GALVANIZED STEEL

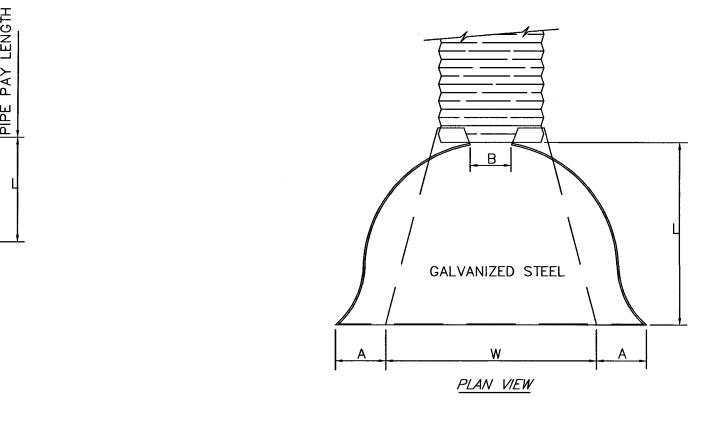
PLAN VIEW

3' MIN

LENGTH

OF CULVERT LENGTH (L)

SIDE VIEW



2. MULTIPLE PANEL BODIES SHALL HAVE LAP SEAMS WHICH SHALL BE TIGHTLY JOINTED WITH 3/8" DIA. GALVANIZED RIVETS OR BOLTS. 3. THE TOE PLATE ANCHOR SHALL BE CONSTRUCTED OF 0.138" THICKNESS GALVANIZED STEEL AND BE REQUIRED ON ALL STEEL PIPE END SECTIONS. IT SHALL BE MATCHED-PUNCHED TO FIT HOLES IN SKIRT LIP AND SUPPLIED LOOSE, COMPLETE WITH 3/8" DIA.

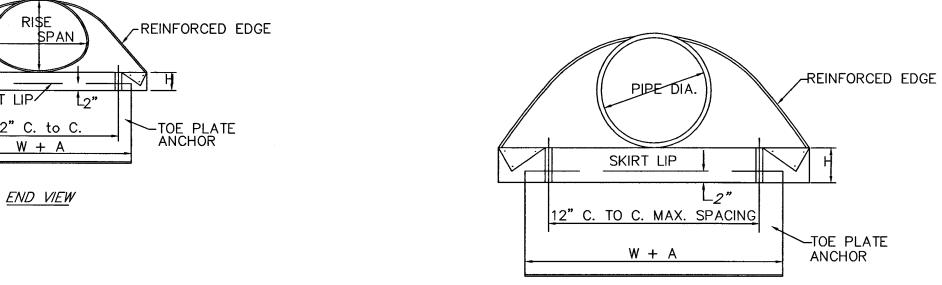
1. END SECTIONS AND TOE PLATE ANCHORS SHALL CONFORM TO ALL APPLICABLE

4. PIMPLED CONNECTION BAND MAY BE USED TO CONNECT PIPE END SECTION TO HELICALLY CORRUGATED PIPE.

5. IF ALUMINUM ALLOY PIPE CULVERT IS FURNISHED, ALUMINUM ALLOY END SECTIONS SHALL ALSO BE USED AND ALL COMPONENT PARTS SHALL BE ALUMINUM ALLOY AS SET OUT IN THE STANDARD SPECIFICATIONS.

REQUIREMENTS AS SET OUT IN THE INDOT STANDARD SPECIFICATIONS.

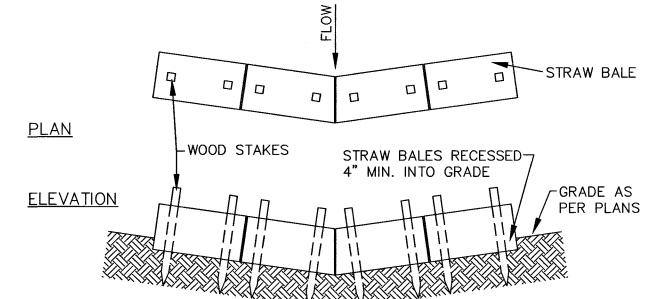
6. END SECTIONS WILL BE INCLUDED IN THE CONTRACT UNIT PRICE FOR EACH DRIVEWAY CULVERT REPLACEMENT COMPLETE IN PLACE AND ACCEPTED.



BODY	SLOPE	DIMENSIONS					T	ARCH SIONS	—
	Approx.	W 2"±	L 1.5"±	H 1 <b>"</b> ±	B Max.	A 1"±	in.	RISE	SPAN
1 Pc.	2 1/2	30	19	6	9	7	.064	11	18
1 Pc.	2 1/2	36	23	6	10	7	.064	13	22
1 Pc.	2 1/2	42	28	6	12	8	.064	16	25
1 Pc.	2 1/2	48	32	6	14	9	.064	18	29
1 Pc.	2 1/2	60	39	6	16	10	.079	22	36
1 Pc.	2 1/2	75	46	8	18	12	.079	27	43

E I	END VIEW		
Ē	3' MIN		
EDGE OF PAVEMENT	4:1 FILL SLOPE  2 1/2  1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
	LENGTH END SECTION OF CULVERT LENGTH (L)		
	LENOTH (L)		
	<u>SIDE VIEW</u>	1"R	1'-4"+H

	PIPE	Т	DIMENSIONS					SLOPE	BODY
	DIA.	in.	A 1"±	B Max.	H 1"±	L 1.5"±	W 2"±	Approx.	
ı	12	.064	6	6	6	21	24	2 1/2	1 Pc.
	15	.064	7	8	6	26	30	2 1/2	1 Pc.
	18	.064	8	10	6	31	36	2 1/2	1 Pc.
	21	.064	9	12	6	36	42	2 1/2	1 Pc.
	24	.064	10	13	6	41	48	2 1/2	1 Pc.
-	30	.079	12	16	8	51	60	2 1/2	1 Pc.
	36	.079	14	19	9	60	72	2 1/2	2 Pc.



STRAW BALE FILTER DETAIL

## SEASONAL SOIL PROTECTION CHART

'-4"+H

NOT TO SCALE

DRIVEWAY CULVERT

STABILIZATION PRACTICE	JAN. FEB.	MAR. APR.	MAY JUN. JUL. AUG. SEP. OCT.	NOV. DEC.
PERMANENT SEEDING		Α —	—*//////\* →	
DORMANT SEEDING	В	— <b>▷</b>		B
TEMPORARY SEEDING		CE	D——→	
SODDING		F **	*///////* ——->	· — — — — —
MULCHING	G			<u></u>

A = KENTUCKY BLUEGRASS 40 LBS/ACRE; CREEPING RED FESCUE 40 LBS/ACRE;

B = KENTUCKY BLUEGRASS 60 LBS/ACRE; CREEPING RED FESCUE 60 LBS/ACRE;

E = ANNUAL RYEGRASS 40 LBS/ACRE. (1 LB/1000 SQ. FT.)

\*//I//\* IRRIGATION NEEDED DURING JUNE, JULY, AND/OR SEPTEMBER.

\*\* IRRIGATION NEEDED FOR 2 TO 3 WEEKS AFTER APPLYING SOD.

C = SPRING OATS 3 BUSHEL/ACRE D = WHEAT OR RYE 2 BUSHEL/ACRE

G = STRAW MULCH 2 TONS/ACRE

F = SOD

PLUS 2 TONS STRAW MULCH/ACRE, OR ADD ANNUAL RYEGRASS 20 LBS/ACRE.

PLUS 2 TONS STRAW MULCH/ACRE, OR ADD ANNUAL RYEGRASS 30 LBS/ACRE.

1. ALL BALES SHOULD ALL BE EITHER WIRE-BOUND OR STRING-TIED. STRAW BALES SHOULD BE INSTALLED SO THAT BINDINGS ARE ORIENTED AROUND THE SIDES RATHER THAN ALONG THE TOPS AND BOTTOMS OF THE BALES (IN ORDER TO PREVENT DETERIORATION OF THE BINDINGS.)

2. THE BARRIER SHOULD BE ENTRENCHED AND BACKFILLED. A TRENCH SHOULD BE EXCAVATED THE WIDTH OF A BALE AND THE LENGTH OF THE PROPOSED BARRIER TO A MINIMUM DEPTH OF 4 INCHES. AFTER THE BALES ARE STAKED AND CHINKED, THE EXCAVATED SOIL SHOULD BE BACKFILLED AGAINST THE BARRIER. BACKFILL SOIL SHOULD CONFORM TO THE GROUND LEVEL ON THE DOWNHILL SIDE AND SHOULD BE BUILT UP TO 4 INCHES AGAINST THE UPHILL SIDE OF THE BARRIER.

3. EACH BALE SHOULD BE SECURELY ANCHORED BY AT LEAST TWO STAKES OF WOOD OR STEEL DRIVEN THROUGH THE BALE. THE FIRST STAKE IN EACH BALE SHOULD BE DRIVEN TOWARD THE PREVIOUSLY LAID BALE TO FORCE THE BALES TOGETHER. STAKES SHOULD BE DRIVEN DEEP ENOUGH INTO THE GROUND TO SECURELY ANCHOR THE BALES.

4. THE GAPS BETWEEN BALES SHOULD BE CHINKED (FILLED BY WEDGING) WITH STRAW TO PREVENT WATER FROM ESCAPING BETWEEN THE BALES. 5. INSPECTION SHOULD BE FREQUENT AND REPAIR OR REPLACEMENT SHOULD

BE MADE PROMPTLY AS NEEDED. 6. STRAW BALE BARRIERS SHOULD BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS, BUT NOT BEFORE THE UPSLOPE AREAS HAVE BEEN

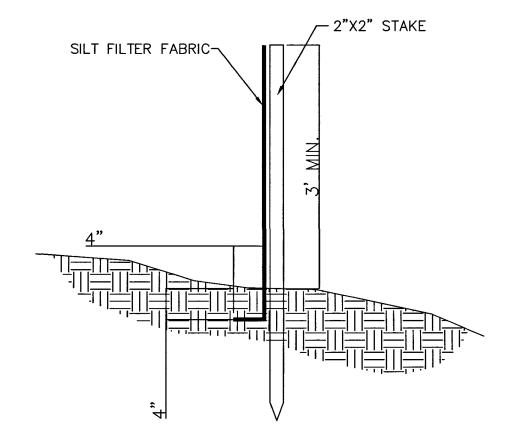
7. IN SHEET FLOW APPLICATIONS, BALES SHOULD BE PLACED IN A SINGLE ROW, LENGTHWISE ON THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER.

8. IN CHANNEL FLOW APPLICATIONS, BALES SHOULD BE PLACED IN A SINGLE ROW, LENGTHWISE, ORIENTED PERPENDICULAR TO THE CONTOUR, WITH ENDS OF ADJACENT BALES TIGHTLY ABUTTING ONE ANOTHER. THE BARRIER SHOULD BE EXTENDED TO SUCH A LENGTH THAT THE BOTTOMS OF THE END BALES ARE HIGHER IN ELEVATION THAN THE TOP OF THE LOWEST MIDDLE BALE TO ASSURE THAT SEDIMENT LADEN RUNOFF WILL BE TRAPPED.

STORM INLET - #4 REBAR STAKE 

— STRAW BALES

INLET PROTECTION N.T.S



EROSION CONTROL PLAN

A. SURFACE PROTECTION

B. RUN- OFF CONTROL

C. SEDIMENT TRAPPING

D. SOIL MOISTURE

E. RESPONSIBILITY

SILT CURTAINS.

OF SEDIMENT TRAPPING.

THE SOILS AND PREVENT EROSION.

DURING ALL PHASES OF CONSTRUCTION THE SITE GENERAL CONTRACTOR AND

CONTRACTORS SHALL USE THE FOLLOWING MEASURES TO ACCOMPLISH THIS

1. CLEARING SHALL BE LIMITED SO AS TO EXPOSE THE SMALLEST

2. EXPOSED AREAS SHALL BE IMMEDIATELY GRADED AND PRO-

AREAS, OR THE STAKING OR SHINGLING OF SOD WHILE

1. LONG AND/OR STEEP SLOPES WILL REQUIRE CONTOUR BENCHING AND FURROWING, OR BERMS TO REDUCE RUN-OFF VELOCITIES.

1. THE TRAPPING OF ERODED PARTICLES WILL BE ACCOMPLISHED BY THE DIVERSION OF RUN-OFF TO SEDIMENT BASINS.

EXCAVATION TRAPS, BERMS, STAKED HAY BALES, OR FLOATING

THE PROPOSED RETENTION AND/OR DETENTION POND(S) ALONG WITH ANY ENVIRONMENTAL BERM(S) / REAR YARD SWALE(S) SHALL

BE CONSTRUCTED FIRST. THE POND(S) AND OUTFALL STRUCT-

URE(S) MUST BE COMPLETE AND OPERATIONAL PRIOR TO THE

TRAPPING DEVICES SHALL BE PERIODICALLY INSPECTED DURING

DRY PERIODS AND AFTER EACH RAINFALL EVENT BY THE SITE

DETERMINED TO BE INCAPABLE OF PERFORMING INTENDED FUNCTION

CONTRACTOR. TRAPPING DEVICES SHALL BE REPLACED IF

4. TRAPPING DEVICES SHALL REMAIN IN PLACE UNTIL A VEGETATIVE

1. THE CONTRACTOR SHALL HAVE AVAILABLE ON THE CONSTRUCTION SITE A WATER SOURCE CAPABLE OF APPLYING WATER TO DRY EXPOSED SOIL IN ORDER TO PREVENT WIND EROSION. THE APPLICATION RATE AND MANNER SHALL BE SUCH THAT SOIL MOISTURE IS ATTAINED AND NO SURFACE RUN-OFF IS CREATED.

COMPLETION OF THE PROJECT WARRANTY PERIOD. AFTER THAT,

COVER HAS ESTABLISHED SUFFICIENTLY TO STABILIZE

1. THE CONTRACTOR SHALL BE HELD RESPONSIBLE UNTIL THE

THE OWNER WILL BE RESPONSIBLE FOR MAINTENANCE.

VEGETATION IS BECOMING ESTABLISHED.

PLACEMENT OF ANY IMPERVIOUS SURFACE.

POSSIBLE AREA OF LAND FOR THE SHORTEST POSSIBLE TIME.

TECTED WITH TEMPORARY OR PERMANENT COVER, SUCH AS

SOD, SEED AND MULCH, CROWVETCH, LESPEDEZA OR CREEPER.

NEWLY GRADED CHANNELS OR STEEP SLOPES WILL REQUIRE THE USE OF FIBROUS MATTING, NETTING OF SEEDED AND MULCHED

ALL SUB-CONTRACTORS SHALL EXERCISE MEASURES TO PREVENT THE

EROSION OF SOILS DUE TO THE ACTION OF WATER AND WIND. THE

SILT FENCE DETAIL N.T.S

RECORD DRAWING This drawing has been revised from the original contract drawings to show minor/ major changes made during construction. This drawing is not warranted to be complete and accurate in all respects. GRW Engineers, Inc. Date: <u>5/2004</u> By: <u>MB</u>

NOTES:

**AS-BUILT** 5/2004 MSB DESCRIPTION DATE BY

## HOOSIER HILLS REGIONAL WATER DISTRICT **CONTRACT F-3**

19300607 : ★

GRW Engineers, Inc. Engineers, Architects, Planners INDIANAPOLIS, INDIANA LOUISVILLE & LEXINGTON, KENTUCKY CINCINNATI, OHIO NASHVILLE, TENNESSEE ARLINGTON, TEXAS

BJD **JULY 2002** FILE NAME: SHT.599 AS NOTED CHECKED: SHEET NO. APPROVED:

DIVISION "F" WATERWORKS SYSTEM IMPROVEMENTS

DETAILS

GRW PROJECT NO. 2745-04

REVISIONS