



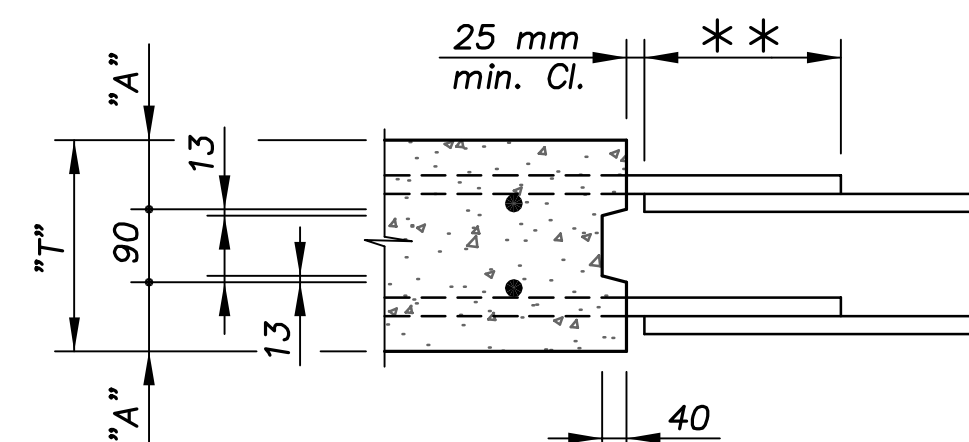
E.F. INDICATES EACH FACE.  
N.F. INDICATES NEAR FACE.  
F.F. INDICATES FAR FACE.

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	54-87 K-8258-03	2003	21	27

MINIMUM SPLICE LENGTHS	
Bar Size	Splice Length
13 M	640 mm
16 M	790 mm
19 M	940 mm
22 M	1195 mm
25 M	1550 mm

\*\* NOTE: Longitudinal bars shall extend through the joint to provide a minimum lap equal to the required splice length. See table for required splice length.

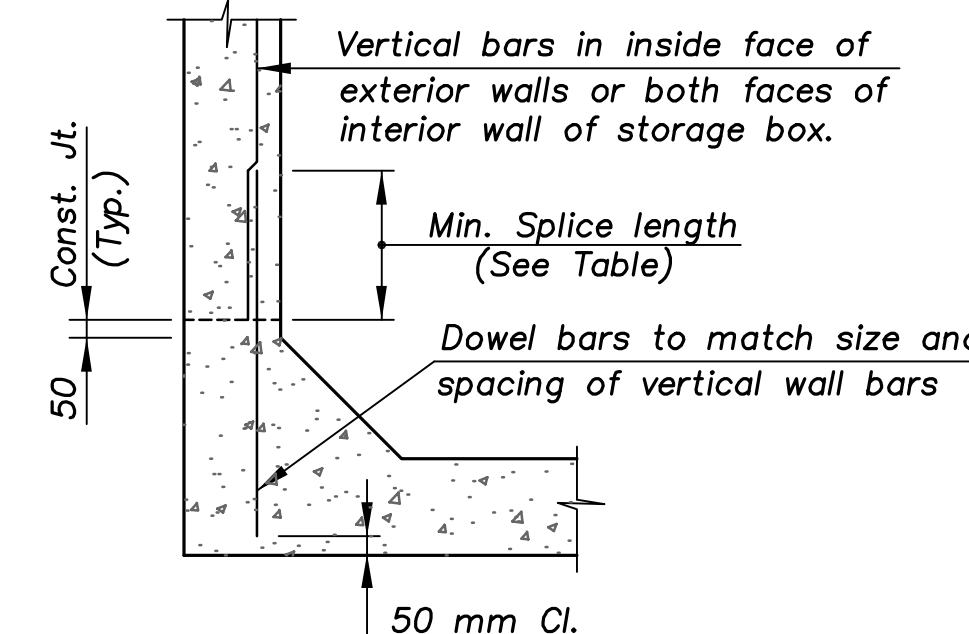
"A" = ("T" - 90 mm)  
2



**VERTICAL CONSTRUCTION JOINTS**

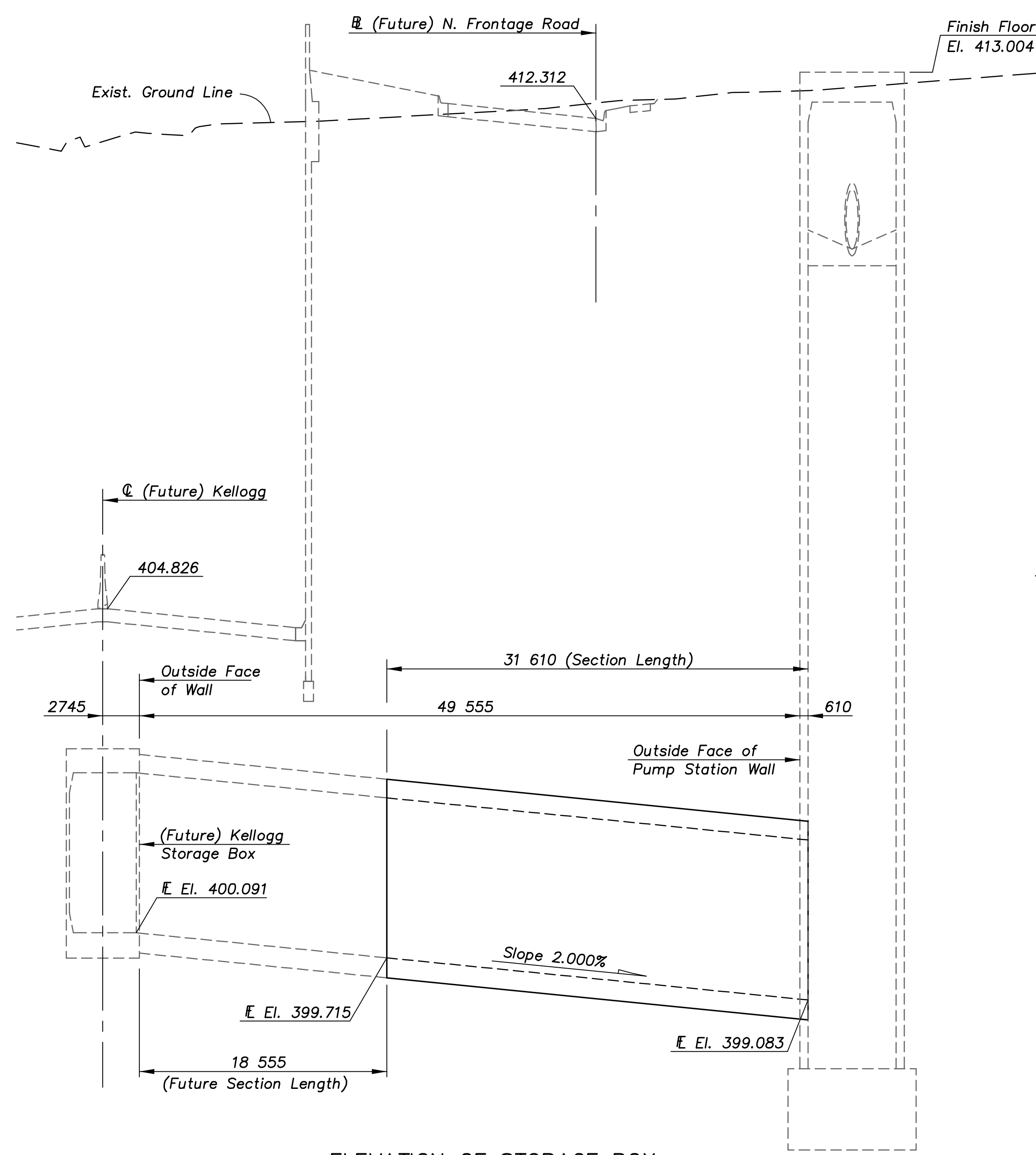
NOTE: Vertical construction joints shall be perpendicular to the longitudinal axis of the R.C.B. and shall be placed at any location as needed for construction and as approved by the Engineer. Vertical construction joints shall be protected by a bentonite based system as shown on the R.C.B. Auxiliary Details Sheet.

NOTE: Horizontal construction joints shall be a roughened finish.



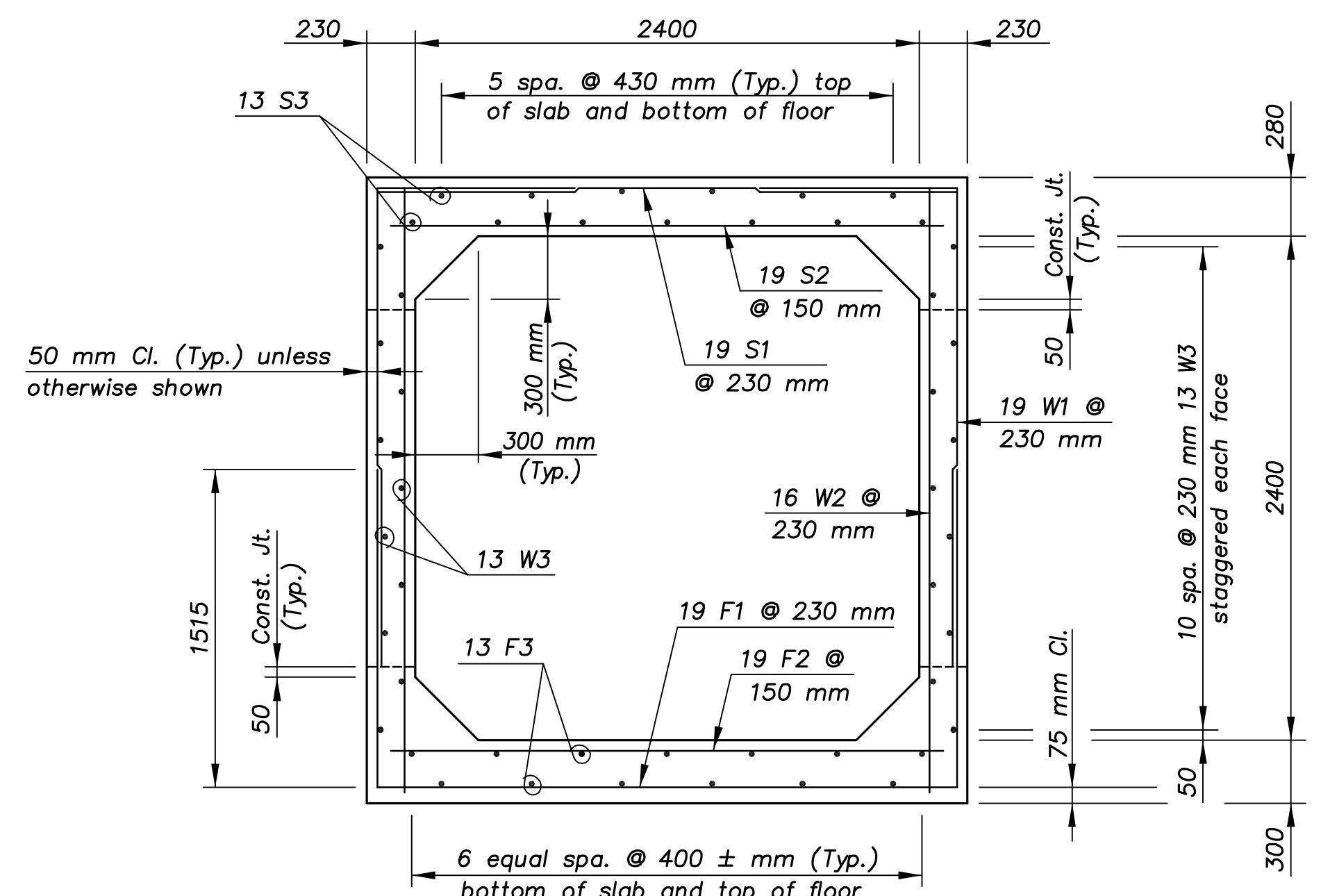
**OPTIONAL DOWEL BAR DETAIL**

NOTE: The Contractor shall have the option of using dowel bars to match vertical wall bars as shown, however no allowance will be made for additional steel required for bar laps.



**ELEVATION OF STORAGE BOX**

Scale: Horz. 1:250  
Vert. 1:50



**TYPICAL SECTION STORAGE BOX**

BILL OF REINFORCING STEEL								
STRAIGHT BARS				BENT BARS				BENDING DIAGRAMS
MARK	SIZE	NO.	LENGTH	MARK	SIZE	NO.	LENGTH	All dimensions are out to out of bars
F2	19	211	2630	F1	19	138	5790	
S1	19	138	2760	W1	19	276	3220	
S2	19	211	2630					
W2	16	276	2850					
F3	13	39	10 930					
S3	13	39	10 930					
W3	13	66	10 930					

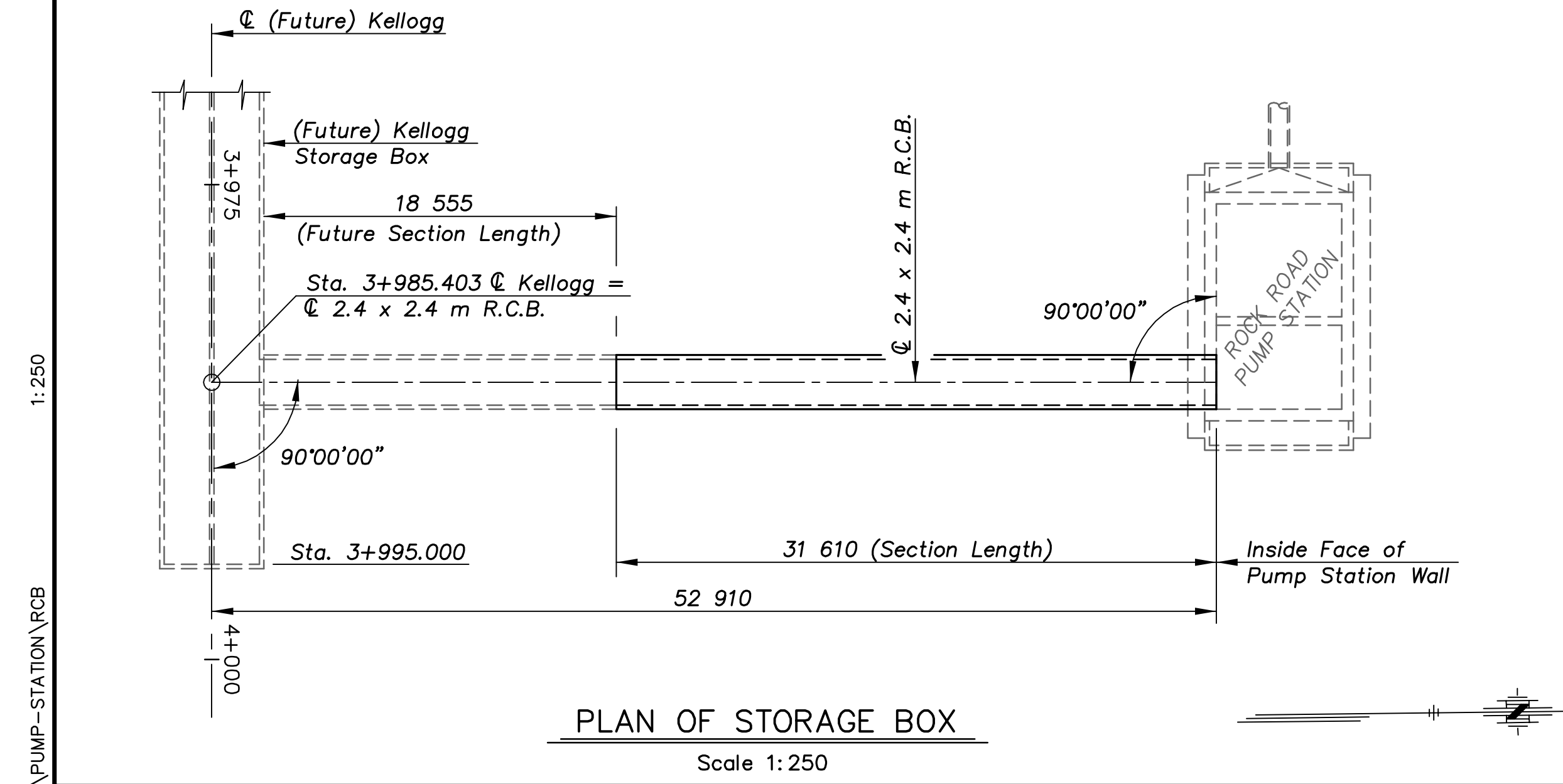
**CONSTRUCTION METHOD:**  
Construction for the storage box shall be cast-in-place as detailed on the plans. Precast box culverts may be used in lieu of the cast-in-place box culverts, approval of the precast option will be contingent on the Contractor demonstrating to the Engineer that the joint design is water tight and that infiltration of groundwater into the box culvert will not occur. Substitution of two single cell box culverts for the multiple cell section shall not be accepted.

**GENERAL NOTES**

- DESIGN LOADING:**  
MS-18 AASHTO Specifications, 1996 Edition & Interims.
- UNIT STRESSES:**  
Concrete (Grade 30) (AE)  $f'_c = 30$  MPa  
Reinforcing Steel (Grade 420)  $f_y = 420$  MPa
- CONCRETE:**  
Concrete (Grade 30) (AE) shall be used throughout. Bevel all exposed edges with a 20 mm triangular molding, unless otherwise noted.
- REINFORCING:**  
All reinforcing shall conform to ASTM A615M, Grade 420 and shall be epoxy coated. All dimensions relative to the placement of reinforcing steel shall be to the centerline of bar unless otherwise noted. The clear distance from the face of concrete to the end of reinforcing bar shall be 50 mm.
- FLOOR CONSTRUCTION:**  
Dewatering of the structural excavation may be necessary along the entire length of the storage box. The underlying shale will deteriorate upon exposure with time and also will soften if left covered with water. The Contractor shall exercise care to protect the founding level as he prepares for placement of concrete for the floor slab.
- SEAL COURSE:**  
A Seal Course may be required by the Engineer. The Seal Course shall be unreinforced Concrete (Commercial Grade) to a minimum depth of 75 mm or as determined by the Engineer. Concrete for the Seal Course shall be paid for at the unit price set for Concrete for Seal Course.
- CONSTRUCTION JOINTS:**  
Construction Joints shown are optional, but if used shall be made at locations shown or approved by the Engineer.
- GEOLOGY:**  
For subsurface information in the vicinity of the storage box, see the Soils Report.
- EXCAVATION AND BACKFILL:**  
The excavation outside the limits of the storage box shall be backfilled with cohesive soil and compacted to Type C compaction requirements in accordance with the Standard Specifications. Excavation and Backfill is not paid for directly but is considered Subsidiary to the bid item "Concrete Grade 30 (AE)". See Rock Road Pump Station "General Notes" for more information about Excavation and Backfill.

"For Information Only"

SUMMARY OF QUANTITIES	
Concrete Grade 30 (AE)	93.0 cu m
Reinforcing Steel Grade 420 (Epoxy Coated)	9890 kg
Foundation Stabilization (Set)	1 cu m
Concrete for Seal Course (Set)	1 cu m



**PLAN OF STORAGE BOX**

Scale 1:250

KANSAS DEPARTMENT OF TRANSPORTATION

**GENERAL PLAN AND ELEVATION**  
2.4 x 2.4 m R.C.B. TO  
ROCK ROAD PUMP STATION

Proj. No. 54-87 K-8258-03 SEDGWICK COUNTY

DESIGNED R.S.C. SCALE Varies  
DETAILED T.R.G. DATE  
QUANTITIES T.R.G. SHEET 1 OF 1

STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
KANSAS	54-87 K-8258-03	2003	22	27

GENERAL: The entire disturbed area, excepting the paved or surfaced areas, steep rocky slopes and areas of undisturbed native sod or other desirable vegetation shall be fertilized (limed when required), seeded, and mulched. Soil preparation shall conform to the Standard Specifications.

Temporary seeding shall be done during any time of the year that the soil can be cultivated. After the temporary seeding has been completed on the entire project, a permanent seeding shall be done by another project during the normal seeding season.

The Contractor will be required to finish areas of excavation, borrow and embankment in accordance with the specifications. Areas that require installation or construction of temporary water pollution control items will be finished in reasonable close conformity to the alignment, grade and cross section shown on the plans or as established by the Engineer.

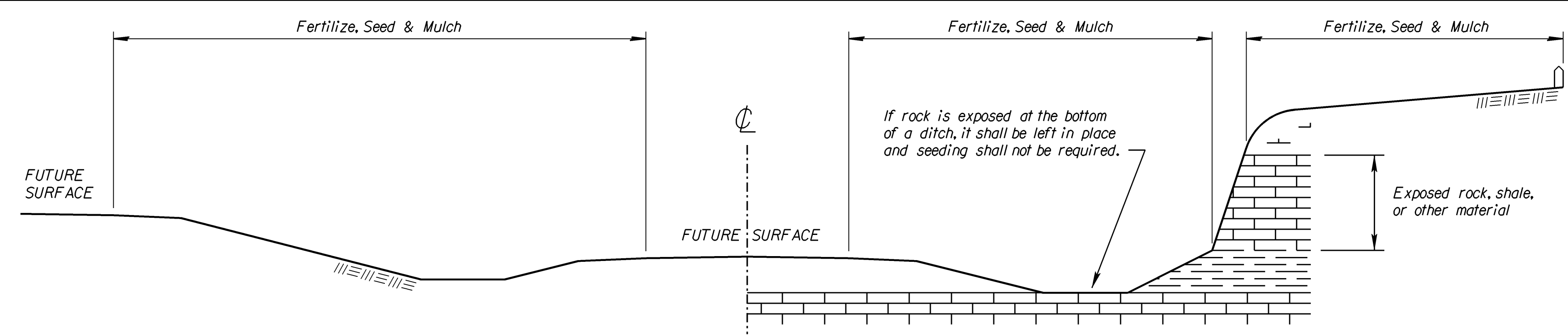
FERTILIZER: A ratio and application rate that equals or exceeds the required minimum rate per hectare of N, P<sub>2</sub>O<sub>5</sub>, K<sub>2</sub>O listed in Summary of Quantities will be acceptable.

MULCHING: Mulch shall be spread uniformly over all disturbed areas and punched in the soil, unless otherwise noted on the plans. The rate of application per hectare, thickness in place, for the various mulching materials are as follows:

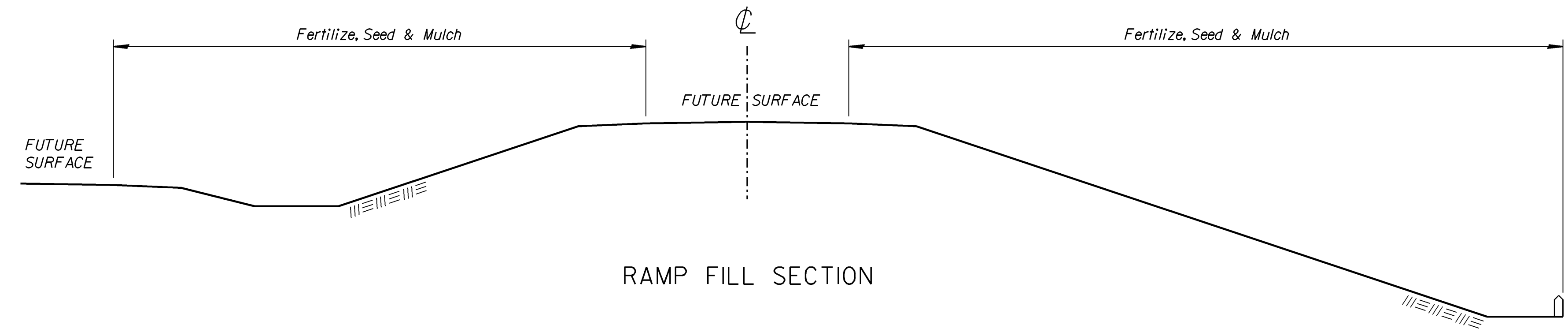
Prairie Hay	3,900 - 5,000 Kilograms per Hectare	= 40mm loose depth spread uniformly over hectare.
Bromegrass	3,900 - 5,000 Kilograms per Hectare	= 40mm loose depth spread uniformly over hectare.
Wheat or Oats Straw	3,400 - 4,500 Kilograms per Hectare	= 80mm loose depth spread uniformly over hectare.
Wood Chips	9,000 - 11,200 Kilograms per Hectare	= 25-50mm loose depth spread uniformly over hectare.
Wood Fiber	1,700 - 2,200 Kilograms per Hectare	= loose depth spread uniformly over hectare.
Other vegetative mulches (Acceptable only with the Engineer's concurrence).		

The above rates are a guide. It will be at the discretion of the Engineer to determine what rate is sufficient for adequate protection of newly seeded areas.

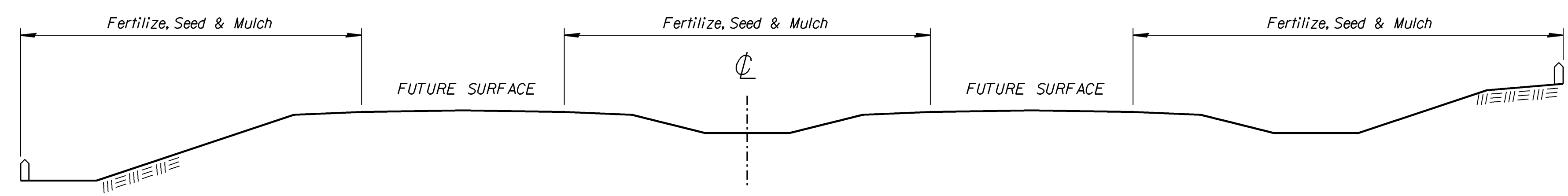
The amount of mulch in the bid quantities is estimated. The total mulch required shall be determined in the field. The bid item for mulching shall be paid for by one of the following ways: A) Plan quantity as shown on Summary of Quantities, Seeding Sheet or Water Pollution Control Sheet, B) Slope measurement as measured in field, or C) Drill measurement less 5% as measured at the time of seeding.



RAMP CUT SECTION



RAMP FILL SECTION



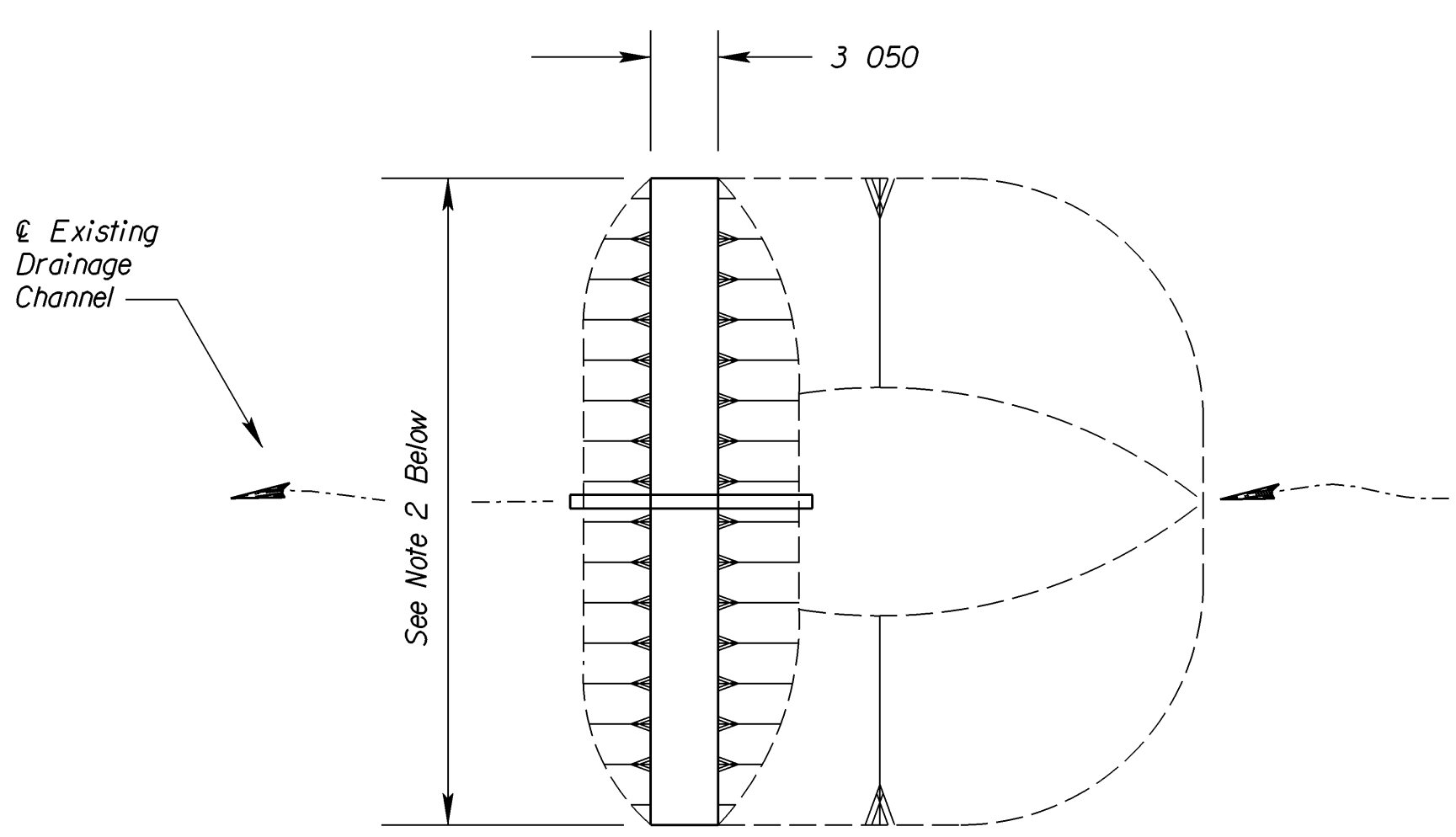
TYPICAL SECTION -- DUAL PAVEMENT

SUMMARY OF SEEDING QUANTITIES: PROJECTS OF 0.4 HA. OR MORE

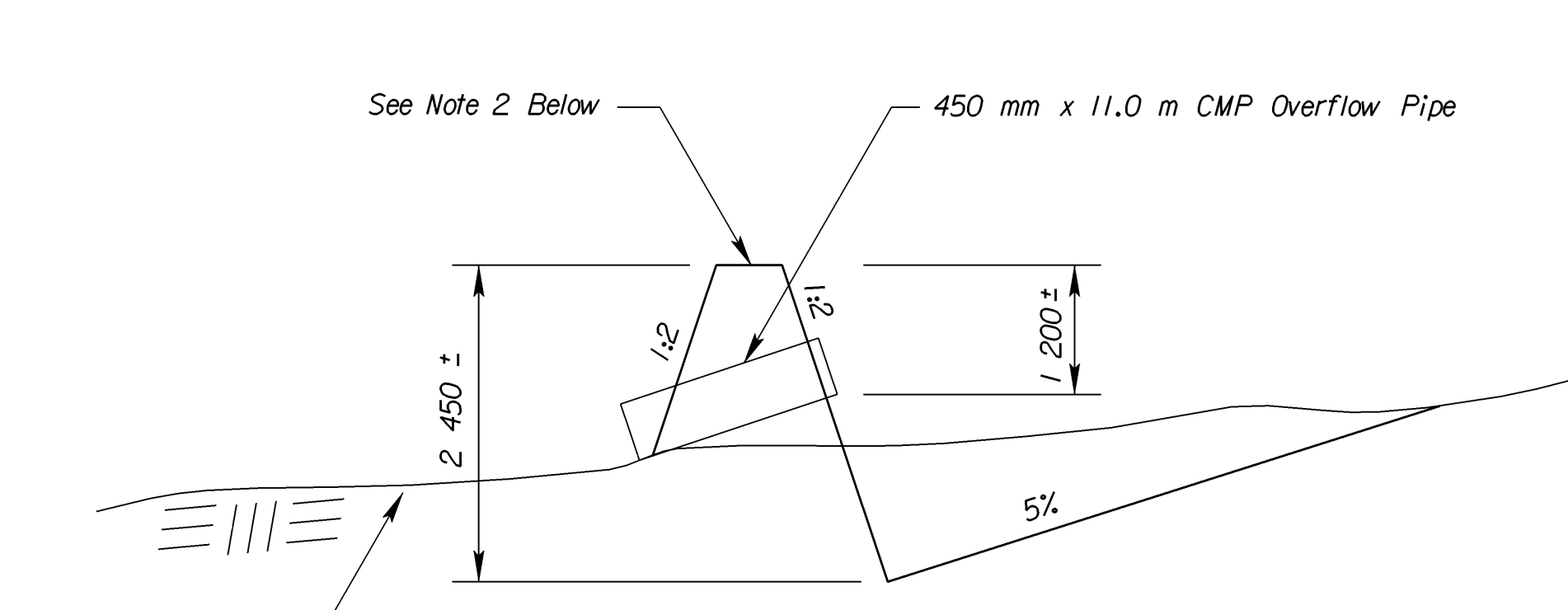
P.L.S. RATE/ HECTARE	HECTARES	BID ITEM	QUANTITY	UNIT
		Fertilizer ( * - * - * )		kg
		Ryegrass Seed		kg
		Foxtail Millet Seed		kg
		Agricultural Limestone		Mg
		Temporary Berm		m
		Temporary Ditch Check		m
		Temporary Inlet Sediment Barrier		Each
		Temporary Sediment Basin		cu m
		Temporary Slope Barrier ( Set )		m
		Temporary Slope Drain		m
		Temporary Stream Crossing		Each
		Sediment Removal ( Set )		cu m
		Mulching ( Temporary )		ha

SUMMARY OF SEEDING QUANTITIES: PROJECTS LESS THAN 0.4 HA.

P.L.S. RATE/ HECTARE	HECTARES	BID ITEM	QUANTITY	UNIT
		Fertilizer ( * - * - * )		kg
		Ryegrass Seed		kg
		Foxtail Millet Seed		kg
		Agricultural Limestone		Mg
		Seeding ( TE&PC )		LS
		Temporary Ditch Check		m
		Temporary Slope Barrier ( Set )		m
		Sediment Removal ( Set )		cu m
		Mulching ( Temporary )		ha



PLAN



PROFILE

NOTES:

- 1 ) Temporary Sediment Basins shall be constructed at locations as directed by the Engineer. All work and materials necessary for the construction of Temporary Sediment Basins shall be paid for as the bid item "Temporary Sediment Basin". The 450 mm x 11.0 m overflow pipe will be SUBSIDIARY to the bid item "Temporary Sediment Basin". The Temporary Sediment Basins shall be removed by KDOT District forces after seeding has been established if desired by the respective land owners.
- 2 ) Lengths and top elevations shall be determined in the field by the Engineer.
- 3 ) All dimensions are approximate.

NOTE: Projects of less than 0.4 hectares shall be bid as "Seeding" by lump sum. All disturbed areas shall be seeded, fertilized and mulched at the listed rate per hectare. The hectares are estimated.

- \* - N = Nitrogen Rate of Application
- \*\* - P<sub>2</sub>O<sub>5</sub> = Phosphorous Rate of Application
- \*\*\* - K<sub>2</sub>O = Potassium Rate of Application

5					
4					
3					
2	7/18/03	Revised Standard		FCM	SPV
1	5/10/99	Revised Standard		WCL	RDR
NO.	DATE	REVISIONS	BY	APP'D	

**KANSAS DEPARTMENT OF TRANSPORTATION**

**TEMPORARY EROSION AND POLLUTION CONTROL**

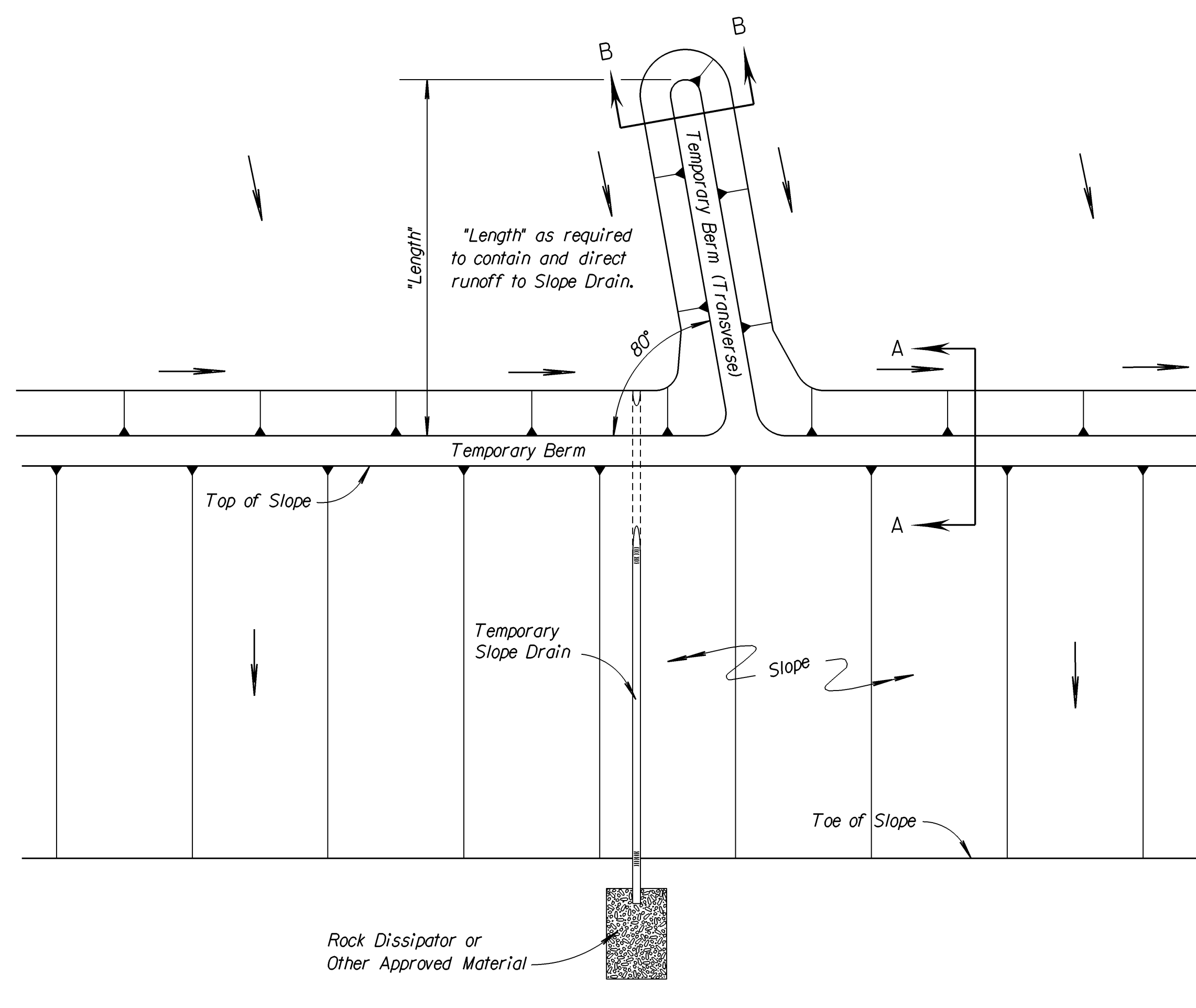
LA852A SI

F.H.W.A. APPROVAL	5/20/99	APP'D	Richard D. Ross
DESIGNED	WCL	DETAILED	WCL
DESIGN CK.	RDR	DETAIL CK.	RDR
		QUANTITIES	TRACED
		QUAN. CK.	TRACE CK.

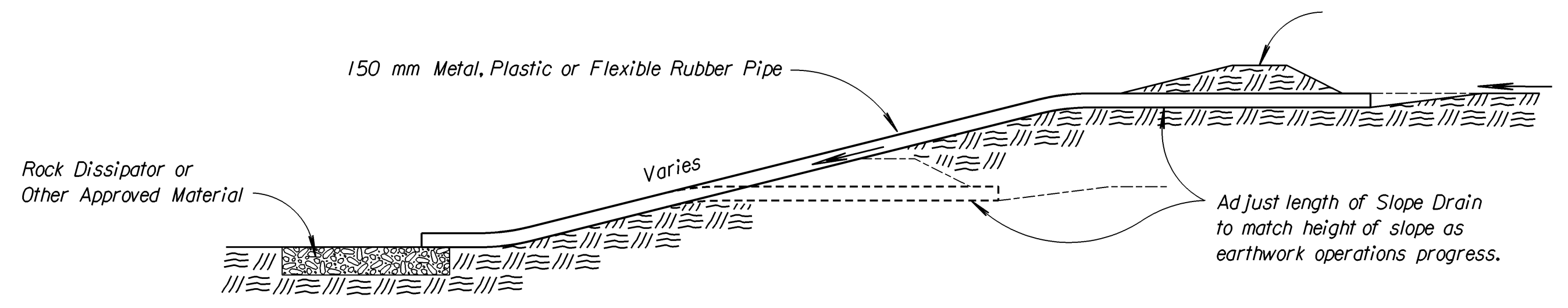
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 Plotted: \$\$\$SYTIME\$\$\$ View= PLOT 1

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	54-87 K-8258-03	2003	23	27

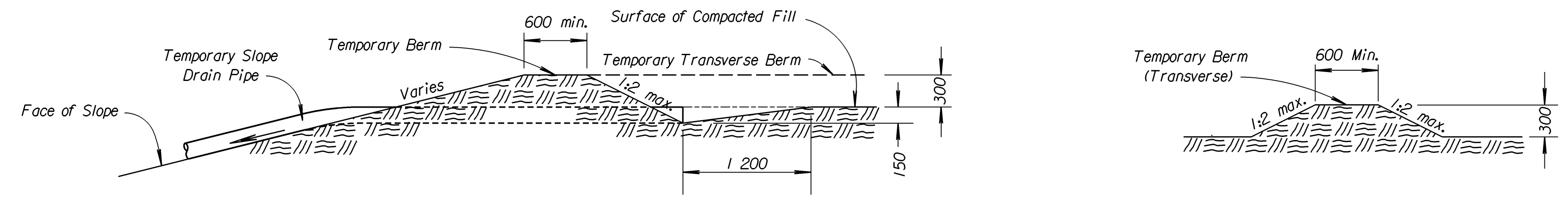
- NOTES:
- 1) Temporary Slope Drain and Temporary Berm may be used on either project foreslopes or project backslopes.
  - 2) Discharge of Slope Drains shall be into stabilized ditch or area, or into Sediment Basin.
  - 3) Pipe shall be secured in place as approved by Engineer.



TYPICAL PLAN VIEW OF TEMPORARY BERM AND TEMPORARY SLOPE DRAIN  
NO SCALE



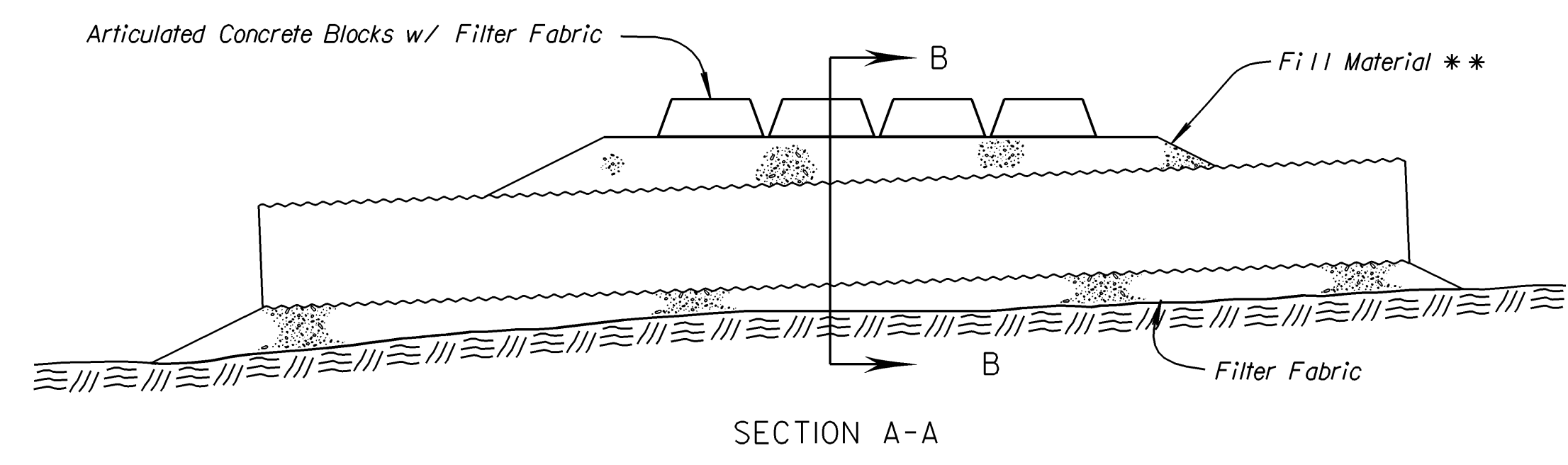
TYPICAL PROFILE OF TEMPORARY SLOPE DRAIN  
NO SCALE



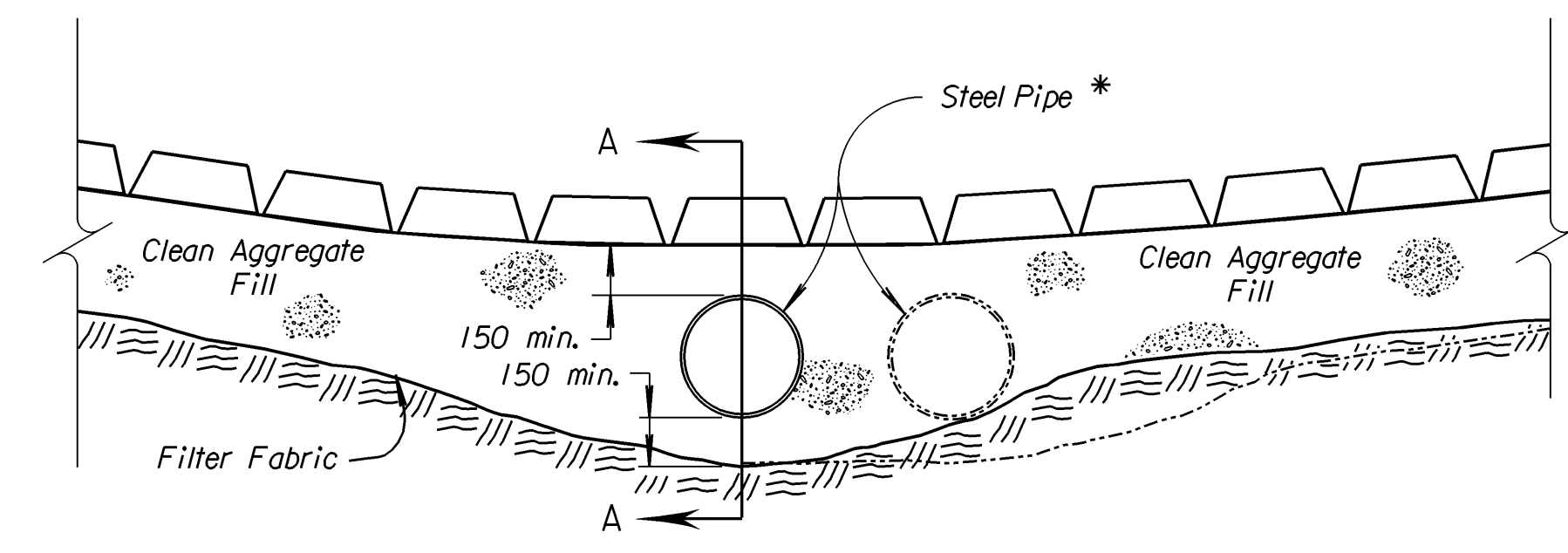
SECTION A-A  
NO SCALE

SECTION B-B  
NO SCALE

TYPICAL PROFILE OF TEMPORARY BERM  
NO SCALE



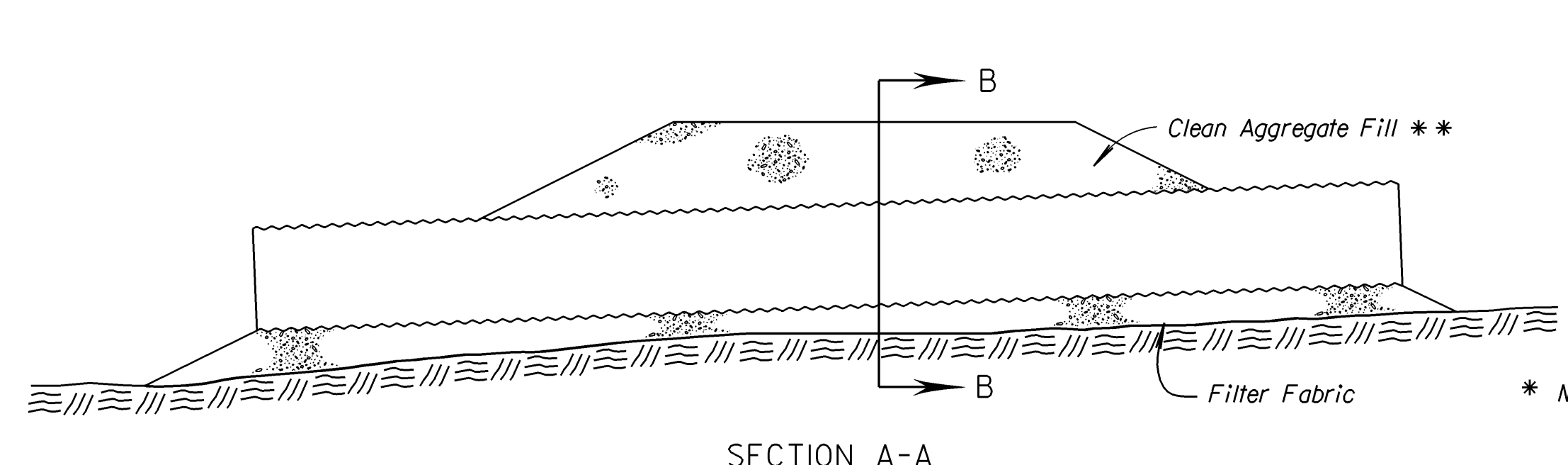
SECTION A-A



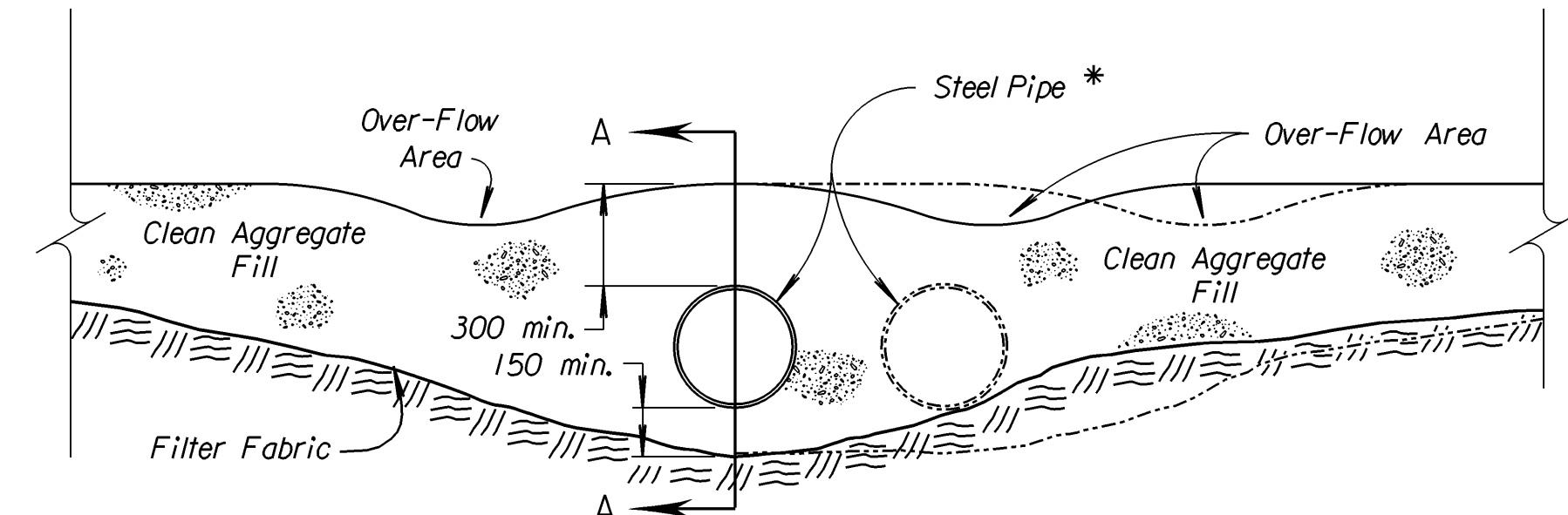
SECTION B-B

TEMPORARY STREAM CROSSING (ARTICULATED CONCRETE BLOCKS)  
NO SCALE

\* NOTE:  
Quantity, length and diameter of steel pipe to be determined by design flow calculations.



SECTION A-A



SECTION B-B

TEMPORARY STREAM CROSSING (AGGREGATE)  
NO SCALE

\* NOTE:  
Quantity, length and diameter of steel pipe to be determined by design flow calculations.

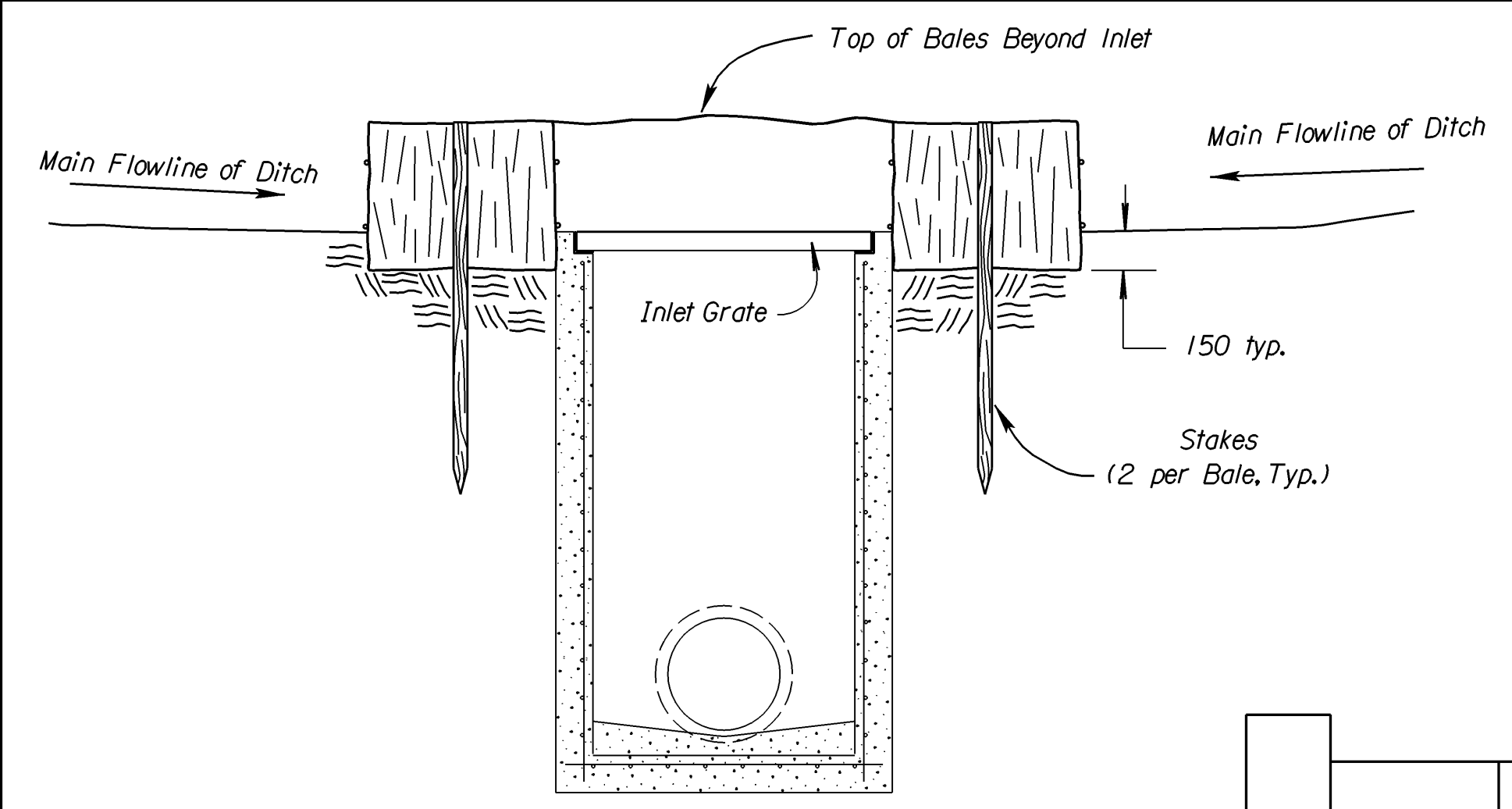
NO.	DATE	REVISIONS	BY	APP'D
3				
2				
1	5/10/99	Revised Standard	WCL	RDR

**KANSAS DEPARTMENT OF TRANSPORTATION**  
**TEMPORARY EROSION AND POLLUTION CONTROL**  
**TEMPORARY SLOPE DRAIN**  
**TEMPORARY STREAM CROSSING (AGGREGATE)**  
**TEMP. STREAM CROSS. (ARTC. CONC. BLOCKS)**  
**LA852B SI**

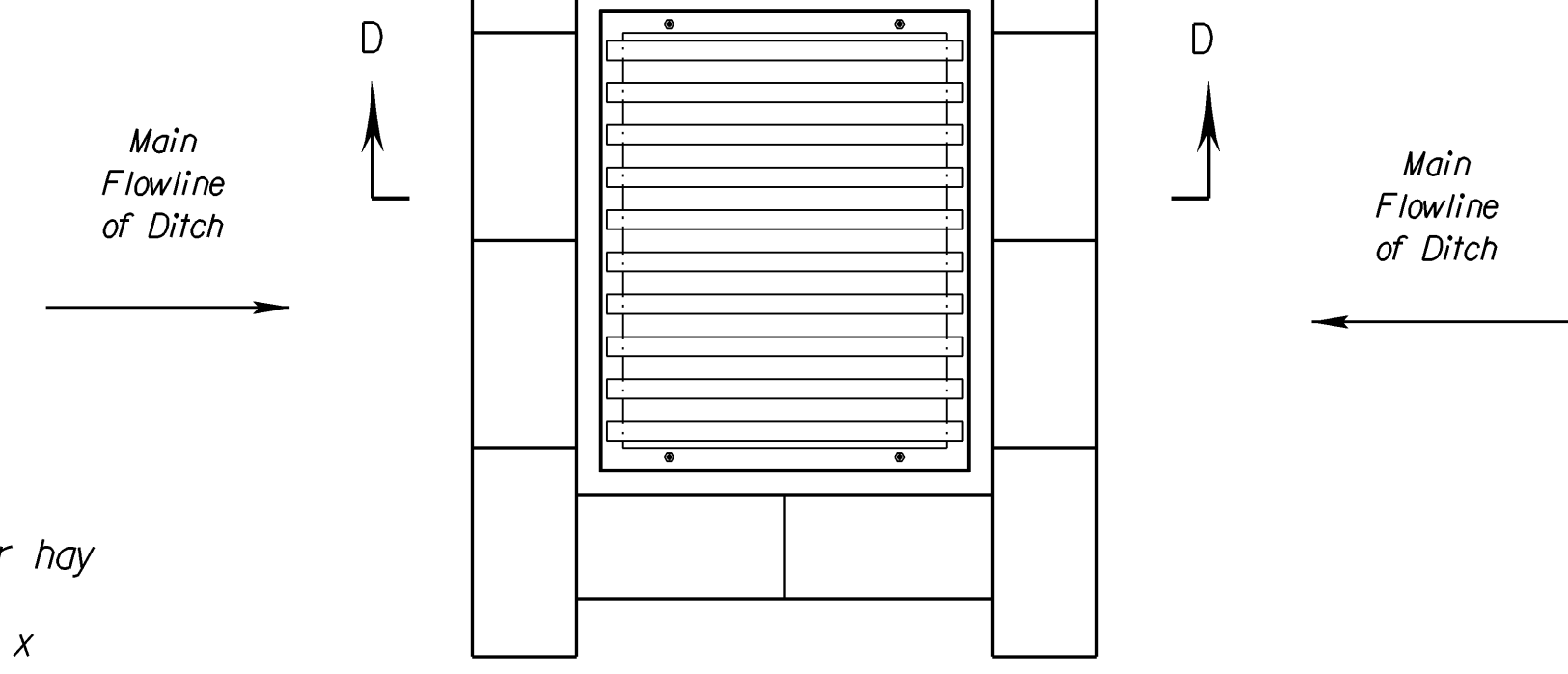
F.H.W.A. APPROVAL	5/20/99	APP'D	Richard D. Ross
DESIGNED	WCL	QUANTITIES	TRACED
DESIGN CK.	RDR	QUAN. CK.	TRACE CK.

Drawn By: \$\$USERNAME\$\$  
DGN File: \$\$\$DGN\$\$SPEC\$\$\$\$\$\$\$\$\$ PLOT 1  
Plotted: \$\$\$SYTIME\$\$\$\$\$

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	54-87 K-8258-03	2003	24	27

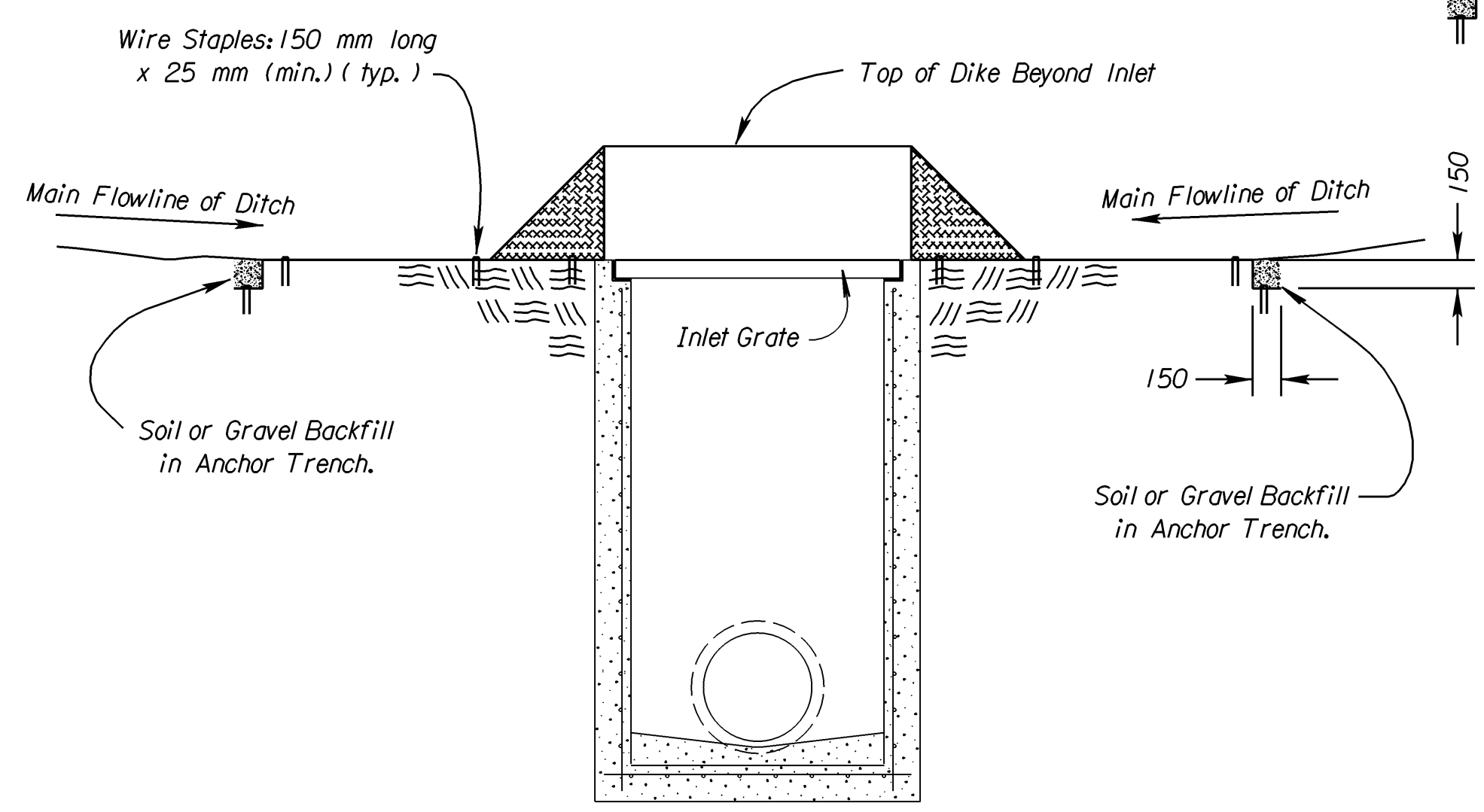


SECTION D - D

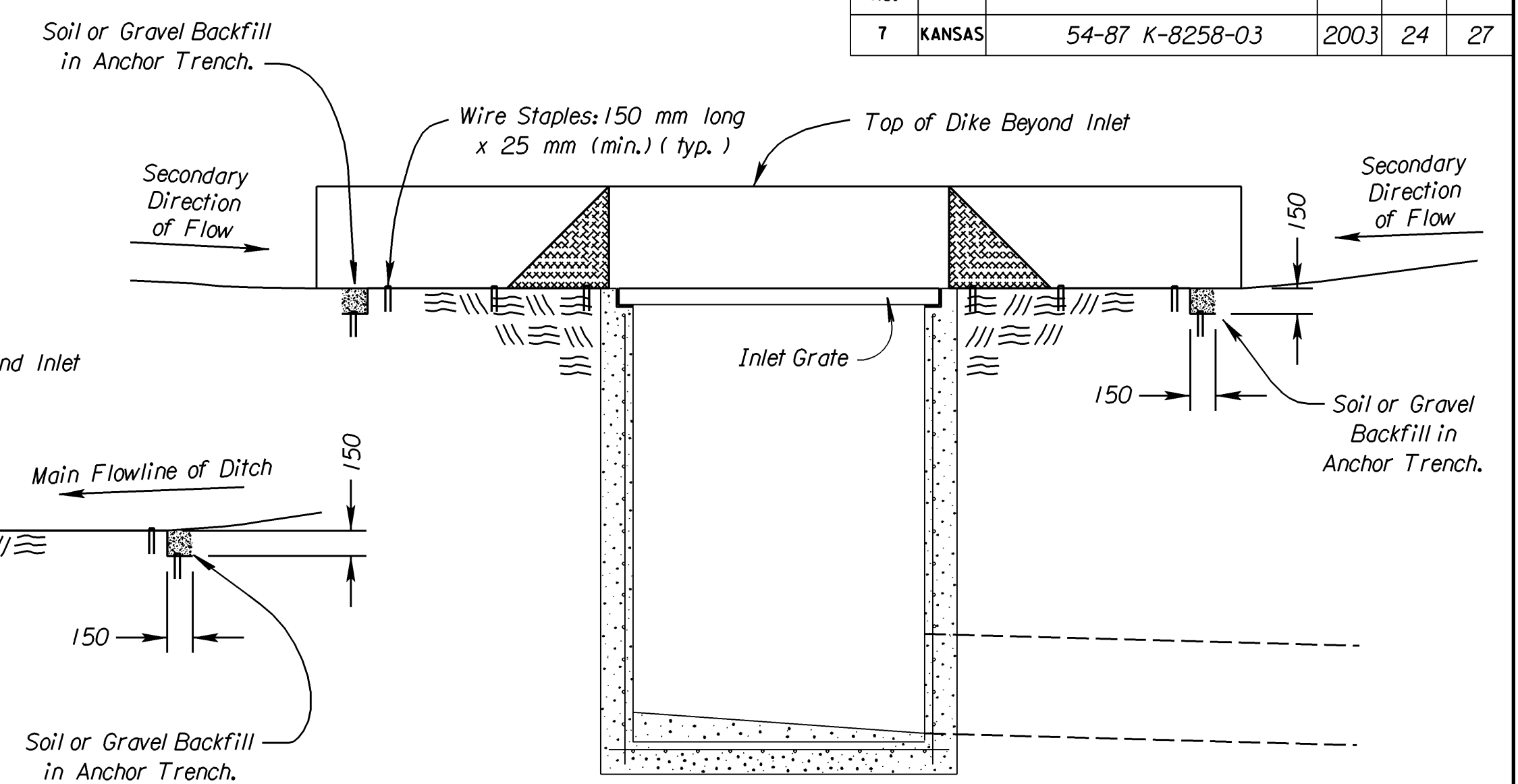


PLAN

NOTE: The use of Straw or Hay Bales, Silt Fence or Triangular Silt Dike for Temporary Inlet Sediment Barrier is at the option of the Contractor.



SECTION A - A

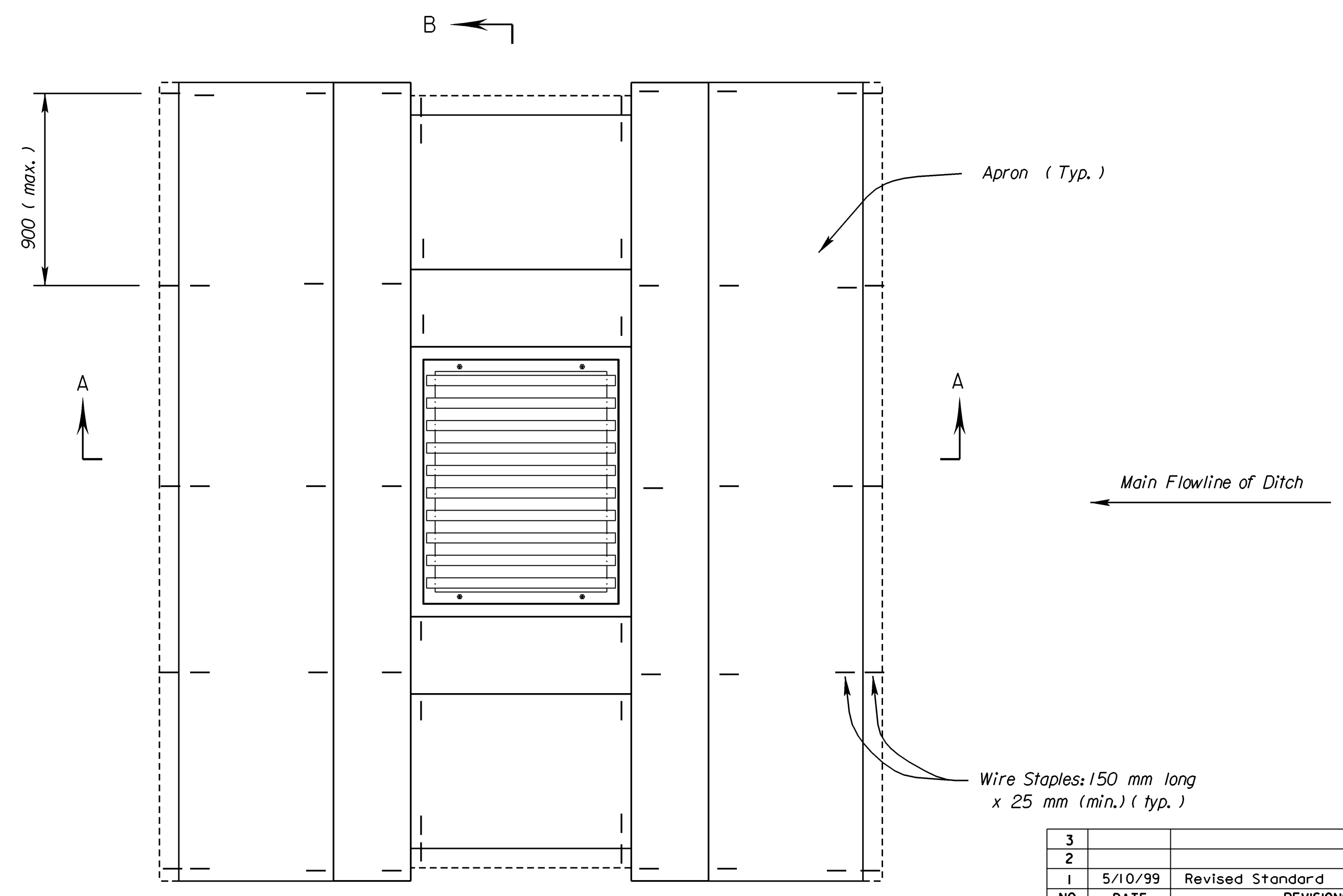


SECTION B - B

STRAW OR HAY BALES:

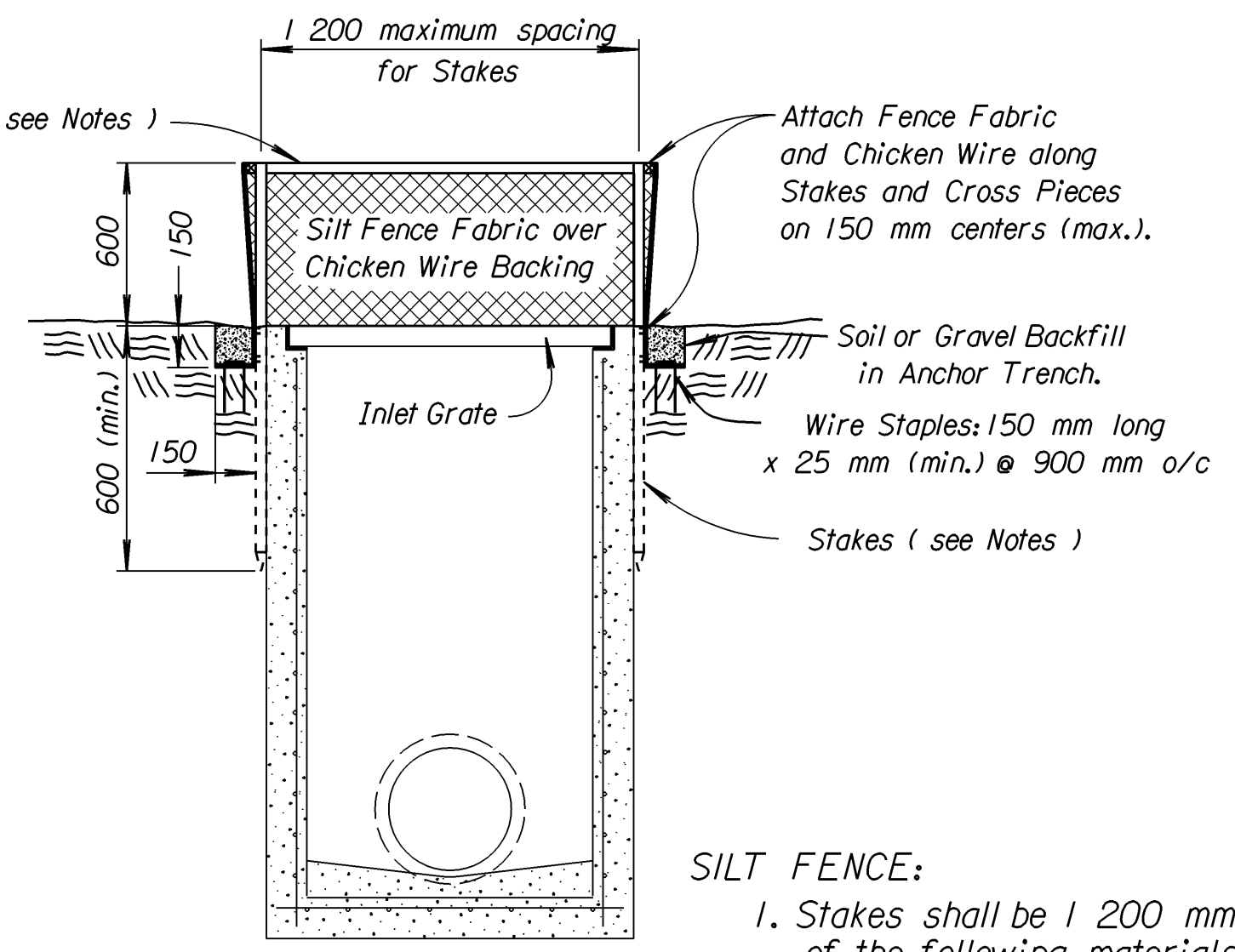
1. Place bales tightly together, with loose straw or hay wedged between bales to close off openings.
2. Wood stakes shall be 50 mm x 50 mm (nom.) x 1 200 mm (min.) long.
3. Refer to plans sheets to estimate the number of bales required.
4. Use only twine to bind bales. The use of wire binding is prohibited because it does not readily biodegrade.

TEMPORARY INLET SEDIMENT BARRIER  
(STRAW OR HAY BALE METHOD)  
NO SCALE



PLAN

TEMPORARY INLET SEDIMENT BARRIER  
(TRIANGULAR SILT DIKE METHOD)  
NO SCALE



SECTION C - C

SILT FENCE:

1. Stakes shall be 1 200 mm (min.) long and of one of the following materials:
  - a. Hardwood - 30 mm x 30 mm;
  - b. Southern Pine (No. 2) - 65 mm x 65 mm;
  - c. Steel U, T, L, or C Section - 600 grams per 300 mm; or
  - d. Synthetic - same strength as wood stakes.
2. Cross Pieces shall be of same material as Stakes.
3. Attach fence fabric to stakes with staples, wire or nails.
4. Refer to plan sheets to estimate the length of Silt Fence required.

TEMPORARY INLET SEDIMENT BARRIER  
(SILT FENCE METHOD)  
NO SCALE

3					
2					
1	5/10/99	Revised Standard		WCL	RDR
NO.	DATE	REVISIONS		BY	APP'D
<b>KANSAS DEPARTMENT OF TRANSPORTATION</b> <b>TEMPORARY EROSION AND POLLUTION CONTROL</b> <b>TEMP. INLET SEDIMENT BARRIER (SILT FENCE)</b> <b>TEMP. INLET SEDIMENT BARRIER (BALES)</b> <b>TEMP. INLET SEDIMENT BARRIER (T.S.D.)</b> <b>LA852C SI</b>					
F.H.W.A. APPROVAL	5/20/99	APP'D		Richard D. Ross	
DESIGNED	WCL	DETAILED	WCL	QUANTITIES	TRACED
DESIGN CK.	RDR	DETAIL CK.	RDR	QUAN. CK.	TRACE CK.

Drawn By: \$\$\$USERNAME\$\$\$  
 DGN File: \$\$\$DGNFILE\$\$\$  
 Plotted: \$\$\$SYTIME\$\$\$ View= PLOT 1

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	54-87 K-8258-03	2003	25	27

**GENERAL NOTES**

- 1) The use of Straw or Hay Bales, Silt Fence or Biodegradable Logs is at the option of the Contractor.
- 2) The slope barriers shall be placed along contour lines, with a short section turned upgrade at each end of the barrier.
- 3) At culverts, the Straw or Hay Bales or Silt Fence shall be placed over the culvert, not through the streambed flowline.
- 4) Barriers damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired immediately by Contractor at no additional cost to KDOT.

**INSTALLATION NOTES**

**STRAW OR HAY BALES:**

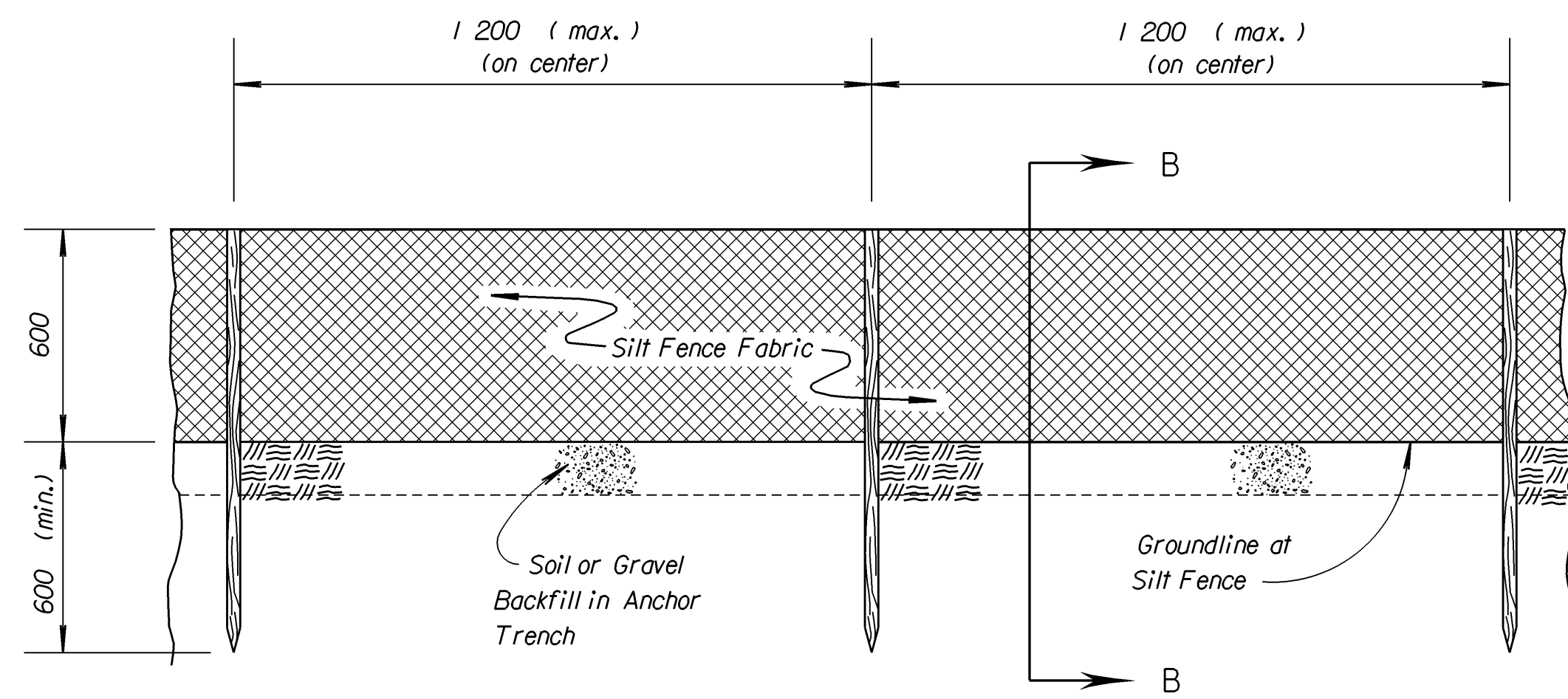
1. Place bales tightly together, with loose straw or hay wedged between bales to close off openings.
2. Wood stakes shall be 50 mm x 50 mm (nom.) x 1 200 mm (min.) long.
3. Refer to plans sheets to estimate the length of bales required.
4. Use only twine to bind bales. The use of wire binding is prohibited because it does not readily biodegrade.

**SILT FENCE:**

1. Stakes shall be 1 200 mm (min.) long and of one of the following materials:
  - a. Hardwood - 30 mm x 30 mm;
  - b. Southern Pine (No. 2) - 65 mm x 65 mm;
  - c. Steel U, T, L, or C Section - 600 grams per 300 mm; or
  - d. Synthetic - same strength as wood stakes.
2. Attach fence fabric to stakes with staples, wire or nails.
3. Refer to plan sheets to estimate the length of Silt Fence required.

**BIODEGRADABLE LOG BARRIERS**

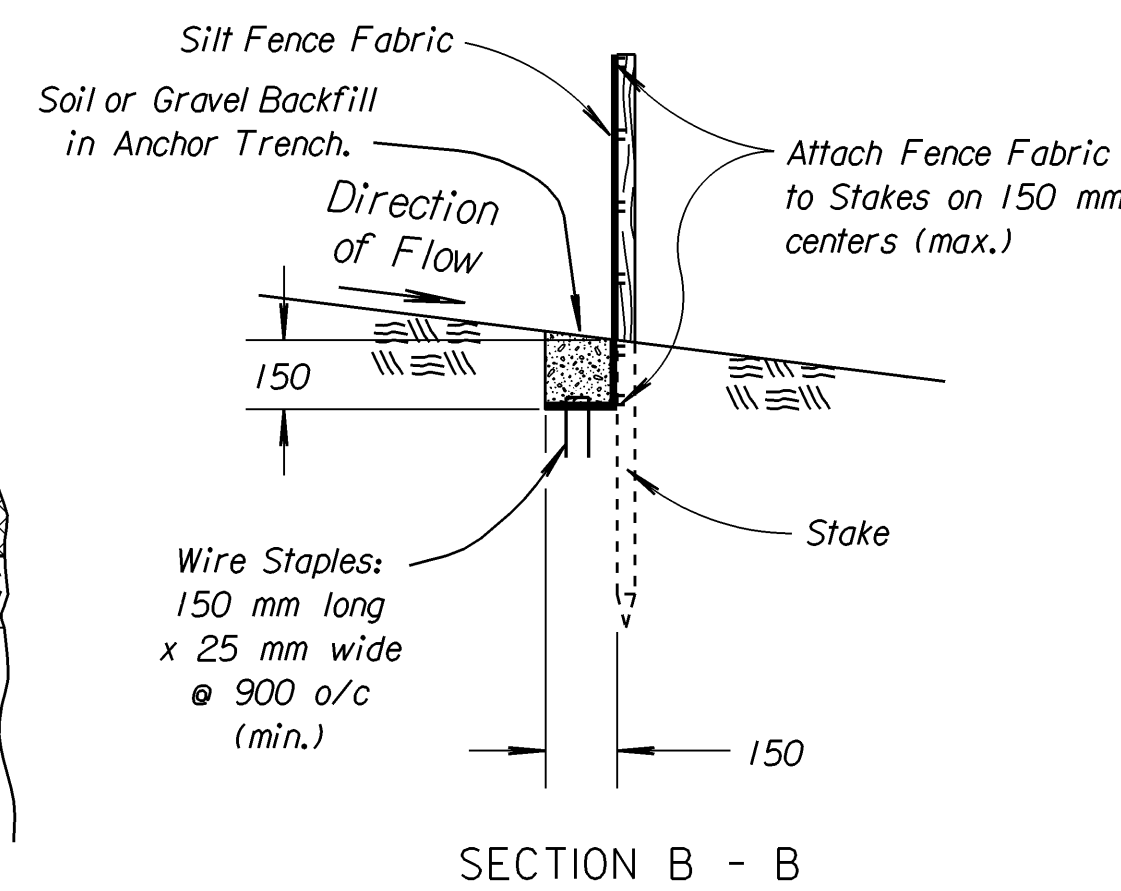
1. Place biodegradable logs tightly together.
2. Wood stakes shall be 50 mm x 50 mm (nom.) x 1 200 mm (min.) long.
3. Wire staples shall be 150 mm long x 25 mm wide (min.) and placed on 900 mm (max.) centers.
4. Refer to plan sheets to estimate length of biodegradable log barriers required.



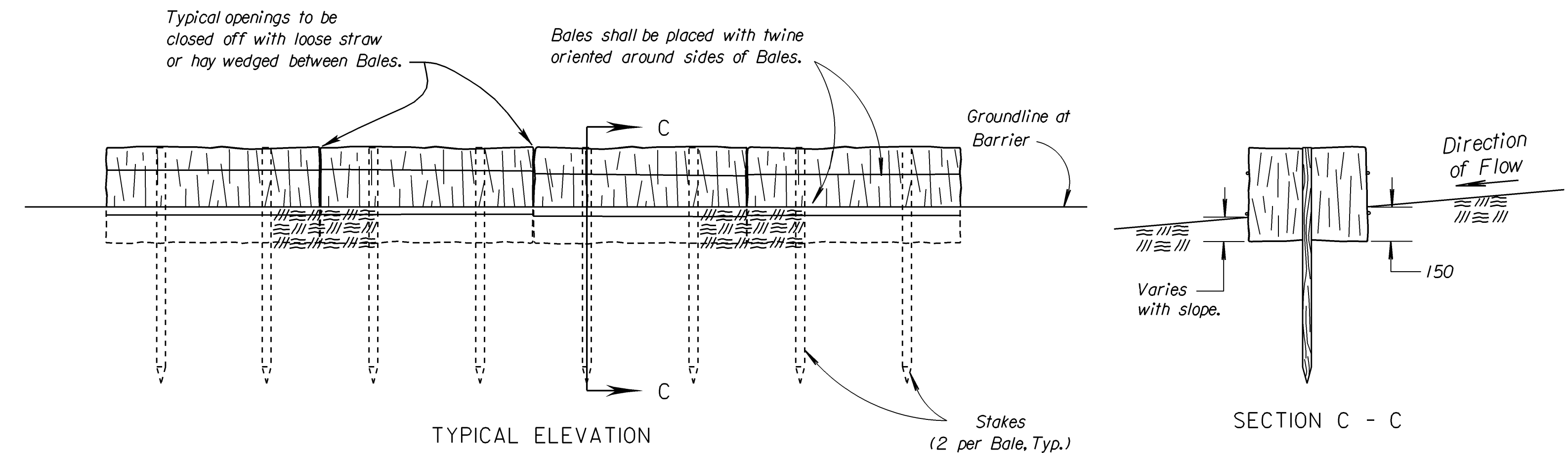
TYPICAL ELEVATION

SILT FENCE SLOPE BARRIER

NO SCALE



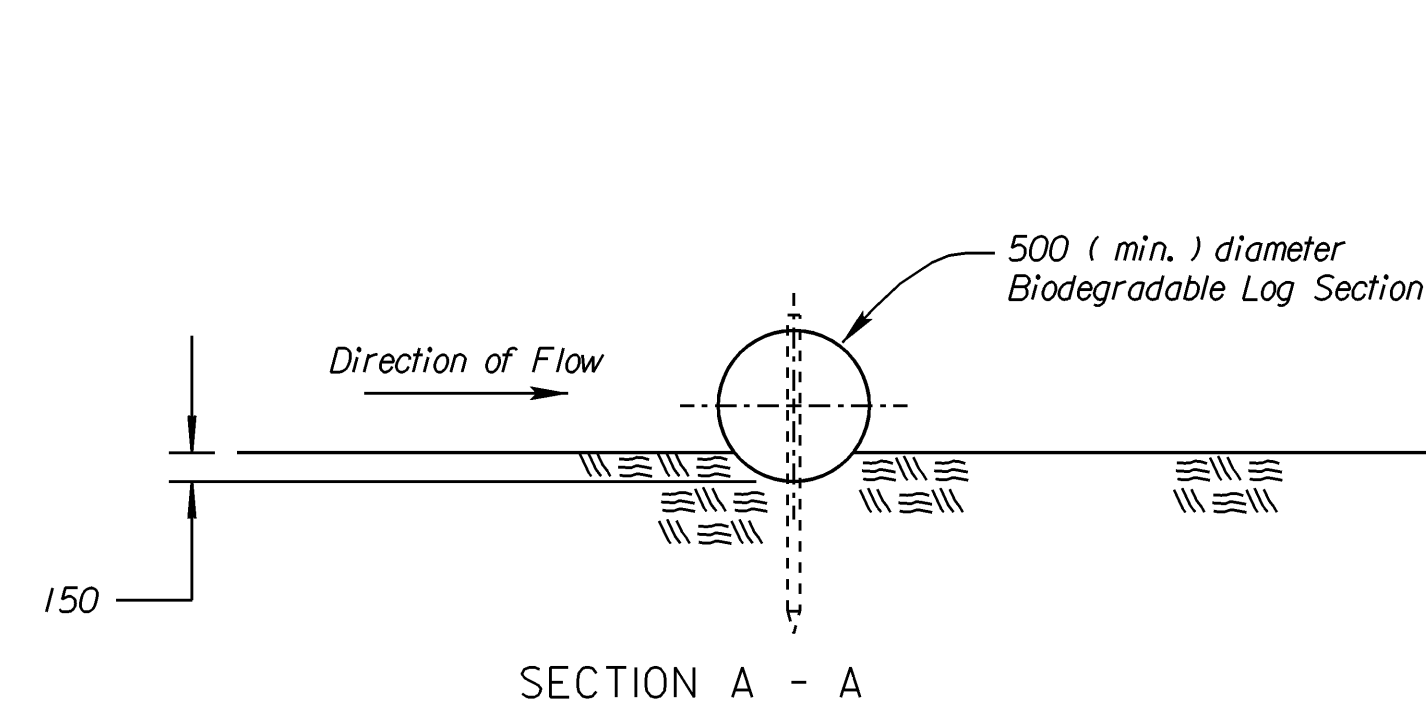
SECTION B - B



TYPICAL ELEVATION

STRAW BALE SLOPE BARRIER

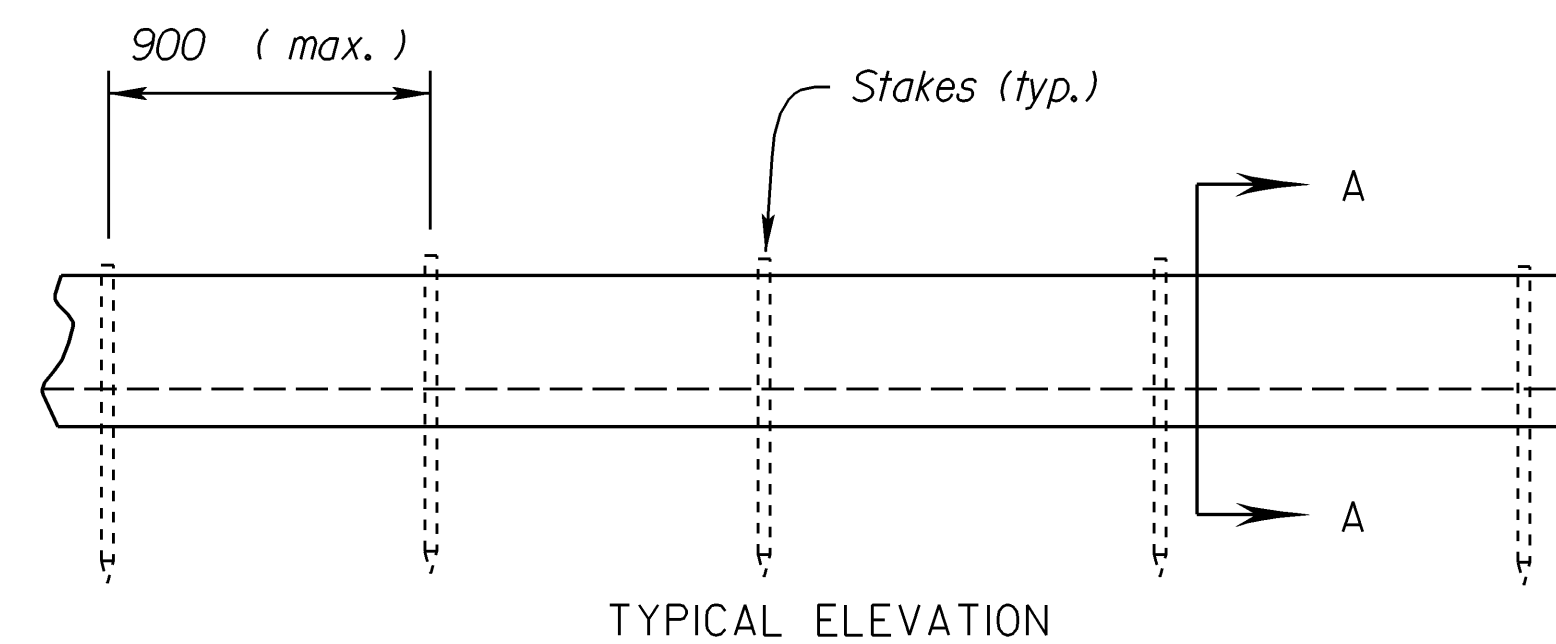
NO SCALE



SECTION A - A

BIODEGRADABLE LOG SLOPE BARRIER

NO SCALE

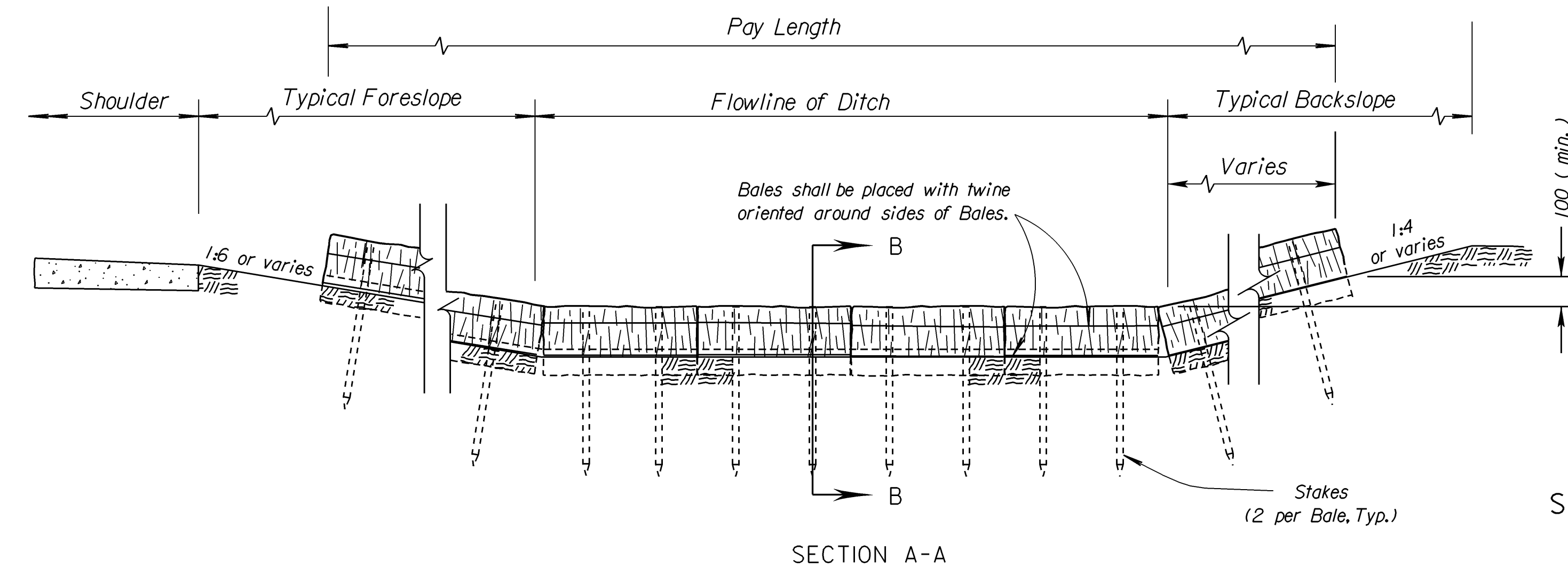
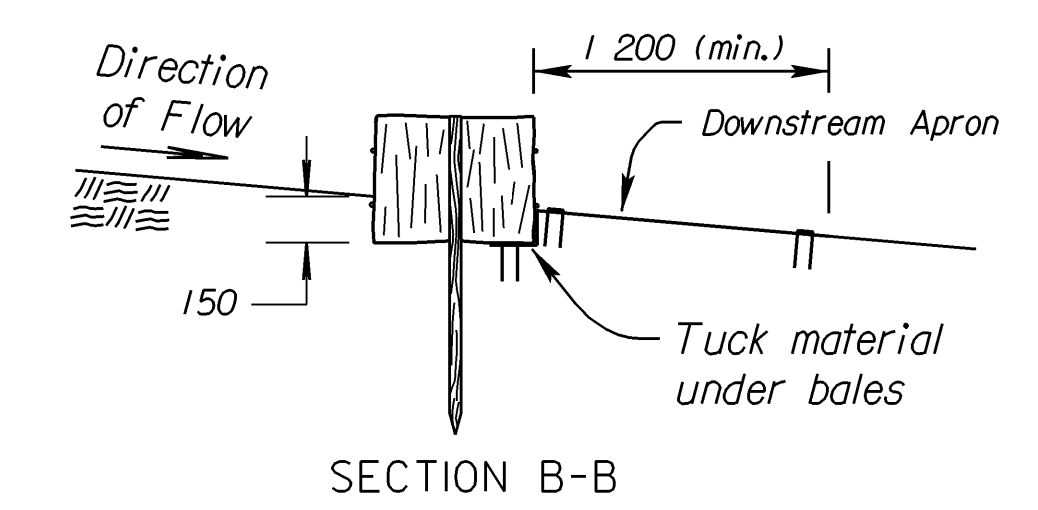
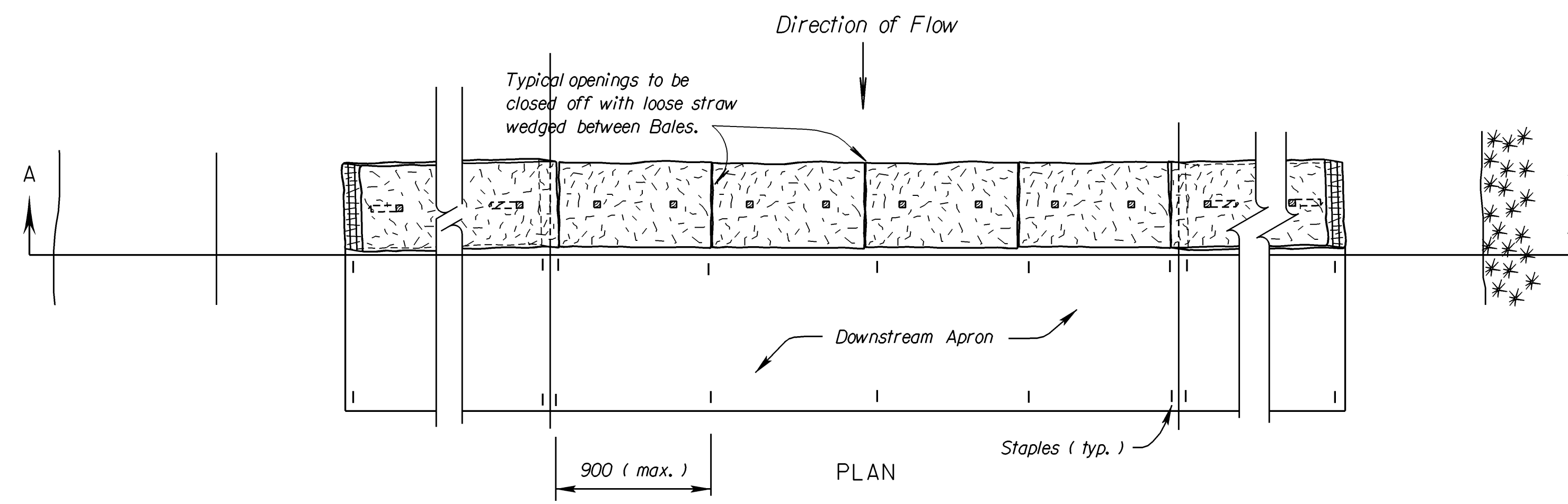


TYPICAL ELEVATION

Drawn By: \$\$\$USERNAME\$\$\$  
 DGN File: \$\$\$DGNFILE\$\$\$  
 Plotted: \$\$\$SYTIME\$\$\$ View= PLOT 1

3					
2					
1	5/10/99	Revised Standard		WCL	RDR
NO.	DATE	REVISIONS		BY	APP'D
<b>KANSAS DEPARTMENT OF TRANSPORTATION</b> <b>TEMPORARY EROSION AND POLLUTION CONTROL</b> <b>STRAW OR HAY BALE SLOPE BARRIERS</b> <b>SILT FENCE SLOPE BARRIERS</b> <b>BIODEGRADABLE LOG SLOPE BARRIERS</b> <b>LA852D SI</b>					
F.H.W.A. APPROVAL	5/20/99	APP'D		Richard D. Ross	
DESIGNED	WCL	DETAILED	WCL	QUANTITIES	TRACED WCL
DESIGN CK.	RDR	DETAIL CK.	RDR	QUAN. CK.	TRACE CK. RDR

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	54-87 K-8258-03	2003	26	27

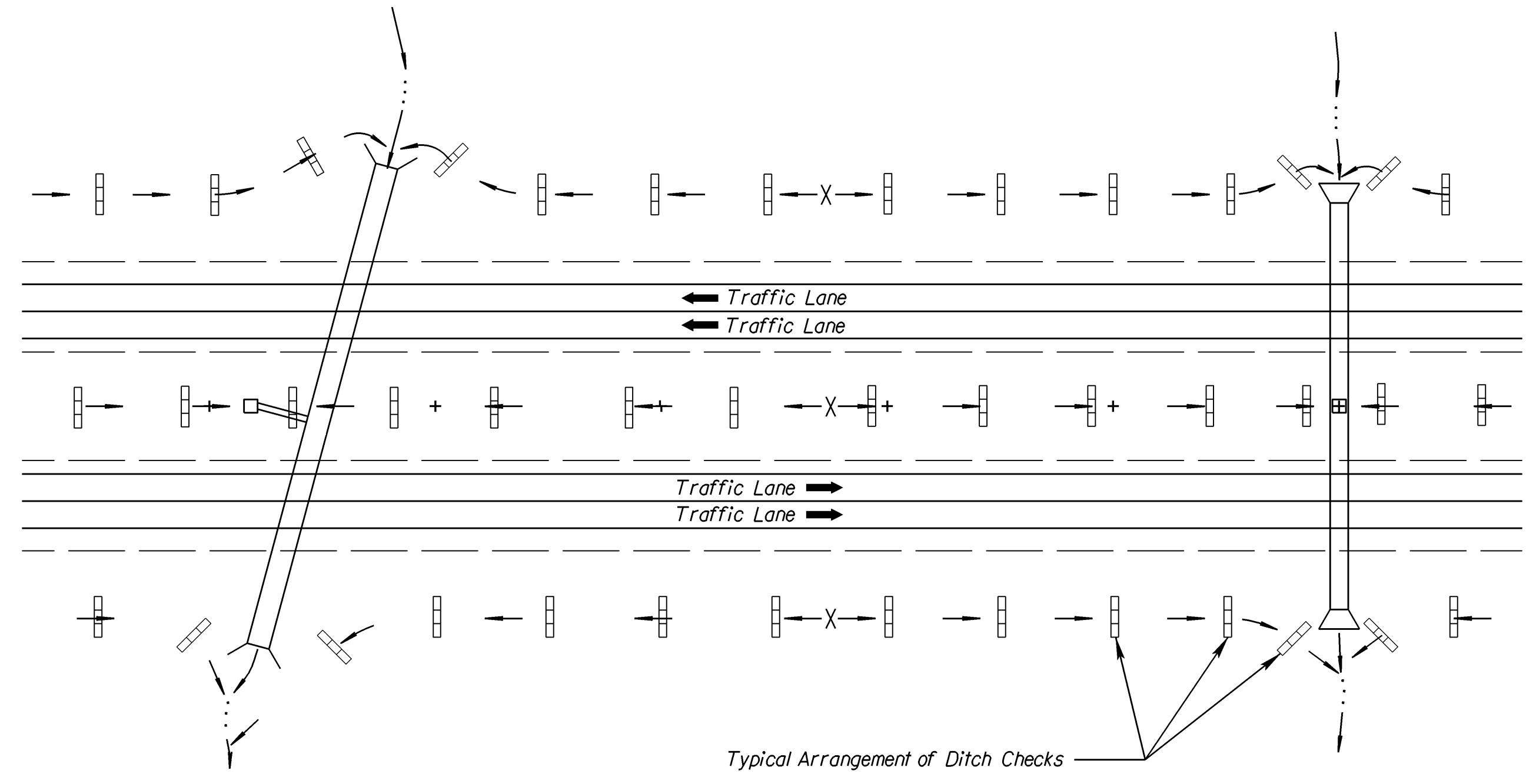


STRAW OR HAY BALE DITCH CHECK  
NO SCALE

- STRAW OR HAY BALE NOTES:
1. Place bales tightly together, with loose straw or hay wedged between bales to close off openings.
  2. Wood stakes shall be 50 mm x 50 mm (nom.) x 1 200 mm (min.) long.
  3. Use as many bales as necessary to completely block the ditch and to prevent water from flowing around the ends of the ditch check.
  4. Use only twine to bind bales. The use of wire binding is prohibited because it does not readily biodegrade.
  5. Use silt fence material as the downstream apron to prevent scour below the ditch check.
  6. Wire staples shall be 150 mm long by 25 mm wide, minimum.

DITCH @ SLOPE (%)	SPACING INTERVAL (METERS)
1.0	61
2.0	30
3.0	20
4.0	15
5.0	12
6.0	10

NOTE: Use this spacing for all except Rock Ditch Checks.



TYPICAL DITCH CHECK LAYOUT PLAN  
NO SCALE

- GENERAL NOTES:
- 1) The choice of ditch check methods is at the option of the Contractor.
  - 2) Use only rock checks in situations where the ditch slope exceeds 6 percent.
  - 3) Ditch checks damaged by Contractor's negligence, including improper maintenance or lack of maintenance, shall be repaired by Contractor at no extra cost to KDOT.

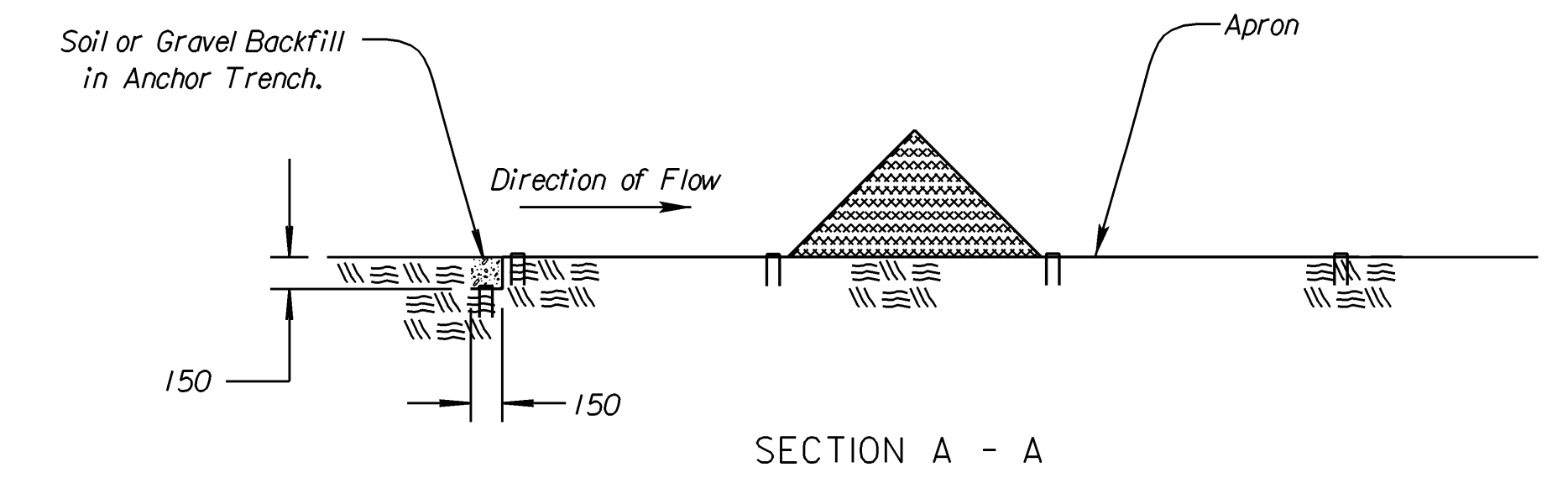
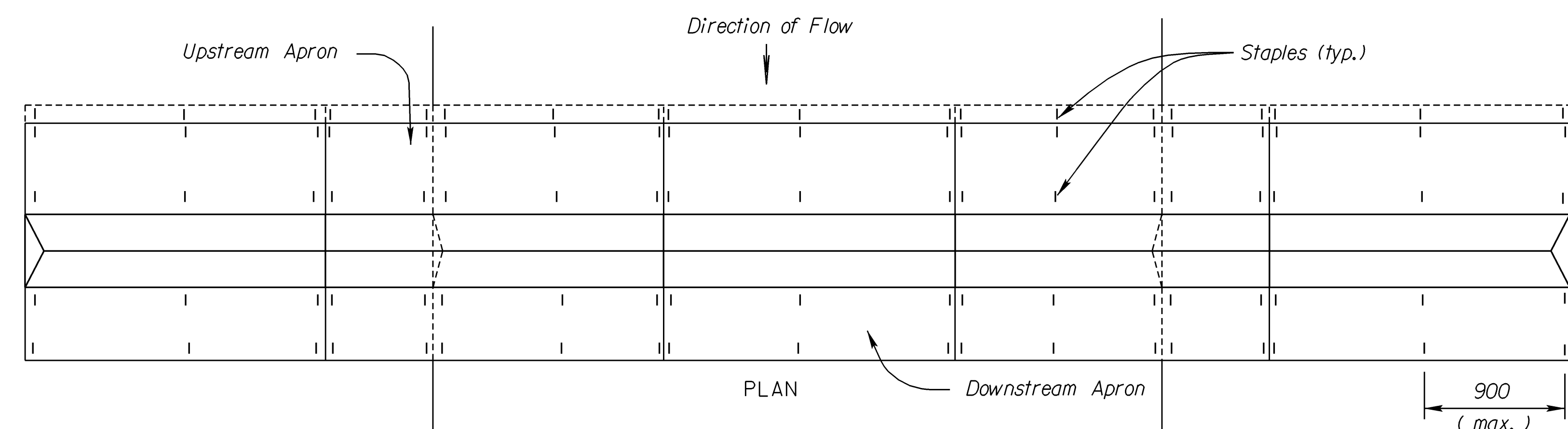
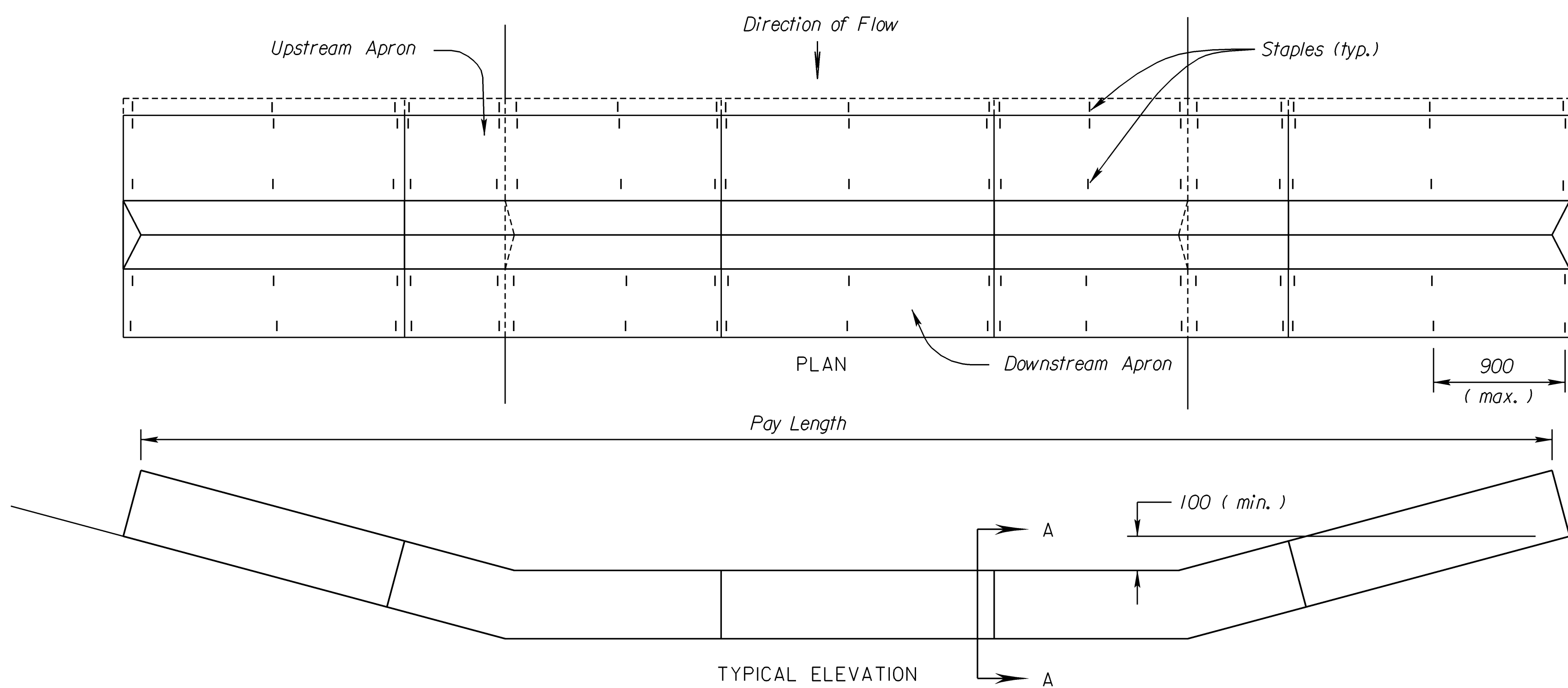
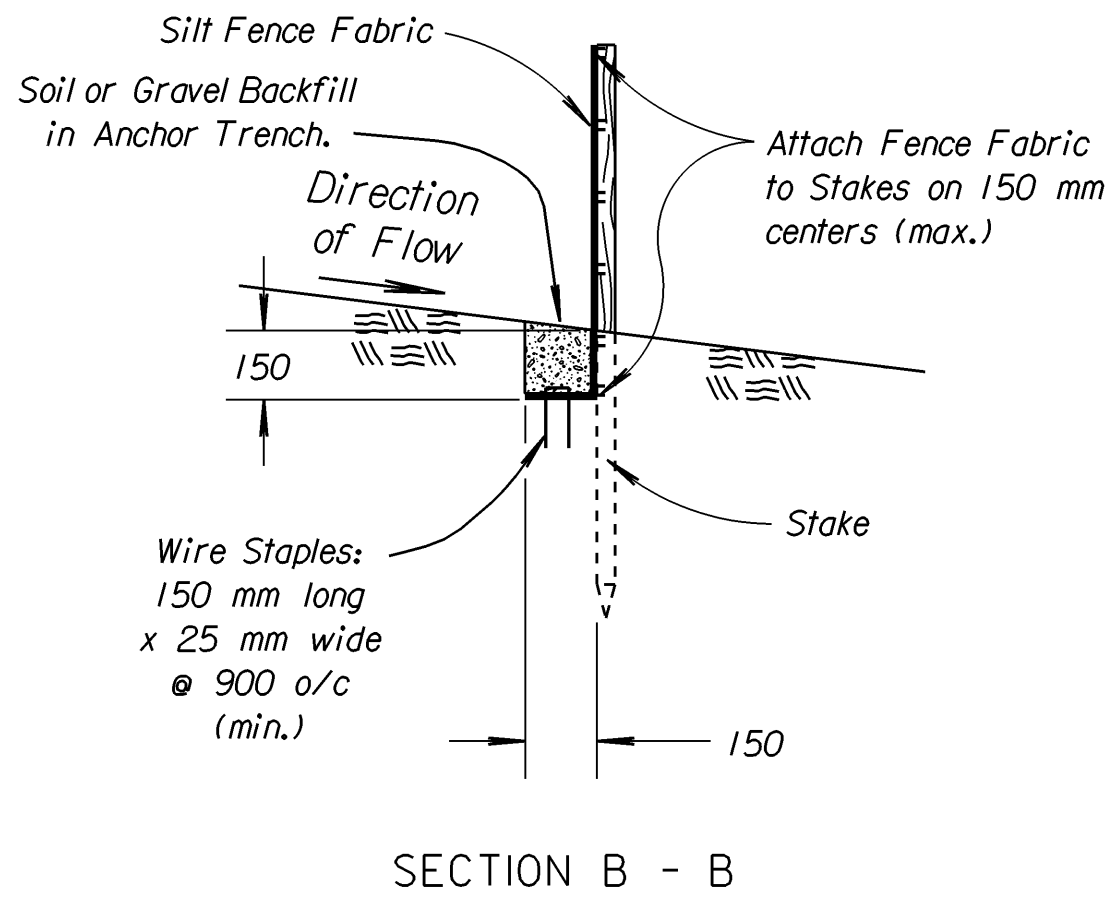
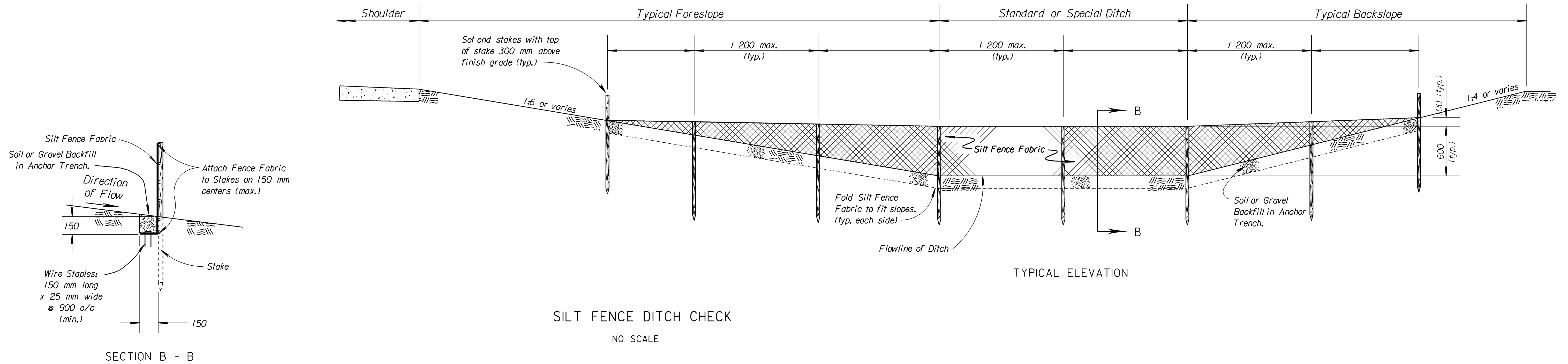
5					
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1	5/10/99	Revised Standard		WCL	RDR
NO.	DATE	REVISIONS		BY	APP'D
KANSAS DEPARTMENT OF TRANSPORTATION					
TEMPORARY EROSION AND POLLUTION CONTROL					
STRAW OR HAY BALE DITCH CHECKS					
LA852E SI					
F.H.W.A. APPROVAL	5/20/99	APP'D		Richard D. Ross	
DESIGNED	WCL	DETAILED	WCL	QUANTITIES	TRACED
DESIGN CK.	RDR	DETAIL CK.	RDR	QUAN.CK.	TRACE CK.

Drawn By: \$\$\$USERNAME\$\$\$  
 DGN File: \$\$\$DGNFILE\$\$\$  
 Plotted: \$\$\$SYTIME\$\$\$ View= PLOT 1

FHWA REGION NO.	STATE	PROJECT NO.	YEAR	SHEET NO.	TOTAL SHEETS
7	KANSAS	54-87 K-8258-03	2003	27	27

**SILT FENCE NOTES:**

- Stakes shall be 1 200 mm (min.) long and of one of the following materials:
  - Hardwood - 30 mm x 30 mm;
  - Southern Pine (No. 2) - 65 mm x 65 mm;
  - Steel U, T, L, or C Section - 600 grams per 300 mm; or
  - Synthetic - same strength as wood stakes.
- Attach fence fabric to stakes with staples, wire or nails.
- Use as much Silt Fence as necessary to insure water does not flow around end of ditch check.
- Use support fencing when tributary area is greater than 1 hectare or when ditch gradient is greater than 2 percent.



- TRIANGULAR SILT DIKE NOTES**
- Place Triangular Silt Dike sections tightly together, with apron material overlapping end-to-end by 150 mm.
  - Wire Staples shall be 150 mm long by 25 mm wide, minimum.
  - Use as many Triangular Silt Dike sections as necessary to insure water does not flow around end of ditch check.

**TRIANGULAR SILT DIKE DITCH CHECK**  
NO SCALE

Drawn By: \$\$\$USERNAME\$\$\$  
 DGN File: \$\$\$DGNFILE\$\$\$  
 Plotted: \$\$\$SYTIME\$\$\$ View= PLOT 1

3					
2					
1					
NO.	DATE	REVISIONS	BY	APP'D	
<b>KANSAS DEPARTMENT OF TRANSPORTATION</b> <b>TEMPORARY EROSION AND POLLUTION CONTROL</b> <b>SILT FENCE DITCH CHECKS</b> <b>TRIANGULAR SILT DIKE DITCH CHECKS</b> <b>LA852F SI</b>					
F.H.W.A. APPROVAL	5/20/99	APP'D	Richard D. Ross		
DESIGNED	WCL	DETAILED	WCL	QUANTITIES	TRACED
DESIGN CK.	RDR	DETAIL CK.	RDR	QUAN. CK.	TRACE CK.