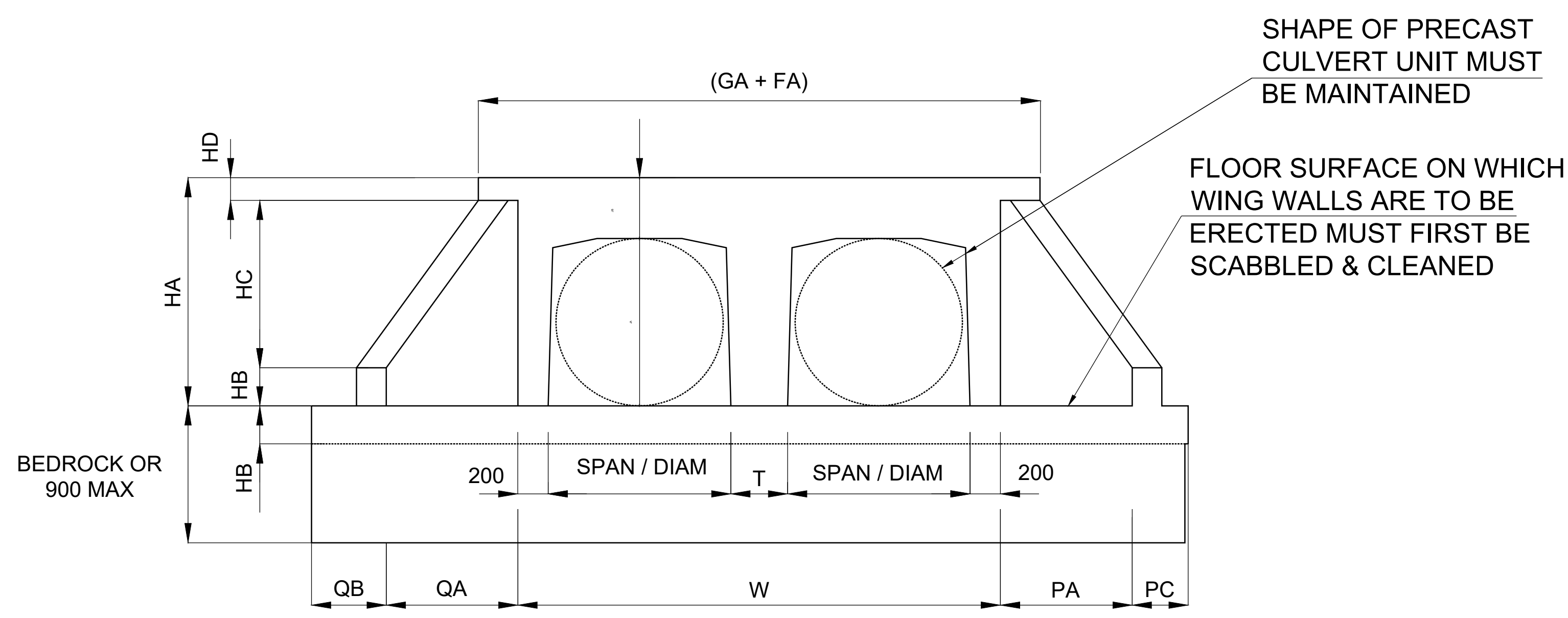
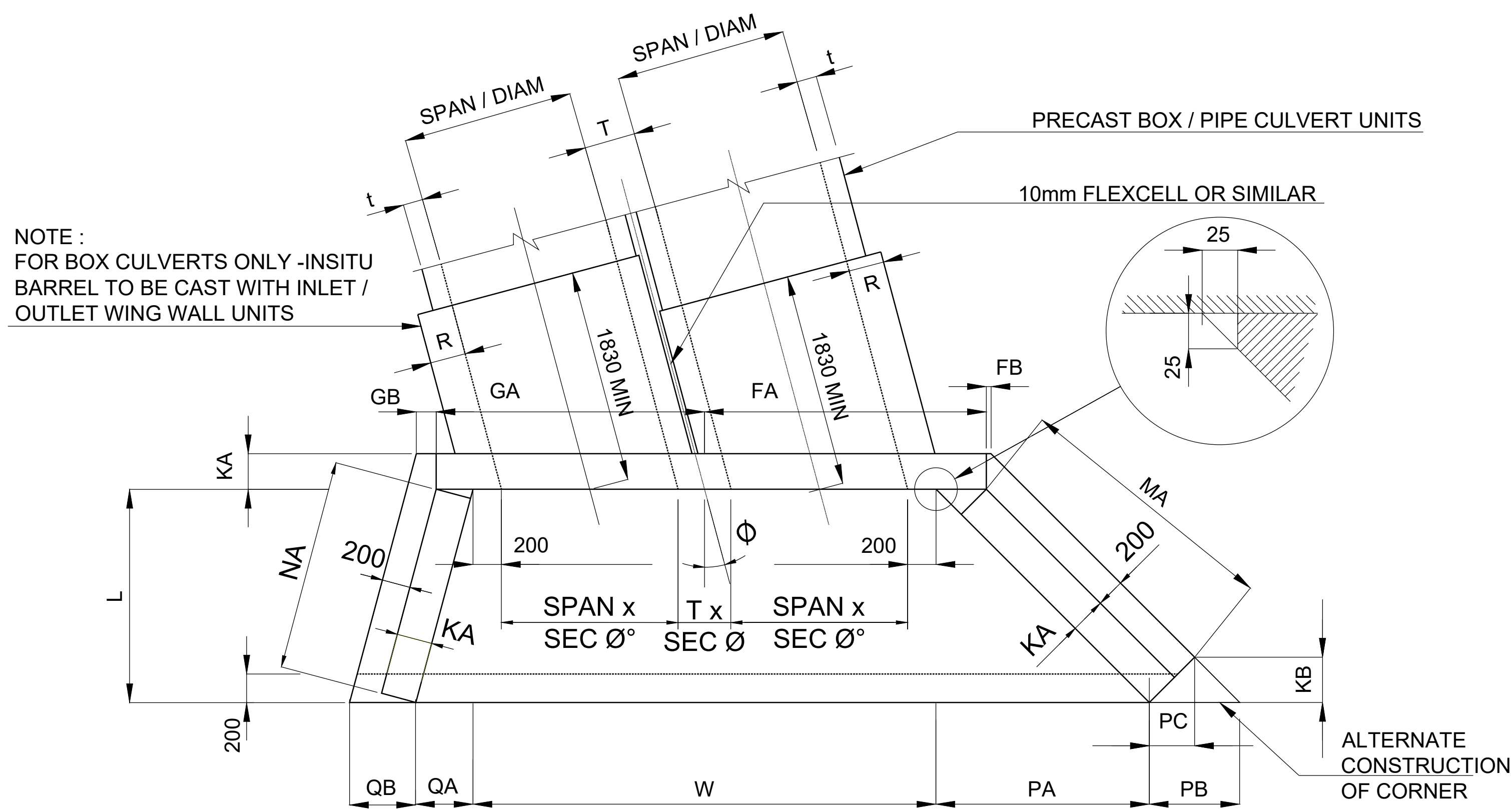


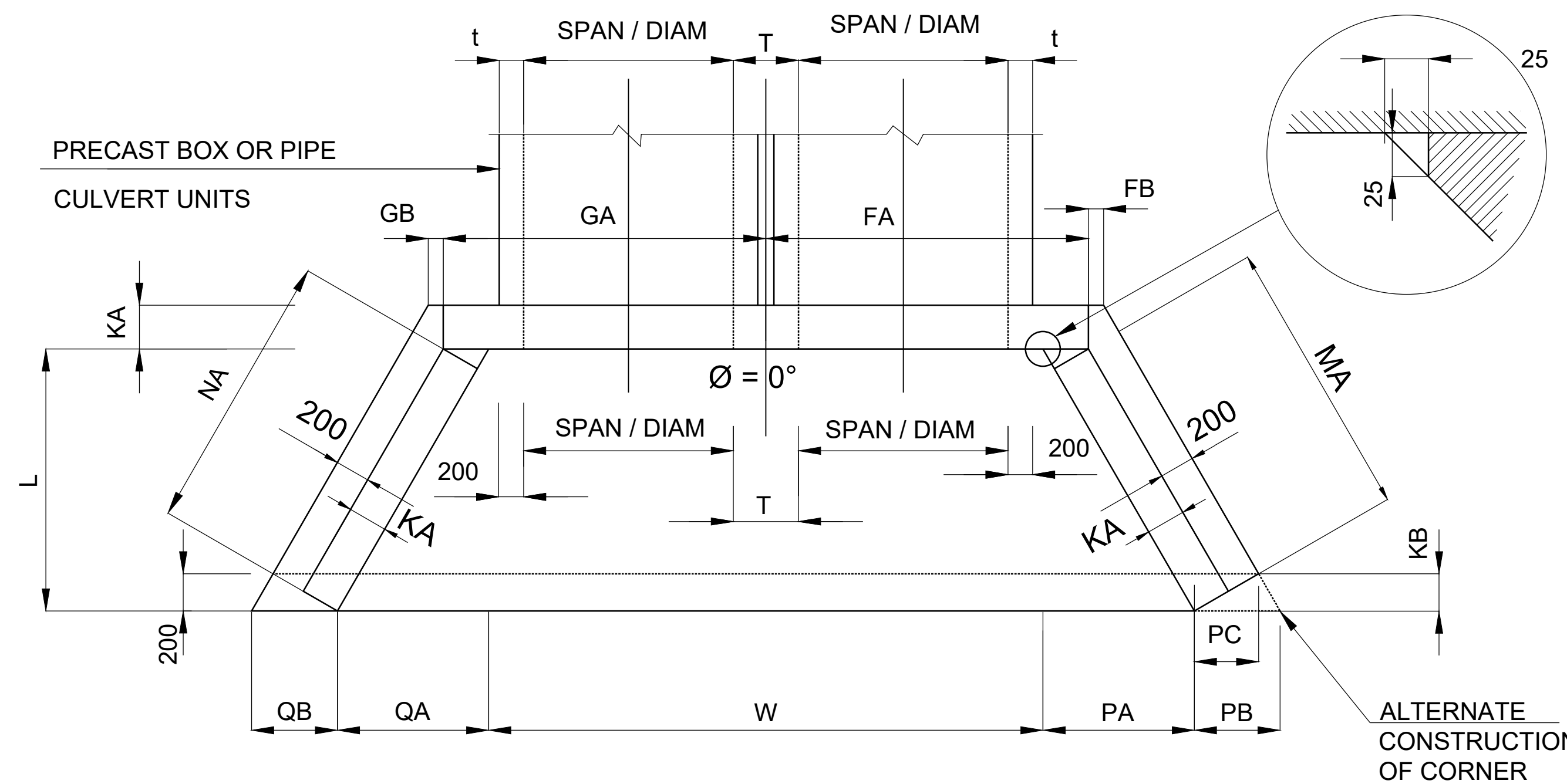
TYPICAL ELEVATION OF INLET/ OUTLET  
WING WALLS - MAX Ø = 30°  
N.T.S



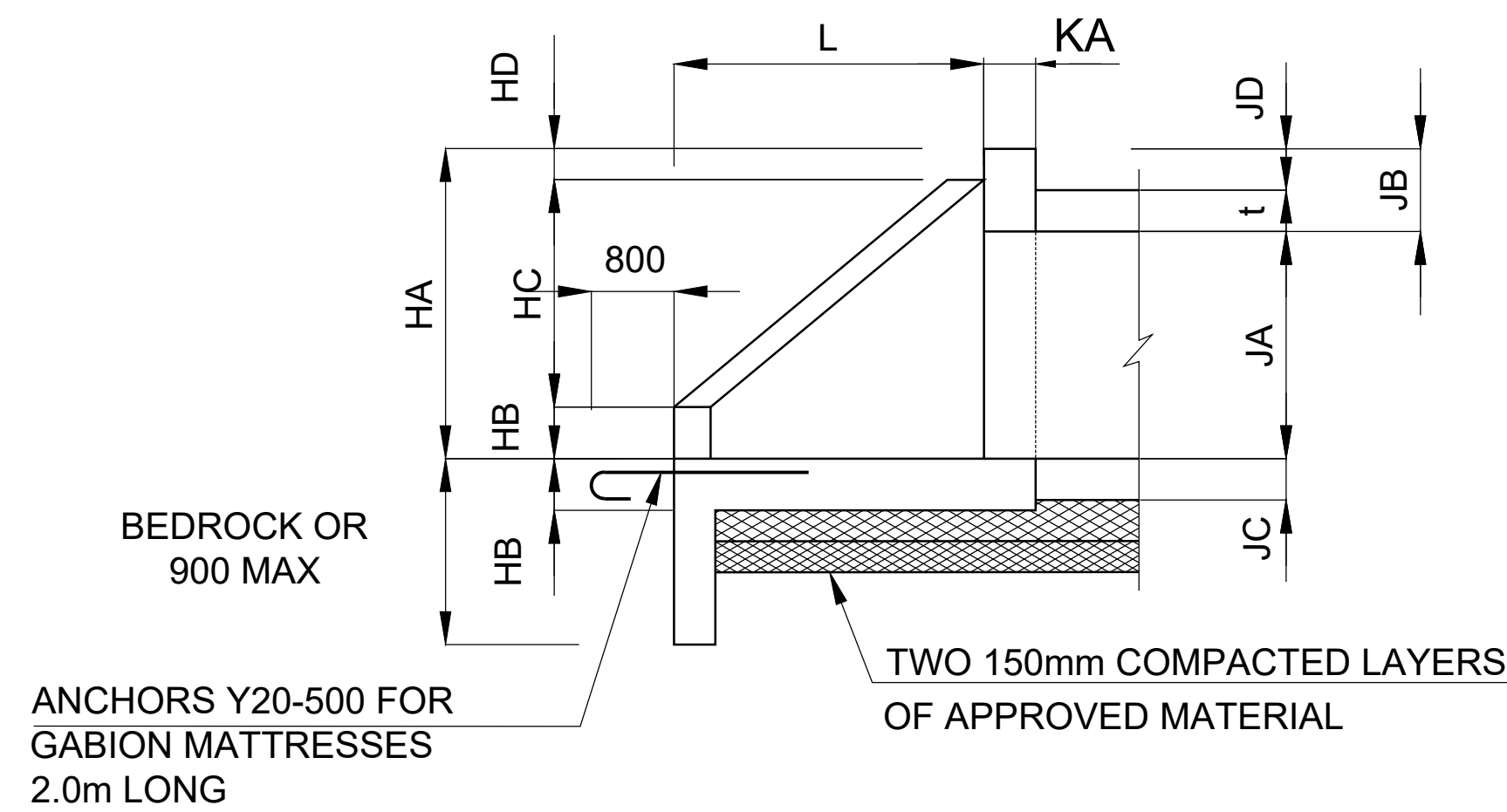
TYPICAL ELEVATION OF INLET/ OUTLET  
WING WALLS - MAX Ø = 30°  
N.T.S



TYPICAL PLAN OF INLET/ OUTLET WING  
WALLS - MAX Ø = 30°  
N.T.S



TYPICAL PLAN OF INLET/ OUTLET WING  
WALLS Ø = 0° (SQUARE)  
N.T.S



TYPICAL END-ELEVATION OF INLET/  
OUTLET WING WALLS - MAX Ø = 30°  
N.T.S

DATA SHEET AND FORMULAE

VERTICAL HEIGHT OF CULVERT	HB	HD	KA	JB
JA < 900	150	150	225	300
JA > 900	250	150	250	400
INSITU FLOOR SLAB (JC) AND PRECAST UNIT DECK THICKNESS (t)				
	JC	t		
900 mm SPAN	150 mm	110 mm		
1200 mm SPAN	160 mm	125 mm		
1500 mm SPAN	175 mm	145 mm		
1800 mm SPAN	190 mm	150 mm		
2100 mm SPAN	220 mm	155 mm		
2400 mm SPAN	260 mm	170 mm		
ALL DIMENSIONS IN mm				

FORMULAE

$L = HC \times S$  (min.1500mm)       $S =$  BATTER SLOPE

$QA = L \times \tan(\theta - 30)$        $\theta =$  CULVERT SKEW ANGLE

$PA = L \times \tan(\theta + 30)$        $t =$  PRECAST WALL THICKNESS

$NA = L \times \sec(\theta - 30) - KA \times \tan(\theta - 30)$

$MA = L \times \sec(\theta + 30) - KA \times \tan(\theta + 30)$

$T = t \times 2 + 80$

$QB = (KA + 200) \times \sec(\theta - 30)$

$PB = (KA + 200) \times \sec(\theta + 30)$

$KB = (KA + 200) \times \sin(\theta + 30)$

$PC = (KA + 200) \times \cos(\theta + 30)$

$GA = W/2 + KA \times \sec(\theta - 30)$

$GB = \{[200 \times \text{COSEC}(\theta - 30)] - KA\} \times \tan(\theta - 30)$

$FA = W/2 + KA \times \sec(\theta + 30)$

$FB = \{[200 \times \text{COSEC}(\theta + 30)] - KA\} \times \tan(\theta + 30)$

$R = t + 100$  (INSITU BARREL SLAB THICKNESS)

FOR TENDER  
(FOR TENDER PURPOSES ONLY)

			CONSTRUCTION RECORD (AS-BUILT)			DESIGNED BY			CONSULTANT APPROVAL			HEAD OFFICE			EASTERN REGION			ACCEPTANCE			PROJECT DESCRIPTION			PROJECT NUMBER			N.002-300-2020/1								
			WORKS CONTRACT ENGINEER									48 Tambotie Avenue Val de Grace Pretoria 0184			58 Van Eck Place Mkondeni Pietermaritzburg 3201			THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATEVER CAUSE OR HOWEVER ARISING			THE CONSTRUCTION OF PAVEMENT AND SETTLEMENT REPAIRS ON NATIONAL ROUTE 2, SECTION 30 FROM BUSHVELD RETREAT FARM (km47.0) TO HLUHLUWE INTERCHANGE (km 55.0)			DRAWING LOCATION DATA			START			END					
			Name : _____			NAME : _____			Name : _____			PO Box 415 Pretoria 0001 South Africa			PO Box 100410 Scottsville 3209			for the SA NATIONAL ROADS AGENCY SOC LTD.			DRAINAGE - PRECAST CULVERT WING WALLS			DRAWING km DISTANCE			ROADWORKS: DRAINAGE								
			Prof. Reg. No. : _____			NAME : _____			Prof. Reg. No. : _____			Tel: (012) 844 8000			Tel: (033) 392 8100			Date: _____			(SHEET 1 OF 2)			BRIDGE/STRUCTURE No. _____			N/A			VER 1					
			Date : _____			Prof. Reg. No. : _____			Date : _____															SCALE : N. T. S			SHEET 15 OF 26			SANRAL DOCUMENT # _____					
1			23/10/12			ORIGINAL			CONSULT.																										
No.			DATE			REVISION			CONSULT.																										