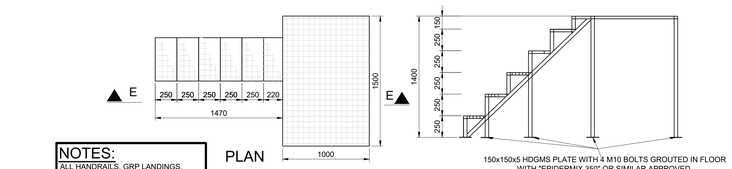
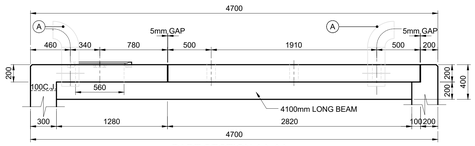
NOTE:
ALL DIMENSIONS TO BE VERIFIED ON SITE PRIOR TO THE COMMENCEMENT OF WORKS.
REFER ANY DISCREPANCIES TO THE ENGINEER.



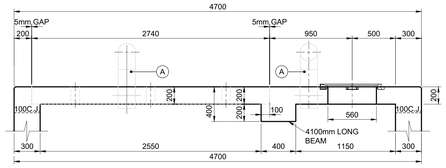

NOTES:
ALL HANDRAILS, GRP LANDINGS, STEPS, VERTICAL SUPPORTS AND BRACING INCLUDING FIXING DETAILS ARE TO BE STRICTLY IN ACCORDANCE WITH THE MANUFACTURING DESIGN AND INSTALLATION SPECIFICATIONS.

SECTION E-E

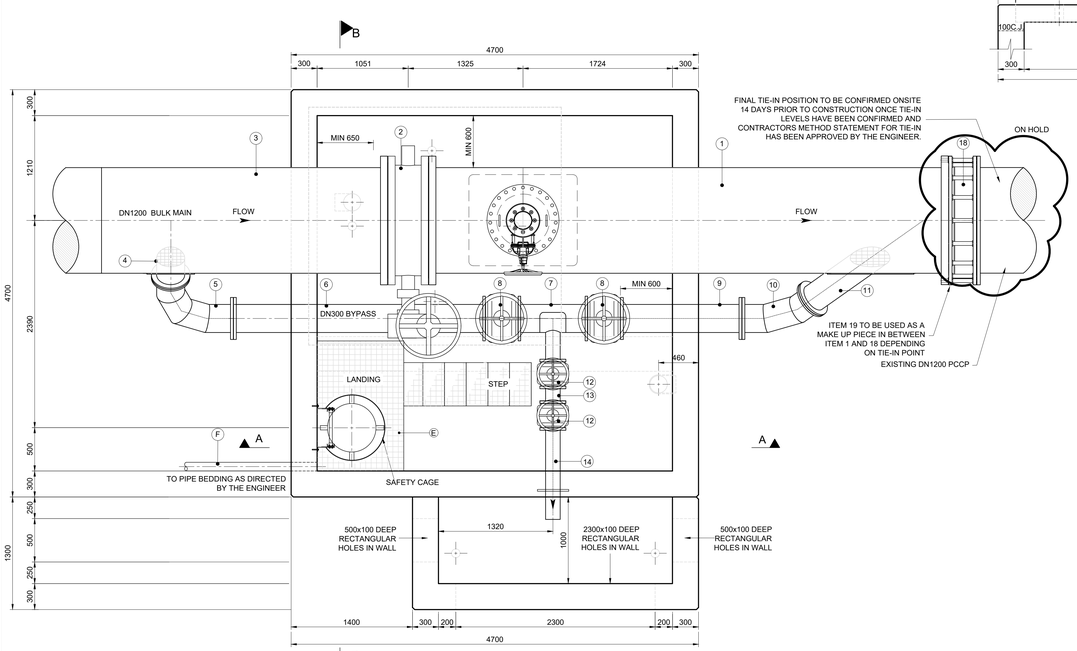
## DETAIL 3
### STEPS & LANDING DETAIL
SCALE 1 : 25



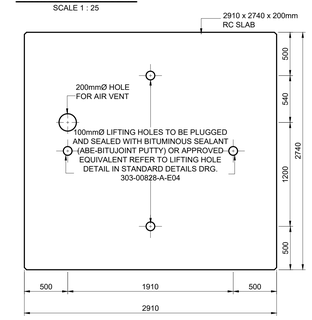

## PART SECTION AA-AA
### THROUGH ROOF SLAB
SCALE 1 : 25



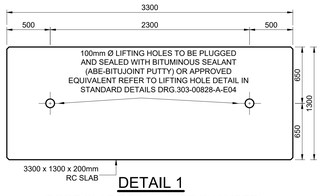

## PART SECTION B-B
### THROUGH ROOF SLAB
SCALE 1 : 25



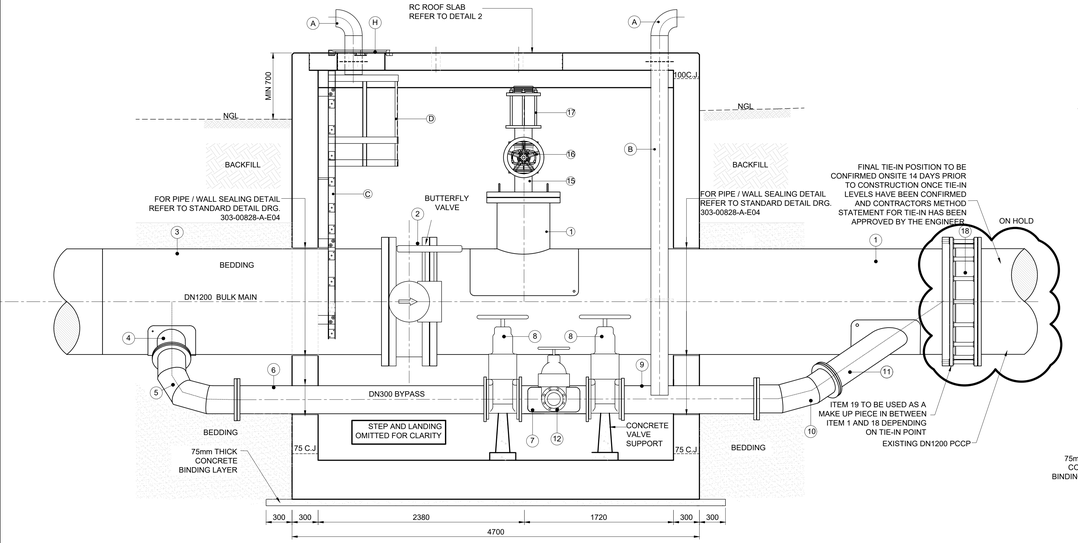

PLAN
SCALE 1 : 25



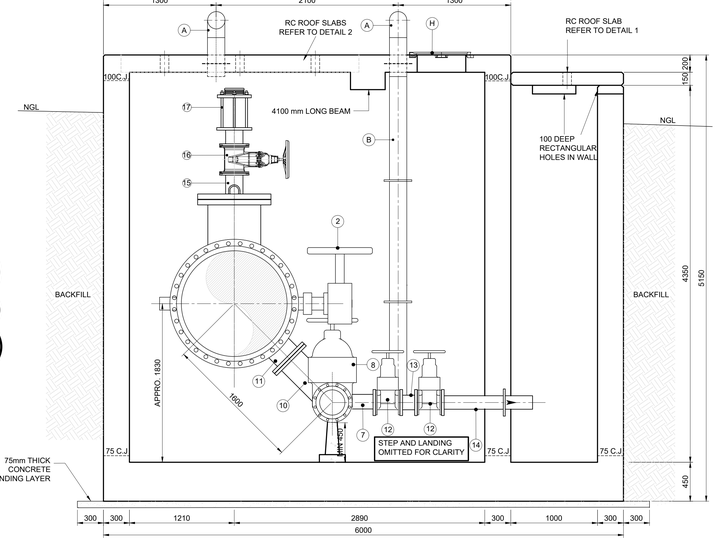

## DETAIL 2
### ROOF SLAB DETAIL
### (ISOLATING VALVE CHAMBER)
SCALE 1 : 25




## DETAIL 1
### ROOF SLAB DETAIL (WET CHAMBER)
SCALE 1 : 25




SECTION A-A
SCALE 1 : 25




SECTION B-B
SCALE 1 : 25

GENERAL NOTES

PIPEWORK

1. ALL PIPEWORK TO BE MILD STEEL IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS UNLESS OTHERWISE STATED.
2. THE CONTRACTOR SHALL VERIFY THE DIMENSIONS OF ALL PIPEWORK AND ADVISE THE ENGINEER OF ANY DISCREPANCIES PRIOR TO FABRICATION.
3. ALL PIPES GREATER THAN AND INCLUDING DN100, FITTED TO EQUIPMENT OR FITTINGS, OR WHERE SPECIFICALLY INDICATED SHALL BE FLANGED TO SANS 1123 (TABLE 3) OR BS EN 1092 -1 WHERE SANS 1123 (TABLE 3) DOES NOT APPLY OR AS SPECIFIED ON THE DRAWINGS. SHOULD THE RESPECTIVE FLANGE DRILLING NOT BE COVERED IN THE ABOVE SPECIFICATIONS THE RESIDENT ENGINEER SHALL BE CONSULTED FOR THE APPROPRIATE SPECIFICATION, BEFORE PROCURING ANY VALVES OR FLANGES.
4. SURFACE PREPARATION FOR APPLICATION OF CORROSION PROTECTION MATERIALS SHALL BE IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
5. DAMAGED COATINGS AND LININGS SHALL BE REPAIRED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
6. ALL PIPEWORK,AND SPECIALS TO BE COATED AND LINED AS PER THE PROJECT SPECIFICATIONS.
7. ALL JOINTS SHALL BE COATED, PROTECTED AND WRAPPED AS PER THE PROJECT SPECIFICATIONS.
8. THE PRESSURE RATINGS OF ALL PIPEWORK, FLANGES AND VALVES, SHALL BE AS INDICATED IN THE SCHEDULES OF FITTINGS.
9. ALL MILD STEEL PIPEWORK, COLLARS, WRAPPERS AND CROTCH PLATES TO BE MANUFACTURED FROM STEEL PIPE OF THE SAME GRADE AS THE MAIN PIPE.
10. ALL BENDS TO BE FABRICATED AND DIMENSIONED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS.
11. FOR COLLAR PLATES, PRE-DRILL 2 x 5mmØ HOLE. UPON COMPLETION OF FILLET WELDING WELD HOLES CLOSED.

VALVES AND FITTINGS

12. AIR VALVES:
 12.1. DN25 TO DN50 TO BE SCREW TYPE.
 12.2. DN80 TO DN200 TO BE FLANGED TYPE.
13. BUTTERFLY VALVES.
 13.1. FLANGED U-SECTION TYPE - SIZES UP TO DN1200, HAND WHEEL OPERATED, CLOCKWISE CLOSING (SUPPLIED WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS AND GASKETS). UNLESS OTHERWISE SPECIFIED.
14. RSV & WEDGE GATE VALVES:
 14.1. DN100 TO DN300, HAND WHEEL OPERATED, CLOCKWISE CLOSING (SUPPLIED WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS AND GASKETS). UNLESS OTHERWISE SPECIFIED.

CONCRETE

15. ALL DIMENSIONS IN MILLIMETERS UNLESS STATED OTHERWISE.
16. ALL EXPOSED EDGES TO BE CHAMFERED 25x25.
17. MINIMUM COVER TO ALL REINFORCING SHALL BE 50mm.
18. CONSTRUCTION JOINTS TO BE WELL CLEANED & SCABBLED TO EXPOSE FRESH AGGREGATE AND THOROUGHLY WETTED BEFORE THE NEXT LIFT IS POURED.
19. FLOOR SCREED LAID TO FALL WITH THICKNESS VARYING FROM 100 TO 50mm.
20. CONCRETE GRADE
 20.1. BLINDING : C12/15-20 UNLESS OTHERWISE STATED
 20.2. CONCRETE : C25/20-20 UNLESS OTHERWISE STATED
 20.3. SCREED : 1:3 (CEMENT/SAND)
21. FINISHES
 21.1. EXTERNAL WALLS UNEXPOSED : F1 FINISH
 21.2. EXTERNAL WALLS EXPOSED : F1 FINISH
 21.3. INTERNAL WALLS : F2 FINISH
 21.4. FLOOR : U4 FINISH
22. WHERE APPLICABLE, AIR VENTS, LIFTING HOLES, LIFTING HOOKS, STEP IRONS AND MANHOLE COVER & FRAME ARE TO BE CAST IN CONCRETE.
23. BOTTOM OF AIR INLET TO BE MINIMUM OF 200mm ABOVE NGL.
24. ACCESS LADDERS TO HAVE CAGE FROM 2.3m ABOVE CHAMBER FLOOR.
25. PRESSURE RATING IN ACCORDANCE TO SCHEDULES

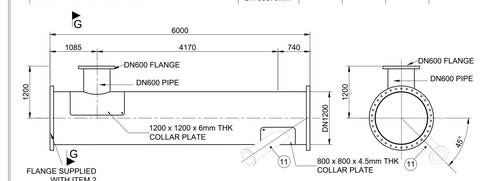
ABBREVIATIONS :

| | | | | | |
|---|---|---|---|---|---|
| ID | - | INSIDE DIAMETER | DI | - | DUCTILE IRON |
| CI | - | CAST IRON | F/F | - | FACE TO FACE DIMENSION |
| DN | - | DIAMETER NOMINAL | C/F | - | CENTER TO FACE DIMENSION |
| OD | - | OUTSIDE DIAMETER | FOE | - | FLANGED ONE END |
| MS | - | MILD STEEL | BEF | - | BOTH ENDS FLANGED |
| SS | - | STAINLESS STEEL | FAR | - | FLANGED ALL ROUND |
| FRL | - | FINAL ROAD LEVEL | LRB | - | LONG RADIUS BEND |
| SFE | - | SOLVENT FREE EPOXY | SRB | - | SHORT RADIUS BEND |
| CML | - | CEMENT MORTAR LINED | NGL | - | NATURAL GROUND LEVEL |
| FBE | - | FUSION BONDED EPOXY | HDGMS | - | HOT DIPPED GALVANIZED MILD STEEL |
| CMS | - | CEMENT MORTAR SHEATHING | | | |

F/F
C/F

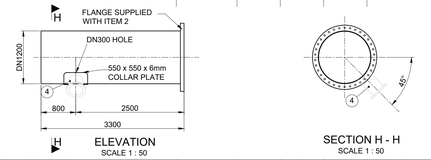
PIPEWORK AND FITTINGS SCHEDULE 1 (PN16)

| ITEM NO. | DESCRIPTION | WALL THICKNESS | NO. OFF | LINING | COATING | GRADE OF STEEL |
|---|---|---|---|---|---|---|
| 1 | SPECIAL: DN1200 X DN600 TEE, WITH DN300 HOLE AND COLLAR PLATES AS DETAILED: | DN1200: 10mm DN 600: 6mm | 1 | CML | CMS | X42 |
| 2 | DN1200 BUTTERFLY VALVE & GEARBOX, HAND WHEEL OPERATED, COMPLETE WITH NUTS, BOLTS, GASKETS, WASHERS & MATCHING FLANGES. REFER TO GENERAL NOTES - VALVES & FITTINGS. | - | 1 | - | - | - |
| 3 | SPECIAL: DN1200 x 3300mm LONG F/F STRAIGHT PIPE, FOE WITH DN300 HOLE AND COLLAR PLATE AS DETAILED: | DN1200: 10mm | 1 | CML | CMS | X42 |
| 4 | DN300 STRAIGHT PIPE, FOE AND WELDED TO ITEM 3 AS DETAILED. | 10.31mm | 1 | CML | CMS | API - SCH40 |
| 5 | DN300 x 90° GUSSET BEND BEF (BS 534). | 10.31mm | 1 | CML | CMS | API - SCH40 |
| 6 | DN300 x 2870mm LONG F/F STRAIGHT PIECE, BEF, ONE FLANGE SUPPLIED WITH ITEM 8. FINAL LENGTH TO BE CONFIRMED ON SITE. | 10.31mm | 1 | CML | CMS | API - SCH40 |
| 7 | DN300 x DN150 REDUCING TEE, FAR AS DETAILED: | DN300: 10.31mm DN150: 7.11mm | 1 1 | CML | CMS | API - SCH40 API - SCH40 |
| 8 | DN300 WEDGE GATE VALVE, HAND WHEEL OPERATED, COMPLETE WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS & GASKETS. REFER TO GENERAL NOTES - VALVES & FITTINGS | - | 2 | - | - | - |
| 9 | DN300 x 1400mm LONG F/F STRAIGHT PIPE, BEF, ONE FLANGE SUPPLIED WITH ITEM 8. FINAL LENGTH TO BE CONFIRMED ON SITE. | 10.31mm | 1 | CML | CMS | API - SCH40 |
| 10 | DN300 x 90° GUSSET BEND, BEF. (BS 534) | 10.31mm | 1 | CML | CMS | API - SCH40 |
| 11 | DN300 STRAIGHT PIECE FOE AND WELDED TO ITEM 1 AS DETAILED. | 10.31mm | 1 | CML | CMS | API - SCH40 |
| 12 | DN150 WEDGE GATE VALVE, WITH CAP TOP, COMPLETE WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS & GASKETS. REFER TO GENERAL NOTES - VALVES & FITTINGS , | - | 2 | - | - | - |
| 13 | DN150 x 200mm LONG F/F STRAIGHT PIPE, BEF. FLANGES SUPPLIED WITH ITEMS 12. | 7.11mm | 1 | CML | CMS | API - SCH40 |
| 14 | DN150 x 1050mm LONG F/F STRAIGHT PIPE FOE, WITH DN150 PUDDLE FLANGE, 720mm FROM FLANGED END FLANGE SUPPLIED WITH ITEM 12. | 7.11mm | 1 | CML | CMS | API - SCH40 |
| 15 | DN200 x 300mm F/F STRAIGHT PIPE, BEF, DN200 FLANGE SUPPLIED WITH ITEM 16, OTHER END WELDED TO DN600 BLANK FLANGE WITH 200mm Ø CENTRAL HOLE AND LIFTING HOOKS (REFER TO STANDARD DETAILS DRAWING). | 4.5mm | 1 | CML | CMS | X42 |
| 16 | DN200 RSV GATE VALVE, HAND WHEEL OPERATED, COMPLETE WITH MATCHING FLANGES, NUTS, BOLTS, WASHERS & GASKETS. REFER TO GENERAL NOTES - VALVES & FITTINGS | - | 1 | - | - | - |
| 17 | DN200 VENT-O-MAT RBX AIR VALVE. REFER TO SCHEDULE 2 & GENERAL NOTES - VALVES & FITTINGS | - | 1 | - | - | - |
| 18 | DN1200 MECHANICAL COUPLING. PN10 | - | 1 | - | - | - |
| 19 | DN1200 x MIN 1000mm LONG F/F STRAIGHT PIPE, BEF, FINAL LENGTH TO BE DETERMINED ON SITE. | 10mm | 1 | CML | CMS | X42 |



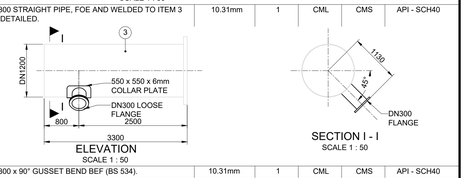

ELEVATION
SCALE 1 : 50

SECTION G - G
SCALE 1 : 50



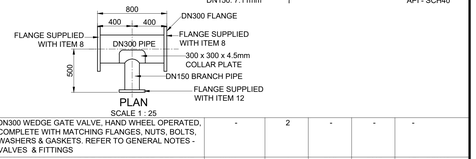

ELEVATION
SCALE 1 : 50

SECTION H - H
SCALE 1 : 50

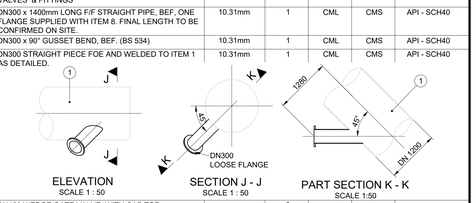



ELEVATION
SCALE 1 : 50

SECTION I - I
SCALE 1 : 50




PLAN
SCALE 1 : 25




SCHEDULE 2 - ANCILLARIES

| No. | DESCRIPTION | QTY |
|---|---|---|
| A | DN200 GMS AIR VENT ASSEMBLY. REFER TO STANDARD DETAILS DRG 303-00828-A-E04. | 2 |
| B | DN200 x 3700mm LONG PVC STRAIGHT PIECE WITH COUPLING OR HDGMS COLLAR, COMPLETE WITH HDGMS MOUNTING BRACKETS MOUNTED TO ITEM 19 AND RC WALL AT 1400C/C. REFER TO STANDARD DETAILS DRG. 303-00828-A-E04. | 1 |
| C | "PULLTRUDED GRP" LADDER - 3090mm LONG, COMPLETE WITH MOUNTING BRACKETS. REFER TO STANDARD DETAILS DRG. 303-00828-A-E04. | 1 |
| D | "PULLTRUDED GRP" SAFETY CAGE - 980mm LONG, COMPLETE WITH MOUNTING BRACKETS. REFER TO STANDARD DETAILS DRG.303-00828-A-E04. | 1 |
| E | GRP LANDING AND SUPPORTS COMPLETE WITH HOLDING DOWN BOLTS, AS PER DETAIL 3. | 1 |
| F | DN100, CLASS 6, HDPE PIPE - 3000mm LONG, WITH U24 GEOTEXTILE FABRIC, SUBJECT TO THE ENGINEERS APPROVAL. | 1 |
| G | TAPERED HARDWOOD PLUG & SEALANT FOR 100mmØ LIFTING HOLES AS PER LIFTING HOLE DETAIL, REFER TO STANDARD DETAIL DRG. 303-00828-A-E04. | 4 |
| H | ROUND MANHOLE COVER AND FRAME (SANS 558 - TYPE 1A) | 1 |
| I | PIPE/WALL SEALING FOR DN1200 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04. | 2 |
| J | PIPE/WALL SEALING FOR DN300 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04. | 2 |
| K | PIPE/WALL SEALING FOR DN150 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04. | 1 |
| L | PIPE/WALL SEALING FOR DN100 PIPE AS PER SEALING DETAIL IN STANDARD DETAIL DRG. 303-00828-A-E04. | 1 |

| No. | DATE | REVISION | CONSULT. ENG. |
|---|---|---|---|
| V1 | 23/11/2023 | ORIGINAL VERSION | |

CONSTRUCTION RECORD (AS-BUILT)
WORKS CONTRACT ENGINEER
Name :
Prof. Reg. No. :
Date
SANRAL PROJECT MANAGER
Name :
Date


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SOUTH AFRICAN NATIONAL ROADS AGENCY SOC LTD
Reg.No. 1998/030654/30
BUILDING SOUTH AFRICA THROUGH BETTER ROADS

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ACCEPTANCE
THIS ACCEPTANCE IS FOR PROCEDURAL AND ADMINISTRATIVE REVIEW PURPOSES ONLY AND DOES NOT ATTRACT LEGAL LIABILITY OR LIABILITY OF ANY KIND FROM WHATSOEVER CAUSE OR HOWEVER ARISING

for the SA NATIONAL ROADS AGENCY SOC LTD.
Date:

**PROJECT DESCRIPTION**
THE CAPACITY IMPROVEMENT OF THE NATIONAL ROUTE 1 SECTION 1 FROM OLD OAK INTERCHANGE (KM 18.90) TO KOELENOFF INTERCHANGE (KM 33.00)

**DRAWING DESCRIPTION**
N1 - WEMMERSHOEK PIPELINE RELOCATION
SECTION A - KOELENHOF TO KRAAIFONTEIN
DN1200 ISOLATING VALVE & TIE-IN DETAILS AT KRAAIFONTEIN

SCALE : AS SHOWN | SHEET 1 OF 1

| | | |
|---|---|---|
| PROJECT NUMBER | N.001-010-2021/1 | |
| DRAWING LOCATION DATA | START | END |
| ROUTE | N01 | N01 |
| SECTION | 01 | 01 |
| DRAWING km DISTANCE | 18.90 | 33.00 |
| DRAWING TYPE | ROADS-UTILITIES | |
| BRIDGE/STRUCTURE No. | - | |
| CONSULTANT DRAWING No. | 312-0828-A-B04 | VER |
| SANRAL DOCUMENT # | - | V1 |

ORIGINAL SCALE : 1 : 100