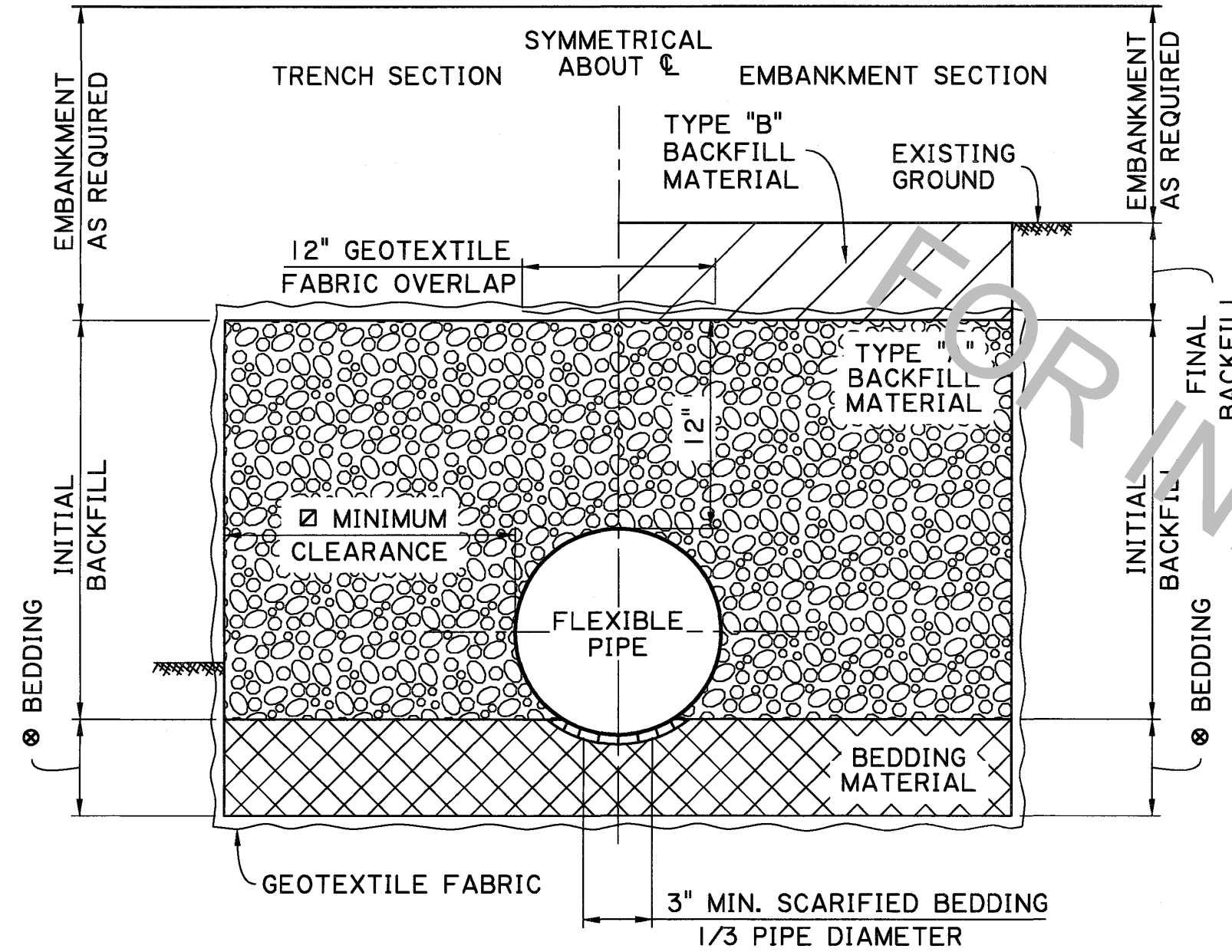
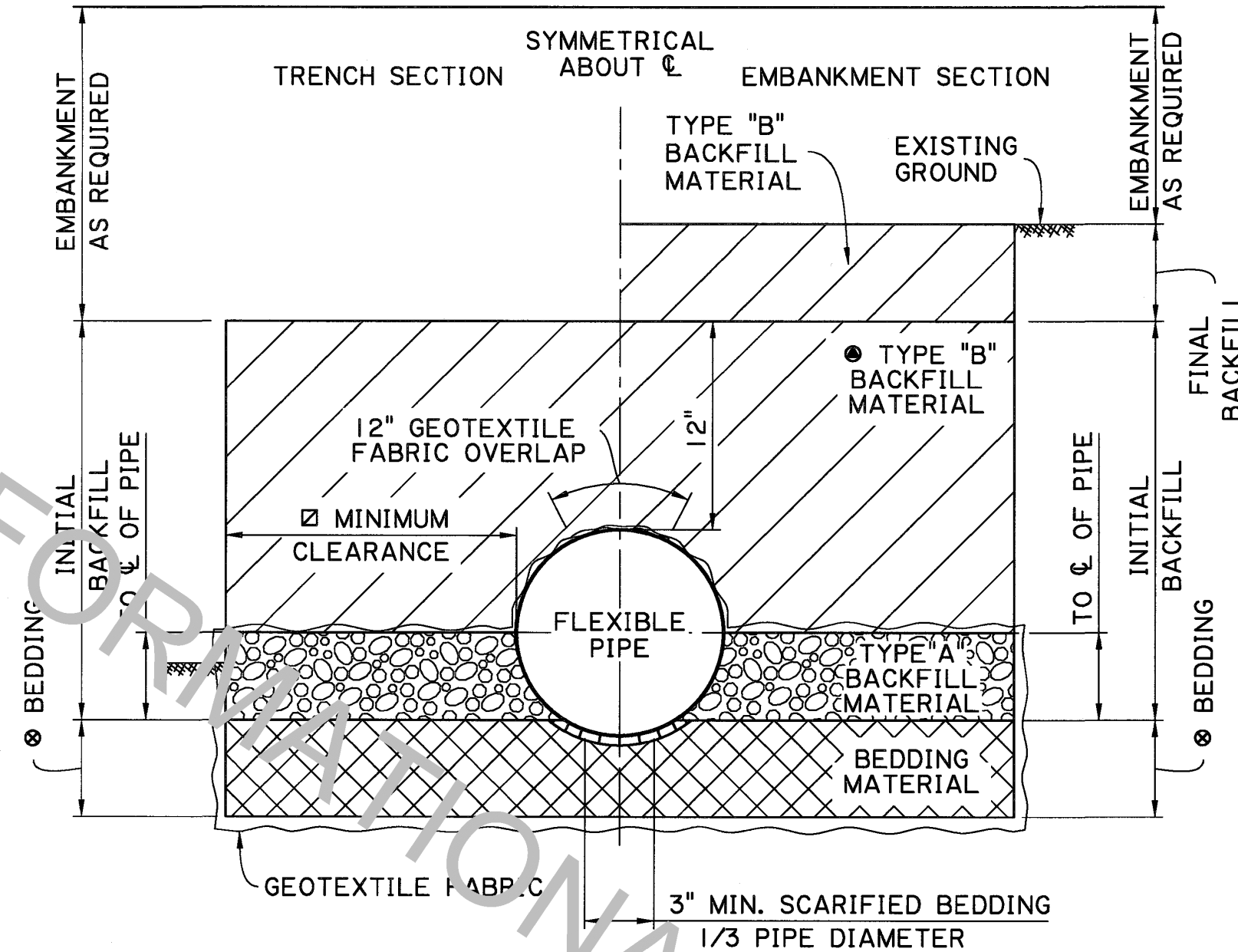


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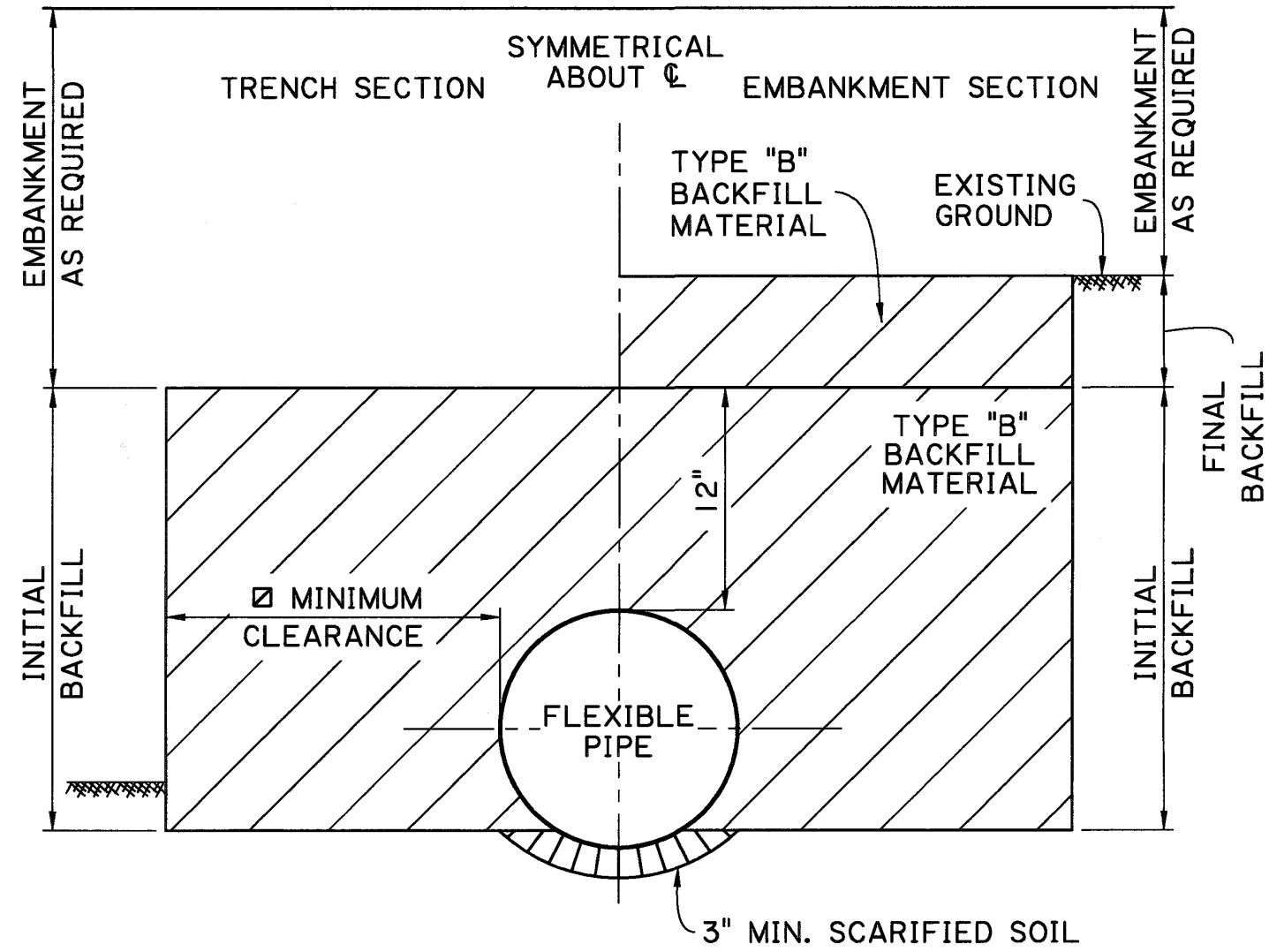
MINIMUM TRENCH CLEARANCE		
TYPE OF PIPE	INSIDE DIAMETER	MIN. CLEARANCE
REINFORCED CONCRETE PIPE	ALL	18"
FLEXIBLE PIPE	<48"	18"
FLEXIBLE PIPE	≥48"	24"



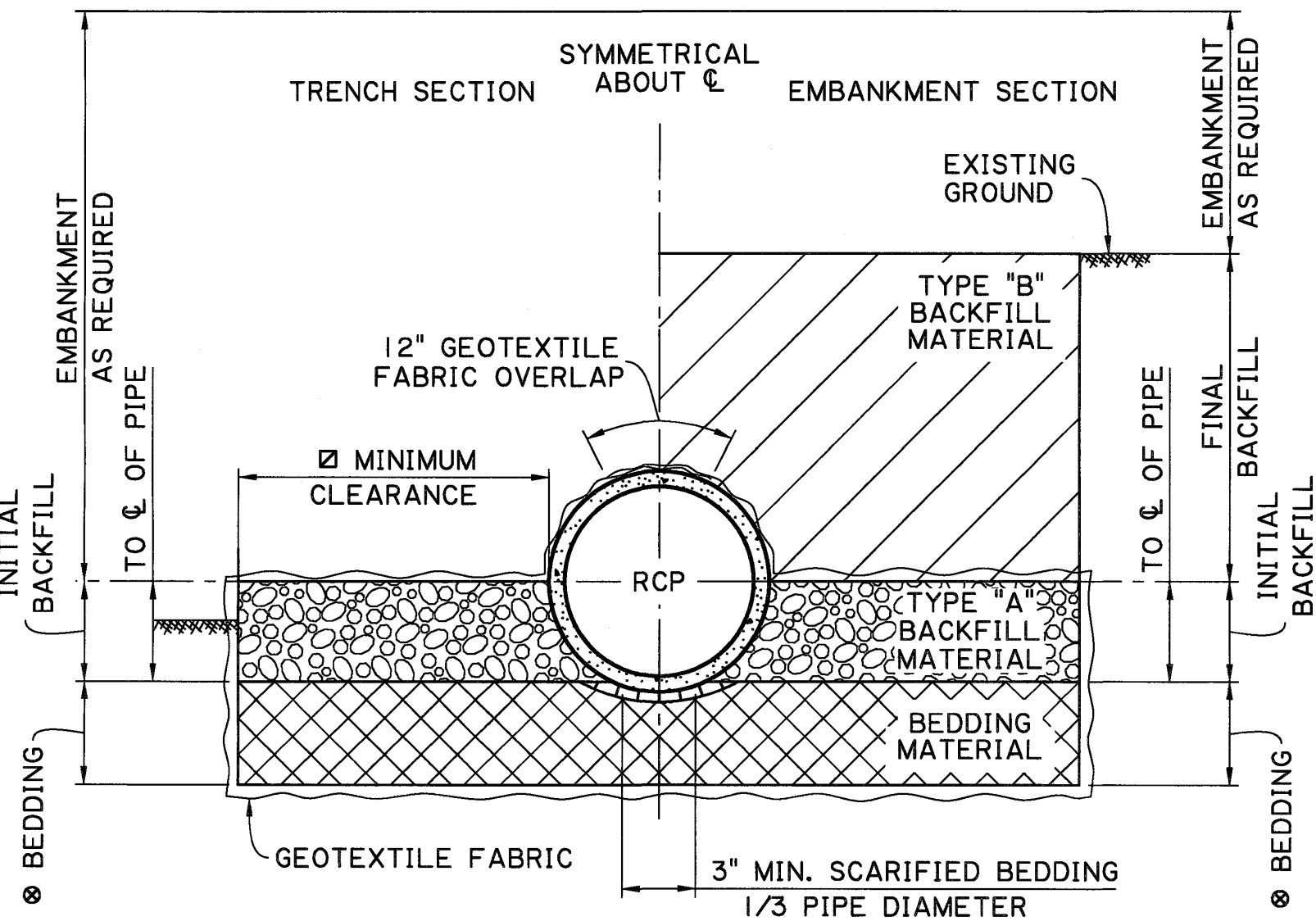
FLEXIBLE PIPE CROSS DRAIN
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1 1/2"=1'-0"



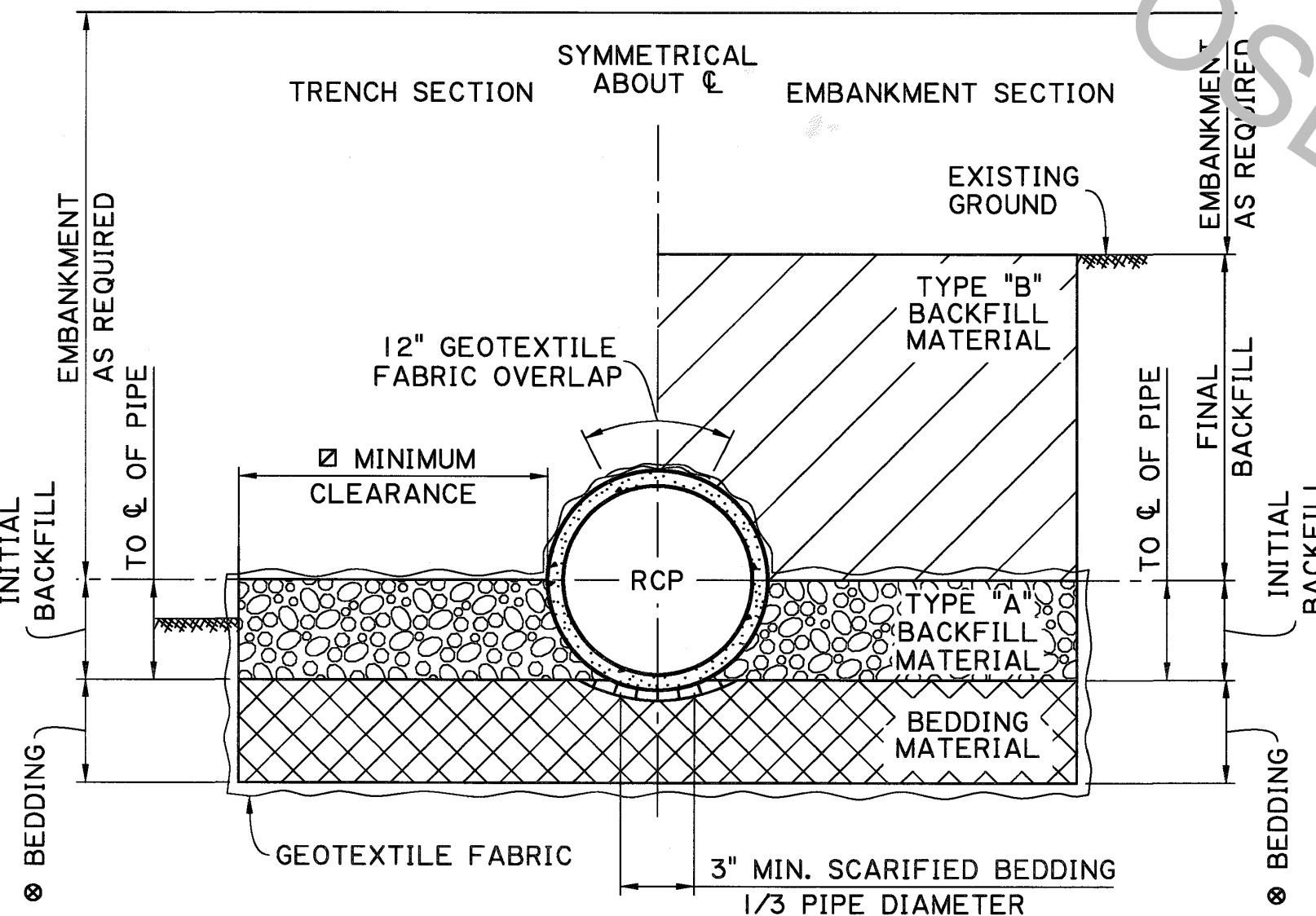
FLEXIBLE PIPE STORM DRAIN
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1 1/2"=1'-0"



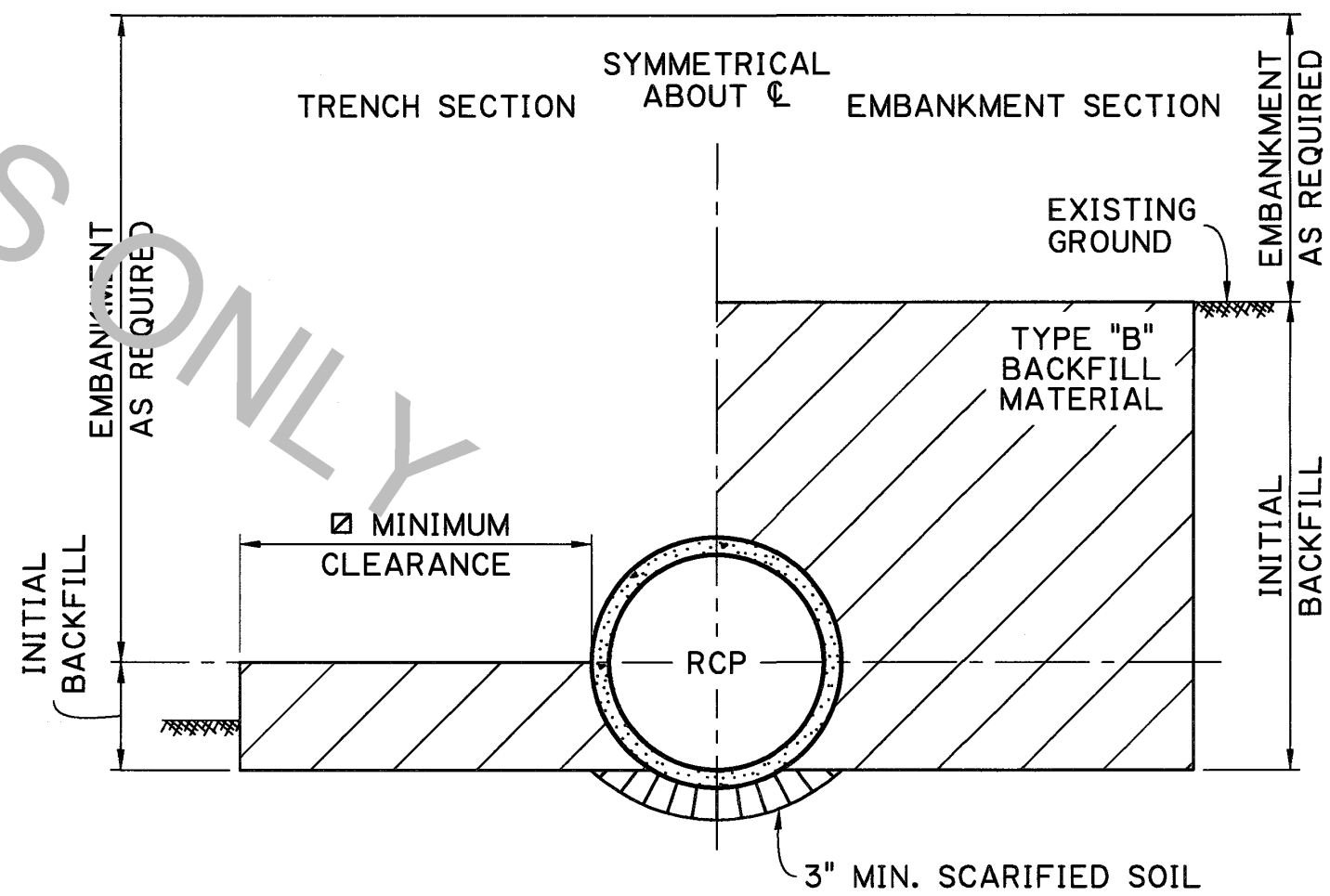
FLEXIBLE PIPE SIDE DRAIN
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1 1/2"=1'-0"



REINFORCED CONCRETE PIPE CROSS DRAIN
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1 1/2"=1'-0"



REINFORCED CONCRETE PIPE STORM DRAIN
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1 1/2"=1'-0"



REINFORCED CONCRETE PIPE SIDE DRAIN
TRENCH AND EMBANKMENT INSTALLATIONS
SCALE: 1 1/2"=1'-0"

- MINIMUM BEDDING MATERIAL THICKNESS UNDER PIPE IS 6 INCHES UNLESS OTHERWISE SHOWN ON PLANS OR AS DIRECTED BY THE PE.
- THE NEED FOR BEDDING MATERIAL SHALL BE EVALUATED BEFORE IT IS USED.
- REFER TO NOTE 3 ON SHEET 1 OF THIS SERIES.

DESIGN
CHECK
DETAIL
CHECK
REVIEW

PARISH
CONTROL
SECTION
LPH
AMN
CUN

SHEET
NUMBER
2 OF 2

STATE
PROJECT

STATE OF LOUISIANA
CHRISTOPHER J. NICKEL
License No. 3572
PROFESSIONAL ENGINEER
IN CIVIL ENGINEERING
10/08/2021

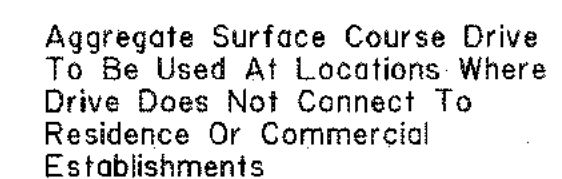
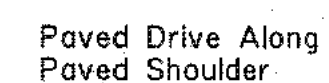
APPROVED BY CHIEF ENGINEER:
Christopher J. Nickel
DATE: 11/16/2021

STATE OF LOUISIANA
DOTD
LOUISIANA DEPARTMENT OF
TRANSPORTATION & DEVELOPMENT
PAVEMENT & GEOTECHNICAL
SERVICES

DRAINAGE STRUCTURES
TYPICAL SECTIONS FOR CROSS
DRAINS & SIDE DRAINS

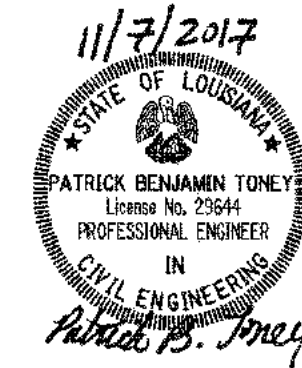
STANDARD
PLAN
BM-01

11/7/2017 08:07



1. WHEN PAVED DRIVES ARE PLACED IN TWO LIFTS, BINDER COURSE MAY BE USED IN THE FIRST LIFT.
2. DRIVE WIDTHS AND FLARE DIMENSIONS TO BE ADJUSTED TO MATCH EXISTING CONDITIONS AS DIRECTED BY THE PROJECT ENGINEER.
3. LENGTH OF OVERLAY TRANSITION TO BE SET BY PROJECT ENGINEER TO ACHIEVE A SUITABLE CONNECTION FOR EXISTING DRIVE.

	PAVED
	AGGREGATE
	REMOVAL



14-OCT-2008 17:15



MULCHES ARE THE APPLICATION OF MATS OF MATERIAL PLACED ON THE SOIL SURFACE TO PREVENT EROSION BY PROTECTING THE SOIL SURFACE FROM RAINDROF IMPACT AND TO REDUCE THE VELOCITY OF OVERLAND FLOW. MULCHES CAN BE ORGANIC OR SYNTHETIC. MULCHES SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW GUIDELINES FOR THE USE OF MULCHES ARE:

1. USE ON CUT AND EMBANKMENT SLOPES WHICH HAVE NOT BEEN COMPLETED TO PLAN GRADE OR WHERE THE WEATHER OR SOIL CONDITIONS WILL NOT PERMIT COMPLETING THEM WITHIN A REASONABLE TIME
2. USE ON CLEARED, GRUBBED , AND SCALPED AREAS WHERE SOIL EROSION IS LIKELY TO OCCUR
3. USE WITH TEMPORARY SEEDING



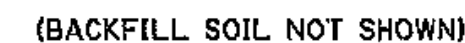
PAY ITEM: TEMPORARY SEDIMENT CHECK DAM (STONE)

A STONE CHECK DAM IS A SMALL TEMPORARY DAM CONSTRUCTED ACROSS A SWALE OR DRAINAGE DITCH. THE PURPOSE OF THIS MEASURE IS TO REDUCE THE VELOCITY OF CONCENTRATED STORM WATER FLOWS, THEREBY REDUCING EROSION OF THE SWALE OR DITCH. THE STONE CHECK DAM WILL TRAP SMALL AMOUNTS OF SEDIMENTS GENERATED IN THE DITCH ITSELF, HOWEVER IT SHOULD NOT BE USED AS A SEDIMENT TRAPPING DEVICE. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF STONE CHECK DAMS ARE:

1. USE IN SMALL OPEN CHANNELS WHICH DRAIN 10 ACRES OR LESS
2. DO NOT USE IN A LIVE STREAM
3. USE IN A TEMPORARY DITCH OR SWALE WHICH, BECAUSE OF THEIR SHORT LENGTH OF SERVICE, CANNOT RECEIVE A NON-ERODIBLE LINING
4. USE IN PERMANENT DITCHES OR SWALES WHICH WILL NOT RECEIVE A PERMANENT LINING FOR AN EXTENDED PERIOD OF TIME
5. USE IN TEMPORARY OR PERMANENT DITCHES OR SWALES WHICH NEED PROTECTION DURING THE ESTABLISHMENT OF GRASS LININGS
6. FOR STONE SPECIFICATIONS, SEE PROJECT SPECIFICATIONS FOR RIPRAP, (CLASS 2 LB)



(FOR CONSTRUCTION DETAILS AND SPECIFICATIONS SEE SHEET 2 OF 2.)



THE TEMPORARY DROP INLET SILT TRAP IS TO BE USED FOR SMALL DRAINAGE AREAS (LESS THAN 1 ACRE) WHERE THE STORM DRAIN IS FUNCTIONAL BEFORE THE AREA IS STABILIZED. THE TRAP CAN BE EITHER GEOTEXTILE FABRIC OR HAY BALES.

1. THE GEOTEXTILE FABRIC SHALL CONFORM TO PROJECT SPECIFICATIONS FOR GEOTEXTILE FABRIC (CLASS 6).
2. WOODEN STAKES SUPPORTING THE FABRIC SHALL BE 2" X 2" OR 2" X 4" WITH A MINIMUM LENGTH OF 3 FEET. THE STAKES SHALL BE SPACED AROUND THE INLET AT A MAXIMUM SPACING OF 3 FEET.
3. THE HEIGHT OF THE FABRIC ABOVE THE INLET SHALL BE LIMITED TO 1.5' AND THE BOTTOM OF THE FABRIC SHALL BE BURIED IN A TRENCH APPROXIMATELY 4" WIDE, BY 4" DEEP. THE FABRIC SHALL BE STAPLED TO THE POST WITH 1/2" STAPLES.
4. THE TRAP SHOULD BE INSPECTED REGULARLY AND AFTER EACH STORM. THE SEDIMENT SHOULD BE REMOVED AND EACH STAKE SHOULD BE FIRMLY IN THE GROUND.
5. HAY BALES SHALL BE PLACED SO THAT THE BINDING WIRE OR TWINE IS NOT IN CONTACT WITH THE GROUND.

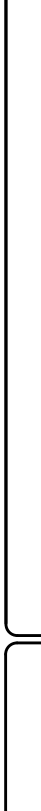
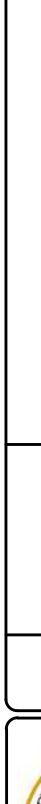


PAY ITEM: TEMPORARY SEDIMENT CHECK DAM (HAY)

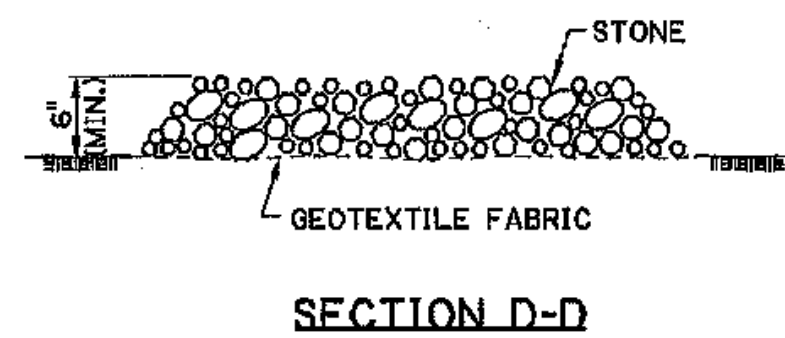
A HAY BALE BARRIER IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A ROW OF ENTRENCHED AND ANCHORED BALES OF STRAW OR HAY. THE HAY BALE BARRIER IS ALSO USED AS A CHECK DAM TO REDUCE THE VELOCITY IN SMALL DITCHES OR SWALES. THE HAY BALES SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL.

A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A HAY BALE BARRIER ARE:

1. USE WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION
2. USE IN MINOR SWALES OR DITCHES WHERE THE MAXIMUM DRAINAGE AREA IS 2 ACRES
3. ONLY USE WHERE THE EFFECTIVENESS IS REQUIRED FOR LESS THAN 3 MONTHS
4. DO NOT USE IN LIVE STREAMS OR IN SWALES OR DITCHES WHERE THERE IS A POSSIBILITY OF A WASHOUT

 HEI Hortman Engineering, Inc. Consulting Engineers	DOTD STANDARD PLANS: EC-01																				SHEET NUMBER										304									
	CHANNEL IMPROVEMENTS										ASCENSION										PARISH										CONTROL									
																					DBC										SECTION									
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DATE										NOV. 2022										PROJECT										T.O. 2021-HEI-001										
SERIES NO.										4 OF 13										PARISH																				
NO.										REV.										REVISION OR CHANGE ORDER RECORDATION																				

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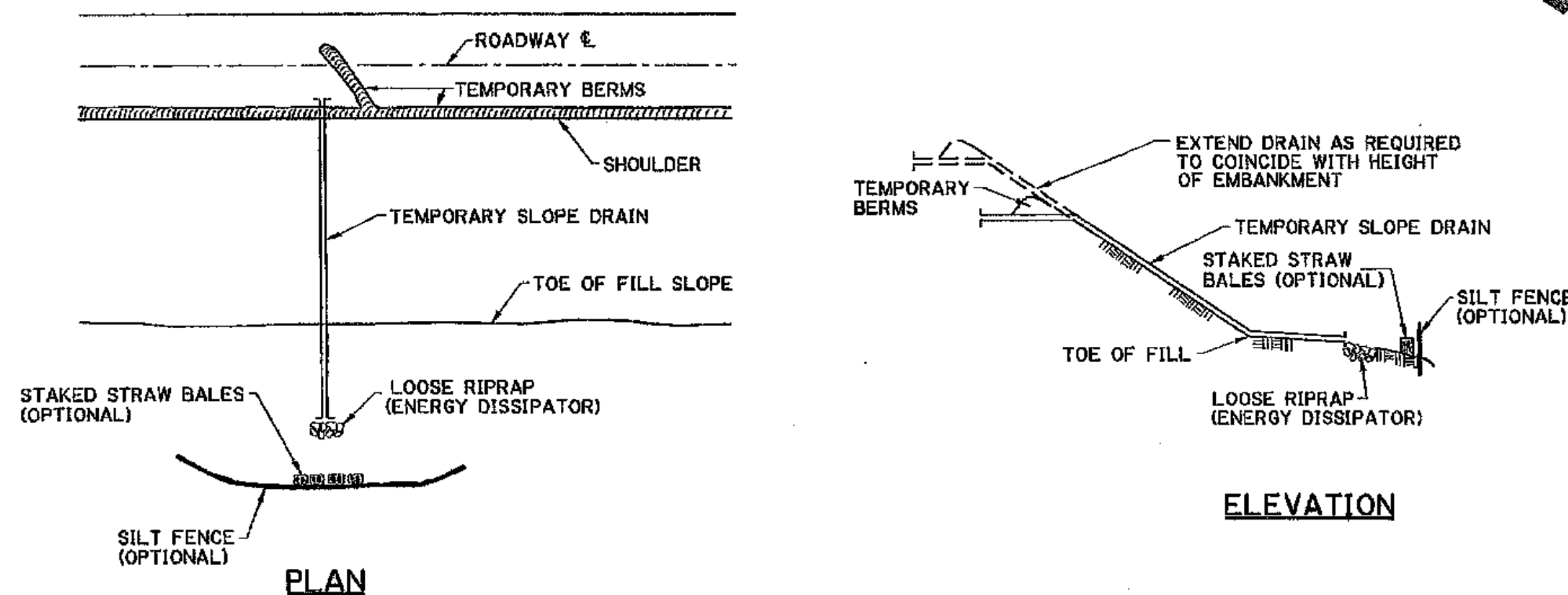


NOTES:

TEMPORARY STONE CONSTRUCTION ENTRANCE AND/OR WASH RACK

A STONE STABILIZED PAD LOCATED AT POINTS OF VEHICULAR INGRESS AND EGRESS ON THE CONSTRUCTION SITE TO REDUCE THE AMOUNT OF MUD TRANSPORTED ONTO PUBLIC ROADS. IF THE ACTION OF THE VEHICLE TRAVELING OVER THE GRAVEL PAD IS NOT SUFFICIENT TO REMOVE THE MAJORITY OF THE MUD, THEN THE TIRES MUST BE WASHED BEFORE THE VEHICLE ENTERS A PUBLIC ROAD. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A STONE ENTRANCE AND/OR WASH RACKS ARE:

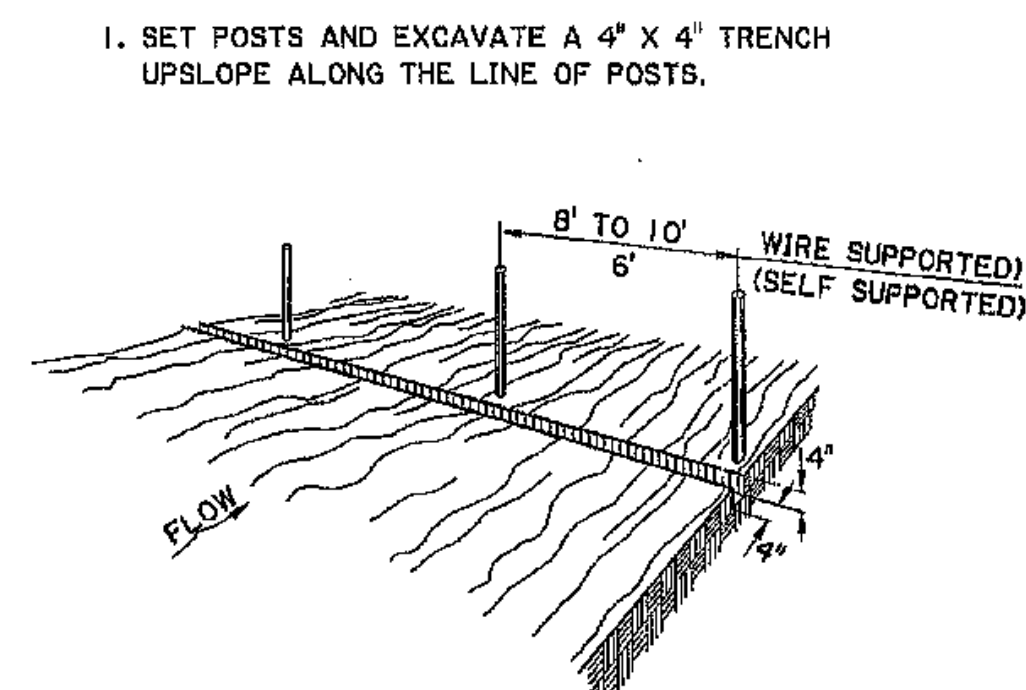
1. THE STONE LAYER MUST BE AT LEAST 6 INCHES THICK.
2. THE STONE SHALL CONFORM TO PROJECT SPECIFICATIONS FOR RIPRAP (CLASS 2 LB).
3. THE LENGTH OF THE PAD MUST BE AT LEAST 75 FEET AND IT MUST EXTEND THE FULL WIDTH OF THE VEHICULAR INGRESS AND EGRESS.
4. A GEOTEXTILE FABRIC UNDERLINER IS REQUIRED. THE GEOTEXTILE FABRIC SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR GEOTEXTILE FABRIC (CLASS D).
5. IF A WASH RACK IS NECESSARY, PROVISIONS MUST BE MADE TO INTERCEPT THE WASH WATER AND TRAP THE SEDIMENT BEFORE IT IS CARRIED OFF-SITE.



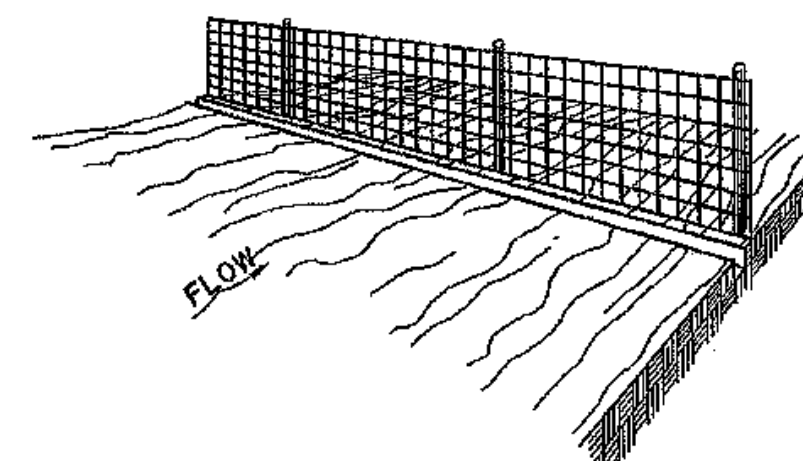
TEMPORARY SLOPE DRAIN

A TEMPORARY SLOPE DRAIN IS A DEVICE USED TO CARRY WATER FROM THE CONSTRUCTION WORK AREA TO A LOWER ELEVATION. SLOPE DRAINS MAY BE PLASTIC SHEET, METAL OR PLASTIC PIPE, STONE GUTTERS, FIBER MATS, OR CONCRETE OR ASPHALT DITCHES. A FEW BASIC DESIGN GUIDELINES FOR THE USE OF A TEMPORARY SLOPE DRAIN ARE:

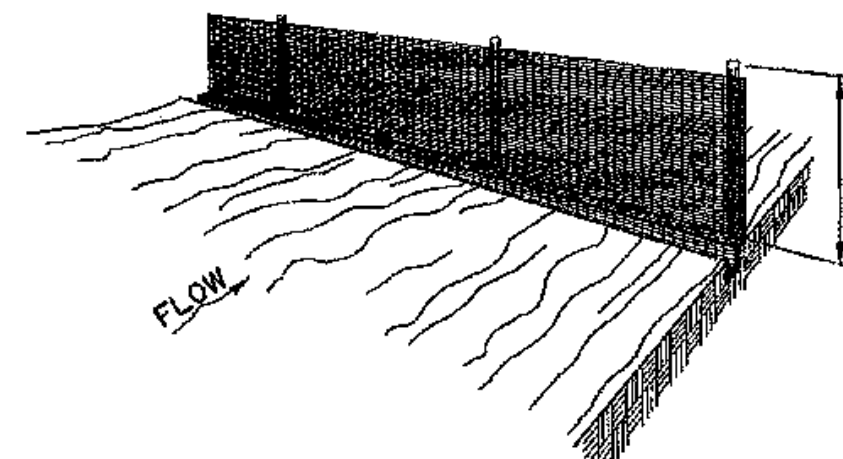
1. THE SPACING OF THE SLOPE DRAINS VARIES WITH THE ROAD GRADE.
FOR GRADES:
0.0% - 2.0% USE 500' SPACING
2.1% - 5.0% USE 200' SPACING
GREATER THAN 5.0% USE 100' SPACING
2. SLOPE DRAIN MATERIAL: SMOOTH PIPE - 6" MINIMUM - 3 MILS THICK MIN.
CORRUGATED PIPE - 12" MINIMUM
PLASTIC SHEETING - 4" WIDE MINIMUM
PLASTIC SHEETING - 3 MILS THICK MIN.
3. PLASTIC SHEETING CAN BE STAKED DOWN OR WEIGHTED WITH ROCKS OR LOGS. THE AREA UNDER THE SHEETING SHOULD BE SHAPED TO PROVIDE AN ADEQUATE CHANNEL.
4. THE OUTLET END SHOULD BE PROTECTED OR HAVE SOME MEANS OF DISSIPATING ENERGY. THE FLOW SHOULD BE DIRECTED THROUGH A SEDIMENT TRAP SUCH AS A SILT FENCE, HAY BALES, OR OTHER APPROVED SEDIMENT CONTROL DEVICES.
5. TO INSURE PROPER OPERATION, TEMPORARY SLOPE DRAINS SHOULD BE INSPECTED REGULARLY AND AFTER EACH STORM, FOR CLOGGING OR DISPLACEMENT. EROSION AT THE OUTLET SHOULD BE CHECKED AND THE SILT TRAPS CLEANED IF NECESSARY.



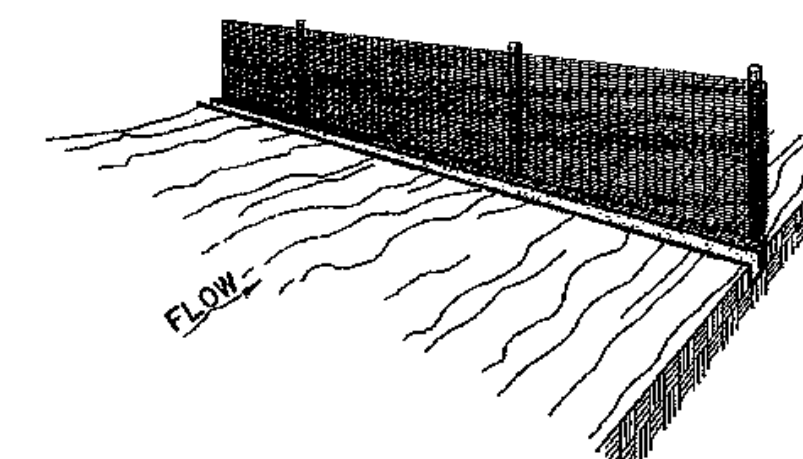
2. STAPLE WIRE FENCING TO THE POSTS.



3. ATTACH THE FILTER FABRIC TO THE WIRE FENCE AND EXTEND IT INTO THE TRENCH.



- #### 4. BACKFILL AND COMPACT EXCAVATED SOIL.



CONSTRUCTION OF TEMPORARY SILT FENCING

(WIRE SUPPORTED SILT FENCE IS SHOWN. SELF SUPPORTED SILT FENCE WILL BE CONSTRUCTED ACCORDING TO MANUFACTURERS SPECIFICATIONS.)

NOTES:

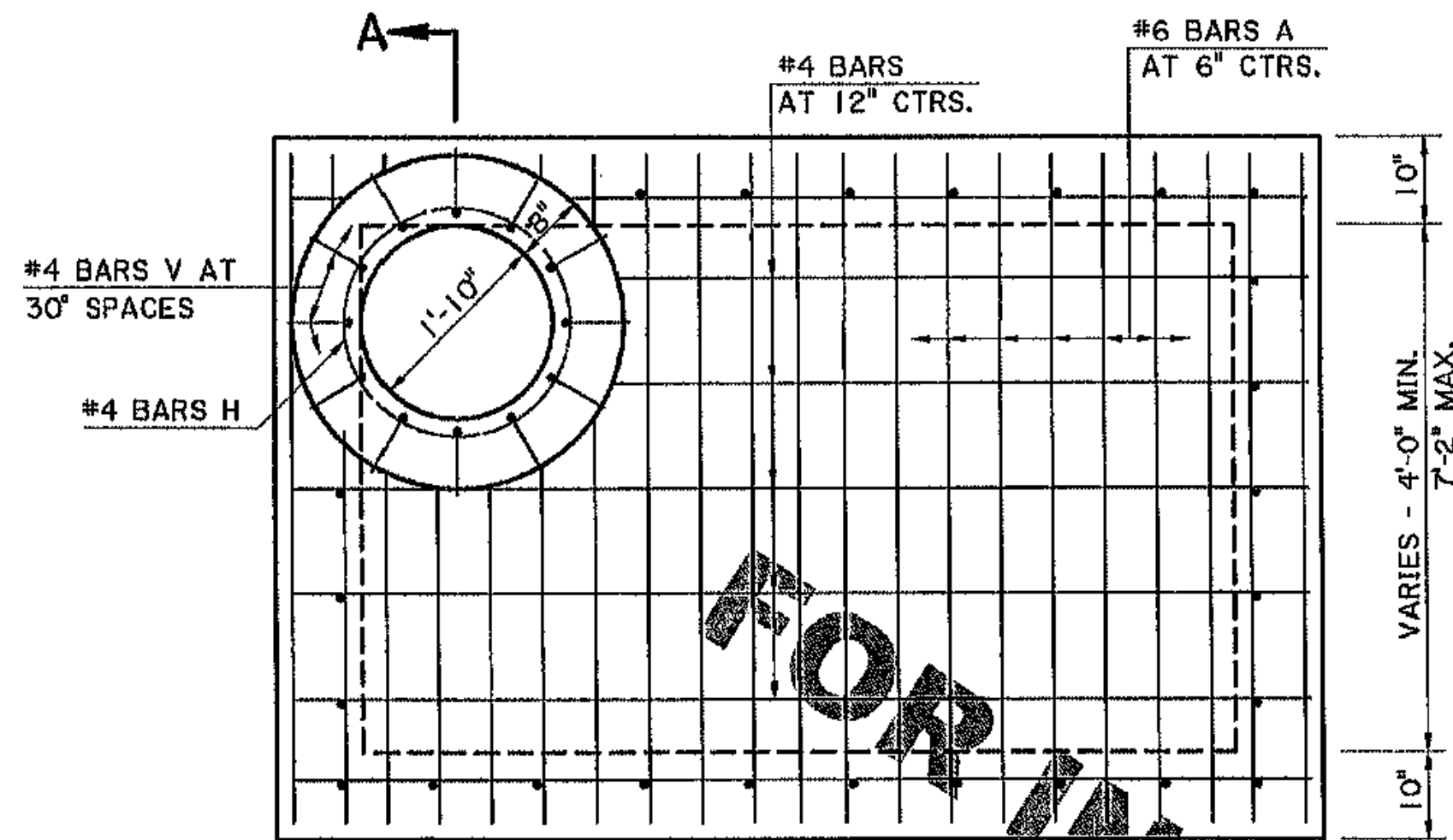
SILT FENCING IS A TEMPORARY SEDIMENT BARRIER CONSISTING OF A FILTER FABRIC SUPPORTED BY POSTS AND STRETCHED ACROSS AN AREA TO INTERCEPT AND DETAIN SMALL AMOUNTS OF SEDIMENT. THE SILT FENCING SHALL BE IN ACCORDANCE WITH PROJECT SPECIFICATIONS FOR TEMPORARY EROSION CONTROL. A FEW BASIC GUIDELINES FOR THE USE OF SILT FENCING ARE:

1. USE WHERE EROSION WOULD OCCUR IN THE FORM OF SHEET AND RILL EROSION
2. USE WHERE THE MAXIMUM DRAINAGE AREA BEHIND THE SILT FENCE IS ¼ ACRE PER 100 FEET OF SILT FENCE LENGTH
3. USE WHERE THE MAXIMUM SLOPE LENGTH BEHIND THE BARRIER IS 100 FEET
4. USE WHERE THE MAXIMUM GRADIENT BEHIND THE BARRIER IS 2:1
5. DO NOT USE SILT FENCES IN LIVE STREAMS OR IN DITCHES OR SWALES WHERE FLOWS EXCEED ONE CUBIC FOOT PER SECOND

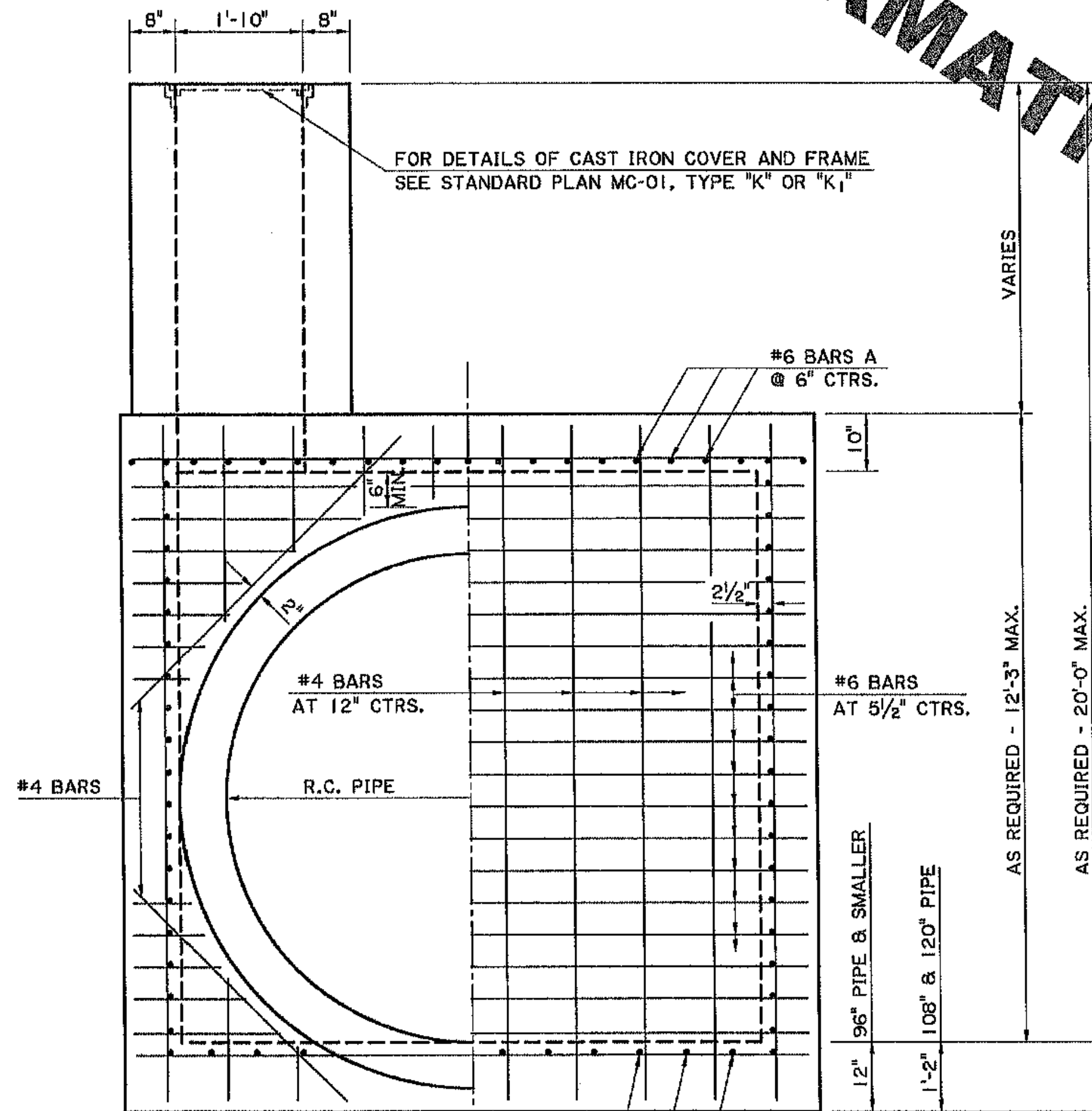
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APPROVED BY: <i>[Signature]</i> DATE: <i>1-1-94</i>				DATE	1-1-94	SHEET	2 OF 2	

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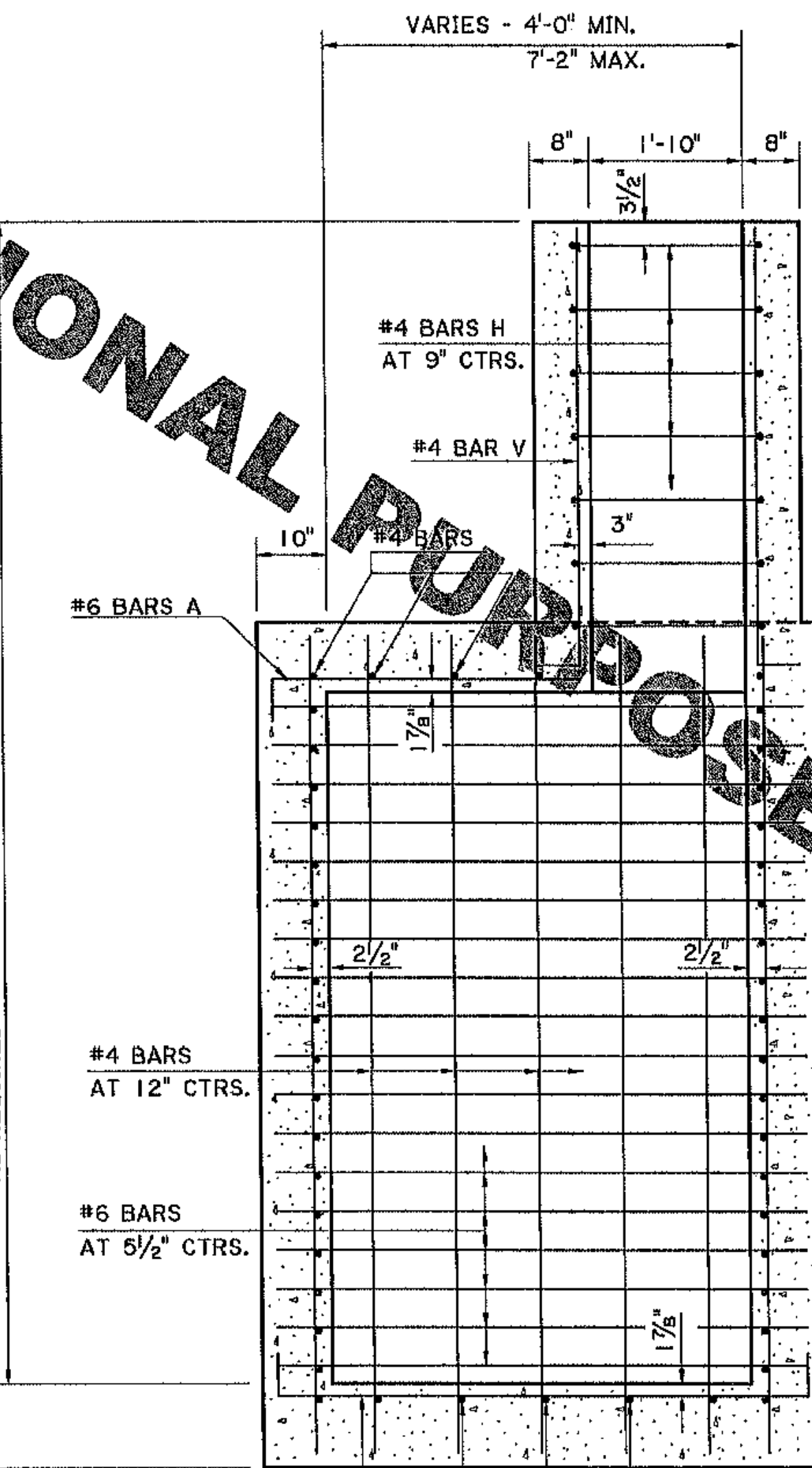
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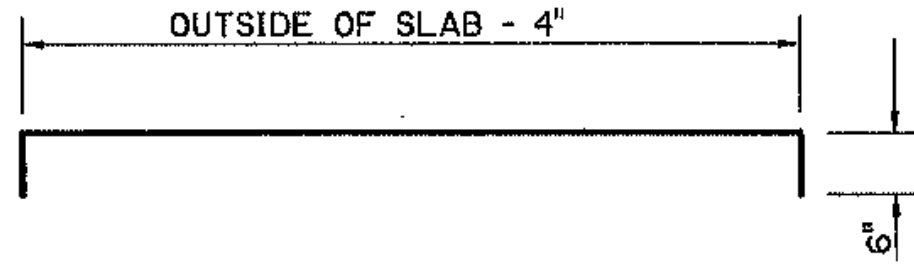
PLAN



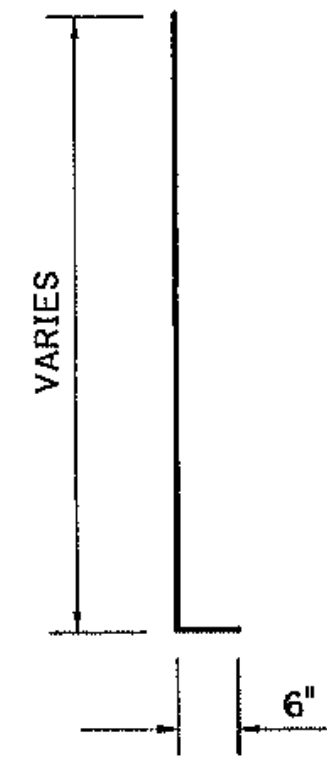
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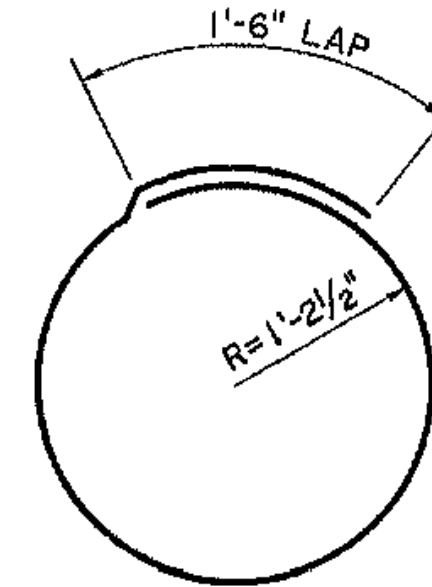
SECTION A-A



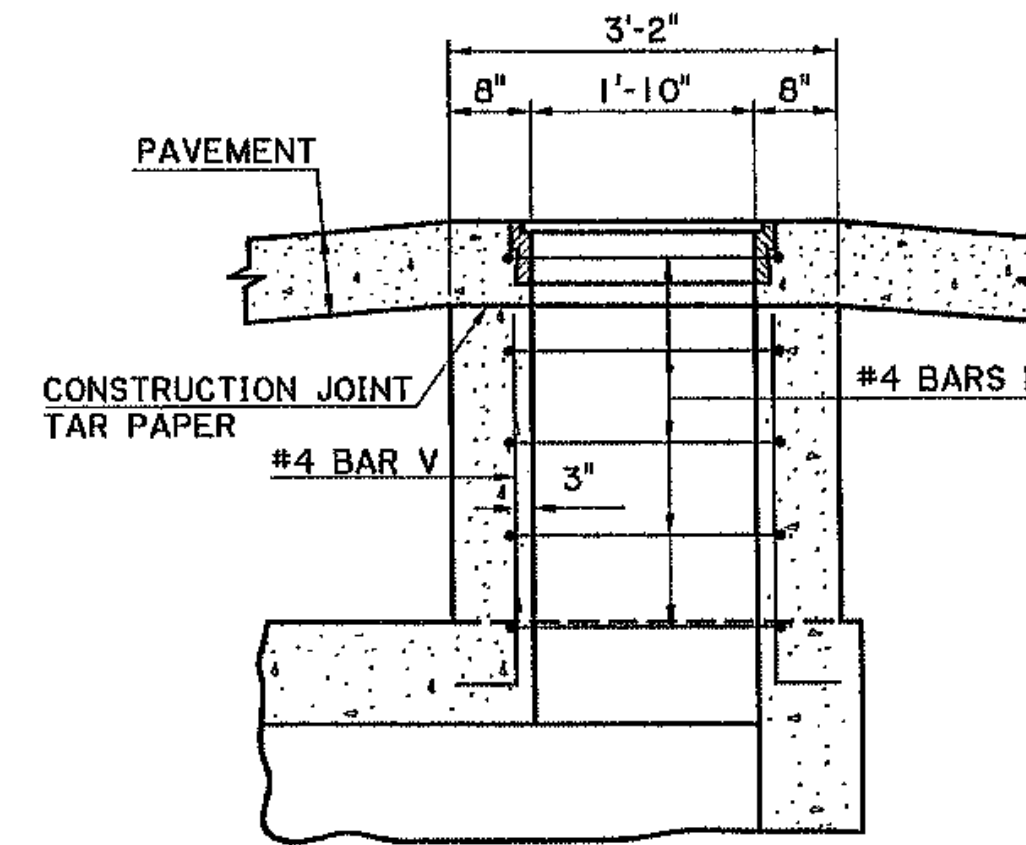
#6 BARS A



#4 BARS V



#4 BARS H



DETAIL A
(MANHOLE IN PAVEMENT AREA)

GENERAL NOTES:

- MANHOLE IS DESIGNED ACCORDING TO 4TH ED. 2007 AASHTO LRFD PROCEDURES, SECTION 702 OF THE DOTD STANDARD SPECIFICATIONS SHALL APPLY.
- CONCRETE: ALL CONCRETE SHALL BE CLASS "M" MINOR STRUCTURE. ALL EXPOSED EDGES SHALL BE CHAMFERED 3/4 IN. EXCEPT AS NOTED.
- REINFORCING STEEL: REINFORCING STEEL SHALL BE GRADE 60. DIMENSIONS ARE TO BAR CENTERS. MINIMUM COVER FOR REINFORCING BARS SHALL BE 2 IN. CLEAR UNLESS SHOWN OTHERWISE.
- SEE "DETAIL A" FOR DETAILS OF MANHOLE IN A PAVEMENT AREA.
- THE CONTRACTOR WILL NOT POUR ABOVE THE BOTTOM OF THE SLAB UNTIL THE PAVING ADJACENT TO THE MANHOLE HAS BEEN COMPLETED.

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