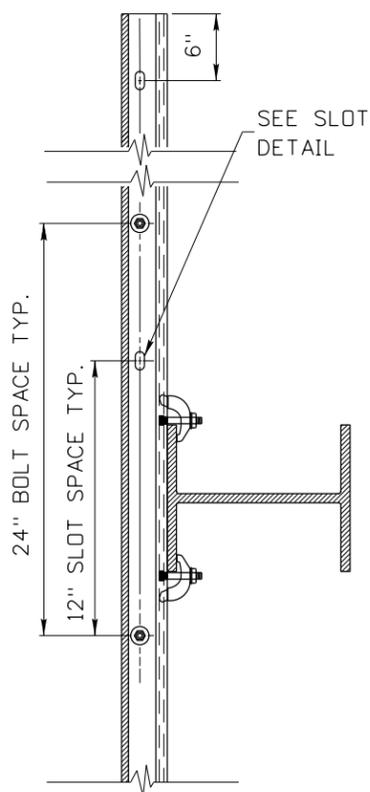
POST CLIPS AND POST CLIP BOLT DETAIL



SECTION X-X



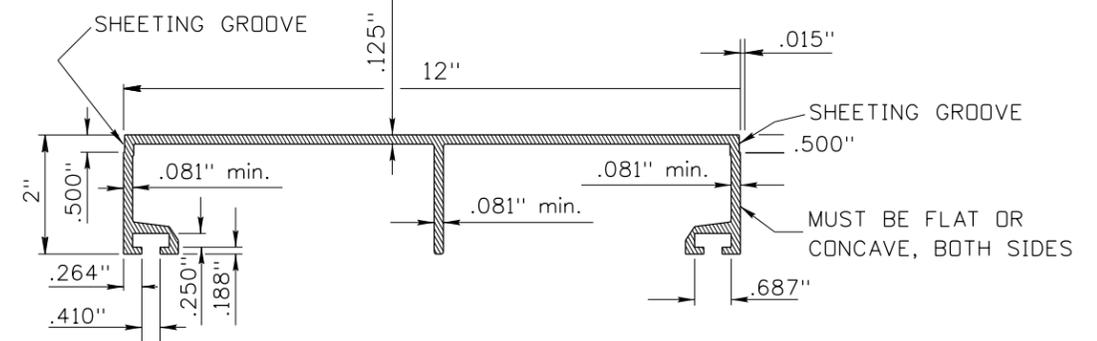
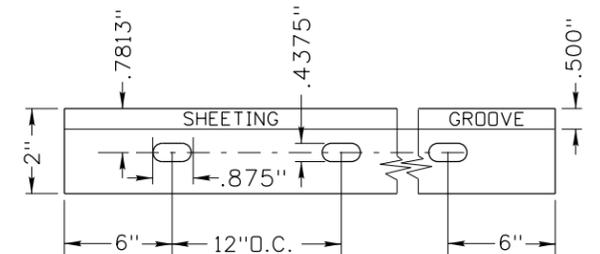
SECTION Y-Y



SECTION Z-Z

Sign Height	No. of 12" Panels	No. of Clip Assem.
2'-0"	2	10
3'-0"	3	12
4'-0"	4	14
5'-0"	5	16
6'-0"	6	18
7'-0"	7	20
8'-0"	8	22
9'-0"	9	24
10'-0"	10	26
11'-0"	11	28
12'-0"	12	30
13'-0"	13	32
14'-0"	14	34
15'-0"	15	36
16'-0"	16	38
17'-0"	17	40

SLOT HOLE DETAIL



12" EXTRUDED PANEL CROSS SECTION

NOTES:

1. ASSEMBLE EXTRUDED ALUMINUM SIGN PANELS STARTING WITH THE TOP PANEL. CENTER THE PANEL ON THE SIGN POSTS. ENSURE PANELS ARE HORIZONTAL AND ATTACHED TO THE POSTS WITH POST CLIPS AND POST CLIP BOLTS. STAGGER THE POST CLIPS AND BOLTS ON BOTH SIDES OF EACH POST AS SHOWN. ENSURE THAT ADJOINING PANELS ARE FLUSH BEFORE TIGHTENING PANEL BOLTS.
2. TORQUE NYLOCK NUTS ON THE POST CLIP BOLTS TO 225 INCH POUNDS WITH DRY CLEAN UNLUBRICATED THREADS.
3. WHEN MODIFYING AN EXISTING SIGN AND ADDITIONAL POST CLIPS ARE TO BE INSTALLED TO THE INSIDE OF THE SIGN POST, THE CONTRACTOR IS PERMITTED TO FIELD DRILL FOR A POST CLIP INSERTION HOLE IN EXISTING EXTRUSIONS.
4. THE CLIP ASSEMBLY IS TO BE ALL ALUMINUM OR ALL STAINLESS STEEL.
5. DRAWING NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: NOVEMBER 25, 2014

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-94	HEB	6	07-12	HEB			
2	08-96	HEB	7	12-13	SCH			
3	12-01	HEB	8	11-14	SCH			
4	05-12	HEB						
5	06-12	SCH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i10o1114.dgn
DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

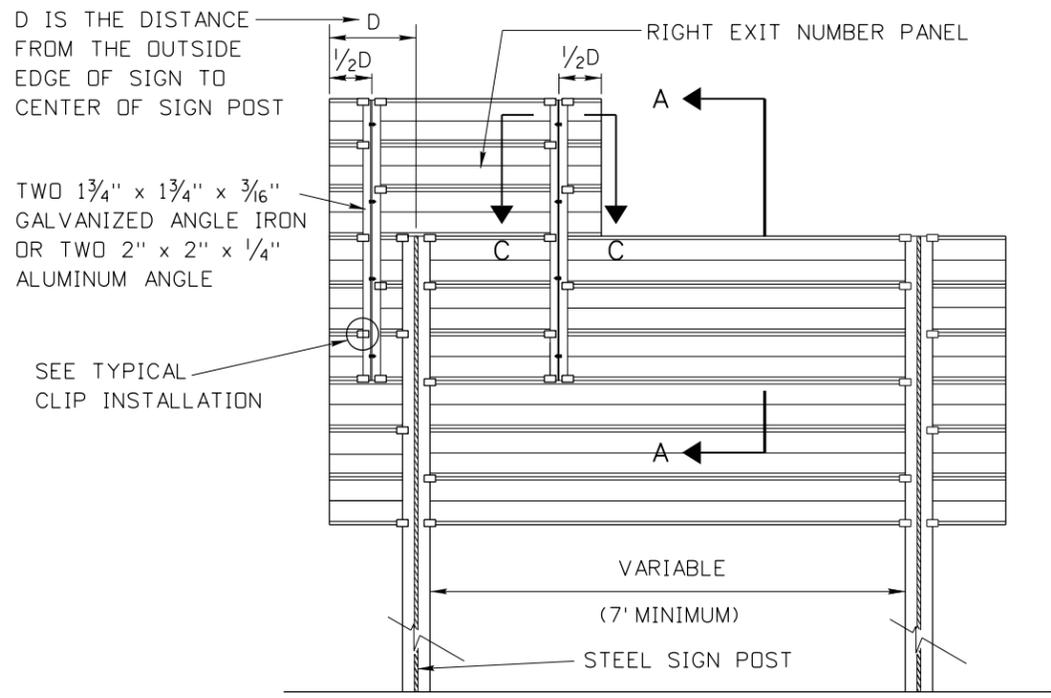


BOISE IDAHO

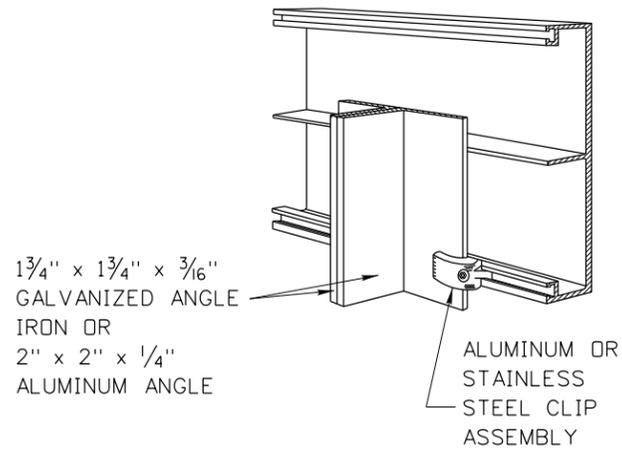
ORIGINAL SIGNED BY: CARL D. MAIN for STANDARDS ENGINEER

STANDARD DRAWING
EXTRUDED ALUMINUM SIGNS

English
STANDARD DRAWING NO.
I-10-A
SHEET 1 OF 1



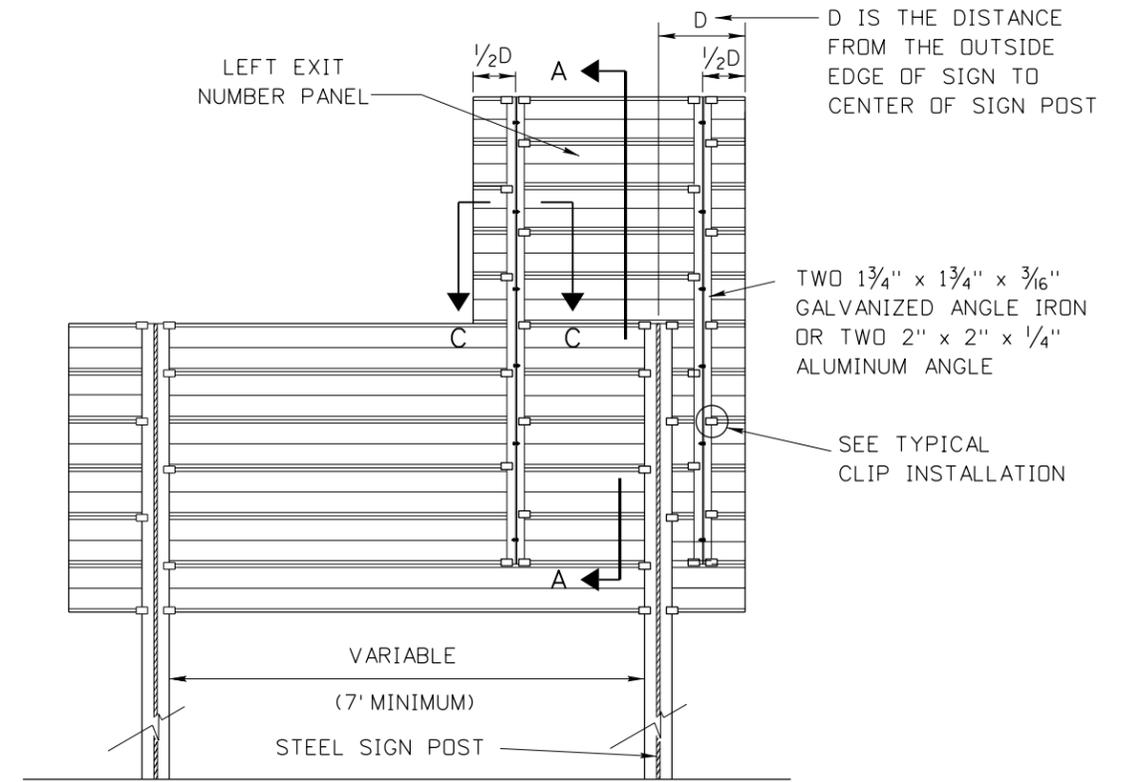
RIGHT EXIT PANEL



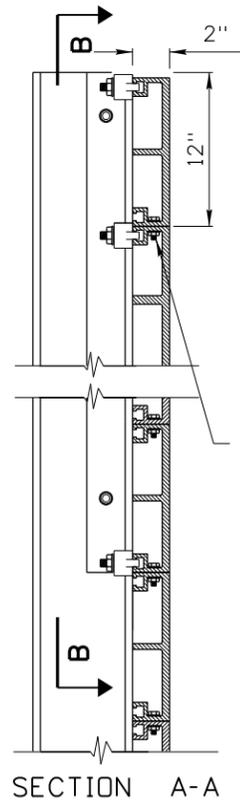
TYPICAL CLIP INSTALLATION

NOTES:

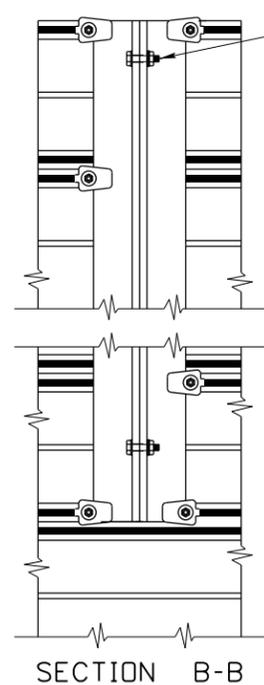
1. SEE STANDARD DRAWING I-10-A FOR INSTALLATION DETAILS.
2. 1 3/4" x 1 3/4" x 3/16" ANGLE IRON WEIGHS 2.12 LBS/FT. WEIGHT OF ANGLE IRON DOES NOT INCLUDE GALVANIZING.
3. 2" x 2" x 1/4" ALUMINUM ANGLE WEIGHS 1.11 LBS/FT.
4. DRAWING NOT TO SCALE



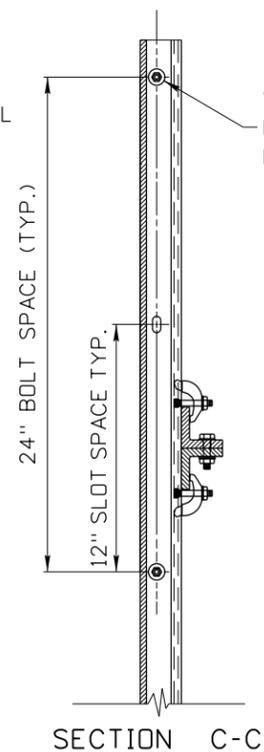
LEFT EXIT PANEL



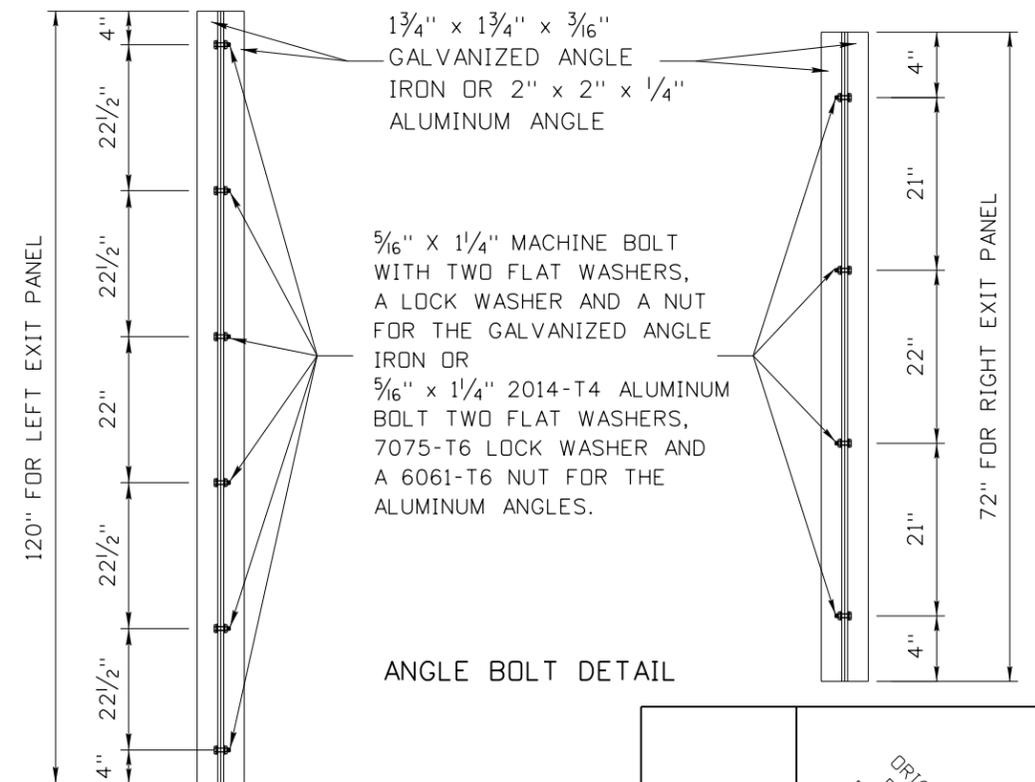
3/8" DIA. X 3/4" LENGTH 2024-T4 ALUMINUM BOLT AND TWO FLAT WASHERS, ONE 7075-T6 LOCK WASHER, AND A 6061-T6 HEX NUT OR 304 STAINLESS STEEL BOLT, WASHER, AND NYLOCK HEX NUT.



SEE ANGLE BOLT DETAIL



SLOTS ARE TO BE 3" OR 6" FROM PANEL END



REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	NQB						
2	01-04	HEB						
3	12-07	HEB						
4	07-12	HEB						
5	11-14	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i10A1114.std

DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN for STANDARDS ENGINEER

STANDARD DRAWING

EXIT NUMBER PANELS

REQUIRES STD. DWG. I-10-A

English

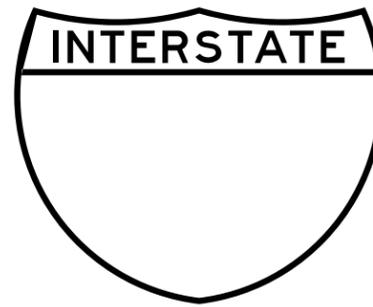
STANDARD DRAWING NO. I-10-B

SHEET 1 OF 1

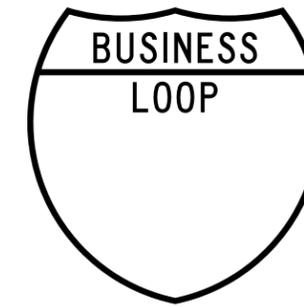
ORIGINAL SIGNED BY: RYAN D. LANCASTER
DATE ORIGINAL SIGNED: NOVEMBER 25, 2014



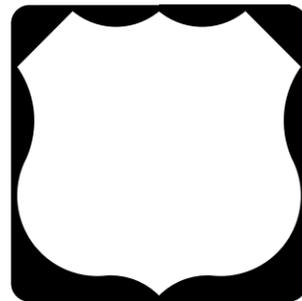
M1-1 (24"x24")
M1-1A (36"x36")



M1-1(3) (30"x24")
M1-1A(3) (45"x36")
3 NUMERALS

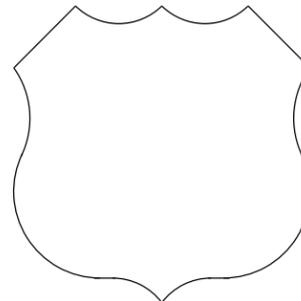


M1-2 (24"x24")
M1-2A (36"x36")



INDEPENDENT USE

M1-4 (24"x24")
M1-4A (36"x36")



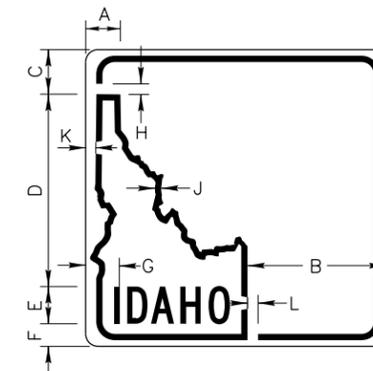
GUIDE SIGN USE

M1-5 (24"x24")
M1-5A (36"x36")



INDEPENDENT USE

M1-7 (24"x24")
M1-7A (36"x36")



GUIDE SIGN USE

M1-8 (24"x24")
M1-8A (36"x36")



M1-9 (24"x24")

DIMENSIONS FOR M1-7, M1-7A, M1-8 AND M1-8A

SIGN SIZE	A	B	C	D	E	F	G	H	J	K	L	2 DIGIT ROUTE	3 DIGIT ROUTE
24"x24"	2 1/2"	1 1/4"	3 5/8"	15 1/2"	3" C	1 7/8"	2 3/8"	5/8"	5/8"	1/2"	5/8"	10" C	8" C
36"x36"	3 1/16"	16 13/16"	5 7/16"	23 5/16"	4 1/2" C 85%	2 3/4"	3 5/8"	1"	1"	3/4"	1"	15" C	12" C

NOTES:

1. ALL ROUTE MARKERS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS ADOPTED BY THE STATE, OR AS SHOWN.
2. ROUTE MARKERS FOR GUIDE SIGN USE SHALL BE DIRECT APPLIED TO THE SIGN FACE. ALL OTHER ROUTE MARKERS SHALL BE PUNCHED WITH 3/8" DIAMETER HOLES. SEE STANDARD DRAWING I-12-F FOR HOLE LOCATION.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
DATE: CARL D. MAIN
DECEMBER 6, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	NQB						
2	07-03	NQB						
3	12-13	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i11a1213.dgn

DRAWING DATE: NOVEMBER, 1991

IDAHO
TRANSPORTATION
DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: RYAN LANCASTER for
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

STANDARD
ROUTE MARKERS

REQUIRES STD. DWG. I-12-F

English

STANDARD DRAWING NO.

I-11-A

SHEET 1 OF 1



M2-1 (21"X15")



M3-1 (24"X12")
M3-1A (30"X15")



M3-2 (24"X12")
M3-2A (30"X15")



M3-3 (24"X12")
M3-3A (30"X15")



M3-4 (24"X12")
M3-4A (30"X15")



M4-1 (24"X12")



M4-3 (24"X12")



M4-5 (24"X12")
M4-5A (30"X15")



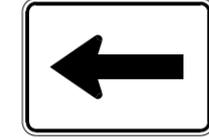
M4-6 (24"X12")



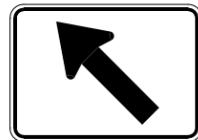
M5-1 LorR (21"X15")



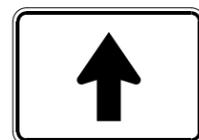
M5-2 LorR (21"X15")



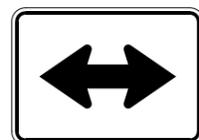
M6-1 LorR (21"X15")



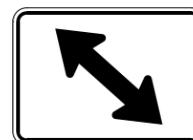
M6-2 LorR (21"X15")



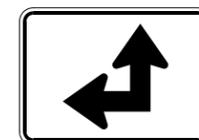
M6-3 (21"X15")



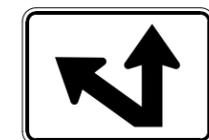
M6-4 (21"X15")



M6-5 LorR (21"X15")



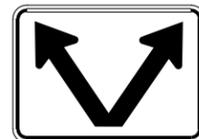
M6-6 LorR (21"X15")



M6-7 LorR (21"X15")



M6-8 LorR (21"X15")



M6-9 (21"X15")

NOTES:

1. ROUTE MARKER AUXILIARIES WHEN USED WITH A U.S. OR STATE SHIELD SHALL HAVE A WHITE REFLECTORIZED BACKGROUND WITH AN OPAQUE BLACK LEGEND AND BORDER.
2. ROUTE MARKER AUXILIARIES WHEN USED WITH AN INTERSTATE SHIELD AND/OR BUSINESS LOOP SHIELD SHALL HAVE A BLUE OR GREEN REFLECTORIZED BACKGROUND WITH A WHITE REFLECTORIZED LEGEND AND BORDER. SIGNS SHALL BE DESIGNATED WITH A (b) FOR BLUE OR A (g) FOR GREEN BACKGROUNDS. EXAMPLES: M6-6L(b), M6-1L(g).
3. ROUTE MARKER AUXILIARIES WHEN USED WITH A SCENIC ROUTE MARKER SHALL HAVE A BROWN REFLECTORIZED BACKGROUND WITH A WHITE REFLECTORIZED LEGEND AND BORDER. SIGNS SHALL BE DESIGNATED WITH (br) FOR BROWN BACKGROUNDS. EXAMPLE: M3-1(br).
4. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS ADOPTED BY THE STATE.
5. SIGNS SHALL BE PUNCHED WITH THE REQUIRED NUMBER OF 3/8" DIAMETER MOUNTING HOLES, AS SHOWN ON STANDARD DRAWING I-12-F.
6. THE FIRST LETTER OF THE M3-1, M3-2, M3-3, AND THE M3-4 SHALL BE 7" IN HEIGHT. THE FIRST LETTER OF THE M3-1A, M3-2A, M3-3A, AND M3-4A SHALL BE 9" IN HEIGHT.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN DATE ORIGINAL SIGNED: DECEMBER 5, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	HEB						
2	07-03	HEB						
3	12-13	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i11c1213.dgn

DRAWING DATE: APRIL, 1993

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

STANDARD DRAWING

ROUTE MARKER AUXILIARY PANELS

REQUIRES STD. DWG. I-12-F

ORIGINAL SIGNED BY: RYAN LANCASTER for DESIGN/TRAFFIC SERVICES ENGINEER

English

STANDARD DRAWING NO. I-11-C

SHEET 1 OF 1



R1-1 (30"X30")
R1-1A (36"X36")
R1-1B (48"X48")



R1-2 (36"X36"X36")
R1-2A (48"X48"X48")
R1-2B (60"X60"X60")



R2-1 (24"X30")
R2-1A (36"X48")
R2-1B (48"X60")



R2-2 (24"X24")
R2-2A (36"X36")
R2-2B (48"X48")



R3-1L (24"X24")
R3-1AL (36"X36")



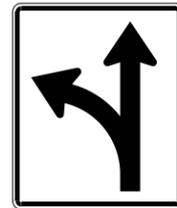
R3-1R (24"X24")
R3-1AR (36"X36")



R3-4 (24"X24")
R3-4A (36"X36")



R3-5 LorR (30"X36")



R3-6 LorR (30"X36")



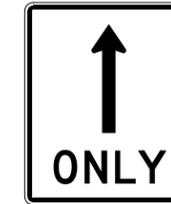
R3-7 LorR (30"X30")
R3-7A LorR (36"X36")
R3-7B LorR (48"X48")



R3-8 LorR (30"X30")
R3-8A LorR (36"X36")
R3-8B LorR (48"X48")



R3-10 (24"X36")
R3-10A (36"X48")



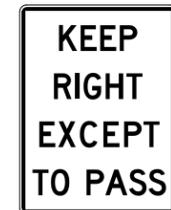
R3-11 (30"X36")



R4-1 (24"X30")
R4-1A (36"X48")
R4-1B (48"X60")



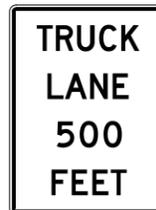
R4-2 (24"X30")
R4-2A (36"X48")
R4-2B (48"X60")



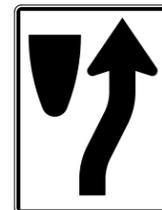
R4-4 (24"X30")
R4-4A (36"X48")
R4-4B (48"X60")



R4-5 (24"X30")
R4-5A (36"X48")
R4-5B (48"X60")



R4-6 (24"X30")
R4-6A (36"X48")
R4-6B (48"X60")



R4-7 (24"X30")
R4-7A (36"X48")
R4-7B (48"X60")



R5-1 (30"X30")
R5-1A (36"X36")



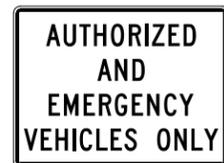
R5-9 (30"X18")
R5-9A (36"X24")



R6-1 LorR (36"X12")



R8-7 (30"X24")
R8-7A (48"X36")



R8-8 (48"X36")



R10-10 LorR (24"X30")
R10-10A LorR (30"X36")

NOTES:

1. ALL SIGNS SHALL BE IN ACCORDANCE WITH THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS ADOPTED BY THE STATE.
2. SIGNS SHALL BE PUNCHED WITH THE REQUIRED NUMBER OF 3/8" DIAMETER MOUNTING HOLES AS SHOWN ON STANDARD DRAWING I-12-F.
3. DASHED NUMBERS INDICATED ARE VARIABLE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN
DATE ORIGINAL SIGNED: DECEMBER 5, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-93	HEB						
2	12-01	NQB						
3	07-03	NQB						
4	06-07	HEB						
5	12-13	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i12o1213.dgn

DRAWING DATE: JANUARY, 1991

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: RYAN LANCASTER for
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

STANDARD REGULATORY SIGNS

REQUIRES STD. DWG. I-12-F

English

STANDARD DRAWING NO. I-12-A

SHEET 1 OF 1



W1-1 LorR (30"X30")
W1-1A LorR (36"X36")
* W1-1B LorR (48"X48")



W1-2 LorR (30"X30")
W1-2A LorR (36"X36")
* W1-2B LorR (48"X48")



W1-3 LorR (30"X30")
W1-3A LorR (36"X36")
* W1-3B LorR (48"X48")



W1-4 LorR (30"X30")
W1-4A LorR (36"X36")
* W1-4B LorR (48"X48")



W1-5 LorR (30"X30")
W1-5A LorR (36"X36")
W1-5B LorR (48"X48")



* W1-6 LorR (48"X24")
* W1-6A LorR (60"X36")



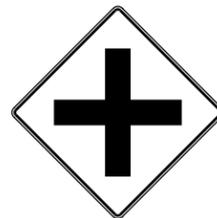
W1-7 (48"X24")
W1-7A (60"X36")



W1-8B LorR (48"X48")



W1-9 (12"X18")
W1-9A (18"X24")
W1-9B (24"X30")



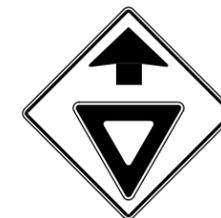
W2-1 (30"X30")
W2-1A (36"X36")
W2-1B (48"X48")



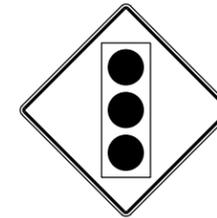
W2-2 (30"X30")
W2-2A (36"X36")
W2-2B (48"X48")



W3-1A (36"X36")
* W3-1B (48"X48")



W3-2A (36"X36")
* W3-2B (48"X48")



W3-3A (36"X36")
* W3-3B (48"X48")



W3-5A (36"X36")
* W3-5B (48"X48")



W3-5TA (36"X36")
* W3-5TB (48"X48")



W4-1 LorR (30"X30")
W4-1A LorR (36"X36")
W4-1B LorR (48"X48")



W4-2A LorR (36"X36")
* W4-2B LorR (48"X48")



W6-1A (36"X36")
* W6-1B (48"X48")



W6-2A (36"X36")
* W6-2B (48"X48")



W6-3 (30"X30")
W6-3A (36"X36")
* W6-3B (48"X48")



W9-1 LorR (30"X30")
W9-1A LorR (36"X36")
* W9-1B LorR (48"X48")



W9-2 LorR (30"X30")
W9-2A LorR (36"X36")
* W9-2B LorR (48"X48")



W12-1 (30"X30")
W12-1A (36"X36")
* W12-1B (48"X48")



W12-2A (36"X36")
W12-2B (48"X48")



* W13-1A (24"X24")



W13-2 (24"X30")
W13-2A (36"X48")
W13-2B (48"X60")



* W14-3 (48"X36")



OM-1 (y)or(r) (18"X18")

NOTES:

- ALL SIGNS SHALL BE IN ACCORDANCE WITH THE CURRENT MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES AS ADOPTED BY THE STATE.
- SIGNS SHALL BE PUNCHED WITH THE REQUIRED NUMBER OF 3/8" DIAMETER MOUNTING HOLES, AS SHOWN ON STANDARD DRAWING I-12-F.
- SIGNS INDICATED WITH AN * HAVE EITHER A YELLOW OR AN ORANGE (o) BACKGROUND, DEPENDING ON THEIR USE. THE SIGN NUMBERS SHALL BE DESIGNATED SUCH AS: W1-1L FOR YELLOW OR W1-1L(o) FOR ORANGE.
- DASHED NUMBERS INDICATED ARE VARIABLE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN DATE ORIGINAL SIGNED: DECEMBER 5, 2013

REVISIONS									
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY	
1	12-93	HEB	6	12-13	HEB				
2	12-01	HEB							
3	07-03	HEB							
4	06-07	HEB							
5	09-11	HEB							

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: i12d1213.dgn

DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: RYAN LANCASTER for DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING

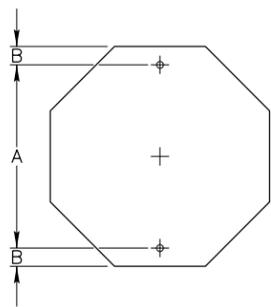
STANDARD WARNING SIGNS

REQUIRES STD. DWG. I-12-F

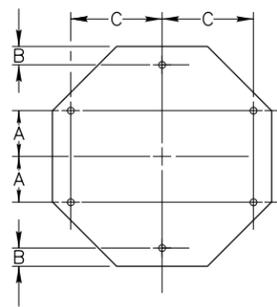
English

STANDARD DRAWING NO. I-12-D

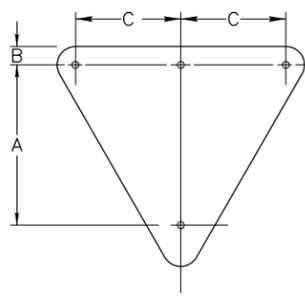
SHEET 1 OF 1



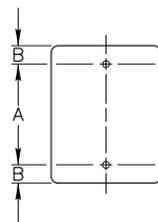
SIGN SIZE	A	B
30"X30"	24"	3"



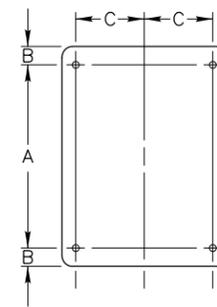
SIGN SIZE	A	B	C
36"X36"	8"	3"	12"
48"X48"	10"	—	20"



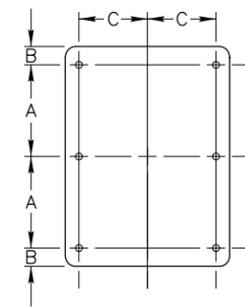
SIGN SIZE	A	B	C
30"X30"	18"	3"	—
36"X36"	23"	3"	—
48"X48"	25"	3"	17"
60"X60"	35"	4"	23"



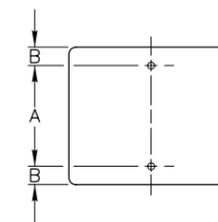
SIGN SIZE	A	B
6"X12"	9"	1 1/2"
6"X18"	15"	1 1/2"
9"X12"	9"	1 1/2"
12"X18"	15"	1 1/2"
12"X30"	24"	3"
12"X36"	32"	2"
18"X24"	18"	3"
24"X30"	24"	3"
24"X36"	30"	3"
30"X36"	30"	3"



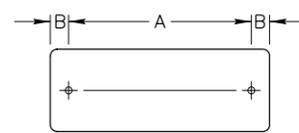
SIGN SIZE	A	B	C
36"X36"	30"	3"	15"
36"X48"	42"	3"	15"
48"X30"	24"	3"	15"
48"X36"	30"	3"	15"
60"X36"	30"	3"	21"



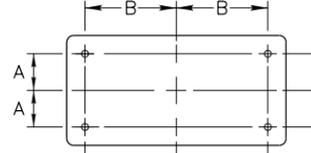
SIGN SIZE	A	B	C
48"X60"	27"	3"	15"



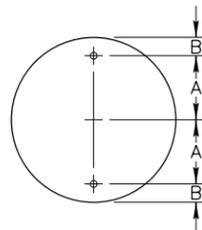
SIGN SIZE	A	B
12"X6"	3"	1 1/2"
18"X9"	6"	1 1/2"
18"X12"	9"	1 1/2"
18"X18"	15"	1 1/2"
21"X15"	12"	1 1/2"
24"X6"	3"	1 1/2"
24"X10"	7"	1 1/2"
24"X12"	9"	1 1/2"
24"X18"	15"	1 1/2"
24"X24"	18"	3"
30"X18"	12"	3"
30"X24"	18"	3"
30"X30"	24"	3"
36"X24"	18"	3"
36"X30"	24"	3"
42"X24"	18"	3"
42"X30"	24"	3"
42"X36"	30"	3"



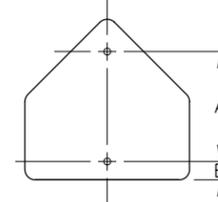
SIGN SIZE	A	B
30"X15"	24"	3"
36"X12"	30"	3"
36"X18"	30"	3"
48"X12"	42"	3"
48"X18"	42"	3"
54"X18"	48"	3"



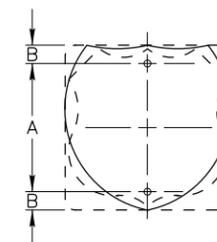
SIGN SIZE	A	B
48"X24"	9"	20"



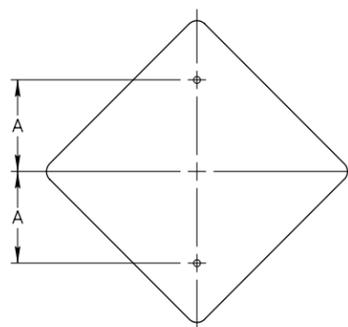
SIGN SIZE	A	B
36"	15"	3"
48"	21"	3"



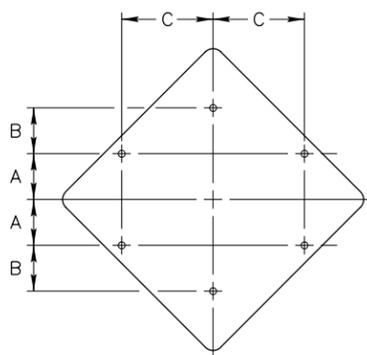
SIGN SIZE	A	B
30"X30"	21"	3"
36"X36"	24"	3"



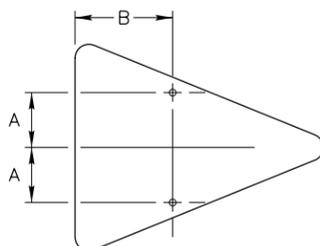
SIGN SIZE	A	B
24"X24"	18"	3"
30"X24"	18"	3"



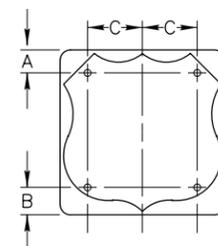
SIGN SIZE	A
18"X18"	10"
24"X24"	12"
30"X30"	15"



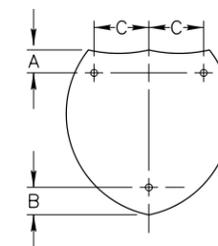
SIGN SIZE	A	B	C
36"X36"	8"	10"	12"
48"X48"	10"	—	20"



SIGN SIZE	A	B
36"X48"	9"	16"



SIGN SIZE	A	B	C
36"X36"	5"	6"	12"



SIGN SIZE	A	B	C
36"X36"	5"	6"	12"
45"X36"	5"	6"	16"

NOTES:

- ALL MOUNTING HOLES SHALL BE 3/8" DIAMETER.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: JULY 14, 2014

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	NQB						
2	06-07	HEB						
3	07-14	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i12f0714.dgn
 DRAWING DATE: DECEMBER, 1994

IDAHO TRANSPORTATION DEPARTMENT

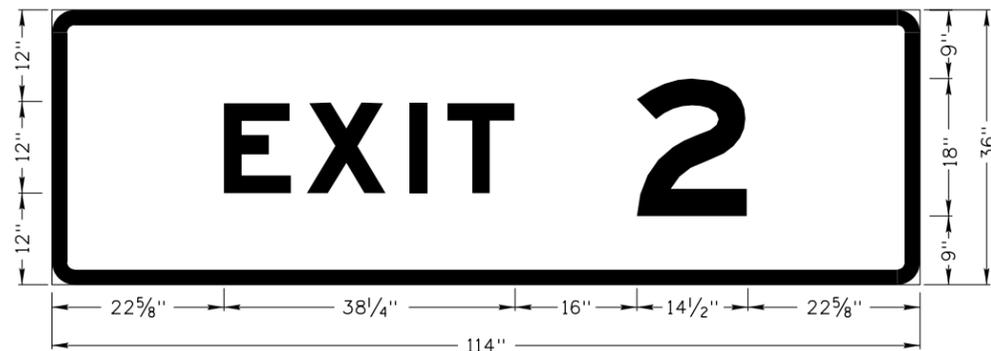


BOISE IDAHO

ORIGINAL SIGNED BY: CARL D. MAIN
 DESIGN/TRAFFIC SERVICES ENGINEER

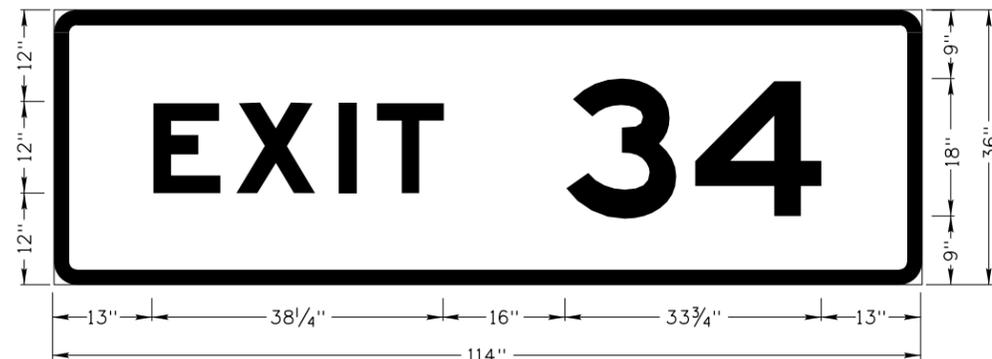
STANDARD DRAWING
PUNCHING SCHEDULE FOR TYPE "B" OR TYPE "E" SIGNS

English
 STANDARD DRAWING NO. I-12-F
 SHEET 1 OF 1



E1-5; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 [EXIT] E MOD 2K 120% SPACING; [2] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

22 5/8"	E	X	I	T	2	22 5/8"
10 7/8"	13 1/2"	5"	24 7/8"	14 1/2"		



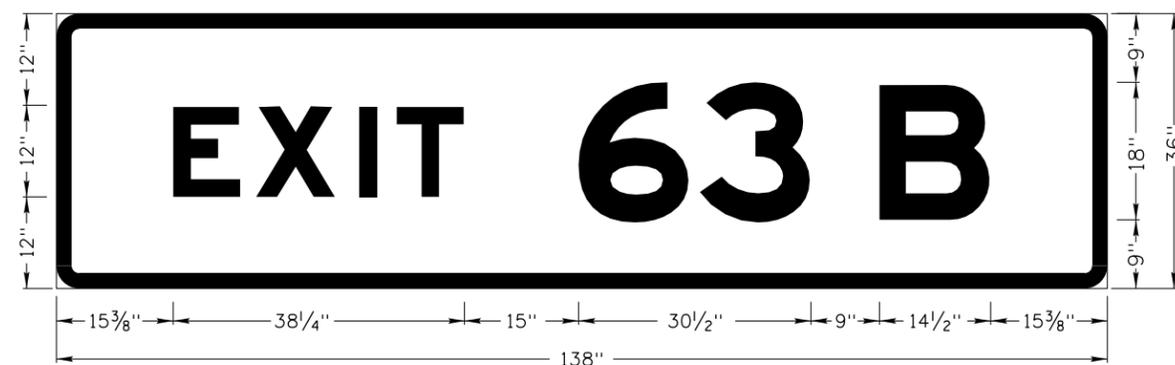
E1-5; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 [EXIT] E MOD 2K 120% SPACING; [34] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

13"	E	X	I	T	3	4	13"
11"	13 3/8"	5"	24 7/8"	17"	14 1/2"		



E1-5; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 [EXIT] E MOD 2K 120% SPACING; [234] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

15 3/8"	E	X	I	T	2	3	4	15 3/8"
10 7/8"	13 3/8"	5"	26 7/8"	17 1/2"	16 7/8"	16 3/4"		



E1-5; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 [EXIT] E MOD 2K 120% SPACING; [63 B] E MOD 2K 50% SPACING;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

15 3/8"	E	X	I	T	6	3	B	15 3/8"
10 7/8"	13 1/2"	5"	23 3/8"	15 7/8"	23 5/8"	14 1/2"		

NOTES

1. THE EXIT PANELS SIGN NUMBER IS E5-1.
2. A DETAIL OF EACH EXIT PANEL IS REQUIRED IN THE PLAN SET.
3. DRAWING NOT TO SCALE.

ORIGINAL STORED
 AT: ITD,
 Headquarters
 3311 West State
 Boise, Idaho

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 MAY 28, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN
 ARE FOR 11" X 17"
 PRINTS ONLY
 CADD FILE NAME:
 i13_0515.dgn
 DRAWING DATE:
 MAY, 2015

**IDAHO
 TRANSPORTATION
 DEPARTMENT**

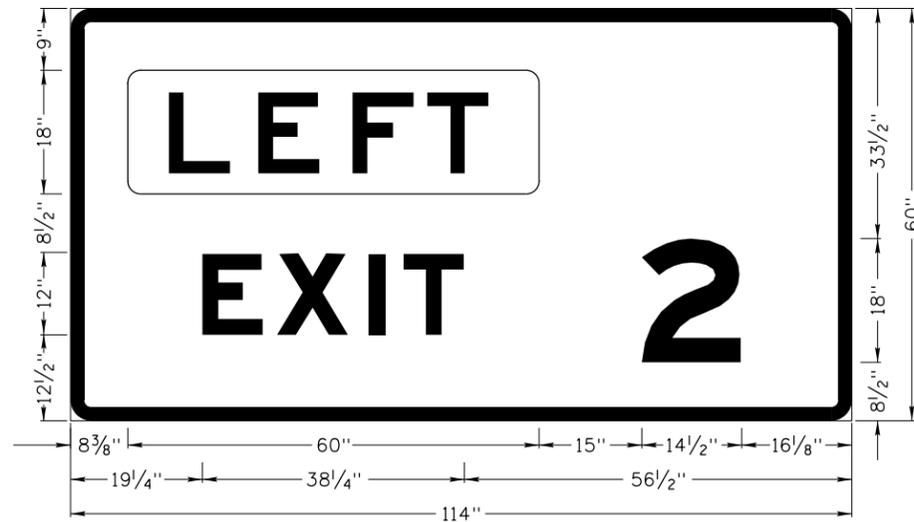


BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

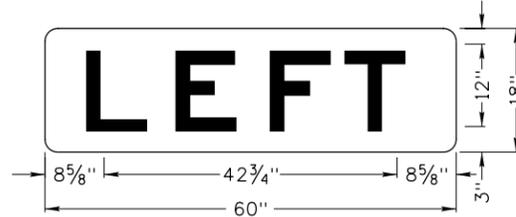
STANDARD DRAWING
**INTERSTATE EXIT
 NUMBER PANELS**
 REQUIRES SHEET 2 OF 2

English
 STANDARD DRAWING NO.
I-13
 SHEET 1 OF 2



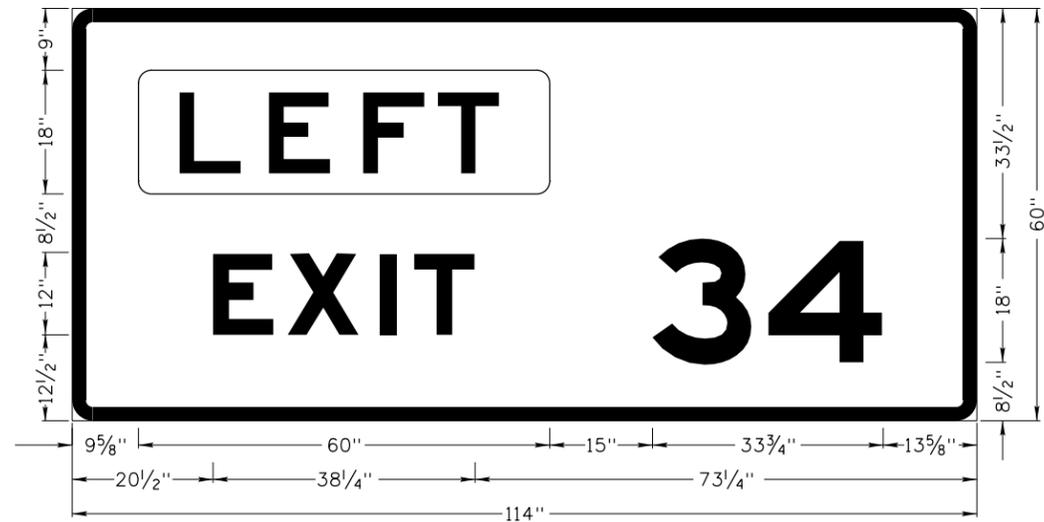
E1-5L; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 ROUNDED RECTANGLE 1 7/8" RADIUS YELLOW
 [EXIT] E MOD 2K 120% SPACING; [] 2K; [2] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

8 3/8"	60"	45 5/8"
19 1/4"	E 10 7/8"	X 13 1/2"
I 5"	T 34 3/4"	2 14 1/2"
		16 1/8"



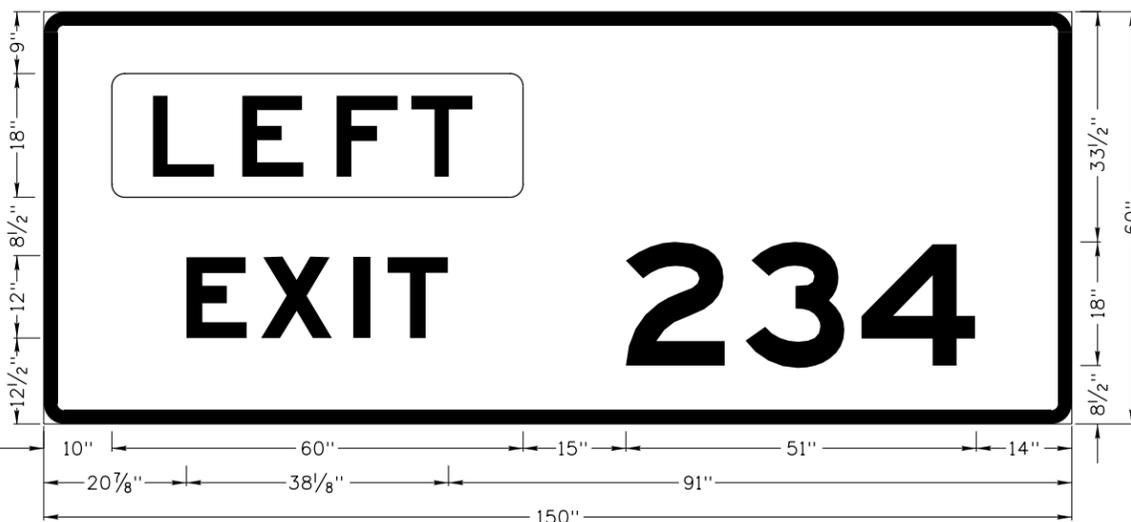
E1-5p; 1 5/8" RADIUS, 0.000" BORDER, YELLOW ON YELLOW;
 [LEFT] BLACK E 2K 125% SPACING;
 TABLE OF LETTER AND OBJECT LEFTS.

8 5/8"	L 11 1/2"	E 12"	F 10 1/2"	T 9"	8 5/8"
--------	-----------	-------	-----------	------	--------



E1-5L; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 ROUNDED RECTANGLE 1 7/8" RADIUS YELLOW
 [EXIT] E MOD 2K 120% SPACING; [] 2K; [34] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

9 5/8"	60"	63 3/8"
20 1/2"	E 11"	X 13 3/8"
I 5"	T 34 3/4"	3 17"
		4 16 3/4"
		13 5/8"

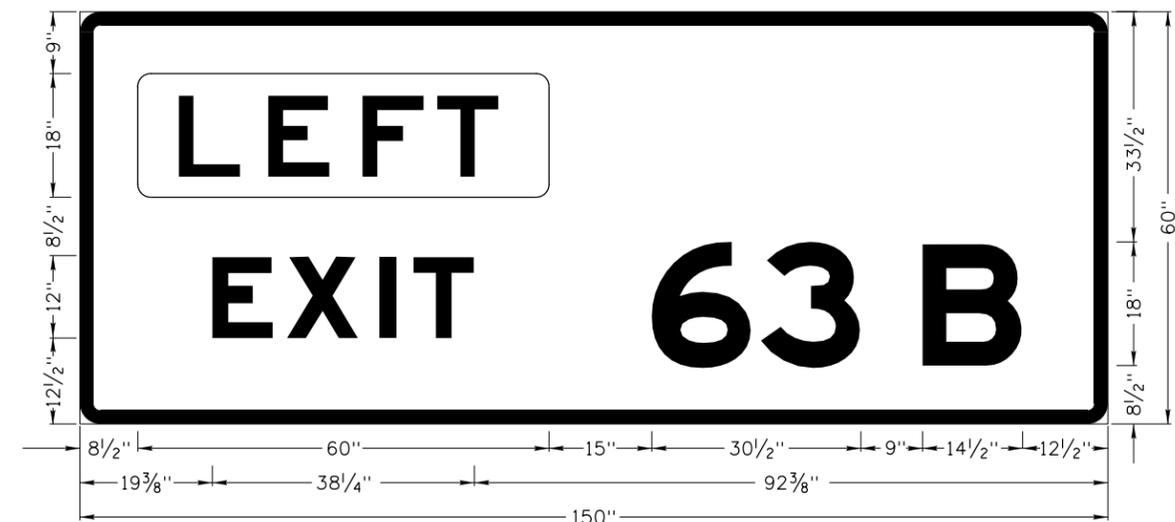


E1-5L; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 ROUNDED RECTANGLE 1 7/8" RADIUS YELLOW
 [EXIT] E MOD 2K 120% SPACING; [] 2K; [234] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

10"	60"	80"
20 7/8"	E 10 7/8"	X 13 3/8"
I 5"	T 34 7/8"	2 17 3/8"
		3 17"
		4 16 5/8"
		14"

NOTES

1. THE LEFT EXIT PANELS SIGN NUMBER IS E1-5bp.
2. A DETAIL OF EACH EXIT PANEL IS REQUIRED IN THE PLAN SET.
2. DRAWING NOT TO SCALE.



E1-5L; 3.000" RADIUS, 2.000" BORDER, WHITE ON GREEN;
 ROUNDED RECTANGLE 1 7/8" RADIUS YELLOW
 [EXIT] E MOD 2K 120% SPACING; [] 2K; [63B] E MOD 2K;
 TABLE OF DISTANCES BETWEEN LETTER AND OBJECT LEFTS.

8 1/2"	60"	81 1/2"
19 3/8"	E 10 7/8"	X 13 1/2"
I 5"	T 34 3/4"	6 15 7/8"
		3 23 5/8"
		B 14 1/2"
		12 1/2"

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 MAY 28, 2015

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i13_0515.dgn
 DRAWING DATE: MAY, 2015

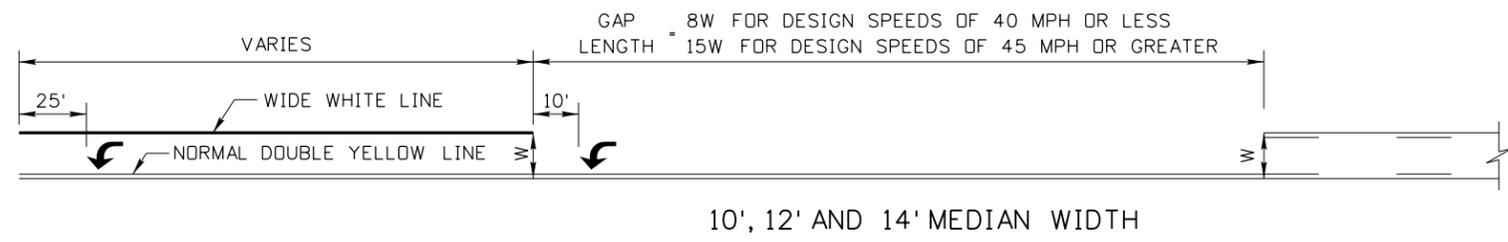
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

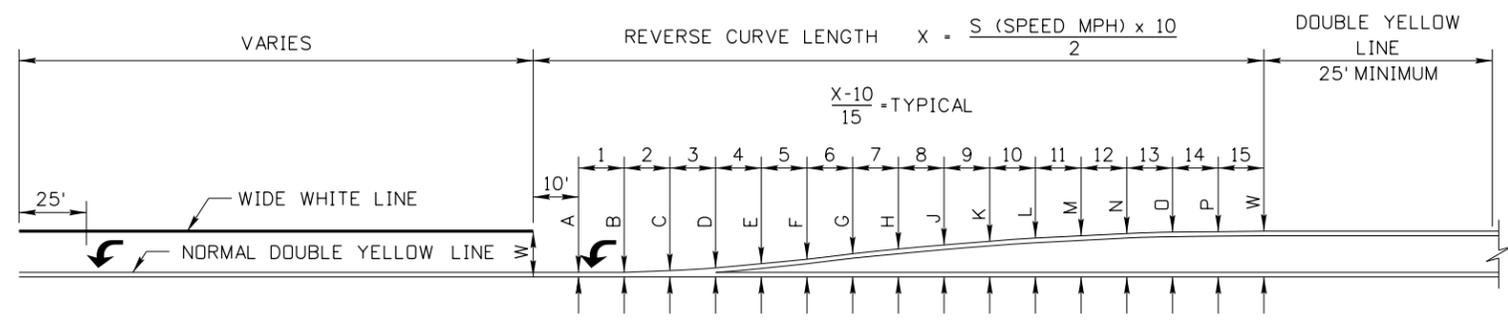
ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
INTERSTATE EXIT NUMBER PANELS
 REQUIRES SHEET 1 OF 2

English
 STANDARD DRAWING NO.
I-13
 SHEET 2 OF 2

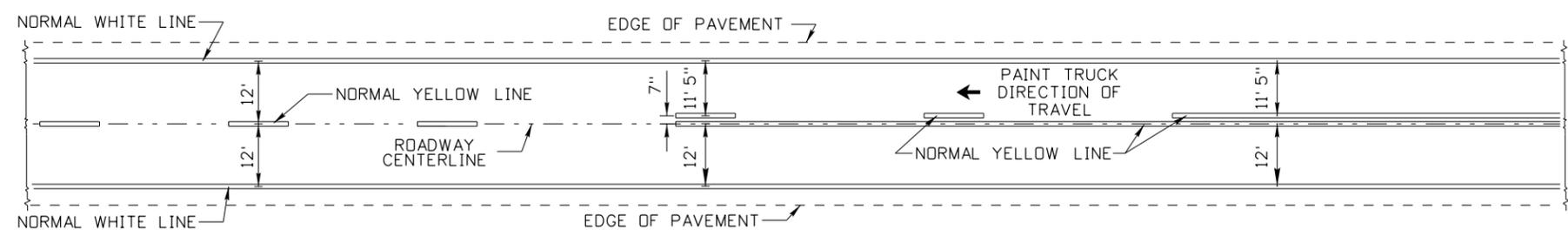


10', 12' AND 14' MEDIAN WIDTH

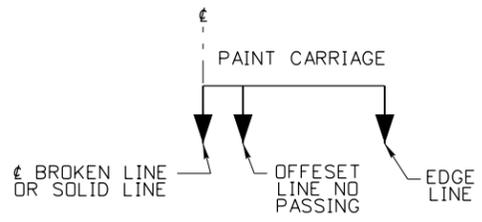


W	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	W
12.0'	.9'	1.1'	1.5'	2.2'	3.3'	4.6'	6.0'	7.3'	8.4'	9.3'	10.1'	10.8'	11.3'	11.7'	11.9'	12.0'
14.0'	3.0'	3.1'	3.6'	4.3'	5.3'	6.7'	8.1'	9.3'	10.4'	11.4'	12.2'	12.8'	13.3'	13.7'	13.9'	14.0'

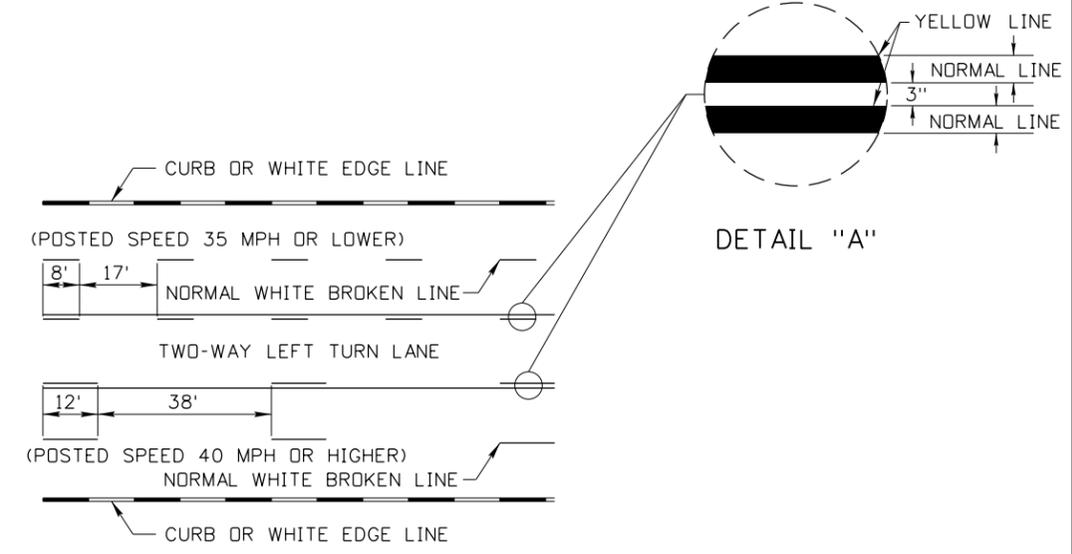
12' AND 14' MEDIAN WIDTH



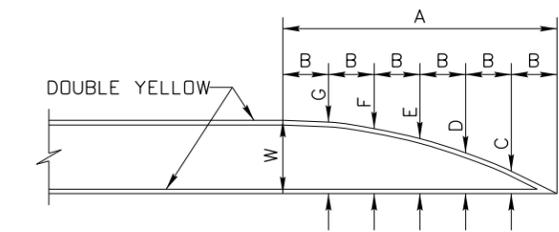
TWO LANE HIGHWAY MARKINGS



PAINT TRUCK SETUP



FIVE LANE ROADWAY MARKINGS (TWO-WAY LEFT TURN LANE)



W	A	B	C	D	E	F	G
10.0'	60.0'	10.0'	3.1'	5.6'	7.5'	8.9'	9.7'
12.0'	60.0'	10.0'	3.7'	6.7'	9.0'	10.7'	11.7'
14.0'	60.0'	10.0'	4.3'	7.8'	10.5'	12.4'	13.6'
16.0'	60.0'	10.0'	4.9'	8.9'	12.0'	14.2'	15.6'

OFFSET NOSE (OPTIONAL)

NOTES

1. NORMAL LINES ARE 4" TO 6" WIDE.
2. WIDE LINES ARE TO BE AT LEAST TWICE THE WIDTH OF A NORMAL LINE.
3. WHEN EDGE LINES ARE USED ON HIGHWAYS LESS THAN 24' WIDE, PLACE THE EDGE LINE 6" FROM THE EDGE OF PAVEMENT.
4. DRAWING NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: RYAN D. LANCASTER DATE ORIGINAL SIGNED: DECEMBER 17, 2015

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-01	NQB	6	12-15	HEB			
2	07-03	HEB						
3	12-04	HEB						
4	05-05	HEB						
5	07-10	HEB						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: i21_1215.dgn
DRAWING DATE: DECEMBER, 1993

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

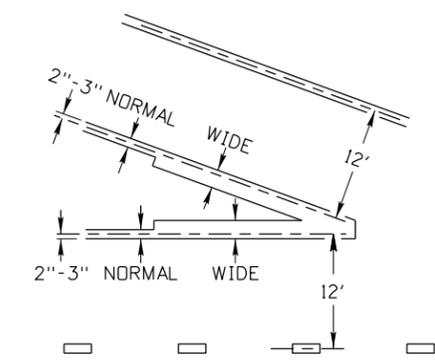
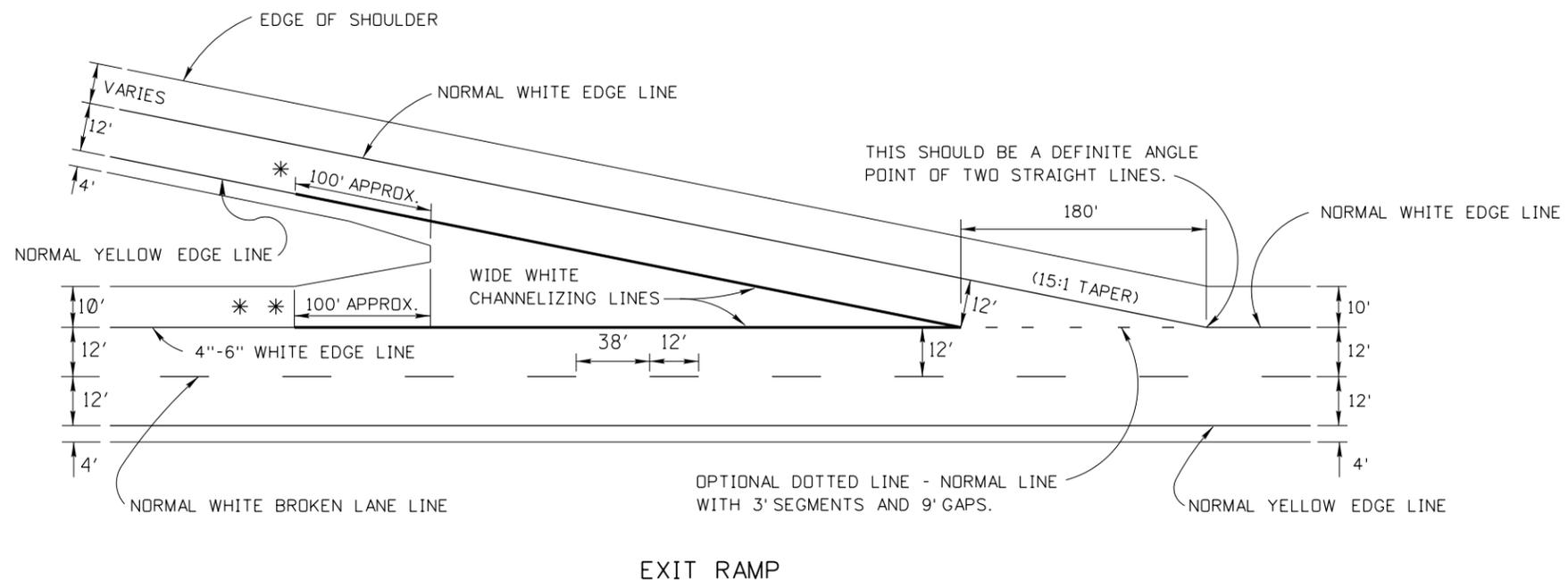
ORIGINAL SIGNED BY: KEVIN SABLAN
DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
STANDARD PAVEMENT MARKINGS FOR ARTERIAL AND COLLECTOR ROADWAYS

English
STANDARD DRAWING NO. I-21
SHEET 1 OF 1

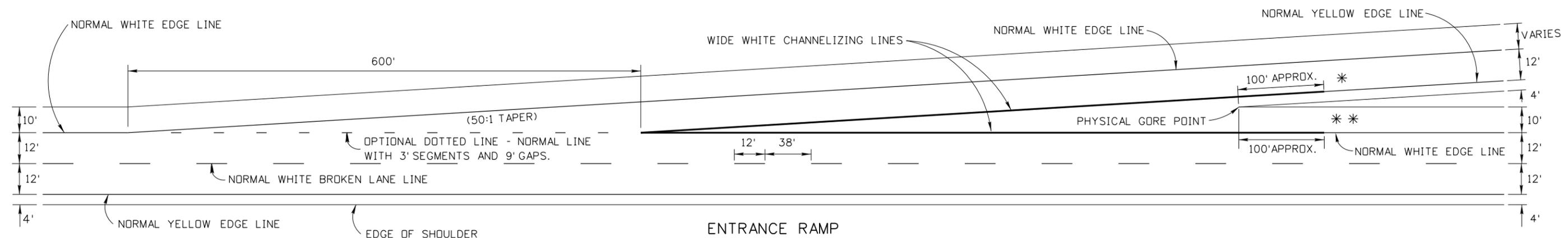
NOTES

- LINE WIDTHS
 NORMAL LONGITUDINAL LINES ARE 4 TO 6 INCHES WIDE.
 WIDE CHANNELIZATION LINES ARE AT LEAST TWICE THE WIDTH OF A NORMAL LINE.
- PAVEMENT MARKINGS WHICH WOULD FALL ON LONGITUDINAL PAVEMENT JOINTS SHOULD BE PLACED AS FOLLOWS:
 THE RIGHT EDGE LINE AND CENTER BROKEN LANE LINE (SKIP LINE) SHOULD BE OFFSET 4 INCHES TO THE LEFT SIDE OF LONGITUDINAL JOINTS IN THE DIRECTION OF TRAFFIC FLOW.
 THE LEFT EDGE LINE SHOULD BE OFFSET 4 INCHES TO THE RIGHT OF A LONGITUDINAL JOINT.
- ALL MEASUREMENTS GIVEN ARE TO THE CENTER OF THE NORMAL LINES.
 WIDE WHITE CHANNELIZING LINES ARE OFFSET AS SHOWN.
- DRAWING NOT TO SCALE.



* LINE CHANGES FROM 4"-6" YELLOW EDGE LINE TO 8"-12" SOLID WHITE CHANNELIZING LINE.
 ** LINE CHANGES FROM 4"-6" WHITE EDGE LINE TO 8"-12" WIDE SOLID WHITE CHANNELIZING LINE.

TYPICAL DIMENSIONS FOR PAINTED GORE
 SEE NOTE 3



REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: i22_0515.dgn
 DRAWING DATE: MAY, 2015

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: KEVIN SABLAN
 DESIGN/TRAFFIC SERVICES ENGINEER

STANDARD DRAWING
FREEWAY PAVEMENT MARKINGS

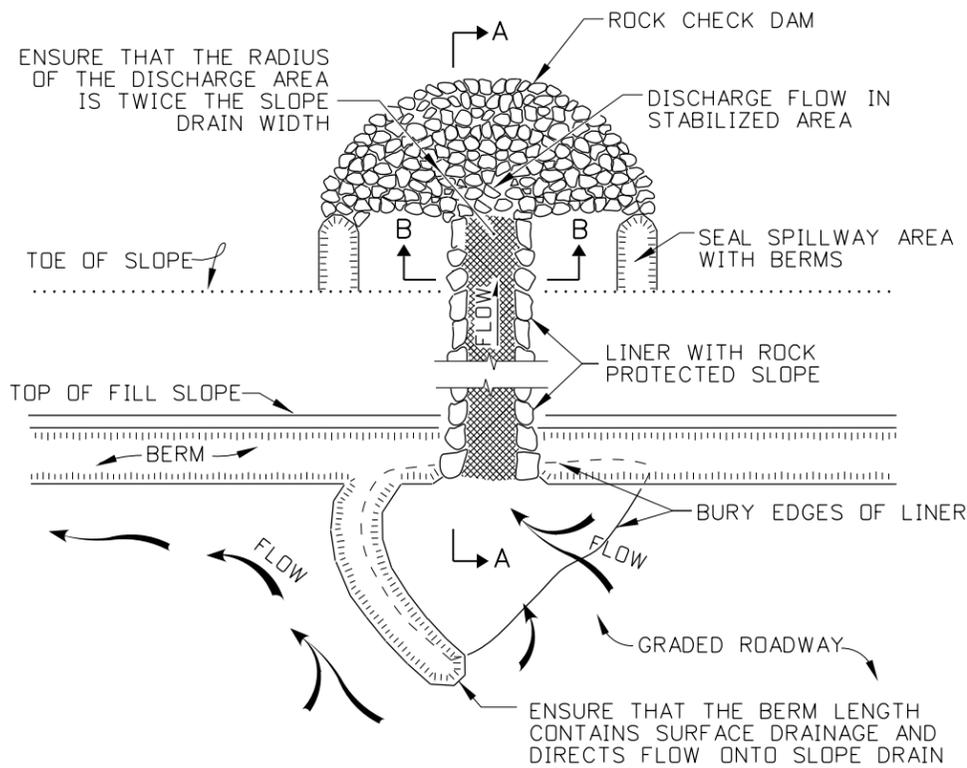
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

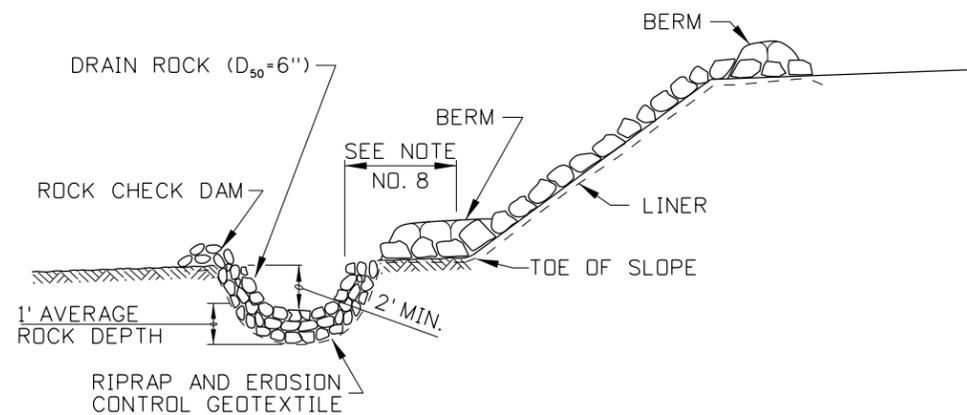
STANDARD DRAWING NO.
I-22

SHEET 1 OF 1

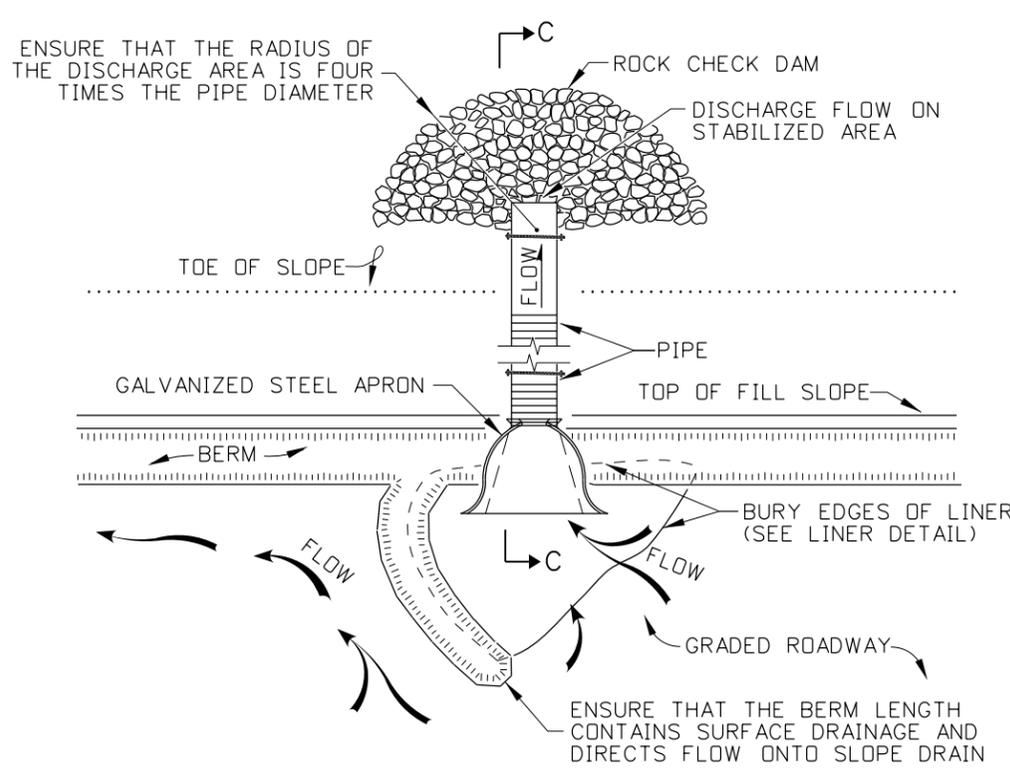
ORIGINAL SIGNED BY:
 RYAN D. LANCASTER
 DATE ORIGINAL SIGNED:
 MAY 28, 2015



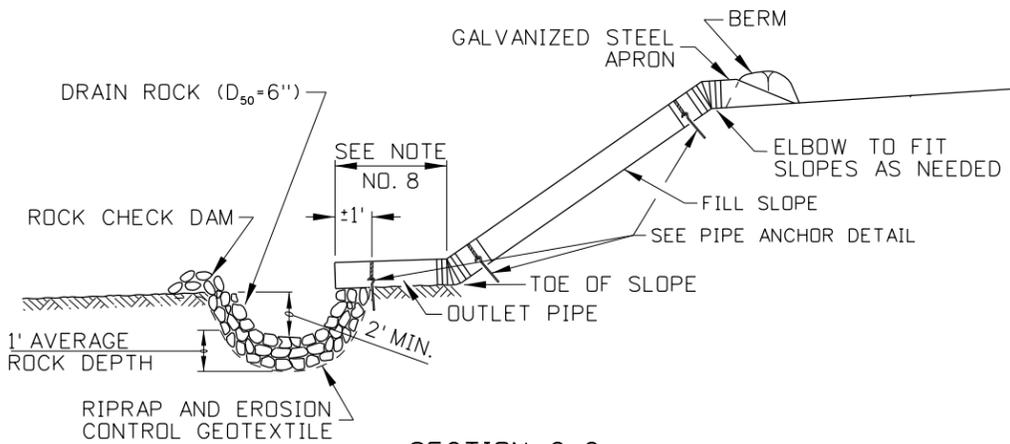
SLOPE DRAIN (LINER)
TO BE USED WITH 4:1 SLOPE OR FLATTER



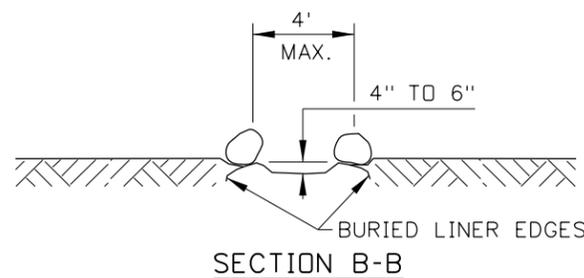
SECTION A-A



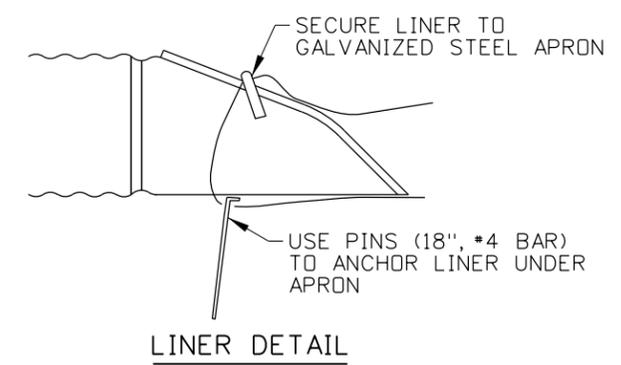
SLOPE DRAIN (PIPE)



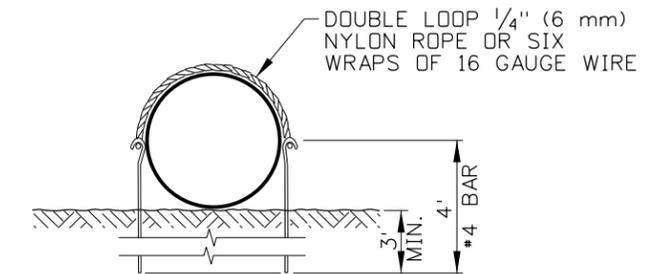
SECTION C-C



SECTION B-B



LINER DETAIL



PIPE ANCHOR DETAIL

NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D.
2. PLACE SLOPE DRAINS ON UNDISTURBED SOIL OR WELL COMPACTED FILL AND LOCATE AS SHOWN ON THE PLANS.
3. DETERMINE SLOPE DRAIN SIZE AND NUMBER BY DESIGN STORM EVENT.
4. INSTALL GALVANIZED STEEL APRONS AS SHOWN ON STANDARD DRAWING 608-1. CONNECT PIPES AS SHOWN ON STANDARD DRAWING 706-6.
5. CHECK SLOPE DRAINS PERIODICALLY FOR DAMAGE OR DEBRIS. PLACE ANCHORS AS NEEDED TO SECURE THE SLOPE DRAIN.
6. LINERS MAY CONSIST OF PLASTIC SHEETING, EROSION CONTROL GEOTEXTILES, OR APPROVED TURF REINFORCED MAT (TRM).
7. EXTEND LINER AT LEAST 3.5' IN FRONT OF DRAIN INLET.
8. 4' MINIMUM AT LESS THAN 1 PERCENT SLOPE. ENSURE DISCHARGE IS AT A NON-EROSIVE VELOCITY.
9. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: J. CALEB LAKEY DATE ORIGINAL SIGNED: NOVEMBER 20, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	9-93	MSM						
2	6-96	GFK						
3	10-10	KEH						
4	11-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p1a_1113b.dgn
DRAWING DATE: APRIL, 1993

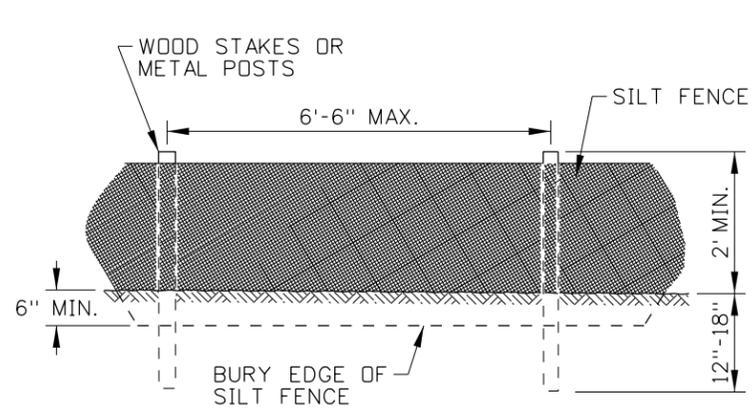
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

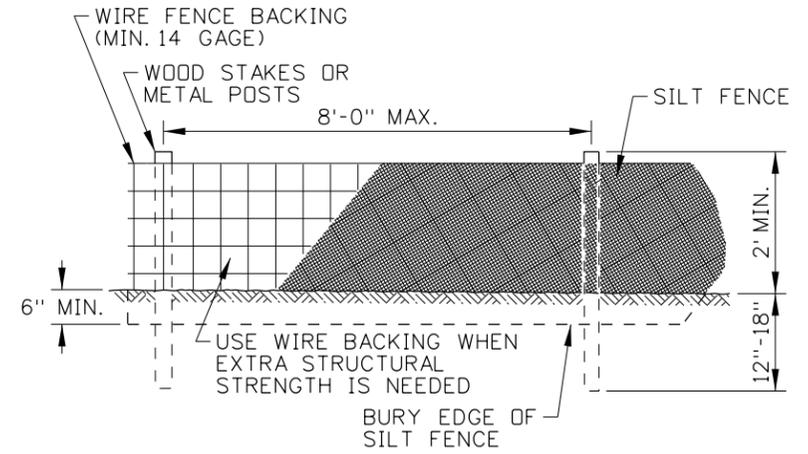
ORIGINAL SIGNED BY: TOM COLE for HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE CHIEF ENGINEER

STANDARD DRAWING
TEMPORARY EROSION CONTROL SLOPE DRAINS
REQ. STD. DWGS. 608-1, 706-6, P-1-D & P-1-E

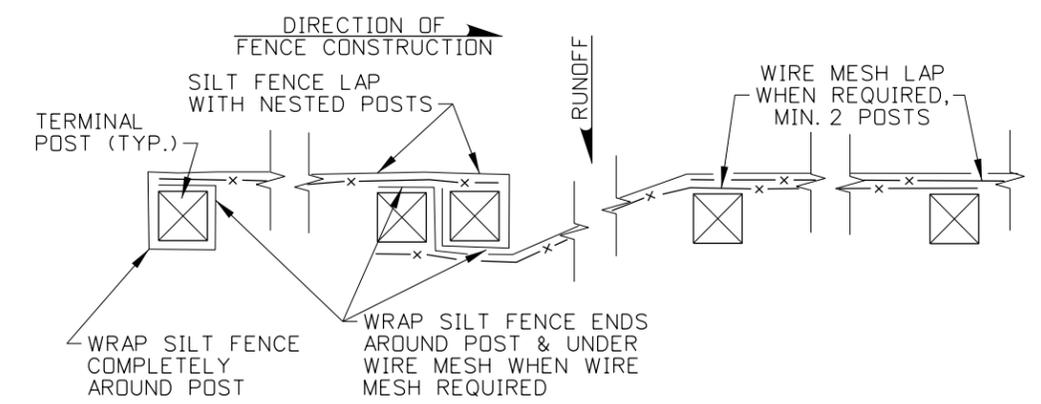
English
STANDARD DRAWING NO.
P-1-A
SHEET 1 OF 1



SILT FENCE (NO WIRE BACKING)



SILT FENCE (WIRE BACKING)



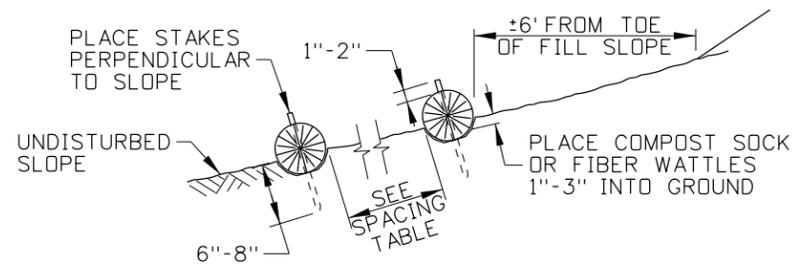
SILT FENCE LAP DETAIL

SLOPE	WATTLE SIZE			
	6"	9"	12"	20"
1:1	5 FT	10 FT	15 FT	20 FT
2:1	10 FT	20 FT	30 FT	40 FT
3:1	15 FT	30 FT	45 FT	60 FT
4:1 OR FLATTER	20 FT	40 FT	60 FT	80 FT

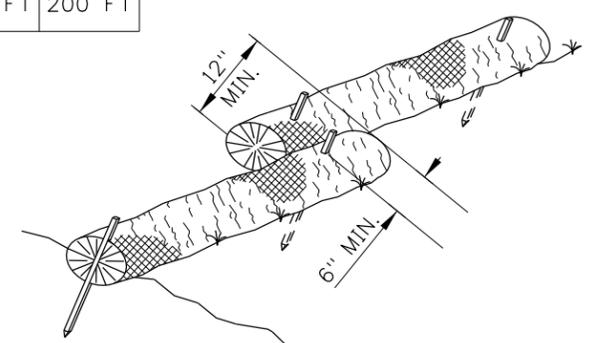
SLOPE	SOIL TYPE		
	SILTY	CLAYS	SANDY
1:1	50 FT	75 FT	100 FT
2:1	75 FT	100 FT	125 FT
4:1	100 FT	125 FT	150 FT
10:1 OR FLATTER	125 FT	150 FT	200 FT

NOTES

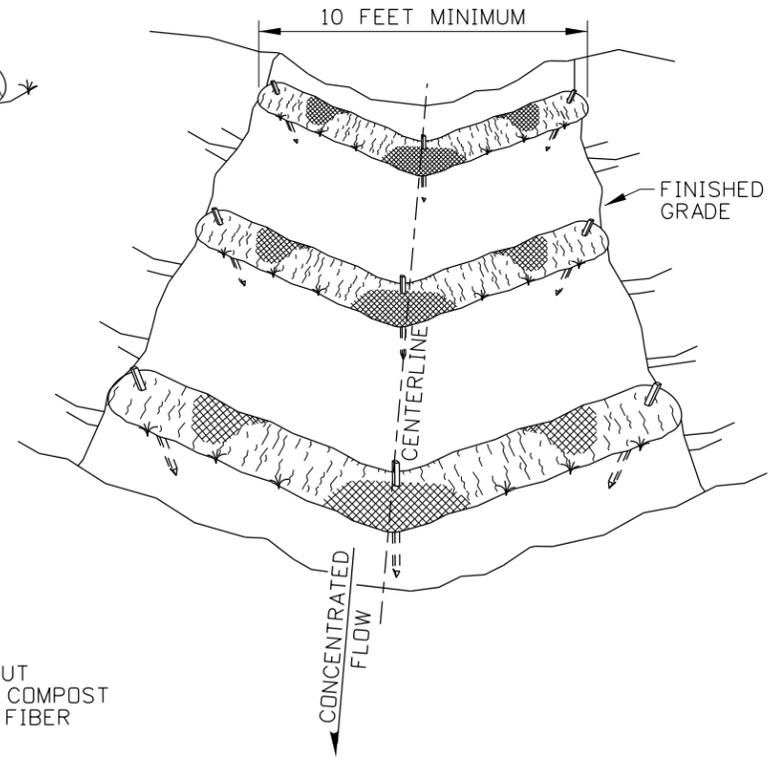
1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D.
2. INSTALL TEMPORARY SEDIMENT CONTROL BARRIERS IN ACCORDANCE WITH MANUFACTURERS INSTRUCTIONS AND SPECIFICATIONS. THE DIMENSIONS SHOWN ARE GENERAL GUIDELINES.
3. PLACE SEDIMENT BARRIERS TO FOLLOW THE SLOPE CONTOURS. METAL POSTS OR WOOD STAKES MAY BE USED.
4. ENSURE THAT RUNOFF PASSES THROUGH THE SILT FENCE AND NOT AROUND THE FENCE.
5. ENSURE THAT SILT FENCE MATERIAL IS IN ACCORDANCE WITH 718.09 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
6. GROUND SILT FENCES WITH WIRE MESH IN ACCORDANCE WITH THE GROUNDING DETAIL SHOWN ON STANDARD DRAWING F-2-A.
7. THE NEED FOR TEMPORARY SEDIMENT CONTROL DEVICES ARE DETERMINED BY SITE DESIGN. SPACE SILT FENCES, COMPOST SOCKS, AND FIBER WATTLES IN ACCORDANCE WITH THE SILT FENCE SPACING TABLE AND FIBER WATTLE & COMPOST SOCK SPACING TABLE.
8. ON SLOPES, TURN THE ENDS OF EACH ROW OF COMPOST SOCKS AND FIBER WATTLES UPSLOPE TO PREVENT RUNOFF FROM FLOWING AROUND THE SOCK OR WATTLE.
9. EXTEND OR JOIN SILT FENCE USING SILT FENCE LAP WITH NESTED POSTS.
10. REMOVE SEDIMENT FROM THE UPSLOPE SIDE OF SILT FENCES, COMPOST SOCKS, AND FIBER WATTLES WHEN ACCUMULATION HAS REACHED 1/2 OF THE EFFECTIVE HEIGHT OF THE BARRIER.
11. NOT TO SCALE.



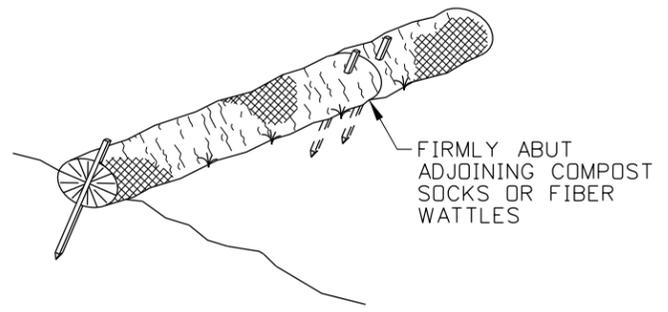
COMPOST SOCK AND FIBER WATTLE SIDE VIEW



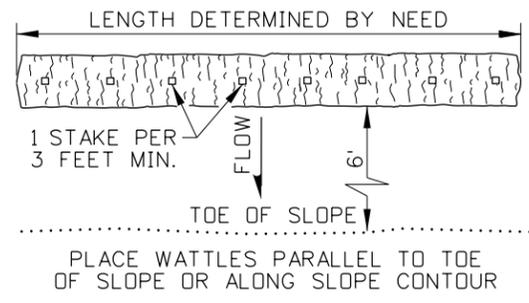
COMPOST SOCK AND FIBER WATTLE OVERLAPPING DETAIL



COMPOST SOCK AND FIBER WATTLE TEMPORARY CHECK DAM DETAIL



COMPOST SOCK AND FIBER WATTLE ABUTTING DETAIL



COMPOST SOCK AND FIBER WATTLE PLAN VIEW

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-93	MSM	6	01-13	RDL			
2	12-94	MSM						
3	06-96	GFK						
4	10-10	KEH						
5	10-11	KEH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p1b_0213.std
 DRAWING DATE: APRIL, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

TEMPORARY SEDIMENT CONTROL BARRIERS

REQUIRES STD. DWG. P-1-D

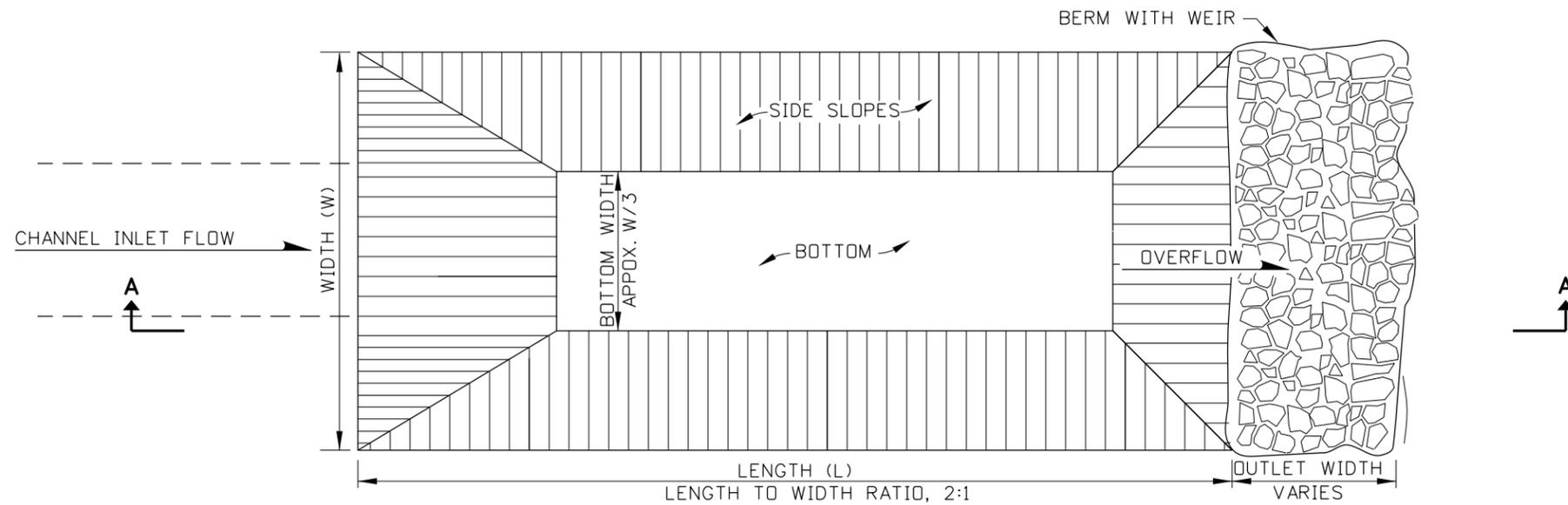
English

STANDARD DRAWING NO.
P-1-B

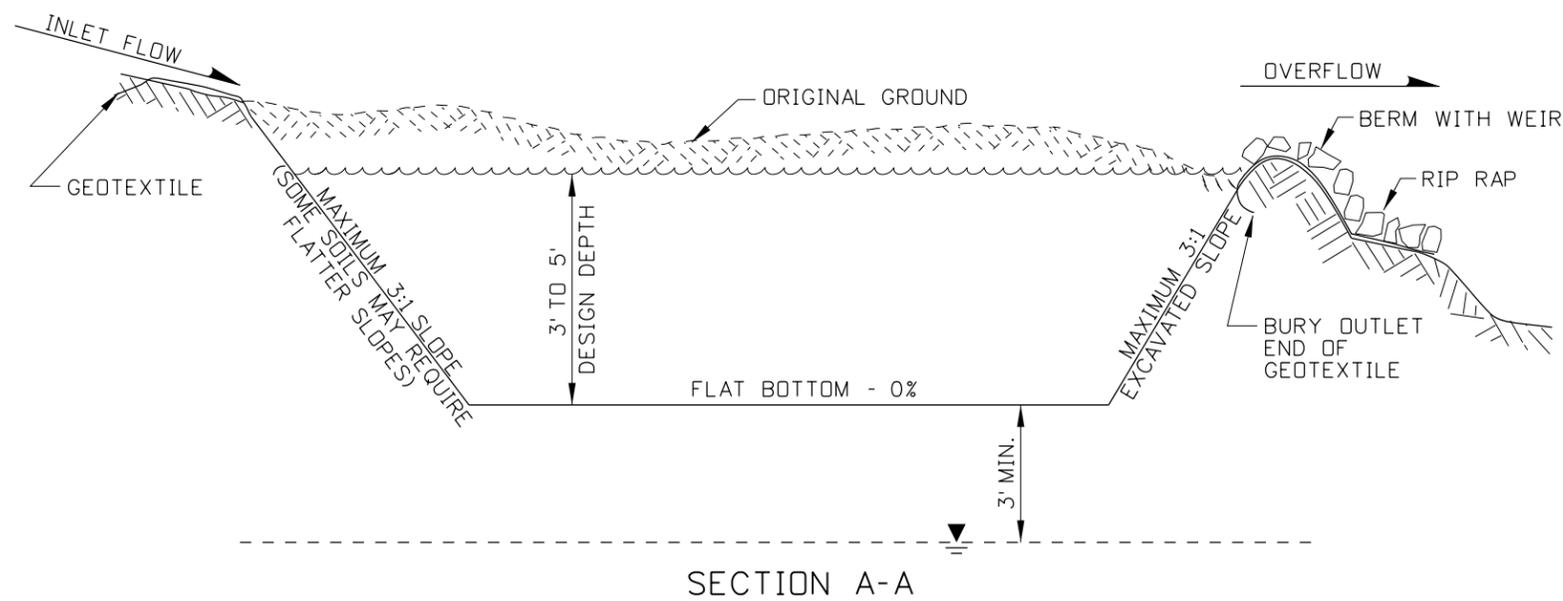
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 J. CALEB LAKEY
 DATE ORIGINAL SIGNED:
 FEBRUARY 1, 2013



PLAN - SEDIMENT TRAP BASIN



SECTION A-A

NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON THE STANDARD DRAWING P-1-D.
2. DETERMINE SEDIMENT TRAP SIZE ON A 2-YEAR 24-HOUR STORM DESIGN OR 3,600 FT²/ACRE. THE MAXIMUM DRAINAGE AREA PER SEDIMENT TRAP IS 5 ACRES.
3. LOCATE SEDIMENT TRAP OUTSIDE OF THE SLOPE STAKE LIMITS AND CONSTRUCT PRIOR TO THE START OF EXCAVATION OR REMOVAL OF EXISTING VEGETATION.
4. ENSURE THAT RIPRAP MATERIAL IS IN ACCORDANCE WITH 711.04 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
5. PROVIDE TYPE II RIPRAP/EROSION CONTROL GEOTEXTILE IN ACCORDANCE WITH SUBSECTION 718.06 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.
6. ENTIRE TRAP MAY BE ROCK LINED IF NECESSARY.
7. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-93	MSM						
2	02-96	MSM						
3	10-10	KEH						
4	10-11	KEH						
5	11-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: p1c_1113.dgn

DRAWING DATE: APRIL, 1993

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: TOM COLE for
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

TEMPORARY SEDIMENT TRAP

REQUIRES STD. DWG. P-1-D

English

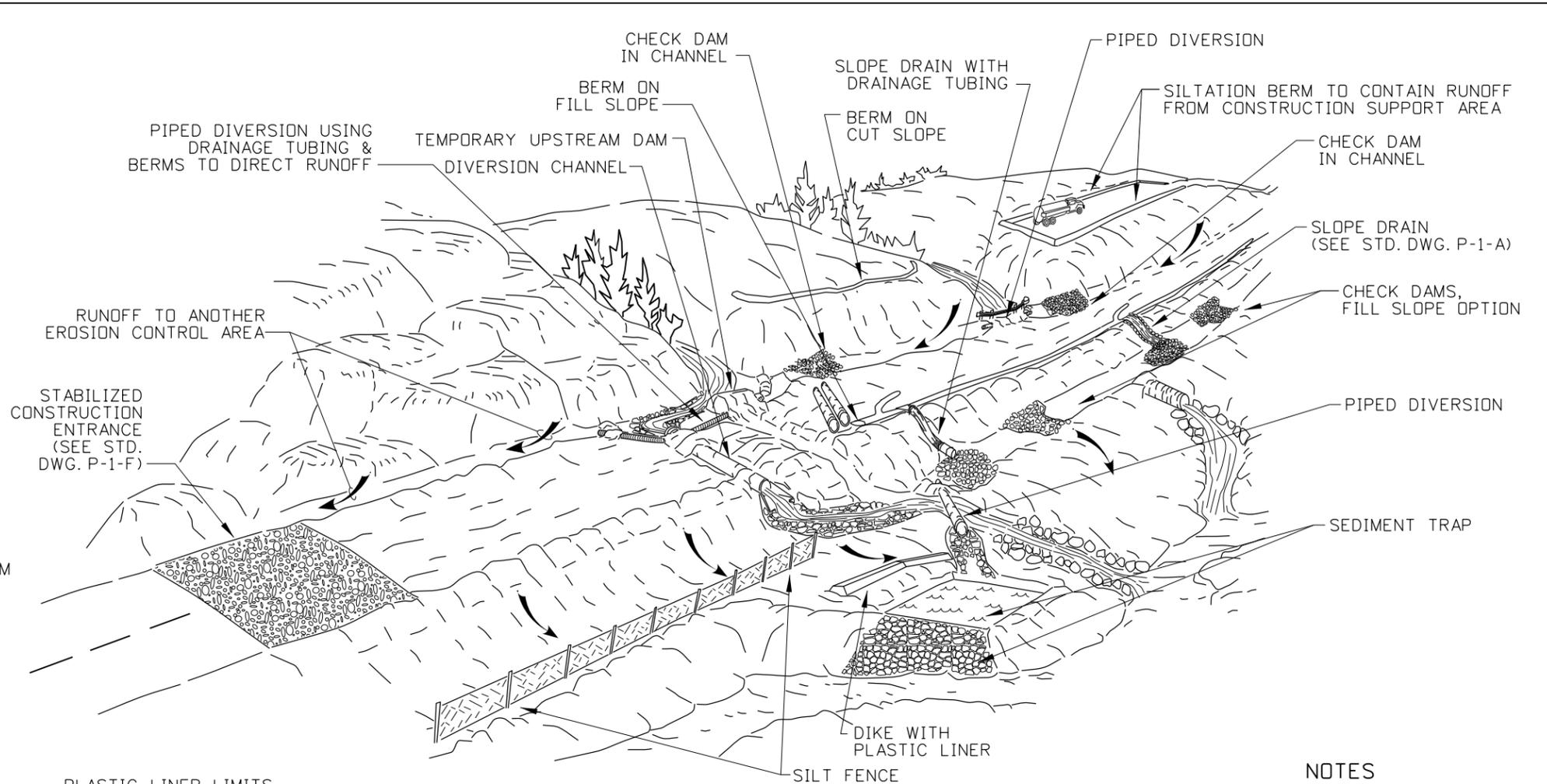
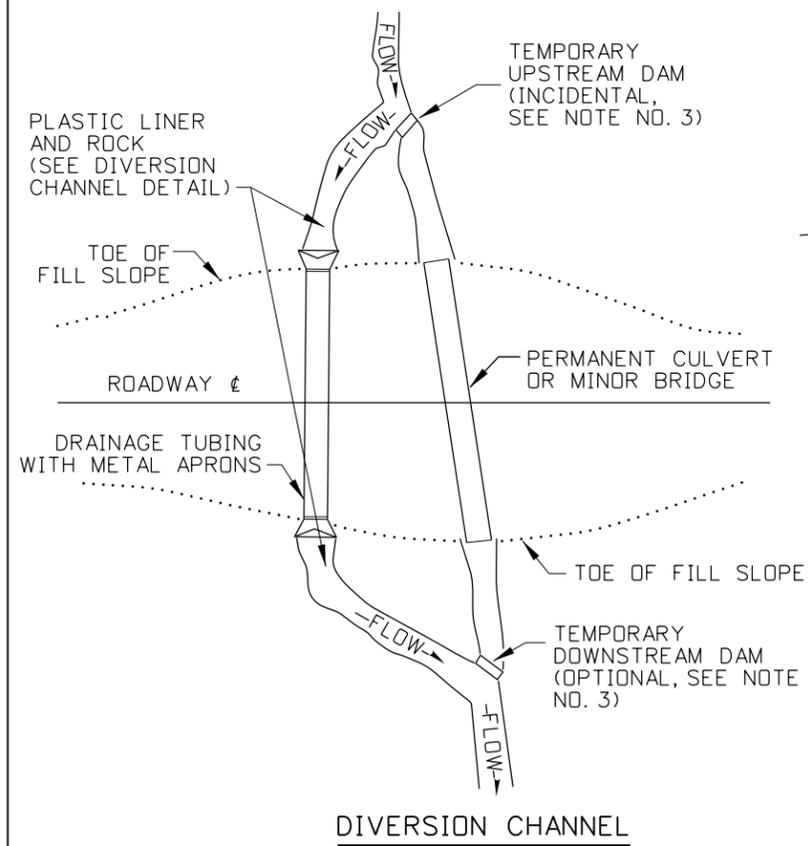
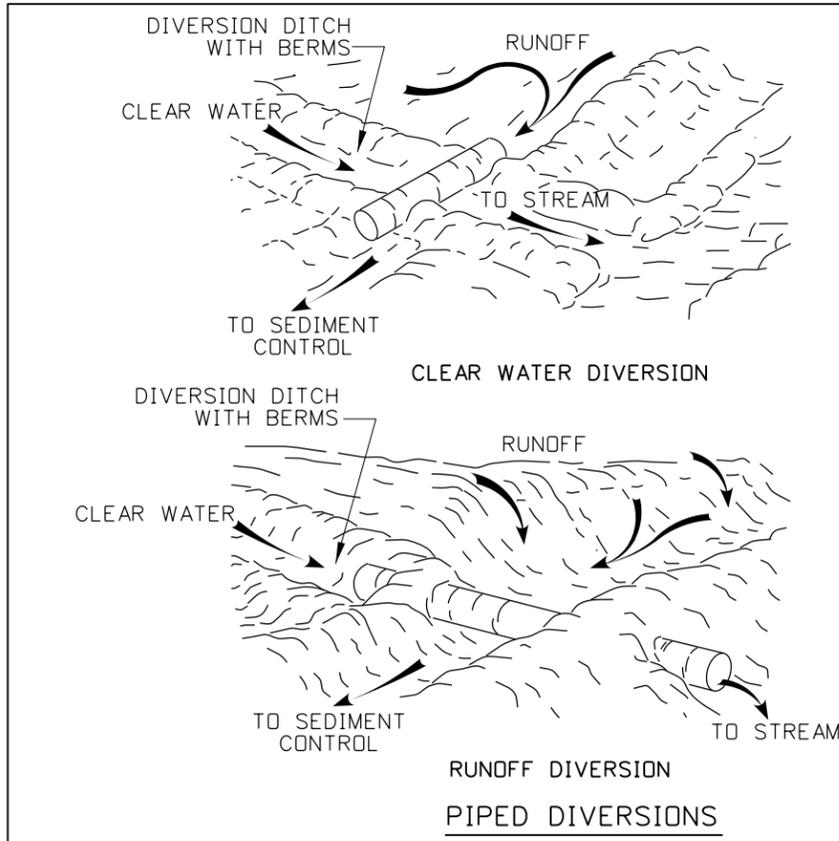
STANDARD DRAWING NO.

P-1-C

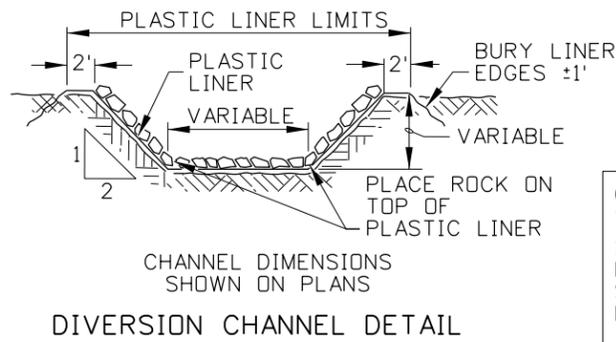
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

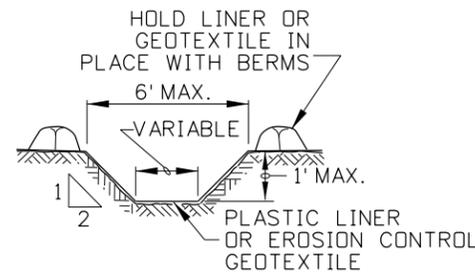
ORIGINAL SIGNED BY:
J. CALEB LAKEY
DATE ORIGINAL SIGNED:
NOVEMBER 20, 2013



SITE EXAMPLE



DIVERSION CHANNEL DETAIL



TO BE USED ONLY FOR CLEAR WATER
DIVERSION DITCH

NOTES

1. SEE THE GENERAL NOTES FOR TEMPORARY EROSION CONTROL.
2. CONSTRUCT DIVERSION CHANNELS AS SHOWN ON THE PLANS. CONSTRUCT THE CHANNEL SIZE, ALIGNMENT, SLOPE, ROCK SIZE AND TYPE, AND PLASTIC LINER AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
3. USE A TEMPORARY DAM TO DIVERT ALL WATER INTO THE DIVERSION CHANNEL. A TEMPORARY DOWNSTREAM DAM IS OPTIONAL AND MAY BE USED TO PREVENT WATER FROM RETURNING TO THE UPSTREAM WORK AREA.
4. PLACE A PLASTIC LINER ALONG THE LENGTH AND WIDTH OF THE DIVERSION CHANNEL. OVERLAP THE PLASTIC LINER EDGES 2 FEET. SECURE PLASTIC LINER EDGES WITH BERMS, ROCKS, OR OTHER SUITABLE MATERIALS.
5. DIVERSION DITCHES ARE PRIMARILY FOR CLEAR WATER. WHEN THE FLOW EXCEEDS 0.25 CUBIC FEET PER SECOND, USE A DIVERSION CHANNEL.
6. NOT TO SCALE.

GENERAL NOTES FOR TEMPORARY EROSION CONTROL

1. USE TEMPORARY EROSION CONTROL DEVICES STANDARD DRAWINGS IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ITD BEST MANAGEMENT PRACTICES MANUAL.
2. SEE PLANS FOR SITE DIMENSIONS.
3. THE PLACEMENT OF TEMPORARY EROSION CONTROL MEASURES IS SITE SPECIFIC. OBTAIN THE ENGINEER'S APPROVAL OF THE TEMPORARY EROSION CONTROL MEASURES PRIOR TO INSTALLATION.
4. TEMPORARY EROSION CONTROL DEVICES ARE NOT INTENDED TO LAST MORE THAN 6 MONTHS OR UNTIL THEY ARE INTEGRATED INTO A FINAL EROSION CONTROL SYSTEM.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	9-93	MSM					
2	6-96	MSM					
3	10-10	KEH					
4	10-11	KEH					
5	12-12	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p1d_1212.std
DRAWING DATE: APRIL, 1993

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

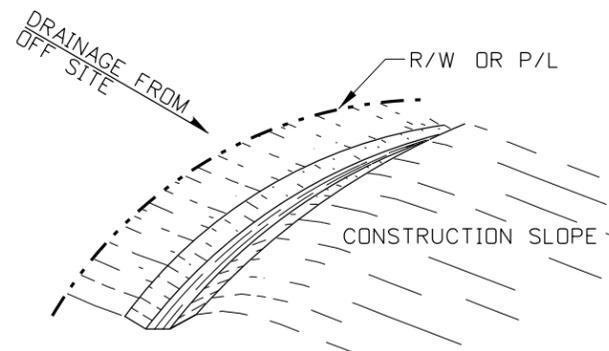
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
TEMPORARY EROSION CONTROL DIVERSION DEVICES & SITE EXAMPLE

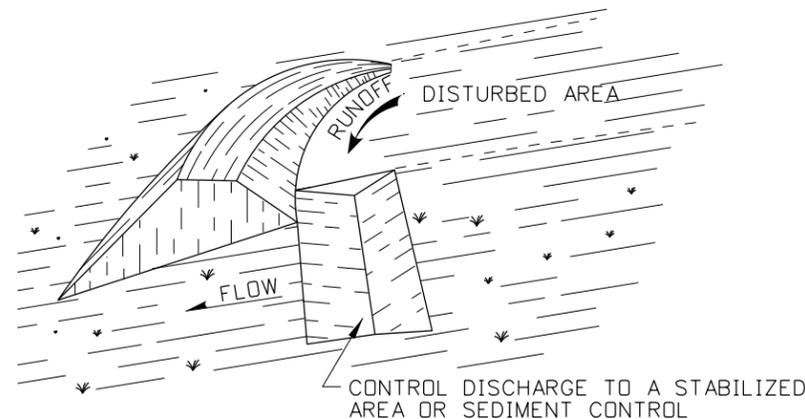
English
STANDARD DRAWING NO.
P-1-D
SHEET 1 OF 1

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

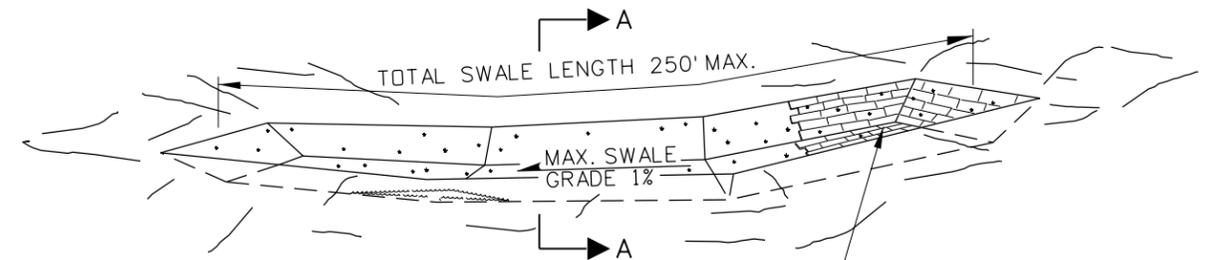
ORIGINAL SIGNED BY:
J. CALEB LAKEY
DATE ORIGINAL SIGNED:
DECEMBER 17, 2012



PERIMETER SWALE

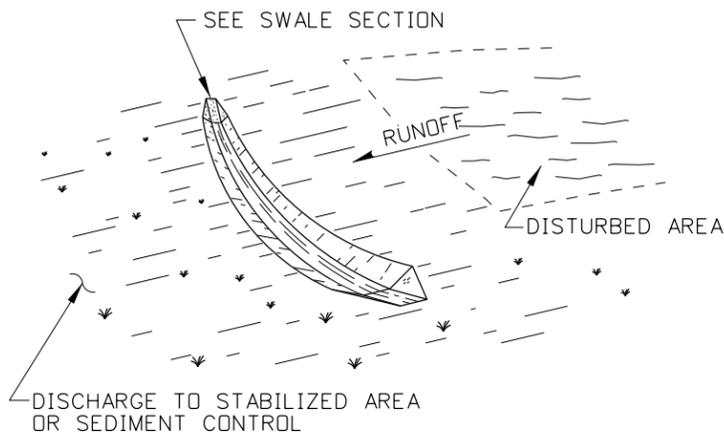


PERIMETER DIKE

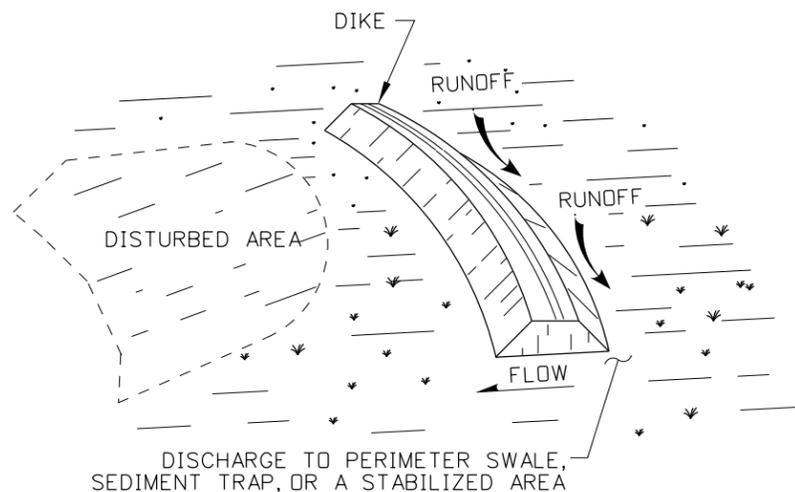


DURING ESTABLISHMENT OF VEGETATION ON THE SWALE SIDES AND BOTTOM, DIVERSION OF RUNOFF MAY BE NECESSARY. WHERE RUNOFF DIVERSION IS NOT POSSIBLE, COVER GRADED AND SEEDING AREAS WITH SUITABLE EROSION CONTROL MATERIALS OR SOD.

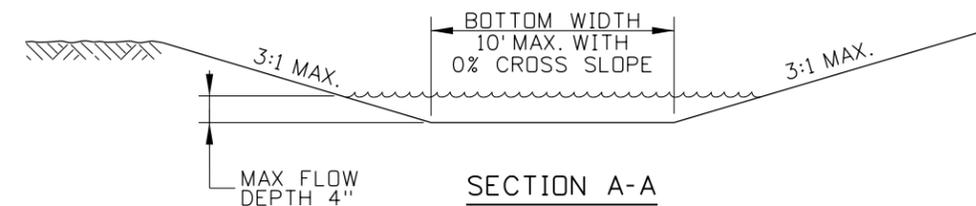
GRASSED SWALE



INTERCEPTOR SWALE



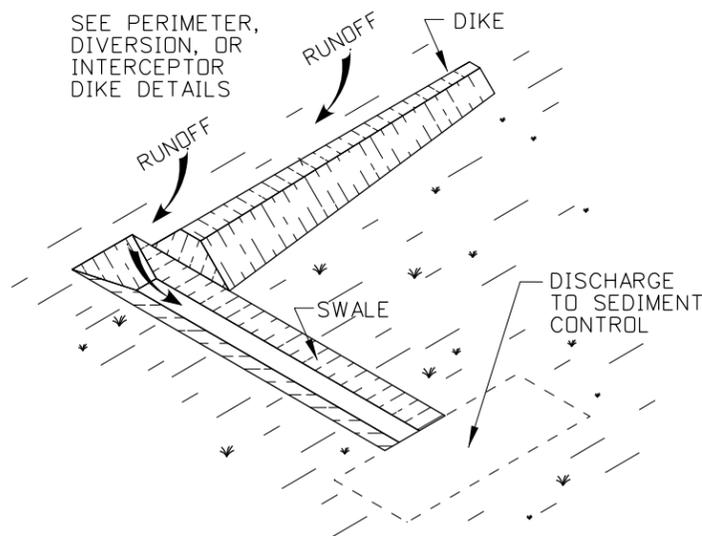
INTERCEPTOR DIKE



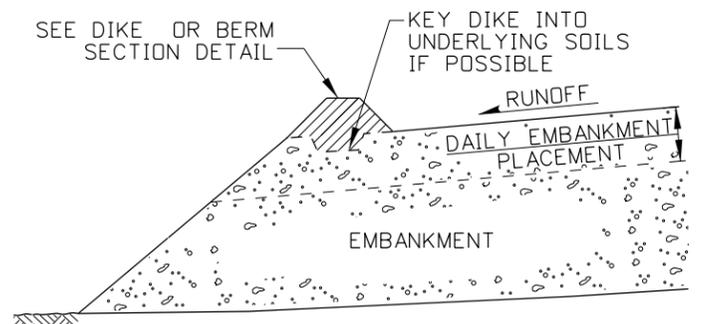
SECTION A-A

NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D.
2. LOCATE BERMS, DIKES, AND SWALES ALONG THE CONTOUR OF A SLOPE AND MAY BE AT THE TOE OF THE EXPOSED SOIL AREA.
3. CONSTRUCT GRASSED SWALES AT LOCATIONS SHOWN ON THE PLANS. THE SWALE DIMENSIONS AND FLOW GRADES SHALL BE DETERMINED BY DESIGN.
4. THE RECOMMENDED MAXIMUM DRAINAGE AREA FOR GRASSED SWALES IS 1 ACRE. THE RECOMMENDED MAXIMUM DRAINAGE AREA CONTRIBUTING RUNOFF TO A DIKE, SWALE OR COMBINATION THEREOF SHOULD NOT EXCEED 5 ACRES.
5. USE DIKES WHEN BERMS ARE NOT SUFFICIENT TO CONTROL RUNOFF. COMPACT DIKES TO 90 PERCENT OF STANDARD DENSITY. THE USE OF INTERCEPTOR DITCHES IN CONJUNCTION WITH DIKES AND SWALES IN CONJUNCTION WITH BERMS ARE NOT RECOMMENDED.
6. DIVERT COLLECTED RUNOFF, INTERCEPTED RUNOFF, OR BOTH FROM A BERM, DIKE, SWALE OR COMBINATION THEREOF TO A SEDIMENT TRAPPING DEVICE OR STABILIZED AREA.
7. ENSURE THAT THE SIDE SLOPES OF A DIKE OR SWALE WITHIN THE CLEAR ZONE IS 6:1 OR FLATTER UNLESS SHIELDED.
8. NOT TO SCALE.



DIVERSION SWALE



EMBANKMENT SECTION - DIVERSION DIKE

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: J. CALEB LAKEY DATE ORIGINAL SIGNED: FEBRUARY 1, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-94	MSM						
2	02-96	MSM						
3	10-10	KEH						
4	10-11	KEH						
5	01-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: ple_0213.std
 DRAWING DATE: APRIL, 1994

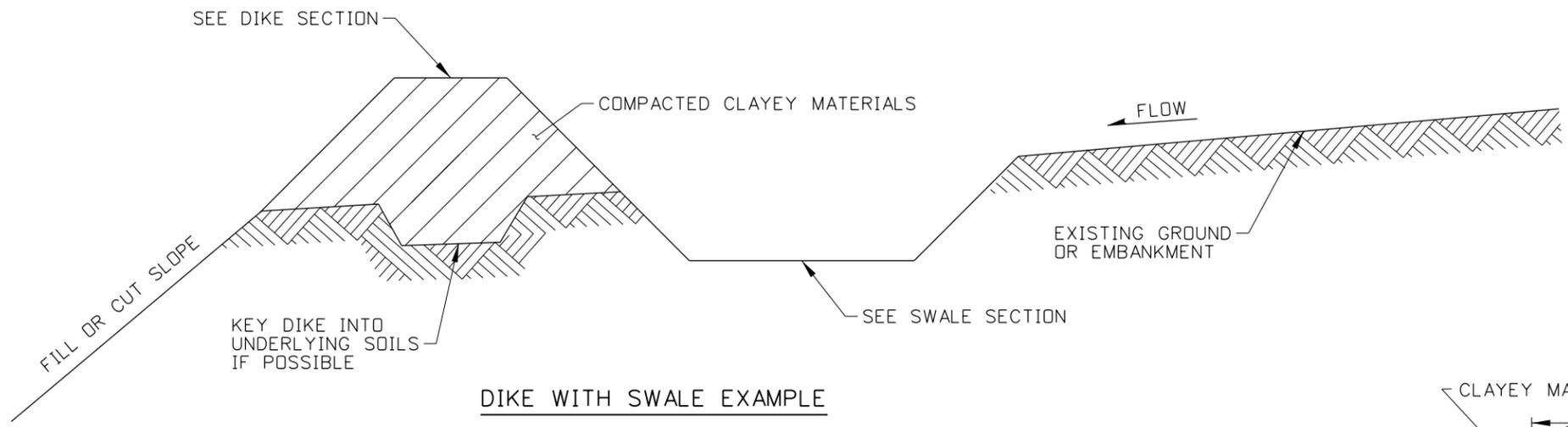
IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

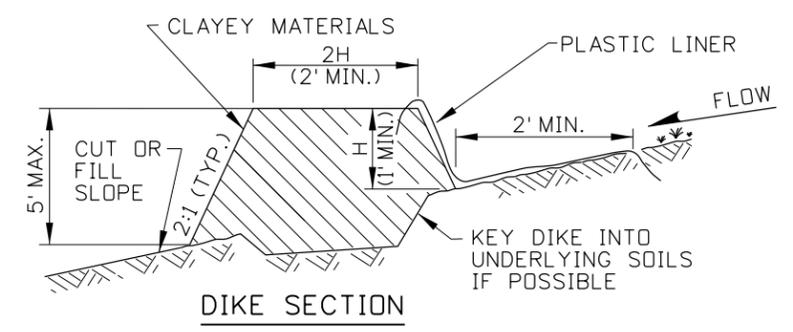
ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
TEMPORARY SEDIMENT CONTROL BERMS, DIKES, AND SWALES
 REQUIRES STD. DWG. P-1-D

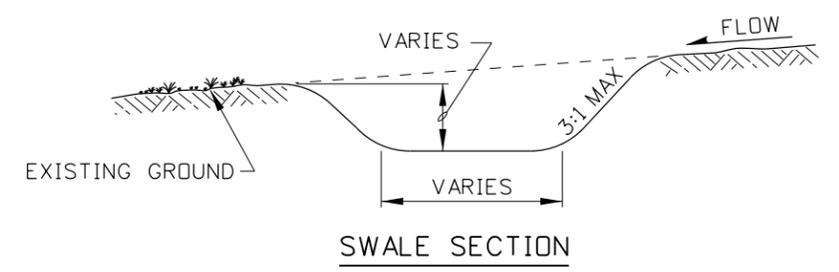
English
 STANDARD DRAWING NO.
P-1-E
 SHEET 1 OF 2



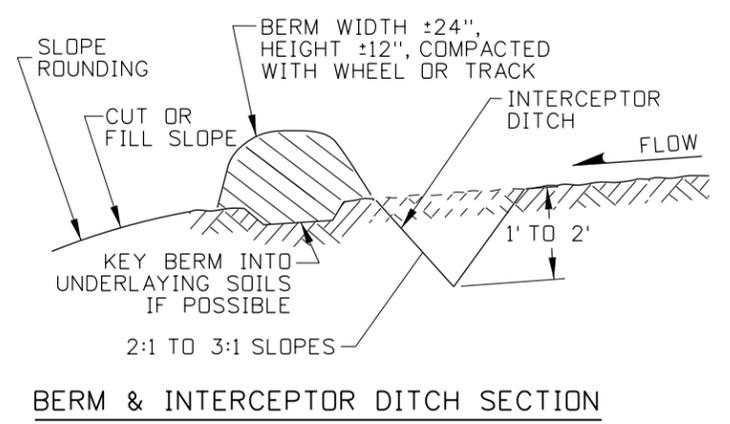
DIKE WITH SWALE EXAMPLE



DIKE SECTION



SWALE SECTION



BERM & INTERCEPTOR DITCH SECTION

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	12-94	MSM						
2	02-96	MSM						
3	10-10	KEH						
4	10-11	KEH						
5	01-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p1e_0213.std
 DRAWING DATE: APRIL, 1994

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
TEMPORARY SEDIMENT CONTROL BERMS, DIKES, AND SWALES
 REQUIRES STD. DWG. P-1-D

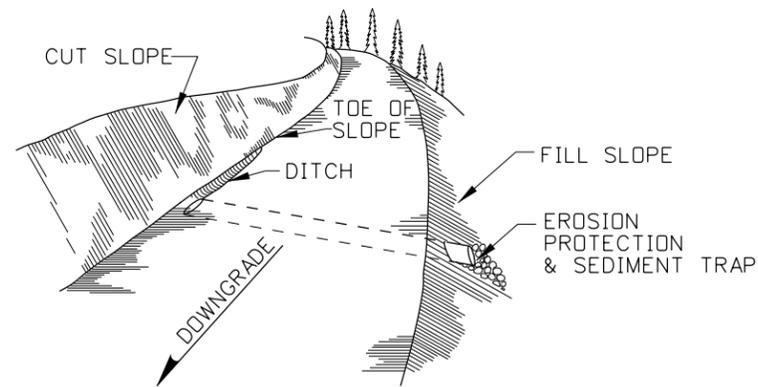
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

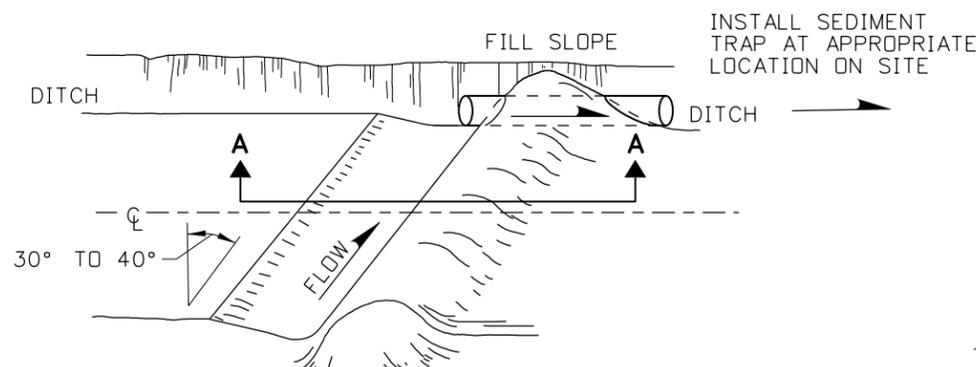
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P-1-E

SHEET 2 OF 2

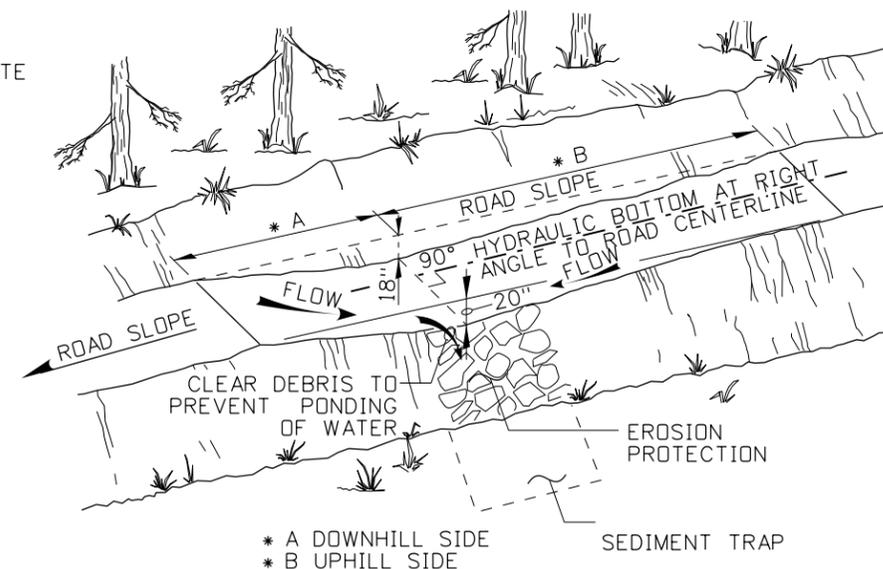
ORIGINAL SIGNED BY:
 J. CALEB LAKEY
 DATE ORIGINAL SIGNED:
 FEBRUARY 1, 2013



PIPE CULVERT



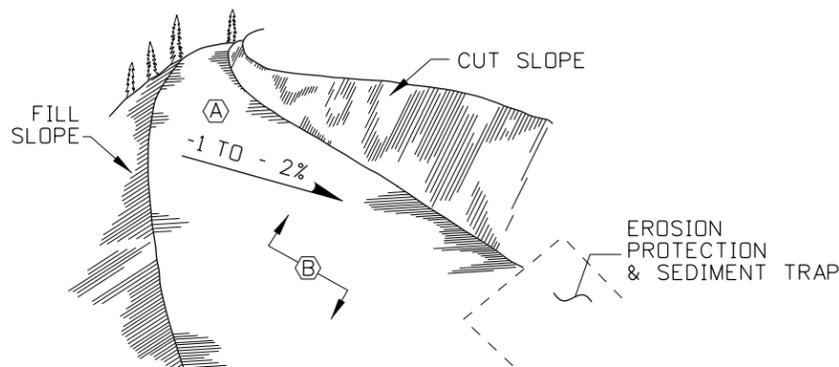
WATERBAR



ROLLING DIP DETAIL

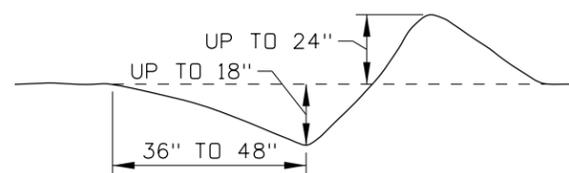
(SEE ROLLING DIP DIMENSION TABLE)

ROLLING DIP DIMENSION TABLE		
% ROAD SLOPE	A (DOWNHILL)	B (UPHILL)
0% TO 4%	35'	65'
4% TO 6%	25'	75'

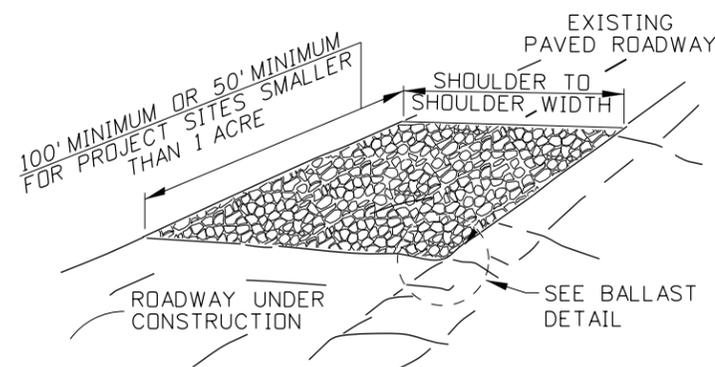


ROAD SLOPING

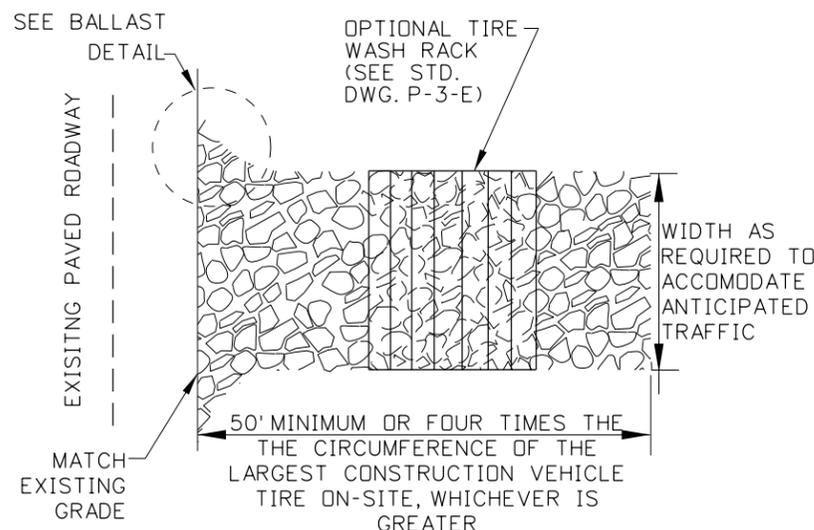
- (A) DIVERT RUNOFF ACROSS ROAD SURFACE FROM TOP OF FILL SLOPE TO CUT SLOPE.
- (B) ROAD SURFACE MUST BE RELATIVELY SMOOTH TO PREVENT PUDDLING & EROSION.



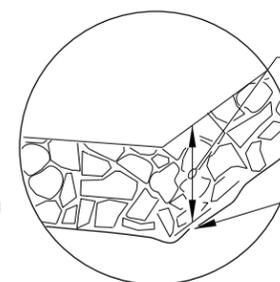
SECTION A-A



IN-LINE WITH EXISTING ROADWAY



PERPENDICULAR TO EXISTING PAVEMENT



BALLAST DETAIL

APPROX. 12" OF GRADED AGGREGATE. SEE 212.03.B.11 OF THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION.

SUBGRADE SEPARATION GEOTEXTILE, TYPE II. SEE 718.07 OF THE STANDARD SPECIFICATION FOR HIGHWAY CONSTRUCTION.

NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D (TEMPORARY EROSION CONTROL DIVERSION DEVICES & SITE EXAMPLE).
2. LIMIT DRAINAGE AREA TO FIVE ACRES.
3. STABILIZED CONSTRUCTION ENTRANCES MAY REQUIRE PERIODIC MAINTENANCE OF AGGREGATE AS CONDITIONS DEMAND.
4. CONSTRUCT STABILIZED CONSTRUCTION ENTRANCES LOCATED ON A DETOURED ROADWAY WITH THE MINIMUM PUBLIC ROAD RADII AND WIDTH REQUIREMENTS.
5. MODIFICATIONS TO THESE INSTALLATIONS MAY BE NECESSARY TO ACCOMMODATE FIELD CONDITIONS.
6. NOT TO SCALE.

STABILIZED CONSTRUCTION ENTRANCE

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: J. CALEB LAKEY DATE ORIGINAL SIGNED: DECEMBER 17, 2012

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	6-96	MSM						
2	10-10	KEH						
3	10-11	KEH						
4	12-12	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p1f_1212.std
 DRAWING DATE: JANUARY, 1994

IDAHO TRANSPORTATION DEPARTMENT

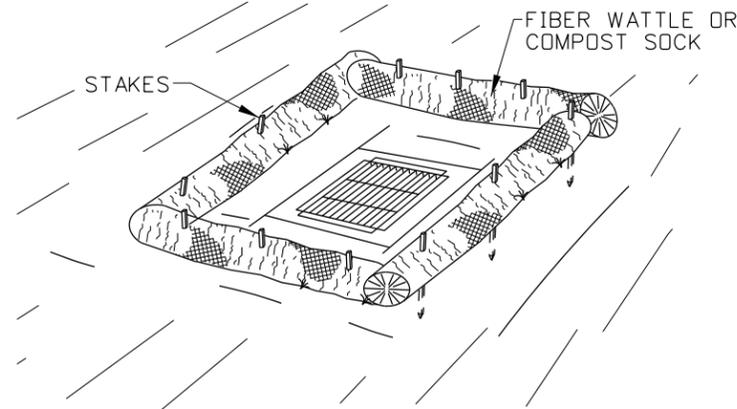


BOISE IDAHO

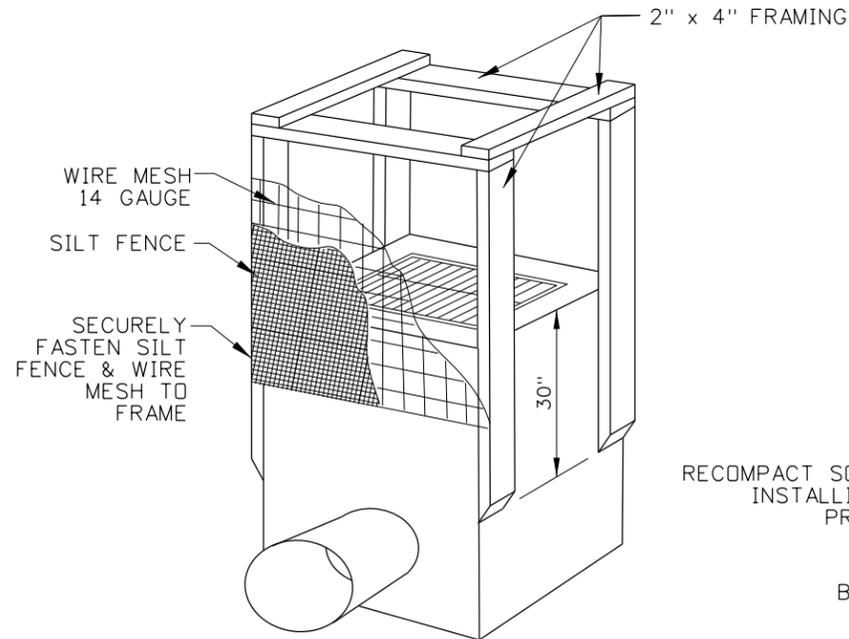
ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
 EROSION AND SEDIMENT CONTROL
 FOR TEMPORARY ROADS
 REQUIRES STD. DWG. P-1-D

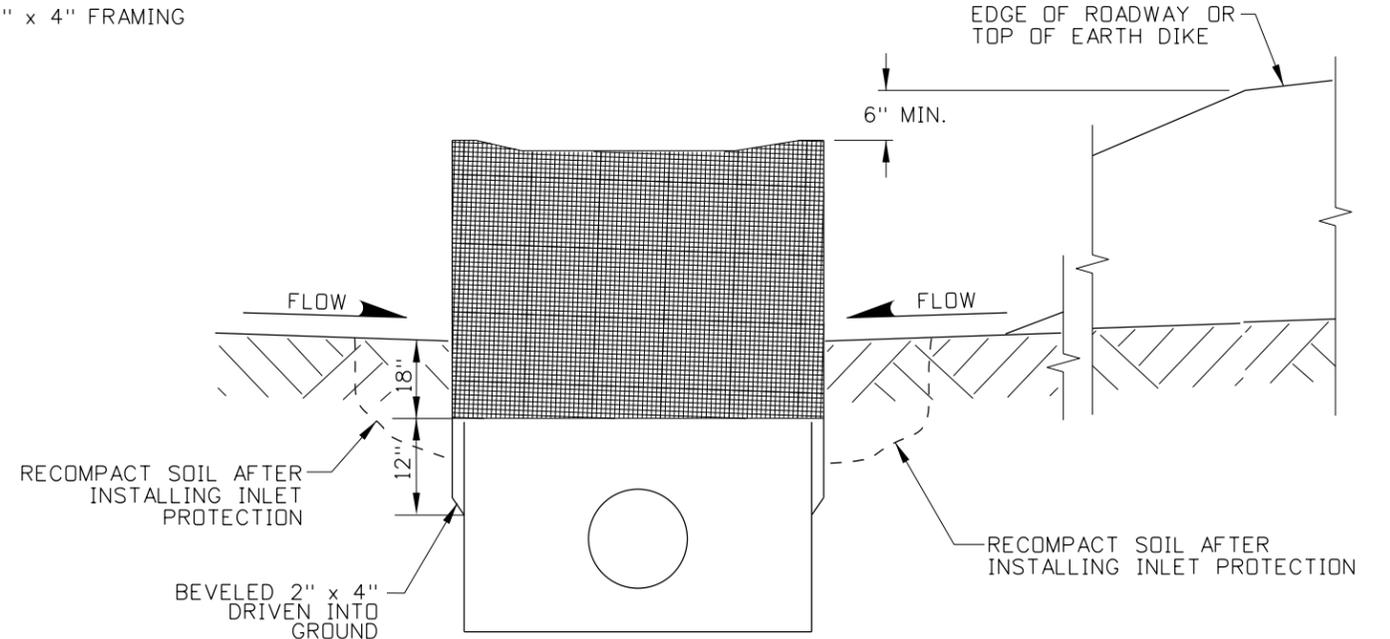
English
 STANDARD DRAWING NO.
 P-1-F
 SHEET 1 OF 1



FIBER WATTLE FILTER

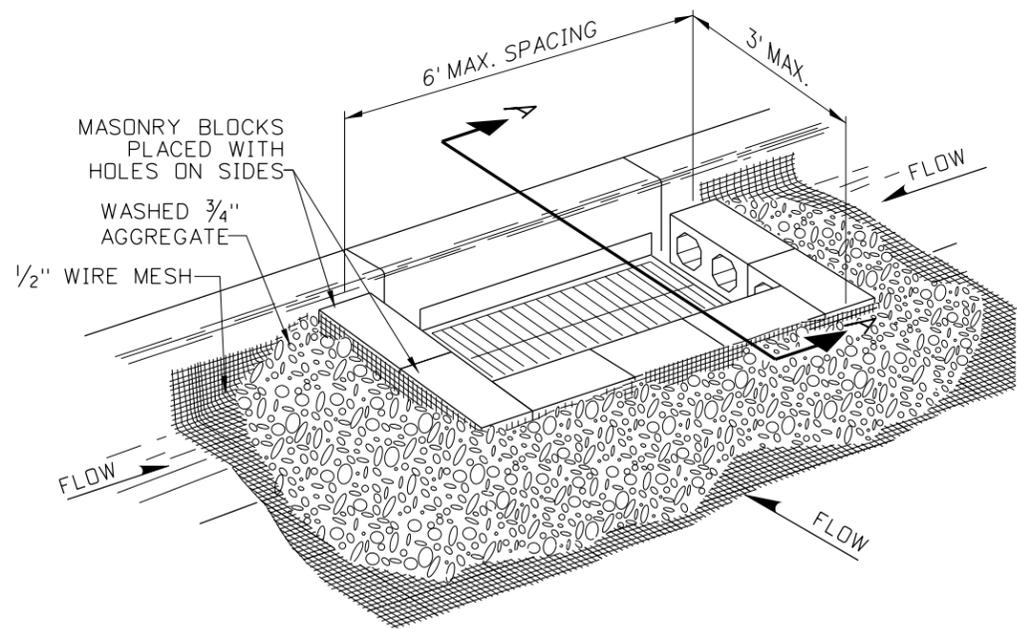


PERSPECTIVE VIEW

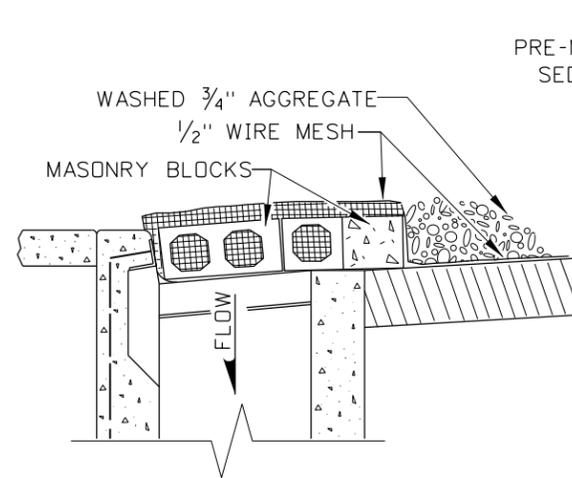


ELEVATION

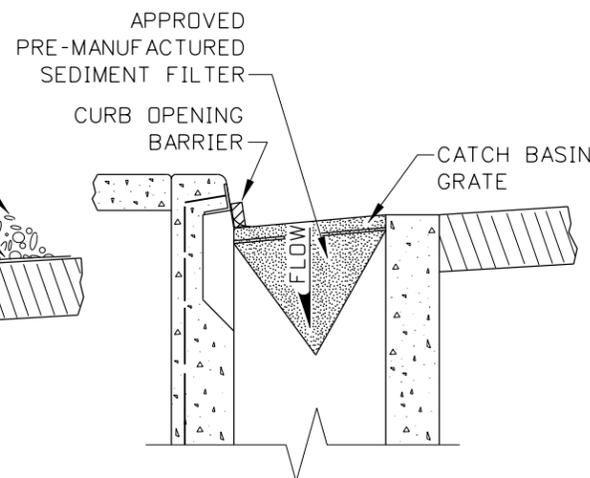
FRAMED WIRE/FABRIC FILTER



GRAVEL AND WIRE MESH FILTER PERIMETER FILTER



SECTION A-A



PRE-MANUFACTURED SEDIMENT FILTER FOR INLET GRATE

NOTES

1. THE GENERAL NOTES FOR ALL P-1 SERIES STANDARD DRAWINGS (TEMPORARY EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-1-D.
2. REMOVE TRASH, DEBRIS, DUFF, AND MATERIALS THAT MAY INTERFERE WITH THE INLET OR CATCH BASIN PROTECTION FUNCTION PRIOR TO PLACEMENT AND THEREAFTER ON A DAILY BASIS OR AS NEEDED.
3. FIELD ADJUSTMENTS MAY BE NECESSARY TO ENSURE EFFECTIVENESS.
4. FRAMED WIRE/FABRIC FILTER AND FIBER WATTLE FILTERS ARE INTENDED TO BE USED ON ANY STRUCTURE NOT PRESENTLY SURROUNDED BY PAVEMENT.
5. GRAVEL AND WIRE MESH FILTER AND PRE-MANUFACTURED SEDIMENT FILTER INSTALLATIONS ARE INTENDED TO BE USED ON STRUCTURES SURROUNDED BY PAVEMENT WITH OR WITHOUT CURBS.
6. ENSURE THAT WATER DISCHARGING FROM THE INLET MEETS APPLICABLE WATER QUALITY STANDARDS.
7. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-10	KEH						
2	10-11	KEH						
3	01-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p1h_0213.std
 DRAWING DATE: JUNE, 1996

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

TEMPORARY SEDIMENT CONTROL INLET PROTECTION

REQUIRES STD. DWG. P-1-D

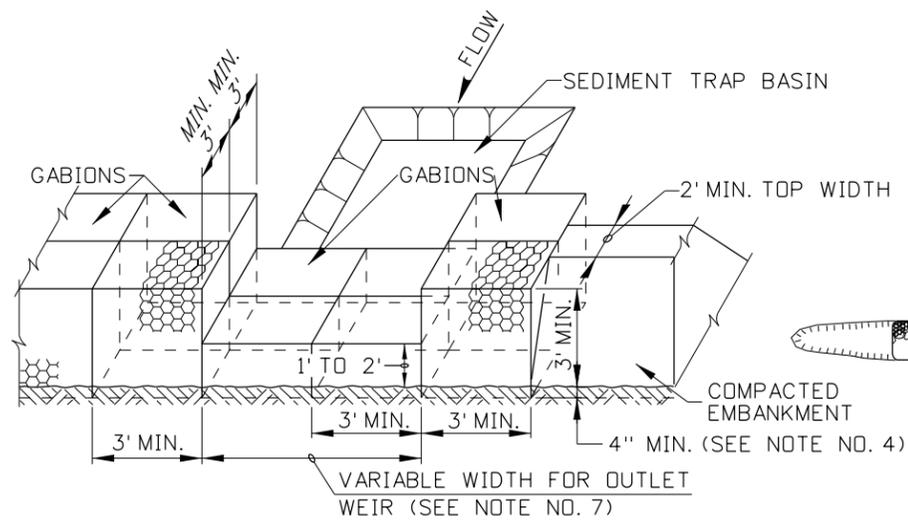
English

STANDARD DRAWING NO.
P-1-H

SHEET 1 OF 1

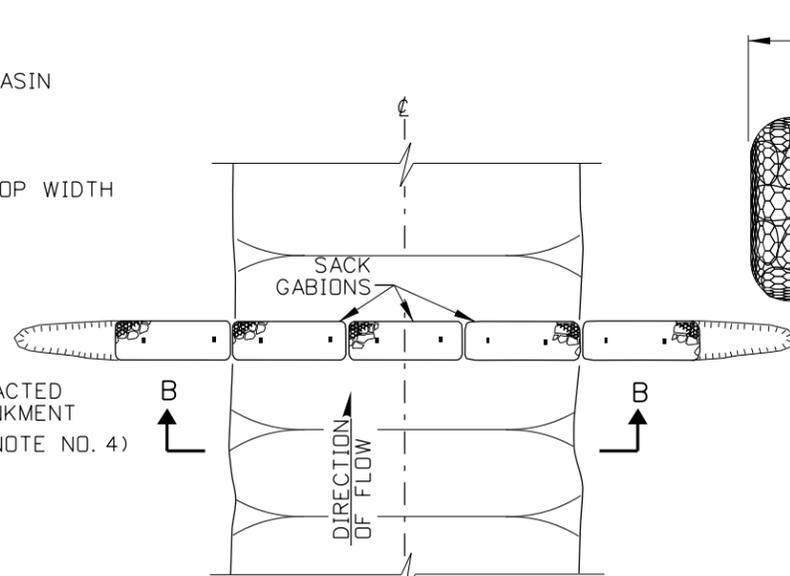
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY:
 J. CALEB LAKEY
 DATE ORIGINAL SIGNED:
 FEBRUARY 1, 2013

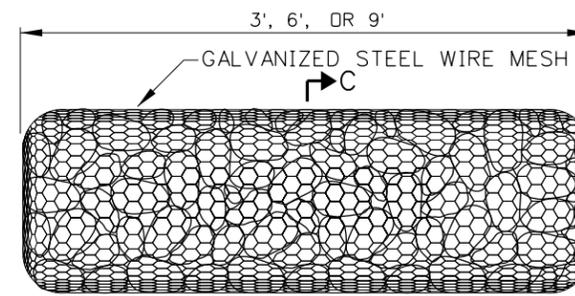


MINIMUM DIMENSIONS SHOWN. SITE CONDITIONS WILL DETERMINE ACTUAL DIMENSIONS.

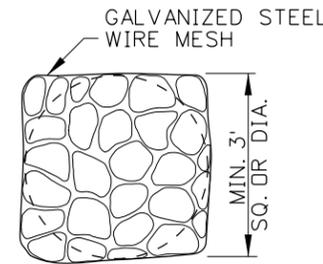
GABION OUTLET WEIR



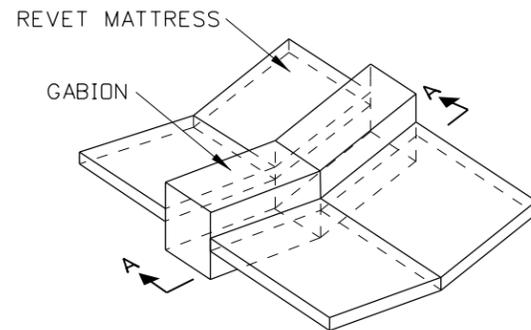
GABION CHECK DAM



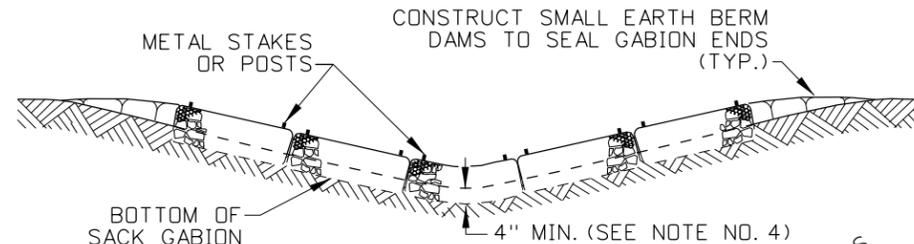
SACK GABION



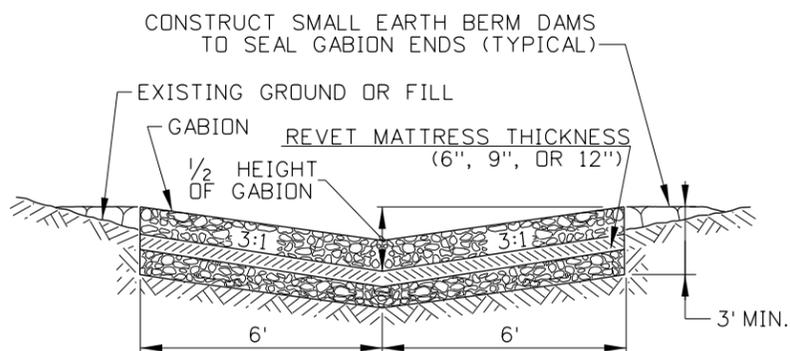
SECTION C-C



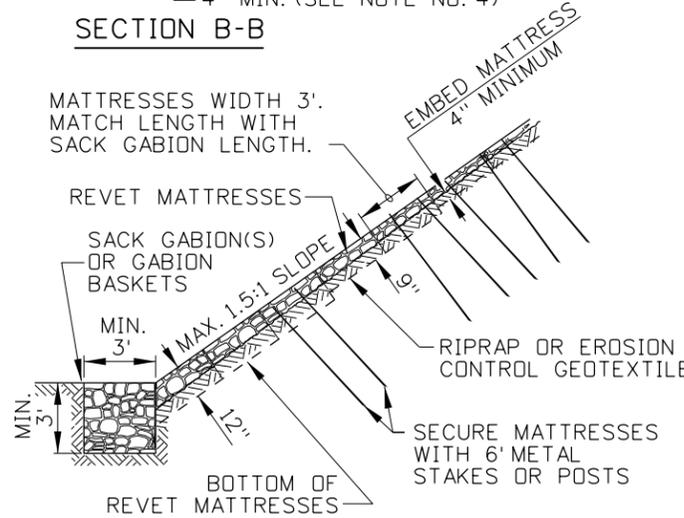
REVE MATTRESSES WITH GABIONS



SECTION B-B



SECTION A-A



TYPICAL SLOPE SECTION SLOPE REVETMENT

GENERAL NOTES FOR PERMANENT EROSION CONTROL

1. USE PERMANENT EROSION CONTROL DEVICES STANDARD DRAWINGS IN CONJUNCTION WITH THE STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION AND THE ITD BEST MANAGEMENT PRACTICES MANUAL.
2. SEE PLANS FOR SITE DIMENSIONS.
3. THE PLACEMENT OF PERMANENT EROSION CONTROL MEASURES IS SITE SPECIFIC. OBTAIN THE ENGINEER'S APPROVAL OF THE PERMANENT EROSION CONTROL MEASURES PRIOR TO INSTALLATION.
4. PERMANENT EROSION CONTROL DEVICES ARE INTENDED TO LAST MORE THAN 6 MONTHS AND SHOULD BE INTEGRATED THE FINAL EROSION CONTROL PLAN.

NOTES

1. OBTAIN APPROPRIATE PERMITS BEFORE EROSION DEVICES ARE PLACED IN STREAMS AND, CHANNELS, OR BOTH.
2. GABIONS AND REVET MATTRESSES MAY BE USED FOR PERMANENT EROSION CONTROL, TEMPORARY EROSION CONTROL, OR BOTH.
3. THE DISCHARGE THROUGH OR OVER REVET MATTRESSES, GABIONS, OR BOTH SHOULD BE DIRECTED ONTO STABILIZED AREA SUCH AS VEGETATION, RIPRAP, OR BOTH.
4. GABIONS AND REVET MATTRESSES SHOULD BE EMBEDDED A MINIMUM OF 4" INTO THE EXISTING GROUND.
5. ALL SACK GABIONS SHOULD BE SECURED WITH 6' x 3/4" METAL STAKES OR 6' STEEL POSTS.
6. ENSURE THAT THE WIDTH OF THE GABION OUTLET WEIR IS CONSTRUCTED AS SHOWN ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
7. GABIONS MAY BE USED WITH REVET MATTRESSES TO FORM SEDIMENT CONTROL DAMS AND SHOULD BE INSTALLED SO THAT THE CHANNEL CAPACITY IS NOT RESTRICTED SHOULD THE DEVICE TOTALLY SILT-UP. REVET MATTRESSES MAY BE USED AS A CHANNEL LINER TO PREVENT EROSION AND TO INTERCEPT SEDIMENT LADEN RUNOFF.
8. 6" REVET MATTRESSES WILL USUALLY PROMOTE VEGETATION FOR SIDE SLOPES THAT ARE NOT CONTINUALLY SUBMERGED IN WATER. 9" REVET MATTRESSES MAY BE USED TO LINE LARGE CHANNELS OR STREAMS WITH GREATER FLOW RATES OR IN SOILS THAT ERODE EASILY. 12" REVET MATTRESSES MAY BE USED TO LINE LARGE STREAMS AND RIVERS.
9. SECURE REVET MATTRESSES USED FOR SLOPE REVETMENT WITH METAL POSTS OR STAKES TO PREVENT SLIDING OR SHIFTING.
10. NOT TO SCALE.

REVISIONS							
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE
1	02-96	MSM					
2	10-10	KEH					
3	10-11	KEH					
4	01-13	RDL					

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p2a_0213.std
 DRAWING DATE: JANUARY, 1994

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

EROSION AND SEDIMENT CONTROL GABIONS AND REVET MATTRESSES

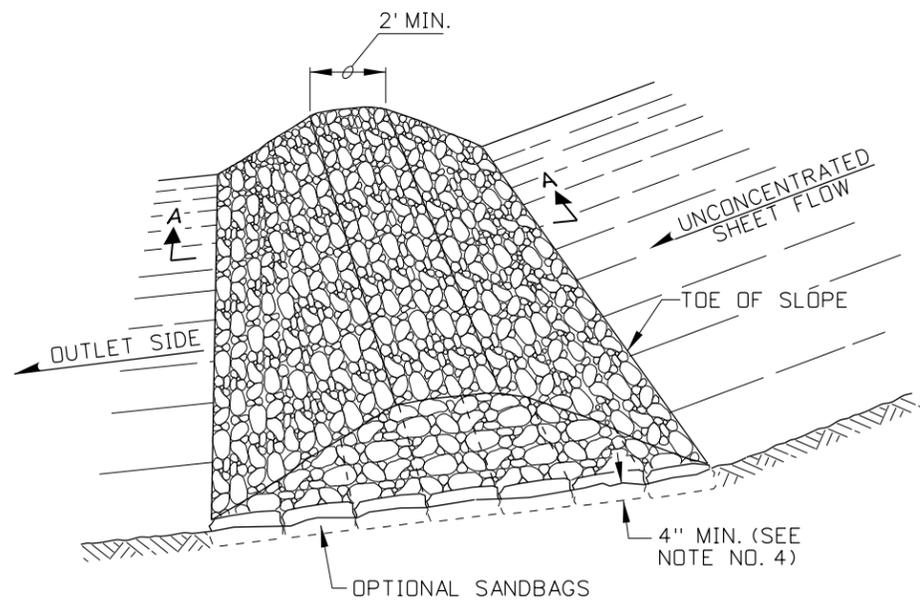
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

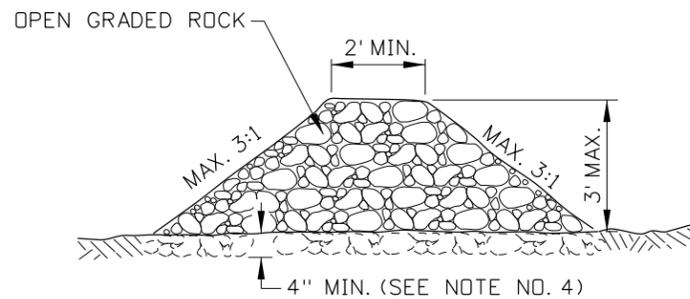
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SHEET 1 OF 1

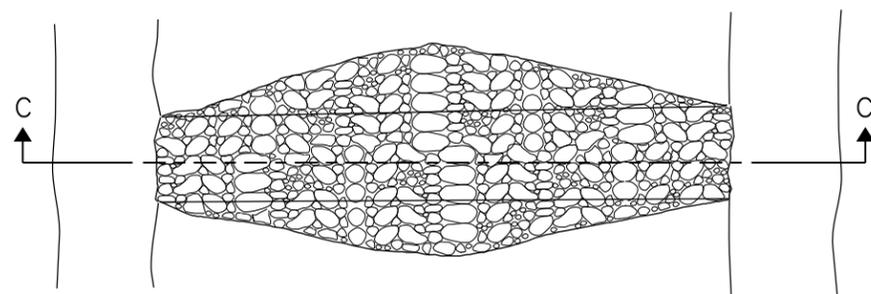
ORIGINAL SIGNED BY: J. CALEB LAKEY
 DATE ORIGINAL SIGNED: FEBRUARY 1, 2013



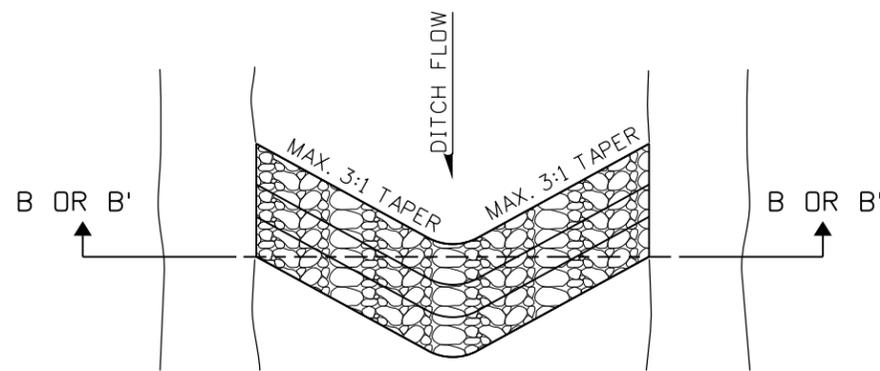
PERSPECTIVE VIEW - AT TOE OF SLOPE
FILTER BERM
(SEE NOTE NO. 6)



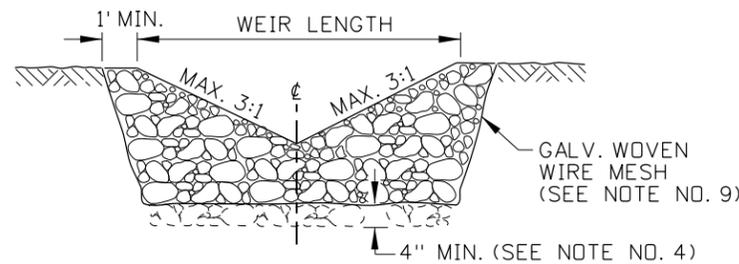
SECTION A-A



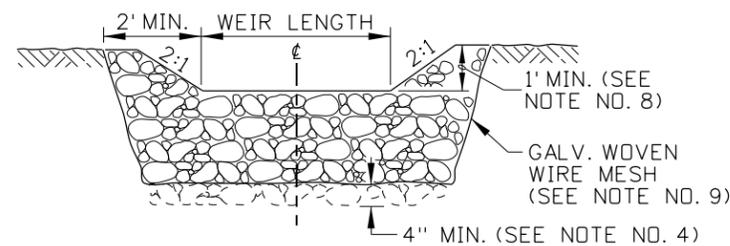
FILTER DAM
(SEE NOTE NOS. 9 THROUGH 11)



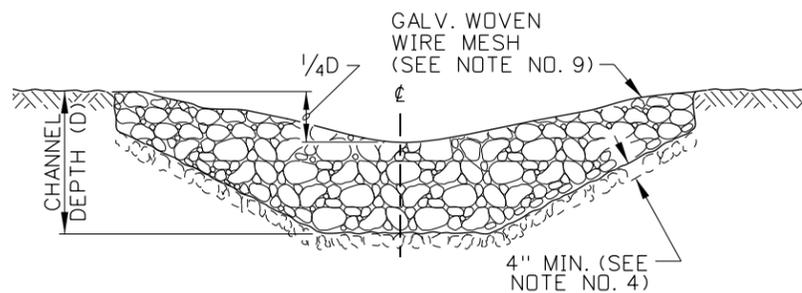
FILTER WEIR
(SEE NOTE NOS. 7 & 8)



"V" NOTCHED WEIR
SECTION B - B'
FOR HIGH VELOCITY FLOWS



LEVEL CRESTED WEIR
SECTION B' - B'



ELEVATION - AT CHANNEL SECTION
SECTION C - C

NOTES

- GENERAL NOTES FOR P-2 SERIES STANDARD DRAWINGS (PERMANENT EROSION CONTROL) ARE SHOWN ON STANDARD DRAWING P-2-A.
- PLACE ROCK CHECK DAMS WHERE UP GRADIENT EROSION IS ANTICIPATED, SUCH AS AT THE TOE OF SLOPES, UPSTREAM OF DRAINAGE STRUCTURES, DOWNSTREAM OF DRAINAGE STRUCTURES, OR BOTH, IN ROADWAY DITCHES AND IN CHANNELS.
- DIRECT THE OUTLET SIDE OF ROCK CHECK DAMS ONTO A STABILIZED AREA SUCH AS VEGETATION, STONE, OR BOTH.
- EMBED ROCK CHECK DAMS A MINIMUM OF 4 INCHES INTO THE EXISTING GROUND OR EMBANKMENT.
- ENSURE THAT BERM, WEIR, AND DAM SIDE SLOPES ARE 3:1 OR FLATTER. ENSURE THAT BERMS, WEIRS, AND DAMS WITHIN THE CLEAR ZONE HAVE SLOPES OF 6:1 OR FLATTER UNLESS SHIELDED.
- FILTER BERMS MAY BE USED ON SLOPE TOES, AROUND INLETS, IN SHALLOW DITCHES, AND AT DIKE AND SWALE OUTLETS. THIS TYPE OF STONE FILTER BERM IS RECOMMENDED TO CONTROL SEDIMENT FROM A DRAINAGE AREA OF 5 ACRES OR LESS. FILTER BERMS MAY NOT BE USED IN CONCENTRATED HIGH VELOCITY FLOWS (GREATER THAN 8FT./SEC.) IN WHICH AGGREGATE WASH-OUT MAY OCCUR. SANDBAGS MAY BE EMBEDDED AT THE FILTER DAM EDGES (4" OR MORE) FOR BETTER FILTERING EFFICIENCY WHEN CALLED FOR ON THE PLANS OR WHEN DIRECTED BY THE ENGINEER.
- FILTER WEIRS, DAMS, OR BOTH MAY BE USED IN DITCHES AND AT DIKE AND SWALE OUTLETS.
- ENSURE THAT FILTER WEIRS HAVE A MINIMUM OF 1 FT DISTANCE BETWEEN THE TOP OF WEIR AND THE TOP OF THE EMBANKMENT. THE "V" NOTCH OPTION IS INTENDED TO BE USED ON HIGH VELOCITY FLOWS (GREATER THAN 8FT/SEC).
- SECURE FILTER WEIRS AND DAMS WITH 20 GAUGE GALVANIZED WOVEN WIRE MESH WITH 1" DIAMETER HEXAGONAL OPENINGS. PLACE THE STONE IN THE MESH TO THE HEIGHT AND SLOPE SPECIFIED. THE MESH SHOULD BE FOLDED AT THE UPSTREAM SIDE OVER THE AGGREGATE AND TIGHTLY SECURED TO ITSELF ON THE DOWNSTREAM SIDE USING WIRE TIES, HOG RINGS, OR LOCKING PLASTIC TIES.
- CONSTRUCT FILTER DAMS DOWNSTREAM FROM THE DISTURBED AREAS TO INTERCEPT SEDIMENT FROM OVERLAND RUNOFF, CONCENTRATED FLOW, OR BOTH. DAMS SHOULD BE SIZED TO FILTER A MAXIMUM FLOW RATE OF 60 GPM PER LINEAR FOOT OF DAM WIDTH. A FIVE YEAR STORM FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.
- USE FILTER DAMS IN STREAMS AND CHANNELS. SECURE TO THE STREAM BED AND EMBANKMENT EDGES.
- SPACE CHECK DAMS ACCORDING TO THE HEIGHT OF THE DAM AND THE SLOPE OF THE CHANNEL SO THAT THE BACKWATER FROM THE DOWNSTREAM DAM REACHES THE TOE OF THE UPSTREAM DAM.
- NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	05-95	MSM						
2	02-96	MSM						
3	10-10	KEH						
4	10-11	KEH						
5	01-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p2b_0213.std
DRAWING DATE: JANUARY, 1994

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING

**SEDIMENT CONTROL
ROCK CHECK DAM TYPES**

REQUIRES STD. DWG. P-2-A

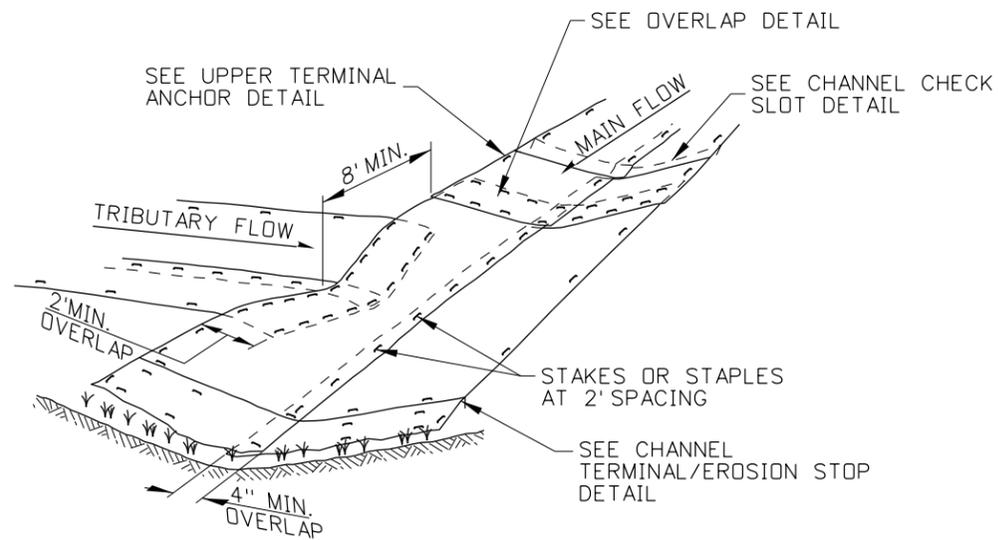
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

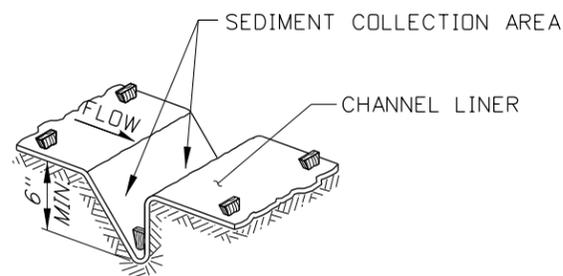
STANDARD DRAWING NO.
P-2-B

SHEET 1 OF 1

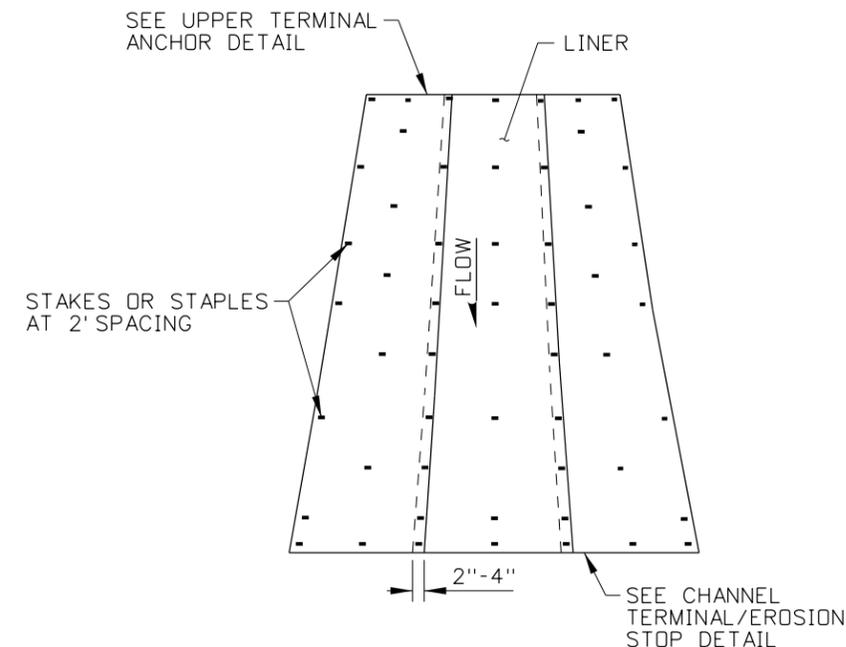
ORIGINAL SIGNED BY:
J. CALEB LAKEY
DATE ORIGINAL SIGNED:
FEBRUARY 1, 2013



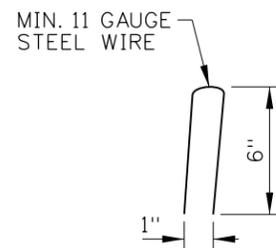
CHANNEL & INTERSECTION EXAMPLE
(SEE NOTE NO. 2)



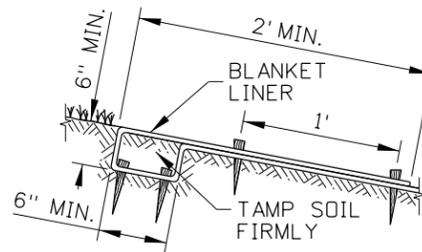
CHANNEL CHECK SLOT DETAIL



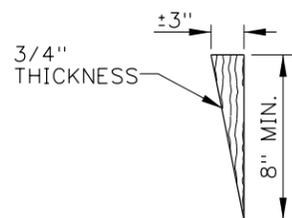
SLOPE INSTALLATION EXAMPLE
(SEE NOTE NO. 2)



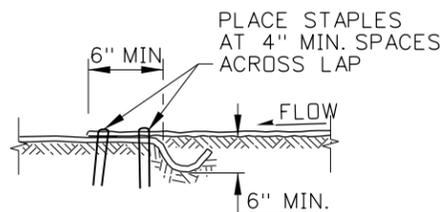
WIRE STAPLE DETAIL
(SEE NOTE NO. 4)



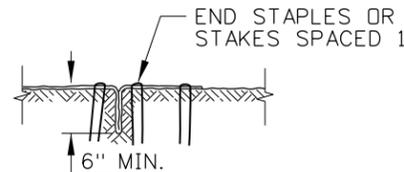
UPPER TERMINAL ANCHOR DETAIL



WOOD STAKE DETAIL



OVERLAP DETAIL



CHANNEL TERMINAL/EROSION STOP DETAIL

NOTES

1. GENERAL NOTES FOR P-2 SERIES STANDARD DRAWINGS (PERMANENT EROSION CONTROL) ARE SHOWN ON STANDARD DRAWING P-2-A.
2. THE LOCATION, SPACING, AND CONFIGURATION OF THE SLOPE AND CHANNEL PROTECTION MAY VARY FOR EACH INSTALLATION ACCORDING TO THE MANUFACTURER'S RECOMMENDATIONS.
3. BEGIN LINER PLACEMENT AT THE UPSTREAM END OR CREST OF THE SLOPE.
4. INSTALL WIRE STAPLES PERPENDICULAR TO THE SLOPE PLANE.
5. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: J. CALEB LAKEY DATE ORIGINAL SIGNED: NOVEMBER 26, 2014

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	05-95	MSM						
2	02-96	MSM						
3	10-10	KEH						
4	11-13	RDL						
5	11-14	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: p2c_1114.dgn

DRAWING DATE: DECEMBER, 1994

IDAHO TRANSPORTATION DEPARTMENT

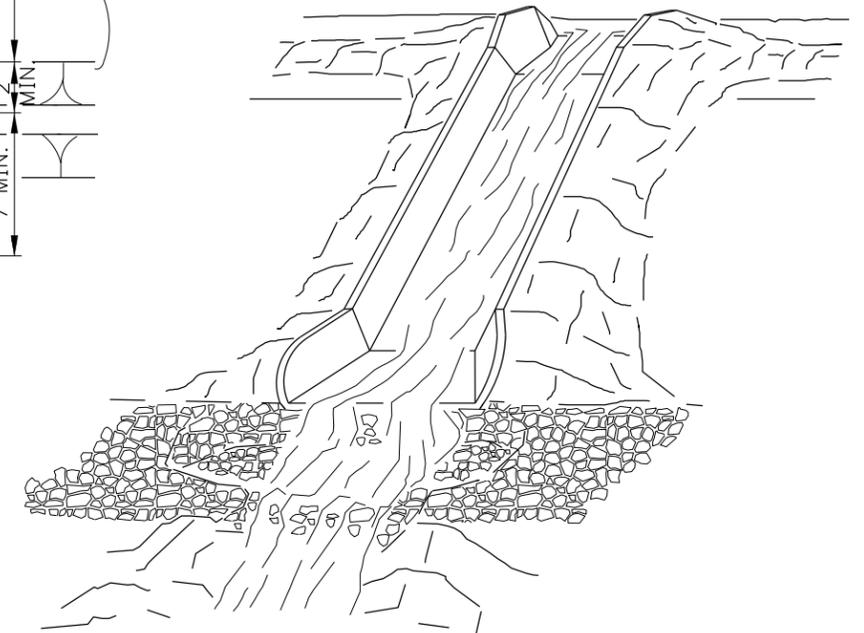
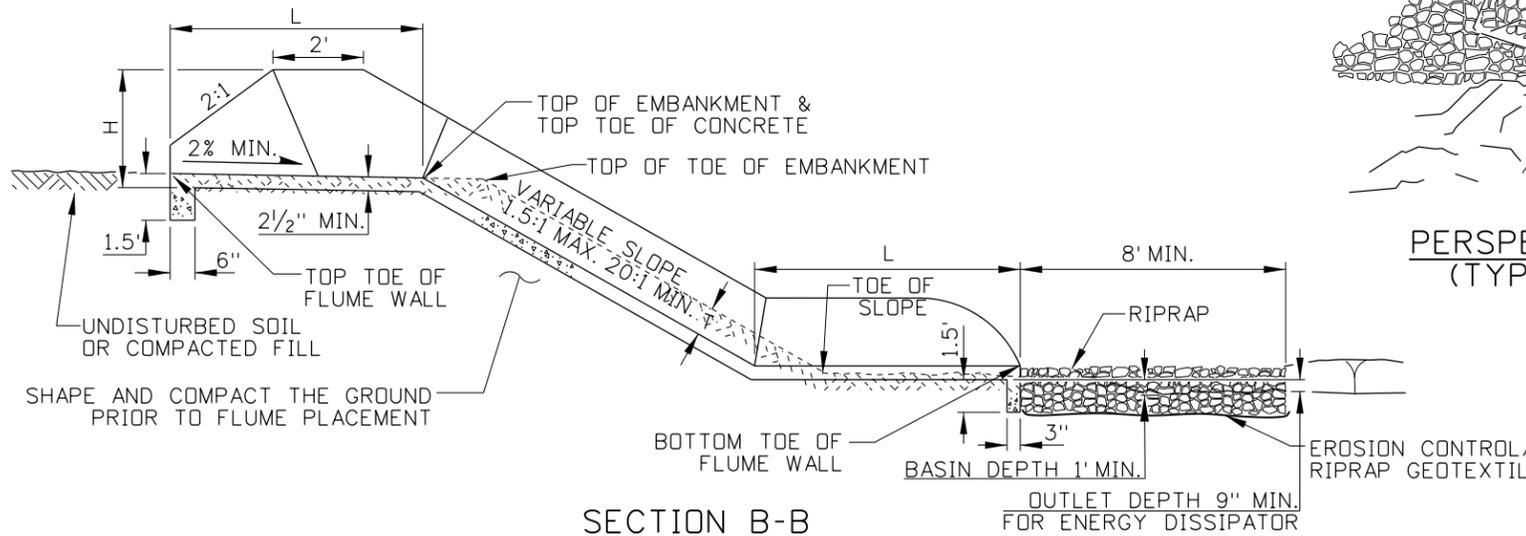
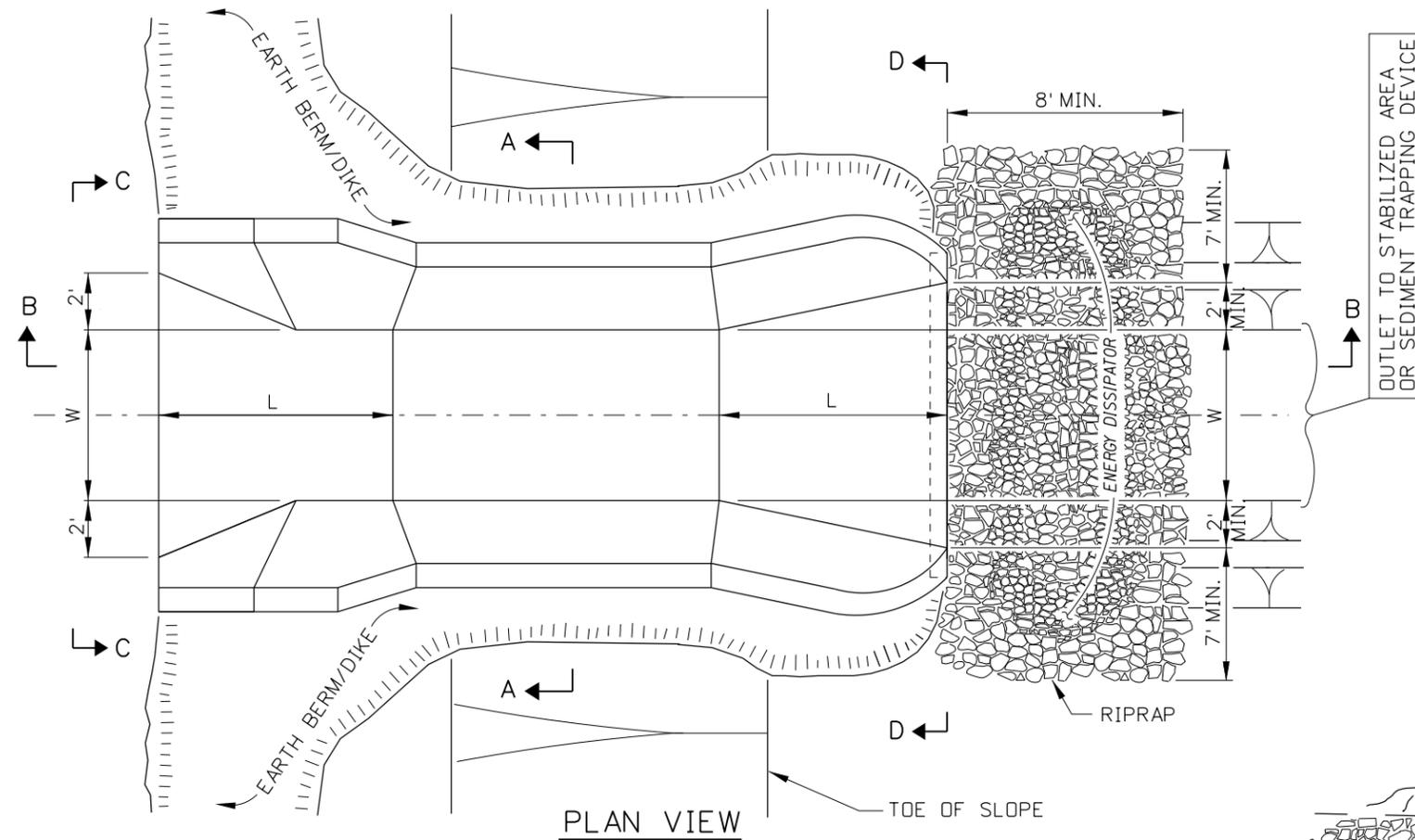
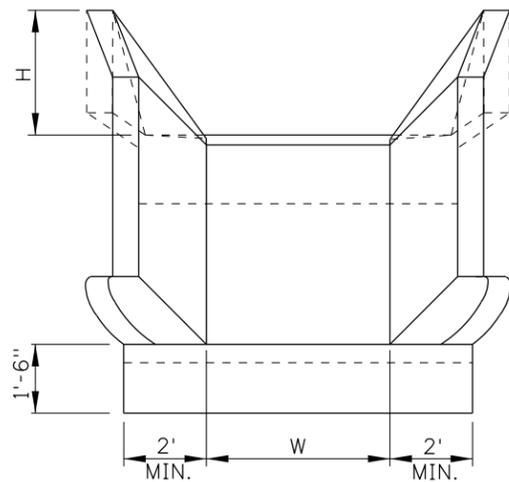
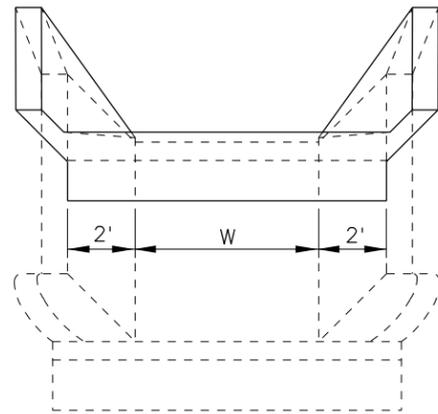
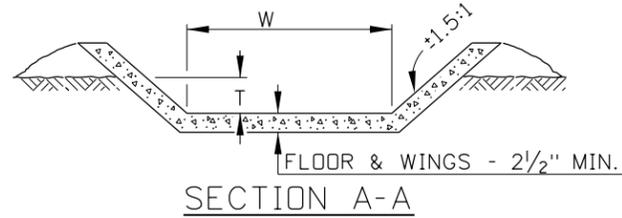


BOISE IDAHO

ORIGINAL SIGNED BY: RYAN D. LANCASTER
STANDARDS ENGINEER

STANDARD DRAWING
PERMANENT EROSION CONTROL SLOPE & CHANNEL PROTECTION
REQUIRES STD. DWG P-2-A

English
STANDARD DRAWING NO.
P-2-C
SHEET 1 OF 1



CHUTE - TYPE A & B
SEE DESIGN CRITERIA TABLE
FOR TYPE A & B CRITERIA

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	01-97	MSM						
2	10-10	KEH						

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY
CADD FILE NAME:
p2d_1010.dgn
DRAWING DATE:
FEBRUARY, 1996

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

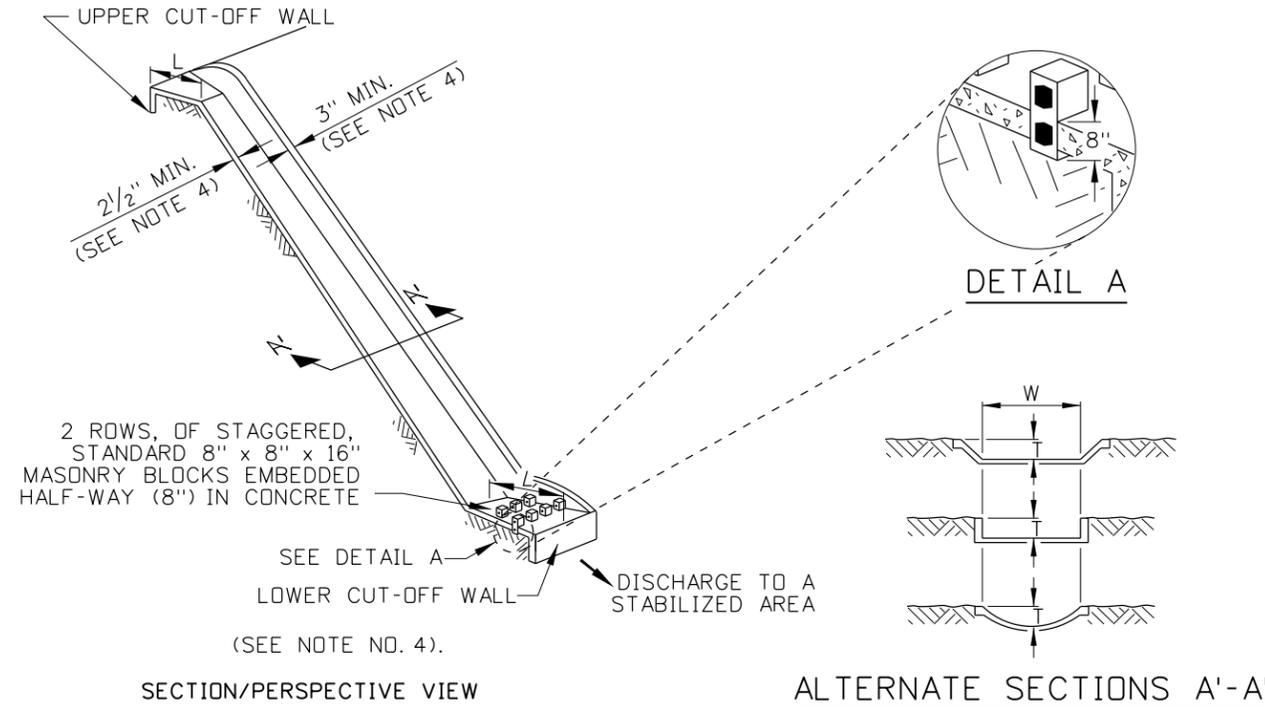
STANDARD DRAWING
CHUTES AND FLUMES
REQUIRES SHEET 2 OF 2 & STD. DWG. P-2-A

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

English
STANDARD DRAWING NO.
P-2-D
SHEET 1 OF 2

ORIGINAL SIGNED BY:
KARISSA HARDY
DATE ORIGINAL SIGNED:
OCTOBER 27, 2010

DESIGN CRITERIA TABLE					
TYPE	W BOTTOM WIDTH	H MIN.	T MIN.	L MIN.	MAXIMUM DRAINAGE AREA
A-2	2'	1.5'	8"	5'	5 ACRES
A-4	4'	1.5'	8"	5'	8 ACRES
A-6	6'	1.5'	8"	5'	11 ACRES
A-8	8'	1.5'	8"	5'	14 ACRES
A-10	10'	1.5'	8"	5'	18 ACRES
B-4	4'	2'	10"	6'	14 ACRES
B-6	6'	2'	10"	6'	20 ACRES
B-8	8'	2'	10"	6'	25 ACRES
B-10	10'	2'	10"	6'	31 ACRES
B-12	12'	2'	10"	6'	36 ACRES
C-(n)	n = 1' - 2'	N/A	6"	2' - 5'	>5 ACRES



PAVED FLUME - TYPE C

NOTES

1. THE GENERAL NOTES FOR ALL P-2 SERIES STANDARD DRAWINGS (PERMANENT EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-2-A (PERMANENT EROSION CONTROL GABIONS & REVET MATTRESSES).
2. A PAVED FLUME MAY BE CONSTRUCTED TO DRAIN CONCENTRATED SURFACE RUNOFF SAFELY DOWN SLOPES WITHOUT CAUSING EROSION. THE DRAINAGE AREA CONTRIBUTING RUNOFF TO A PAVED FLUME SHOULD NOT EXCEED THAT GIVEN IN THE DESIGN CRITERIA ABOVE. THE PAVED FLUME SHOULD BE SIZED TO DRAIN THE PEAK RATE OF RUNOFF WITHOUT OVERTOPPING AT THE EARTH DIKE ENTRANCE. A 25 YEAR STORM DRAIN FREQUENCY MAY BE USED TO CALCULATE THE FLOW RATE.
3. THE TYPE IS A DESIGNATOR FOR THE DIMENSIONS OF THE PAVED FLUME. THE TYPE IS DESIGNATED BY A LETTER (A, B, OR C), A DASH, AND FOLLOWED BY THE NUMERICAL BOTTOM WIDTH (W). THE APPROPRIATE SIZE (TYPE) SHOULD BE INDICATED ON THE PLANS.
4. TYPE C PAVED FLUMES REQUIRE A MINIMUM FLOOR THICKNESS OF 2 1/2". THE WING WALL ENDS AND UPPER/LOWER CUT-OFF WALL REQUIRE A MINIMUM THICKNESS OF 3".
5. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	01-97	MSM						
2	10-10	KEH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p2d_1010.dgn
 DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

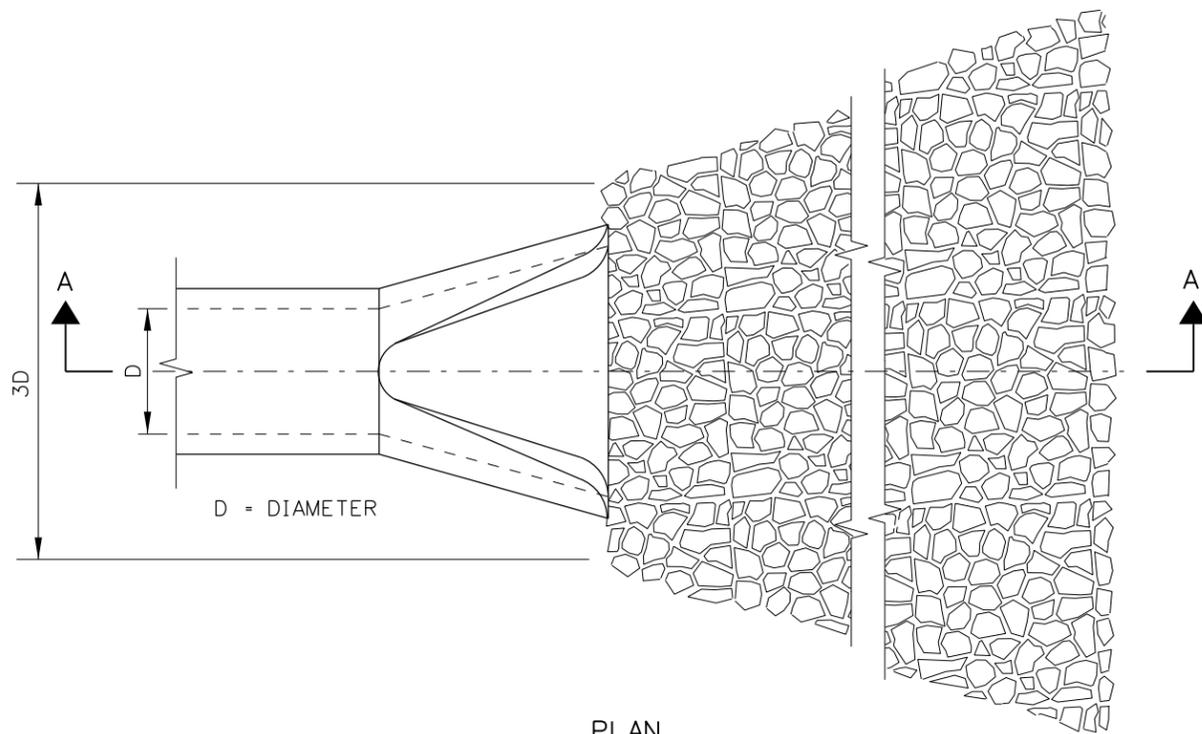
ORIGINAL SIGNED BY: LOREN THOMAS
 ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
 ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING
CHUTES AND FLUMES
 REQUIRES SHEET 1 OF 2 & STD. DWG. P-2-A

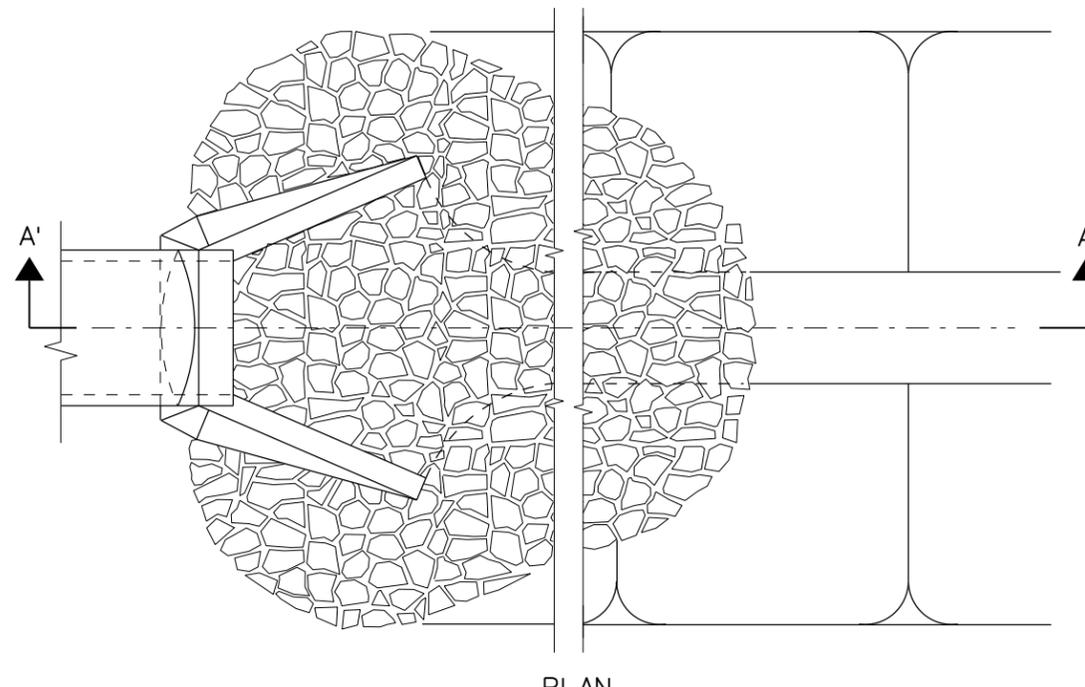
English
 STANDARD DRAWING NO.
P-2-D
 SHEET 2 OF 2

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

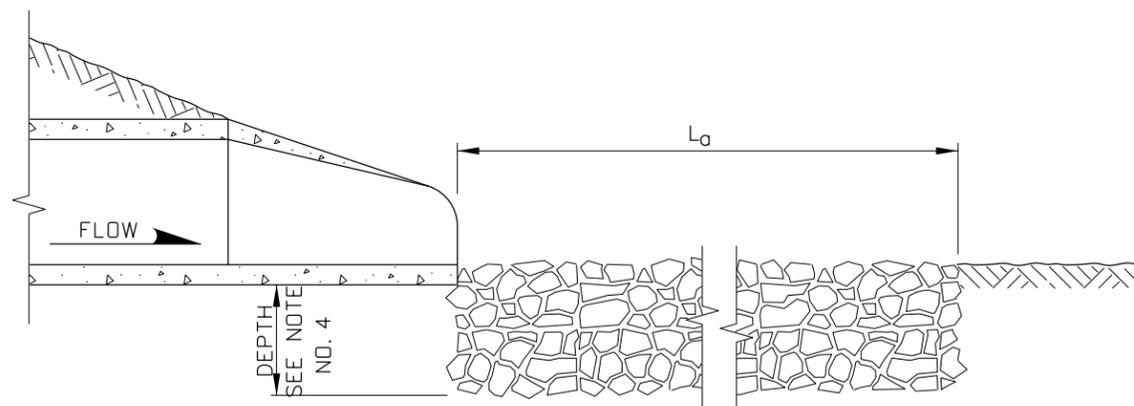
ORIGINAL SIGNED BY: KARISSA HARDY
 DATE ORIGINAL SIGNED: OCTOBER 27, 2010



PLAN

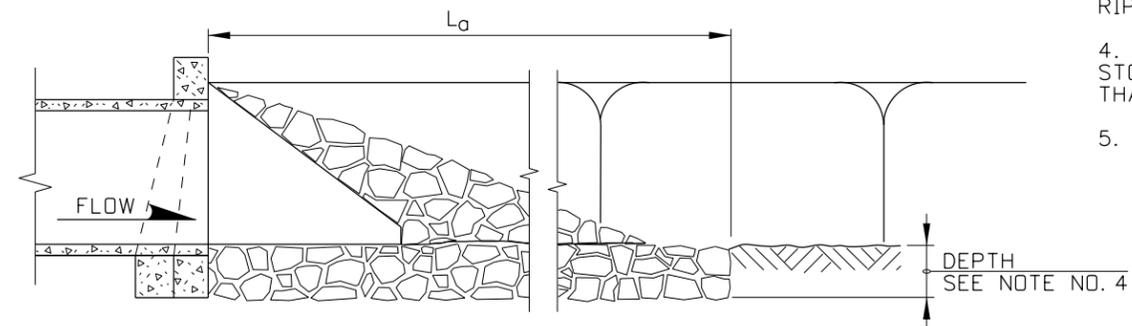


PLAN



SECTION A-A

PIPE OUTLET TO FLAT AREA



SECTION A'-A'

PIPE OUTLET TO STABILIZED CHANNEL

NOTES

1. THE GENERAL NOTES FOR ALL P-2 SERIES STANDARD DRAWINGS (PERMANENT EROSION CONTROL) ARE GIVEN ON STANDARD DRAWING P-2-A (PERMANENT EROSION CONTROL GABIONS & REVET MATTRESSES).
2. THE APRON LINING MAY BE RIPRAP, GROUTED RIPRAP, OR CONCRETE.
3. L_a IS THE LENGTH OF THE RIPRAP APRON.
4. DEPTH = 1.5 TIMES THE MAXIMUM STONE DIAMETER BUT NOT LESS THAN 6 INCHES.
5. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: KARISSA HARDY
DATE ORIGINAL SIGNED: OCTOBER 27, 2010

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	10-10	KEH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p2f_1010.dgn
DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT

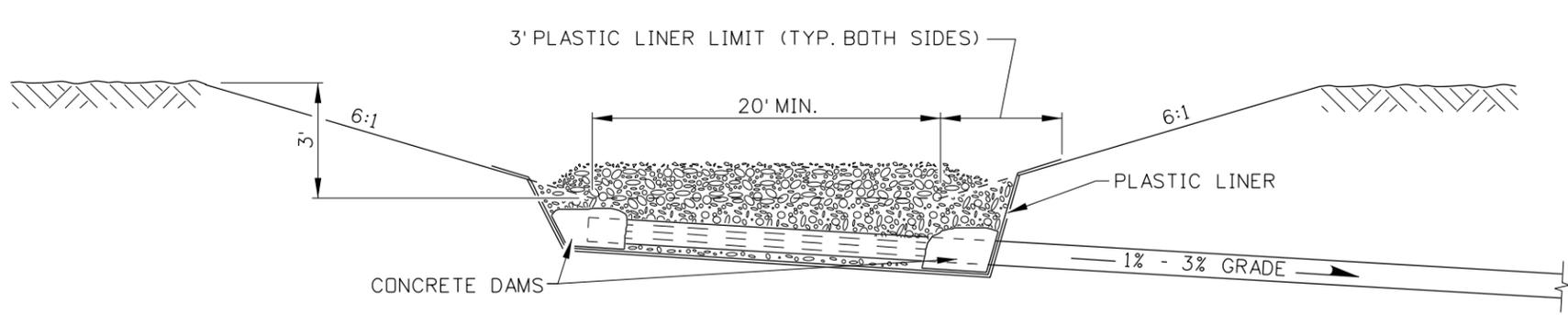


BOISE IDAHO

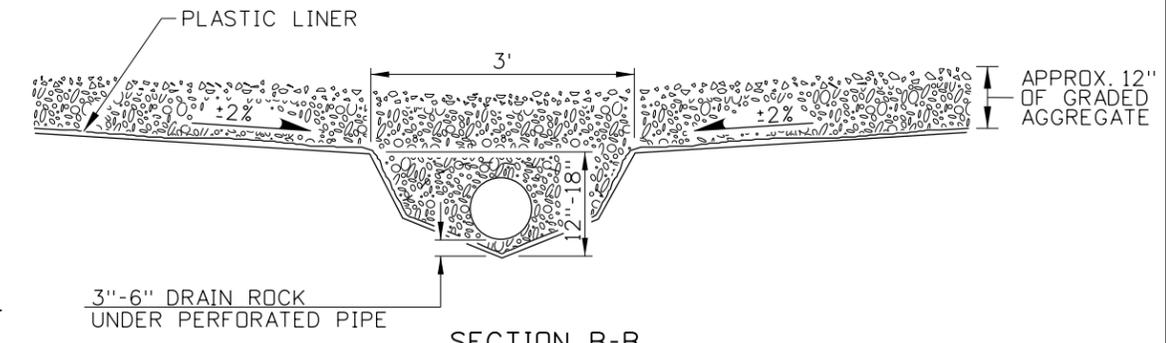
ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
**PERMANENT EROSION CONTROL
CULVERT OUTLET PROTECTION**
REQUIRES STD. DWG. P-2-A

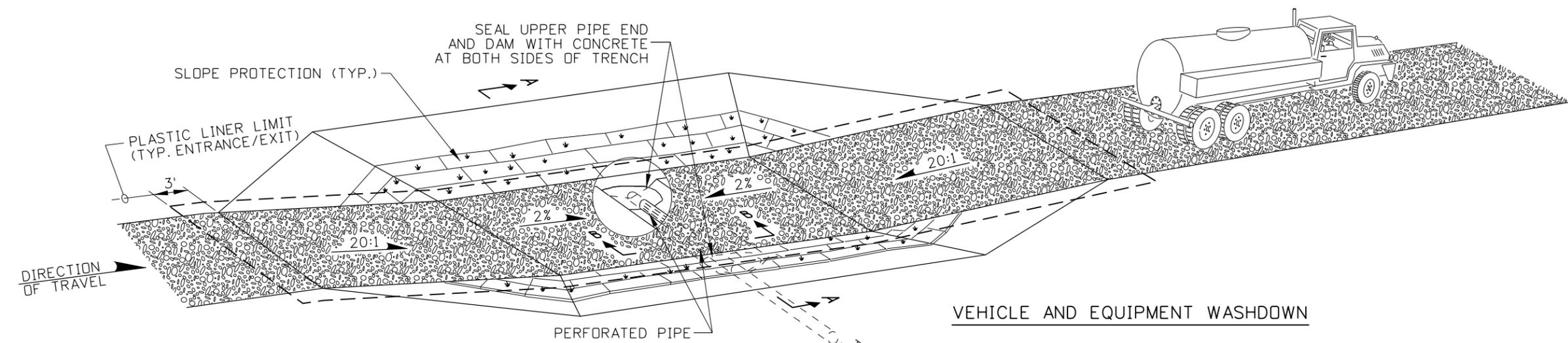
English
STANDARD DRAWING NO.
P-2-F
SHEET 1 OF 1



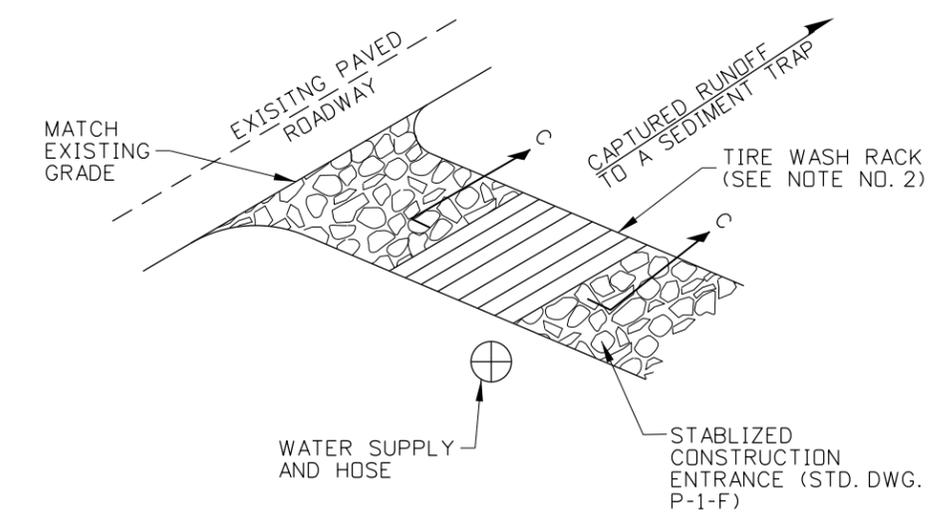
SECTION A-A



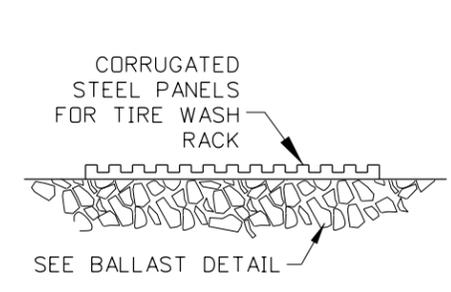
SECTION B-B



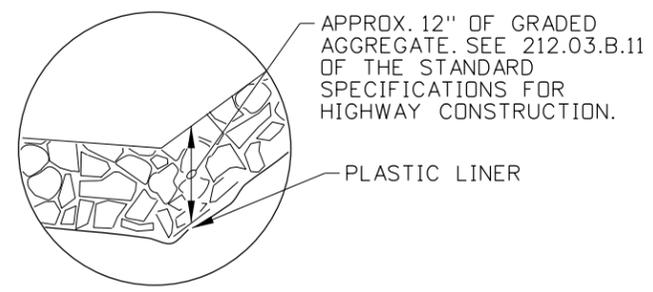
VEHICLE AND EQUIPMENT WASHDOWN



TIRE WASH RACK



SECTION C-C



BALLAST DETAIL
VEHICLE AND EQUIPMENT WASHDOWN

NOTES

1. DIRECT VEHICLE AND EQUIPMENT WASHDOWN OUTFLOW TO A SEDIMENT TRAP.
2. USE TIRE WASH RACK IN CONJUNCTION WITH A STABILIZED CONSTRUCTION ENTRANCE. WHEN TIRE WASH RACK IS USED, SEDIMENT MUST BE ROUTED TO A SEDIMENT TRAP. OBTAIN THE ENGINEER'S APPROVAL OF PRE-FABRICATED TIRE WASH RACKS PRIOR TO INSTALLATION.
3. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: J. CALEB LAKEY
DATE ORIGINAL SIGNED: DECEMBER 17, 2012

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	9-98	MSM						
2	10-10	KEH						
3	6-11	KEH						
4	12-12	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p3e_1212.std
DRAWING DATE: DECEMBER, 1995

IDAHO TRANSPORTATION DEPARTMENT

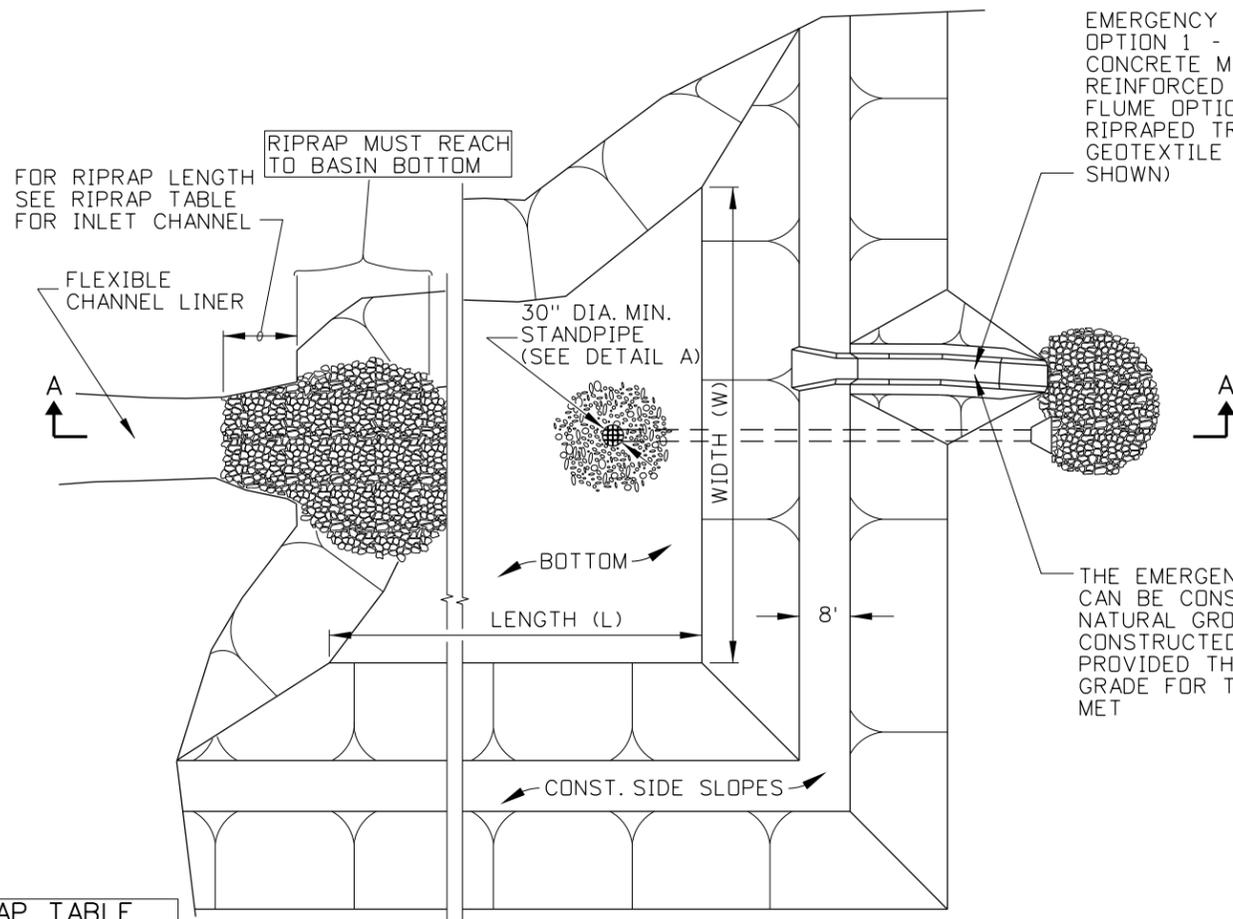


BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
VEHICLE AND EQUIPMENT WASHDOWN
REQUIRES STD. DWG. P-1-D

English
STANDARD DRAWING NO.
P-3-E
SHEET 1 OF 1

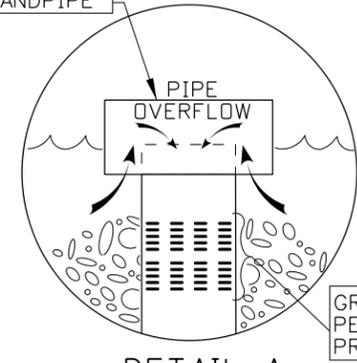


PLAN - RETENTION BASIN
(SPILLWAY OPTION 1 SHOWN)

CHANNEL SLOPE %	LENGTH	DEPTH
1	10'	1.0'
2	15'	1.0'
3	20'	1.5'
4	25'	2.0'
5	30'	3.0'

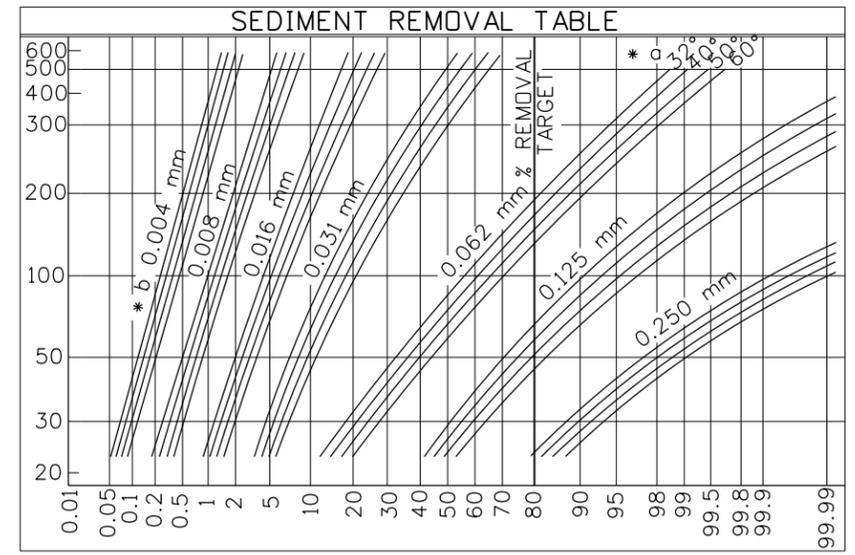
EMERGENCY SPILLWAYS
OPTION 1 - A
CONCRETE METAL
REINFORCED LINED
FLUME OPTION 2 - A
RIPRAPED TROUGH WITH
GEOTEXTILE LINER (NOT
SHOWN)

FABRICATE TRASH
RACK GRATE FROM #4
REBAR ON TOP TO
KEEP LARGE DEBRIS
OUT OF STANDPIPE



DETAIL A

GRAVEL TO COVER
PERFORATIONS TO
PREVENT CLOGGING



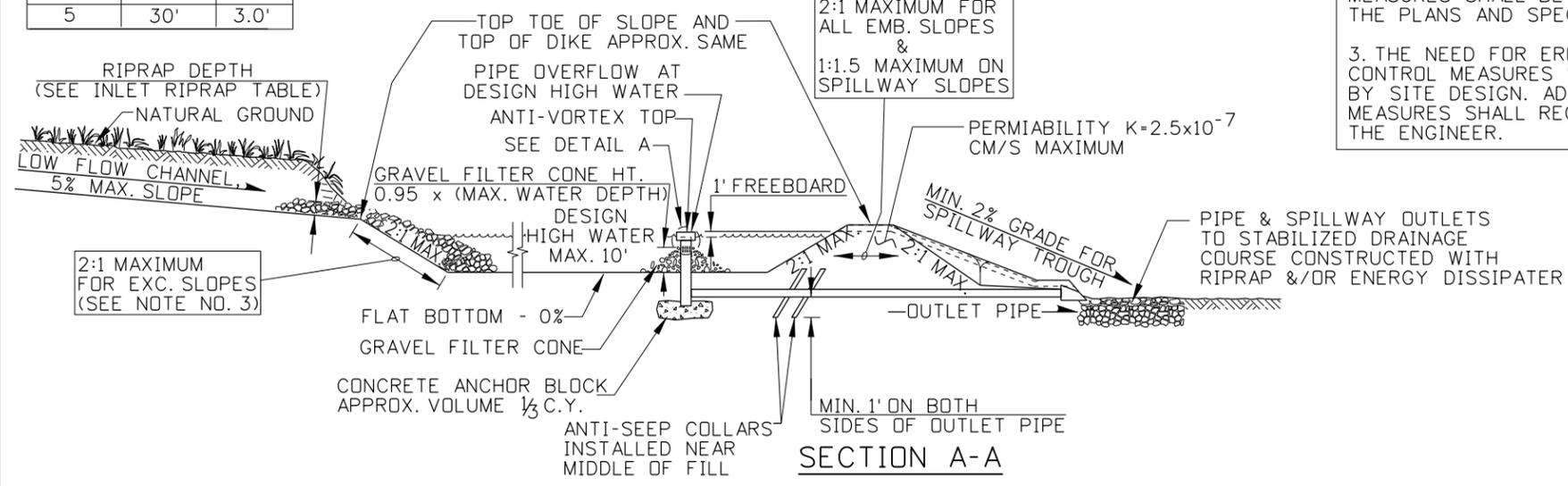
$\% \text{ REMOVED} = \left(1 - \frac{W_1}{W_0}\right) 100$ *a TEMPERATURE °F
*b PARTICLE SIZE

NOTES

- SEE THE GENERAL NOTES FOR SEDIMENT CONTROL.
- THE CRITERIA FOR OPTIMAL LOCATION OF RETENTION BASINS ARE:
 - A. LOCATE BASIN ON OR ADJACENT TO THE HIGHWAY RIGHT-OF-WAY.
 - B. PLACE BASIN IN A NATURAL SWALE, USING NATURAL SLOPES SO THAT ONLY THE FRONTAL DIKE NEED BE CONSTRUCTED.
 - C. LOCATE AND CONSTRUCT SO THAT EXCAVATION AND EMBANKMENT QUANTITIES WILL BE REASONABLY BALANCED.
- WHEN AMPLE SPACE IS AVAILABLE USE THE NATURAL SLOPES TO CONSTRUCT RETENTION BASINS. EXCAVATED SLOPES FOR RETENTION BASINS SHALL BE CONSTRUCTED WITH GENTLE SLOPES AS TO PREVENT FURTHER EROSION OR SLOUGHING INSIDE THE BASIN. THE TOP TOE OF THE EXCAVATED SLOPE SHALL BE NO HIGHER THAN THE TOP OF THE BASIN DIKE PORTION.
- RETENTION BASINS SHALL BE CONSTRUCTED AT LOCATIONS AS SHOWN ON THE PLANS. THE BASIN DIMENSIONS, CAPACITY, AND FLOW GRADES SHALL BE DETERMINED BY DESIGN. THE FINAL DESIGN OF ALL RETENTION BASINS SHALL BE APPROVED BY THE ITD HYDRAULICS ENGINEER AND ITD MATERIALS/GEOTECHNICAL ENGINEER.
- IT IS RECOMMENDED THAT THE LENGTH (L) OF A RETENTION BASIN BE (10) TEN TIMES THE WIDTH (W).
- THE CAPACITY OF A RETENTION BASIN SHALL NOT EXCEED 50 ACRE FEET OR A DRAINAGE AREA IN EXCESS OF 150 ACRES.
- DIKE MUST BE COMPACTED TO A MINIMUM OF 95% OF STANDARD DENSITY. DIKE MUST BE CONSTRUCTED OF IMPERMIABLE MATERIAL.
- ACCESS FOR SEDIMENT REMOVAL MUST BE PROVIDED.
- NOT TO SCALE.

GENERAL NOTES FOR SEDIMENT CONTROL

- ALL SEDIMENT CONTROL MEASURES SHOWN ON P-4 SERIES STANDARD DRAWINGS SHALL BE USED IN CONJUNCTION WITH THE ITD EROSION AND SEDIMENT CONTROL- BEST MANAGEMENT PRACTICES MANUAL (BMP).
- SITE DIMENSIONS, PLACEMENT, AND PAYMENT FOR SEDIMENT CONTROL MEASURES SHALL BE AS SET FORTH IN THE PLANS AND SPECIAL PROVISIONS.
- THE NEED FOR EROSION & SEDIMENT CONTROL MEASURES SHALL BE DETERMINED BY SITE DESIGN. ADJUSTMENTS TO THOSE MEASURES SHALL REQUIRE APPROVAL BY THE ENGINEER.



SECTION A-A

NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-98	MSM						
2	10-10	KEH						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p4a_1010.dgn
DRAWING DATE: FEBRUARY, 1996

IDAHO TRANSPORTATION DEPARTMENT

BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
EROSION & SEDIMENT CONTROL RETENTION BASIN

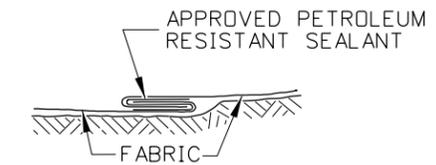
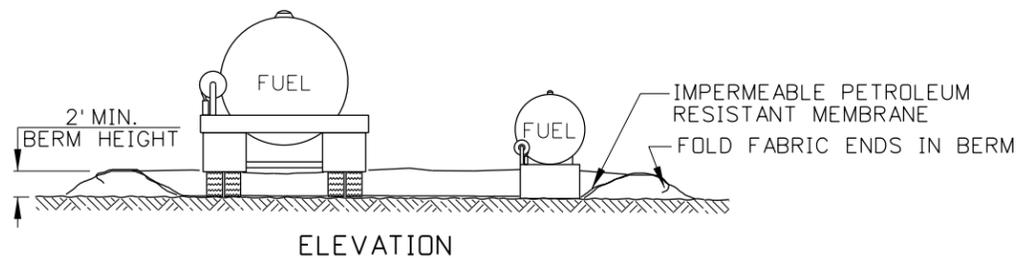
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

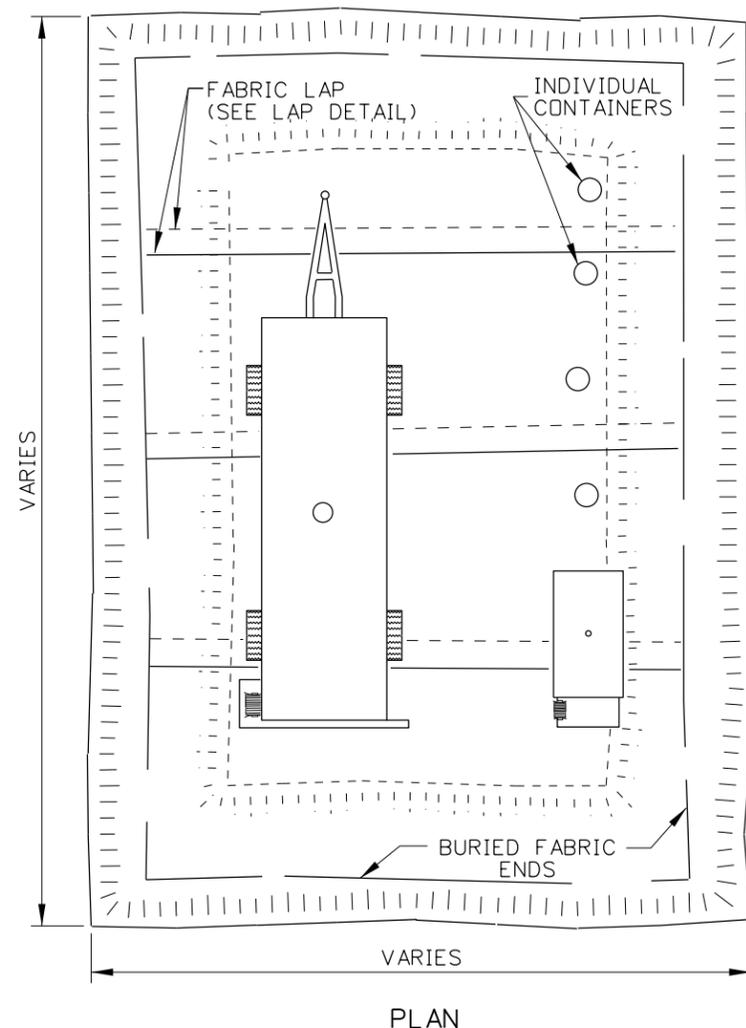
STANDARD DRAWING NO.
P-4-A

SHEET 1 OF 1

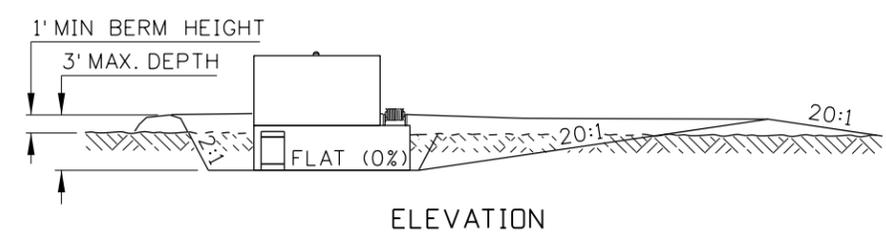
ORIGINAL SIGNED BY:
KARISSA HARDY
DATE ORIGINAL SIGNED:
OCTOBER 27, 2010



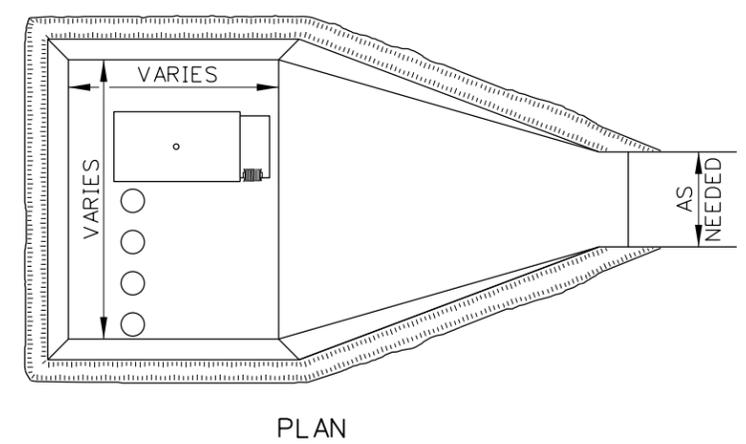
LAP DETAIL



PETROLEUM STORAGE AREA - TYPE 1



ELEVATION



PLAN

PETROLEUM STORAGE AREA - TYPE 2

NOTES

1. USE THIS DRAWING IN CONJUNCTION WITH THE ITD BEST MANAGEMENT PRACTICES (BMP) MANUAL.
2. ENSURE THAT THE PETROLEUM STORAGE AREAS LAST FOR THE DURATION OF THE PROJECT.
3. PROVIDE A TYPE 1 OR TYPE 2 PETROLEUM STORAGE AREA WITH AN IMPERMEABLE PETROLEUM RESISTANT MEMBRANE IF PETROLEUM PRODUCTS ARE STORED ONSITE.
4. ENSURE THAT THE TOTAL VOLUME OF THE BERMED AREA IS 110 PERCENT OF THE TOTAL CAPACITY OF THE STORAGE CONTAINER(S) INSIDE THE BERM.
5. NOTIFY THE ENGINEER AND THE HAZARDOUS MATERIALS COORDINATOR OF SOIL CONTAMINATION RESULTING FROM PETROLEUM SPILLAGE. REMOVAL PROCEDURE REQUIRES ENGINEER AND HAZARDOUS MATERIAL COORDINATOR APPROVAL.
6. ENSURE THAT RUNOFF AT THE EQUIPMENT STAGING AREA ENTRANCE(S) IS RETAINED IN THE STAGING AREA.
7. REMOVE UNCONTAMINATED STORM WATER FROM INSIDE THE STORAGE AREA. TREAT CONTAMINATED STORMWATER AS A HAZARDOUS WASTE AND HAVE IT REMOVED BY A CERTIFIED HAZARDOUS WASTE CONTRACTOR.
8. STORE INCOMPATIBLE MATERIALS IN SEPARATE STORAGE AREAS.
9. STORE MATERIALS IN THEIR ORIGINAL PACKAGING AND ON PALLETS, IF PRACTICAL.
10. NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	09-98	MSM						
2	10-10	KEH						
3	11-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
 CADD FILE NAME: p5a_1113.dgn
 DRAWING DATE: DECEMBER, 1995

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: TOM COLE for
 HIGHWAYS PROGRAM OVERSIGHT ENGINEER

ORIGINAL SIGNED BY: TOM COLE
 CHIEF ENGINEER

STANDARD DRAWING

PETROLEUM STORAGE AREA

REFER TO STD. DWG. P-1-E

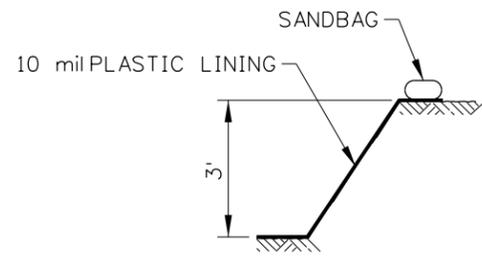
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

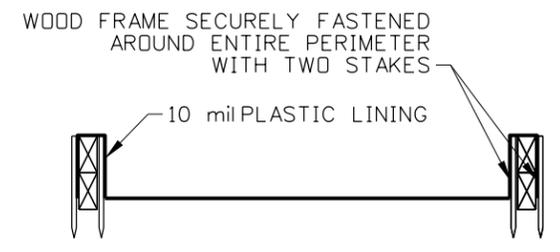
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SHEET 1 OF 1

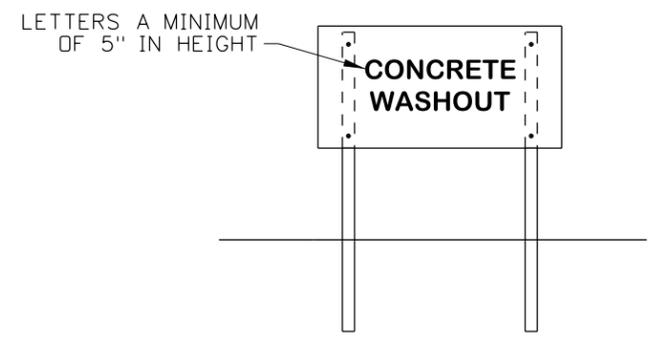
ORIGINAL SIGNED BY: J. CALEB LAKEY
 DATE ORIGINAL SIGNED: NOVEMBER 20, 2013



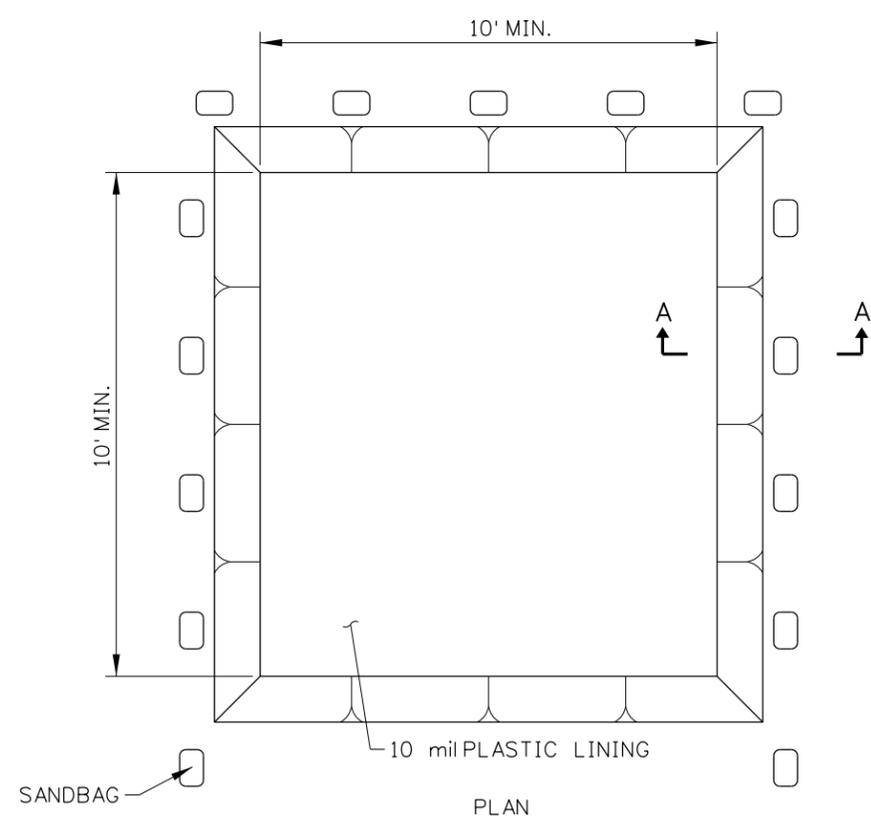
SECTION A-A



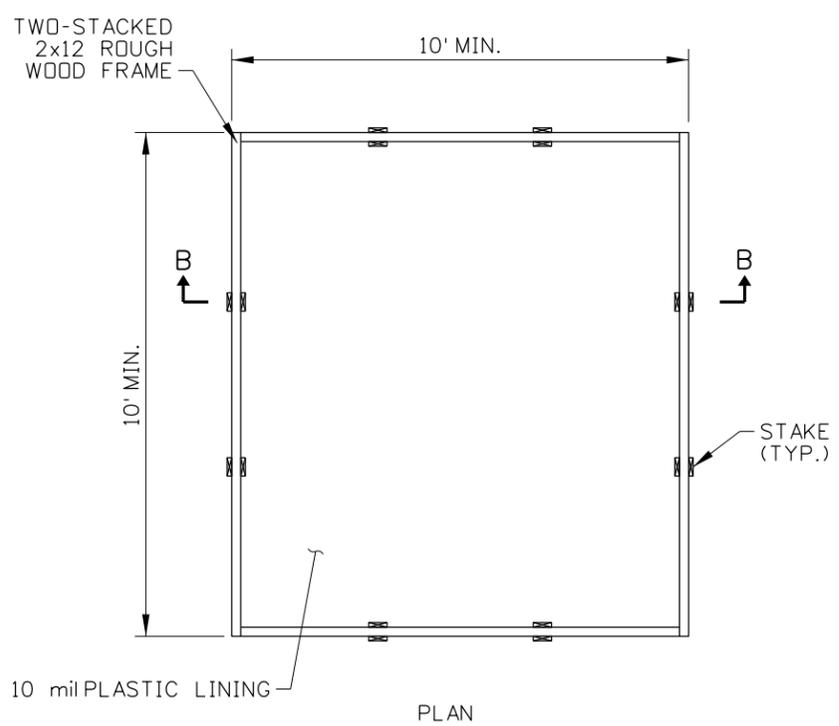
SECTION B-B



CONCRETE WASHOUT SIGN DETAIL
(SEE NOTE NO. 2)



TYPE BELOW GRADE



TYPE ABOVE GRADE

NOTES

1. USE THIS DRAWING IN CONJUNCTION WITH THE ITD BEST MANAGEMENT PRACTICES (BMP) MANUAL.
2. ACTUAL LAYOUT DETERMINED IN THE FIELD
3. INSTALL THE CONCRETE WASHOUT SIGN WITHIN 30 FEET OF THE TEMPORARY CONCRETE WASHOUT FACILITY.
4. USE OF PREFABRICATED TEMPORARY WASHOUT MAY ONLY BE USED ON APPROVAL BY THE ENGINEER.
5. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: J. CALEB LAKEY
DATE ORIGINAL SIGNED: NOVEMBER 20, 2013

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	11-13	RDL						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: p5b_1113.dgn
DRAWING DATE: OCTOBER, 2010

IDAHO TRANSPORTATION DEPARTMENT

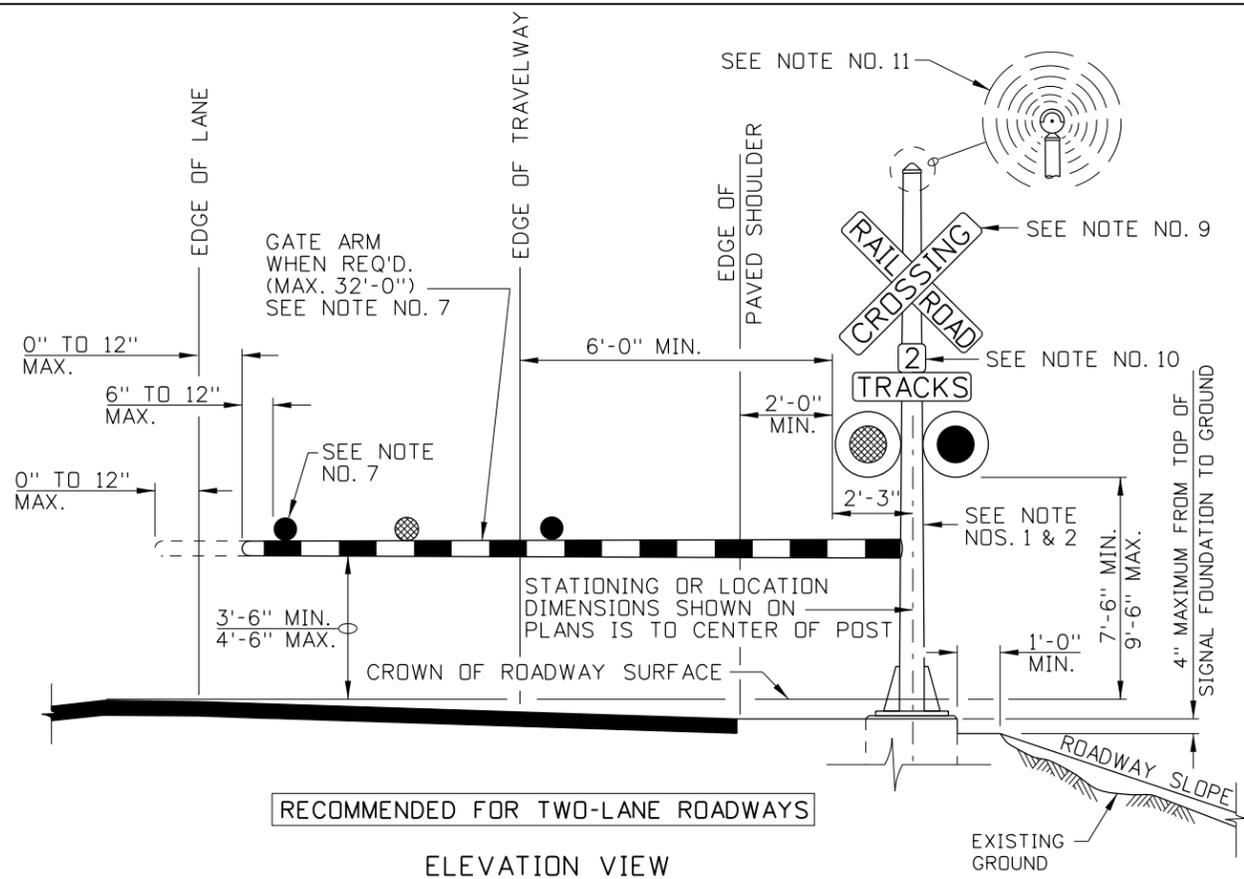


BOISE IDAHO

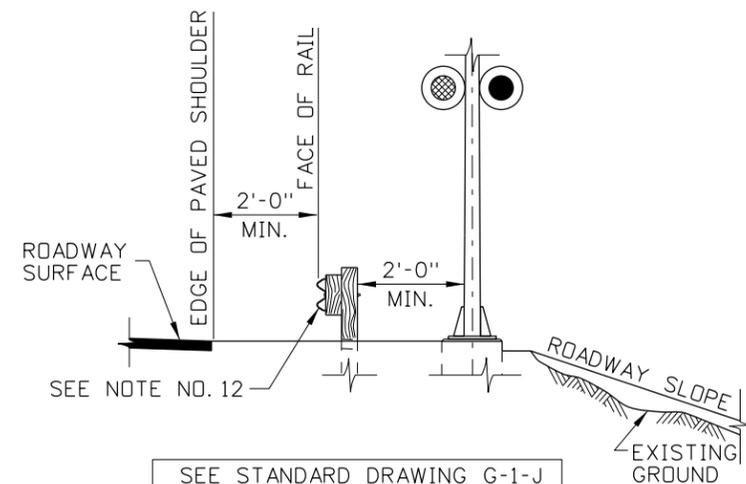
ORIGINAL SIGNED BY: TOM COLE for
HIGHWAYS PROGRAM OVERSIGHT ENGINEER
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
TEMPORARY CONCRETE WASHOUT

English
STANDARD DRAWING NO.
P-5-B
SHEET 1 OF 1



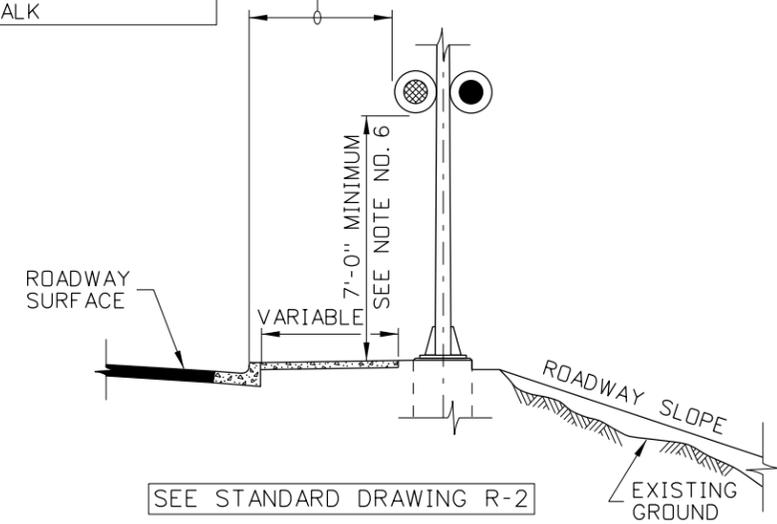
ELEVATION VIEW



SEE STANDARD DRAWING G-1-J

TYPICAL SECTION
(WITH GUARDRAIL)

6'-0" DESIRABLE,
2'-0" MINIMUM WITHOUT
SIDEWALK



SEE STANDARD DRAWING R-2

TYPICAL CURB & GUTTER SECTION
(WITH OR WITHOUT SIDEWALK)

NOTES

- LAYOUT OF HIGHWAY-RAILROAD GRADE CROSSING SIGNAL SHALL BE CONSISTENT WITH THE STANDARDS OF THE RAILROAD COMPANY AND PART 8 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (AS ADOPTED BY THE STATE). THE RAILROAD COMPANY WILL DESIGN THE STRUCTURE AND OTHER COMPONENTS OF THE RAILROAD CROSSING SIGNALS.
- POST LOCATION SHALL BE AS SHOWN ON THE PLANS. ALL PARTS OF THE RAILROAD CROSSING SIGNAL, INCLUDING GATE ARM IN THE UPRIGHT POSITION, SHALL BE A MINIMUM OF 10 FEET, MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILROAD TRACKS.
- TOP OF THE SIGNAL FOUNDATION SHALL BE FLUSH WITH TOP OF CURB OR TOP OF SIDEWALK. THE GROUND SURFACE SHALL BE GRADED TO WITHIN 4 INCHES BELOW THE TOP OF THE FOUNDATION TO A MINIMUM DISTANCE OF 1 FOOT BEYOND THE SIGNAL FOUNDATION.
- A FLASHING-LIGHT SIGNAL CONSISTS OF TWO LIGHTS HAVING 12-INCH LENS WITH RED LIGHT EMITTING DIODES (LED) MOUNTED IN A HORIZONTAL LINE THAT FLASH ALTERNATELY WHEN ACTIVATED. THE FLASHING RATE IS 35 TO 65 FLASHES PER MINUTE.
- NUMBER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED BACK TO BACK ON THE POST. OTHER FLASHING-LIGHT SIGNALS, IF NECESSARY, SHALL BE PLACED FOR THE BEST VISIBILITY TO OTHER APPROACHING ROADWAY OR PEDESTRIAN TRAFFIC.
- WHERE THERE IS SIDEWALK, THE FLASHING-LIGHT SIGNALS ON THE POST SHALL BE A MINIMUM OF 7 FEET ABOVE THE TOP OF SIDEWALK.
- WHEN GATE ARMS ARE USED, LENGTHS SHALL BE AS SHOWN ON THE PLANS. THE TIP OF A GATE ARM IN THE DOWN POSITION SHALL BE WITHIN 1 FOOT EITHER SIDE OF THE EDGE OF LANE AND A MINIMUM OF 8 FEET MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILROAD TRACK. GATE ARMS LONGER THAN 28 FEET REQUIRE APPROVAL FROM THE RAILROAD COMPANY. THE GATE ARM SHALL BE FULLY RETRO REFLECTORIZED ON BOTH SIDES WITH VERTICAL STRIPES ALTERNATELY COLORED RED AND WHITE AT 16-INCH INTERVALS MEASURED HORIZONTALLY AND HAVE AT LEAST THREE RED LIGHT EMITTING DIODES (LED) ON THE TOP OF THE GATE ARM. THE GATE ARM LIGHTS, WHEN ACTIVATED, SHALL FLASH ALTERNATELY IN UNISON WITH THE FLASHING-LIGHT SIGNALS EXCEPT FOR THE LIGHT NEAREST THE TIP OF THE GATE ARM WHICH SHALL BE ILLUMINATED CONTINUOUSLY.
- AAR/DOT IDENTIFICATION TAG SHALL BE ATTACHED TO POST IMMEDIATELY BELOW THE FLASHING-LIGHT SIGNAL OR ON THE OUTSIDE OF THE SIGNAL HOUSE.
- CROSS BUCK (R15-1) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE POST.
- SUPPLEMENTAL NUMBER OF TRACKS (R15-2) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE POST AT A POSITION BETWEEN THE CROSS BUCK SIGN AND THE FLASHING-LIGHT SIGNAL WHEN THERE ARE TWO OR MORE RAILROAD TRACKS. THIS SIGN IS OPTIONAL WHEN GATE ARMS ARE USED.
- BELLS OR OTHER AUDIBLE WARNING DEVICES MAY BE INCLUDED WHICH WILL OPERATE IN CONJUNCTION WITH THE FLASHING-LIGHT SIGNALS.
- THE NEED FOR GUARDRAIL SHALL NOT BE BASED SOLELY UPON THE ROADSIDE OBSTACLE OF A RAILROAD CROSSING SIGNAL UNLESS REQUESTED BY THE RAILROAD COMPANY.
- NOT TO SCALE.

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	07-10	EBG						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: r1a_0710.dgn

DRAWING DATE: MARCH, 2004

IDAHO
TRANSPORTATION
DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
HIGHWAY - RAILROAD
GRADE CROSSING SIGNAL
TYPE 1

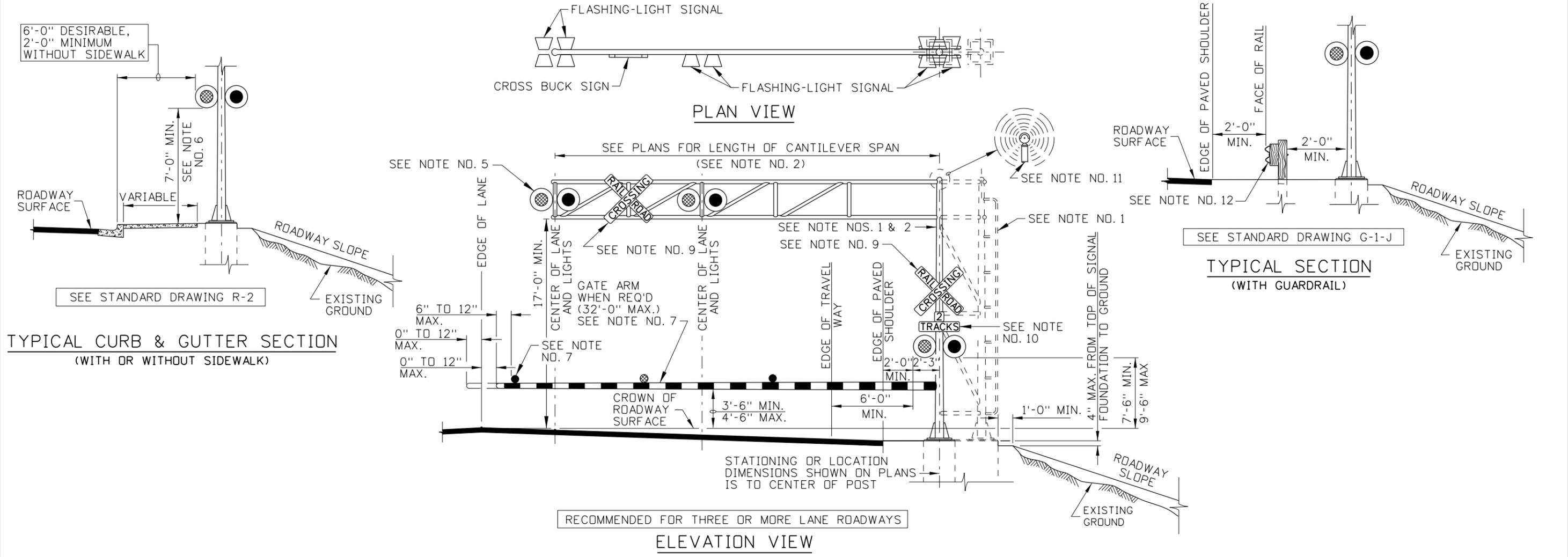
ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

English

STANDARD DRAWING NO.
R-1-A

SHEET 1 OF 1

ORIGINAL SIGNED BY:
CARL D. MAIN
DATE ORIGINAL SIGNED:
JULY 12, 2010



TYPICAL CURB & GUTTER SECTION
(WITH OR WITHOUT SIDEWALK)

ELEVATION VIEW

TYPICAL SECTION
(WITH GUARDRAIL)

NOTES

- LAYOUT OF HIGHWAY-RAILROAD GRADE CROSSING SIGNAL SHALL BE CONSISTENT WITH THE STANDARDS OF THE RAILROAD COMPANY AND PART 8 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (AS ADOPTED BY THE STATE). THE RAILROAD COMPANY WILL DESIGN THE STRUCTURE AND OTHER COMPONENTS OF THE RAILROAD CROSSING SIGNAL. THE RAILROAD COMPANY WILL DETERMINE THE NEED FOR AND THEN DESIGN ANY ADDITIONAL SUPPORT STRUCTURE.
- POST LOCATION AND LENGTH OF CANTILEVER SPAN SHALL BE AS SHOWN ON PLANS. CANTILEVER SPAN IS PERPENDICULAR TO ROADWAY UNLESS OTHERWISE NOTED ON THE PLANS. ALL PARTS OF THE RAILROAD CROSSING SIGNAL, INCLUDING GATE ARM IN THE UPRIGHT POSITION, SHALL BE A MINIMUM OF 10 FEET, MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILROAD TRACKS.
- TOP OF THE SIGNAL FOUNDATION SHALL BE FLUSH WITH TOP OF CURB OR TOP OF SIDEWALK. THE GROUND SURFACE SHALL BE GRADED TO WITHIN 4 INCHES BELOW THE TOP OF THE SIGNAL FOUNDATION TO A MINIMUM DISTANCE OF 1 FOOT BEYOND THE SIGNAL FOUNDATION.
- A FLASHING-LIGHT SIGNAL CONSISTS OF TWO LIGHTS HAVING 12-INCH LENS WITH RED LIGHT EMITTING DIODES (LED) MOUNTED IN A HORIZONTAL LINE THAT FLASH ALTERNATELY WHEN ACTIVATED. THE FLASHING RATE IS 35 TO 65 FLASHES PER MINUTE.
- NUMBER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED BACK TO BACK ON THE POST AND BACK TO BACK AT THE END OF THE CANTILEVER SPAN. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED ABOVE THE CENTER OF EACH LANE ON THE CANTILEVER SPAN. OTHER FLASHING-LIGHT SIGNALS, IF NECESSARY, SHALL BE PLACED FOR THE BEST VISIBILITY TO OTHER APPROACHING ROADWAY OR PEDESTRIAN TRAFFIC.
- WHERE THERE IS SIDEWALK, THE FLASHING-LIGHT SIGNALS ON THE POST SHALL BE A MINIMUM OF 7 FEET ABOVE THE TOP OF SIDEWALK.
- WHEN GATES ARMS ARE USED, LENGTHS SHALL BE AS SHOWN ON THE PLANS. THE TIP OF A GATE ARM IN THE DOWN POSITION SHALL BE WITHIN 1 FOOT EITHER SIDE OF THE EDGE OF LANE AND A MINIMUM OF 8 FEET MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILROAD TRACK. GATE ARMS LONGER THAN 28 FEET REQUIRE APPROVAL FROM THE RAILROAD COMPANY. THE GATE ARM SHALL BE FULLY RETRO REFLECTORIZED ON BOTH SIDES WITH VERTICAL STRIPES ALTERNATELY COLORED RED AND WHITE AT 16-INCH INTERVALS MEASURED HORIZONTAL AND HAVE AT LEAST THREE RED LIGHT EMITTING DIODES (LED) ON TOP OF THE GATE ARM. THE GATE ARM LIGHTS, WHEN ACTIVATED, SHALL FLASH ALTERNATELY IN UNISON WITH THE FLASHING-LIGHT SIGNALS EXCEPT FOR THE LIGHT NEAREST THE TIP OF THE GATE ARM WHICH SHALL BE ILLUMINATED CONTINUOUSLY.
- AAR/DOT IDENTIFICATION TAG SHALL BE ATTACHED TO POST IMMEDIATELY BELOW THE FLASHING-LIGHT SIGNAL OR ON THE OUTSIDE OF THE SIGNAL HOUSE.
- CROSS BUCK (R15-1) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE POST. A CROSS BUCK SIGN SHALL BE MOUNTED BETWEEN THE FLASHING-LIGHT SIGNALS ON THE CANTILEVER SPAN.
- SUPPLEMENTAL NUMBER OF TRACKS (R15-2) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE OUTSIDE OF THE POST AT A POSITION BETWEEN THE CROSS BUCK SIGNS AND THE FLASHING-LIGHT SIGNAL WHEN THERE ARE TWO OR MORE RAILROAD TRACKS. THIS SIGN IS OPTIONAL WHEN GATE ARMS ARE USED.
- BELLS OR OTHER AUDIBLE WARNING DEVICES MAY BE INCLUDED WHICH WILL OPERATE IN CONJUNCTION WITH THE FLASHING-LIGHT SIGNALS.
- THE NEED FOR GUARDRAIL SHALL NOT BE BASED SOLELY UPON THE ROADSIDE OBSTACLE OF A RAILROAD CROSSING SIGNAL UNLESS REQUESTED BY THE RAILROAD COMPANY.
- NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: CARL D. MAIN
DATE ORIGINAL SIGNED: JULY 12, 2010

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY
1	07-10	EBG						

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY

CADD FILE NAME: r1b_0710.dgn

DRAWING DATE: MARCH, 2004

IDAHO TRANSPORTATION DEPARTMENT



BOISE IDAHO

ORIGINAL SIGNED BY: LOREN THOMAS
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

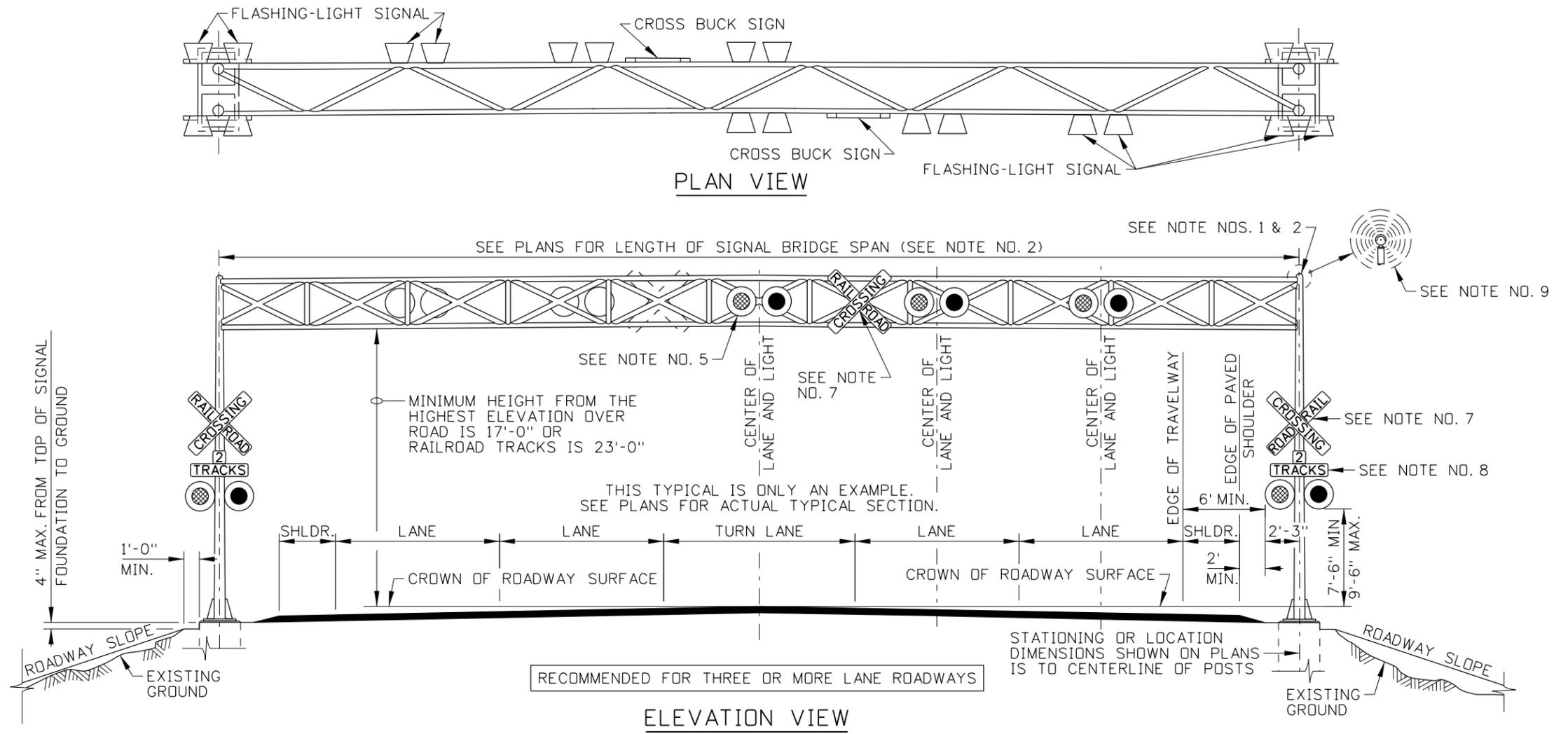
ORIGINAL SIGNED BY: TOM COLE
CHIEF ENGINEER

STANDARD DRAWING
HIGHWAY - RAILROAD GRADE CROSSING SIGNAL TYPE 2

English

STANDARD DRAWING NO. R-1-B

SHEET 1 OF 1



NOTES

1. LAYOUT OF HIGHWAY-RAILROAD GRADE CROSSING SIGNAL SHALL BE CONSISTENT WITH THE STANDARDS OF THE RAILROAD COMPANY AND PART 8 OF THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES (AS ADOPTED BY THE STATE). ADEQUATE VERTICAL CLEARANCE SHALL BE PROVIDED BY RAILROAD CROSSING SIGNAL OVER THE ROAD AND/OR RAILROAD TRACK(S). THE RAILROAD COMPANY WILL DESIGN THE STRUCTURE AND OTHER COMPONENTS OF THE RAILROAD CROSSING SIGNAL.
2. POST LOCATION AND LENGTH OF SIGNAL BRIDGE SPAN SHALL BE AS SHOWN ON THE PLANS. SIGNAL BRIDGE SPAN IS PERPENDICULAR TO ROADWAY UNLESS OTHERWISE NOTED, ON THE PLANS. ALL PARTS OF THE RAILROAD CROSSING SIGNAL SHALL BE A MINIMUM OF 10 FEET, MEASURED PERPENDICULAR FROM THE NEAREST RAIL OF THE RAILROAD TRACKS.
3. TOP OF THE SIGNAL FOUNDATION SHALL BE FLUSH WITH TOP OF CURB OR TOP OF SIDEWALK. THE GROUND SURFACE SHALL BE GRADED TO WITHIN 4 INCHES BELOW THE TOP OF THE FOUNDATION TO A MINIMUM DISTANCE OF 1 FOOT BEYOND THE SIGNAL FOUNDATION.
4. A FLASHING-LIGHT SIGNAL CONSISTS OF TWO LIGHTS HAVING 12-INCH LENS WITH RED LIGHT EMITTING DIODES (LED) MOUNTED IN A HORIZONTAL LINE THAT FLASH ALTERNATELY WHEN ACTIVATED. THE FLASHING RATE IS 35 TO 65 FLASHES PER MINUTE.
5. NUMBER OF FLASHING-LIGHT SIGNALS SHALL BE AS SHOWN ON THE PLANS. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED BACK TO BACK ON THE OUTSIDE OF THE POST. FLASHING-LIGHT SIGNALS SHALL BE MOUNTED ABOVE THE CENTER OF EACH LANE ON THE SIGNAL BRIDGE SPAN WITH THE FURTHERMOST INSIDE LANE BEING MOUNTED BACK TO BACK ON THE OUTSIDE OF THE SIGNAL BRIDGE SPAN. OTHER FLASHING-LIGHT SIGNALS, IF NECESSARY, SHALL BE PLACED FOR THE BEST VISIBILITY TO OTHER APPROACHING ROADWAY OR PEDESTRIAN TRAFFIC.
6. AAR/DT IDENTIFICATION TAG SHALL BE ATTACHED TO POST IMMEDIATELY BELOW THE FLASHING-LIGHT SIGNAL OR ON THE OUTSIDE OF THE SIGNAL HOUSE.
7. CROSS BUCK (R15-1) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE OUTSIDE OF THE POST. A MINIMUM OF ONE CROSS BUCK SIGN SHALL BE MOUNTED BETWEEN THE FLASHING-LIGHT SIGNALS ON THE SIGNAL BRIDGE SPAN FOR EACH DIRECTION OF VEHICULAR TRAVEL.
8. SUPPLEMENTAL NUMBER OF TRACKS (R15-2) SIGNS SHALL BE MOUNTED BACK TO BACK ON THE OUTSIDE OF THE POST AT A POSITION BETWEEN THE CROSS BUCK SIGNS AND THE FLASHING-LIGHT SIGNAL WHEN THERE ARE TWO OR MORE RAILROAD TRACKS.
9. BELLS OR OTHER AUDIBLE WARNING DEVICES MAY BE INCLUDED WHICH WILL OPERATE IN CONJUNCTION WITH THE FLASHING-LIGHT SIGNALS.
10. NOT TO SCALE.

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: JONATHAN LENHART
DATE ORIGINAL SIGNED: MARCH 29, 2004

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: r1c_0304.dgn
DRAWING DATE: MARCH, 2004

IDAHO TRANSPORTATION DEPARTMENT

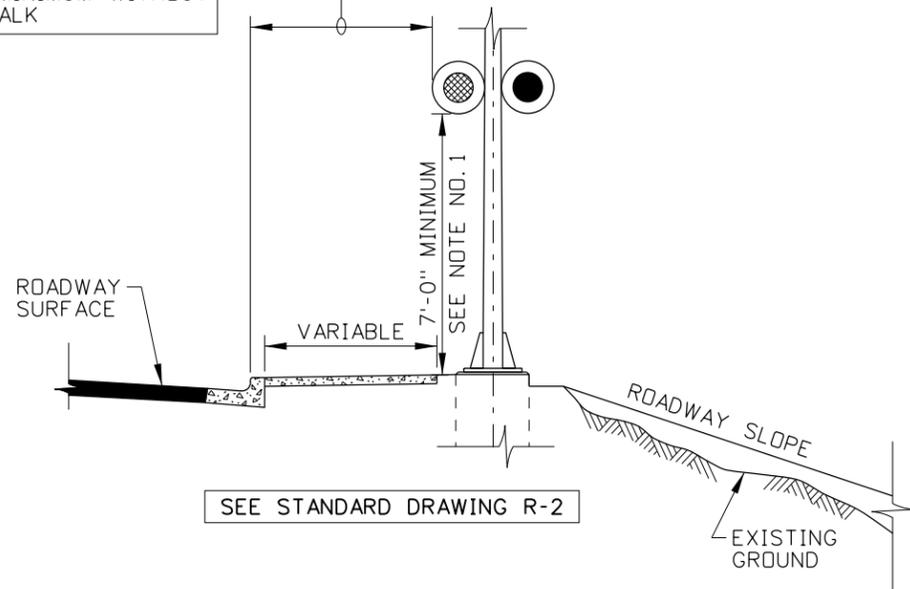
BOISE IDAHO

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: JIMMY ROSS
CHIEF ENGINEER

STANDARD DRAWING
HIGHWAY - RAILROAD GRADE CROSSING SIGNAL TYPE 3
REQUIRES SHEET 2 OF 2

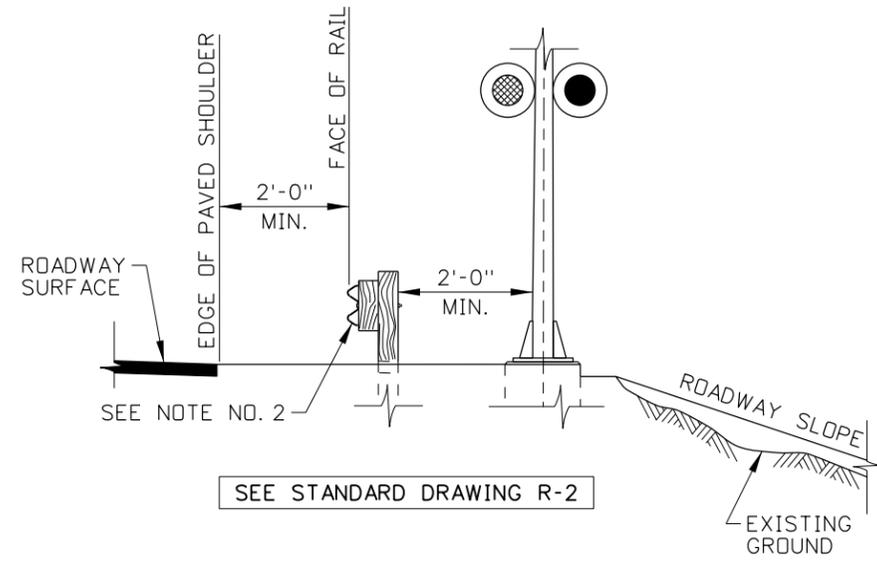
English
STANDARD DRAWING NO.
R-1-C
SHEET 1 OF 2

6'-0" DESIRABLE,
2'-0" MINIMUM WITHOUT
SIDEWALK



SEE STANDARD DRAWING R-2

TYPICAL CURB & GUTTER SECTION
(WITH OR WITHOUT SIDEWALK)



SEE STANDARD DRAWING R-2

TYPICAL SECTION
(WITH GUARDRAIL)

NOTES CONTINUED

11. WHERE THERE IS SIDEWALK, THE FLASHING-LIGHT SIGNALS ON THE POST SHALL BE A MINIMUM OF 7 FEET ABOVE THE TOP OF SIDEWALK.
12. THE NEED FOR GUARDRAIL SHALL NOT BE BASED SOLELY UPON THE ROADSIDE OBSTACLE OF A RAILROAD CROSSING SIGNAL UNLESS REQUESTED BY THE RAILROAD COMPANY.
13. NOT TO SCALE.

ORIGINAL STORED
AT: ITD,
Headquarters
3311 West State
Boise, Idaho

ORIGINAL SIGNED BY:
JONATHAN LENHART
DATE ORIGINAL SIGNED:
MARCH 29, 2004

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN
ARE FOR 11" X 17"
PRINTS ONLY

CADD FILE NAME:
r1c_0304.dgn

DRAWING DATE:
MARCH, 2004

**IDAHO
TRANSPORTATION
DEPARTMENT**



BOISE IDAHO

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)

ORIGINAL SIGNED BY: JIMMY ROSS
CHIEF ENGINEER

STANDARD DRAWING
**HIGHWAY - RAILROAD
GRADE CROSSING SIGNAL
TYPE 3**
REQUIRES SHEET 1 OF 2

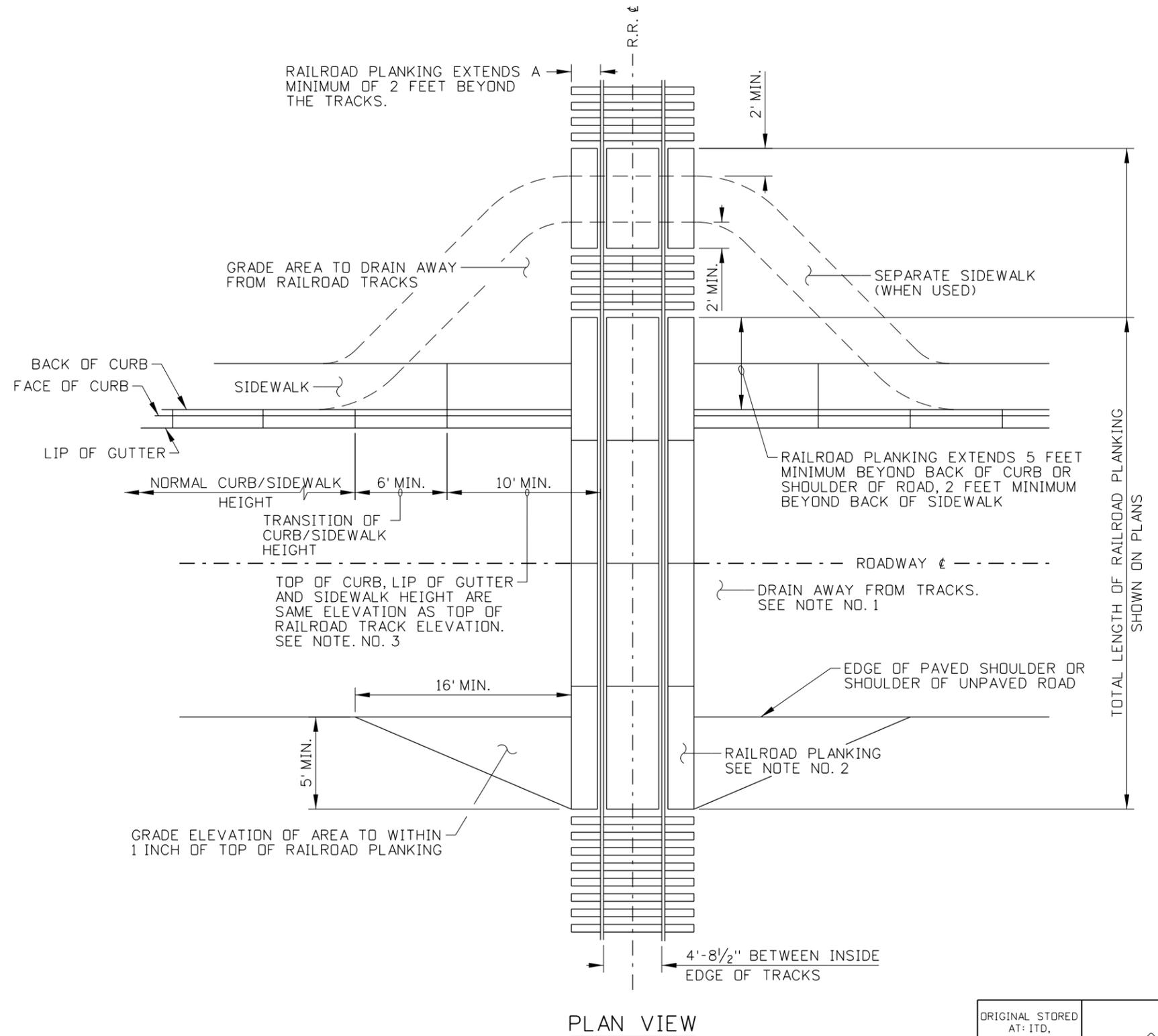
English

STANDARD DRAWING NO.
R-1-C

SHEET 2 OF 2

NOTES

1. LAYOUT OF THE HIGHWAY-RAILROAD GRADE CROSSING AREA REQUIRES THE TOP OF ROADWAY SURFACE TO MATCH THE TOP OF TRACK OR TOP OF RAILROAD CROSSING SURFACE MATERIAL IN A MANNER THAT WATER DRAINS AWAY FROM THE RAILROAD TRACKS. THE RAILROAD MAY CONCUR TO ADJUST THE ELEVATION OF THE RAILROAD TRACKS. IT IS EASIER TO RAISE RAILROAD TRACKS COMPARED TO LOWERING RAILROAD TRACKS.
2. LENGTH AND TYPE OF RAILROAD CROSSING SURFACE MATERIAL, ALSO CALLED RAILROAD PLANKING, SHALL BE AS SHOWN ON THE PLANS.
3. CURB, GUTTER AND SIDEWALK (IF USED) SHALL TRANSITION ON BOTH SIDES OF TRACKS FROM A NORMAL HEIGHT TO A "FLAT" SECTION AT THE SAME ELEVATION AS THE TOP OF THE TRACKS AND BUTT UP FLUSH TO RAILROAD PLANKING.
4. NOT TO SCALE.



PLAN VIEW

ORIGINAL STORED AT: ITD, Headquarters 3311 West State Boise, Idaho

ORIGINAL SIGNED BY: JONATHAN LENHART
DATE ORIGINAL SIGNED: MARCH 29, 2004

REVISIONS								
NO.	DATE	BY	NO.	DATE	BY	NO.	DATE	BY

SCALES SHOWN ARE FOR 11" X 17" PRINTS ONLY
CADD FILE NAME: r2_0304.dgn
DRAWING DATE: MARCH, 2004

IDAHO TRANSPORTATION DEPARTMENT
BOISE IDAHO

ORIGINAL SIGNED BY: STEVEN HUTCHINSON
ASSISTANT CHIEF ENGINEER (DEVELOPMENT)
ORIGINAL SIGNED BY: JIMMY ROSS
CHIEF ENGINEER

STANDARD DRAWING
HIGHWAY - RAILROAD GRADE CROSSING AREA

English
STANDARD DRAWING NO.
R-2
SHEET 1 OF 1