

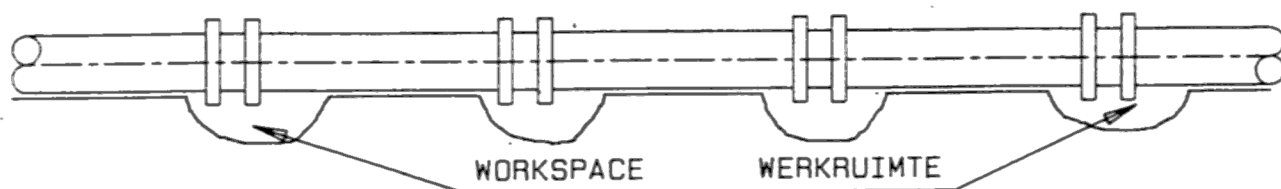


DEPARTMENT OF PUBLIC WORKS

DRAINAGE DETAILS

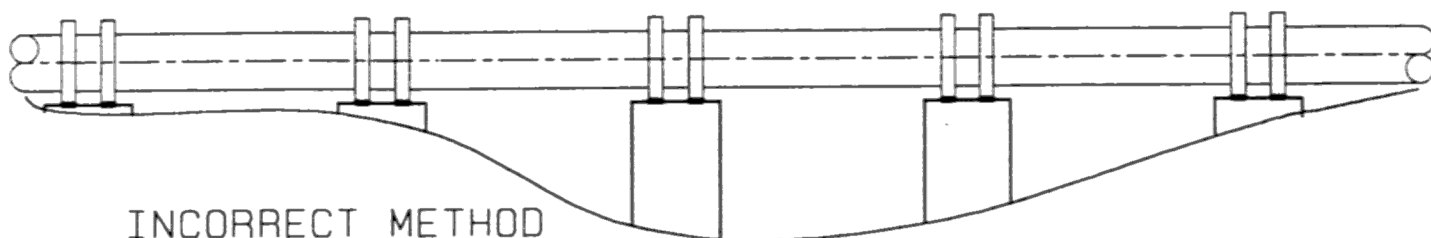
REVISED EDITION
DECEMBER 1998

A. UNDER NORMAL SOIL CONDITIONS
ONDER NORMALE GROND OMSTANDIGHED



CORRECT METHOD
KORREKTE METODE

BARREL OF PIPE MUST REST-ON RIGID GROUND
BODEM VAN PYP MOET OP VASTE GROND RUS



INCORRECT METHOD
VERKEERDE METODE

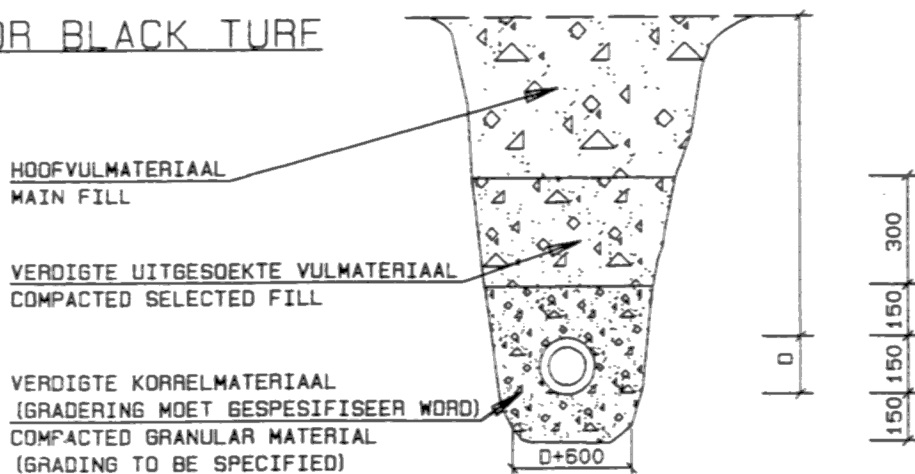
NOTE

EXCAVATIONS TAKEN OUT TOO DEEP MUST BE MADE UP WITH APPROVED FILLING AT CONTRACTORS EXPENSE.
EXCAVATIONS IN ROCK MUST BE LEVELLED UP WITH GRANULAR MATERIAL TO ENSURE PIPES HAVING AN EVEN BEARING.

NOTA

UITGRAVINGS WAT TE DIEP UITGEGRANE IS MOET MET GOEDGEKEURDE VULMATERIAAL OPGEVUL WORD OP ONKOSTE VAN DIE KONTRAKTEUR.
UITGRAVINGS IN ROTS MOET MET KORRELAGTIGE MATERIAAL OPGEVUL WORD, SODAT PYPE GELYKMATIG GESTEUN WORD.

B. IN KLEI OF SWART TURF
IN CLAY OR BLACK TURF



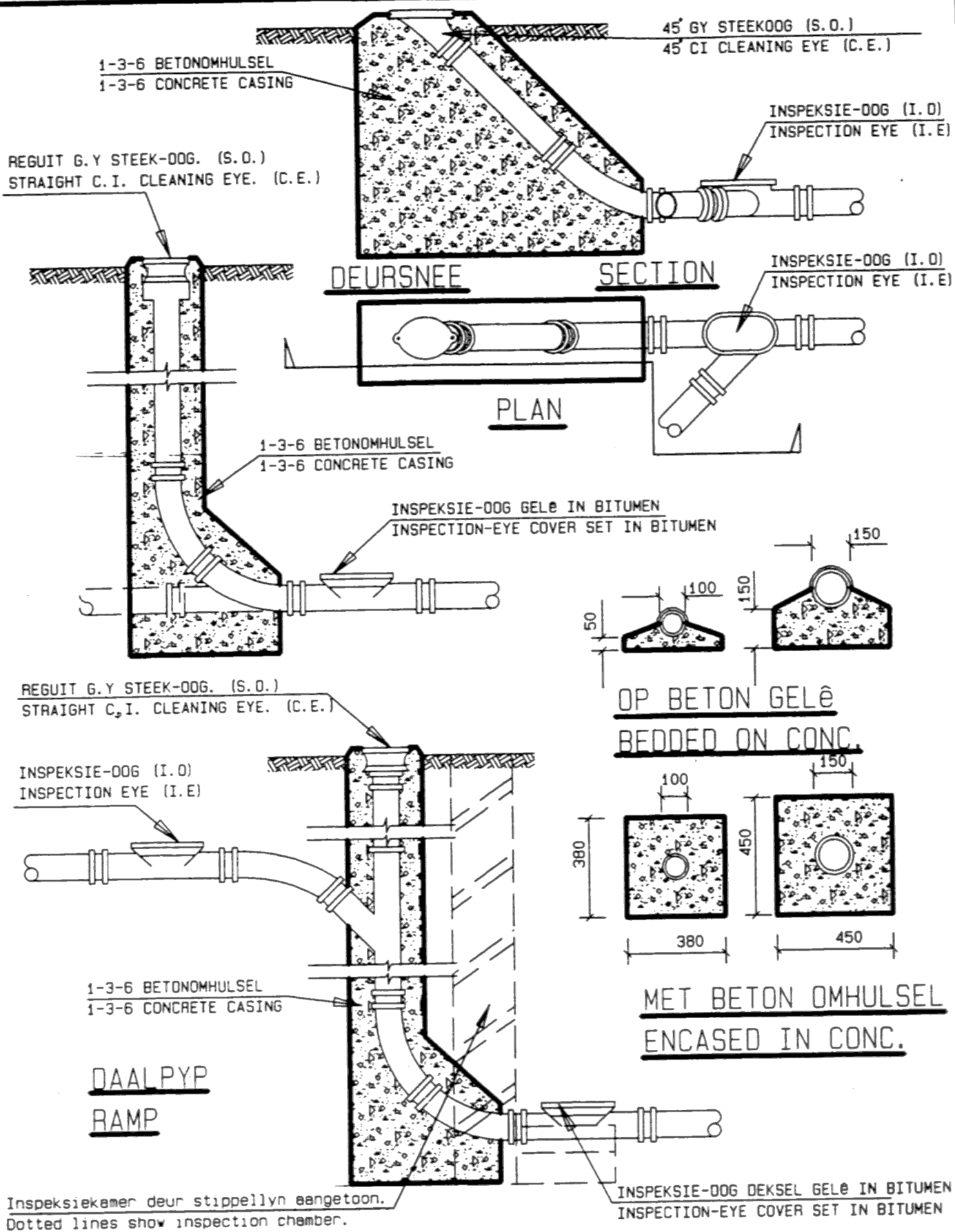
GETEKEN. J. A. C. RABE
DRAWN.

NAGESIEN.
CHECKED.

SKAAL. 1 : 20
SCALE.

METODE VIR DIE L_e VAN RIOLE.
METHOD OF LAYING DRAINS.

D1D



GETEKEN. J.A.C. RABE
DRAWN.

NAGESIEN.
CHECKED.

SKAAL. 1 : 20
SCALE.

STEEKDOË, INSPEKSIEDOË, DAALPYP.
CLEANING EYE, INSPECTION EYE, RAMP.

D20

50 Die VUILWATERPYP
WASTE PIPE

ROOSTER
GRATING

MIN 100

MUUR
WALL

BETONOMHULSEL
1-3-6 CONC. CASING

DEURSNEE
SECTION

ROOSTER
GRATING

100

BETONOMHULSEL
1-3-6 CONC. CASING

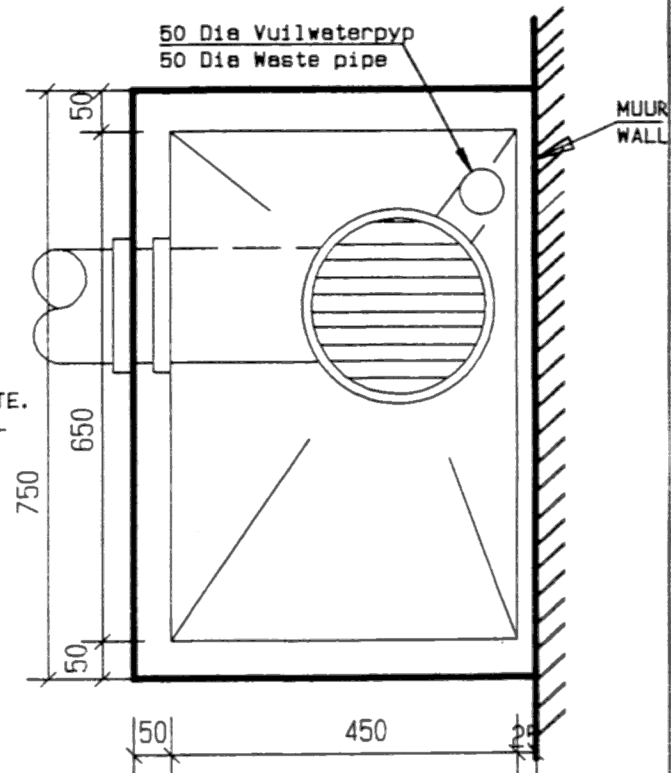
2mm. GEGALV. PLAATHOUER
GEPERFOREER MET 6 Die GATE.

2mm. GALV. IRON CONTAINER
PERFORATED WITH 6 Die
HOLES.

STALRIOOLPUT
STABLE GULLY

50 Die Vuilwaterpyp
50 Die Waste pipe

MUUR
WALL



PLAN

GEKOMDE RIOOLPUT
DISHED GULLY

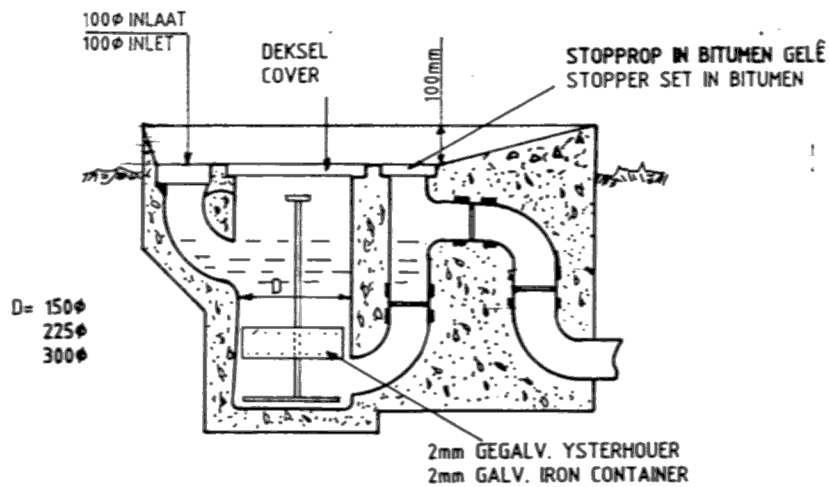
GETEKEN. J. A. C. RABE
DRAWN.

NEGESIEN.
CHECKED.

SKAAL. 1 : 20
SCALE.

STAL- EN GEKOMDERIOOLPUT.
STABLE- EN DISHED GULLY.

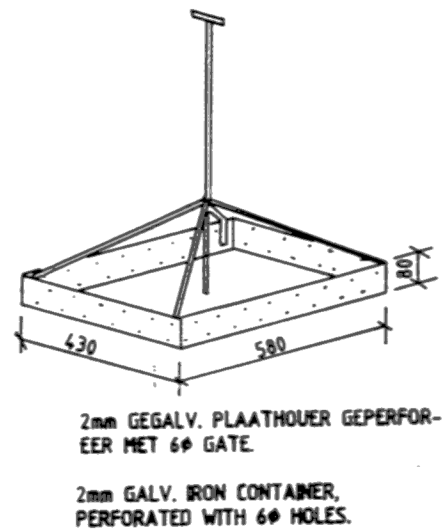
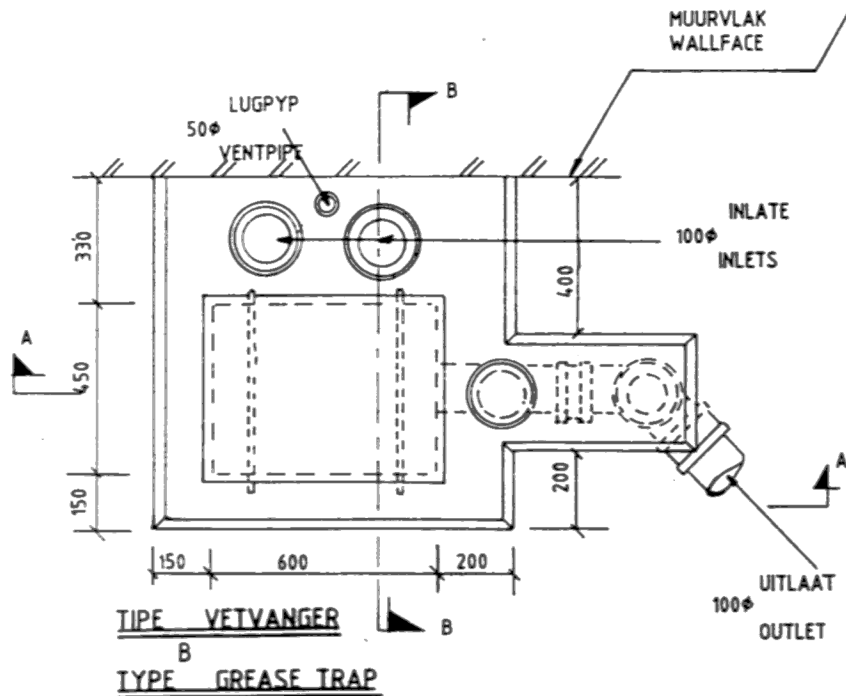
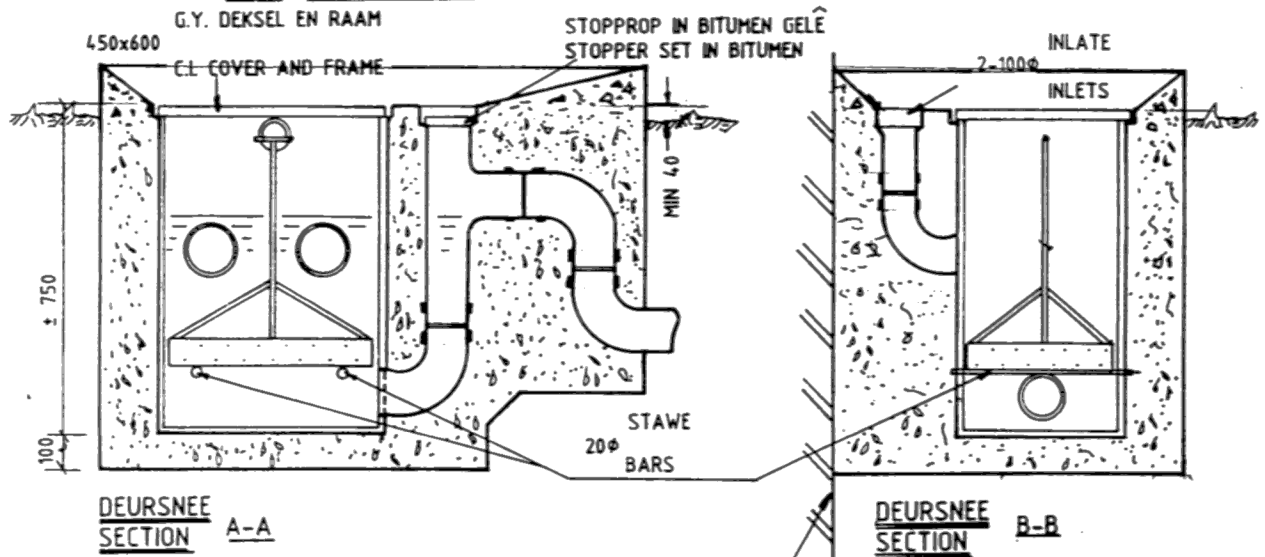
D4D



TIPE VETVANGER

SABS 559 FIG 27

TYPE GREASE TRAP



GETEKEN
DRAWN

S.P. CILLIERS

NAGESIEN
CHECKED

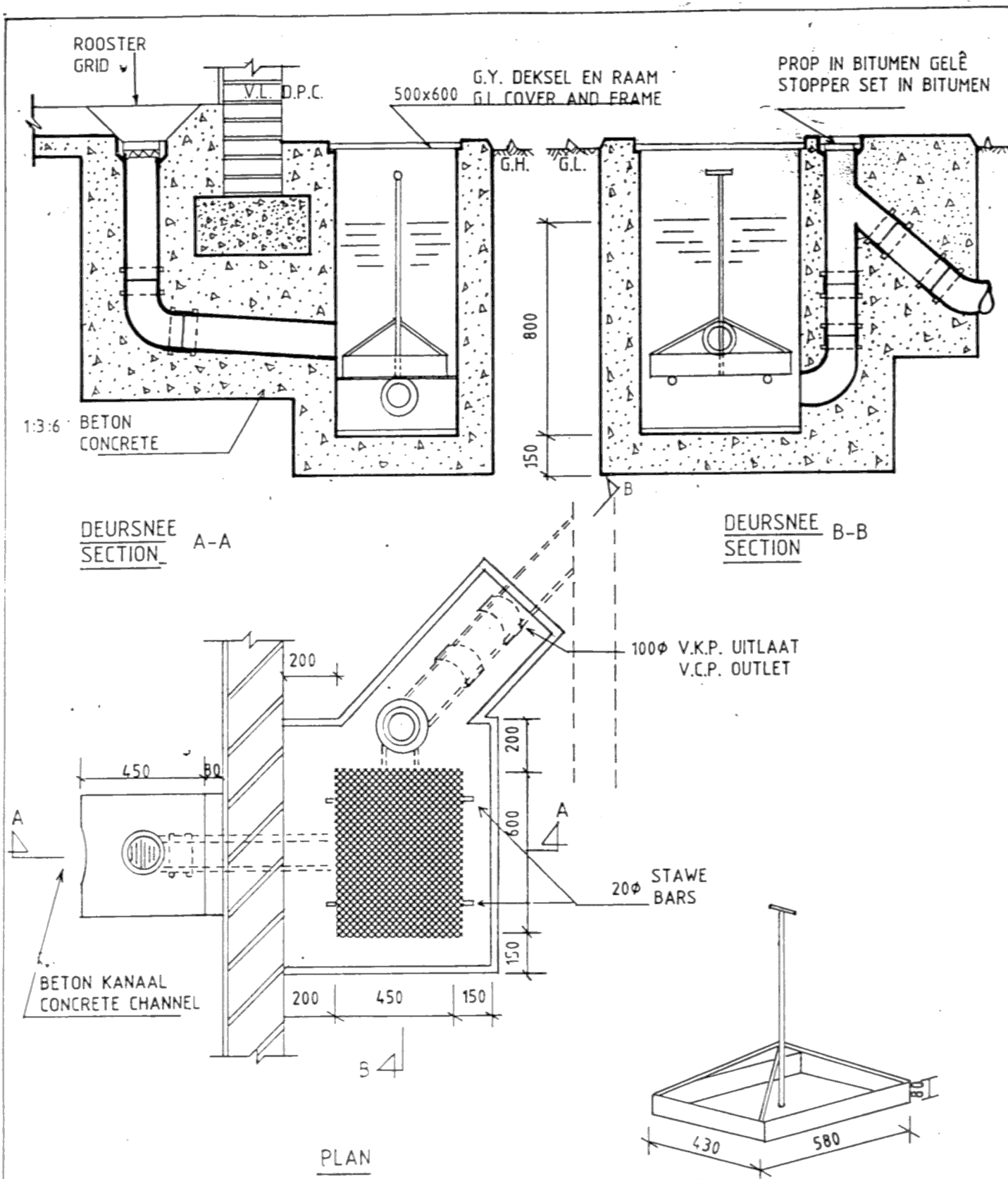
[Signature]

SKAAL
SCALE

1:20

VETVANGER TIPE A EN B
GREASE TRAP TYPE A AND B

D50



2 mm GEGALV. PLAATHOUER, GEPERFOREER MET 6 ϕ GATE.

GALV. SHEETIRON CONTAINER PERFORATED WITH 6 ϕ HOLES.

GETEKEN.
DRAWN R.W.BRAND.

NAGESIEN
CHECKED *[Signature]*

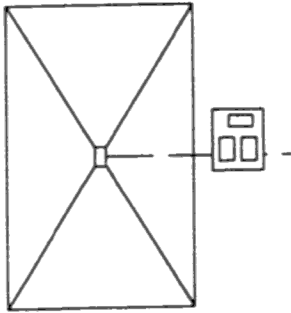
SKAAL
SCALE 1:20

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

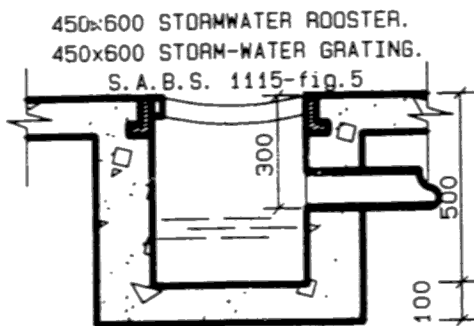
DETRITUSVANGER VIR STALLE
DETRITUS INTERCEPTING TRAP FOR STABLES.

D6D

450x600-38 Kg GY MANGATDEKSEL ENKELDIGHED EN RAAM.
450x600-38 Kg CI SINGLE SEAL MANHOLE COVER AND FRAME.

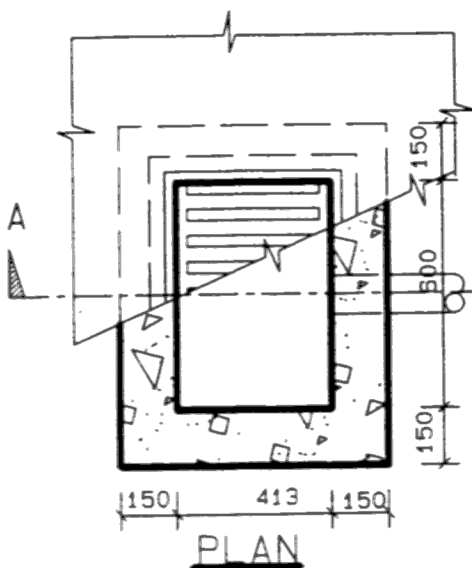


PLAN VAN WASBLAD
PLAN OF WASH BAY
1:200

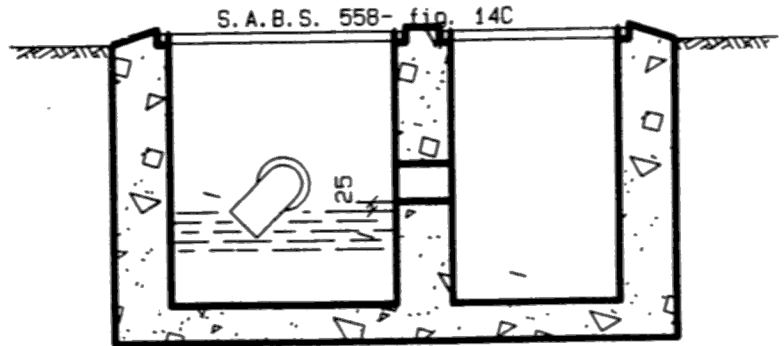


SNIT A-A
SECTION A-A

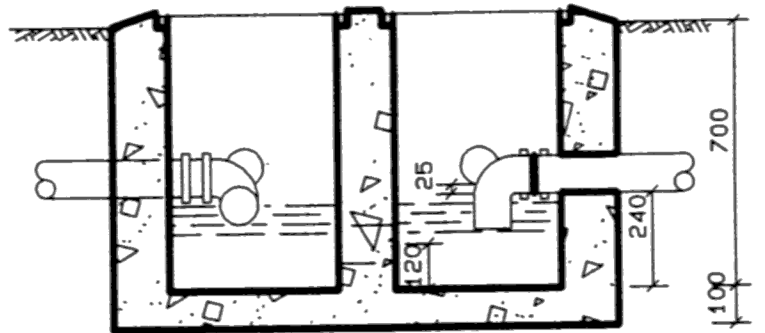
NOTA: BINNEMATE VAN KAMERS MOET OOREENSTEM MET
DAGMATE VAN RAAM.
NOTE: INNER DIMENSIONS OF CHAMBERS MUST BE
ACCORDING TO THE DAYLIGHT OPENING
OF FRAMES.



PLAN

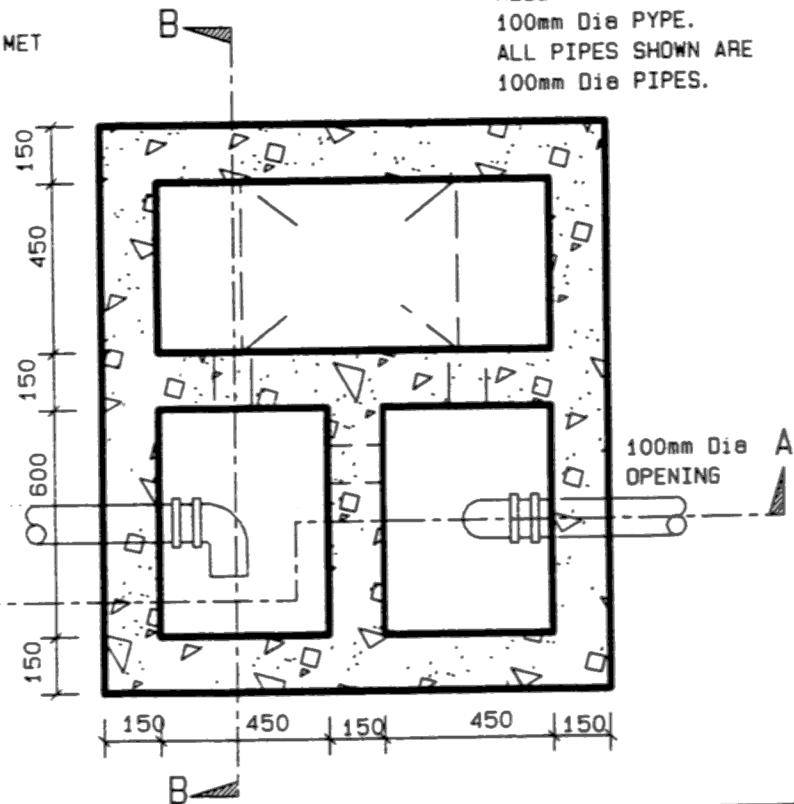


SNIT B-B
SECTION B-B



NB. GEEN VERKEER MAG OP DIE DEKSEL TOEGELAAT WORD NIE.
NO TRAFFIC WILL BE ALLOWED ON THE COVERS.

ALLE PYPE GETOON IS
100mm Die PYPE.
ALL PIPES SHOWN ARE
100mm Die PIPES.



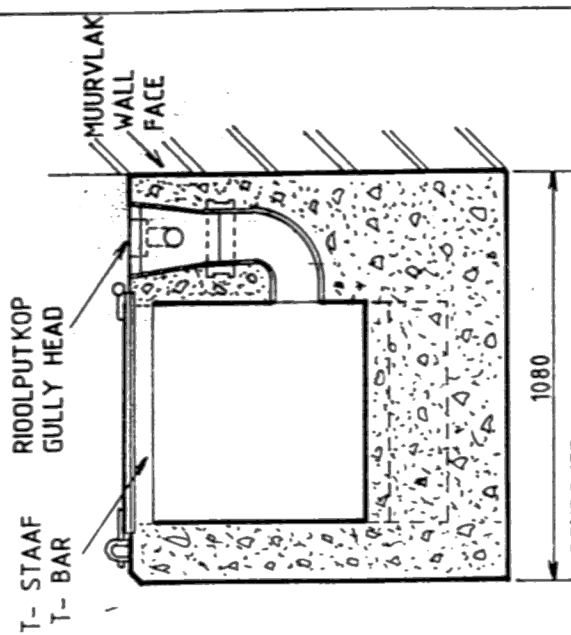
GETEKEN. J. A. C. RABE
DRAWN.

NAGESIEN.
CHECKED.

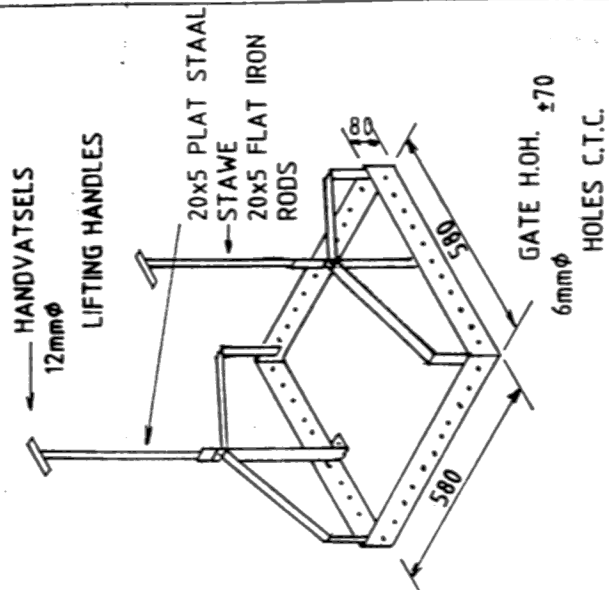
SKAAL. 1 : 20
SCALE.

OLIE EN VETVANGER VIR VOERTUIG
WASBLAD
OIL AND GREASE TRAP FOR VEHICLE
WASH BAY

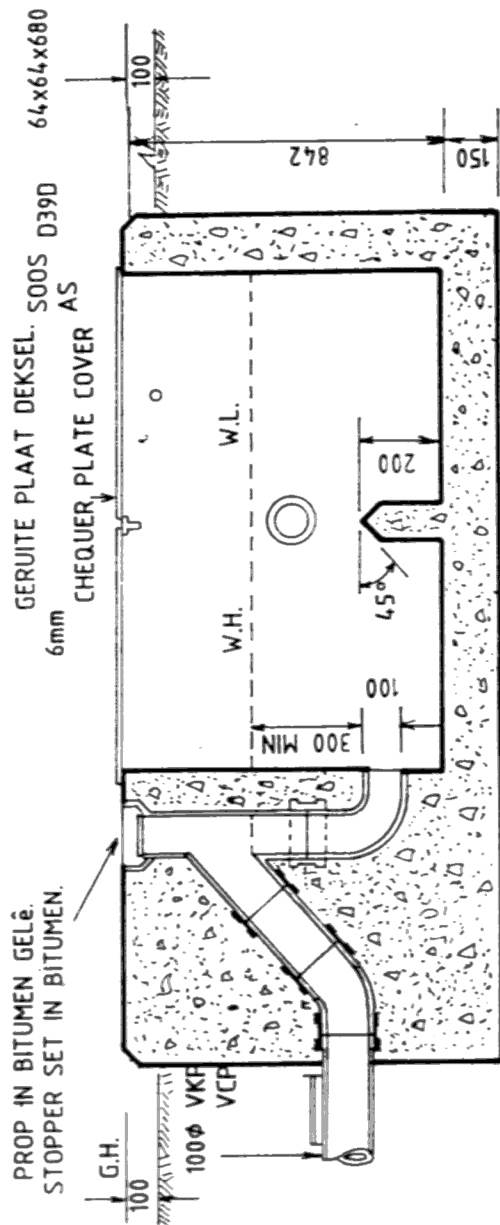
D7D



DEURSNEE
SECTION

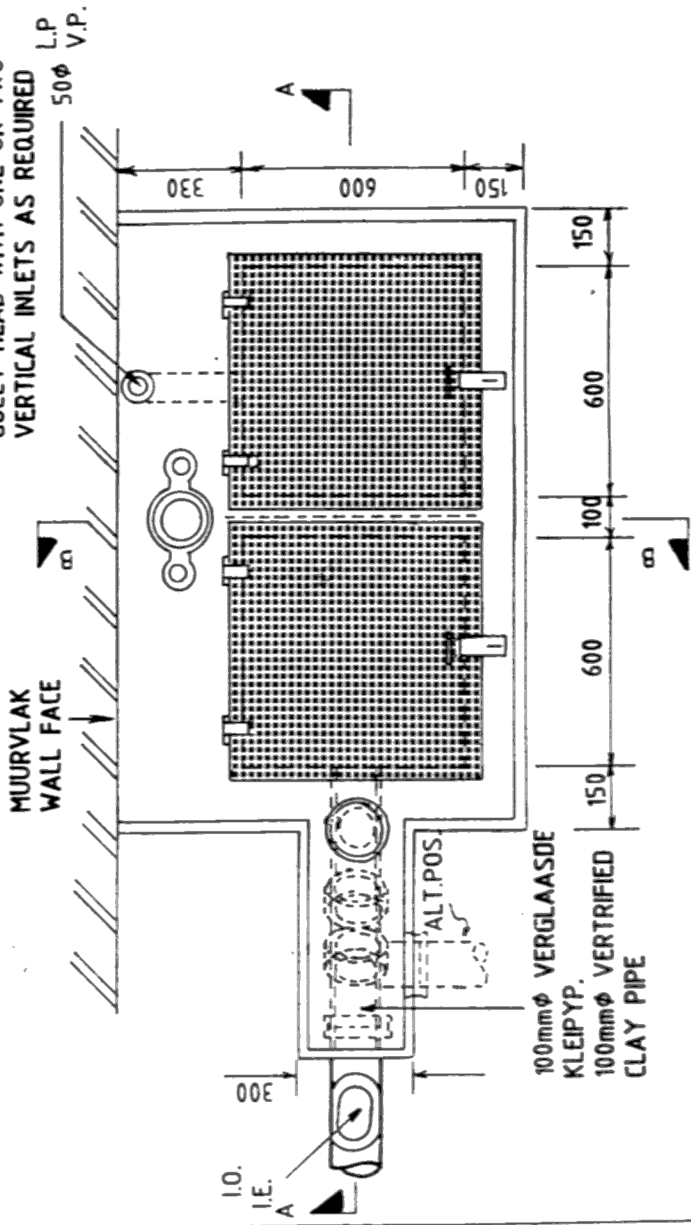


2mm GEGALV. PLAATHOER
2mm GALV. IRON CONTAINER



DEURSNEE
SECTION

RIJOLPUTKOP MET EEN OF TWEE
VERTIKALE INLASTE SOOS VERLANG
GULLY HEAD WITH ONE OR TWO
VERTICAL INLETS AS REQUIRED
L.P.
V.P.



PLAN

GETEKEN. M.J. PAPENHUYZEN.
DRAWN.

NAGESIEN
CHECKED.

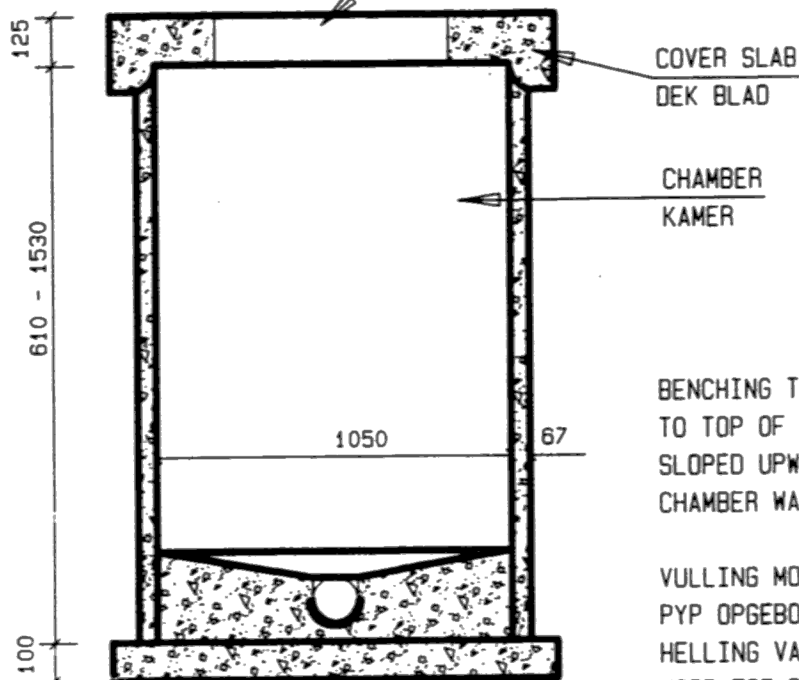
SKAAL 1 : 20
SCALE

VETVANGER
GREASE TRAP

TIPE
TYPE C

D90

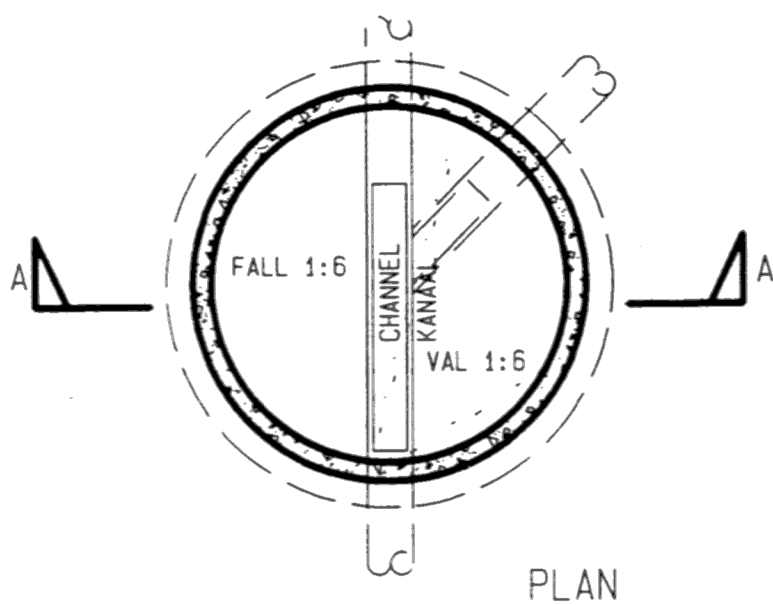
DOUBLE SEAL C.I. COVER AND FRAME TO BE SUPPLIED.
 DUBBLE SEËL G.Y. DEKSEL EN RAAM MOET VOORSIEN WORD.



BENCHING TO BE BROUGHT UP VERTICALLY TO TOP OF MAIN DRAIN PIPE AND THEN SLOPED UPWARDS AT 1:6 TOWARDS CHAMBER WALLS.

VULLING MOET VERTIKAAL TOT KRUIN VAN PYP OPGEBOU WORD EN DAN MET HELLING VAN 1:6 SKUINS AFGEWERK WORD TOT BY I.K. MUUR.

SNIT A-A
SECTION A-A



NOTE
 CHAMBER CAN BE SUPPLIED WITH SLOTTED CUTOUTS AT THE BASE TO SUIT SEWERS AS REQUIRED.

NOTA
 KAMER KAN MET UITSNYDINGS OP BASIS VOORSIEN WORD VIR VERSKILLEND DEURSNEE PYPE SOOS BENODIG.

GETEKEN. J. A. C. RABE
 DRAWN.

NAGESIEN.
 CHECKED.

SKAAL. 1 : 20
 SCALE.

INSPECTION CHAMBER (UNDER 1 530 DEEP)
 INSPEKSIKAMER (MINDER AS 1 530 DIEP)

D100

G.Y. Raam in beton gele.
C.I. Frame set in concrete.

450x600 G.Y. Deksel en raam.
450x600 C.I. Cover and frame.

Vloevulling.
Benching.

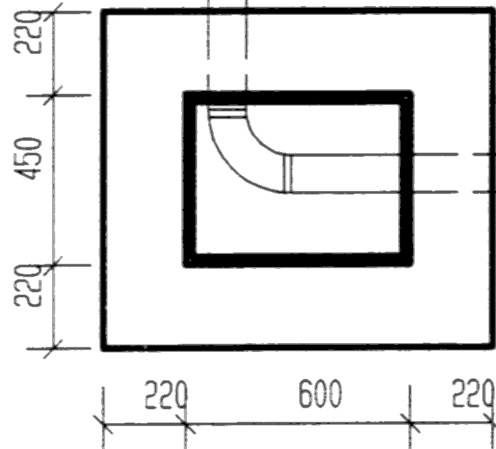
1-3-6 Beton.
1-3-6 Concrete.

TIPE A
TYPE A

Kamer minder as 600 diep.
Chamber under 600 deep.

Vulling moet vertikaal tot bokant van pyp opgebou word en dan met helling 1:6 skuins afgewerk word tot by I.K. muur. Benching to be brought up vertically to top of main drain and then sloped upwards at 1:6 towards chamber walls.

DEURSNEE A-A
SECTION A-A



V.K.P. Kanaal.
V.C.P. Chanel.

TIPE B
TYPE B

Kamers 600 tot 1530 diep.
Chambers 600 to 1530 deep.

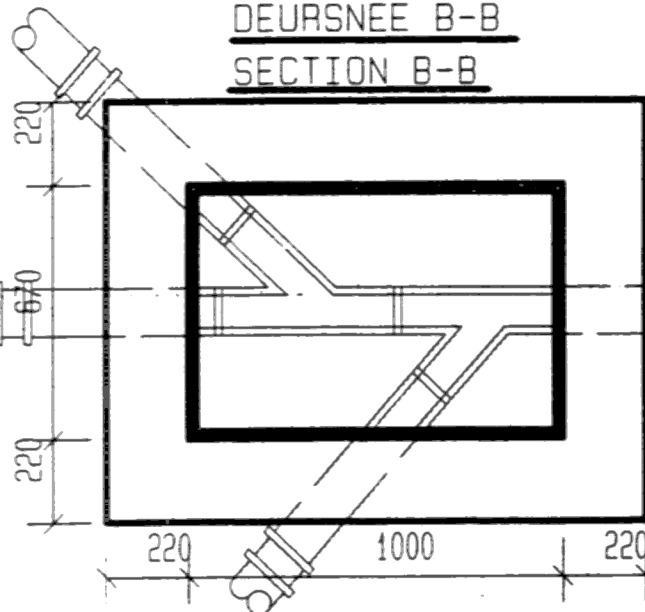
450x600 G.Y. Deksel en raam.
450x600 C.I. Cover and frame.

G.Y. Raam in beton gele.
C.I. Frame set in concrete.

Vloevulling.
Benching.

1-3-6 Beton.
1-3-6 Concrete.

DEURSNEE B-B
SECTION B-B



PLAN

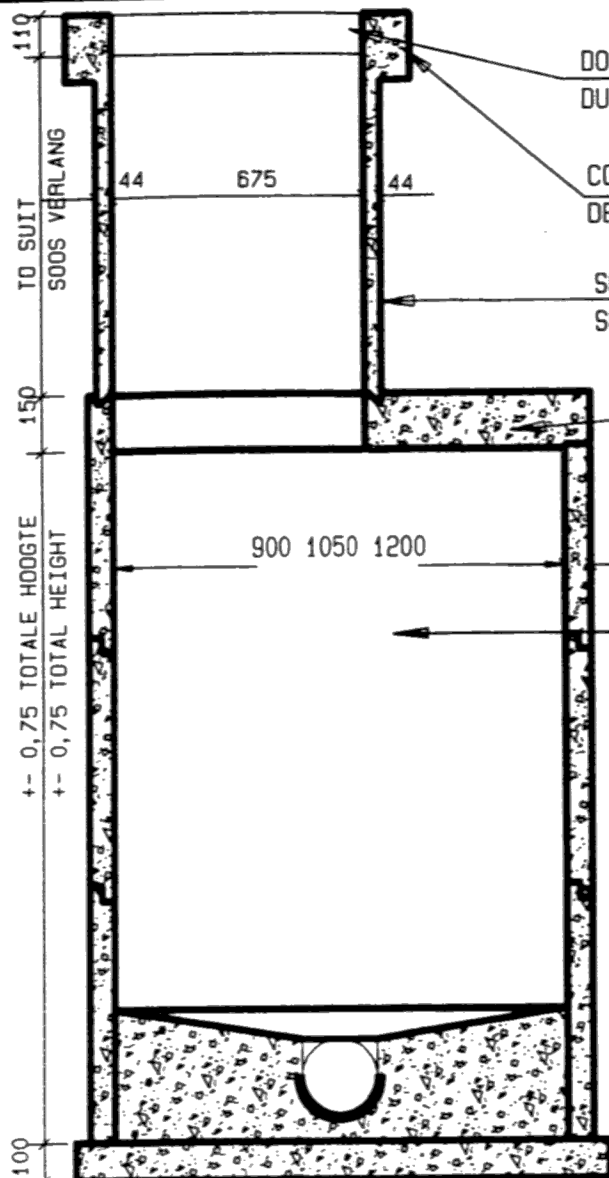
GETEKEN. J.A.C. RABE
DRAWN.

NAGESIEN.
CHECKED.

SKAAL. 1 : 20
SCALE.

INSPEKSIEKAMER. (BAKSTEEN
MET DIEPTE MINDER AS 1530)
INSPECTION CHAMBER.
(BRICK WORK LESS THAN 1530)

D10/AD



DOUBLE SEAL C.I. COVER AND FRAME TO BE SUPPLIED.
DUBBEL SEËL G.Y. DEKSEL EN RAAM MOET VOORSIEN WORD.

COVER SLAB.
DEK BLAD.

SHAFT
SKAG

REDUCER SLAB.
VERLOOP BLAD.

CHAMBER.
KAMER.

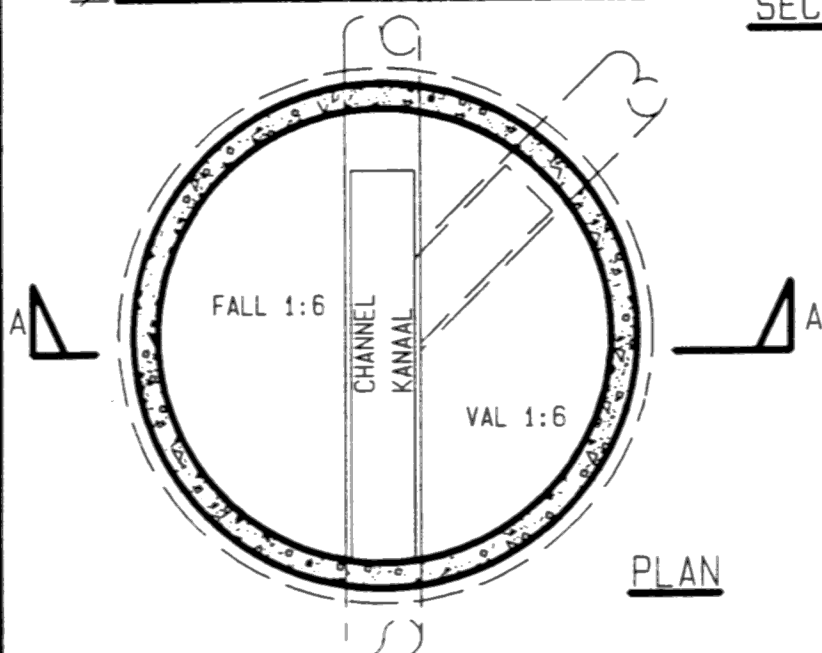
BENCHING TO BE BROUGHT UP
VERTICALLY TO TOP OF MAIN DRAIN
PIPE AND THEN SLOPED UPWARDS AT
1:6 TOWARDS CHAMBER WALLS.

VULLING MOET VERTIKAAL TOT KRUIN
VAN PYP OPGEBOU WORD EN DAN
MET HELLING VAN 1:6 SKUINS AF-
GEWERK WORD TOT BY I.K. MUUR.

SNIT A-A SECTION A-A

NOTE
CHAMBER CAN BE SUPPLIED
WITH SLOTTED CUTOUTS AT
THE BASE TO SUIT SEWERS
AS REQUIRED.

NOTA
KAMER KAN MET UITSNYDINGS OP
BASIS VOORSIEN WORD VIR VER-
SKILLEND DEURSNEE PYPE SOOS
BENODIG.



PLAN

GETEKEN. J. A. C. RABE
DRAWN.

NAGESIEN.
CHECKED.

SKAAL. 1 : 20
SCALE.

MANGATE (DIEPER AS 1 530)
MANHOLES (OVER 1 530)

D11D

450x600 G.Y. Deksel en raam.
450x600 C.I. Cover and frame.

Granolitiese afwerking.
Grano. finish.

Beton gevorm om G.Y. raam te neem.
Concrete rebated to take C.I. frame.

760x600 Opening.
760x600 Opening.

$$Y = (3/4) * (X)$$

Vloevulling moet vertikaal tot top van pyp opgebou word en dan met helling van 1:6 skuins afgewerk word tot by I.K. muur.

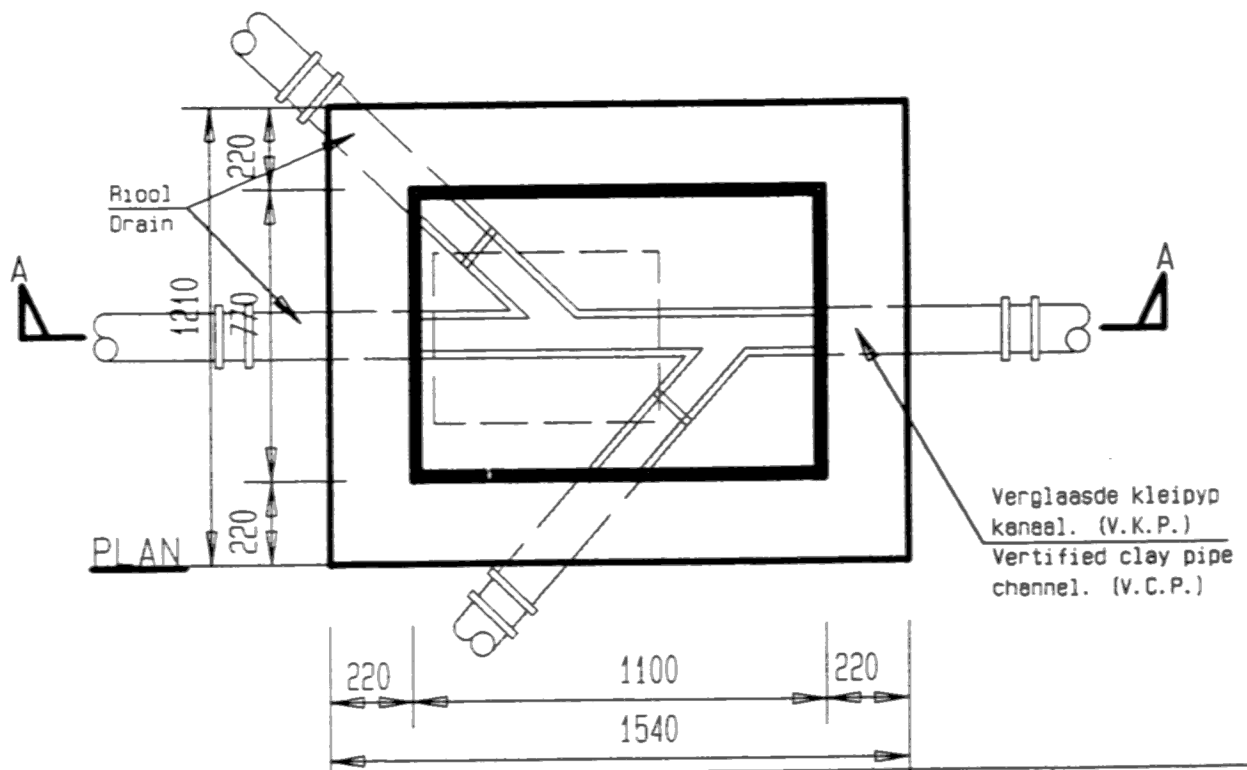
Benching to be brought up vertically to top of main drain pipe and then sloped upwards at 1:6 towards chamber walls.

Herdgebakte stene met smal voë.
Hard brick with narrow joints.

Riool
Drain

150 Beton.
150 Concrete.

DEURSNEE A-A SECTION A-A



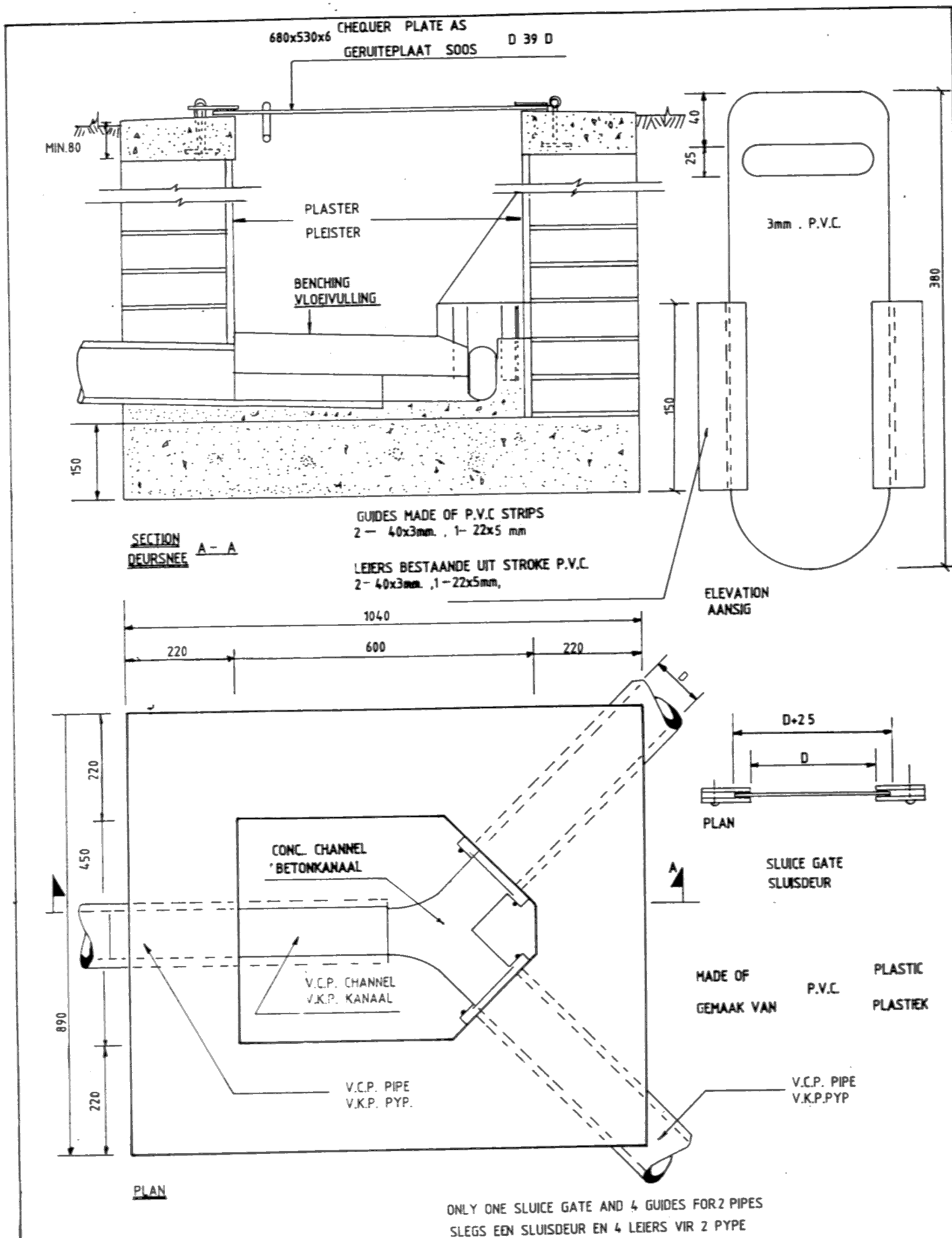
GETEKEN. J.A.C. RABE
DRAWN.

NAGESIEN.
CHECKED.

SKAAL. 1 : 20
SCALE.

MANGATE. (BAKSTEEN DIEPER
AS 1530)
MANHOLES. (BRICK WORK
OVER 1530)

D11/AD



GETEKEN, S. CILLIERS
DRAWN.

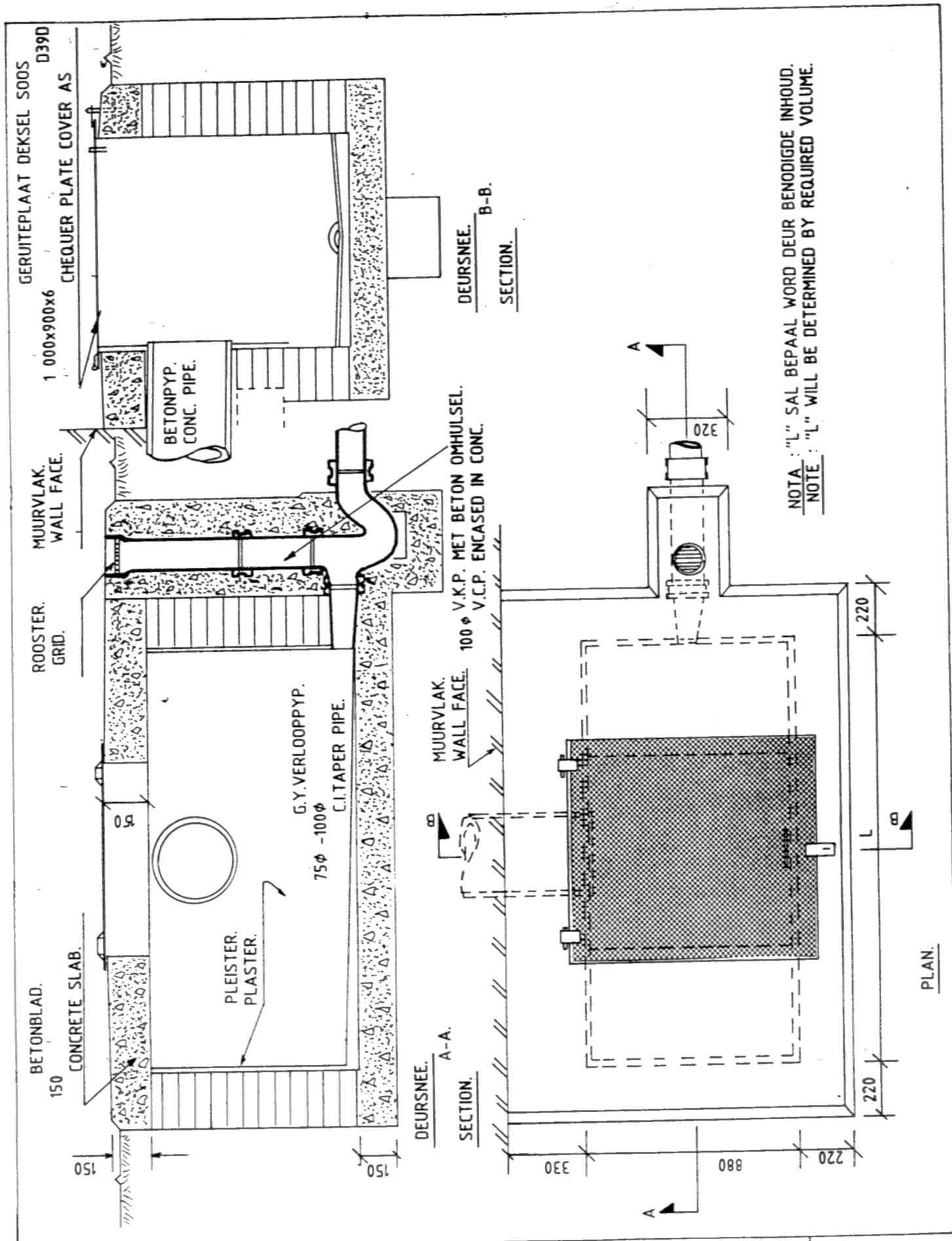
NAGESIEN.
CHECKED.

SKAAL.
SCALE. 1:10

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

CONTROL CHAMBER
KONTROLEKAMER

D 12 D



GETEKEN. M.J.PAPENHUYZEN.
 DRAWN.

NAGESIEN
 CHECKED.

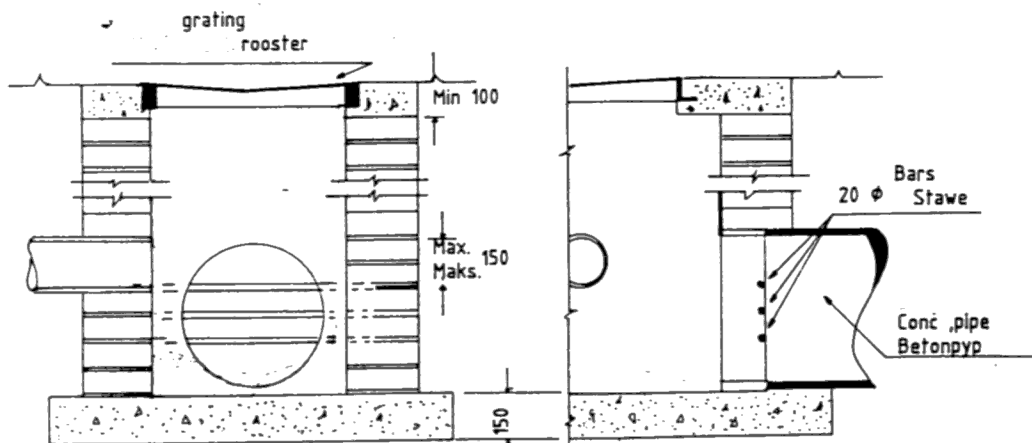
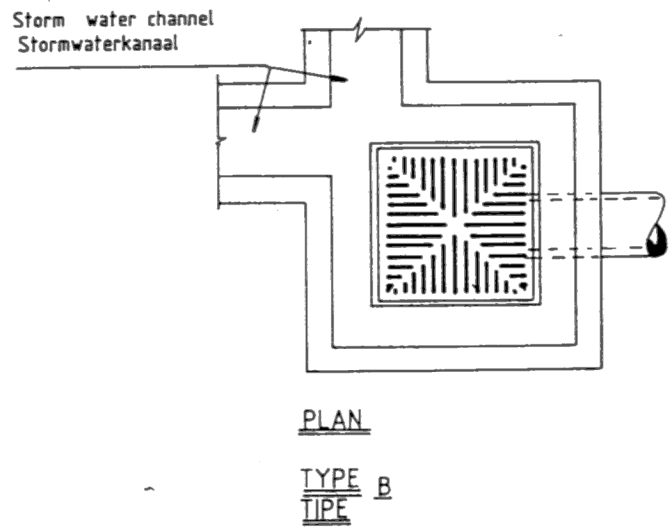
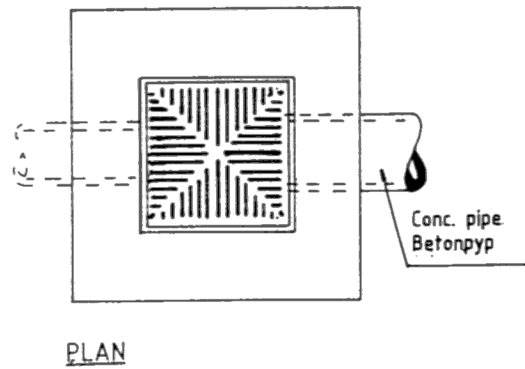
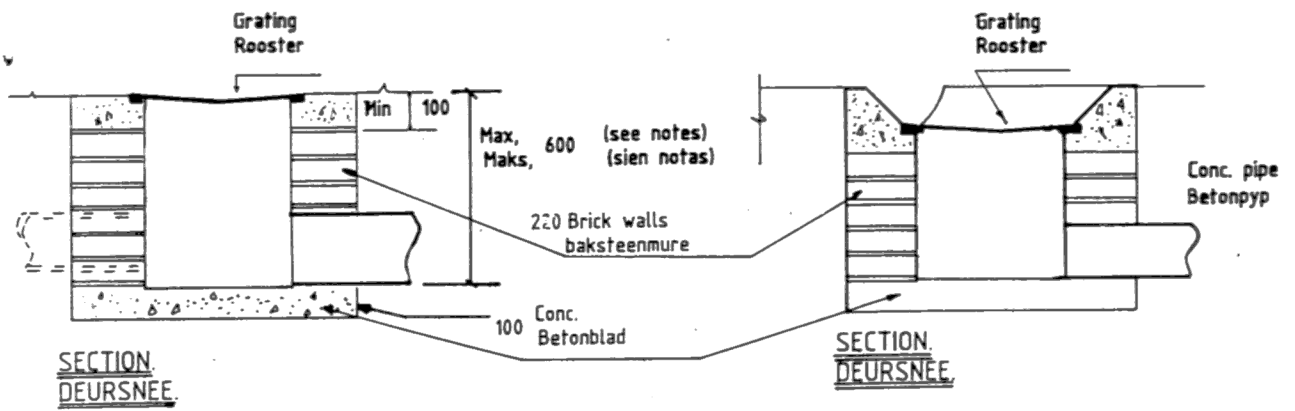
SKAAL
 SCALE

1: 20

DEPARTEMENT VAN OPENBARE WERKE
 DEPARTMENT OF PUBLIC WORKS

EWENAARSTENK VIR WASHUIS.
 BALANCING TANK FOR LAUNDRY BLOCK.

D 13 D



GRATING SIZES.
ROOSTERMATES.

300x300
350x350
380x380
400x400
450x450
500x500
600x600

SECTION OF CATCHPITS WITH SECURITY BARS IN PRISON YARDS, FOR CONC. PIPES 380 Ø AND LARGER.
DEURSNEE VAN VANGPUTTE MET VEILIGHEIDSSTAWE IN GEVANGENISBINNEPLASE, VIR BETONPIPE 380 Ø EN GROTER.

NOTES:

Catchpits under 600Ø deep:
Inside dimensions of finished wall is equal to daylight sizes of C.I. frame.
Catchpits 610 - 1 530 deep : (as D 10 D)
Grating sizes to suit framework.
Catchpits over 1 530 deep (as D 11 D)
Grating sizes to suit framework.

NOTAS:

Vangputte minder as 600 diep:
Binnemate van afgewerkte mure is gelyk aan dagmate van G.Y. raam.
Vangputte 610/1 530 diep (soos D 10 D)
Roosterwerk moet by raamwerk pas.
Vangputte dieper as 1 530: (soos D 11 D).
Roostermate moet by raamwerk pas.

GETEKEN.
DRAWN. S. CILLIERS.

NAGESIEN.
CHECKED.

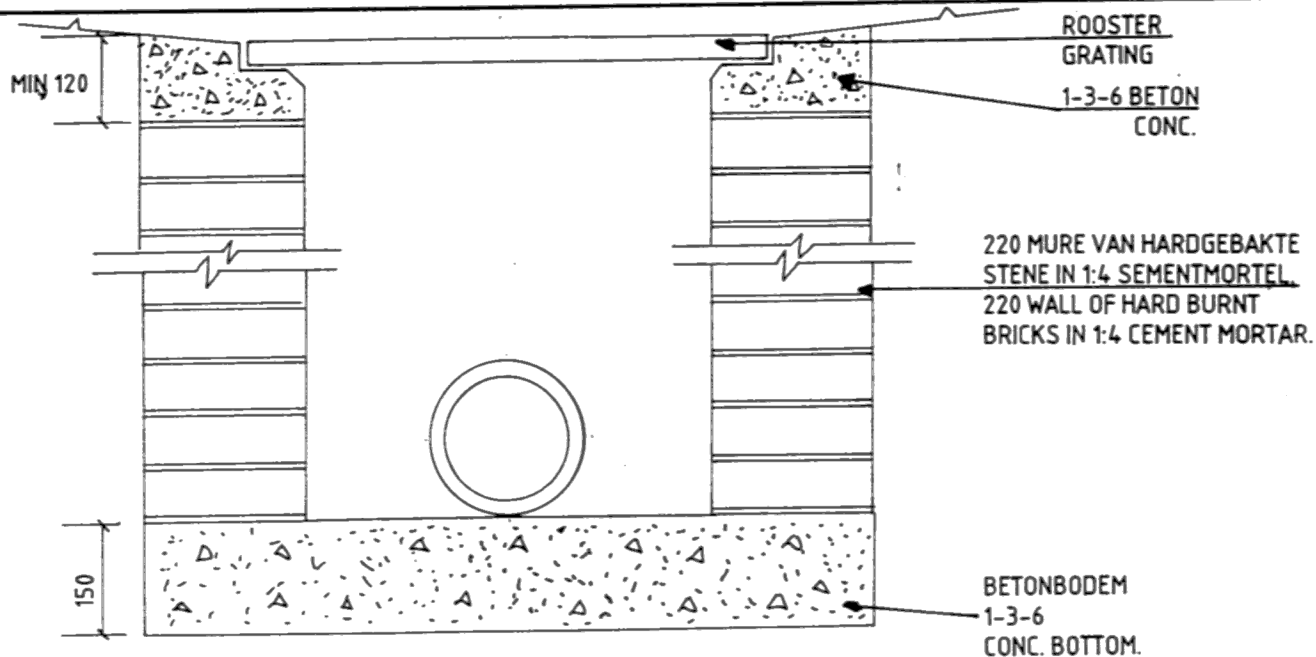
SKAAL.
SCALE.

1:25

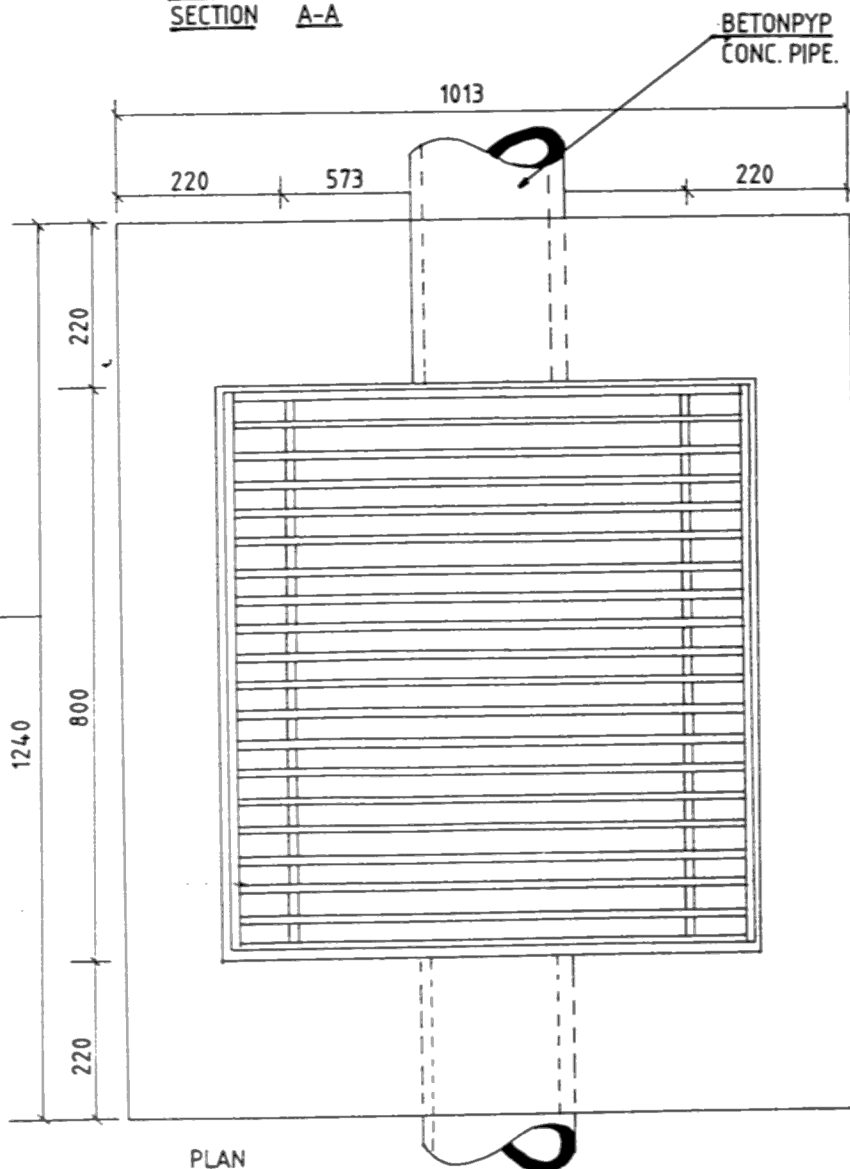
CATCHPITS. TYPE A AND B

VANGPUTTE. TIPE A EN B.

D 14 D



DEURSNEE A-A
SECTION A-A



ROOSTER.
BUIEMATE 772x690
20 YSTERSTAW 40x12 H.Q.H. 40
GESWEIS AAN 2-40x12 STAW.
GRATING.
OVERALL SIZE 772x690
20 IRON BARS 40x12 C.T.C 40
WELDED TO 2-40x12 BARS.

GETEKEN.
DRAWN. JAC. RABE
NAGESIEN.
CHECKED. *[Signature]*
SKAAL. 1:10
SCALE.

VANGPUT TIPE C.
CATCHPIT TYPE C.

D150

STONE OR CONC. SLAB OVER CAVITY
KLIP OF BETONBLAD OOR HOLTE

FILLING
VULLING

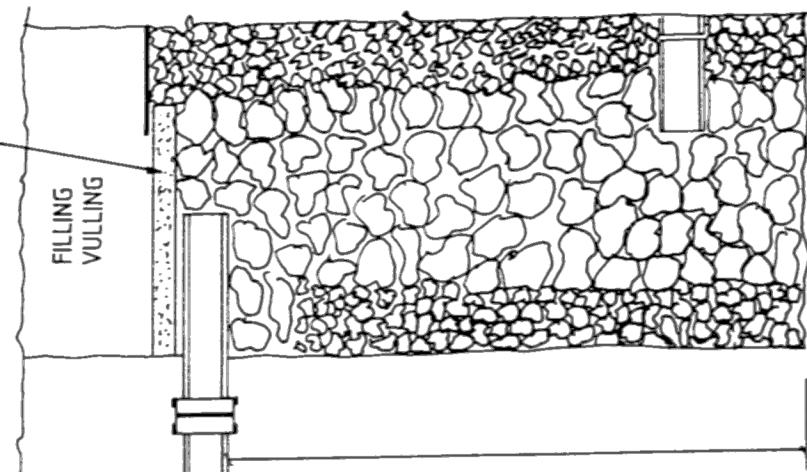
INLET PIPE
INLAATPY

THE DEPTH WILL DEPEND UPON
THE NATURE AND ABSORTIVE
CAPACITY OF THE SOIL.

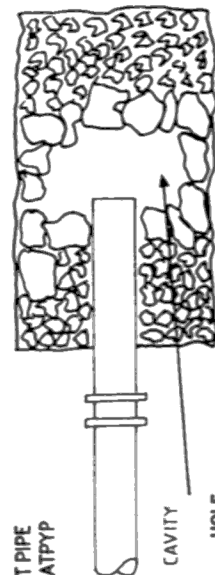
DEPTE HANG AF VAN DIE TIE
EN ABSORBEERVERHOE VAN DIE
GROND.

FORM CAVITY WITH ROUGH STONES,
DRY PACKED.

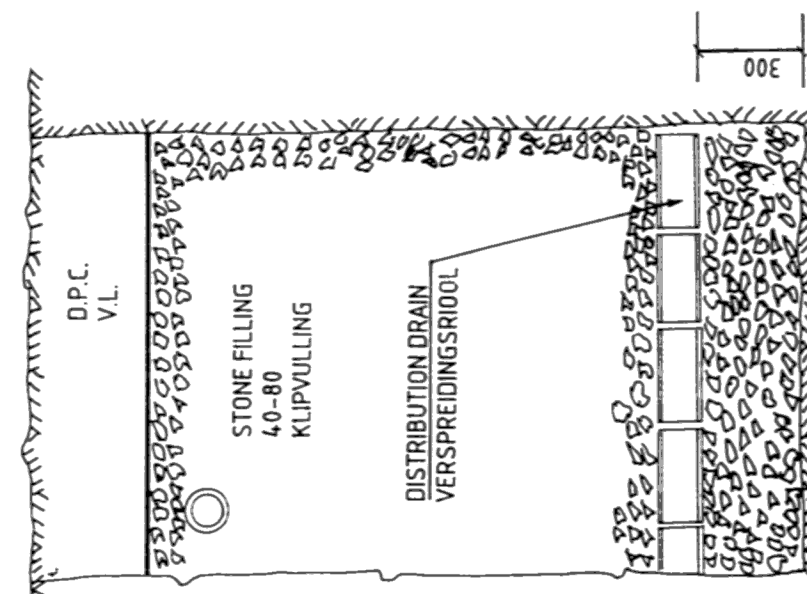
VORM HOLTE MET GROWE KLIPPE,
DROOG GEPAK.



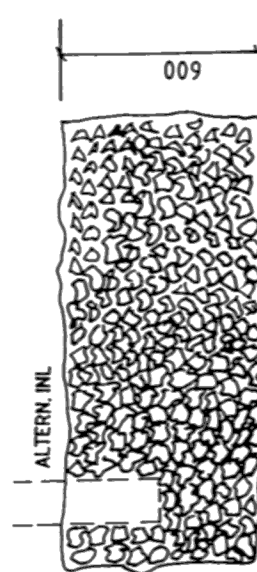
LONGITUDINAL SECTION
LANGDEURSNEE.



PLAN



CROSS SECTION
DWARSDEURSNEE



ALTERN. INL

GETEKEN.
DRAWN.

J.A.C. RABE

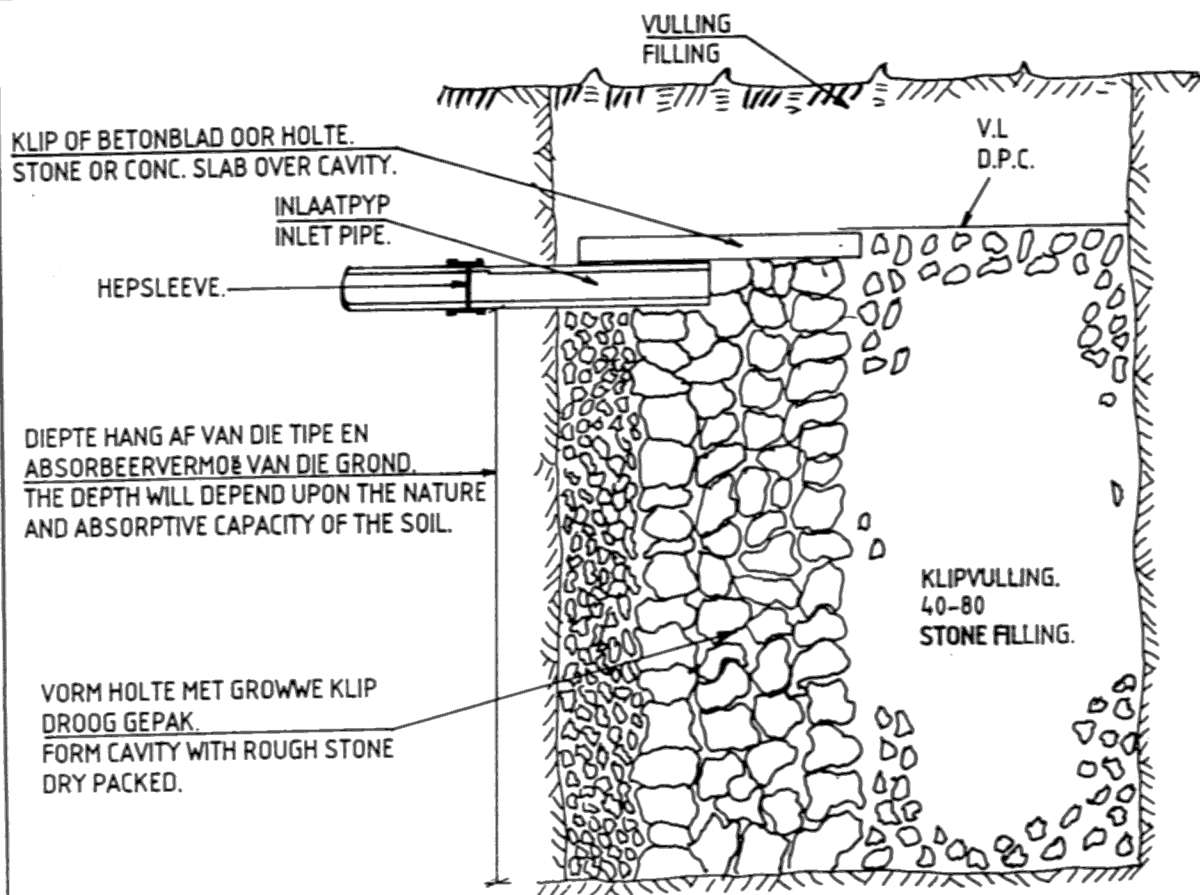
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CHECKED.

SKAAL.
SCALE.

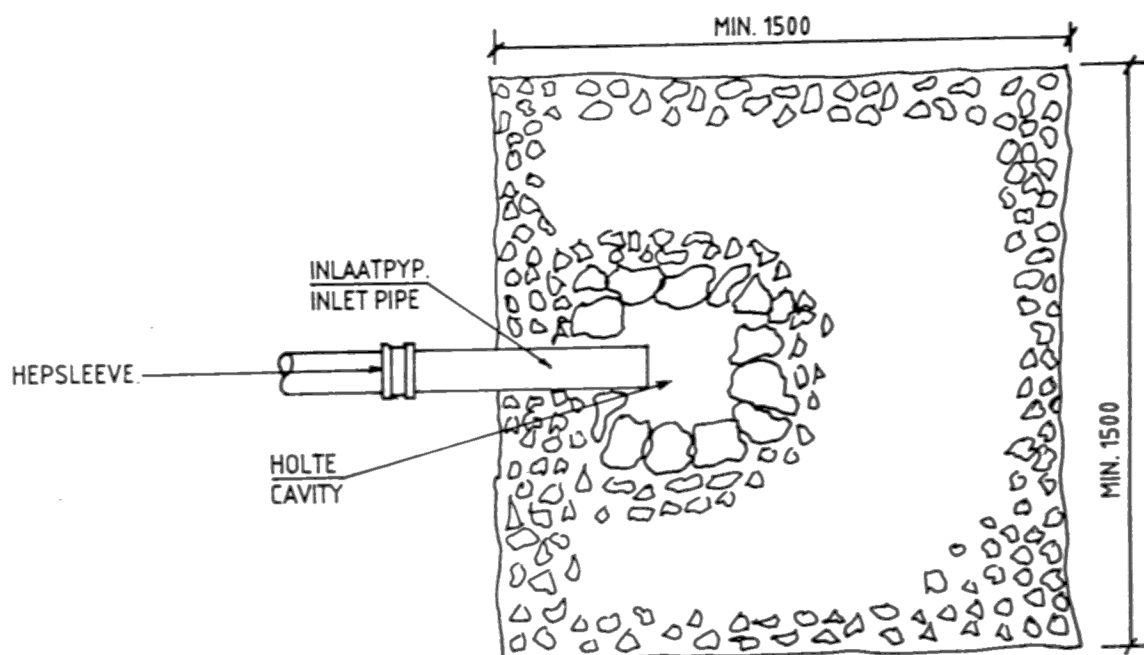
1:20

STAFEL RIJOL
FRENCH DRAIN

D160



DEURSNEE
SECTION

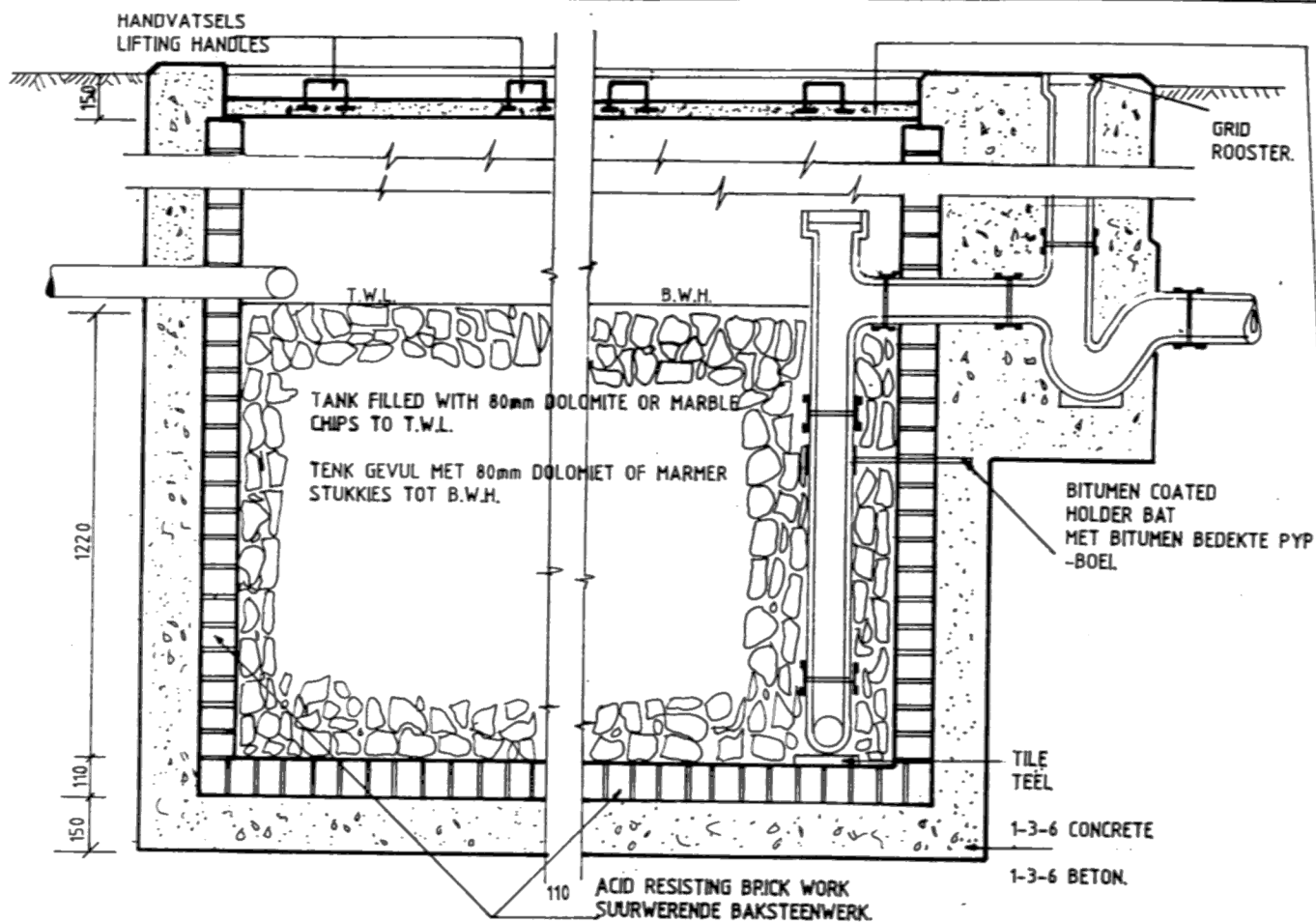


PLAN

GETEKEN.
DRAWN. J.A.C. RABE
NAGESIEN.
CHECKED. *[Signature]*
SKAAL. 1:20
SCALE.

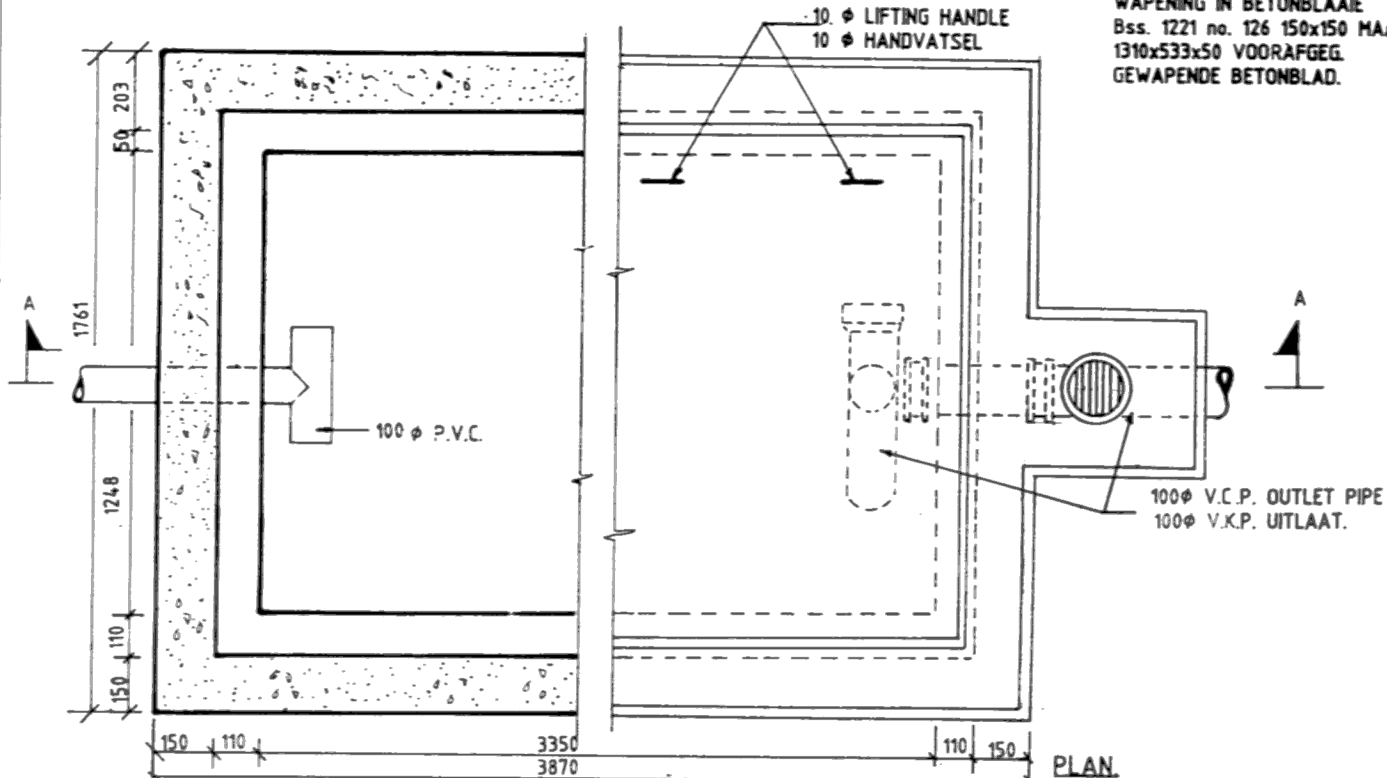
SYFERPUT
SOAKAGE PIT

D17D



SECTION A-A
DEURSNEE A-A

REINFORCEMENT IN CONC. SLABS
Bss. 1221 NO. 126 150x150 MESH.
1310x533x50 PRECAST REINFORCED
CONC. SLAB
WAPENING IN BETONBLAAIE
Bss. 1221 no. 126 150x150 MAAS.
1310x533x50 VOORAFGE-
GEWAPENDE BETONBLAD.



GETEKEN.
DRAWN. S.P. CILLIERS.

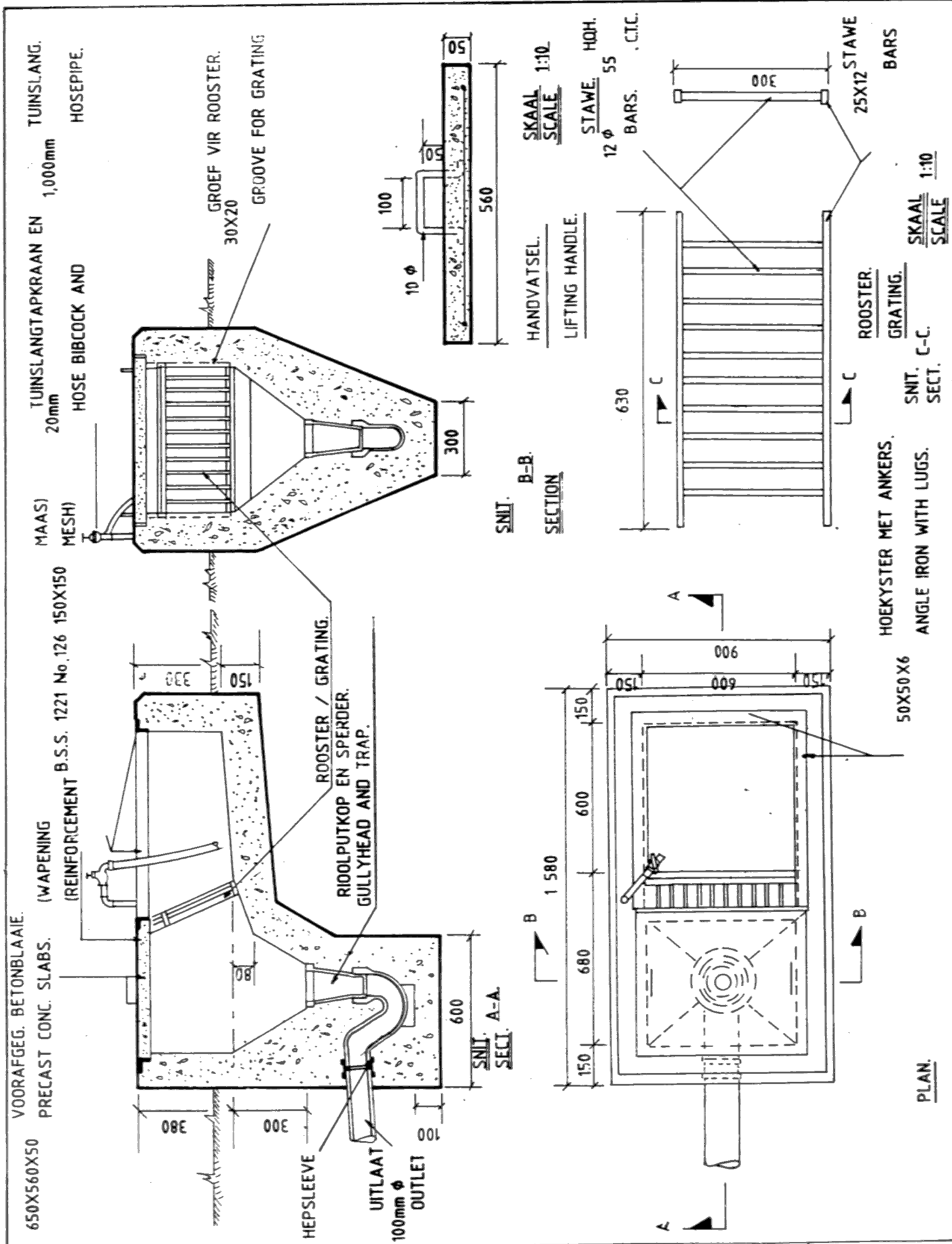
NAGESIEN.
CHECKED.

SKAAL.
SCALE. 1:20

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

ACID NEUTRALIZING TANK.
SUUR NEUTRALISERINGSTENK.

D18D

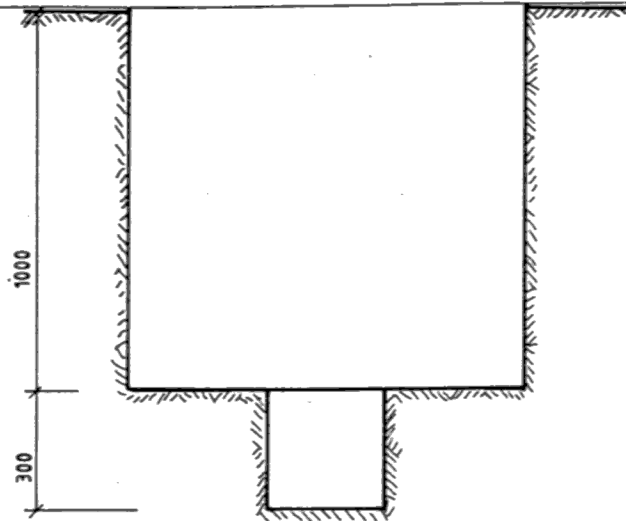


GETEKEN. DRAWN	S.P. CILLIERS
NAGESIEN CHECKED	<i>[Signature]</i>
SKAAL SCALE	1:20

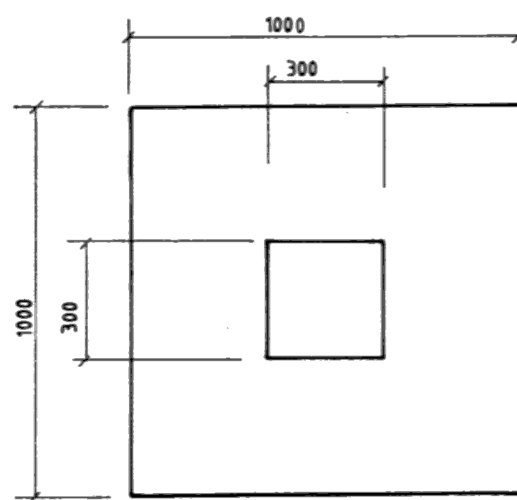
DEPARTEMENT VAN OPENBARE WERKE DEPARTMENT OF PUBLIC WORKS
STORTINGSPUT. DUMPING PIT.

D 19 D

THE 300x300mm TEST HOLE IS TO BE THOROUGHLY SOAKED BY FILLING IT WITH WATER TO A DEPTH OF 300mm. THIS WATER LEVEL MUST BE MAINTAINED FOR AT LEAST 4 HOURS BY CONSTANTLY ADDING WATER. IMMEDIATELY AFTER THIS INITIAL SOAKING AND WITH THE WATER LEVEL STILL AT THE REQUIRED DEPTH, (NO FURTHER WATER IS TO BE ADDED AFTER THIS) THE DROP IN THE WATER SURFACE MUST BE OBSERVED FOR A PERIOD OF 30 MINUTES, THEN MEASURED. FROM THESE OBSERVATIONS THE AVERAGE TIME FOR THE WATER TO DROP 25mm CAN BE CALCULATED AND THE LENGTH OF THE FRENCH DRAIN DETERMINED FROM THE TABLE BELOW.



SECTION.



PLAN

AVERAGE TIME TAKEN FOR WATER TO DROP 25mm IN 300x300x300 HOLE.	COMMENTS.	LENGTH OF FRENCH DRAIN PER PERSON. DEPTH 1,5 m BELOW INVERT OF INLET PIPE. (DOMESTIC SEWAGE EFFLUENT INCLUDING WASTE WATER.)
15 SECONDS OR LESS.	EXCELLENT.	300 mm
30 SECONDS OR LESS.	VERY GOOD	450 mm
1 MINUTE	GOOD	600 mm
2 MINUTE	GOOD	750 mm
3 MINUTE	GOOD	1,1 m
4 MINUTE	GOOD	1,4 m
5 MINUTE	GOOD	1,55 m
10 MINUTE	FAIR	1,8 m
15 MINUTE	FAIR	2,3 m
30 MINUTE	TIGHT	3 m
60 MINUTE	BAD	4,5 m

GETEKEN.
DRAWN S.P. CILLIERS.

NAGESIEN
CHECKED

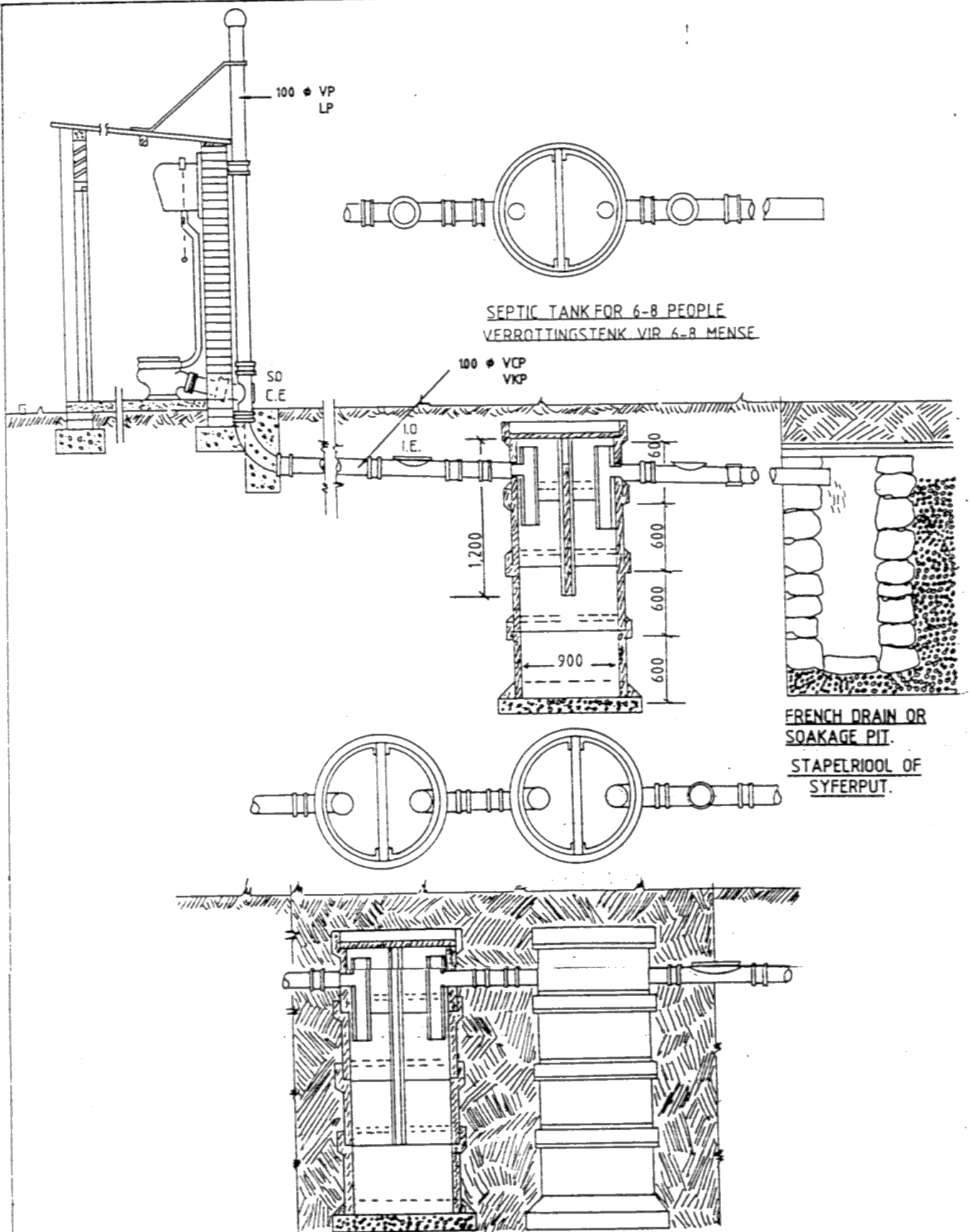
SKAAL
SCALE 1:25

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

ABSORPTION TEST HOLE.

WEGSYFER TOETSGAT.

D200



SEPTIC TANK FOR 10-14 PERSONS. VERROTINGSTENK VIR 10-14 MENSE

GETEKEN.
DRAWN. S.P. CILLIERS

NAGESIEN.
CHECKED. *[Signature]*

SKAAL.
SCALE 1:20

DEPARTEMENT VAN OPENBARE WERKE
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PREFABRICATED CIRCULAR SEPTIC TANKS.

VOORAFVERVAARDIGE RONDE VERROTINGSTENK.

D21D

WIRE BALLOON
BOL ROOSTER.

NOTA

ALLE VUIL WATER SPERDERS MOET
N SEËL VAN 'N MINIMUM DIEPTE VAN
65mm HÊ.

NOTE

ALL WASTE WATER TRAPS TO HAVE
A MINIMUM SEAL OF 65mm.

50 ϕ L.P.
V.P.

40 ϕ WASTE PIPE
40 ϕ VUILWATERPYP

100x50 TAPER PIPE
100x50 VERLOOPPYP

100mm ϕ V.K.P. PYP
100mm ϕ V.C.P. PIPE

220mm BAKSTEENMUUR.

50 ϕ L.P.
50 ϕ V.P.

40 ϕ WASTE PIPE
40 ϕ VUILWATERPYP.

GETEKEN.
DRAWN. S.P. CILLIERS.

NAGESIEN
CHECKED *[Signature]*

SKAAL.
SCALE. N.V.S.

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

TIPIESE VUILWATERPYP AANSLUITING MET
RIOOL.
TYPICAL WASTE PIPE CONNECTION TO DRAIN.

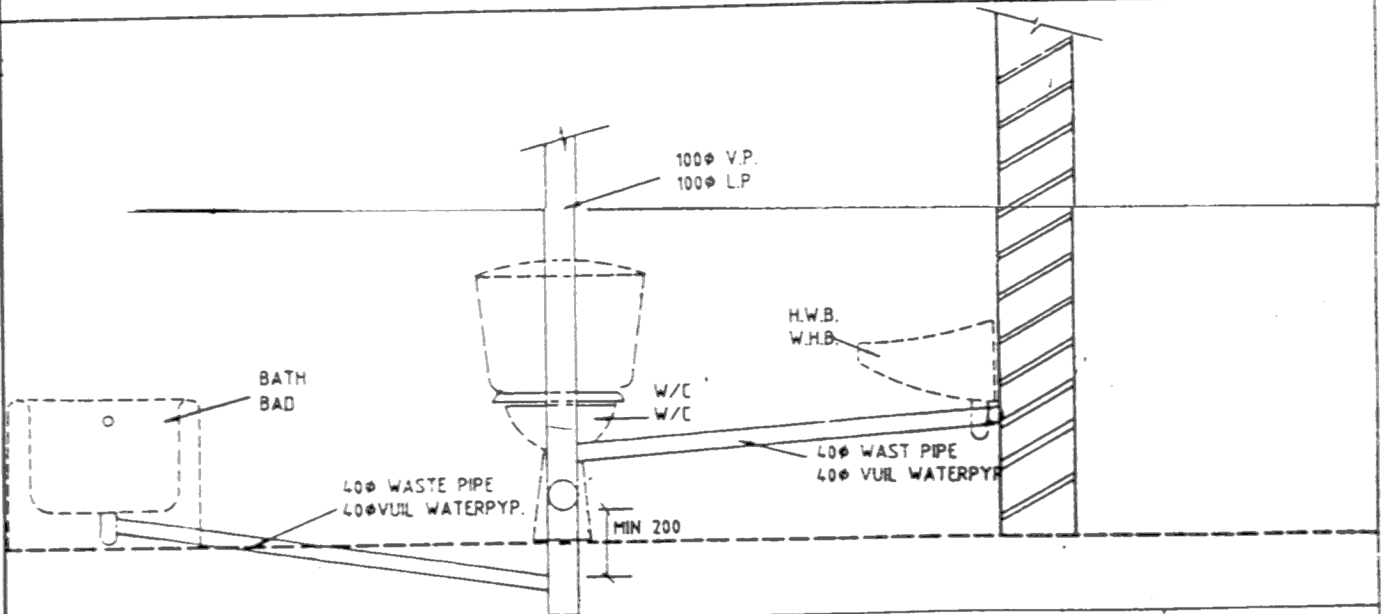
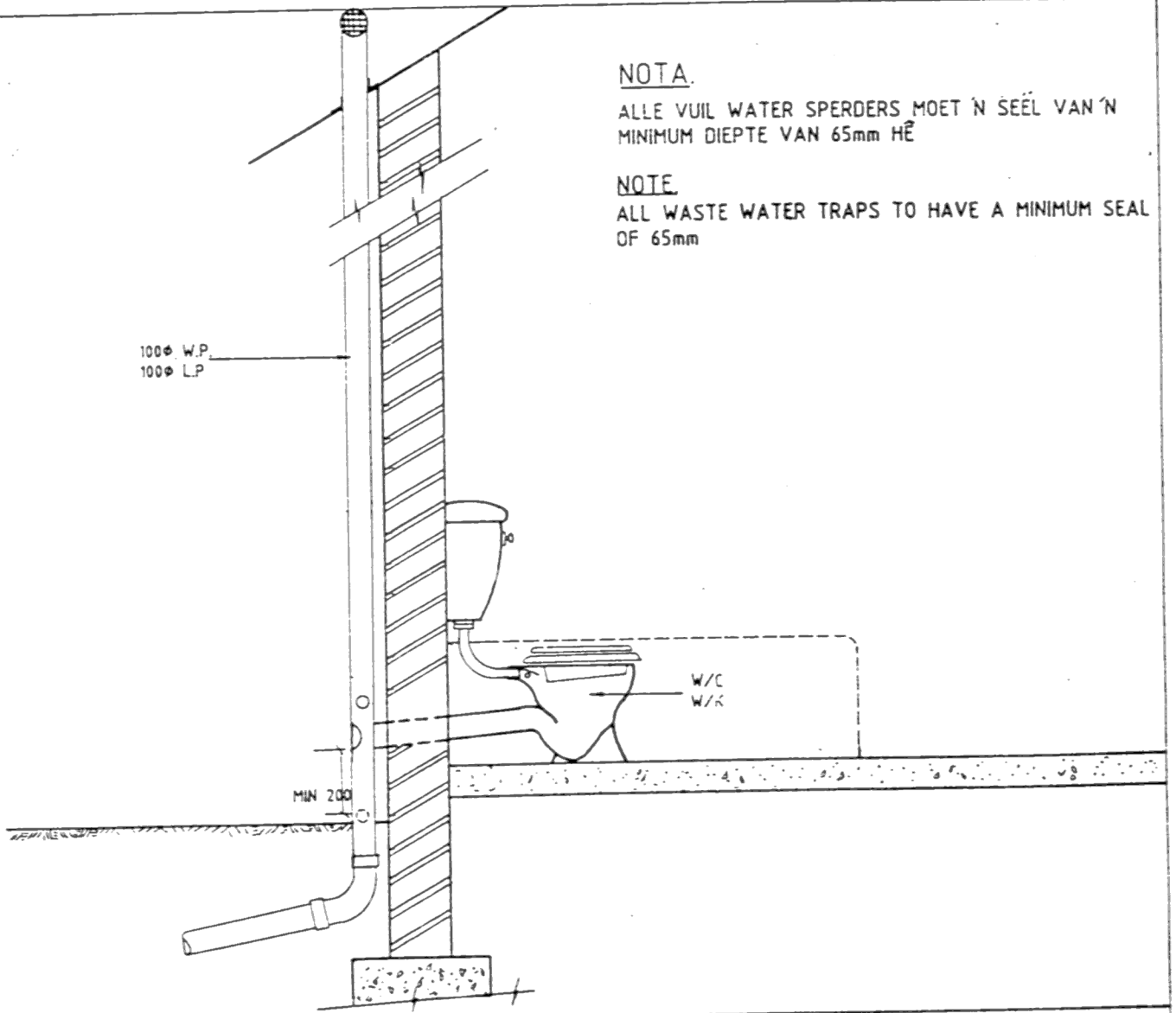
D22(A)D

NOTA.

ALLE VUIL WATER SPERDERS MOET 'N SEËL VAN 'N
MINIMUM DIEPTE VAN 65mm HÊ

NOTE.

ALL WASTE WATER TRAPS TO HAVE A MINIMUM SEAL
OF 65mm



GETEKEN
DRAWN

S.P. CILLIERS

NAGESIEN
CHECKED

SKAAL
SCALE

1:20

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

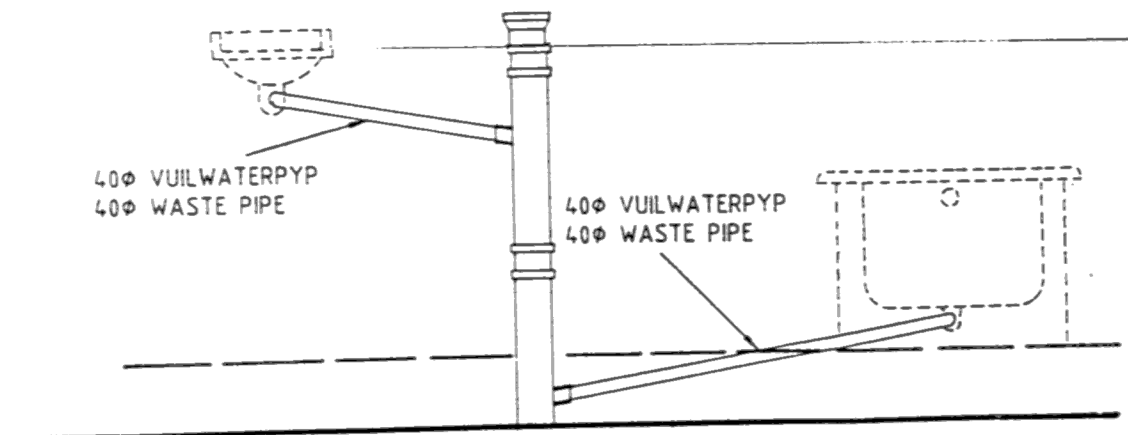
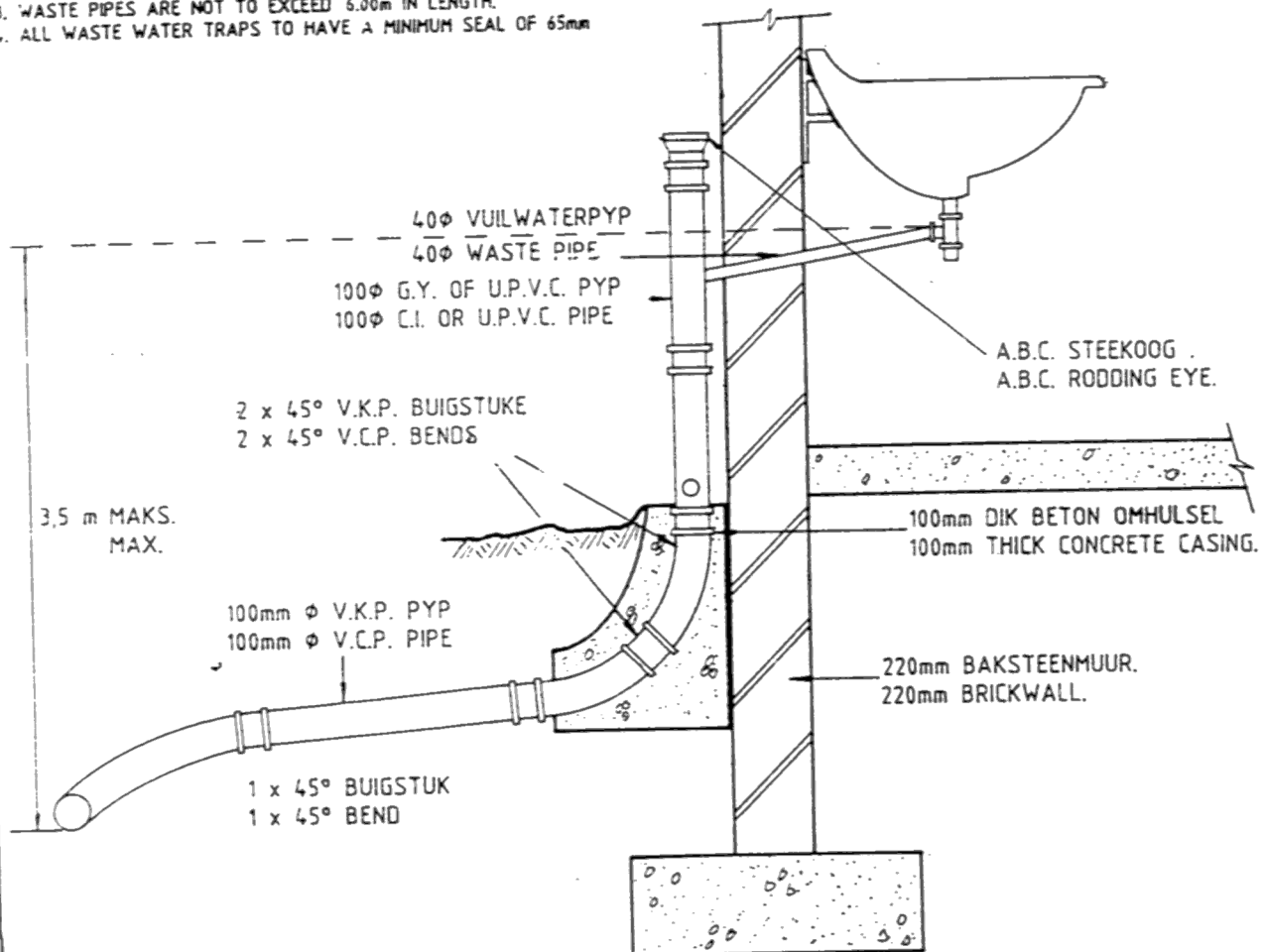
TIPIESE AANSLUITING MET RIOOL.
TYPICAL CONNECTION TO DRAIN.

D22(B)D

NOTAS : NOTES.

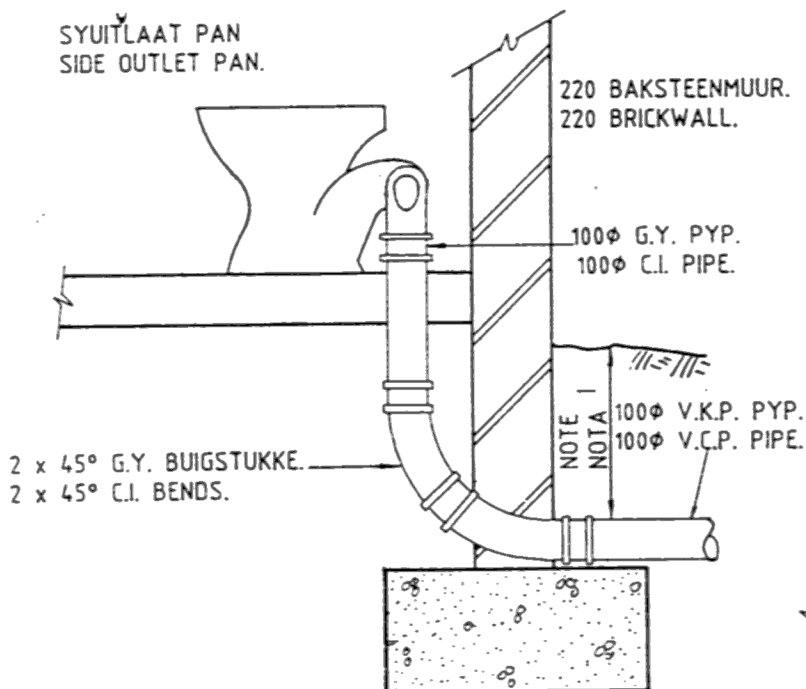
1. ALLE VUILWATERPIPE MOET 40φ WEES EN TEEN N' HELLING VAN 1 : 25 GELê WORD.
2. INDIEN DIE AFSTAND TUSSEN DIE BOONSTE AANSLUITING EN DIE INLOOP VLAK VAN DIE TAK RIOOL 3.5m OORSKRY MOET DAAR TERUGGEKEER WORD NA TEKENING D22(A)D.
3. VUILWATERPIPE MOET NIE 6.00m IN LENGTE OORSKRY NIE.
4. ALLE VUILWATER SPEDERS MOET N' SEEL VAN N' MINIMUM DIEPTE VAN 65mm Hê.

1. ALL WASTE PIPES TO BE 40φ LAID AT A GRADIENT OF 1 : 25.
2. IF THE DISTANCE OF THE UPPERMOST CONNECTION AND THE INVERT LEVEL OF THE BRANCH DRAIN EXCEEDS 3.5m THEN REVERT TO TYPE DRAWING D22(A)D.
3. WASTE PIPES ARE NOT TO EXCEED 6.00m IN LENGTH.
4. ALL WASTE WATER TRAPS TO HAVE A MINIMUM SEAL OF 65mm



GETEKEN DRAWN	M.C. BOTHA.	DEPARTEMENT VAN OPENBARE WERKE DEPARTMENT OF PUBLIC WORKS	D22(C)D
VAGESIEN CHECKED	<i>[Signature]</i>	TIPSE VUILWATERPYP AANSLUITING MET RIOOL	
SKAAL SCALE	1 : 20	TYPICAL WASTE PIPE CONNECTION TO DRAIN.	

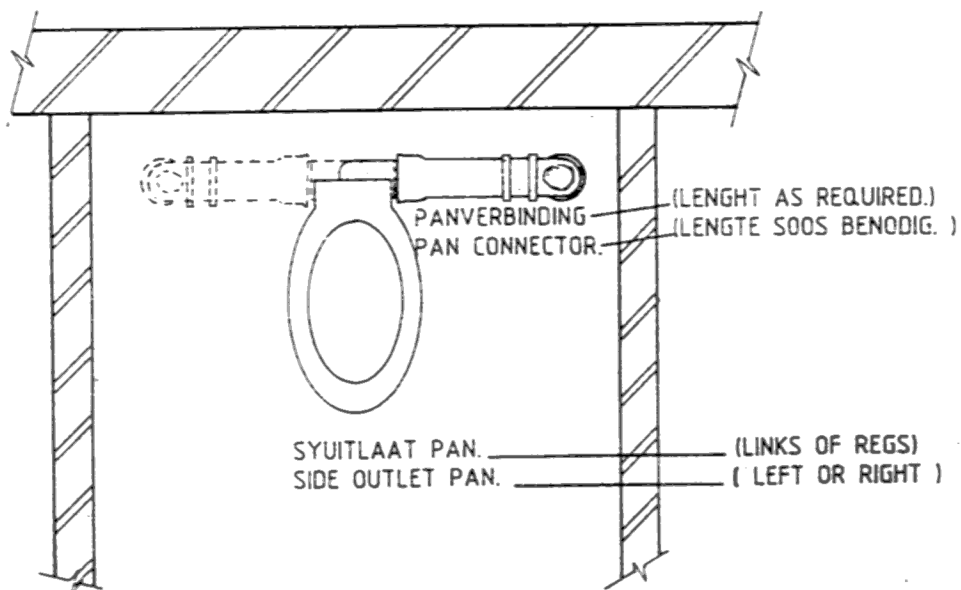
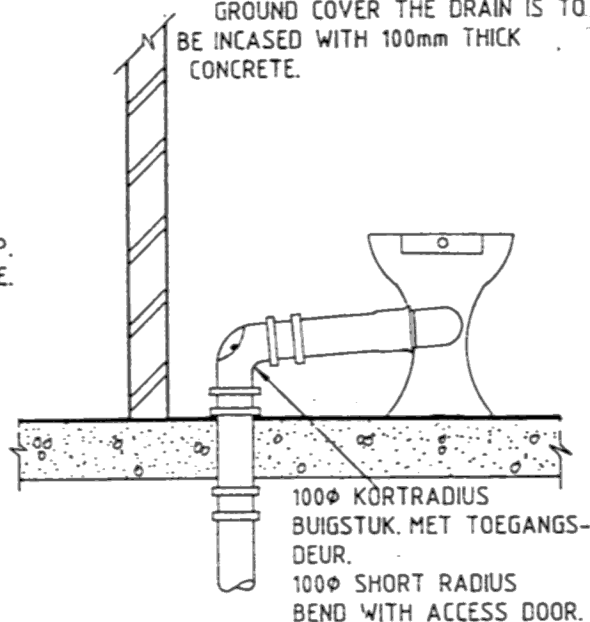
SYUITLAAT PAN
SIDE OUTLET PAN.



NOTAS - NOTES.

I. INDIEN MINDER AS 300mm GROND
DEKKING MOET RIOOLPYP OMHUL
WORD MET 100mm DIK BETON.

I. IF THERE IS LESS THAN 300mm
GROUND COVER THE DRAIN IS TO
BE INCASED WITH 100mm THICK
CONCRETE.



THIS TYPE OF CONNECTION MUST BE USED IN LIEU OF AN
"S" TRAP WHICH IS NOT PERMITTED.
HIERDIE TIPE AANSLUITING MOET GEBRUIK WORD IN PLEK VAN N'
"S" SPERDER WAT NIE TOEGELAAT WORD NIE.

GETEKEN
DRAWN M.C. BOTHA.

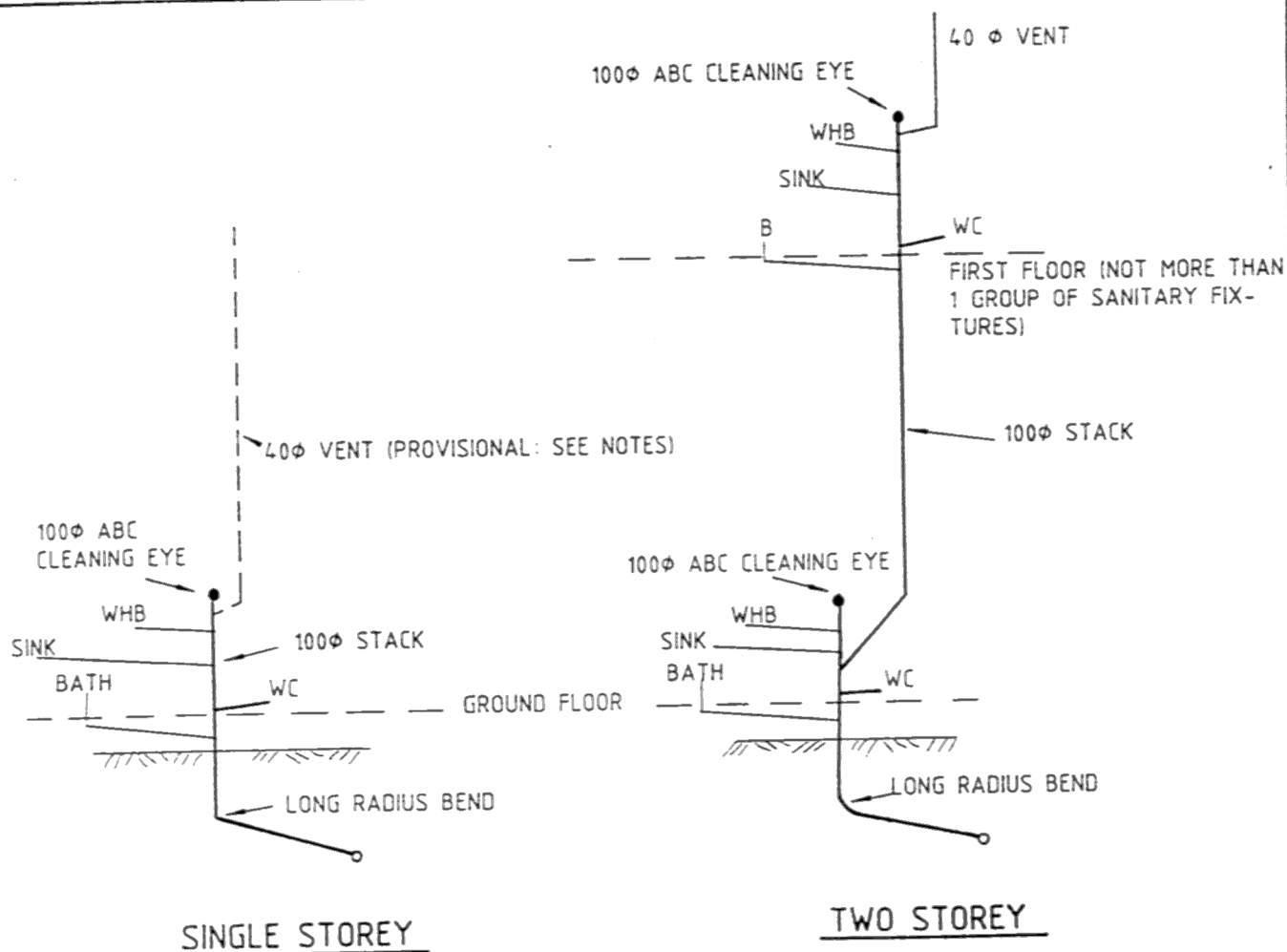
NAGESIEN
CHECKED

SKAAL
SCALE 1 : 20

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

TIPIESE W.K. AANSLUITING.
TYPICAL W.C. CONNECTION.

022(D)D



NOTES.

1. ALL WASTE PIPES TO BE 40 ϕ LAID AT A GRADIENT OF 1:25
2. THE CROWN OF THE W.C. TRAP MAY NOT BE MORE THAN 1,5 m ABOVE THE DRAIN INVERT.
3. THE HIGHEST WASTE PIPE CONNECTION TO THE STUB STACK MAY NOT BE MORE THAN 2m ABOVE THE DRAIN INVERT.
4. NOT MORE THAN ONE GROUP OF SANITARY FIXTURES ON GROUND FLOOR.
5. SHOULD ANY OF THE REQUIREMENTS IN 2 TO 4 BE EXCEEDED THEN A 40 ϕ VENTILATION PIPE MUST BE PROVIDED.
6. WASTE PIPES MAY NOT EXCEED 5m IN LENGTH.
7. NO CONNECTION TO THE STACK MAY BE MADE BETWEEN THE CENTRE LINE OF THE W.C. CONNECTION AND 200mm BELOW.
8. EACH FITTING MUST BE SEPARATELY CONNECTED TO THE STUBSTACK.
9. ALL WASTE FITTINGS ARE TO BE FITTED WITH DEEP SEAL TRAPS (75mm)
10. W.C. AND FLOOR OUTLETS MUST BE WITHIN 3m OF THE STUBSTACK. BATHS, BASINS, SINKS, SHOWERS, URINALS AND WASH TROUGHS MUST BE WITHIN 5m.

GETEKEN DRAWN	J.C. MINNIE	DEPARTEMENT VAN OPENBARE WERKE DEPARTMENT OF PUBLIC WORKS	D22(E)D
NAGESIEN CHECKED		STUB STACK SYSTEM	
SKAAL SCALE		(TWO STOREY MAXIMUM)	

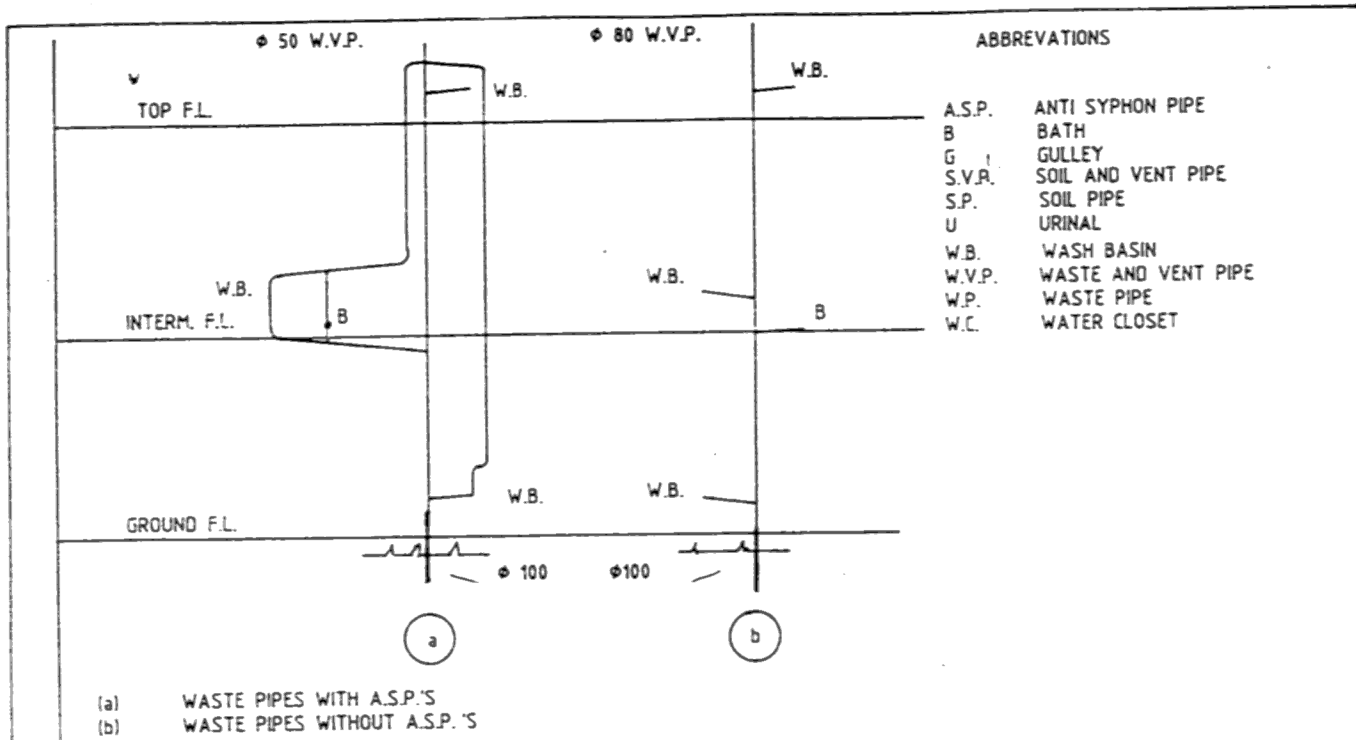
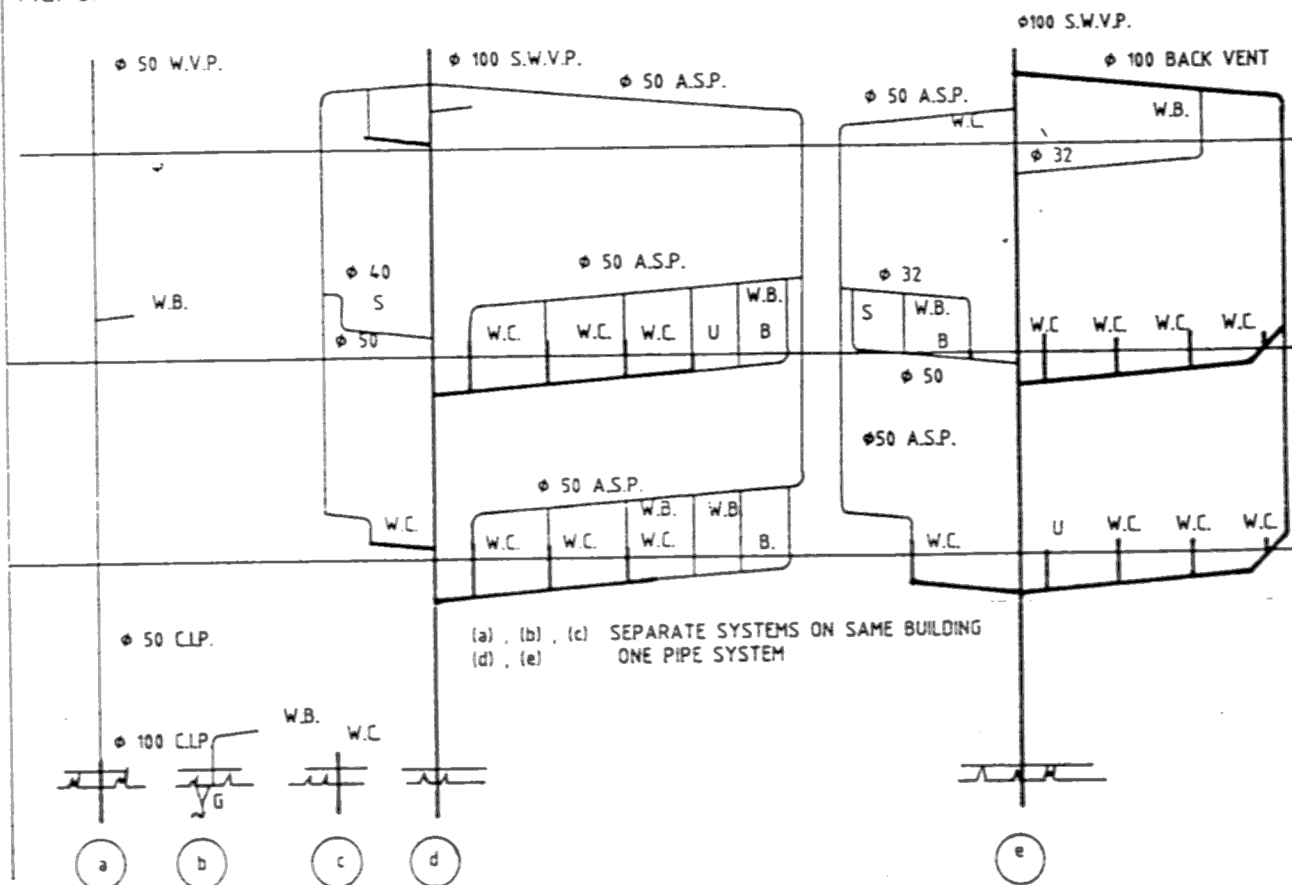


FIG. 5A VENTING OF WASTE PIPES



GETEKEN
DRAWN S.P. CILLIERS

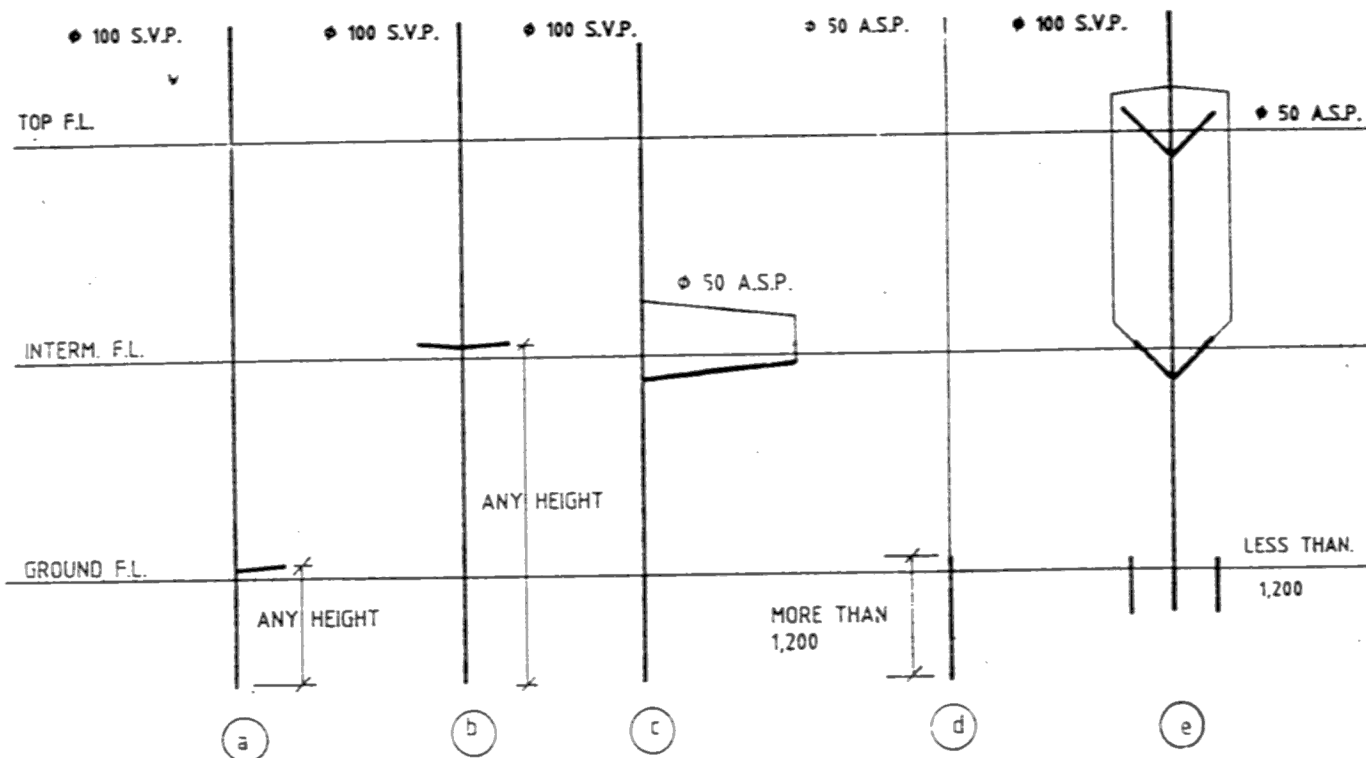
NAGESIEN
CHECKED

SKAAL
SCALE NOT TO SCALE

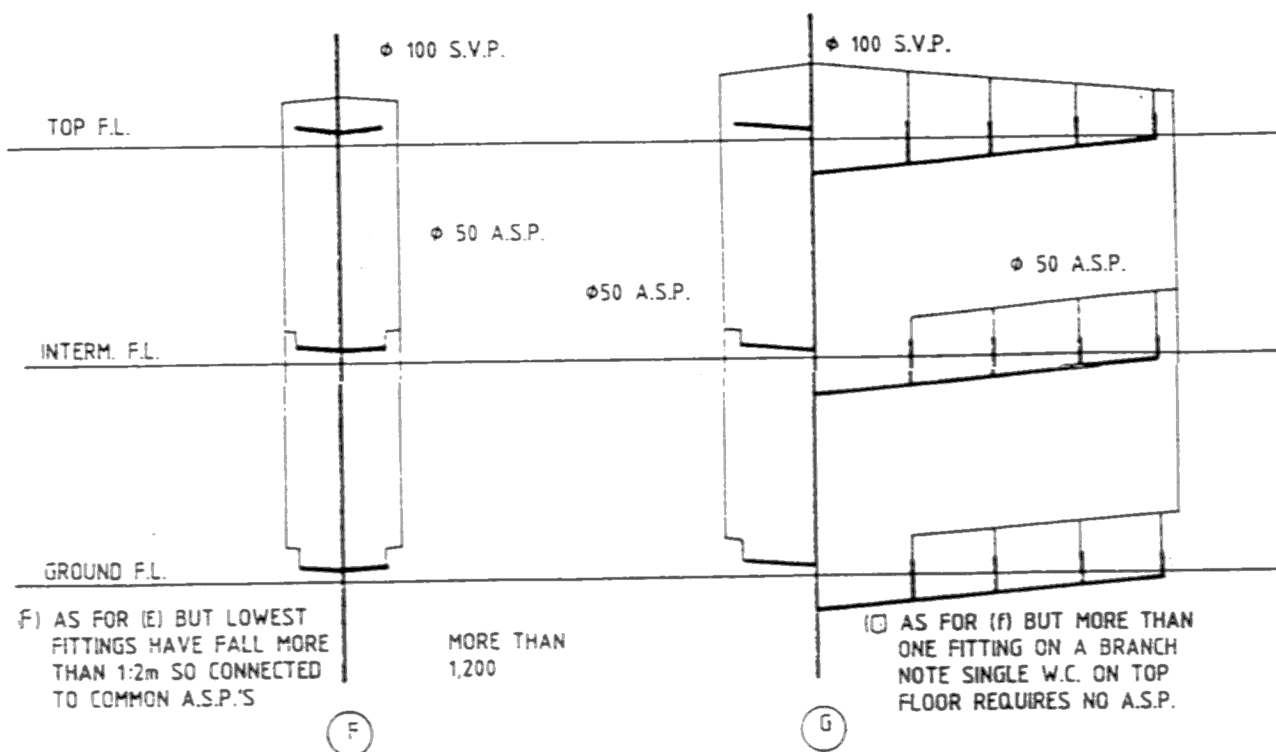
DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

THE ONE PIPE SYSTEM
EENPYPSTELSEL.

023(A)D



- (a)-(b) SOIL FITTINGS LESS THAN 6m FROM V.P. — NO A.S.P. REQUIRED
 (c) SOIL FITTING TRAP IS MORE THAN 6m FROM V.P. — A.S.P. REQUIRED
 (d) SOIL FITTING HAS DROP MORE THAN 1,2m — A.S.P. REQUIRED
 (e) GROUND FLOOR SOIL FITTINGS HAVE FALL LESS THAN 1,2m, SO CONNECT DIRECT TO SEWER —
 TOP FLOOR FITTINGS HAVE NO A.S.P. (AS FOR INTERM. HAVE A.S.P. BECAUSE OF FITTINGS ABOVE)



F) AS FOR (E) BUT LOWEST FITTINGS HAVE FALL MORE THAN 1:2m SO CONNECTED TO COMMON A.S.P.'S

G) AS FOR (F) BUT MORE THAN ONE FITTING ON A BRANCH NOTE SINGLE W.C. ON TOP FLOOR REQUIRES NO A.S.P.

GETEKEN C.J. PRITCHARD
 DRAWN

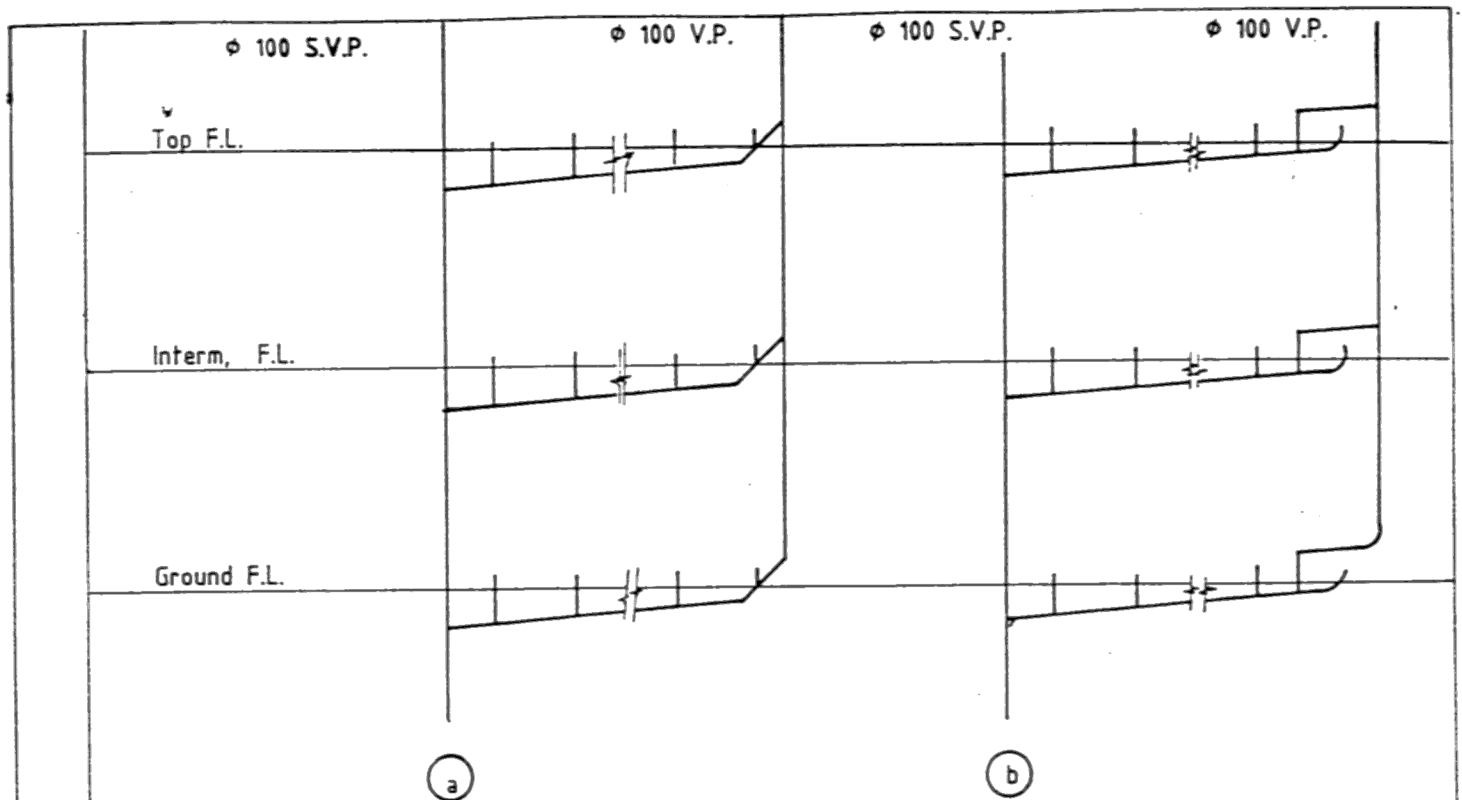
NAGESIEN
 CHECKED

SKAAL NOT TO SCALE
 SCALE

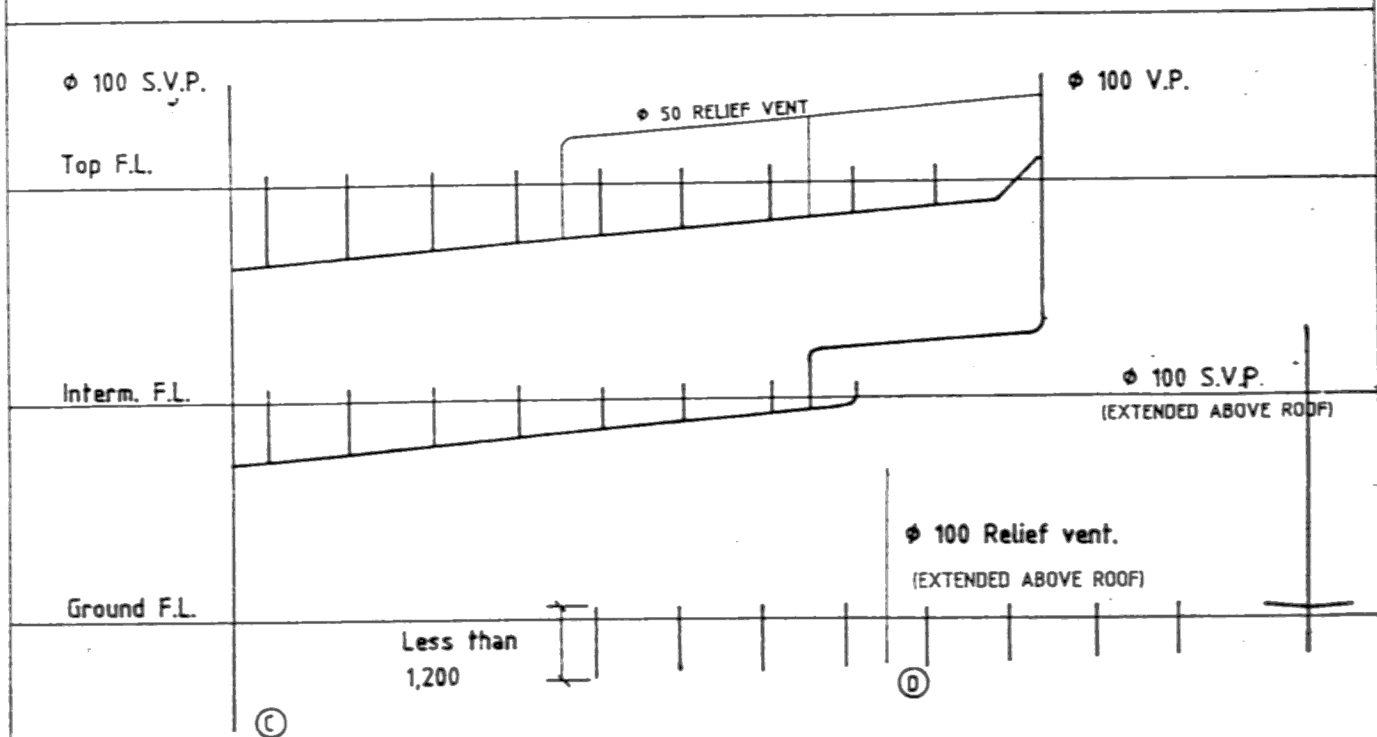
DEPARTEMENT VAN OPENBARE WERKE
 DEPARTMENT OF PUBLIC WORKS

USE OF ANTI-SIPHON PIPES ON SOILFITTINGS IN THE TWO PIPE SYSTEM
 GEBUIK VAN SLUKPYP OP GREKWATERTOEBEHORE IN TWEEPYPSTELSEL.

023(B)D



- (a) Back venting - Up to 7 soil fittings per branch.
 (b) Alternative means of back venting - Up to 8 soil fittings per branch.



- (c) On top floor back venting with relief vents where more than 8 fittings per branch
 On intermediate floor back venting for 8 soil fittings per branch.
 (d) Recommended relief vents where more than 8 fittings, next to each other, run directly into the drain.

GETEKEN.
 DRAWN. S.P. Cilliers.

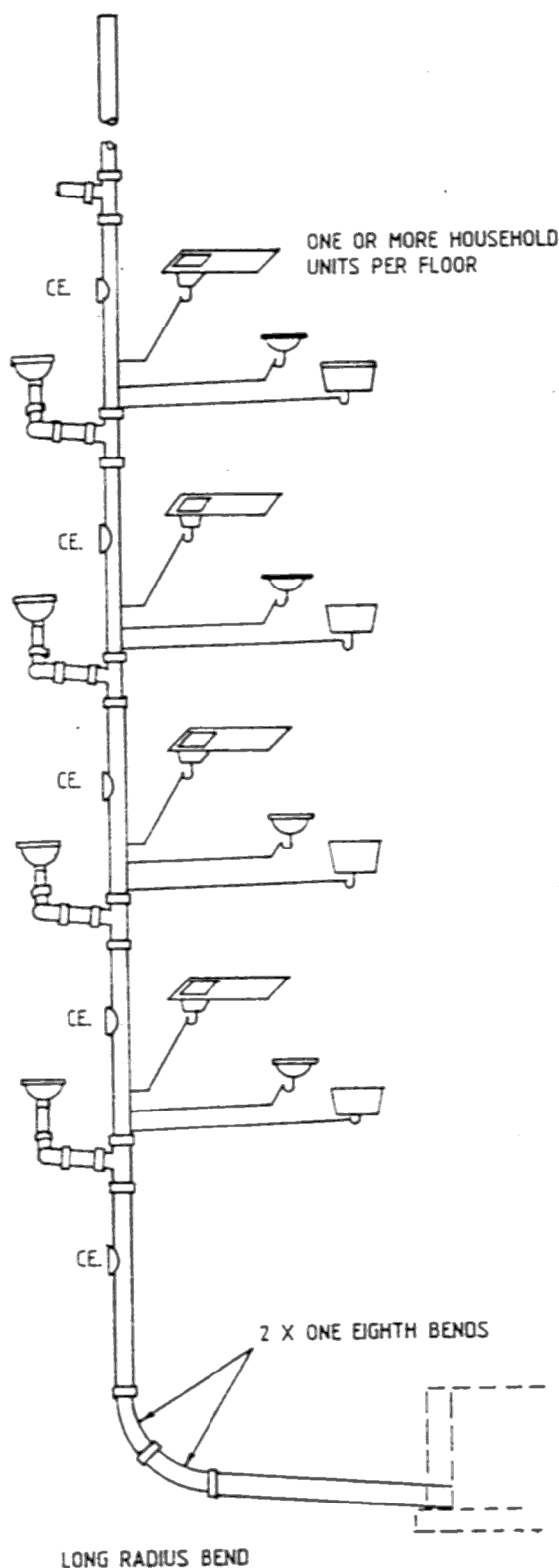
NAGESIEN.
 CHECKED. *[Signature]*

SKAAL. NOT TO SCALE
 SCALE.

DEPARTEMENT VAN OPENBARE WERKE
 DEPARTMENT OF PUBLIC WORKS

USE OF RELIEF AND BACK VENTS IN THE TWO PIPE SYSTEM
 VENTILASIEPYE IN DIE TWEETYPSTELSEL.

023(C)D



IMPORTANT

- 1) EACH FITTING MUST BE TAKEN SEPARATELY TO THE SINGLE STACK.
- 2) EACH PIPELINE MUST HAVE FACILITIES TO CLEAN THE PIPE.
- 3) A CLEANING EYE MUST BE PROVIDED FOR THE STACK ON EACH FLOOR.
- 4) THE GROUND FLOOR MUST BE DRAINED INDEPENDENTLY WHERE MORE THAN TWO FLOORS ARE INVOLVED.
- 5) W.C.'S MUST BE WITHIN 3 METERS OF THE STACK, BATHS, BASINS, SINKS AND SHOWERS, WITHIN 5 METERS.
- 6) ALL WASTE PIPES MUST BE A MIN. OF 40mm DIA. AND FITTED WITH UNSYPHONABLE TRAPS WITH A SEAL OF AT LEAST 75mm.
- 7) THE STACK MUST BE PROVIDED WITH A LONG RADIUS BEND AT GROUND LEVEL LEADING TO A MANHOLE e.a. TWO ONE-EIGHTH BENDS.

FIGURE 7

GETEKEN
DRAWN S.P. CILLIERS

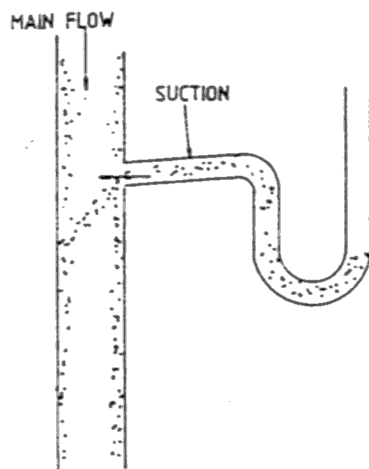
NAGESIEN
CHECKED

SKAAL
SCALE NOT TO SCALE

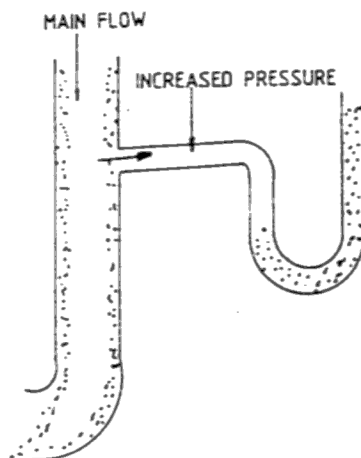
DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

SINGLE STACK SYSTEM
ENKELSTAMSTELSEL.

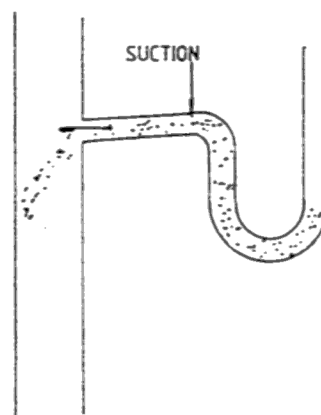
D23(D)D



(1) INDUCED SIPHONAGE



(2) BACK PRESSURE



(3) SELF-SIPHONAGE

FIGURE 6

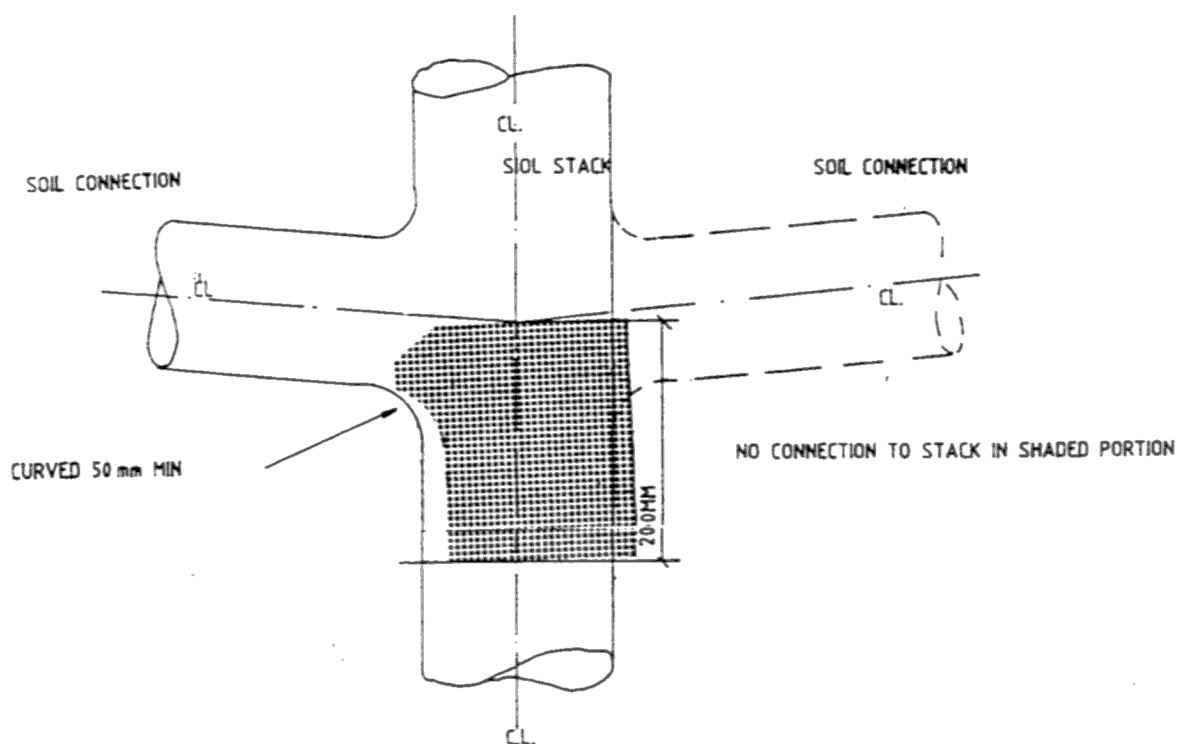


FIGURE 8.

GETEKEN.
DRAWN S. CILLIERS.

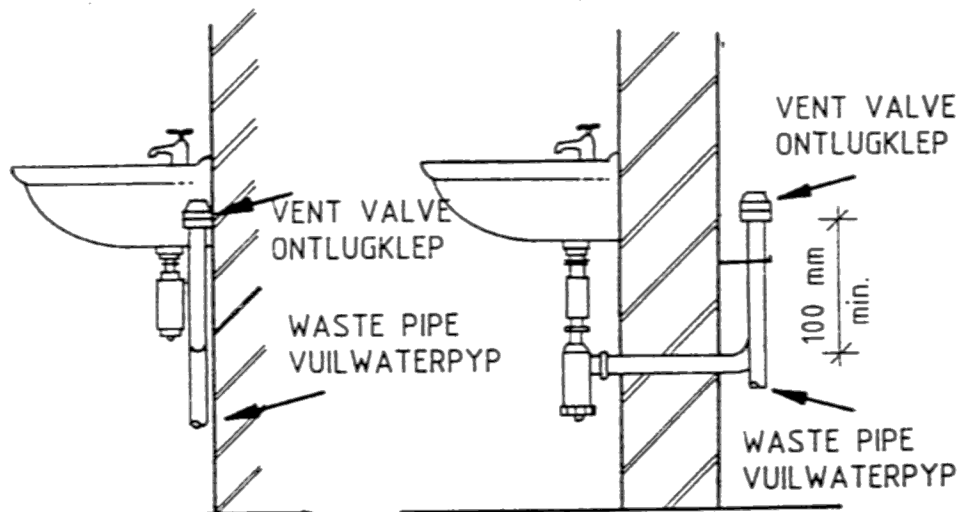
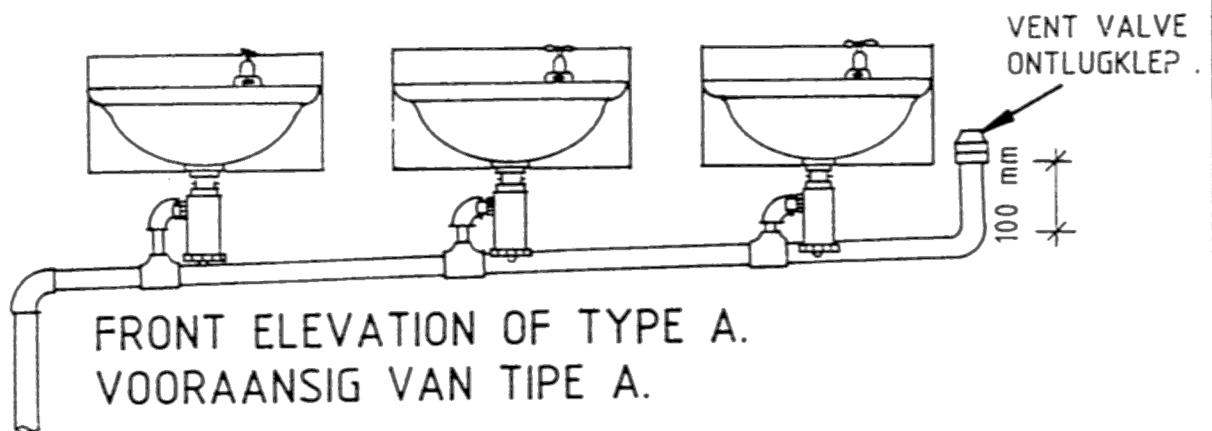
NAGESIEN
CHECKED *[Signature]*

SKAAL
SCALE NIE VOLGENS SKAAL

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

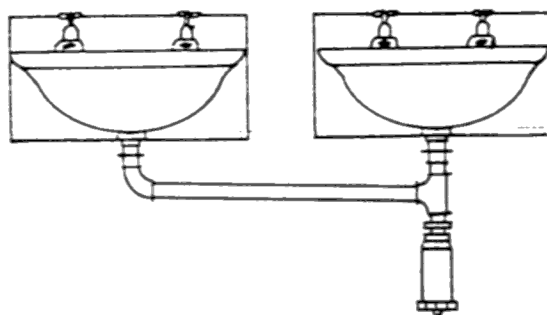
SINGLE STACK SYSTEM.
ENKELSTAMSTELSEL

D23(E)D



SECTION THROUGH TYPE A.
SNIT DEUR TIPE A.

SECTION THROUGH TYPE B.
SNIT DEUR TIPE B.



GETEKEN
DRAWN T.C. MYNHARDT.

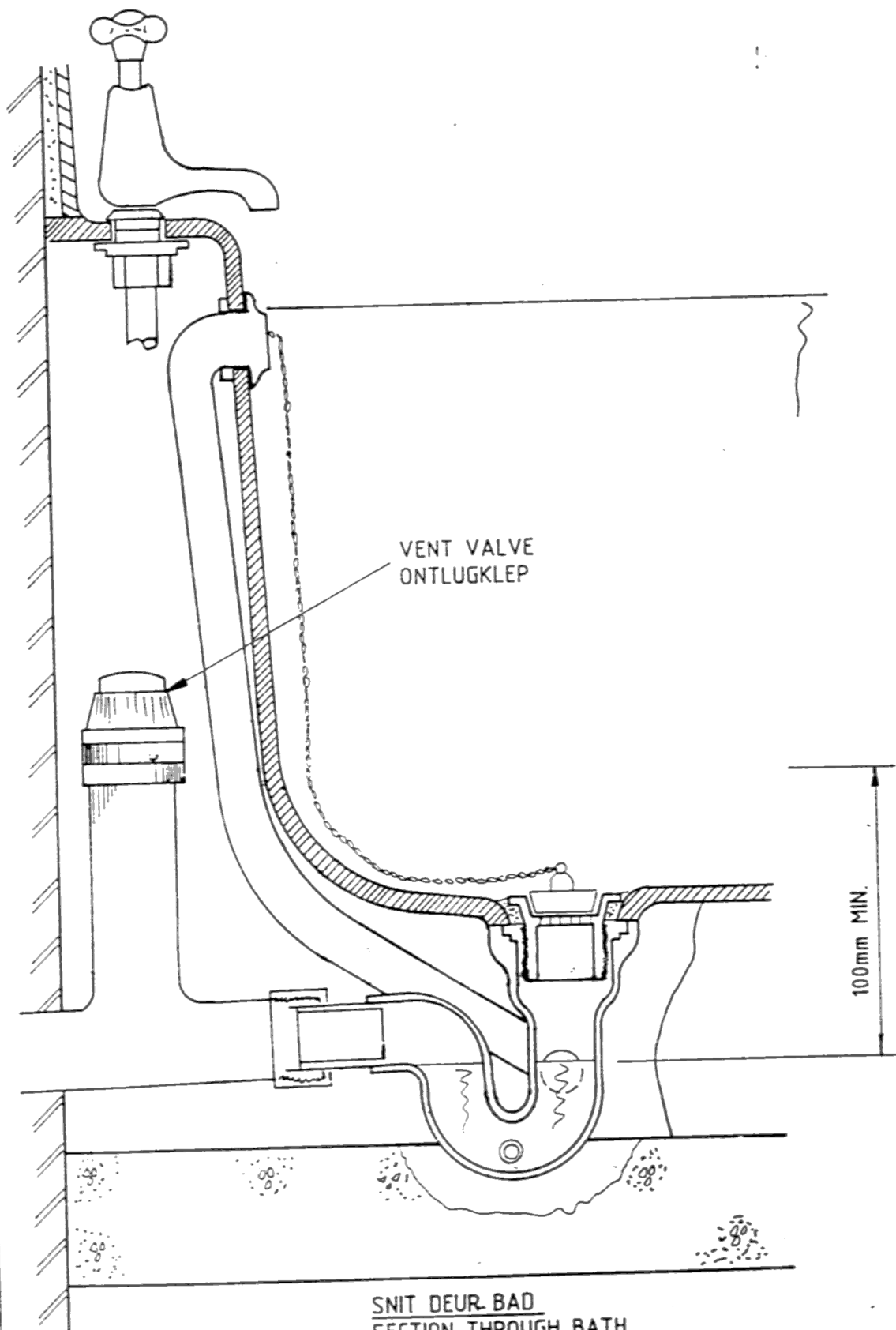
NAGESIEN
CHECKED

SKAAL
SCALE

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

TYPICAL DETAIL OF VENT VALVE
(ANTI-SYPHON) FOR WASTE FITTINGS.
TIPIESE DETAIL VAN ONTLUGKLEP
(ONTLUGTER) VIR VUILWATER TOEBEHORE.

D 24 (B) D



GETEKEN
DRAWN M.J.PAPENHUYZEN

NAGESIEN
CHECKED *[Signature]*

SKAAL
SCALE N.V.S./N.T.S.

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

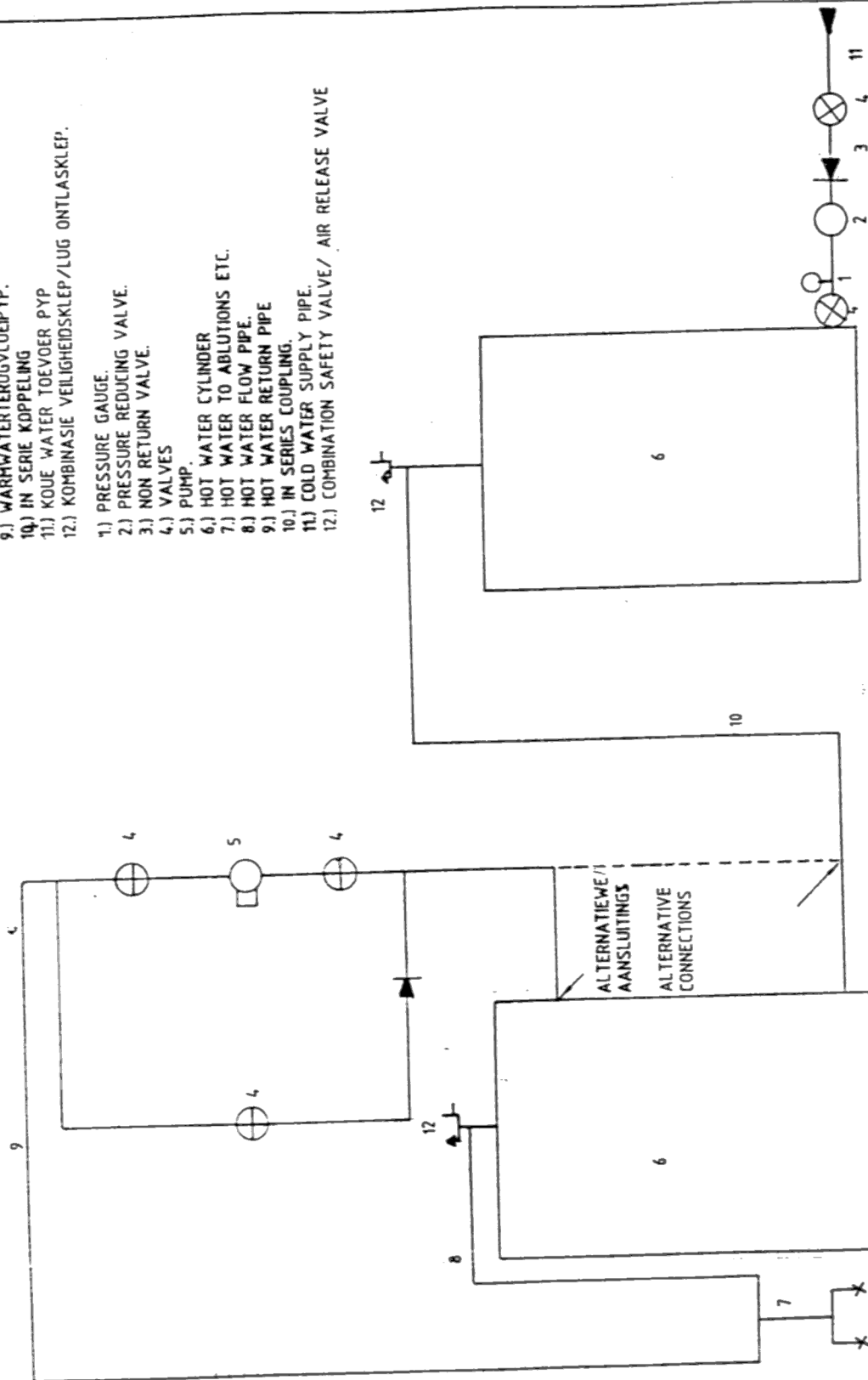
TYPICAL DETAIL OF VENT VALVE
(ANTI-SYPHON) FOR BATHS.
TIPIESE DETAIL VAN ONTLUGKLEP
(ONTLUGTER) VIR BADDENS.

D 24 (C) D

SERIE. **SERIES.**

HIERDIE TIPE SISTEEM WORD
AANBEVEEL.
THIS TYPE OF SYSTEM IS
RECOMMENDED.

- 1.) DRUKMETER
- 2.) DRUK VERMINDERINGSKLEP.
- 3.) TERUGSLACKLEP.
- 4.) KLEPPE
- 5.) POMP
- 6.) WARMWATER SILINDER.
- 7.) WARMWATER NA ABLUSIE ENS.
- 8.) WARMWATERVLOEIPYP
- 9.) WARMWATERTERUGVLOEIPYP.
- 10.) IN SERIE KOPPELING
- 11.) KOUE WATER TOEVOER PYP
- 12.) KOMBINASIE VEILIGHEIDSKLEP/LUG ONTLASKLEP.
- 1.) PRESSURE GAUGE.
- 2.) PRESSURE REDUCING VALVE.
- 3.) NON RETURN VALVE.
- 4.) VALVES
- 5.) PUMP.
- 6.) HOT WATER CYLINDER
- 7.) HOT WATER TO ABLUTIONS ETC.
- 8.) HOT WATER FLOW PIPE.
- 9.) HOT WATER RETURN PIPE
- 10.) IN SERIES COUPLING.
- 11.) COLD WATER SUPPLY PIPE.
- 12.) COMBINATION SAFETY VALVE/ AIR RELEASE VALVE



GETEKEN.
DRAWN. S.P. CILLIERS

NAGESIEN.
CHECKED. *[Signature]*

SKAAL. NIE VOLGENS SKAAL
SCALE.

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

TIPIESE WARMWATER SISTEEM (IN SERIE)
TYPICAL HOT WATER SISTEM (IN SERIES).

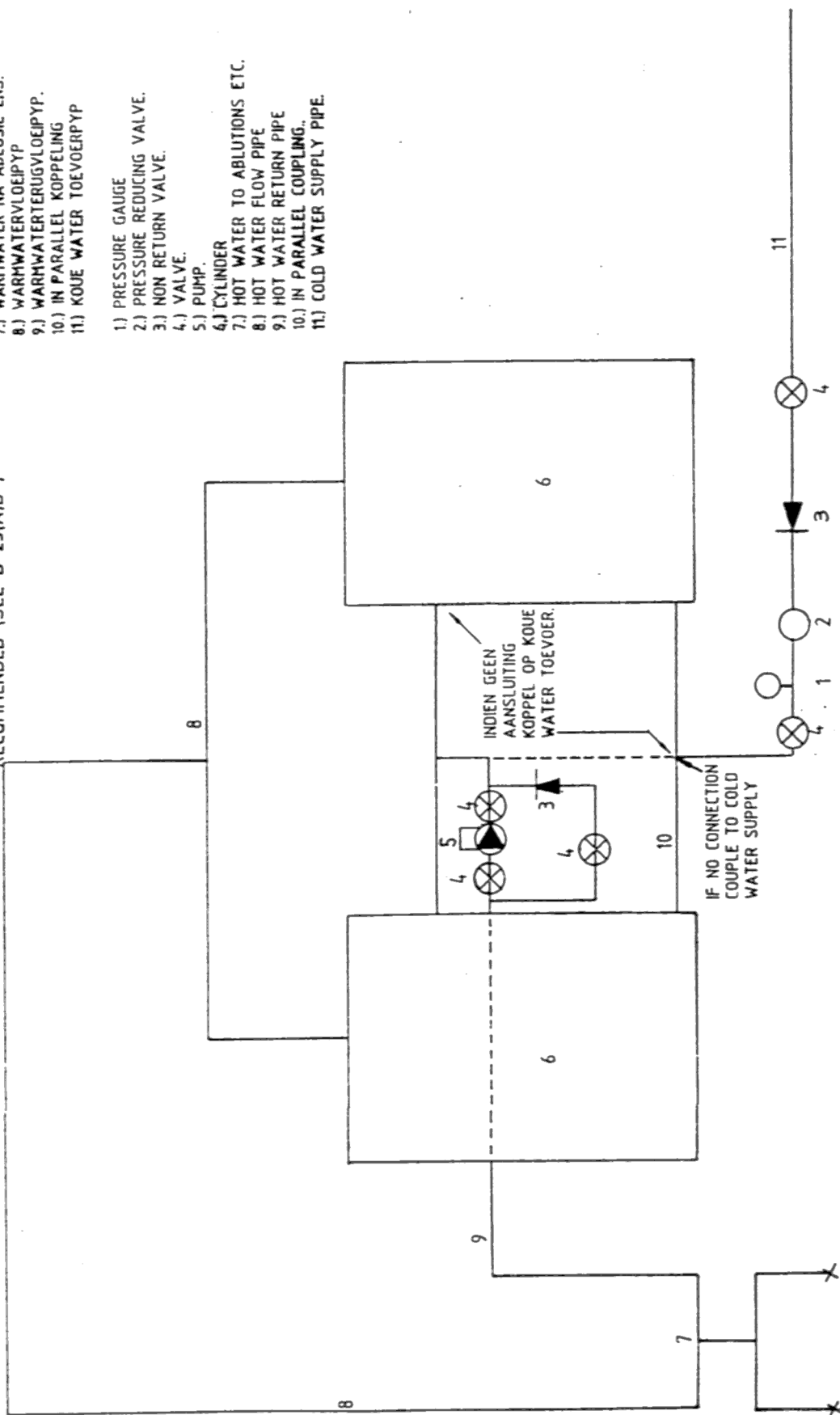
D25(A)D

PARALLEL PARALLEL

HIERDIE TPE SISTEEM 'ND NIE
AANBEVEEL NIE (SIEN O 25(A)D 1),

THIS TYPE OF SYSTEM IS NOT
RECOMMENDED (SEE O 25(A)D 1)

- 1.) DRUKMETER.
- 2.) DRUK VERMINDERINGS KLEP.
- 3.) TERUGSLAGKLEP.
- 4.) KLEPPE
- 5.) POMP
- 6.) WARMWATER SILINDER.
- 7.) WARMWATER NA ABLUSIE ENS.
- 8.) WARMWATERVLOEIPYP
- 9.) WARMWATERTERUGVLOEIPYP.
- 10.) IN PARALLEL KOPPELING
- 11.) KOUE WATER TOEVOERPYP
- 1.) PRESSURE GAUGE
- 2.) PRESSURE REDUCING VALVE.
- 3.) NON RETURN VALVE.
- 4.) VALVE.
- 5.) PUMP.
- 6.) CYLINDER
- 7.) HOT WATER TO ABLUTIONS ETC.
- 8.) HOT WATER FLOW PIPE
- 9.) HOT WATER RETURN PIPE
- 10.) IN PARALLEL COUPLING..
- 11.) COLD WATER SUPPLY PIPE.



GETEKEN.
DRAWN S.P. CILLIERS.

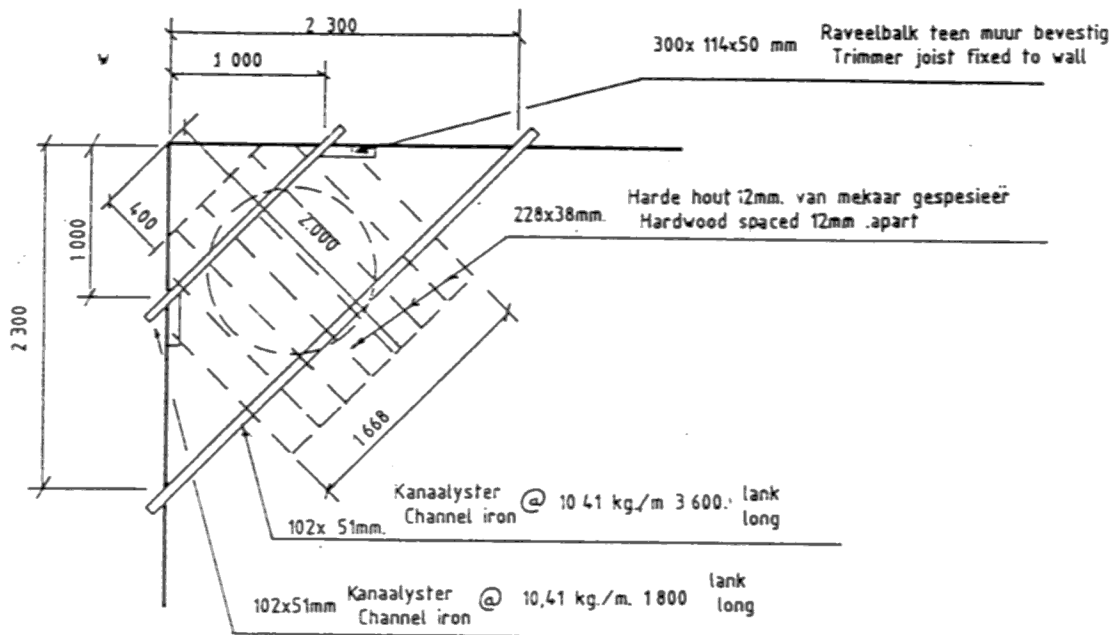
NAGESIEN
CHECKED. *[Signature]*

SKAAL.
SCALE. NIE VOLGENS SKAAL.

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

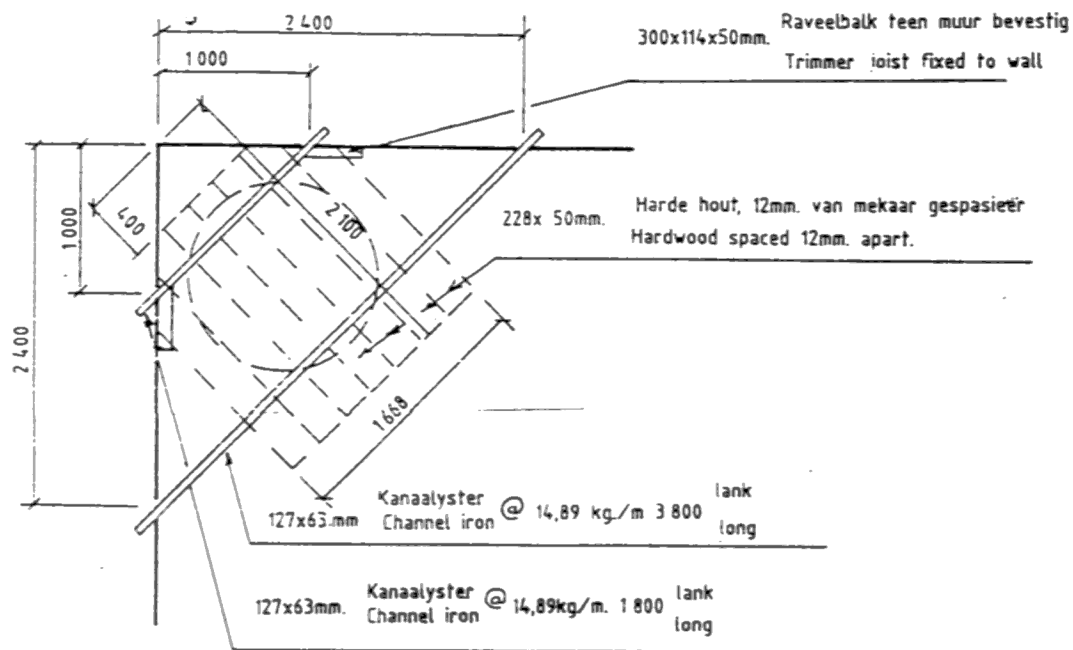
TIPIESE WARMWATER SISTEEM (IN PARALLEL).
TYPICAL HOT WATER SYSTEM (IN PARALLEL).

D25(B)D



VIR 1 400 LITER TENK

FOR 1 400 LITRE TANK



VIR 2 300 LITER TENK

FOR 2 300 LITRE TANK

GETEKEN.
DRAWN. S.P. CILLIERS.

NAGESIEN.
CHECKED. *[Signature]*

SKAAL.
SCALE 1:50

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

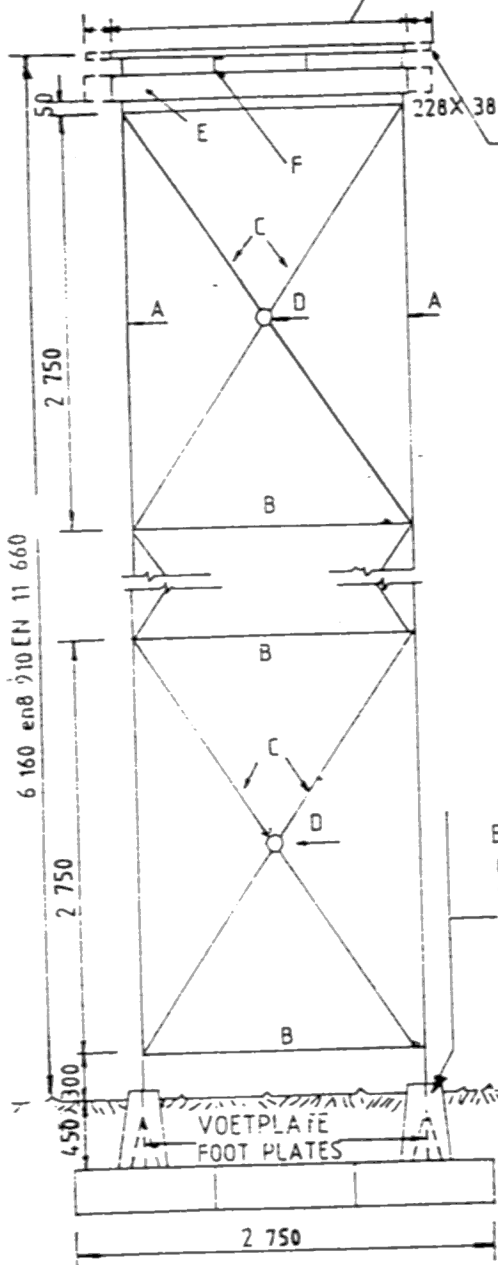
HOEKSTEEN VIR WATERTENK.
CORNER SUPPORT FOR WATER TANK.

D330

1900 FOR 4546L TANK/TENK

VIR 9092L TANK
FOR TANK

6 ϕ BEVELS ϕ 300 h/h
STIRRUPS c/c



AANSIG
ELEVATION

PLANKE
PLANKS

DEKKING
COVER

SNIT.
SEC. X-X

70 DEKKING
COVER

3-16 ϕ ELKE RIGTING
3-16 ϕ EACH WAY

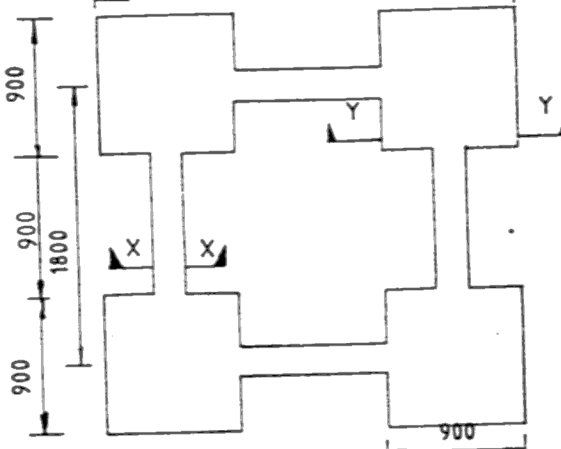
SNIT

Y-Y

SEC

2700

SKAAL 1:20
SCALE 1:20



PLAN VAN VOETSTUK
PLAN OF FOOTING

BETON BLOK
CONC. BLOCK
220x220 TO 300x300
220x220 NA 300x300

A: 80x4,85mm N.D. PYP
B: 32x2,65 N.D. PYP
C: 16 ϕ S. STAAF
D: 110x8 S.S. RING
E: 152x76x18 kg/m KANAAL
F: 127x64x15 kg/m KANAAL

A: 80 x 4,85mm N.B. PIPE
B: 32 x 2,65 N.B. PIPE
C: 16 ϕ M.S. ROD
D: 110 x 8 M.S. RING
E: 152x76x18 kg/m CHANNEL
F: 127x 64x15 kg/m. CHANNEL

VERBINDINGS

B en C tot A: 1-16 ϕ bout
A tot E: 2-12 ϕ bout
E tot F: 2-12 ϕ bout

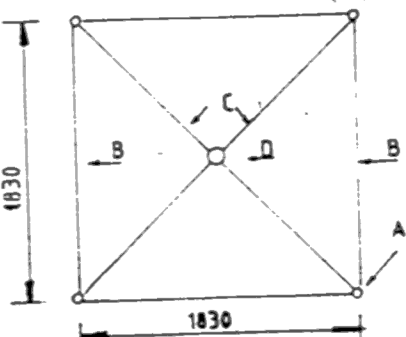
CONNECTIONS

B and C to A: 1-16 ϕ bolts
A to E: 2-12 ϕ bolts
E to F: 2-12 ϕ bolts

NOTA. VIR KATLEER SIEN D370
VIR DETAILS EN VERBINDINGS
SIEN TEK. D38 D

NOTE FOR CATLADDER SEE D 37 D
FOR DETAILS AND CONNECTIONS
SEE DRWG D 38 D

TOELAATBARE GRONDDRIK 100 kPa
ALLOWABLE GROUND PRESSURE



PLAN

GETEKEN.
DRAWN. S.P. CILLERS

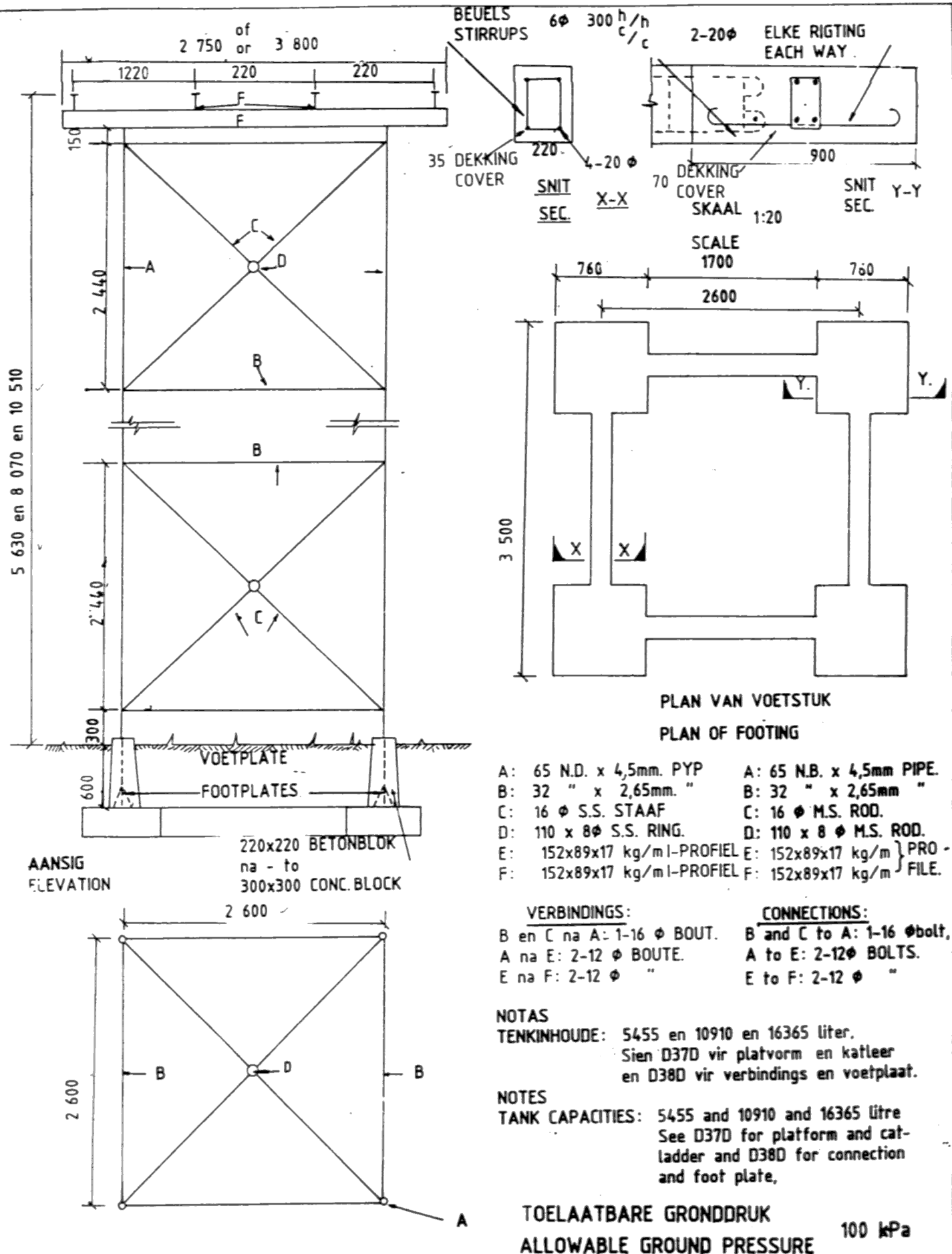
NAGESIEN.
CHECKED. *[Signature]*

SKAAL. 1:50
84-05-04

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

STAANDER 4546 EN 9092 LITER TENK
STAND FOR 4546 AND 9092 LITRE TANK

D 34 D



GETEKEN
DRAWN S.P. CILLIERS

NAGESIEN
CHECKED *[Signature]*

SKAAL
SCALE 1:50

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

STAANDER VIR

1 220

STAND FOR

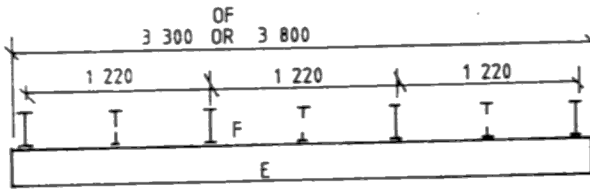
HOË PERSSTAALTENKE

HIGH PRESSED STEEL TANKS.

D35D

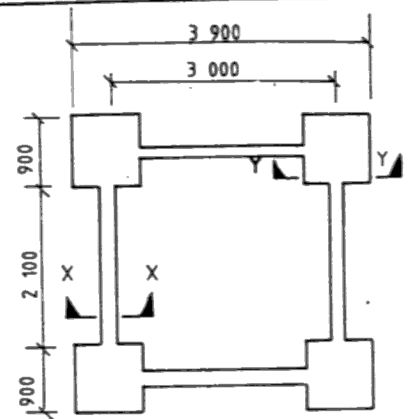
TOELAATBARE GRONDDRUK
ALLOWABLE GROUND PRESSURE

125 kPa

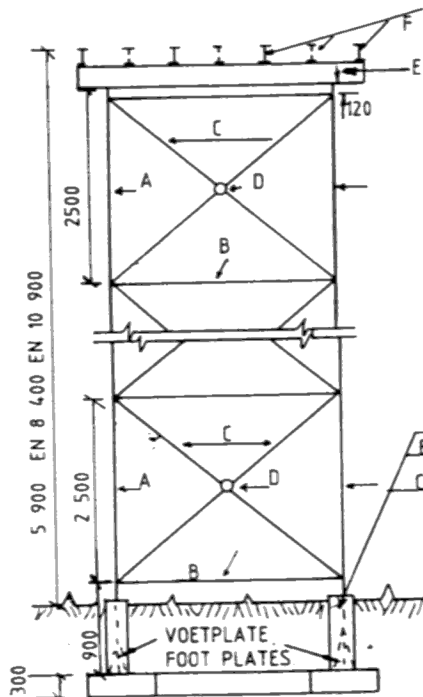


DETAIL VAN KOP
OF HEAD

SKAAL
SCALE 1:50



PLAN VAN VOETSTUK
PLAN OF FOOTING



AANSIG
ELEVATION

BEUELS
STIRRUPS

6 ϕ - 300
h/h
c/c

70 DEKKING
COVER

BEIDE RIGTINGS
2-20 ϕ
EACH WAY

35 DEKKING
COVER

SNIT
SEC X-X

SNIT
SEC Y-Y

SKAAL:
SCALE 1:20

BETONBLOK
CONC BLOCK 300x 300

A: 90N.D.x4,85mm PYP.
B: 32 ND x2,65 mm PYP
C: 16 ϕ S.S. STAAF
D: 110N.D.x 8 RING
E: 254x146x37 kg/m I-PROFIEL
F: 203x133x25 kg/m I-PROFIEL

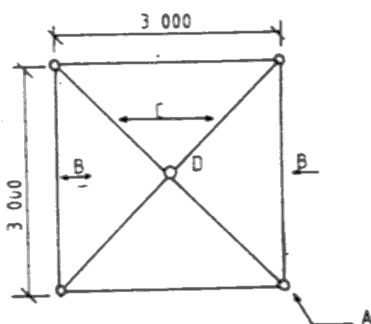
A: 90N.B. x4,85mm PIPE
B: 32 NB x2,65mm PIPE
C: 16 ϕ M.S. ROD
D: 110 N.B. x8 RING
E: 254x146x37 kg/m I-PROFILE
F: 203x133x25 kg/m I-PROFILE

VERBINDINGS

Ben C na A: 1-16 ϕ BOUT
A en E: 2-12 ϕ BOUTE
E na F: 2-12 ϕ BOUTE

CONNECTIONS

B and C to A: 1-16 ϕ bolt
A to E: 2-12 ϕ bolt
E to F: 2-12 ϕ bolts



PLAN

NOTAS:

TENKINHOUE: 21820 EN 32730 LITER
SIEN D 37 D VIR PLATFORMS EN KATLEER
EN D38D VIR VERBINDINGS EN VOETPLAAT

NOTES:

TANK CAPACITIES: 21820 AND 32730 LITRE
SEE D 37 D FOR PLATFORMS AND CAT LADDER
AND D 38 D FOR CONNECTIONS AND FOOT PLATE

GETEKEN.
DRAWN. S.P. CILLIERS

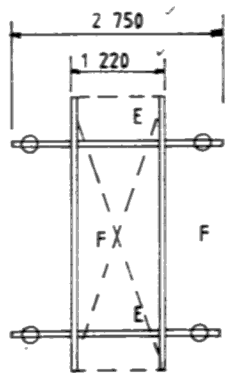
NAGESIEN.
CHECKED. *[Signature]*
24-05-04

SKAAL.
SCALE 1:100

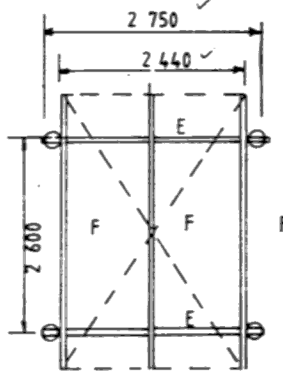
DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

STAANDER VIR HOË PERSSTAALTENKE
2440
STAND FOR HIGH PRESSED STEEL TANK

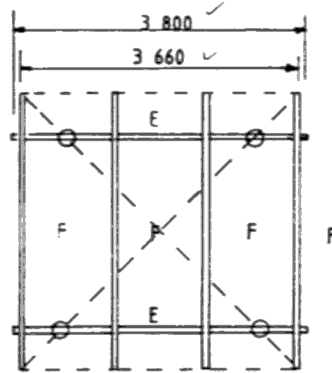
D36D



TENKE
TANKS 3 660x1 220-5455 L



3 660x2 440-10910L

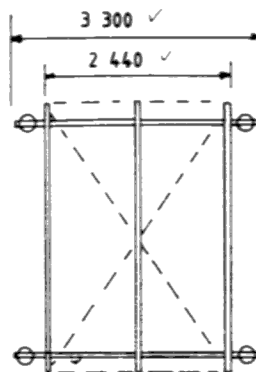


3 660 x3 660- 16365L

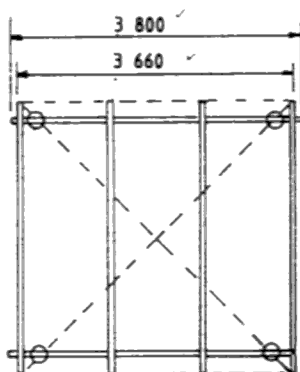
PLATFORMS VIR TENKE
FOR TANKS 1 220

HOOG
HIGH

SKAAL:
SCALE: 1: 100



TENKE
TANKS 3 660x2 440- 21820 L



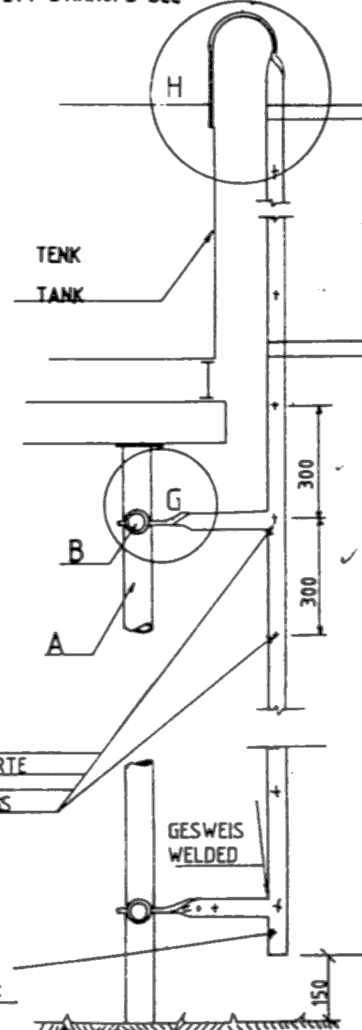
3 660x3 660-32730 L

PLATFORMS VIR TENKE
FOR TANKS 2 440

HOOG
HIGH

SKAAL:
SCALE: 1:100

VEILIGHEIDSBUELS SIEN
SAFETY STIRRUPS SEE



50x6
DUBBEL KLAMPE
DOUBLE CLAMPS

PYP B
PIPE B

32φ
N.D.
N.B.

GATE VIR

HOLES FOR

BOUTE

BOLTS

G

SKAAL:
SCALE: 1:100

DETAILS VAN KATLEER

DETAILS OF CAT LADDER

GETEKEN.
DRAWN. S. EILLIERS

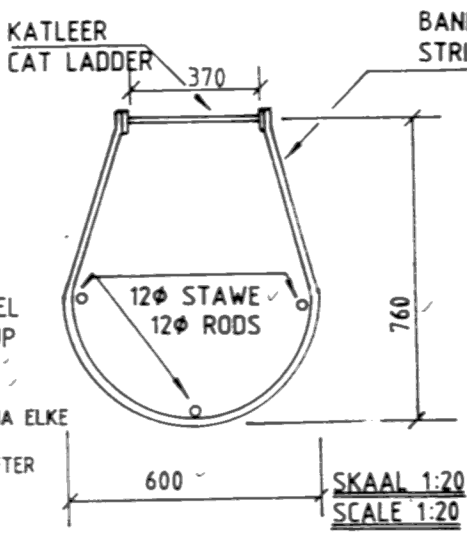
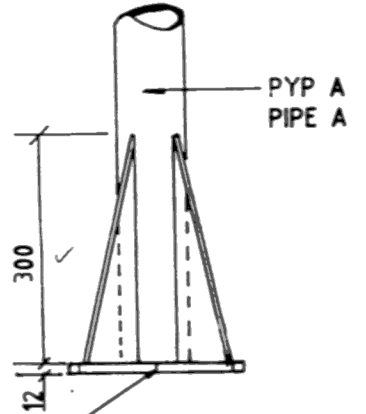
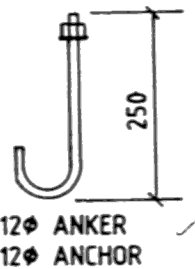
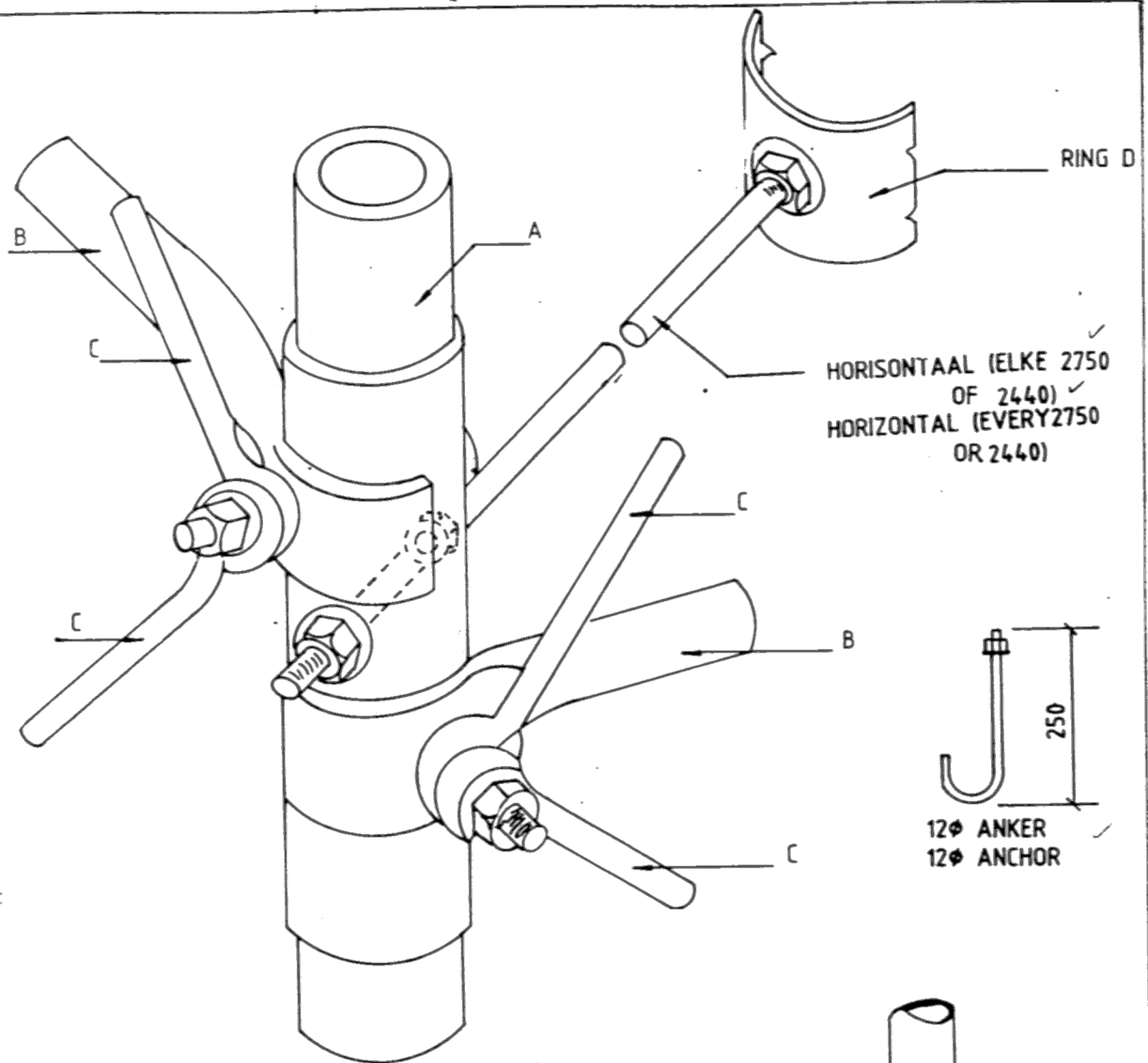
NAGESIEN.
CHECKED. *[Signature]*

SKAAL. 1:200
SCALE. 1:20

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

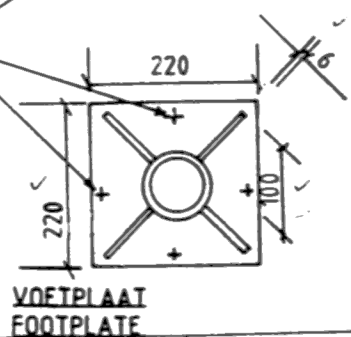
PLATFORMS EN KATLEER
AND CAT LADDER

D 37 D



GATE VIR 12φ ANKERS
HOLES FOR 12φ ANCHORS

DRIEHOEK AAN PYP A EN VOETPLAAT GESWEIS.
TRIANGLES WELDED TO PIPE A AND FOOT PLATE.



VEILIGHEIDSBEUEL
SAFETY STIRRUP
1 ste BEUEL 3000
1ste STIRRUP 3000
BOKANT G.H. DAARNA ELKE
1200
ABOVE G.L. THEREAFTER
EVERY 1200

SKAAL 1:20
SCALE 1:20

VOETPLAAT
FOOTPLATE

GETEKEN
DRAWN S.P. CILLIERS.

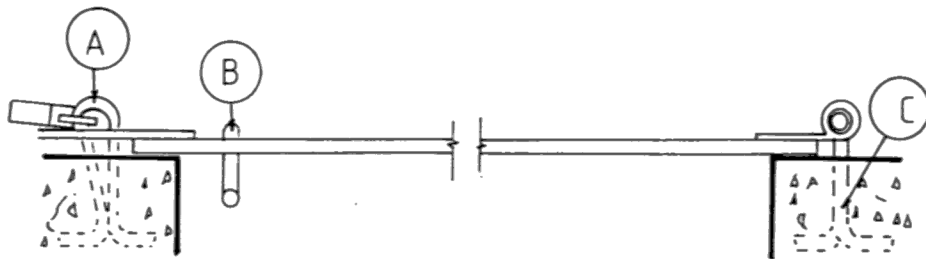
DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

NAGESIEN
CHECKED. *[Signature]*
34-05-04.

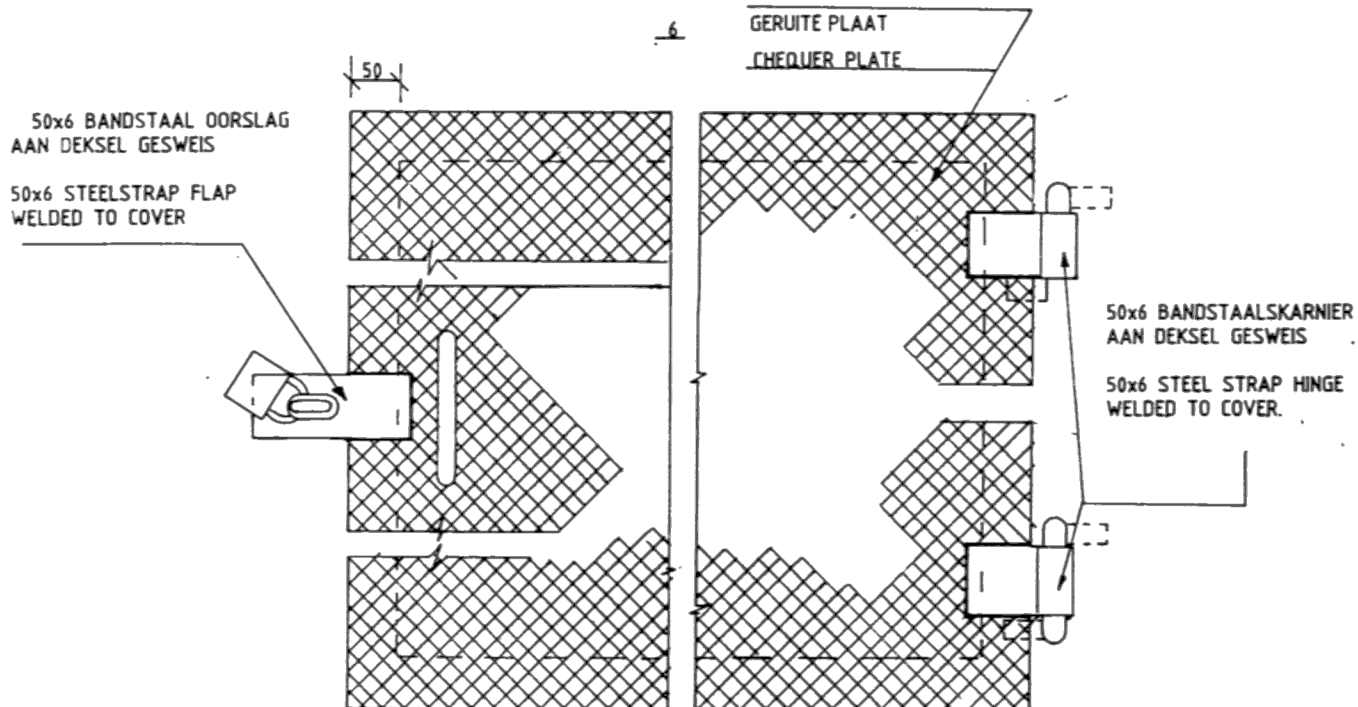
SKAAL
SCALE 1:10

VERBINDINGS EN VOETPLAAT
CONNECTIONS AND FOOTPLATE

D 38 D

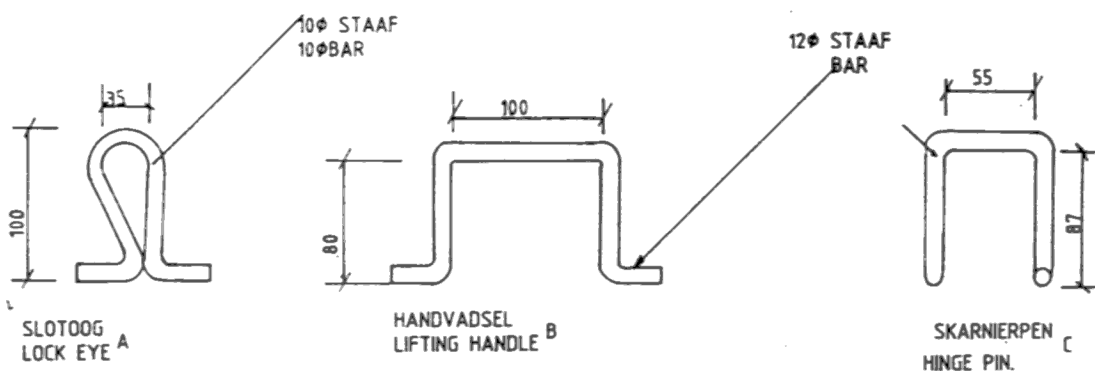


DEURSNEE
SECTION



PLAN.

NIE OP SKAAL.
NOT TO SCALE



GETEKEN.
DRAWN. S.CILLIERS.

NAGESIEN.
CHECKED.

SKAAL. 1:5
SCALE.

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

GERUITEPLAATDEKSEL.
CHEQUER PLATE COVER

D 39 D

100# LANDBOUPYPE MET 10 mm OOP VOE
100# AGRICULTURAL PIPES WITH 10 mm OPEN JOINTS

ENTDOP
END CAP

2 000 Min.

600

GRONDVULLING
GROUND FILLING.

6mm KLIP
6mm STONE
25mm KLIP
25mm STONE

PLAT KLIP
FLAT STONE

75mm KLIP
75mm STONE

SNIT A-A
SECTION A-A

NOTA
PLAAS PLAT KLIP OOR
PYPLASSE OM SAND
UIT TE HOU.
NOTE
PLACE FLAT STONES
OVER PIPE JOINTS TO
STOP SAND FILTERING
IN.

100# VKP
100# VCP

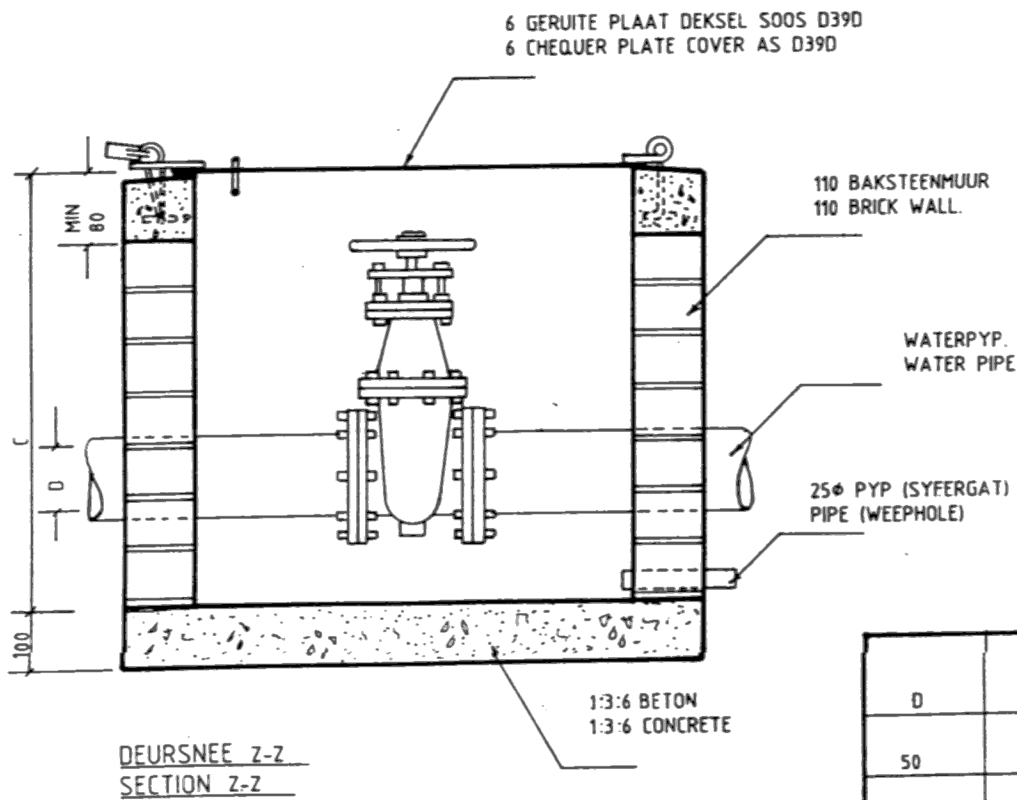
GETEKEN.
DRAWN. J.A.C. RABE

NAGESIEN.
CHECKED.

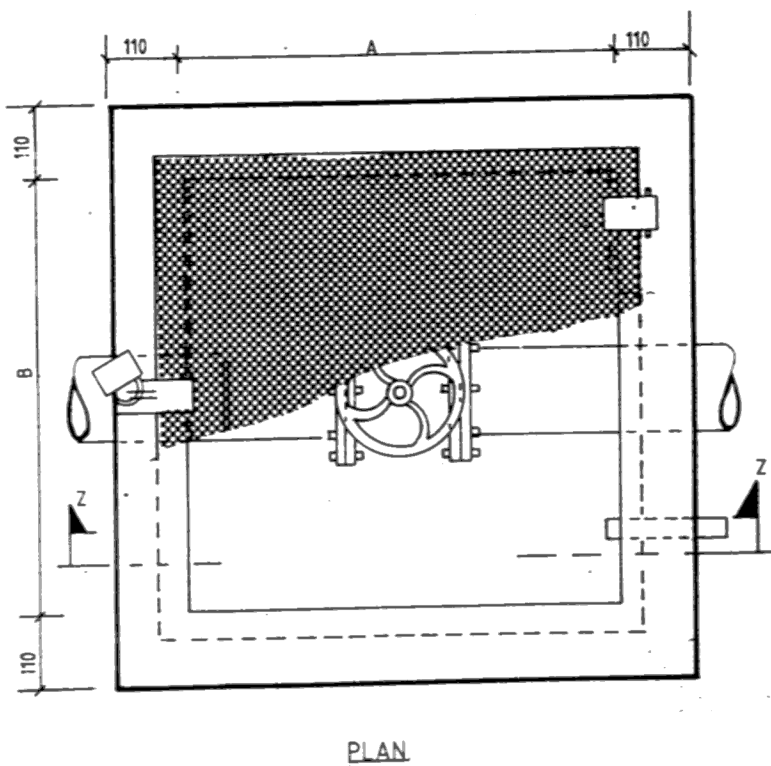
SKAAL.
SCALE. 1:20

SUGRIOOL
AGRICULTURAL DRAIN

D4.1D



D	A	B	C
50	570	570	600
80	680	680	675
100	680	680	675
125	680	800	750
150	680	800	830
180	680	800	900
200	800	900	980
225	800	900	1050
250	800	900	1120
300	800	1020	1280



GETEKEN.
DRAWN. S.P. CILLIERS.

NAGESIEN.
CHECKED. *[Signature]*

SKAAL.
SCALE. NIE VOLGENS SKAAL

DEPARTEMENT VAN OPENBARE WERKE
DEPARTMENT OF PUBLIC WORKS

KLEPKAMER.
VALVE CHAMBER

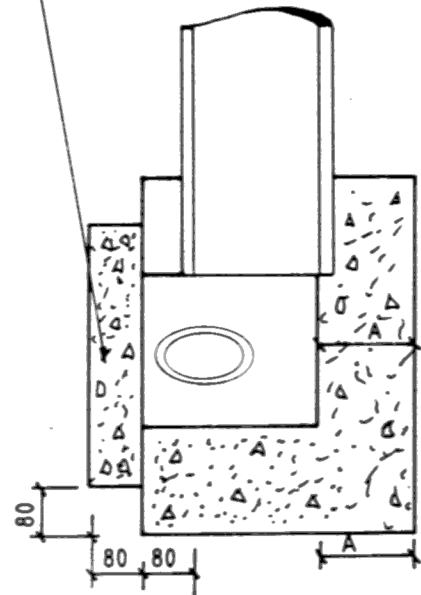
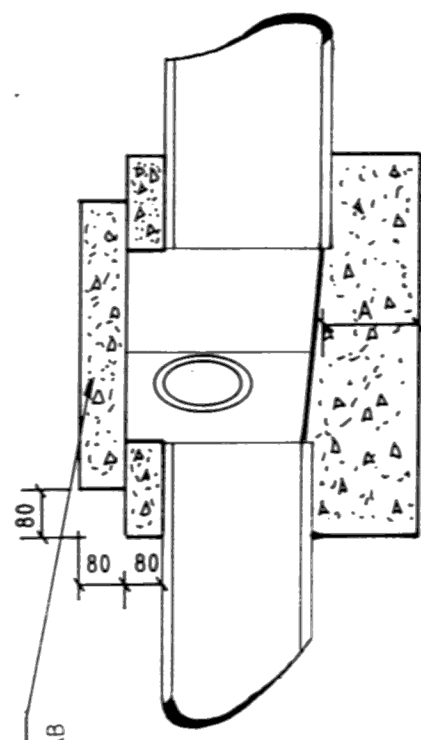
D42D

Handwritten signature

Handwritten signature

LOS BETONBLAD

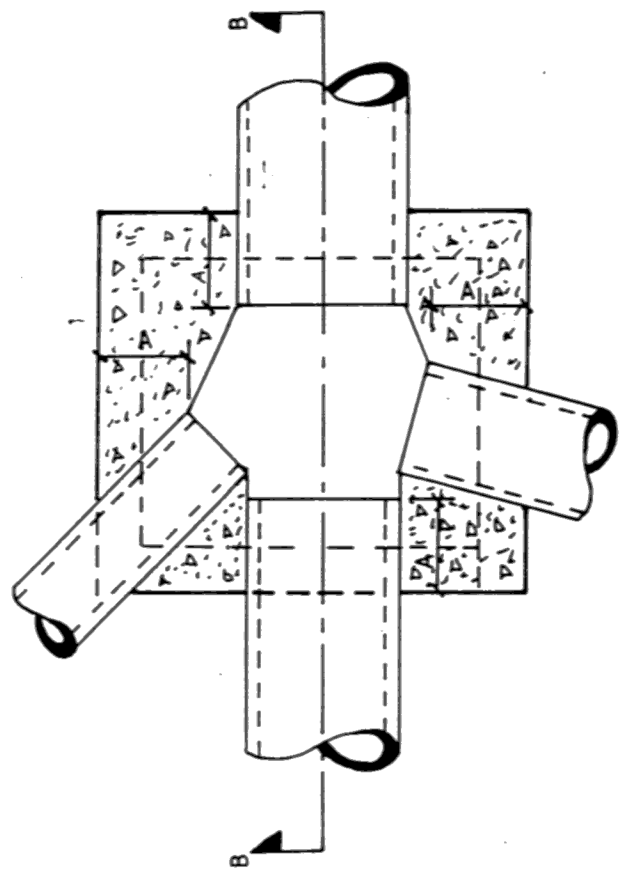
LOOSE CONC. COVER SLAB



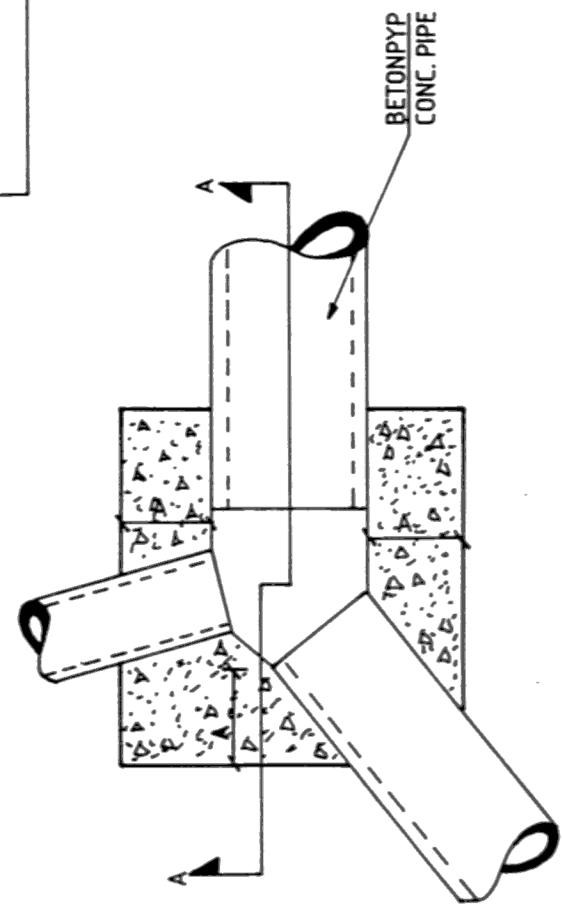
DEURSNEE B-B
SECTION B-B

A = MIN 150

DEURSNEE A-A
SECTION A-A



PLAN



PLAN

BETONPYP
CONC. PIPE

GETEKEN. DRAWN.	J.A.C. RABE	AANSLUITING VIR STORMWATERPYPE JUNCTION BOX FOR STORMWATER PIPES	D44D
NAGESIEN. CHECKED.			
SKAAL. SCALE.	1:20		