

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480 CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT:

**THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY**

ENGINEERS

**CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY**
P.O. BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:

**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

CH. 0+000.00 - 1+200.00

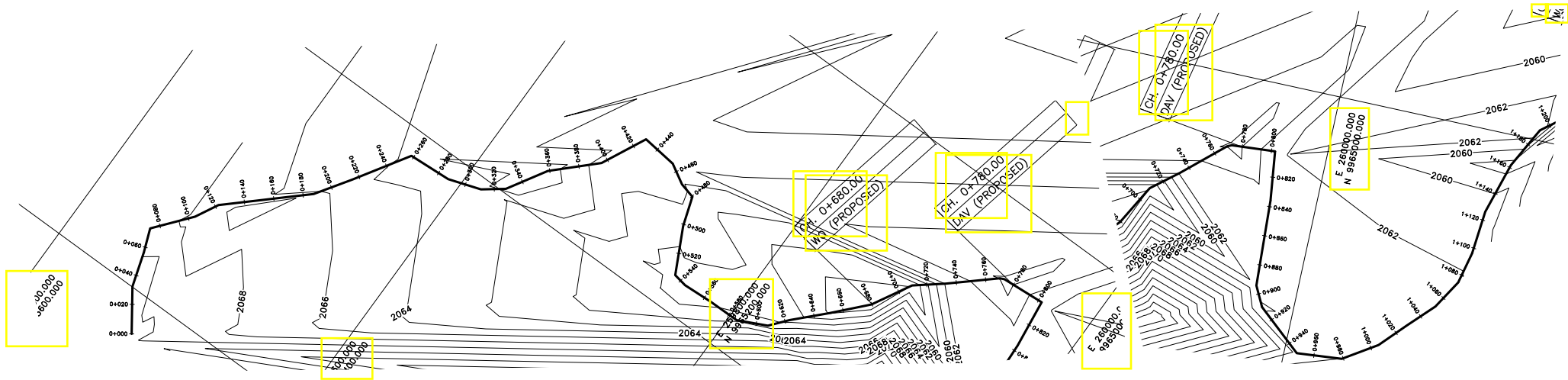
SHEET 1 OF 11

Designed by: D.N.W. Drawn by: A.M.M.

Checked by: J.M.M. Approved by: D.N.M.

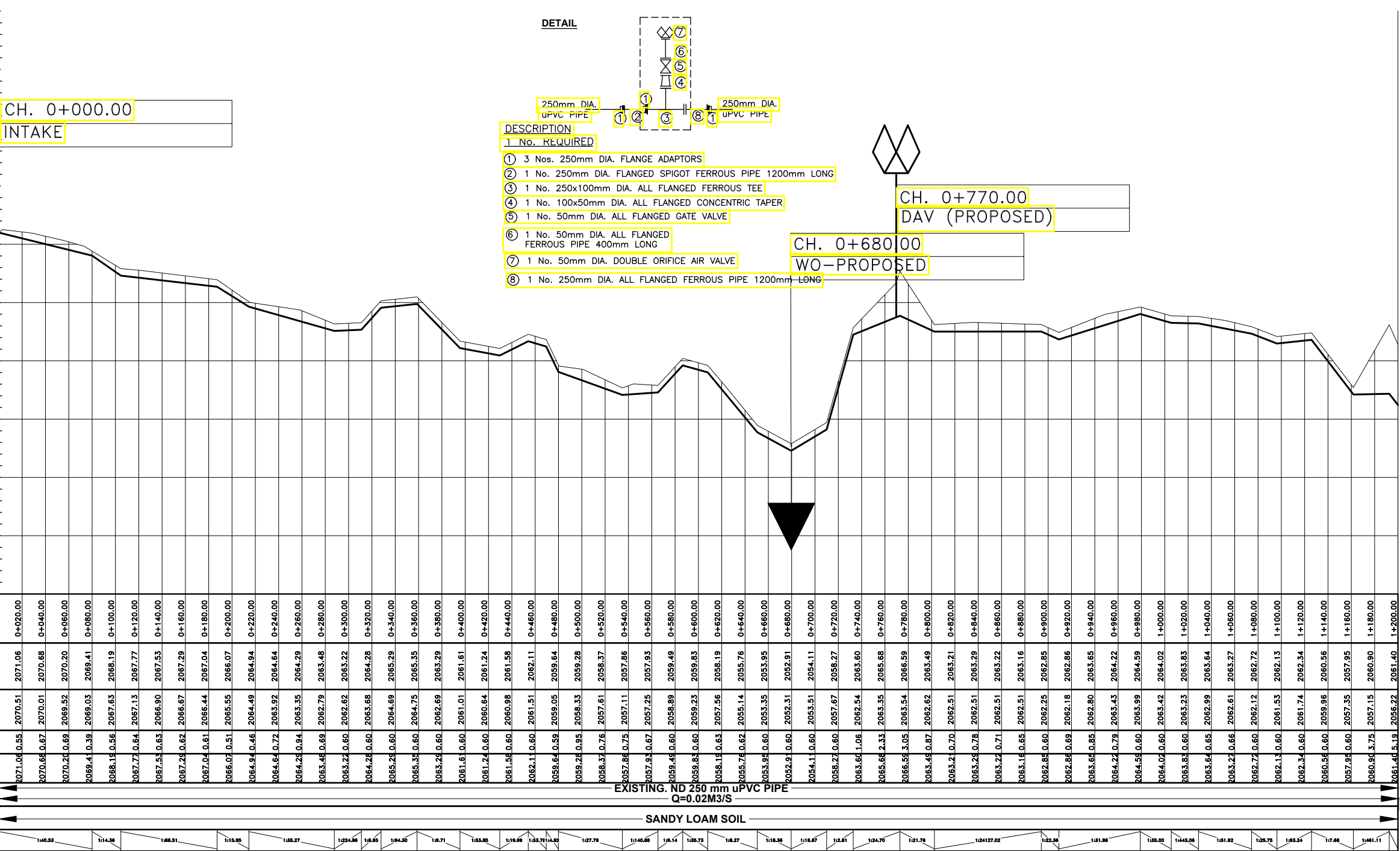
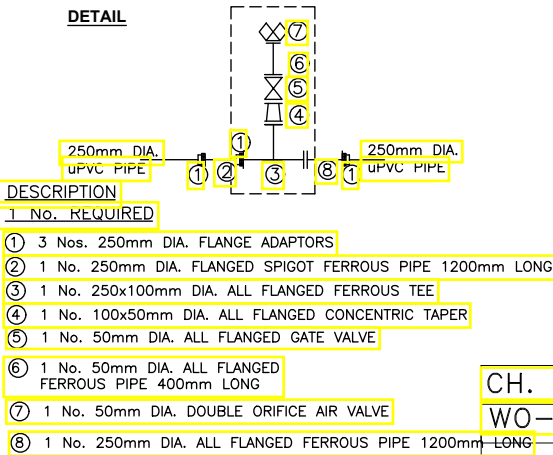
Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. **KAM/RWM/01**



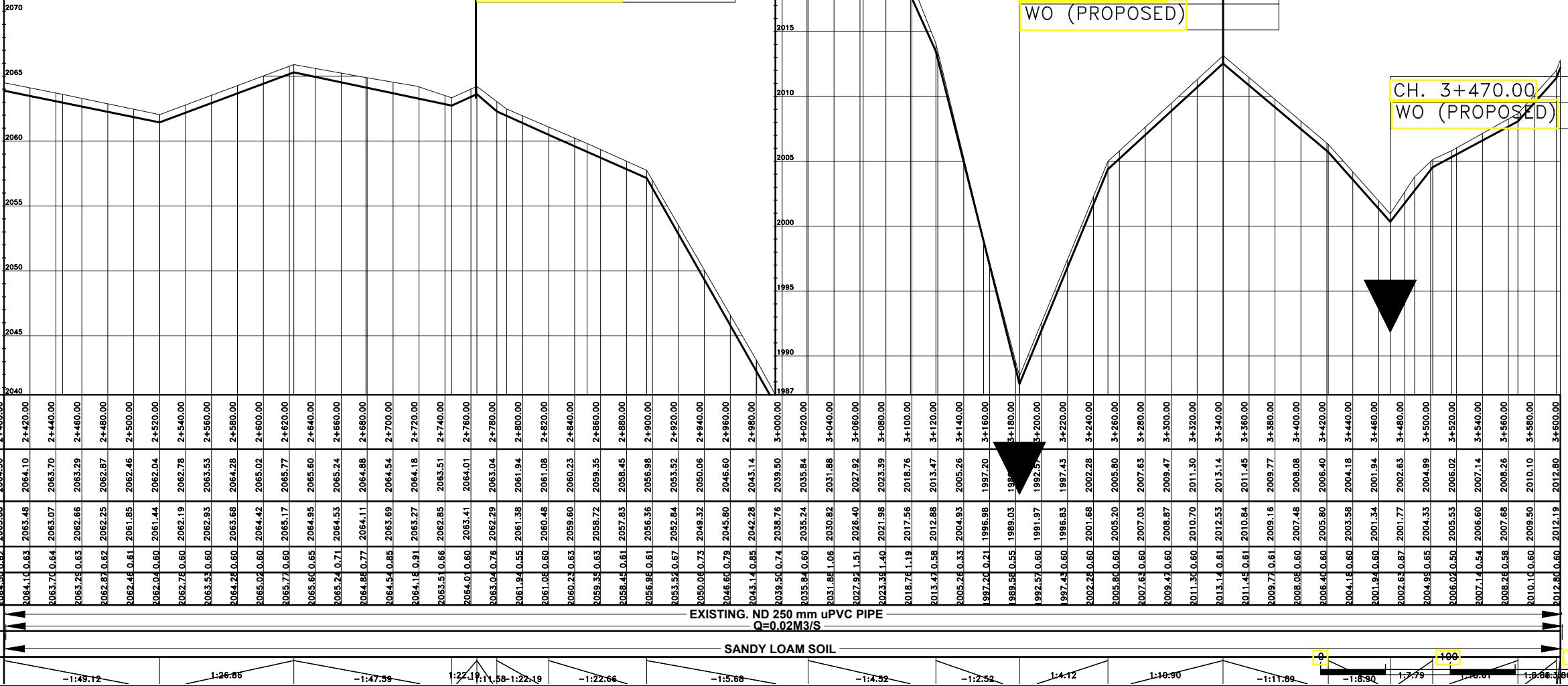
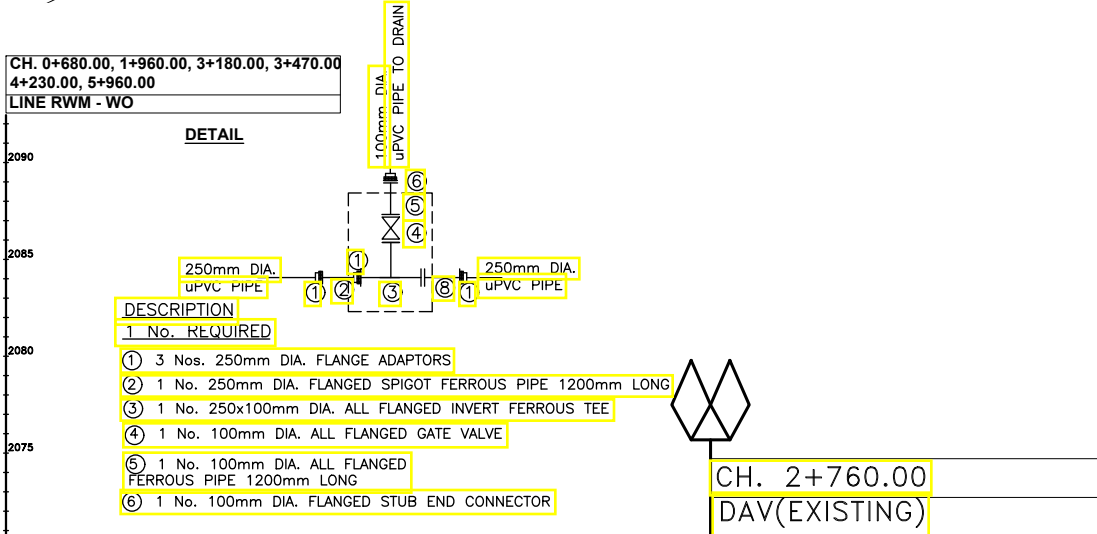
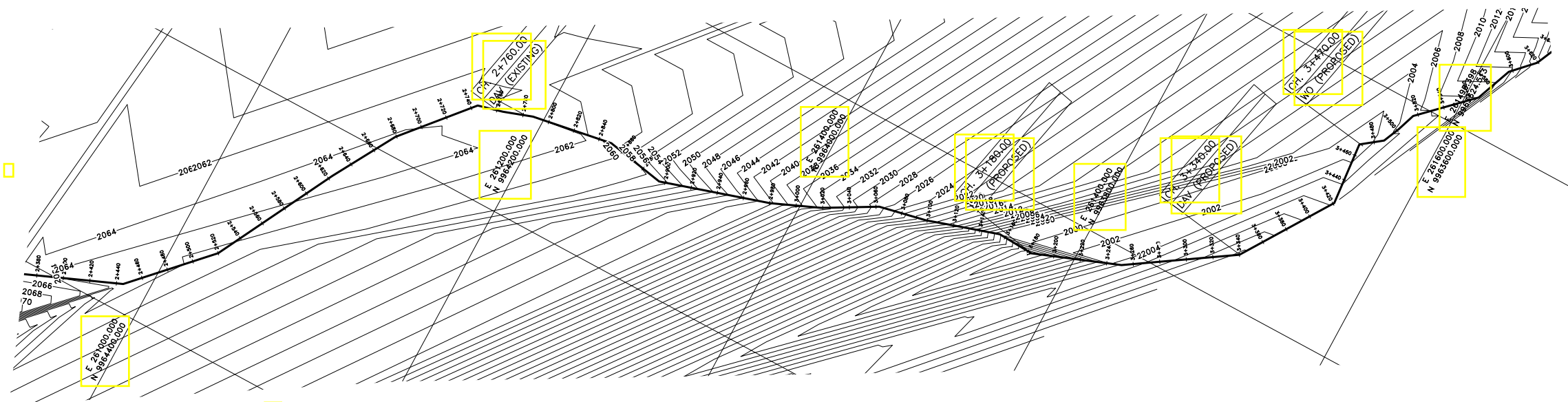
CH. 0+770.00, 1+480.00, 1+880.00, 3+340.00
3+700.00, 4+880.00
LINE RWM - DAV

DETAIL



LONGITUDINAL SECTION





NOTES:

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480 CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT:

**THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY**

ENGINEERS

**CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY**
P.O. BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:

**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

CH. 2+400.00 - 3+600.00
SHEET 3 OF 11

Designed by: D.N.W. Drawn by: A.M.M.

Checked by: J.M.M. Approved by: D.N.M.

Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. **KAM/RWM/03**

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480 CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION

REVISIONS				SIGN	DATE	APPROVED
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					
	BY					
	CHECKED					

CLIENT:

 **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS
DEVELOPMENT AUTHORITY

ENGINEERS

 **CHIEF MANAGER TECHNICAL**
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT

DRAWING TITLE:

RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION

CH. 3+600.00 - 4+800.00

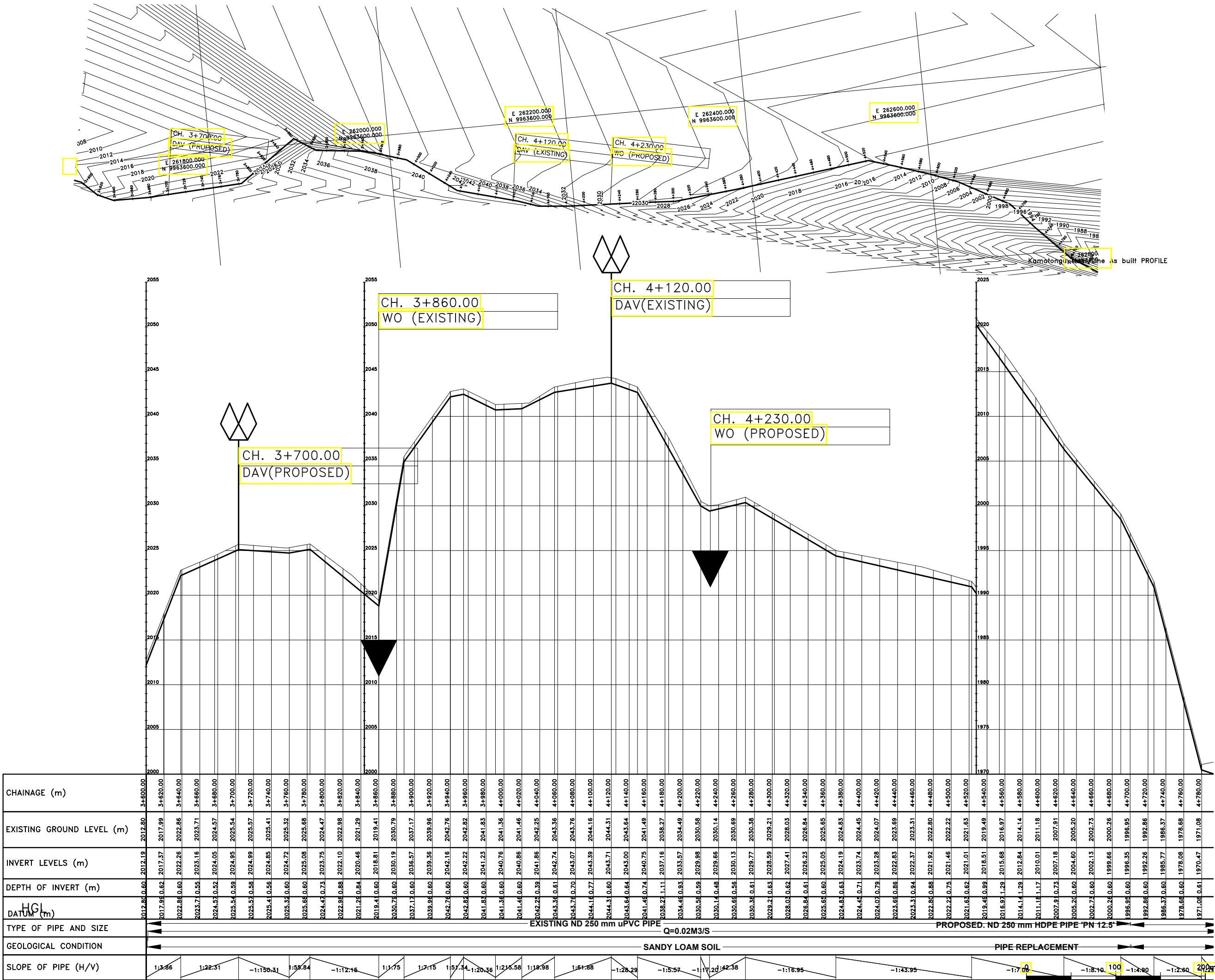
SHEET 4 OF 11

Designed by: D.N.W Drawn by: A.M.M

Checked by: J.M.M Approved by: D.N.M

Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. **KAM/RWM/04**



NOTES:
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480 CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
BY	CHECKED			
BY	CHECKED			
BY	CHECKED			
BY	CHECKED			
BY	CHECKED			

CLIENT:
 **THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY**

ENGINEERS
 **CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY**
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:
**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

CH. 4+800.00 - 6+000.00

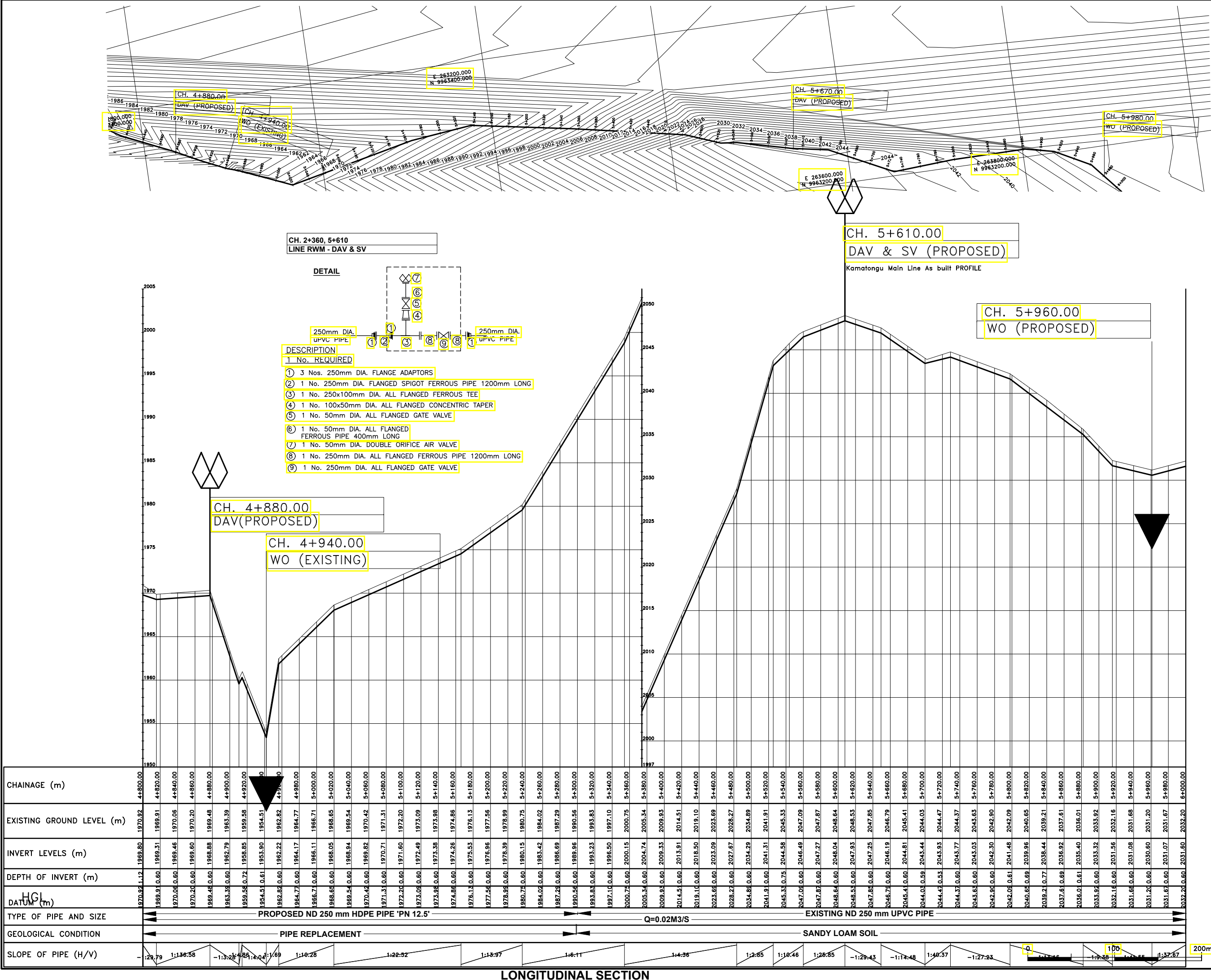
SHEET 5 OF 11

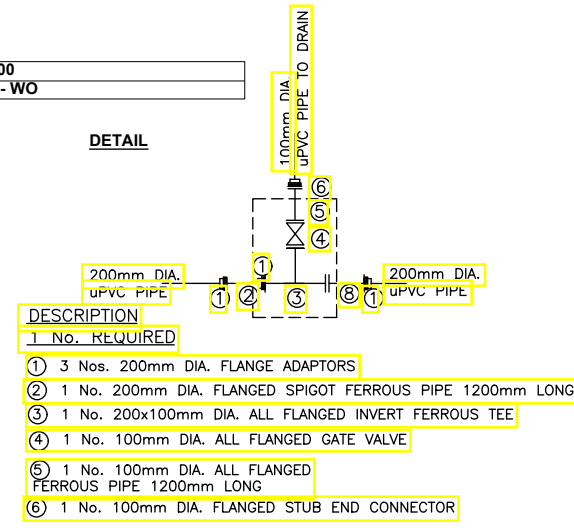
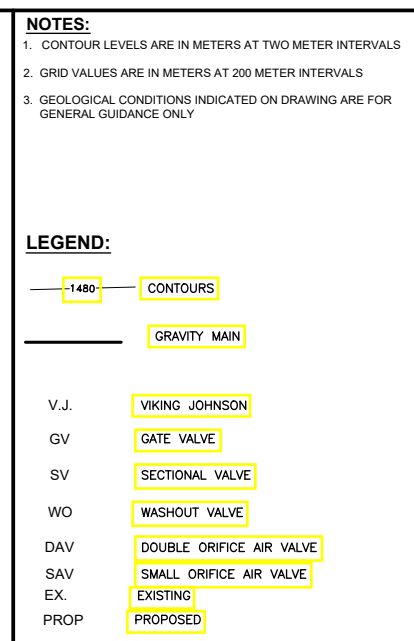
Designed by: D.N.W. Drawn by: A.M.M.

Checked by: J.M.M. Approved by: D.N.M.

Scale: H: 1:4000, V: 1:400 Date: OCT 2022

DRG No. **KAM/RWM/05**





LONGITUDINAL SECTION

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

—1480— CONTOURS

— GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION				
	REVISIONS	SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT:  THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY

ENGINEERS

CHIEF MANAGER TECHNICAL SERVICES

TANA WATER WORKS DEVELOPMENT AUTHORITY

P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:
**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

CH. 6+000.00 - 7+200.00 SHEET 6 OF 11	
Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No.	KAM/RWM/06

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480- CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
BY	CHECKED			
BY	CHECKED			
BY	CHECKED			
BY	CHECKED			
BY	CHECKED			

CLIENT:

 **THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY**

ENGINEERS

 **CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY**
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:
**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

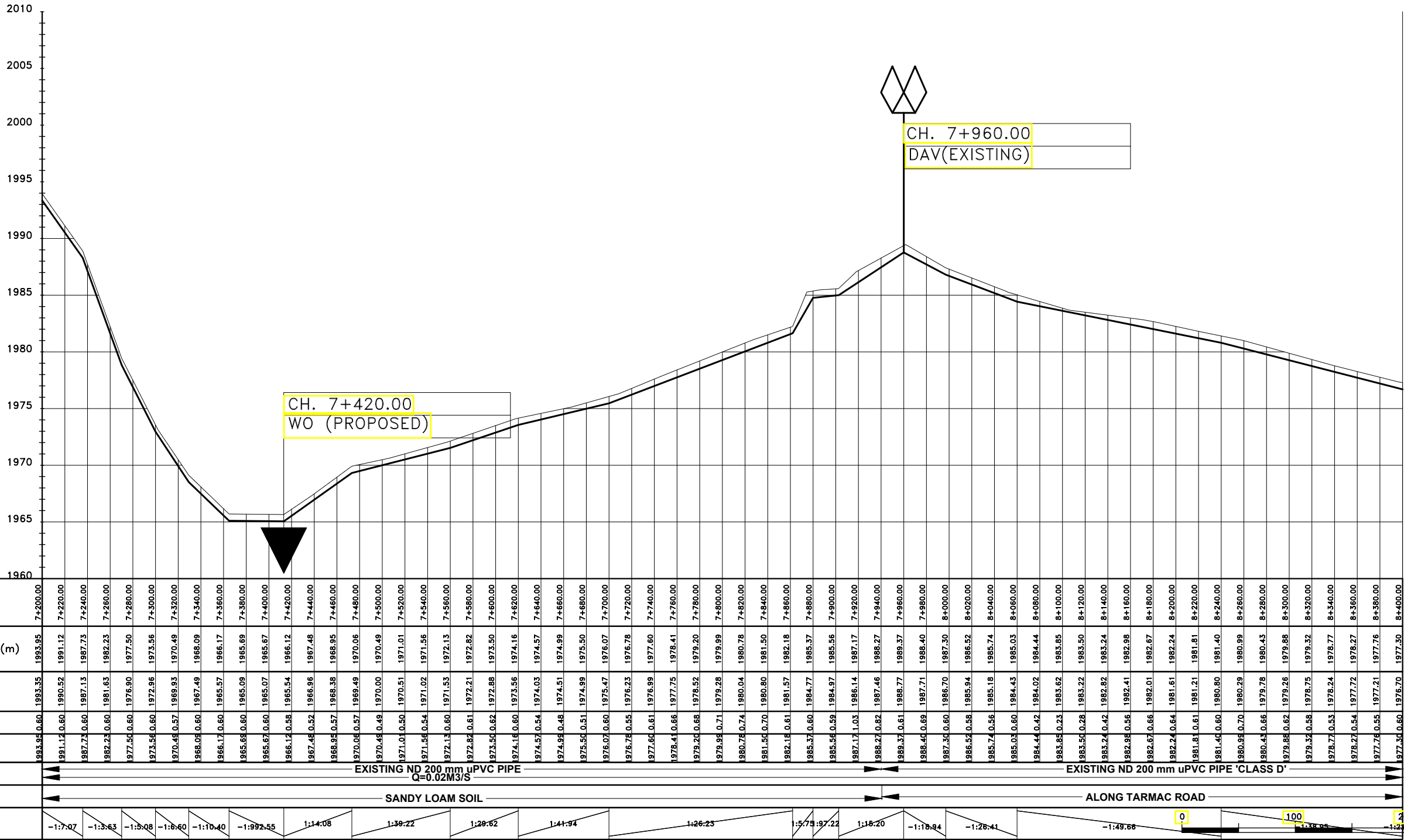
**CH. 7+200.00 - 8+400.00
SHEET 7 OF 11**

Designed by: D.N.W Drawn by: A.M.M

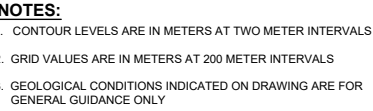
Checked by: J.M.M Approved by: D.N.M

Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. **KAM/RWM/07**

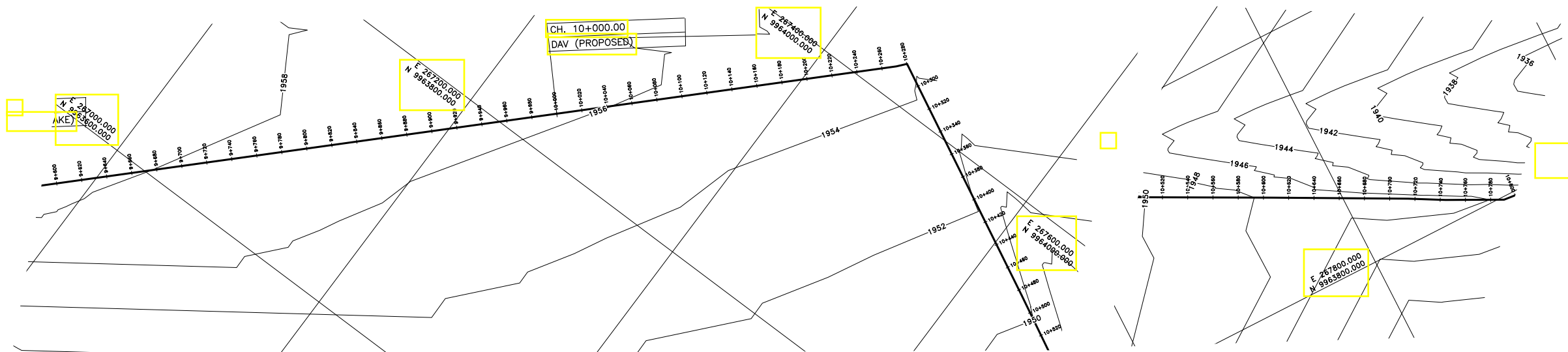


LONGITUDINAL SECTION



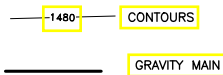
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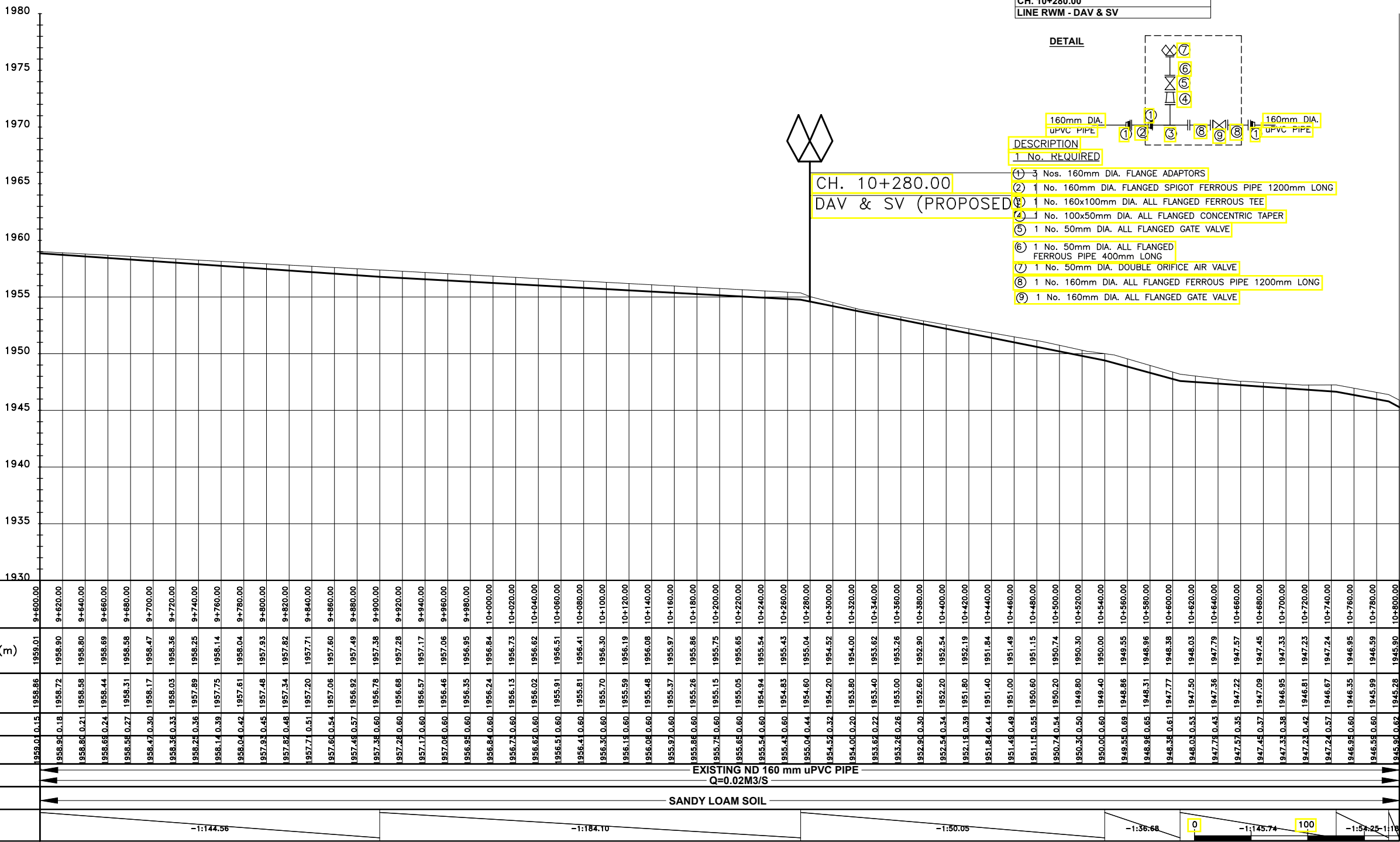


- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:



- V.J. VIKING JOHNSON
GV GATE VALVE
SV SECTIONAL VALVE
WO WASHOUT VALVE
DAV DOUBLE ORIFICE AIR VALVE
SAV SMALL ORIFICE AIR VALVE
EX. EXISTING
PROP. PROPOSED



CH. 10+280.00
LINE RWM - DAV & SV

DETAIL

DESCRIPTION

1 No. REQUIRED

- 1 Nos. 160mm DIA. FLANGE ADAPTORS
- 1 No. 160mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- 1 No. 160x100mm DIA. ALL FLANGED FERROUS TEE
- 1 No. 100x50mm DIA. ALL FLANGED CONCENTRIC TAPER
- 1 No. 50mm DIA. ALL FLANGED GATE VALVE
- 1 No. 50mm DIA. ALL FLANGED FERROUS PIPE 400mm LONG
- 1 No. 50mm DIA. DOUBLE ORIFICE AIR VALVE
- 1 No. 160mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
- 1 No. 160mm DIA. ALL FLANGED GATE VALVE

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
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	BY			
	CHECKED			

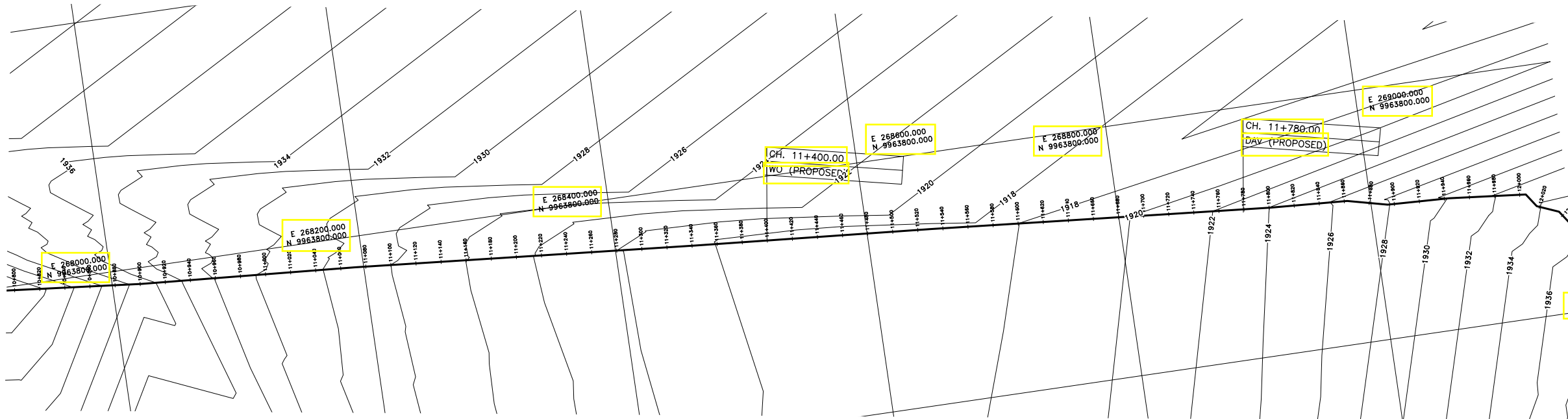
CLIENT:
 **THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY**

ENGINEERS
 **CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY**
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:
**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

CH. 9+600.00 - 10+800.00
SHEET 9 OF 11
Designed by: D.N.W. Drawn by: A.M.M.
Checked by: J.M.M. Approved by: D.N.M.
Scale: H: 1:4000, V: 1:400 Date: OCT 2022
DRG No. **KAM/RWM/09**



NOTES:

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480 CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

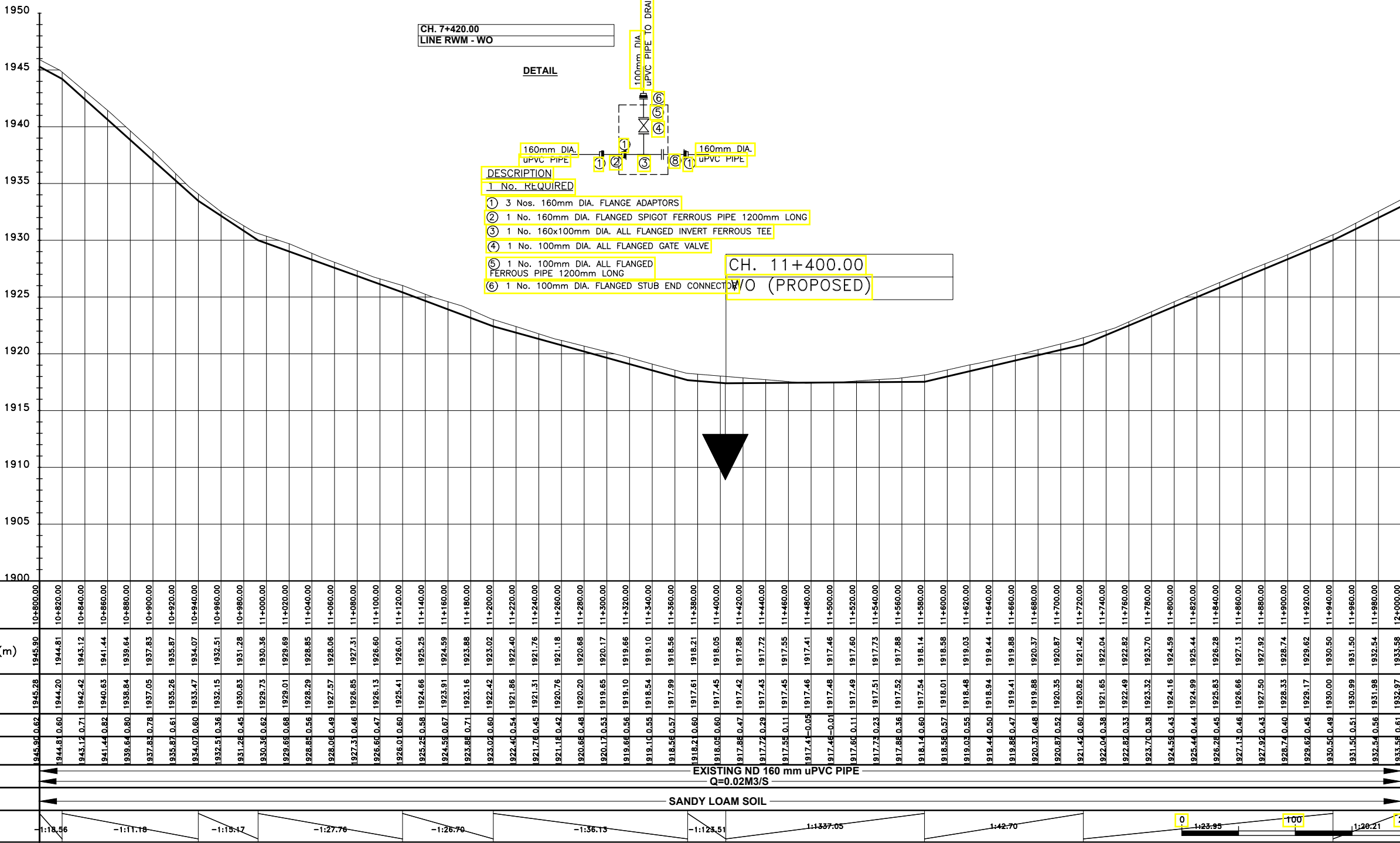
WO WASHOUT VALVE

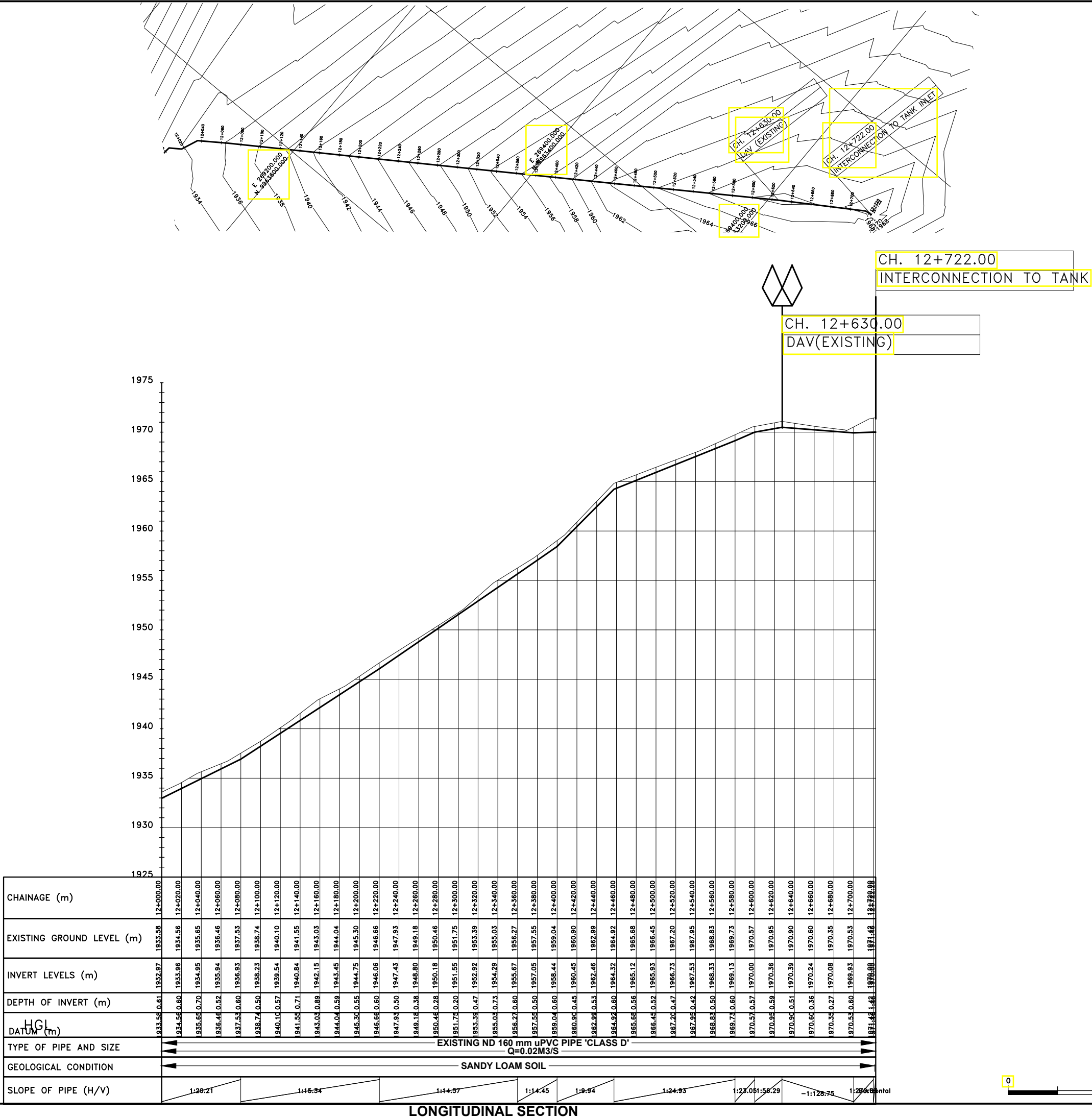
DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED





NOTES:

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

1480 CONTOURS

GRAVITY MAIN

V.J. VIKING JOHNSON

GV GATE VALVE

SV SECTIONAL VALVE

WO WASHOUT VALVE

DAV DOUBLE ORIFICE AIR VALVE

SAV SMALL ORIFICE AIR VALVE

EX. EXISTING

PROP. PROPOSED

ISSUED FOR CONSTRUCTION

REVISIONS				SIGN	DATE	APPROVED
BY	CHECKED					
BY	CHECKED					
BY	CHECKED					
BY	CHECKED					
BY	CHECKED					

CLIENT:

**THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AUTHORITY**

ENGINEERS

**CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AUTHORITY**
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

**REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT**

DRAWING TITLE:

**RAW WATER GRAVITY MAIN
PLAN & LONGITUDINAL SECTION**

**CH. 12+000.00 - 12+722.00
SHEET 11 OF 11**

Designed by: D.N.W Drawn by: A.M.M

Checked by: J.M.M Approved by: D.N.M

Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. **KAM/RWM/11**



PLAN

CH. 0+000.00
WATER OUTLET

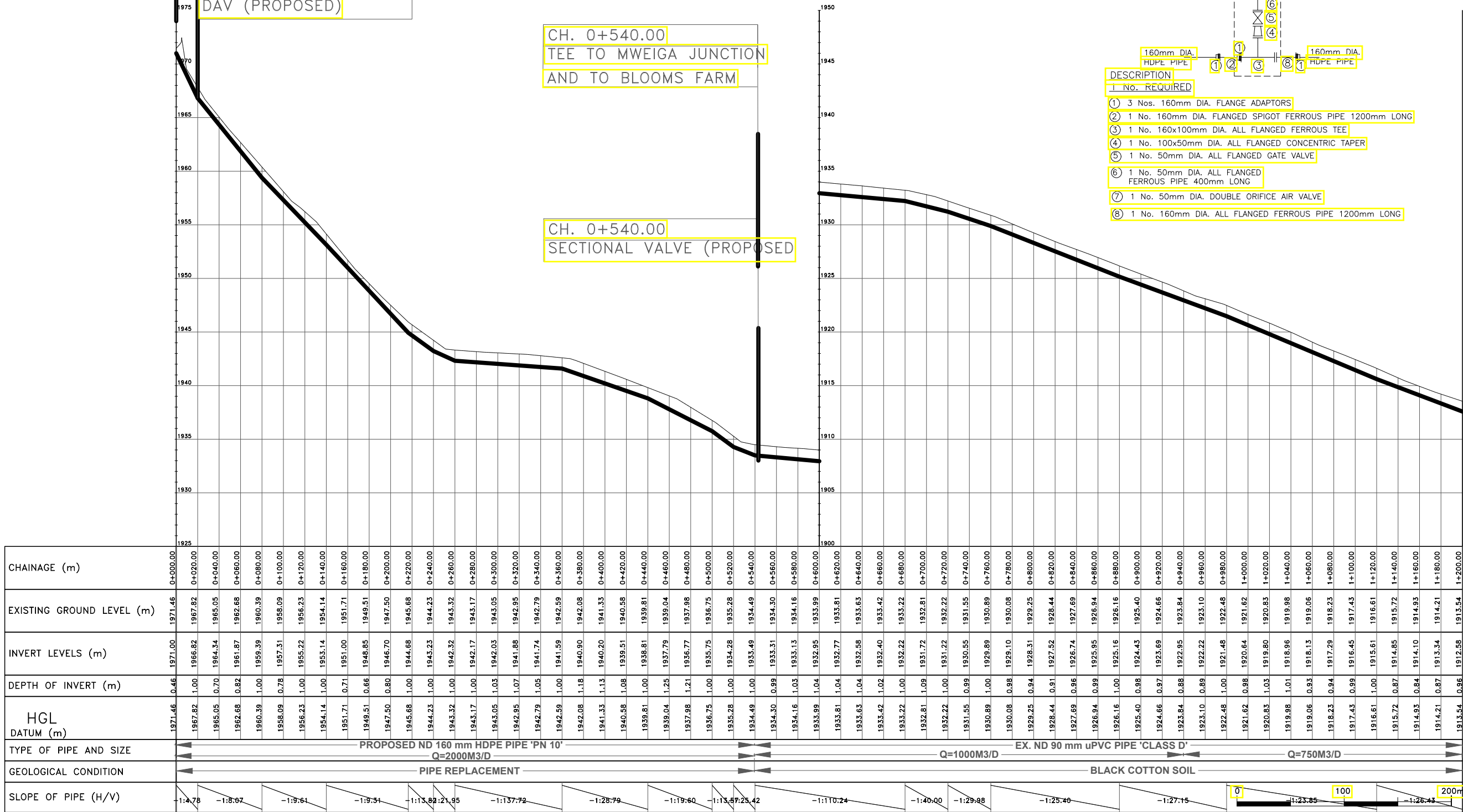
CH. 0+020.00
DAV (PROPOSED)

CH. 0+540.00
TEE TO MWEIGA JUNCTION
AND TO BLOOMS FARM

CH. 0+540.00
SECTIONAL VALVE (PROPOSED)

DETAIL
Main Distribution Line 1 PROFILE

- 160mm DIA. HDPE PIPE
- 160mm DIA. HDPE PIPE
- DESCRIPTION
- 1 No. REQUIRED
- ① 3 Nos. 160mm DIA. FLANGE ADAPTORS
- ② 1 No. 160mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
- ③ 1 No. 160x100mm DIA. ALL FLANGED FERROUS TEE
- ④ 1 No. 100x50mm DIA. ALL FLANGED CONCENTRIC TAPER
- ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE
- ⑥ 1 No. 50mm DIA. ALL FLANGED FERROUS PIPE 400mm LONG
- ⑦ 1 No. 50mm DIA. DOUBLE ORIFICE AIR VALVE
- ⑧ 1 No. 160mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG



LONGITUDINAL SECTION

- NOTES:
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- 1480- CONTOURS
- EXISTING WATER GRAVITY MAIN
- EXISTING WATER GRAVITY MAIN
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- SAV-01 AIR VALVE & No.
- WM WATER METER

ISSUED FOR CONSTRUCTION

REVISIONS		SIGN	DATE	APPROVED
D		BY		
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

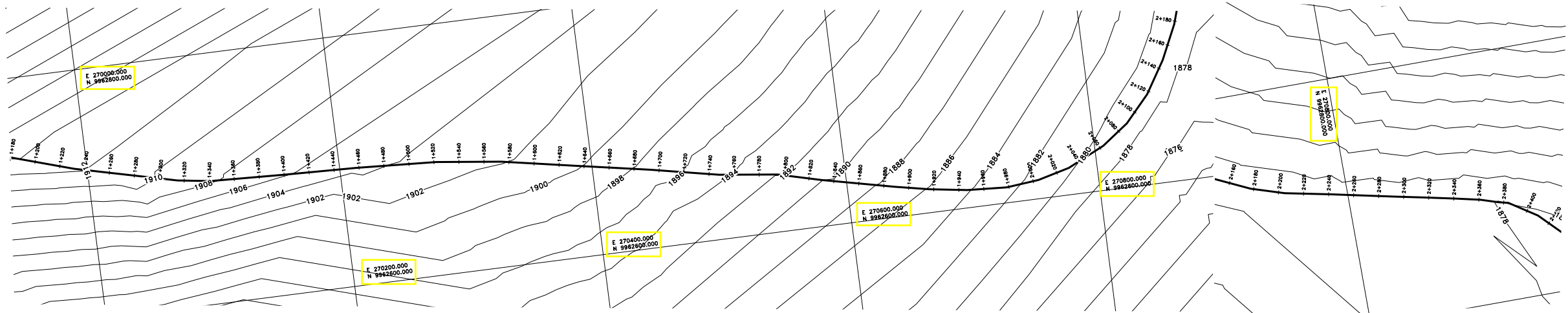
ENGINEER: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER SUPPLY PROJECT

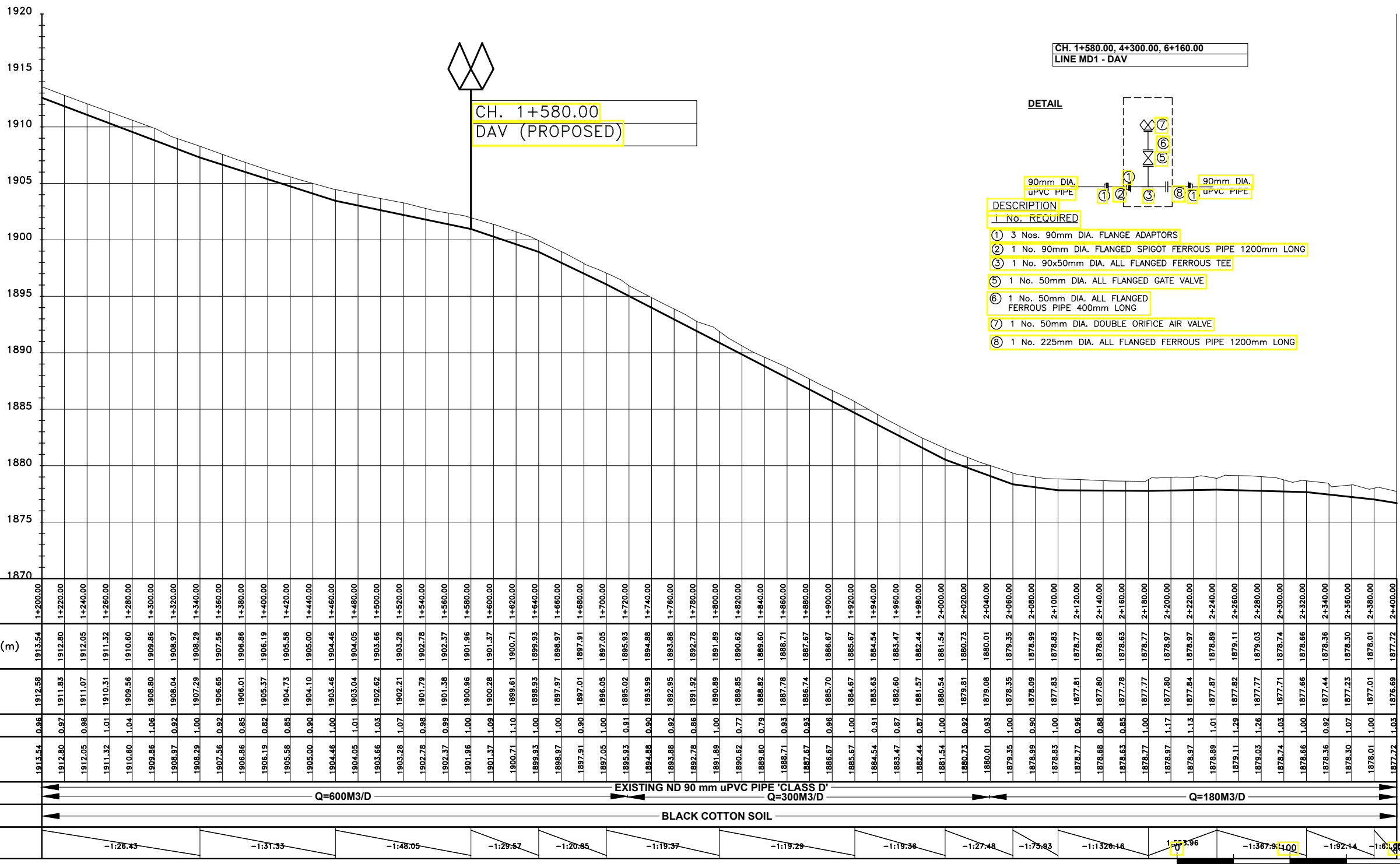
DRAWING TITLE:
MAIN DISTRIBUTION LINE 1
PLAN & LONGITUDINAL SECTION

CH. 0+000.00 - 1+200.00
SHEET 1 OF 6

Designed by: D.N.W Drawn by: A.M.M
Checked by: J.M.M Approved by: D.N.M
Scale: H- 1:4000, V- 1:400 Date: OCT 2022
DRG No. KAM/MN1/01



PLAN



LONGITUDINAL SECTION

- NOTES:
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- 1480- CONTOURS
- EXISTING WATER GRAVITY MAIN
- EXISTING WATER GRAVITY MAIN
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- SAV-01 AIR VALVE & No.
- WM WATER METER

ISSUED FOR CONSTRUCTION

REVISIONS				SIGN	DATE	APPROVED
D	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEER: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

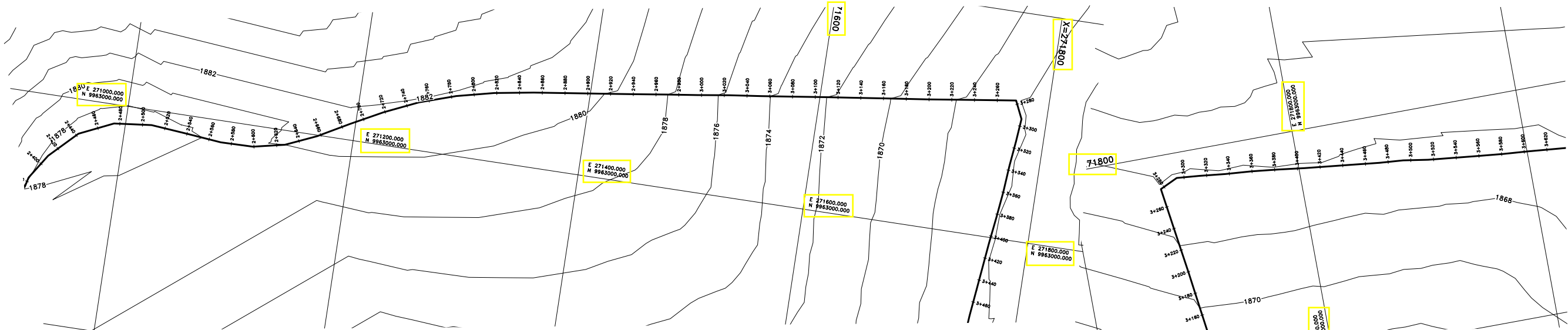
PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER SUPPLY PROJECT

DRAWING TITLE:
MAIN DISTRIBUTION LINE 1
PLAN & LONGITUDINAL SECTION

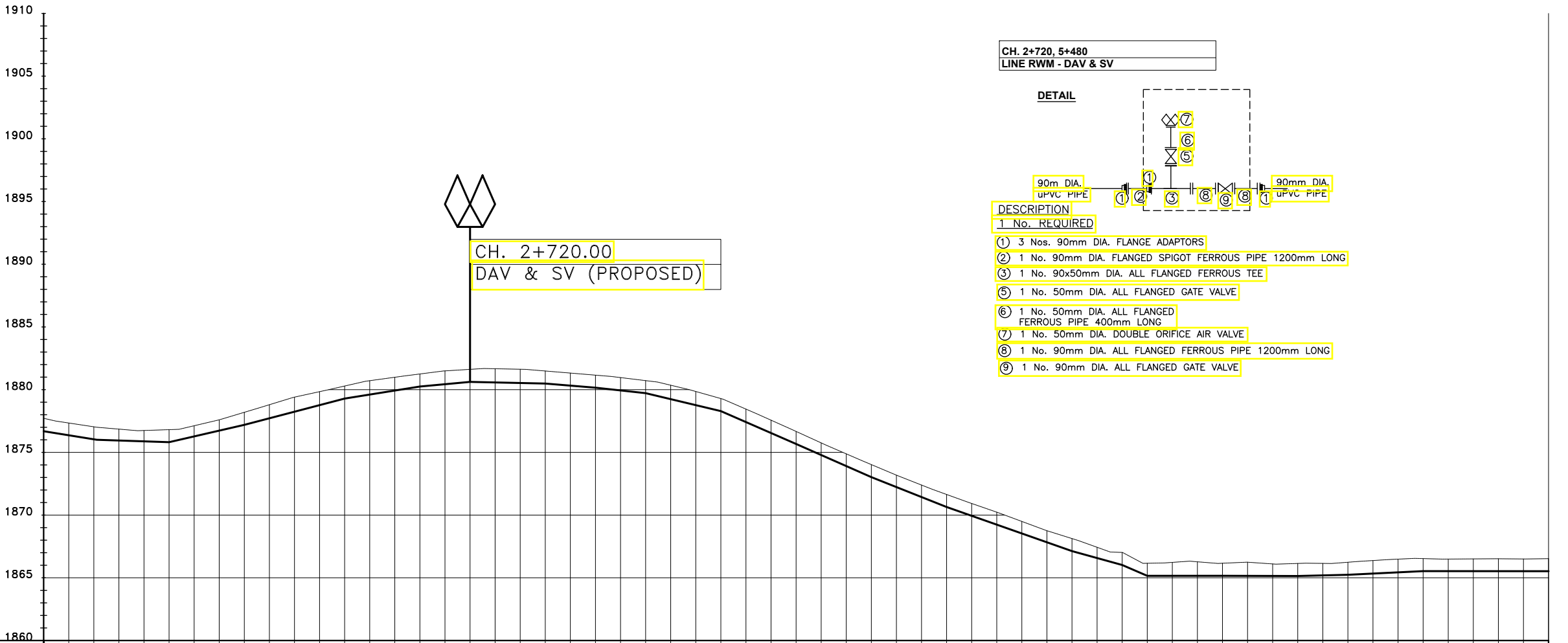
CH. 1+200.00 - 2+200.00
SHEET 2 OF 6

Designed by: D.N.W Drawn by: A.M.M
Checked by: J.M.M Approved by: D.N.M
Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. KAM/MN1/02



PLAN

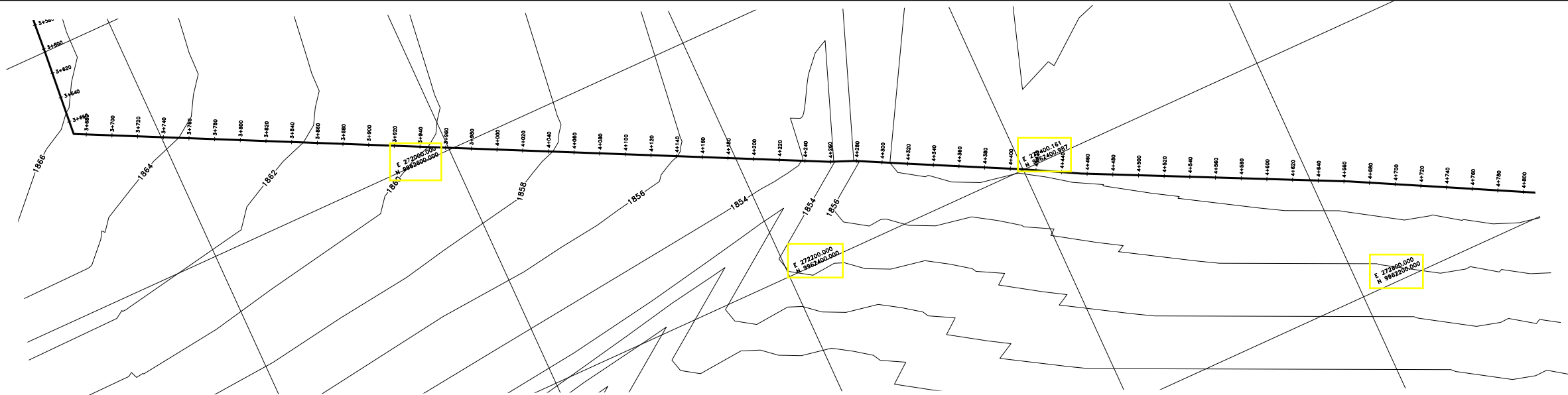


CH. 2+720, 5+480
LINE RWM - DAV & SV

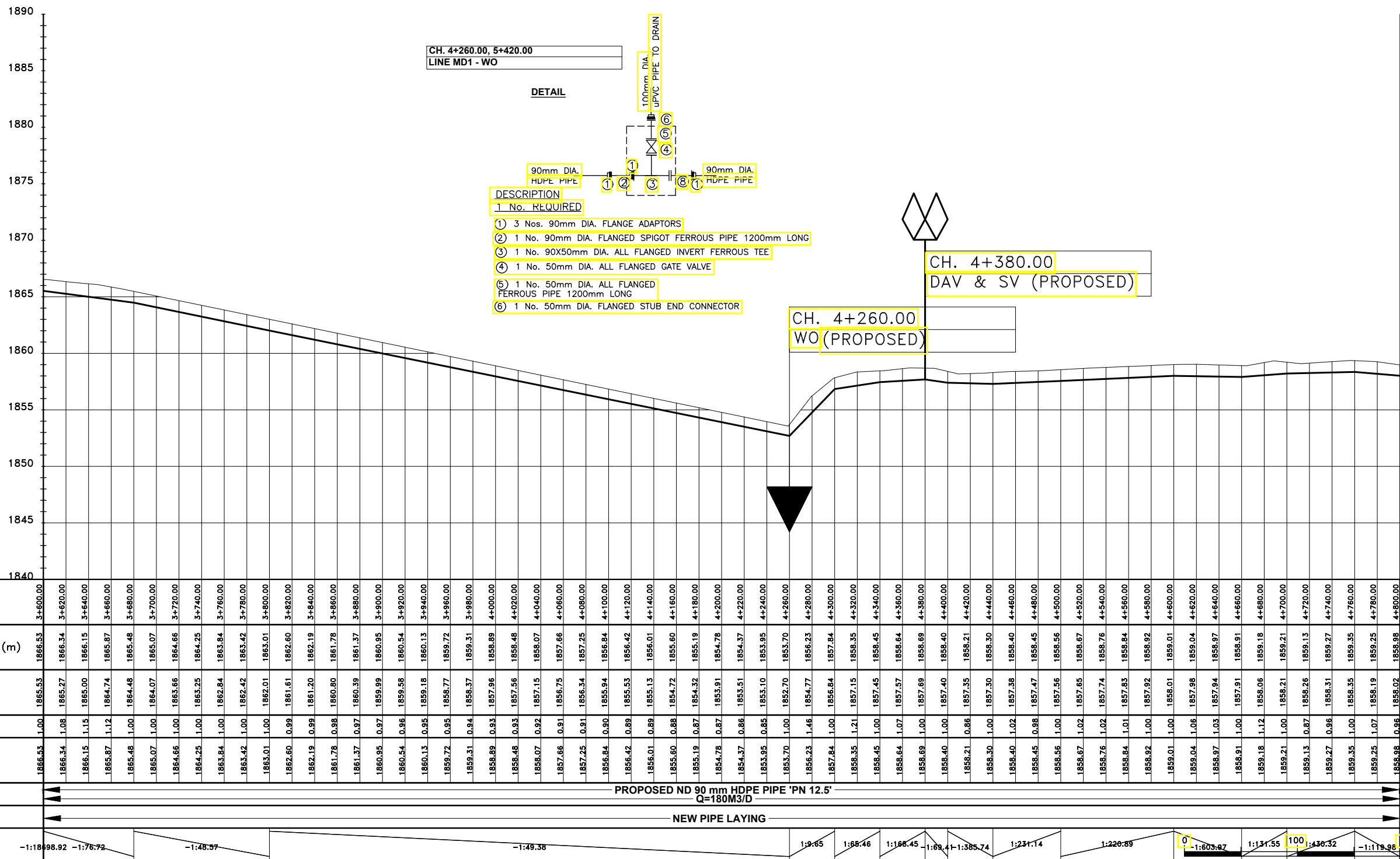
DETAIL

- 90mm DIA. UPVC PIPE
- 90mm DIA. UPVC PIPE
- DESCRIPTION
- 1 No. REQUIRED
- ① 3 Nos. 90mm DIA. FLANGE ADAPTORS
 - ② 1 No. 90mm DIA. FLANGED SPIGOT FERROUS PIPE 1200mm LONG
 - ③ 1 No. 90x50mm DIA. ALL FLANGED FERROUS TEE
 - ⑤ 1 No. 50mm DIA. ALL FLANGED GATE VALVE
 - ⑥ 1 No. 50mm DIA. ALL FLANGED FERROUS PIPE 400mm LONG
 - ⑦ 1 No. 50mm DIA. DOUBLE ORIFICE AIR VALVE
 - ⑧ 1 No. 90mm DIA. ALL FLANGED FERROUS PIPE 1200mm LONG
 - ⑨ 1 No. 90mm DIA. ALL FLANGED GATE VALVE

CHAINAGE (m)	2+400.00		2+420.00		2+440.00		2+460.00		2+480.00		2+500.00		2+520.00		2+540.00		2+560.00		2+580.00		2+600.00		2+620.00		2+640.00		2+660.00		2+680.00		2+700.00		2+720.00		2+740.00		2+760.00		2+780.00		2+800.00		2+820.00		2+840.00		2+860.00		2+880.00		2+900.00		2+920.00		2+940.00		2+960.00		2+980.00		3+000.00		3+020.00		3+040.00		3+060.00		3+080.00		3+100.00		3+120.00		3+140.00		3+160.00		3+180.00		3+200.00		3+220.00		3+240.00		3+260.00		3+280.00		3+300.00		3+320.00		3+340.00		3+360.00		3+380.00		3+400.00		3+420.00		3+440.00		3+460.00		3+480.00		3+500.00		3+520.00		3+540.00		3+560.00		3+580.00		3+600.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
EXISTING GROUND LEVEL (m)	1877.72	1876.69	1877.72	1876.36	1877.34	1876.04	1875.95	1875.88	1876.74	1875.81	1876.81	1876.12	1876.27	1877.60	1877.80	1877.19	1877.72	1878.80	1879.40	1878.84	1879.29	1880.29	1880.72	1880.99	1881.25	1881.50	1881.62	1881.67	1881.63	1881.49	1881.32	1881.16	1880.96	1880.72	1880.36	1879.86	1879.29	1878.45	1877.57	1876.67	1875.76	1874.88	1874.03	1873.18	1872.40	1871.64	1870.93	1870.23	1869.49	1868.75	1868.16	1867.43	1866.82	1866.16	1865.24	1864.16	1863.11	1862.14	1861.15	1860.24	1859.34	1858.43	1857.53	1856.53	1855.53	1854.51	1853.53	1852.52	1851.50	1850.53	1849.51	1848.53	1847.53	1846.53	1845.53	1844.53	1843.53	1842.53	1841.53	1840.53	1839.53	1838.53	1837.53	1836.53	1835.53	1834.53	1833.53	1832.53	1831.53	1830.53	1829.53	1828.53	1827.53	1826.53	1825.53	1824.53	1823.53	1822.53	1821.53	1820.53	1819.53	1818.53	1817.53	1816.53	1815.53	1814.53	1813.53	1812.53	1811.53	1810.53	1809.53	1808.53	1807.53	1806.53	1805.53	1804.53	1803.53	1802.53	1801.53	1800.53	1799.53	1798.53	1797.53	1796.53	1795.53	1794.53	1793.53	1792.53	1791.53	1790.53	1789.53	1788.53	1787.53	1786.53	1785.53	1784.53	1783.53	1782.53	1781.53	1780.53	1779.53	1778.53	1777.53	1776.53	1775.53	1774.53	1773.53	1772.53	1771.53	1770.53	1769.53	1768.53	1767.53	1766.53	1765.53	1764.53	1763.53	1762.53	1761.53	1760.53	1759.53	1758.53	1757.53	1756.53	1755.53	1754.53	1753.53	1752.53	1751.53	1750.53	1749.53	1748.53	1747.53	1746.53	1745.53	1744.53	1743.53	1742.53	1741.53	1740.53	1739.53	1738.53	1737.53	1736.53	1735.53	1734.53	1733.53	1732.53	1731.53	1730.53	1729.53	1728.53	1727.53	1726.53	1725.53	1724.53	1723.53	1722.53	1721.53	1720.53	1719.53	1718.53	1717.53	1716.53	1715.53	1714.53	1713.53	1712.53	1711.53	1710.53	1709.53	1708.53	1707.53	1706.53	1705.53	1704.53	1703.53	1702.53	1701.53	1700.53	1699.53	1698.53	1697.53	1696.53	1695.53	1694.53	1693.53	1692.53	1691.53	1690.53	1689.53	1688.53	1687.53	1686.53	1685.53	1684.53	1683.53	1682.53	1681.53	1680.53	1679.53	1678.53	1677.53	1676.53	1675.53	1674.53	1673.53	1672.53	1671.53	1670.53	1669.53	1668.53	1667.53	1666.53	1665.53	1664.53	1663.53	1662.53	1661.53	1660.53	1659.53	1658.53	1657.53	1656.53	1655.53	1654.53	1653.53	1652.53	1651.53	1650.53	1649.53	1648.53	1647.53	1646.53	1645.53	1644.53	1643.53	1642.53	1641.53	1640.53	1639.53	1638.53	1637.53	1636.53	1635.53	1634.53	1633.53	1632.53	1631.53	1630.53	1629.53	1628.53	1627.53	1626.53	1625.53	1624.53	1623.53	1622.53	1621.53	1620.53	1619.53	1618.53	1617.53	1616.53	1615.53	1614.53	1613.53	1612.53	1611.53	1610.53	1609.53	1608.53	1607.53	1606.53	1605.53	1604.53	1603.53	1602.53	1601.53	1600.53	1599.53	1598.53	1597.53	1596.53	1595.53	1594.53	1593.53	1592.53	1591.53	1590.53	1589.53	1588.53	1587.53	1586.53	1585.53	1584.53	1583.53	1582.53	1581.53	1580.53	1579.53	1578.53	1577.53	1576.53	1575.53	1574.53	1573.53	1572.53	1571.53	1570.53	1569.53	1568.53	1567.53	1566.53	1565.53	1564.53	1563.53	1562.53	1561.53	1560.53	1559.53	1558.53	1557.53	1556.53	1555.53	1554.53	1553.53	1552.53	1551.53	1550.53	1549.53	1548.53	1547.53	1546.53	1545.53	1544.53	1543.53	1542.53	1541.53	1540.53	1539.53	1538.53	1537.53	1536.53	1535.53	1534.53	1533.53	1532.53	1531.53	1530.53	1529.53	1528.53	1527.53	1526.53	1525.53	1524.53	1523.53	1522.53	1521.53	1520.53	1519.53	1518.53	1517.53	1516.53	1515.53	1514.53	1513.53	1512.53	1511.53	1510.53	1509.53	1508.53	1507.53	1506.53	1505.53	1504.53	1503.53	1502.53	1501.53	1500.53	1499.53	1498.53	1497.53	1496.53	1495.53	1494.53	1493.53	1492.53	1491.53	1490.53	1489.53	1488.53	1487.53	1486.53	1485.53	1484.53	1483.53	1482.53	1481.53	1480.53	1479.53	1478.53	1477.53	1476.53	1475.53	1474.53	1473.53	1472.53	1471.53	1470.53	1469.53	1468.53	1467.53	1466.53	1465.53	1464.53	1463.53	1462.53	1461.53	1460.53	1459.53	1458.53	1457.53	1456.53	1455.53	1454.53	1453.53	1452.53	1451.53	1450.53	1449.53	1448.53	1447.53	1446.53	1445.53	1444.53	1443.53	1442.53	1441.53	1440.53	1439.53	1438.53	1437.53	1436.53	1435.53	1434.53	1433.53	1432.53	1431.53	1430.53	1429.53	1428.53	1427.53	1426.53	1425.53	1424.53	1423.53	1422.53	1421.53	1420.53	1419.53	1418.53	1417.53	1416.53	1415.53	1414.53	1413.53	1412.53	1411.53	1410.53	1409.53	1408.53	1407.53	1406.53	1405.53	1404.53	1403.53	1402.53	1401.53	1400.53	1399.53	1398.53	1397.53	1396.53	1395.53	1394.53	1393.53	1392.53	1391.53	1390.53	1389.53	1388.53	1387.53	1386.53	1385.53	1384.53	1383.53	1382.53	1381.53	1380.53	1379.53	1378.53	1377.53	1376.53	1375.53	1374.53	1373.53	1372.53	1371.53	1370.53	1369.53	1368.53	1367.53	1366.53	1365.53	1364.53	1363.53	1362.53	1361.53	1360.53	1359.53	1358.53	1357.53	1356.53	1355.53	1354.53	1353.53	1352.53	1351.53	1350.53	1349.53	1348.53	1347.53	1346.53	1345.53	1344.53	1343.53	1342.53	1341.53	1340.53	1339.53	1338.53	1337.53	1336.53	1335.53	1334.53	1333.53	1332.53	1331.53	1330.53	1329.53	1328.53	1327.53	1326.53	1325.53	1324.53	1323.53	1322.53	1321.53	1320.53	1319.53	1318.53	1317.53	1316.53	1315.53	1314.53	1313.53	1312.53	1311.53	1310.53	1309.53	1308.53	1307.53	1306.53	1305.53	1304.53	1303.53	1302.53	1301.53	1300.53	1299.53	1298.53	1297.53	1296.53	1295.53	1294.53	1293.53	1292.53	1291.53	1290.53	1289.53	1288.53	1287.53	1286.53	1285.53	1284.53	1283.53	1282.53	1281.53	1280.53	1279.53	1278.53	1277.53	1276.53	1275.53	1274.53	1273.53	1272.53	1271.53	1270.53	1269.53	1268.53	1267.53	1266.53	1265.53	1264.53	1263.53	1262.53	1261.53	1260.53	1259.53	1258.53	1257.53	1256.53	1255.53	1254.53	1253.53	1252.53	1251.53	1250.53	1249.53	1248.53	1247.53	1246.53	1245.53	1244.53	1243.53	1242.53	1241.53	1240.53	1239.53	1238.53	1237.53	1236.53	1235.53	1234.53	1233.53	1232.53	1231.53	1230.53	1229.53	1228.53	1227.53	1226.53	1225.53	1224.53	1223.53	1222.53	1221.53	1220.53	1219.53	1218.53	1217.53	1216.53	1215.53	1214.53	1213.53	1212.53	1211.53	1210.53	1209.53	1208.53	1207.53	1206.53	1205.53	1204.53	1203.53	1202.53	1201.53	1200.53	1199.53	1198.53	1197.53	1196.53	1195.53	1194.53	1193.53	1192.53	1191.53	1190.53	1189.53	1188.53	1187.53	1186.53	1185.53	1184.53	1183.53	1182.53	1181.53	1180.53	1179.53	1178.53	1177.53	1176.53	1175.53	1174.53	1173.53	1172.53	1171.53	1170.53	1169.53	1168.53	1167.53	1166.53	1165.53	1164.53	1163.53	1162.53	1161.53	1160.53	1159.53	1158.53	1157.53	1156.53	1155.53	1154.53	1153.53	1152.53	1151.53	1150.53	1149.53	1148.53	1147.53	1146.53	1145.53	1144.53	1143.53	1142.53	1141.53	1140.53	1139.53	1138.53	1137.53	1136.53	1135.53	1134.53	1133.53	1132.53	1131.53	1130.53	1129.53	1128.53	1127.53	1126.53	1125.53	1124.53	1123.53	1122.53	1121.53	1120.53	1119.53	1118.53	1117.53	1116.53	1115.53	1114.53	1113.53	1112.53	1111.53	1110.53	1109.53	1108.53	1107.53	1106.53	1105.53	1104.53	1103.53	1102.53	1101.53	1100.53	1099.53	1098.53	1097.53	1096.53	1095.53	1094.53	1093.53	1092.53	1091.53	1090.53	1089.53	1088.53	1087.53	1086.53	1085.53	1084.53	1083.53	1082.53	1081.53	1080.53	1079.53	1078.53	1077.53	1076.53	1075.53	1074.53	1073.53	1072.53	1071.53	1070.53	1069.53	1068.53	1067.53	1066.53	1065.53	1064.53	1063.53	1062.53	1061.53	1060.53	1059.53	1058.53	1057.53	1056.53	1055.53	1054.53	1053.53	1052.53	1051.53	1050.53	1049.53	1048.53	1047.53	1046.53	1045.53	1044.53	1043.53	1042.53	1041.53	1040.53	1039.53	1038.53	1037.53	1036.53	1035.53	1034.53	1033.53	1032.53	1031.53	1030.53	1029.53	11



PLAN



LONGITUDINAL SECTION

NOTES:

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- 1480- CONTOURS
- EXISTING WATER GRAVITY MAIN
- EXISTING WATER GRAVITY MAIN
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- SAV-01 AIR VALVE & No.
- WM WATER METER

ISSUED FOR CONSTRUCTION

REVISIONS				SIGN	DATE	APPROVED
D		BY	CHECKED			
		BY	CHECKED			
		BY	CHECKED			
		BY	CHECKED			

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

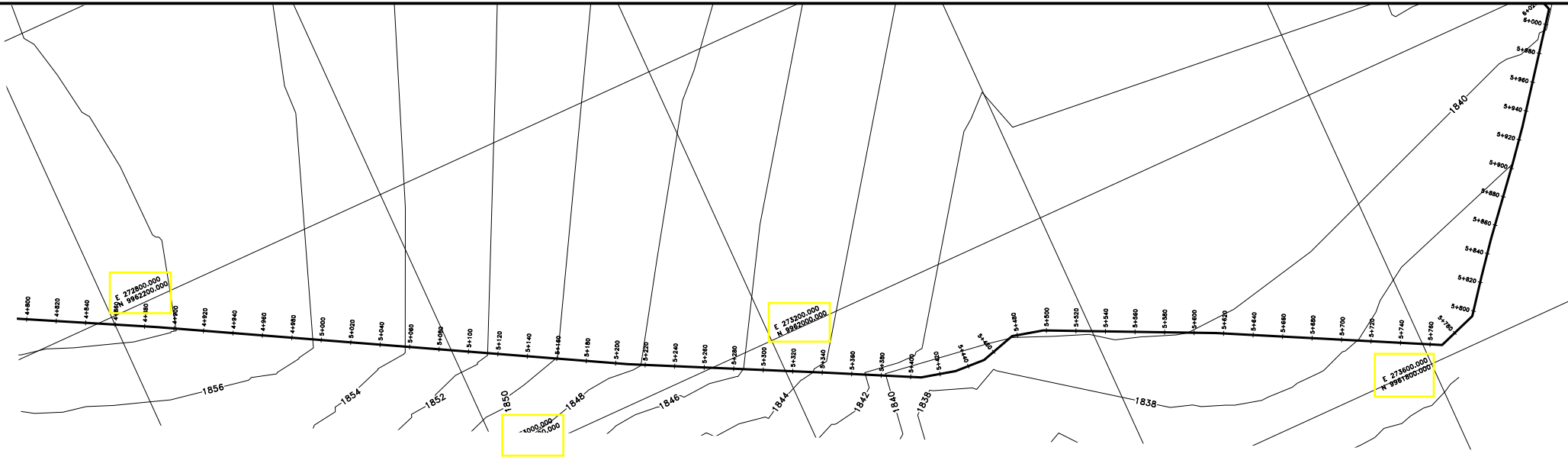
ENGINEER: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER SUPPLY PROJECT

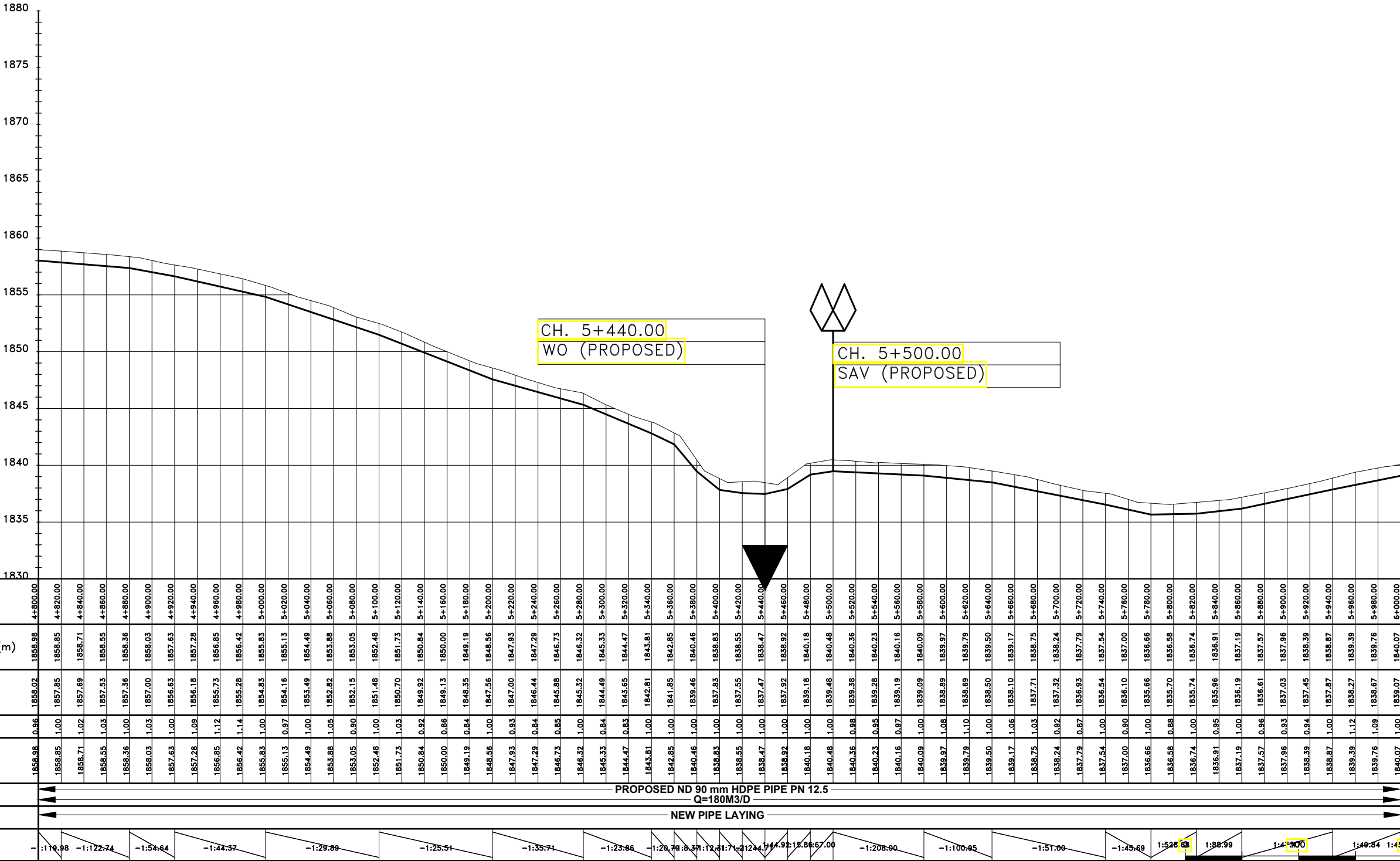
DRAWING TITLE:
MAIN DISTRIBUTION LINE 1
PLAN & LONGITUDINAL SECTION

CH. 3+600.00 - 4+800.00
SHEET 4 OF 6

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No.	KAM/MN1/04



PLAN



LONGITUDINAL SECTION

- NOTES:**
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LEGEND:

- 1480- CONTOURS
- EXISTING WATER GRAVITY MAIN
- EXISTING WATER GRAVITY MAIN
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- SAV-01 AIR VALVE & No.
- WM WATER METER

ISSUED FOR CONSTRUCTION				
REVISIONS		SIGN	DATE	APPROVED
D	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT: **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

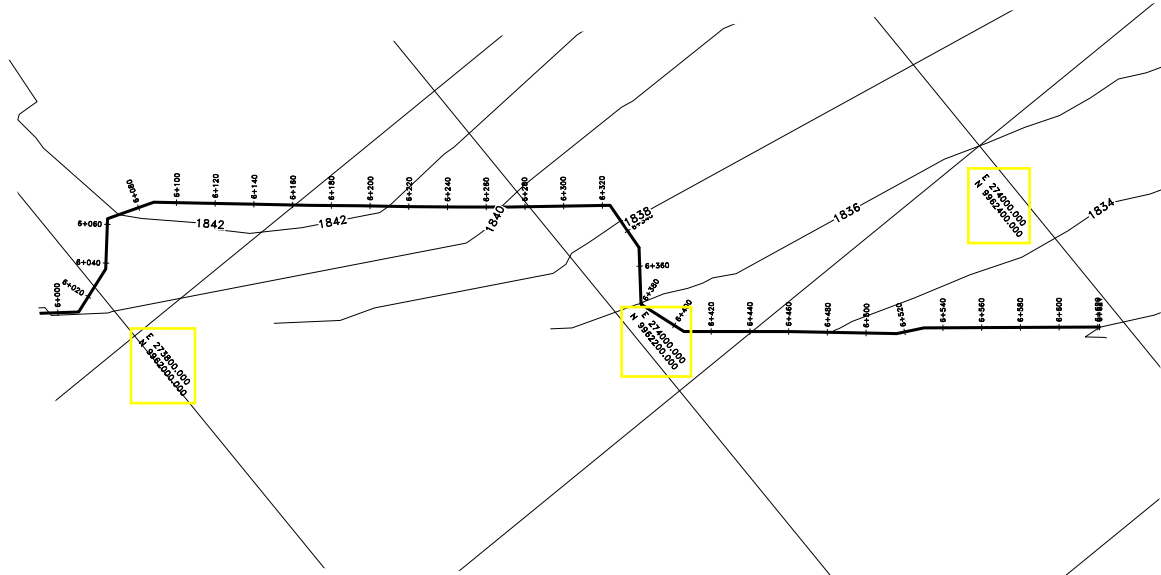
ENGINEER: **CHIEF MANAGER TECHNICAL**
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER SUPPLY PROJECT

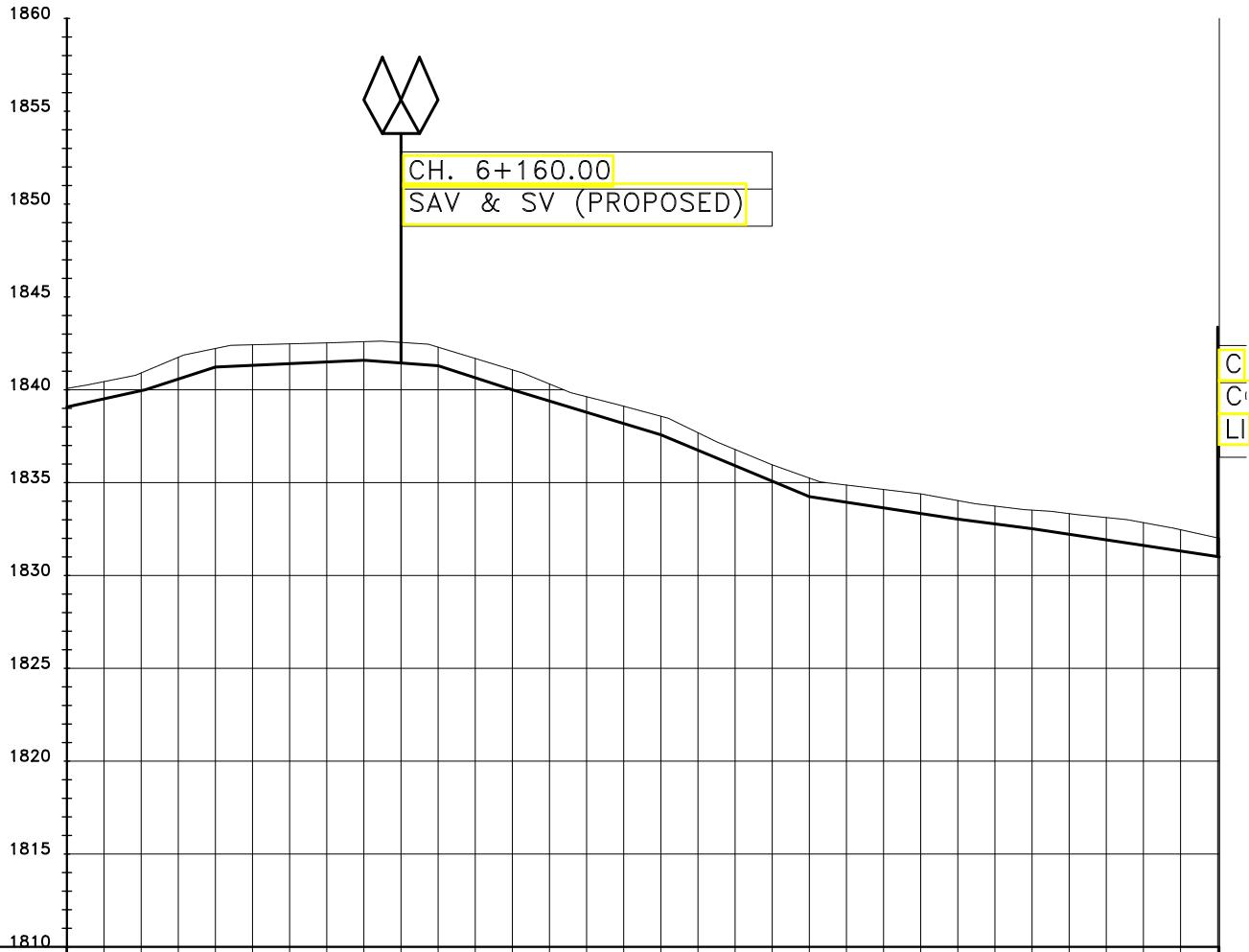
DRAWING TITLE:
MAIN DISTRIBUTION LINE 1
PLAN & LONGITUDINAL SECTION

CH. 4+800.00 - 6+000.00
SHEET 5 OF 6

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No.	KAM/MN1/05



PLAN



CHAINAGE (m)	6+000.00	6+020.00	6+040.00	6+060.00	6+080.00	6+100.00	6+120.00	6+140.00	6+160.00	6+180.00	6+200.00	6+220.00	6+240.00	6+260.00	6+280.00	6+300.00	6+320.00	6+340.00	6+360.00	6+380.00	6+400.00	6+420.00	6+440.00	6+460.00	6+480.00	6+500.00	6+520.00	6+540.00	6+560.00	6+580.00	6+600.00	6+620.89	
EXISTING GROUND LEVEL (m)	1840.07	1840.44	1840.91	1841.75	1842.22	1842.42	1842.47	1842.53	1842.59	1842.55	1842.29	1841.69	1841.08	1840.31	1839.63	1839.11	1838.58	1837.69	1836.79	1836.79	1835.96	1835.25	1834.87	1834.63	1834.39	1834.03	1833.74	1833.52	1833.33	1833.12	1832.84	1832.46	1832.08
INVERT LEVELS (m)	1839.07	1839.51	1839.95	1840.58	1841.22	1841.32	1841.41	1841.50	1841.59	1841.44	1841.29	1840.65	1840.00	1839.39	1838.79	1838.18	1837.58	1836.74	1835.91	1835.08	1834.25	1833.94	1833.64	1833.34	1833.03	1832.78	1832.52	1832.22	1831.92	1831.62	1831.32	1831.08	
DEPTH OF INVERT (m)	1.00	0.93	0.96	1.17	1.00	1.11	1.07	1.03	1.00	1.11	1.00	1.04	1.08	0.92	0.84	0.93	1.00	0.94	0.87	0.88	1.00	0.93	0.99	1.06	1.00	0.96	1.00	1.11	1.20	1.23	1.15	1.00	
HGL DATUM (m)	1840.07	1840.44	1840.91	1841.75	1842.22	1842.42	1842.47	1842.53	1842.59	1842.55	1842.29	1841.69	1841.08	1840.31	1839.63	1839.11	1838.58	1837.69	1836.79	1836.79	1835.96	1835.25	1834.87	1834.63	1834.39	1834.03	1833.74	1833.52	1833.33	1833.12	1832.84	1832.46	1832.08
TYPE OF PIPE AND SIZE	PROPOSED ND 90 mm uPVC PIPE 'CLASS D' Q=180M3/D																																
GEOLOGICAL CONDITION	BLACK COTTON SOIL																																
SLOPE OF PIPE (H/V)	1:49.84:45.58	1:30.89	1:247.99	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89	1:134.96	1:30.89

LONGITUDINAL SECTION

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LEGEND:

- 1480- CONTOURS
- EXISTING WATER GRAVITY MAIN
- EXISTING WATER GRAVITY MAIN
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
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- WM WATER METER

ISSUED FOR CONSTRUCTION

REVISIONS				SIGN	DATE	APPROVED
D	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				
	BY	CHECKED				

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

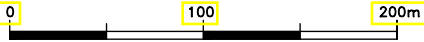
ENGINEER: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

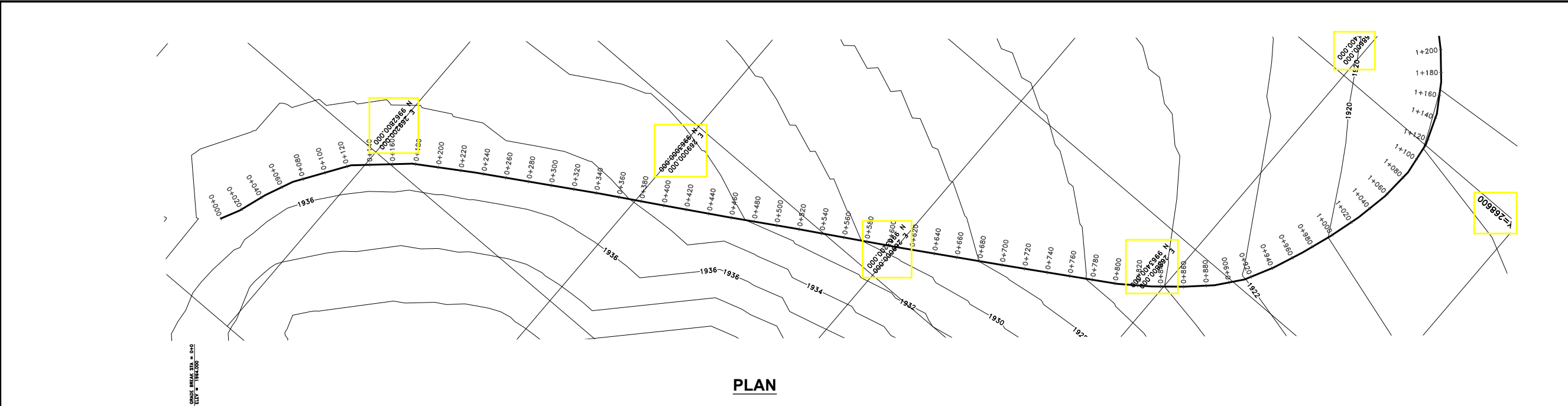
PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER SUPPLY PROJECT

DRAWING TITLE:
MAIN DISTRIBUTION LINE 1
PLAN & LONGITUDINAL SECTION

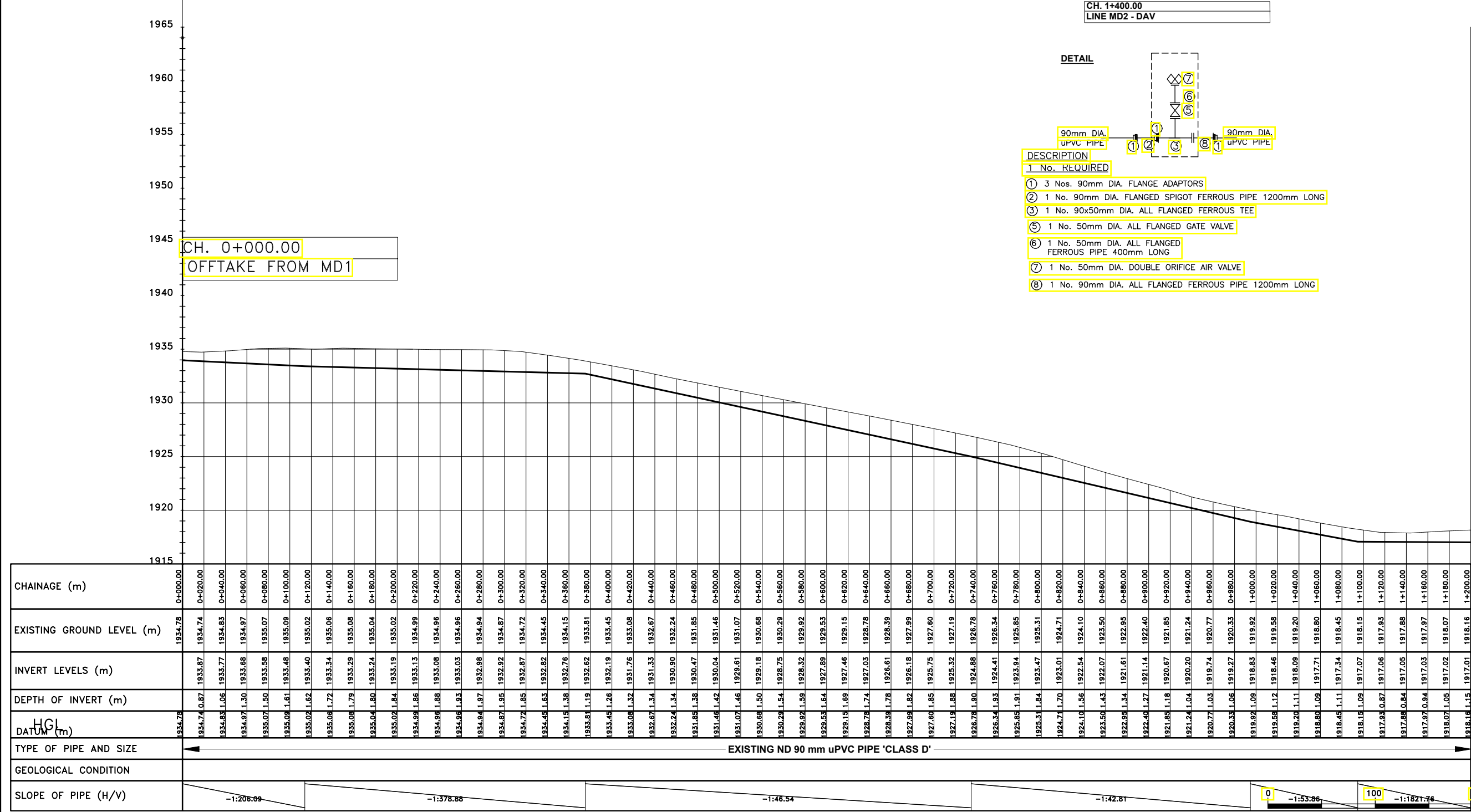
CH. 6+000.00 - 6+620.89
SHEET 6 OF 6

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No. KAM/MN1/06	





PLAN



LONGITUDINAL SECTION

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- 1480— CONTOURS
- WATER GRAVITY MAIN
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- DAV-01 AIR VALVE & No.
- WM WATER METER

ISSUED FOR CONSTRUCTION

REVISIONS				SIGN	DATE	APPROVED
D	INVERTS AT ROAD CROSSING	BY	VJK		15/01	
		CHECKED				
		BY				
		CHECKED				
		BY				

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

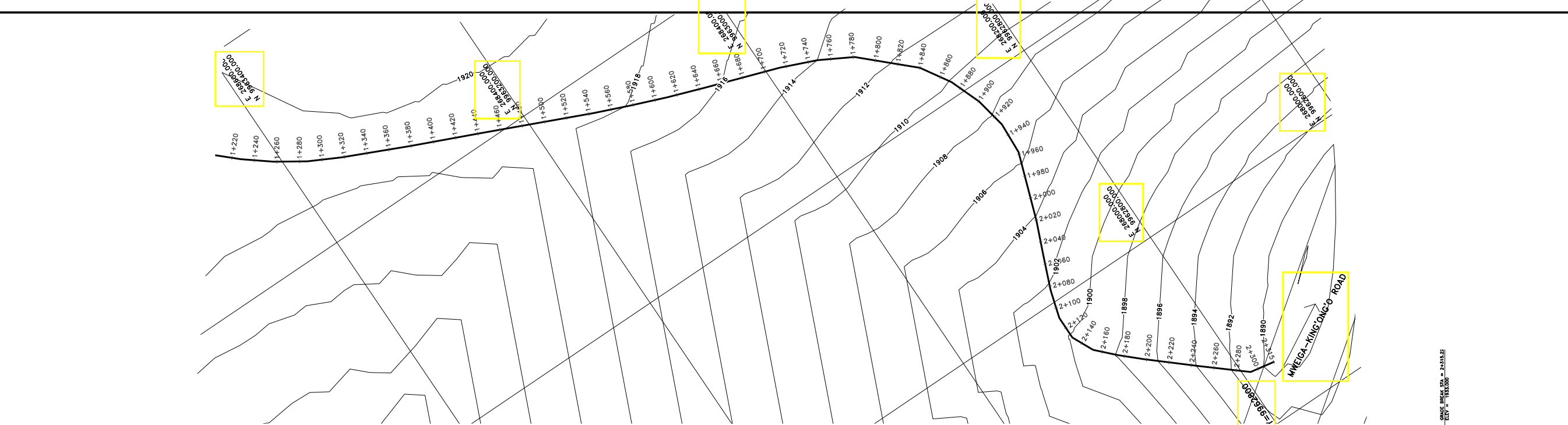
ENGINEER: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF KAMATONGU WATER PROJECT

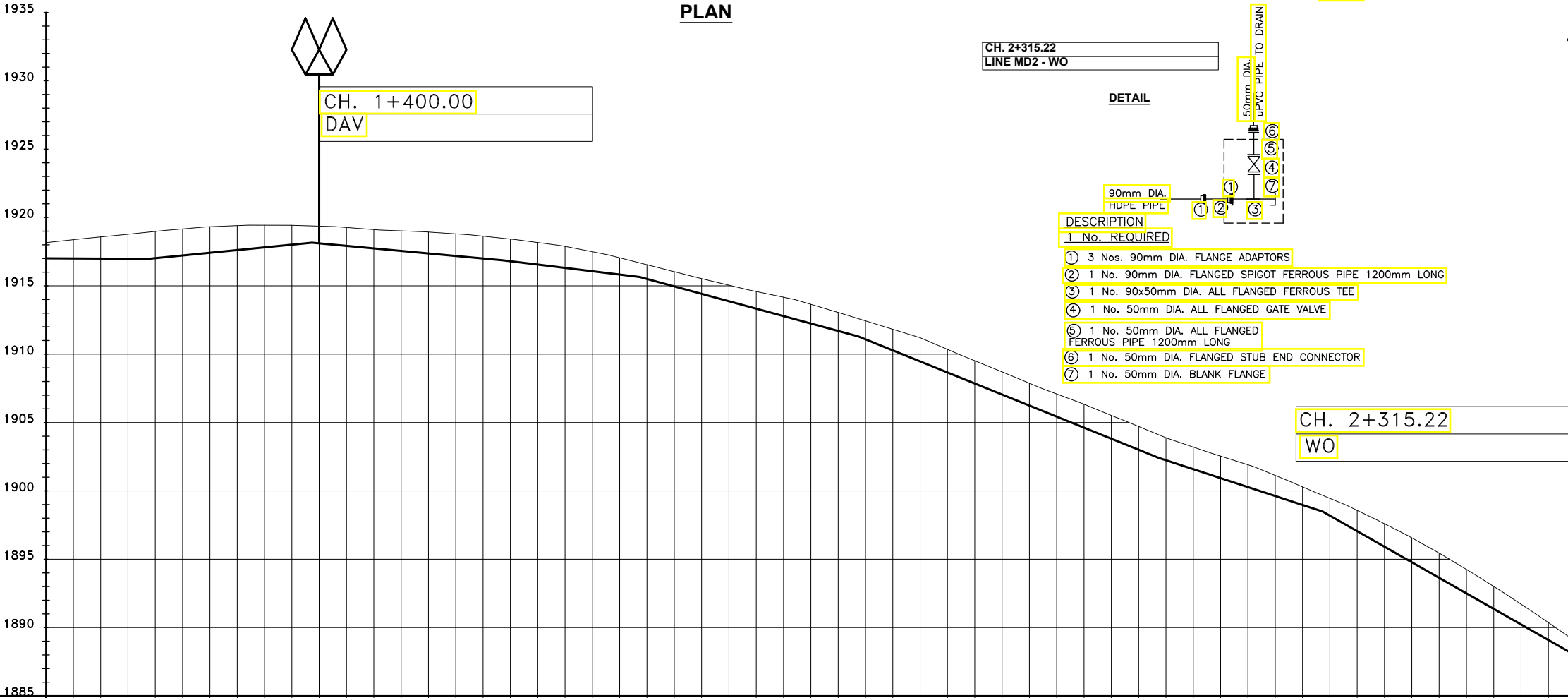
DRAWING TITLE:
**MAIN DISTRIBUTION LINE 2
PLAN & LONGITUDINAL SECTION**

**CH. 0+000.00 - 1+200.00
SHEET 1 OF 2**

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No. KAM/MN2/01	



PLAN



LONGITUDINAL SECTION

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

-1480	CONTOURS
	PROPOSED WATER GRAVITY MAIN
V.J.	VIKING JOHNSON
GV	GATE VALVE
SV-01	SECTIONAL VALVE & No.
WO-01	WASHOUT VALVE & No.
SAV-01	AIR VALVE & No.
WM	WATER METER

REVISIONS				SIGN	DATE	APPROVED
D	INVERTS AT ROAD CROSSING	BY	VJK	15/01		
		CHECKED				
		BY				
		CHECKED				
		BY				
		CHECKED				
		BY				
		CHECKED				

CLIENT: **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEER: **CHIEF MANAGER TECHNICAL**
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT

DRAWING TITLE:
MAIN DISTRIBUTION LINE 2
PLAN & LONGITUDINAL SECTION

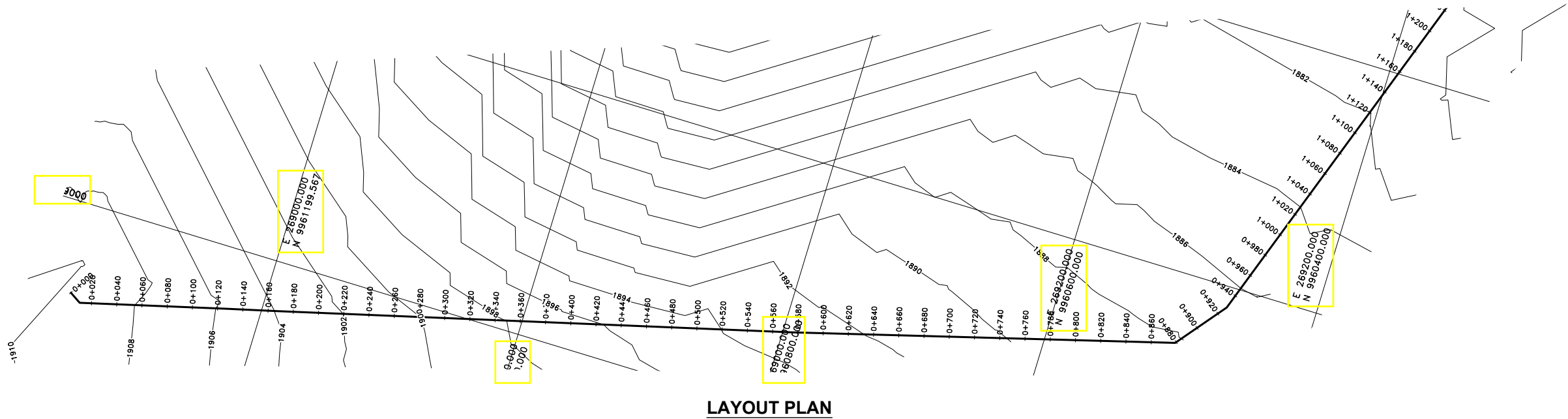
CH. 1+200.00 - 2+315.00
SHEET 2 OF 2

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No.	KAM/MN2/02

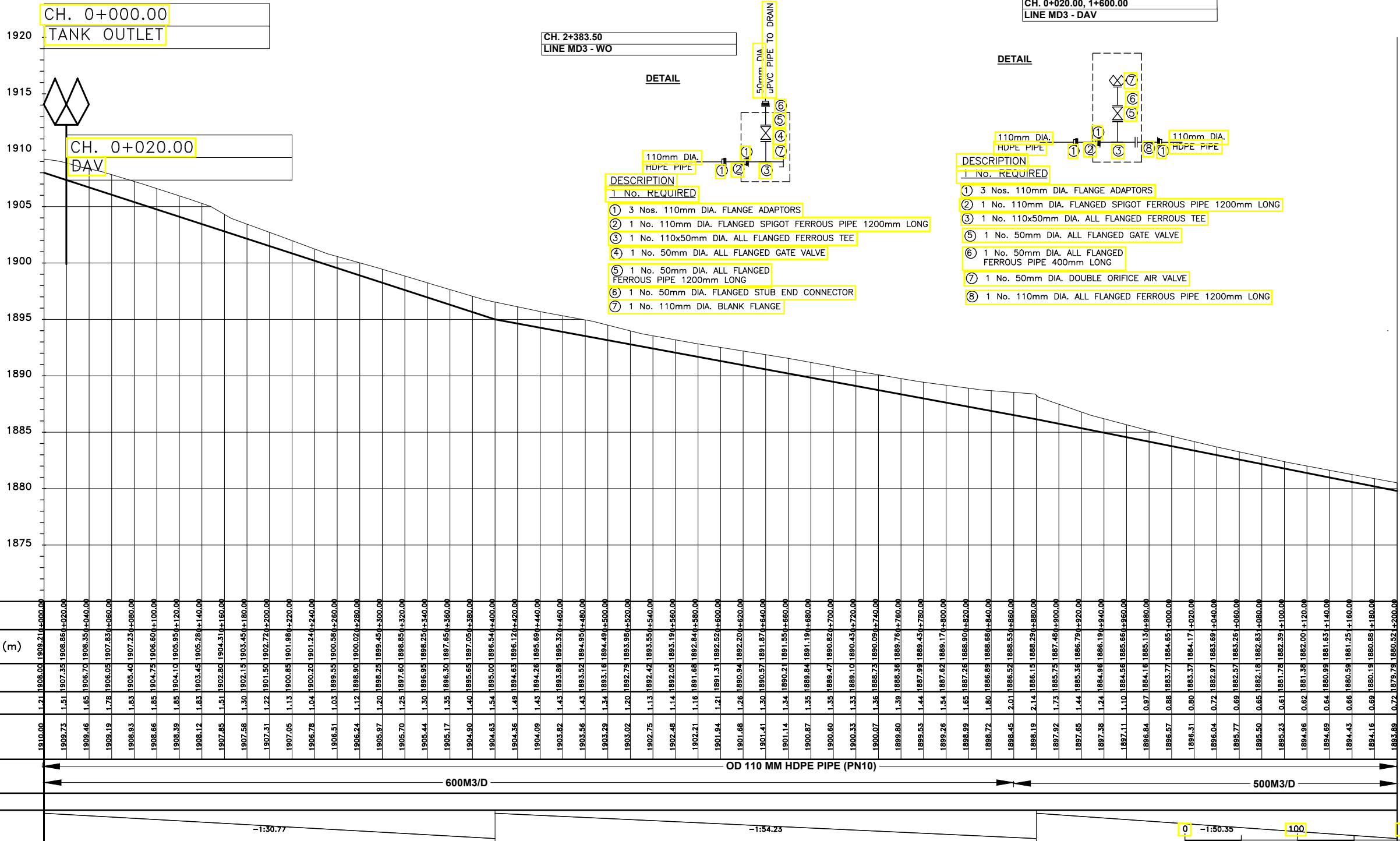
- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:

- PROPOSED TREATED WATER GRAVITY MAIN
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- DAV. DOUBLE ORIFICE AIR VALVE
- GV GATE VALVE
- SV SECTIONAL VALVE
- WO WASHOUT
- SAV SINGLE ORIFICE AIR VALVE
- WM WATER METER
- PROPOSED MASONRY CHAMBER
- 11 DIRECTION (SLOPE MIN. OR 1 IN n)



LAYOUT PLAN



LONGITUDINAL SECTION

CLIENT: **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

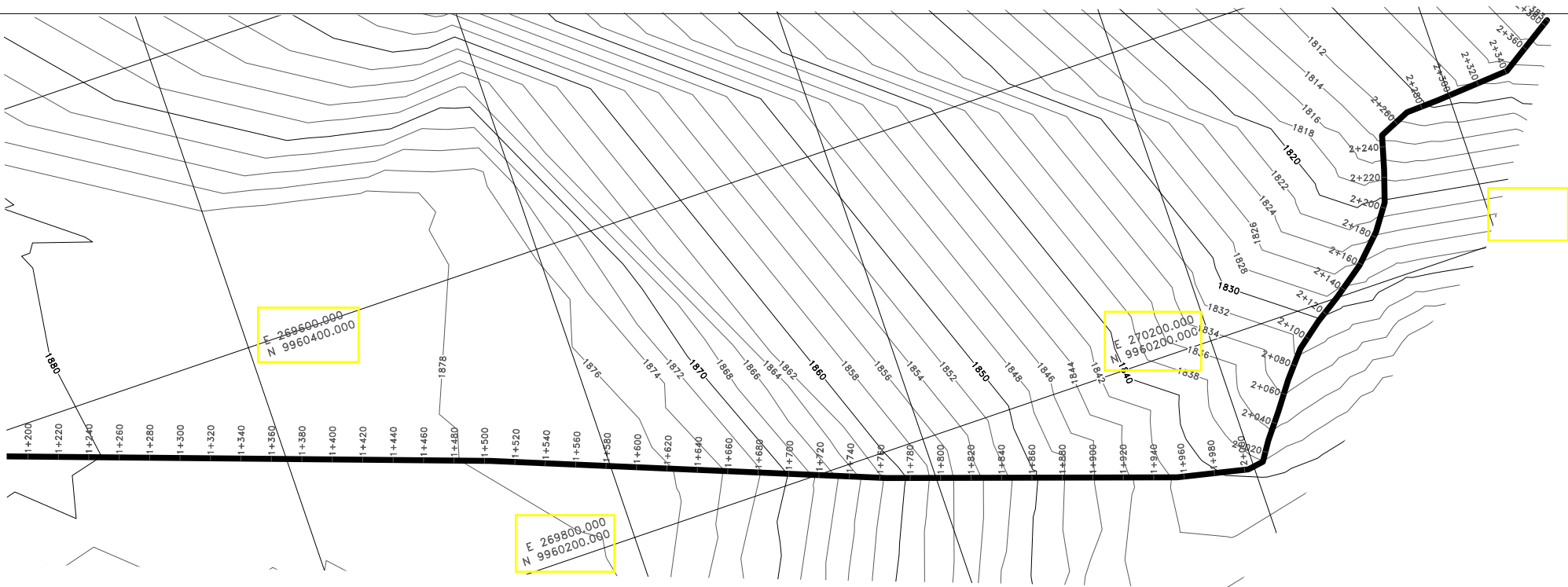
ENGINEER: **CHIEF MANAGER TECHNICAL SERVICES**
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF KAMATONGU WATER PROJECT

DRAWING TITLE:
MAIN DISTRIBUTION LINE 3

CH. 0+000.00 - 1+200.00
SHEET 1 OF 2

Designed by: D.V.N. Drawn by: A.M.M.
Checked by: J.M.M. Approved by: D.N.M.
Scale: H: 1:4000, V: 1:400 Date: OCT 2022
DRG No. **KAM/MND3/01**

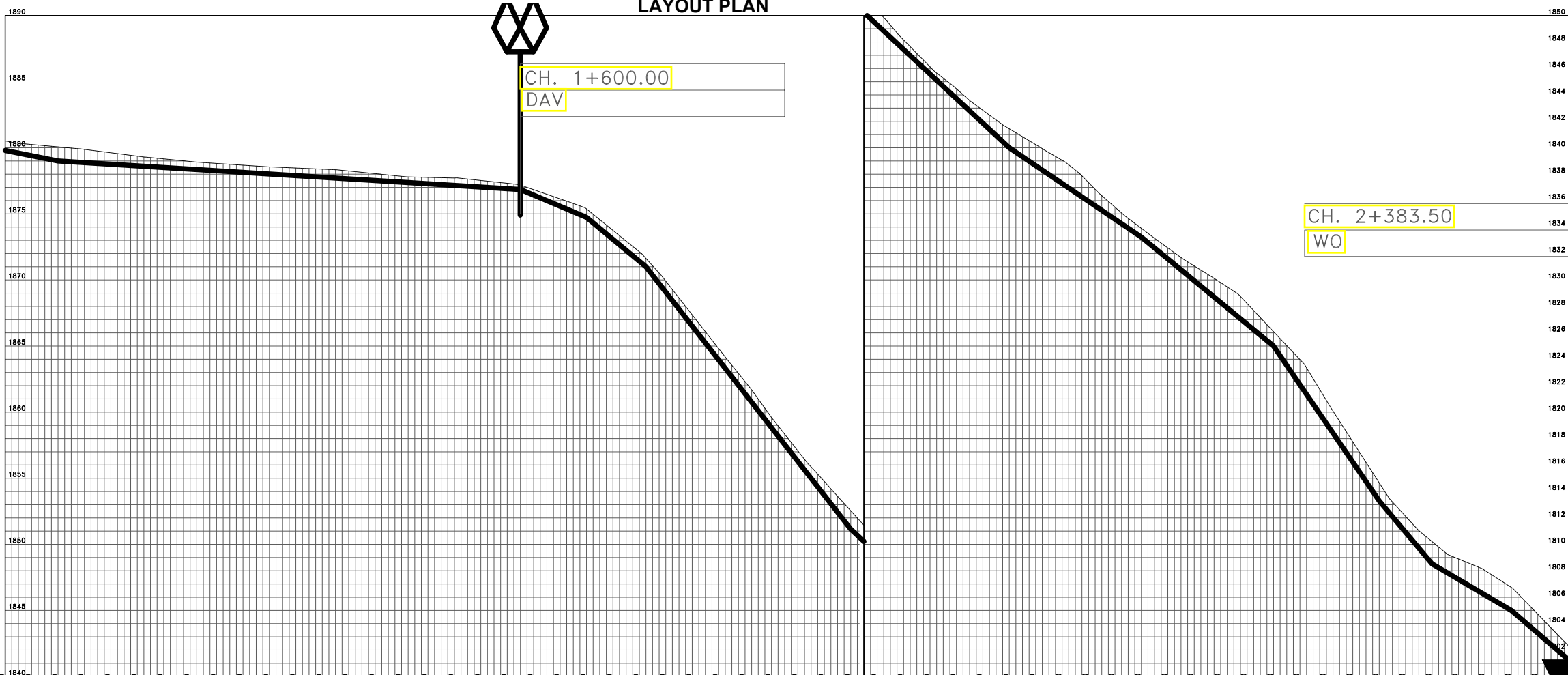


- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

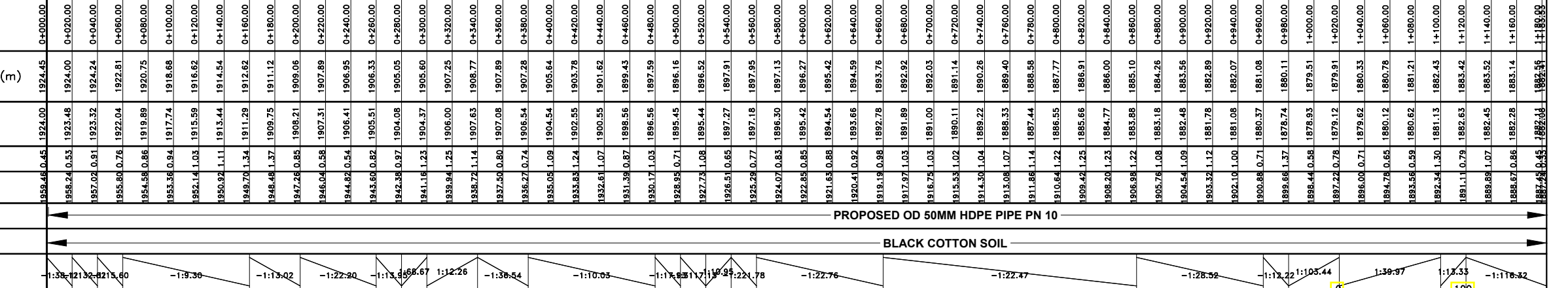
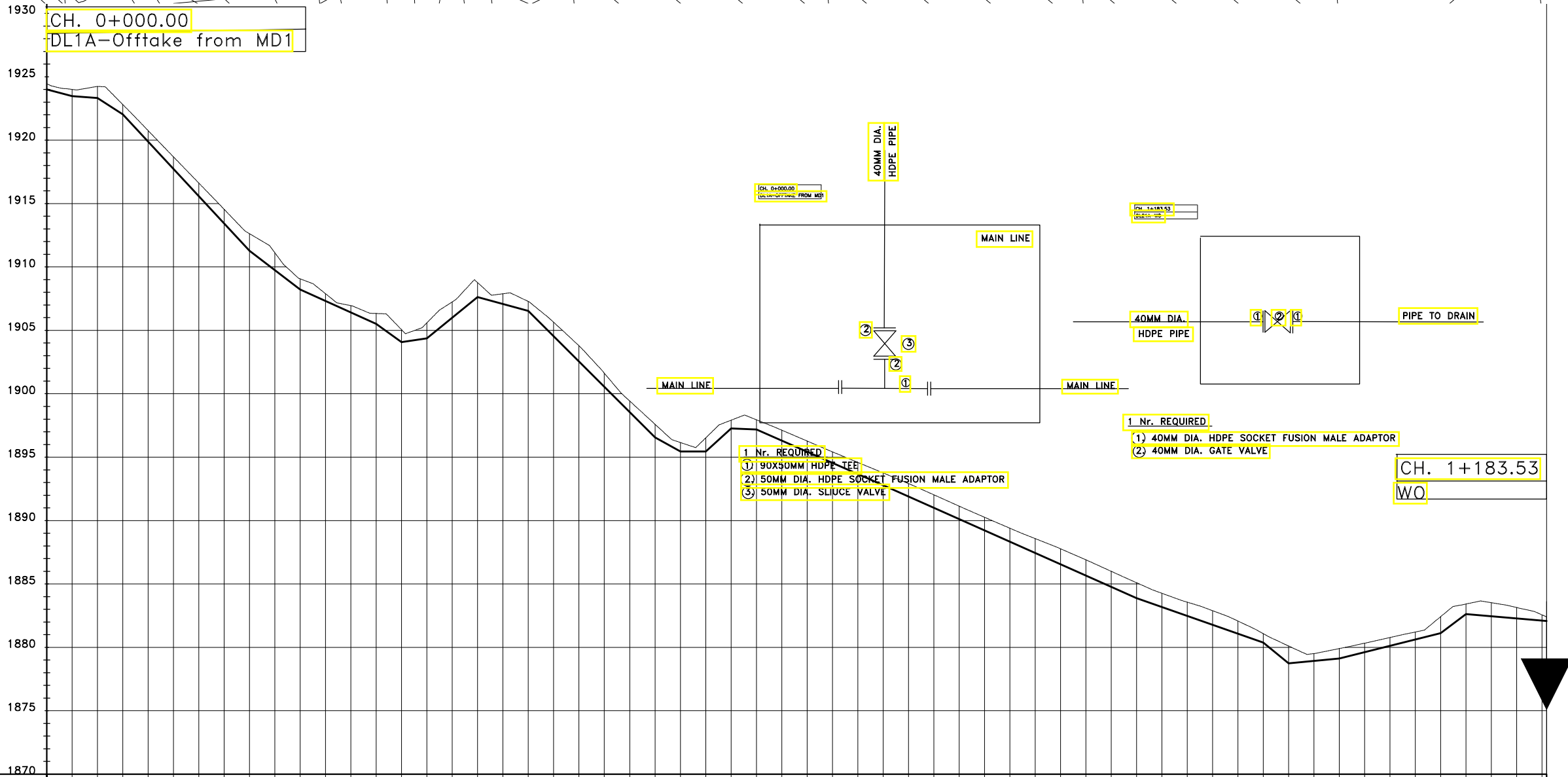
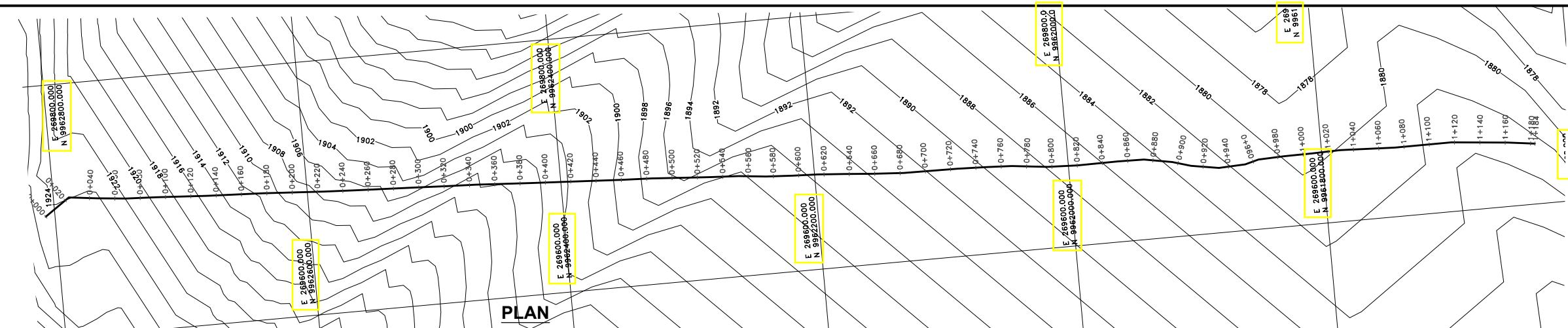
LEGEND:

- PROPOSED TREATED WATER GRAVITY MAIN
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- DOUBLE ORIFICE AIRVALVE
- GATE VALVE
- SECTIONAL VALVE
- WASHOUT
- SINGLE ORIFICE AIR VALVE
- WATER METER
- PROPOSED MASONRY CHAMBER
- DIRECTION (SLOPE MIN. OR 1 IN n)

LAYOUT PLAN



DISTANCE IN KILOMETERS																																													
EXISTING GROUND LEVEL (m)	1893.89	0.72	1879.78	1880.52	+200.00																								1893.89	0.72	1879.78	1880.52	+200.00												
INVERT LEVELS (m)	1893.92	0.85	1879.40	1880.25	+220.00																								1893.92	0.85	1879.40	1880.25	+220.00												
DEPTH OF INVERT (m)	1893.35	1.07	1879.00	1880.07	+240.00																								1893.35	1.07	1879.00	1880.07	+240.00												
HGL (m)	1893.08	1.00	1878.88	1879.88	+260.00																								1893.08	1.00	1878.88	1879.88	+260.00												
DATUM (m)	1892.82	0.87	1878.75	1879.62	+280.00																								1892.82	0.87	1878.75	1879.62	+280.00												
TYPE OF PIPE AND SIZE	1892.55	0.74	1878.63	1879.37	+300.00																								1892.55	0.74	1878.63	1879.37	+300.00												
FLOW PARAMETERS	1892.28	0.65	1878.51	1879.16	+320.00																								1892.28	0.65	1878.51	1879.16	+320.00												
GEOLOGICAL CONDITION	1892.01	0.58	1878.38	1878.96	+340.00																								1892.01	0.58	1878.38	1878.96	+340.00												
SLOPE OF PIPE (H/V)	1891.74	0.56	1878.26	1878.81	+360.00																								1891.74	0.56	1878.26	1878.81	+360.00												
	1891.47	0.55	1878.14	1878.68	+380.00																								1891.47	0.55	1878.14	1878.68	+380.00												
	1891.20	0.54	1878.01	1878.55	+400.00																								1891.20	0.54	1878.01	1878.55	+400.00												
	1890.94	0.58	1877.88	1878.47	+420.00																								1890.94	0.58	1877.88	1878.47	+420.00												
	1890.67	0.52	1877.77	1878.38	+440.00																								1890.67	0.52	1877.77	1878.38	+440.00												
	1890.40	0.60	1877.64	1878.24	+460.00																								1890.40	0.60	1877.64	1878.24	+460.00												
	1890.13	0.52	1877.52	1878.04	+480.00																								1890.13	0.52	1877.52	1878.04	+480.00												
	1889.86	0.44	1877.40	1877.84	+500.00																								1889.86	0.44	1877.40	1877.84	+500.00												
	1889.59	0.49	1877.27	1877.76	+520.00																								1889.59	0.49	1877.27	1877.76	+520.00												
	1889.32	0.56	1877.15	1877.71	+540.00																								1889.32	0.56	1877.15	1877.71	+540.00												
	1889.06	0.50	1877.03	1877.52	+560.00																								1889.06	0.50	1877.03	1877.52	+560.00												
	1888.79	0.41	1876.90	1877.31	+580.00																								1888.79	0.41	1876.90	1877.31	+580.00												
	1888.52	0.41	1876.42	1876.83	+600.00																								1888.52	0.41	1876.42	1876.83	+600.00												
	1888.25	0.56	1875.58	1876.13	+620.00																								1888.25	0.56	1875.58	1876.13	+620.00												
	1887.98	0.64	1874.73	1875.37	+640.00																								1887.98	0.64	1874.73	1875.37	+640.00												
	1887.71	0.68	1873.07	1873.75	+660.00																								1887.71	0.68	1873.07	1873.75	+660.00												
	1887.44	0.71	1871.41	1872.13	+680.00																								1887.44	0.71	1871.41	1872.13	+680.00												
	1887.18	0.83	1869.08	1869.91	+700.00																								1887.18	0.83	1869.08	1869.91	+700.00												
	1886.91	0.84	1866.52	1867.36	+720.00																								1886.91	0.84	1866.52	1867.36	+720.00												
	1886.64	0.85	1863.96	1864.81	+740.00																								1886.64	0.85	1863.96	1864.81	+740.00												
	1886.37	0.92	1861.39	1862.31	+760.00																								1886.37	0.92	1861.39	1862.31	+760.00												
	1886.10	0.77	1858.83	1859.60	+780.00																								1886.10	0.77	1858.83	1859.60	+780.00												
	1885.83	0.79	1856.27	1857.07	+800.00																								1885.83	0.79	1856.27	1857.07	+800.00												
	1885.57	1.05	1853.71	1854.76	+820.00																								1885.57	1.05	1853.71	1854.76	+820.00												
	1885.30	1.39	1851.15	1852.54	+840.00																								1885.30	1.39	1851.15	1852.54	+840.00												
	1885.03	1.08	1849.29	1850.37	+860.00																								1885.03	1.08	1849.29	1850.37	+860.00												
	1884.76	0.72	1847.43	1848.15	+880.00																								1884.76	0.72	1847.43	1848.15	+880.00												
	1884.49	0.55	1845.57	1846.13	+900.00																								1884.49	0.55	1845.57	1846.13	+900.00												
	1884.22	0.74	1843.72	1844.46	+920.00																								1884.22	0.74	1843.72	1844.46	+920.00												
	1883.95	0.98	1841.86	1842.84	+940.00																								1883.95	0.98	1841.86	1842.84	+940.00												
	1883.69	1.44	1840.00	1841.44	+960.00																								1883.69	1.44	1840.00	1841.44	+960.00												
	1883.42	1.59	1838.05	1840.24	+980.00																								1883.42	1.59	1838.05	1840.24	+980.00												
	1883.15	1.76	1837.30	1839.06	+1000.00																								1883.15	1.76	1837.30	1839.06	+1000.00												
	1882.88	1.42	1835.94	1837.36	+1020.00																								1882.88	1.42	1835.94	1837.36	+1020.00												
	1882.61	0.92	1834.59	1835.51	+1040.00																								1882.61	0.92	1834.59	1835.51	+1040.00												
	1882.34	0.66	1833.24	1833.90	+1060.00																								1882.34	0.66	1833.24	1833.90	+1060.00												
	1882.07	0.83	1831.59	1832.42	+1080.00																								1882.07	0.83	1831.59	1832.42	+1080.00												
	1881.81	1.11	1829.94	1831.06	+1100.00																								1881.81	1.11	1829.94	1831.06	+1100.00												
	1881.54	1.50	1828.30	1829.80	+1120.00																								1881.54	1.50	1828.30	1829.80	+1120.00												
	1881.27	1.57	1826.65	1828.21	+1140.00																								1881.27	1.57	1826.65	1828.21	+1140.00												
	1881.00	1.09	1825.00	1826.09	+1160.00																								1881.00	1.09	1825.00	1826.09	+1160.00												
	1880.73	1.91	1822.07	1823.98	+1180.00																								1880.73	1.91	1822.07	1823.98	+1180.00												
	1880.46	1.74	1819.15	1820.89	+1200.00																								1880.46	1.74	1819.15	1820.89	+1200.00												
	1880.20	1.54	1816.22	1817.76	+1220.00																								1880.20	1.54	1816.22	1817.76	+1220.00												
	1879.93	1.36	1813.29	1814.65	+1240.00																								1879.93	1.36	1813.29	1814.65	+1240.00												
	1879.66	1.21	1810.91	1812.12	+1260.00																								1879.66	1.21	1810.91	1812.12	+1260.00												
	1879.39	1.68	1808.52	1810.21	+1280.00																								1879.39	1.68	1808.52	1810.21	+1280.00												
	1879.12	1.55	1807.35	1808.90	+1300.00																								1879.12	1.55	1807.35	1808.90	+1300.00												
	1878.85	1.85	1806.17	1808.03	+1320.00																								1878.85	1.85	1806.17	1808.03	+1320.00												
	1878.58	1.74	1805.00	1806.74	+1340.00																								1878.58	1.74	1805.00	1806.74	+1340.00												
	1878.32	1.44	1803.28	1804.72	+1360.00																								1878.32	1.44	1803.28	1804.72	+1360.00												
	1878.05	1.10	1801.56	1802.66	+1380.00																								1878.05	1.10	1801.56	1802.66	+1380.00												



- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

- LEGEND:**
- | | |
|-----------|-------------------------------|
| - - - - - | ROAD (TARMAC) |
| - - - - - | ROAD / TRACK (EARTH / MURRAM) |
| = = = = = | FENCE / HEDGE |
| — 1480 — | CONTOURS |

- 
- PROPOSED WATER LINE

- | | |
|--------|-----------------------|
| V.J. | VIKING JOHNSON |
| GV | GATE VALVE |
| SV-01 | SECTIONAL VALVE & No. |
| WO-01 | WASHOUT VALVE & No. |
| SAV-01 | AIR VALVE & No. |

-
- PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION				
	REVISIONS	SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT: **THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY**
P.O BOX 1292 - 10100,
NYERI, KENYA



ENGINEERS

CHIEF MANAGER TECHNICAL SERVICES

TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100,
NYERI, KENYA

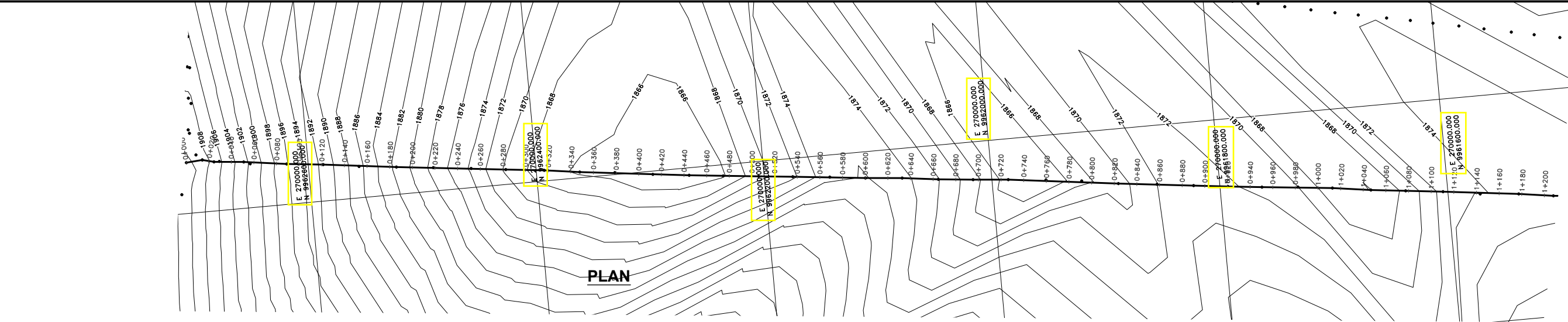
PROJECT TITLE:

**REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT**

DRAWING TITLE:
DISTRIBUTION LINE 1A
PLAN & LONGITUDINAL SECTION

CH. 0+000.00 - 1+183.53
SHEET 1 OF 1

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No.	KAM/DL1A/01



- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS

PROPOSED WATER LINE

V.J. VIKING JOHNSON
GV GATE VALVE
SV-01 SECTIONAL VALVE & No.
WO-01 WASHOUT VALVE & No.
SAV-01 AIR VALVE & No.

PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION				
REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT: **THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY**
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEERS: **CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY**
P.O BOX 1292 - 10100,
NYERI, KENYA

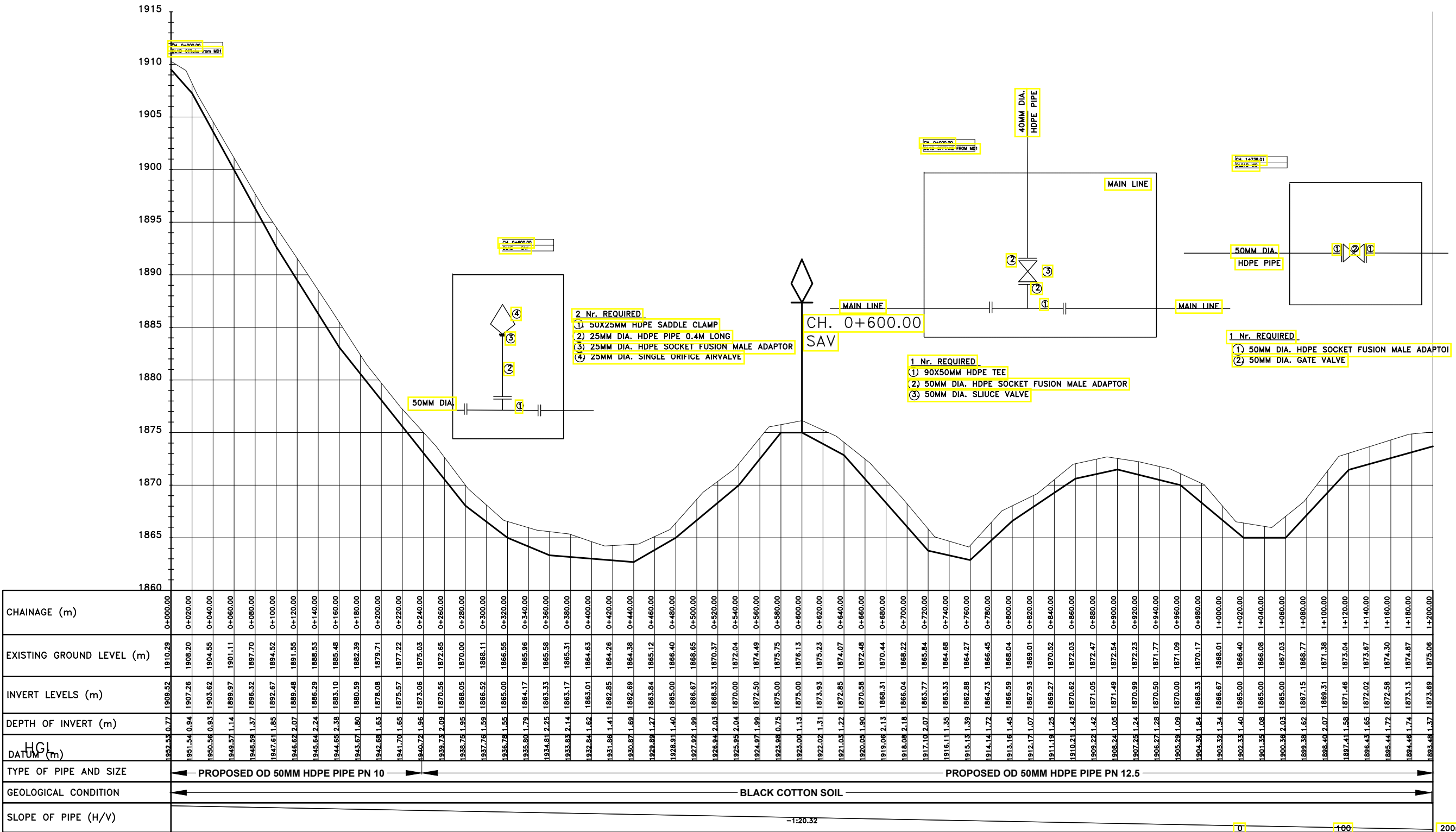
PROJECT TITLE: **REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT**

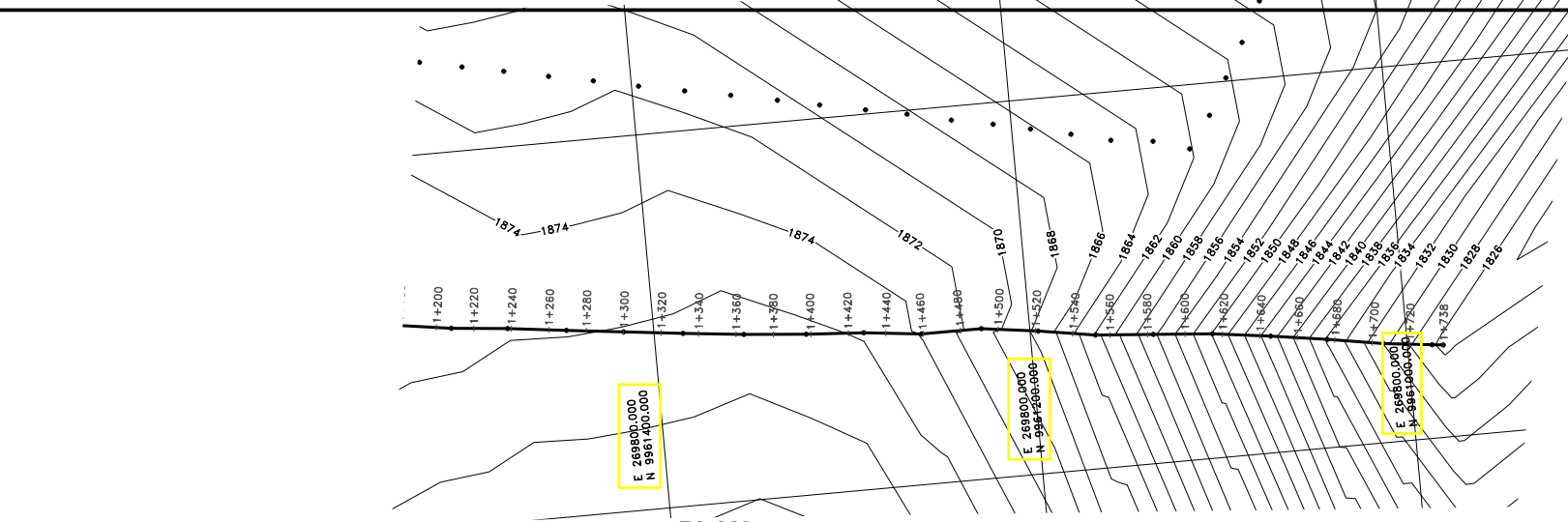
DRAWING TITLE: **DISTRIBUTION LINE 1B
PLAN & LONGITUDINAL SECTION**

CH. 0+000.00 - 1+200.00
SHEET 1 OF 2

Designed by: D.N.W
Checked by: J.M.M
Scale: H: 1:4000, V: 1:400
DRG No. **KAM/DL1B/01**

Drawn by: A.M.M
Approved by: D.N.M
Date: OCT 2022



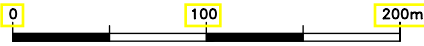


PLAN



CHAINAGE (m)	1+200.00	1+220.00	1+240.00	1+260.00	1+280.00	1+300.00	1+320.00	1+340.00	1+360.00	1+380.00	1+400.00	1+420.00	1+440.00	1+460.00	1+480.00	1+500.00	1+520.00	1+540.00	1+560.00	1+580.00	1+600.00	1+620.00	1+640.00	1+660.00	1+680.00	1+700.00	1+720.00	1+738.01
EXISTING GROUND LEVEL (m)	1875.06	1875.39	1875.77	1875.84	1875.95	1876.09	1876.28	1876.51	1876.81	1876.64	1876.33	1875.98	1875.09	1873.82	1872.22	1870.23	1867.74	1864.55	1861.00	1857.01	1852.90	1848.66	1844.12	1839.49	1834.98	1831.13	1827.95	1825.55
INVERT LEVELS (m)	1873.69	1874.25	1874.37	1874.50	1874.62	1874.75	1874.87	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00	1875.00
DEPTH OF INVERT (m)	1.37	1.14	1.40	1.34	1.33	1.34	1.40	1.51	1.81	1.64	1.33	0.98	0.58	0.16	0.48	1.39	0.81	0.36	0.55	0.69	0.32	0.78	1.03	1.28	1.43	1.22	0.81	0.54
DATUM ^{HGL} (m)	1893.46	1892.49	1891.51	1890.52	1889.54	1888.55	1887.57	1886.59	1885.60	1884.62	1883.63	1882.65	1881.67	1880.68	1879.70	1878.71	1877.73	1876.74	1875.76	1874.78	1873.79	1872.81	1871.82	1870.84	1869.85	1868.87	1867.89	1867.00
TYPE OF PIPE AND SIZE	PROPOSED OD 50MM HDPE PIPE PN 12.5															PROPOSED OD 50MM HDPE PIPE PN 16												
GEOLOGICAL CONDITION	BLACK COTTON SOIL																											
SLOPE OF PIPE (H/V)	-1:20.32																											

LONGITUDINAL SECTION



- NOTES:**
- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 - GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS

PROPOSED WATER LINE

V.J. VIKING JOHNSON

GV GATE VALVE

SV-01 SECTIONAL VALVE & No.

WO-01 WASHOUT VALVE & No.

SAV-01 AIR VALVE & No.

PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

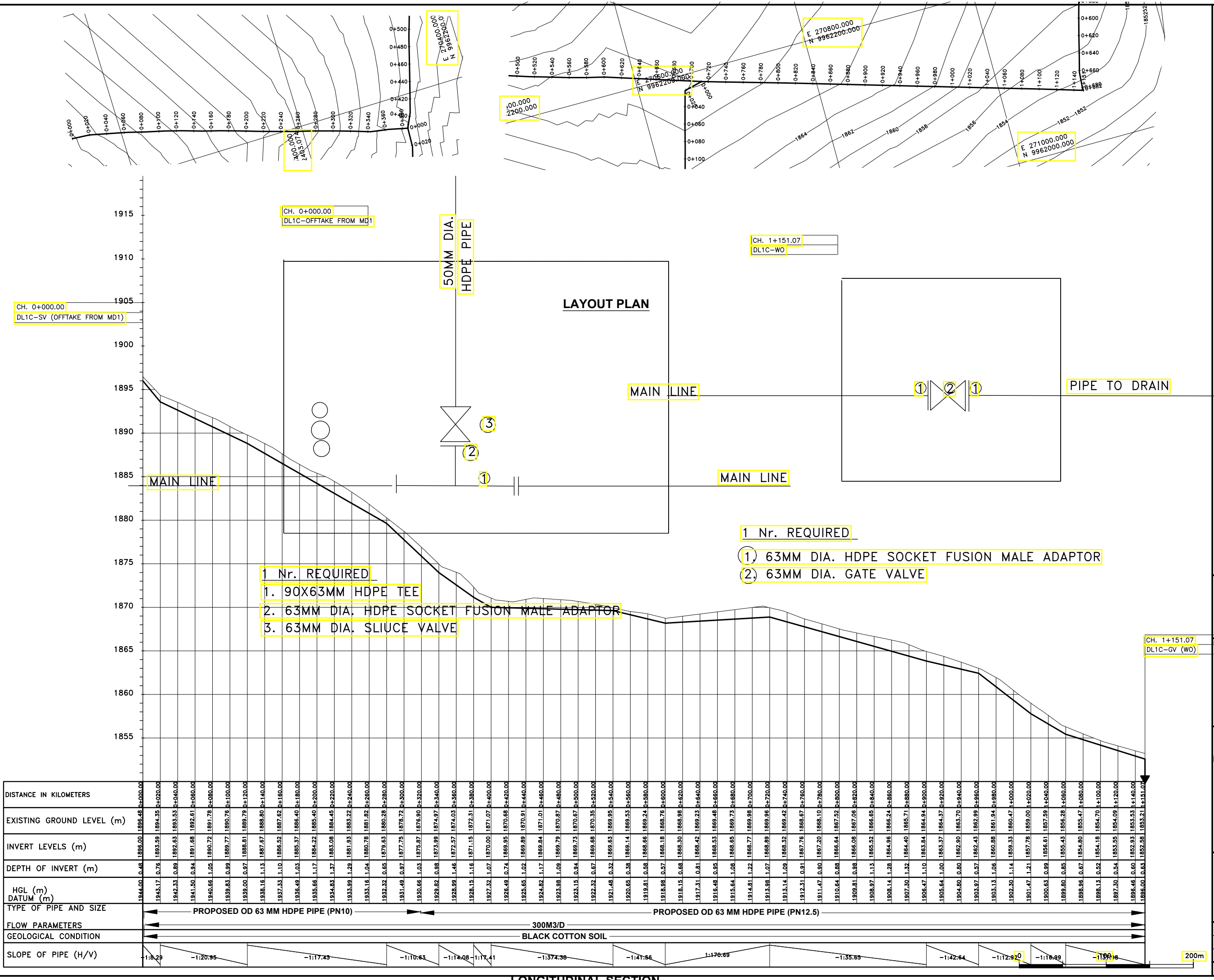
ENGINEERS: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
**REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT**

DRAWING TITLE:
**DISTRIBUTION LINE 1B
PLAN & LONGITUDINAL SECTION**

**CH. 1+200.00 - 1+738.01
SHEET 1 OF 2**

Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022
DRG No. KAM/DL1B/02	



NOTES:

1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:

- PROPOSED TREATED WATER GRAVITY MAIN
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- DOUBLE ORIFICE AIRVALVE
- GATE VALVE
- SECTIONAL VALVE
- WASHOUT
- SINGLE ORIFICE AIR VALVE
- WATER METER
- PROPOSED MASONRY CHAMBER
- DIRECTION (SLOPE MIN. OR 1 IN n)

CLIENT:

THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEER:

CHIEF MANAGER TECHNICAL SERVICES,
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

REHABILITATION AND AUGMENTATION OF KAMATONGU WATER PROJECT

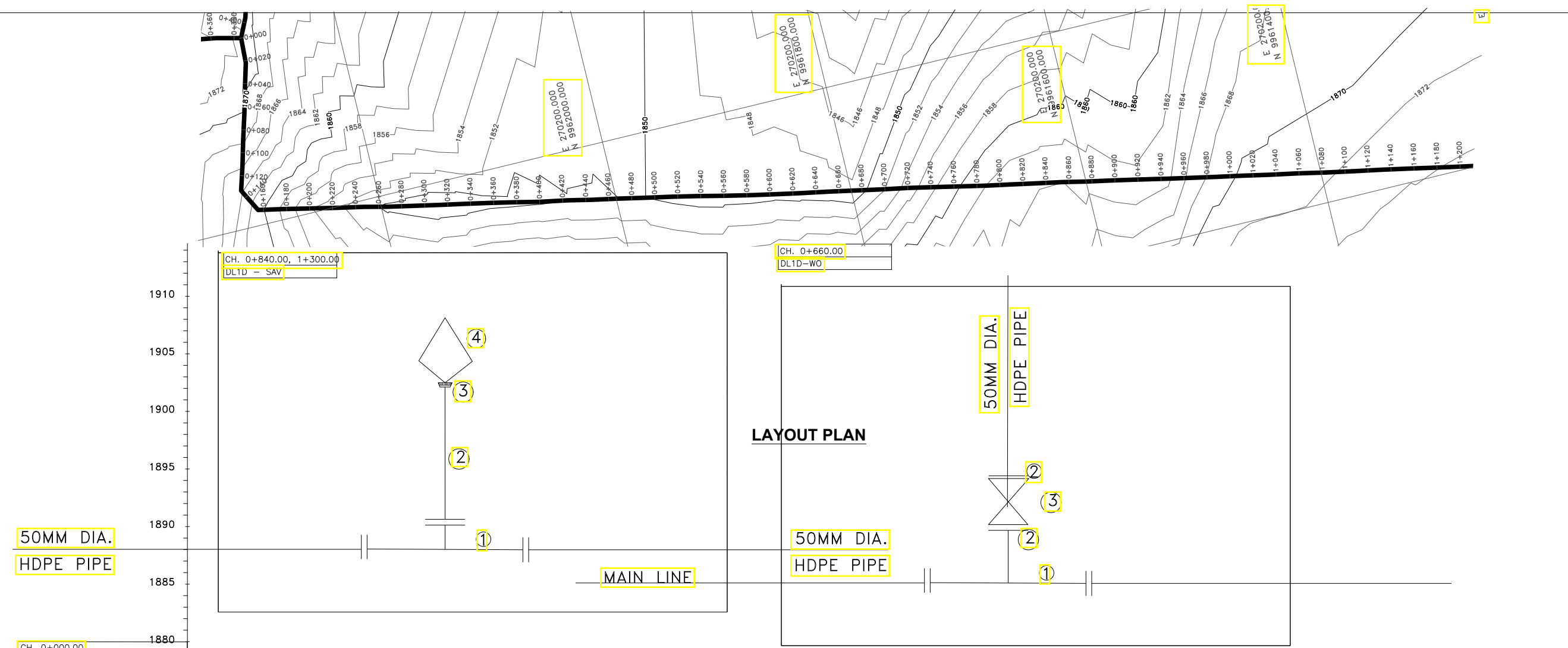
DRAWING TITLE:

DISTRIBUTION LINE 1C
PLAN AND PROFILE

CH. 0+000.00 - 1+200.00
SHEET 1 OF 1

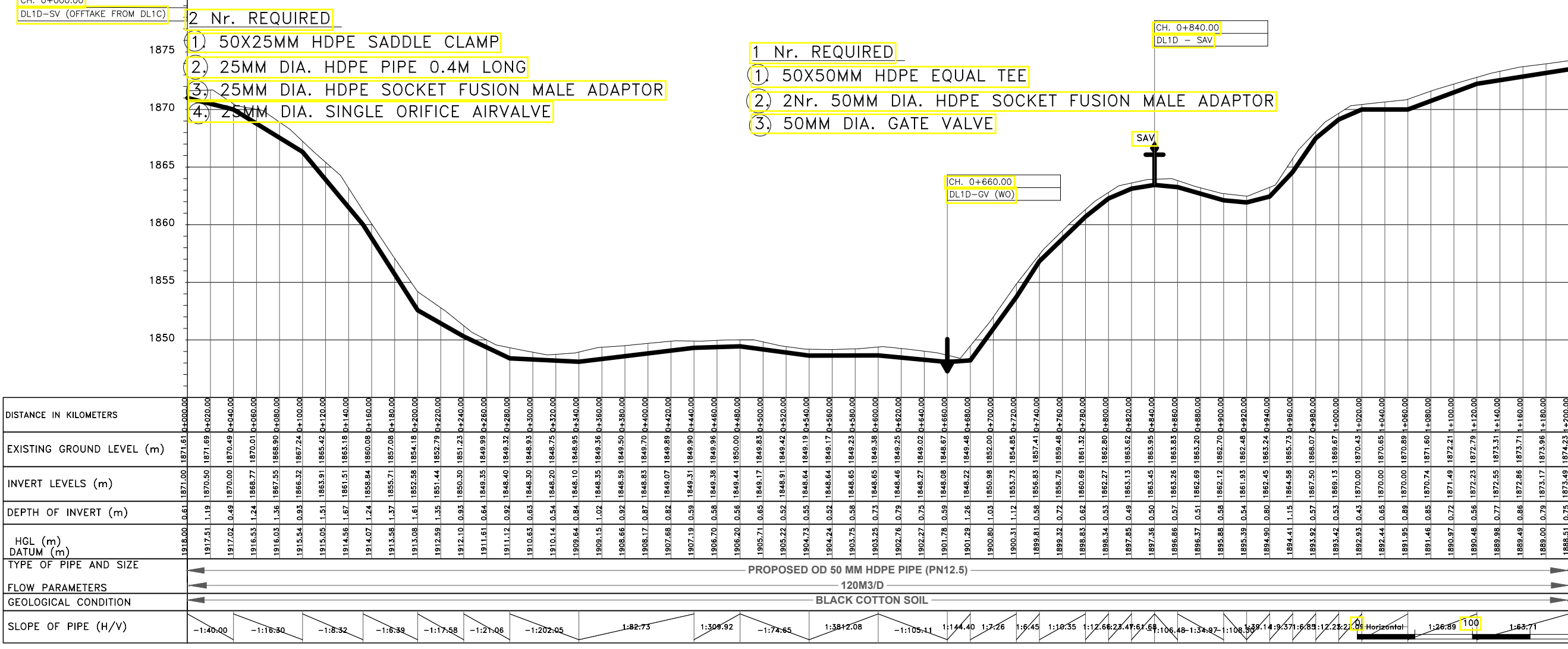
Designed by: D.W.N	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H: 1:4000, V: 1:400	Date: OCT 2022

DRG No. KAM/DIST1C/01



- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

- LEGEND:**
- PROPOSED TREATED WATER GRAVITY MAIN
 - HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
 - DOUBLE ORIFICE AIRVALVE
 - GATE VALVE
 - SECTIONAL VALVE
 - WASHOUT
 - SINGLE ORIFICE AIR VALVE
 - WATER METER
 - PROPOSED MASONRY CHAMBER
 - DIRECTION (SLOPE MIN. OR 1 IN n)



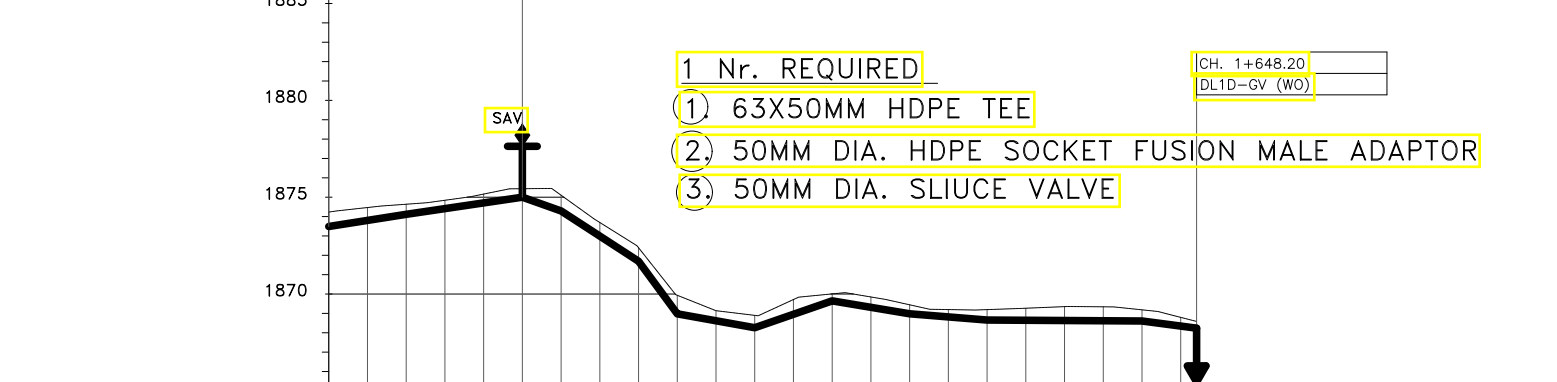
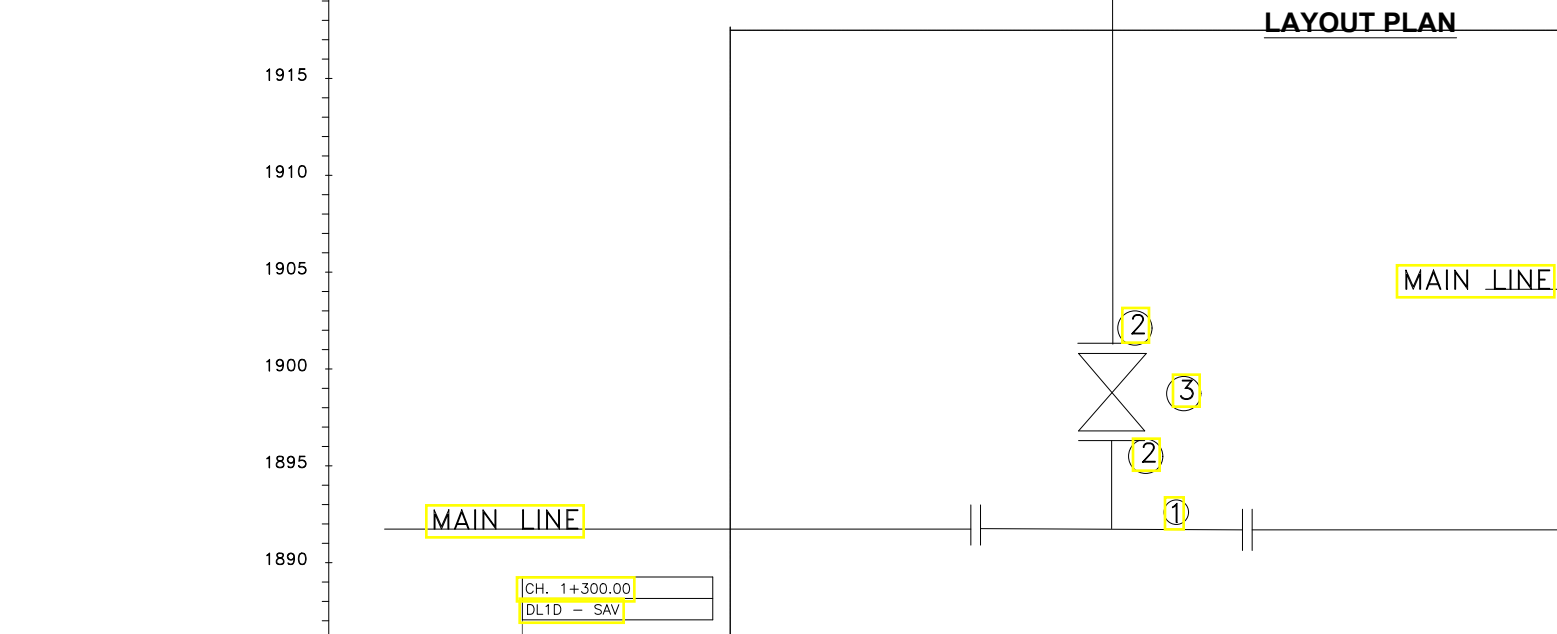
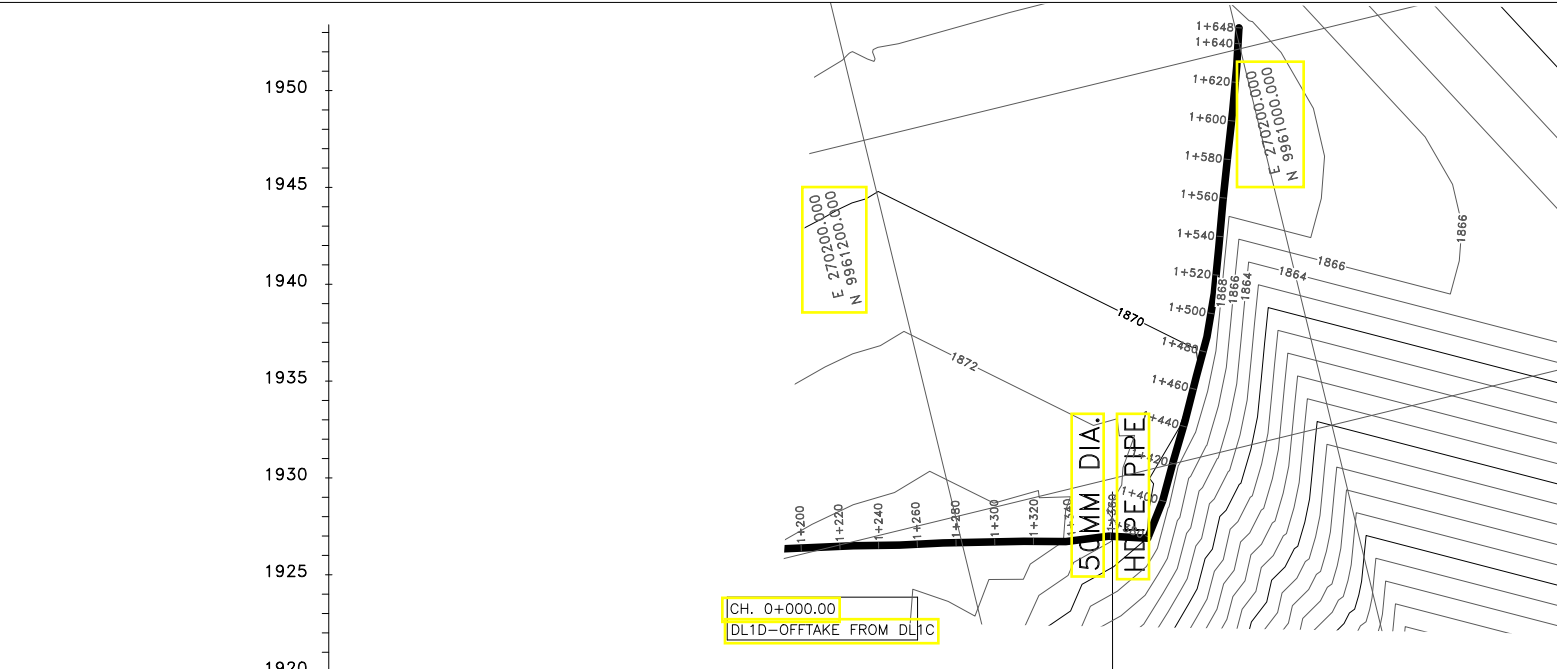
CLIENT: **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEER: **CHIEF MANAGER TECHNICAL SERVICES,**
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF KAMATONGU WATER PROJECT

DRAWING TITLE:
DISTRIBUTION LINE 1D PLAN AND PROFILE
CH. 0+000.00 - 1+200.00
SHEET 1 OF 2

Designed by: D.W.N | Drawn by: A.M.M
Checked by: J.M.M | Approved by: D.N.M
Scale: H- 1:4000, V- 1:400 | Date: OCT 2022
DRG No. **KAM/DIST1D/01**



DISTANCE IN KILOMETERS																								
EXISTING GROUND LEVEL (m)																								
INVERT LEVELS (m)																								
DEPTH OF INVERT (m)																								
HGL (m)																								
DATUM (m)																								
TYPE OF PIPE AND SIZE	PROPOSED OD 50 MM HDPE PIPE (PN12.5)																							
FLOW PARAMETERS	120M3/D																							
GEOLOGICAL CONDITION	BLACK COTTON SOIL																							
SLOPE OF PIPE (H/V)																								

LONGITUDINAL SECTION

CH. 1+648.20
DL1D-WO

1 Nr. REQUIRED

- 1) 50MM DIA. HDPE SOCKET FUSION MALE ADAPTOR
- 2) 50MM DIA. GATE VALVE

LAYOUT PLAN

MAIN LINE

MAIN LINE

PIPE TO DRAIN

- NOTES:
- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 - GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 - FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:

- PROPOSED TREATED WATER GRAVITY MAIN
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- DOUBLE ORIFICE AIRVALVE
- GATE VALVE
- SECTIONAL VALVE
- WASHOUT
- SINGLE ORIFICE AIR VALVE
- WATER METER
- PROPOSED MASONRY CHAMBER
- DIRECTION (SLOPE MIN. OR 1 IN n)

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEER: CHIEF MANAGER TECHNICAL SERVICES,
TANA WATER WORKS DEVELOPMENT
AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT

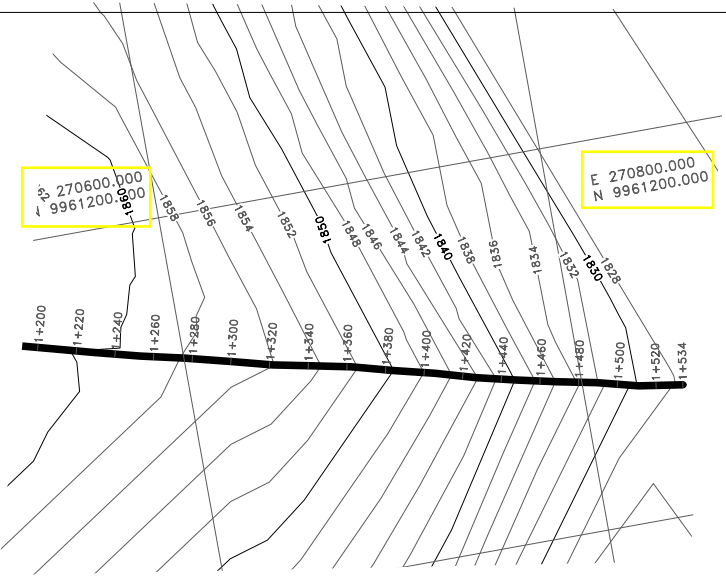
DRAWING TITLE:
DISTRIBUTION LINE 1D
PLAN AND PROFILE
CH. 1+200.00 - 1+648.20
SHEET 2 OF 2
Designed by: D.W.N Drawn by: A.M.M
Checked by: J.M.M Approved by: D.N.M
Scale: H- 1:4000, V- 1:400 Date: OCT 2022
DRG No. KAM/DIST1D/02



- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:

- PROPOSED TREATED WATER GRAVITY MAIN
- 30° HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- DAV. DOUBLE ORIFICE AIRVALVE
- GV GATE VALVE
- SV SECTIONAL VALVE
- WO WASHOUT
- SAV SINGLE ORIFICE AIR VALVE
- WM WATER METER
- PROPOSED MASONRY CHAMBER
- 11 DIRECTION (SLOPE MIN. OR 1 IN n)



LAYOUT PLAN

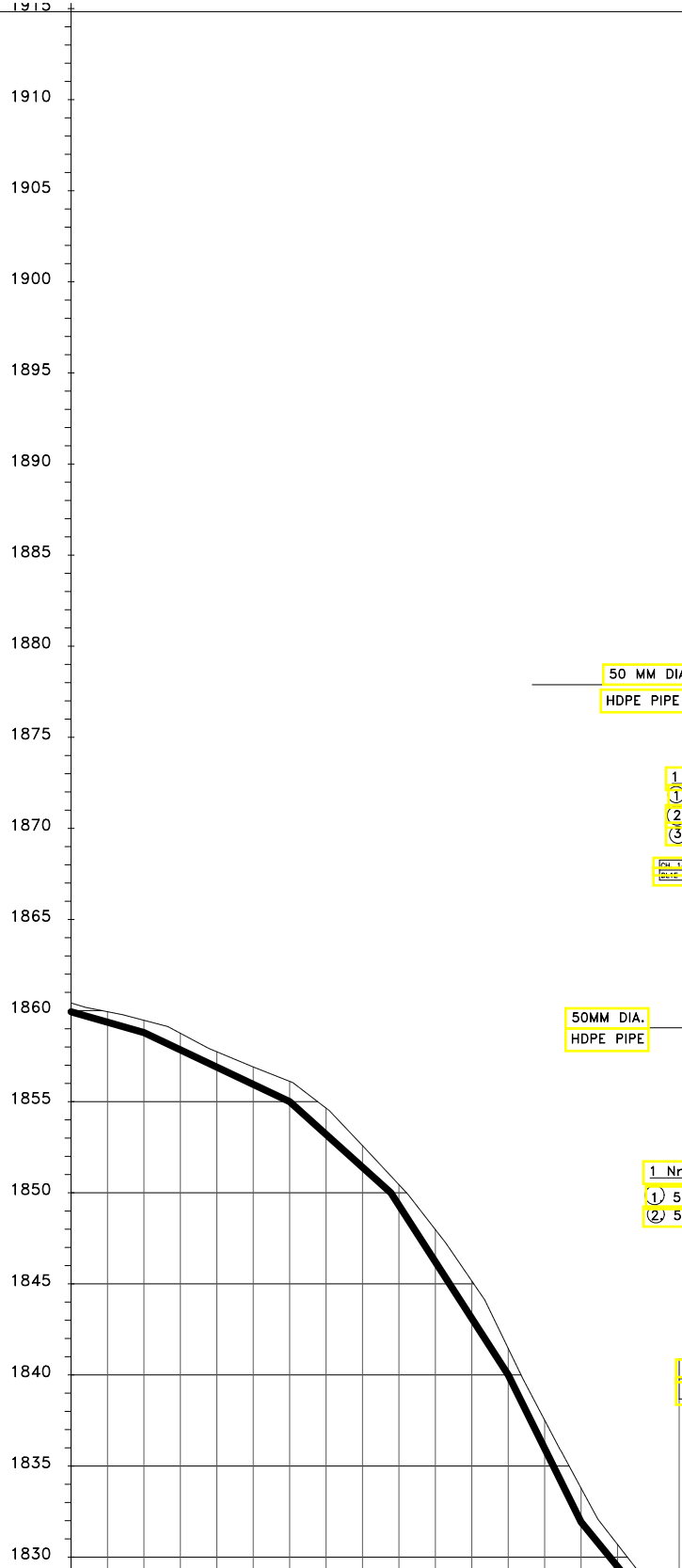
CLIENT: **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEER: **CHIEF MANAGER TECHNICAL SERVICES,**
TANA WATER WORKS DEVELOPMENT
AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

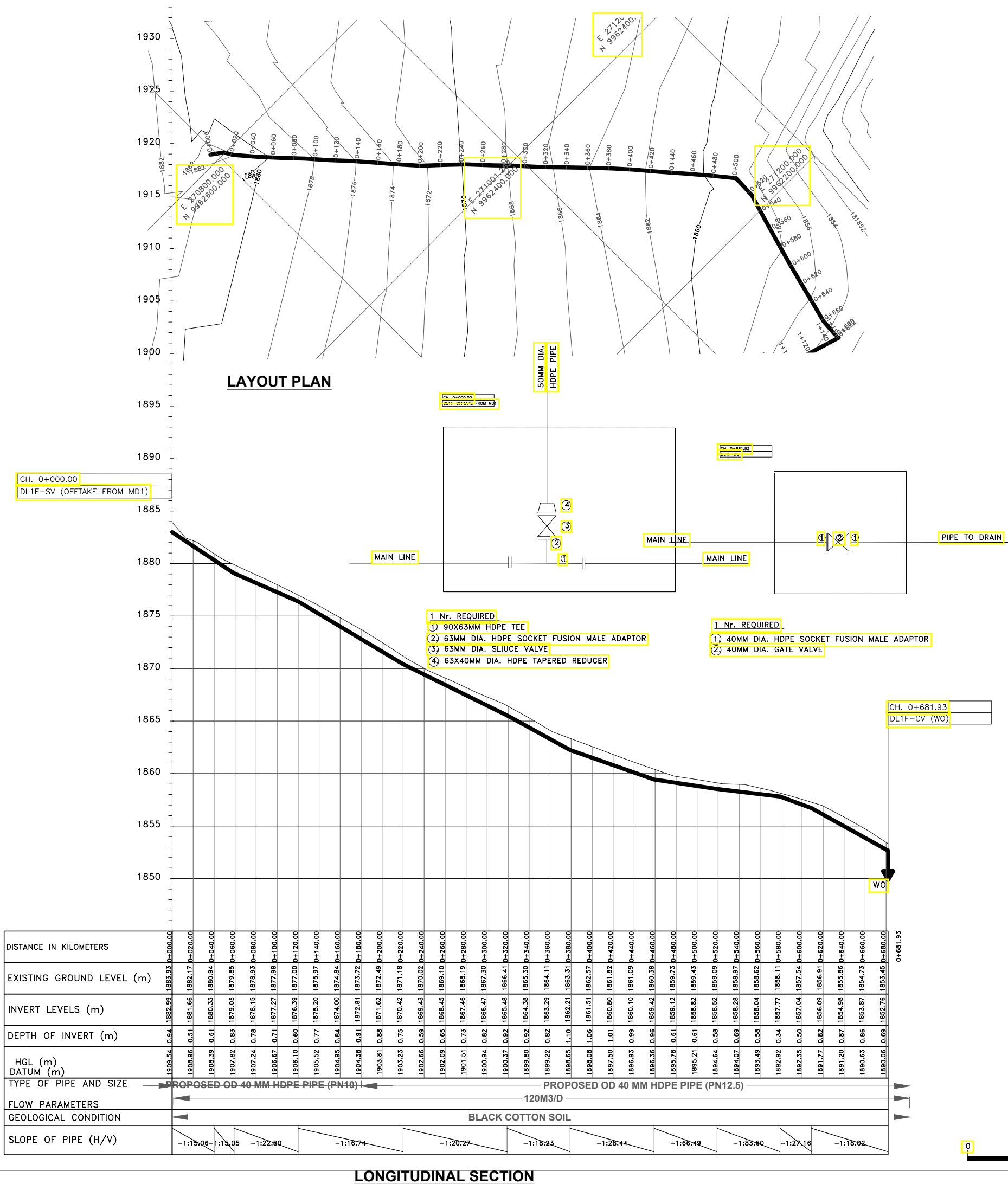
PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF
KAMATONGU WATER PROJECT

DRAWING TITLE:
DISTRIBUTION LINE 1E
PLAN AND PROFILE
CH. 1+200.00 - 1+533.86
SHEET 2 OF 2

Designed by: D.W.N Drawn by: A.M.M
Checked by: J.M.M Approved by: D.N.M
Scale: H- 1:4000, V- 1:400 Date: OCT 2022
DRG No. **KAM/DIST1E/02**



DISTANCE IN KILOMETERS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY
 4. FOR FITTING DETAILS SEE DRG. NO. MWSP/TWKU/07

LEGEND:

- PROPOSED TREATED WATER GRAVITY MAIN
- HORIZONTAL BEND (H) OR VERTICAL BEND (V) WITH ANGLE INDICATED
- DOUBLE ORIFICE AIRVALVE
- GATE VALVE
- SECTIONAL VALVE
- WASHOUT
- SINGLE ORIFICE AIR VALVE
- WATER METER
- PROPOSED MASONRY CHAMBER
- DIRECTION (SLOPE MIN. OR 1 IN n)

CLIENT: **THE CHIEF EXECUTIVE OFFICER**
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

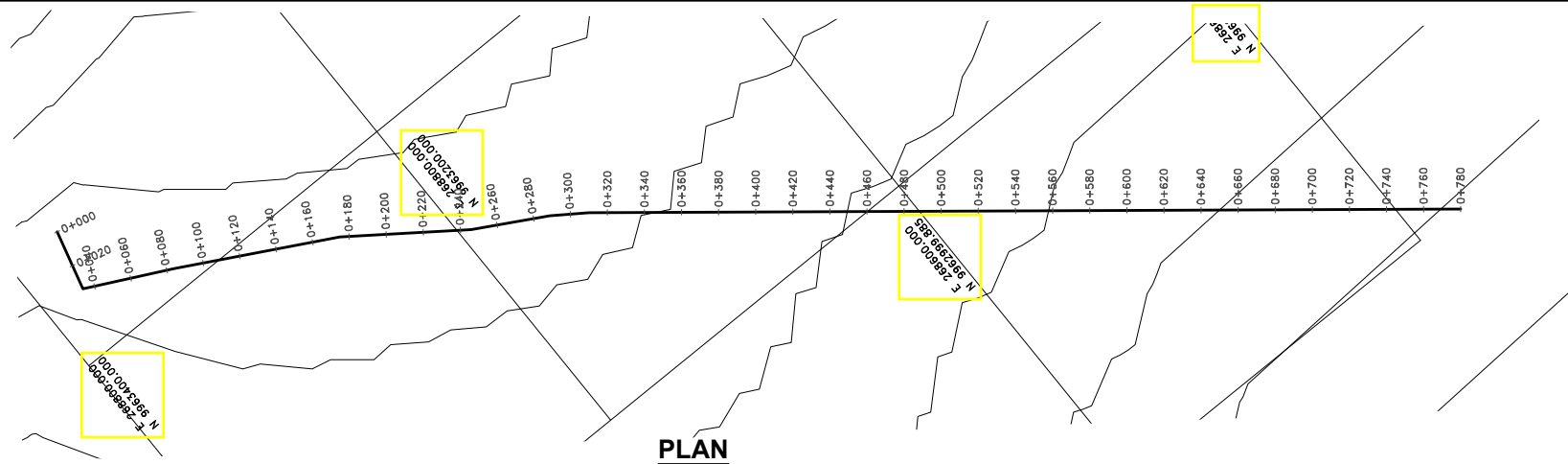
ENGINEER: **CHIEF MANAGER TECHNICAL SERVICES,**
TANA WATER WORKS DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:
REHABILITATION AND AUGMENTATION OF KAMATONGU WATER PROJECT

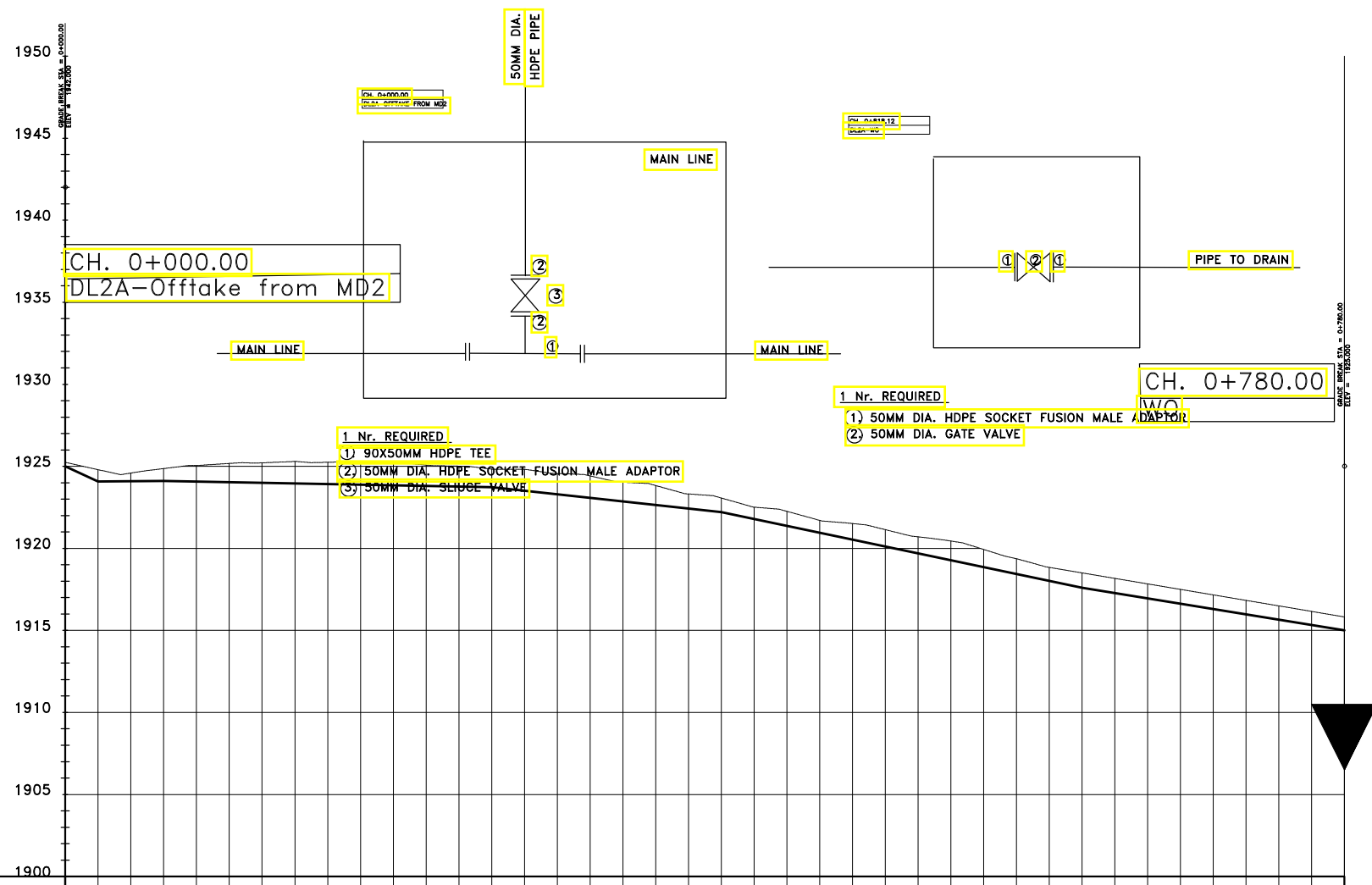
DRAWING TITLE:
DISTRIBUTION LINE 1F PLAN AND PROFILE
CH. 0+000.00 - 0+702.93
SHEET 1 OF 1

Designed by: D.W.N	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022

DRG No. **KAM/DIST1F/01**



PLAN



LONGITUDINAL SECTION

CHAINAGE (m)																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																							
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- NOTES:
- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 - GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 - GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS

PROPOSED WATER LINE

V.J. VIKING JOHNSON

GV GATE VALVE

SV-01 SECTIONAL VALVE & No.

WO-01 WASHOUT VALVE & No.

SAV-01 AIR VALVE & No.

PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEERS: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT

DRAWING TITLE:

DISTRIBUTION LINE 2A
PLAN & LONGITUDINAL SECTION

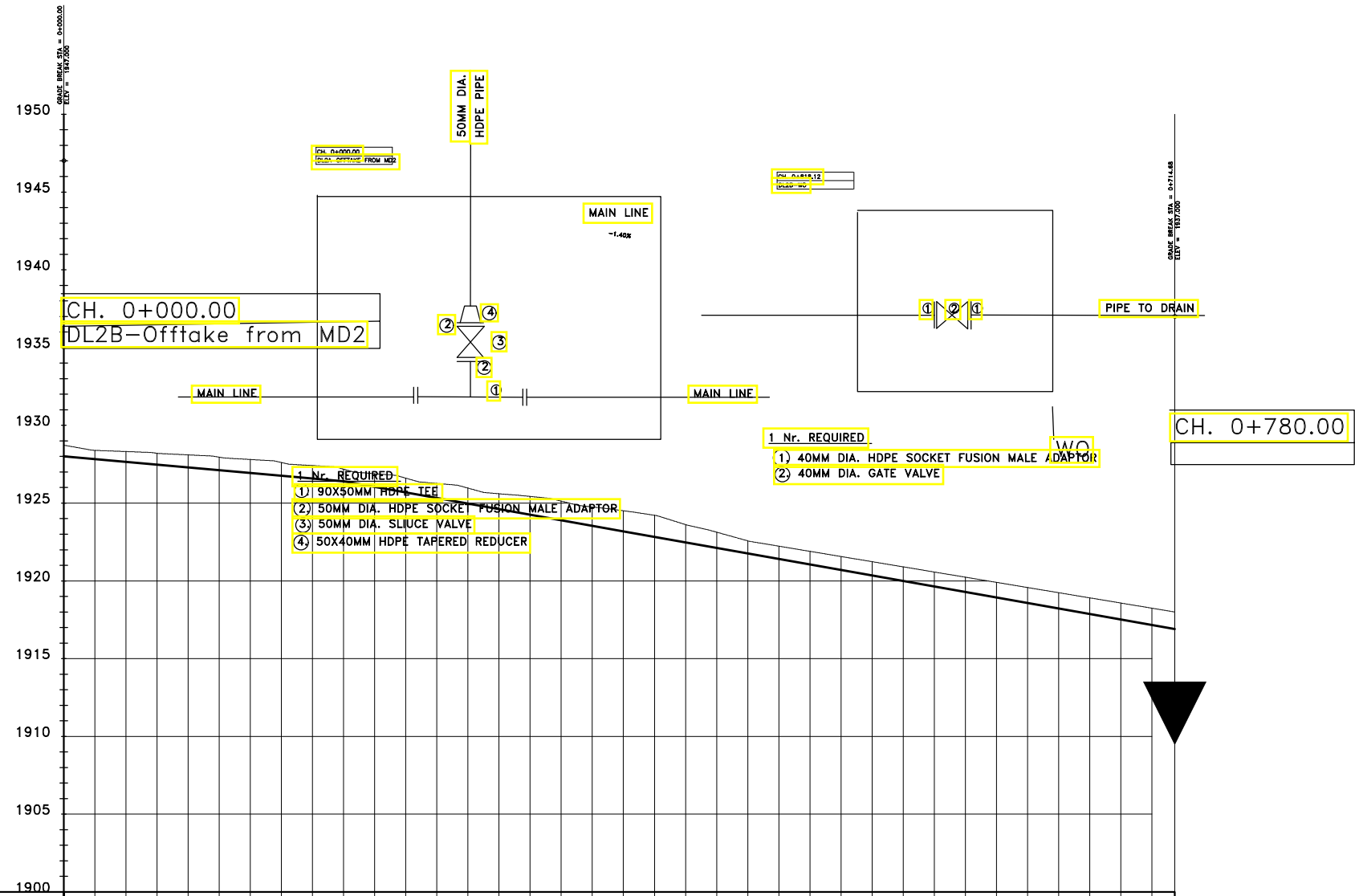
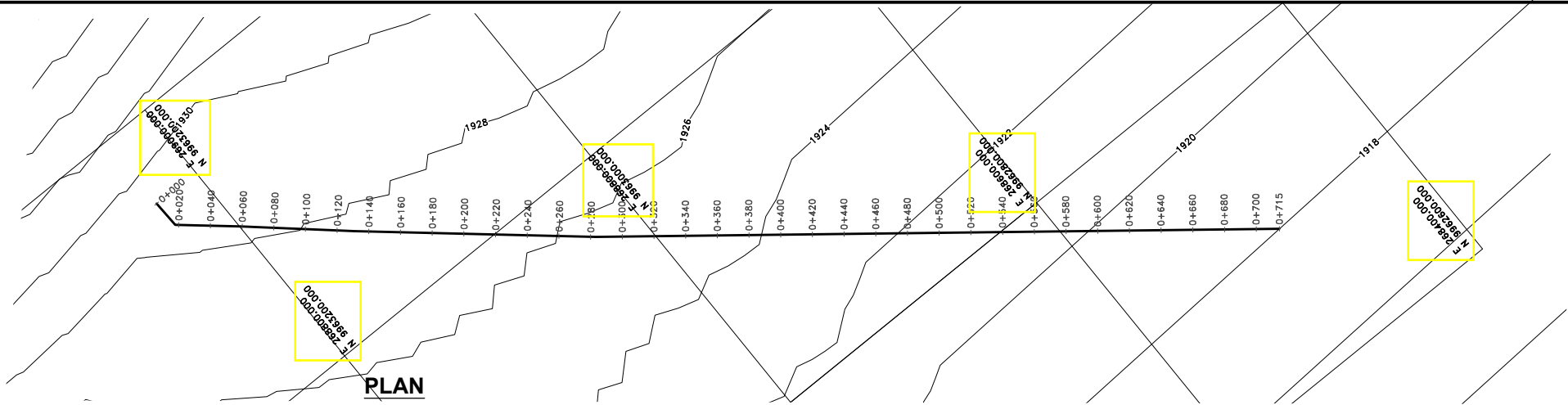
CH. 0+000.00 - 0+780.00
SHEET 1 OF 1

Designed by: D.N.W Drawn by: A.M.M

Checked by: J.M.M Approved by: D.N.M

Scale: H: 1:4000, V: 1:400 Date: OCT 2022

DRG No. KAM/DL2A/01



CHAINAGE (m)	1928.72	1928.39	1928.32	1928.20	1928.10	1927.95	1927.80	1927.61	1927.41	1927.18	1926.89	1926.60	1926.26	1925.97	1925.60	1925.43	1925.13	1924.75	1924.51	1924.22	1923.62	1923.13	1922.57	1922.23	1921.90	1921.57	1920.57	1920.24	1919.91	1919.57	1919.24	1918.91	1918.58	1918.24	1917.17	1916.91		
EXISTING GROUND LEVEL (m)	1928.00	1927.82	1927.64	1927.47	1927.29	1927.11	1926.93	1926.75	1926.58	1926.40	1926.04	1925.68	1925.33	1924.97	1924.61	1924.25	1923.90	1923.54	1923.18	1922.83	1922.48	1922.12	1921.77	1921.41	1921.06	1920.71	1920.35	1920.00	1919.65	1919.29	1918.94	1918.58	1918.23	1917.88	1917.52	1917.17	1916.91	
INVERT LEVELS (m)	0.72	0.57	0.67	0.73	0.81	0.84	0.87	0.86	0.84	0.78	0.85	0.92	0.94	1.00	0.99	1.18	1.23	1.21	1.33	1.39	1.14	1.01	0.84	0.82	0.84	0.86	0.88	0.95	0.92	0.91	1.01	1.03	1.05	1.07	1.07	1.07		
DEPTH OF INVERT (m)	1947.00	1946.72	1946.44	1946.16	1945.88	1945.60	1945.32	1945.04	1944.76	1944.48	1944.20	1943.92	1943.64	1943.36	1943.08	1942.80	1942.52	1942.24	1941.96	1941.68	1941.40	1941.12	1940.84	1940.56	1940.28	1940.00	1939.72	1939.44	1939.16	1938.88	1938.60	1938.32	1938.04	1937.77	1937.49	1937.21		
DATUM (m)	PROPOSED OD 40MM HDPE PIPE PN 10																																					
TYPE OF PIPE AND SIZE	BLACK COTTON SOIL																																					
GEOLOGICAL CONDITION	-1:112.36																																					
SLOPE OF PIPE (H/V)	-1:55.96																																					
	-1:56.55																																					

LONGITUDINAL SECTION

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

- LEGEND:**
- ROAD (TARMAC)
 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS

- PROPOSED WATER LINE**
- V.J. VIKING JOHNSON
 - GV GATE VALVE
 - SV-01 SECTIONAL VALVE & No.
 - WO-01 WASHOUT VALVE & No.
 - SAV-01 AIR VALVE & No.
 - PROPOSED MASONRY CHAMBER

REVISIONS					SIGN	DATE	APPROVED
	BY						
	CHECKED						
	BY						
	CHECKED						
	BY						
	CHECKED						

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

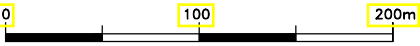
ENGINEERS: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

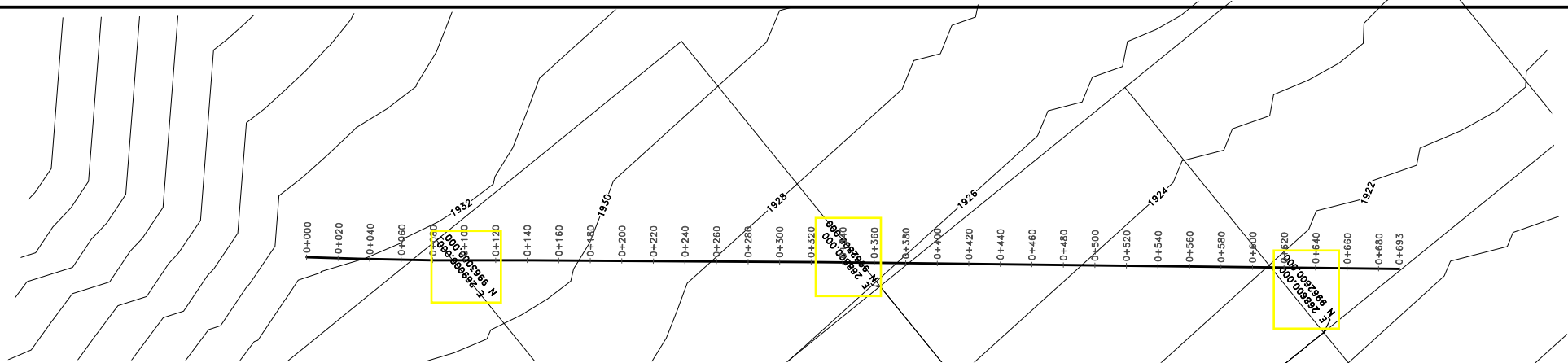
PROJECT TITLE:
**REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT**

DRAWING TITLE:
**DISTRIBUTION LINE 2B
PLAN & LONGITUDINAL SECTION**

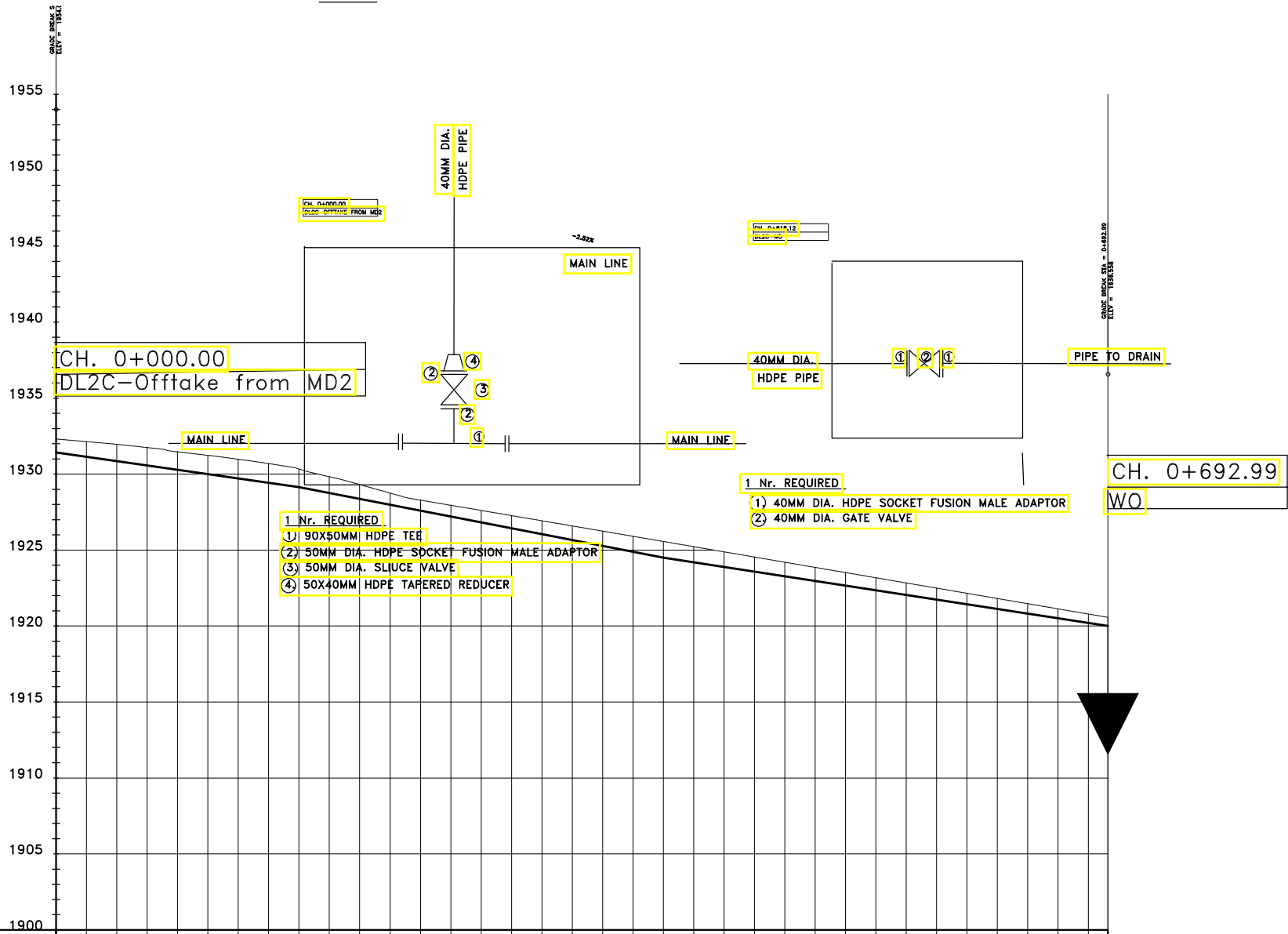
CH. 0+000.00 - 0+714.68
SHEET 1 OF 1

Designed by: D.N.W Drawn by: A.M.M
Checked by: J.M.M Approved by: D.N.M
Scale: H: 1:4000, V: 1:400 Date: OCT 2022
DRG No. **KAM/DL2B/01**



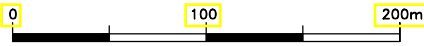


PLAN



CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+600.00	0+620.00	0+640.00	0+660.00	0+680.00	0+692.99
EXISTING GROUND LEVEL (m)	1932.31	1932.14	1931.96	1931.75	1931.47	1931.24	1930.98	1930.69	1930.33	1929.83	1929.31	1928.75	1928.28	1927.95	1927.61	1927.27	1926.93	1926.59	1926.25	1925.91	1925.56	1925.22	1924.88	1924.54	1924.20	1923.86	1923.52	1923.18	1922.84	1922.49	1922.15	1921.81	1921.47	1921.13	1920.79	1920.57
INVERT LEVELS (m)	1931.42	1931.14	1930.85	1930.57	1930.28	1929.99	1929.71	1929.42	1929.14	1928.75	1928.36	1927.98	1927.59	1927.20	1926.82	1926.43	1926.04	1925.66	1925.27	1924.89	1924.50	1924.19	1923.88	1923.58	1923.27	1922.96	1922.66	1922.35	1922.04	1921.73	1921.43	1921.12	1920.81	1920.51	1920.20	1920.00
DEPTH OF INVERT (m)	0.89	1.00	1.11	1.18	1.19	1.24	1.27	1.27	1.20	1.08	0.95	0.77	0.69	0.74	0.79	0.84	0.88	0.93	0.98	1.02	1.07	1.03	1.00	0.96	0.93	0.90	0.86	0.83	0.79	0.76	0.73	0.69	0.66	0.62	0.59	0.57
DATUM (m)	1934.00	1933.50	1932.99	1932.48	1931.98	1931.48	1930.98	1930.48	1929.97	1929.47	1928.97	1928.46	1927.96	1927.46	1926.95	1926.45	1925.94	1925.44	1924.94	1924.44	1923.93	1923.43	1922.93	1922.42	1921.92	1921.42	1920.91	1920.41	1920.00	1920.00	1920.00	1920.00	1920.00	1920.00	1920.00	1920.00
TYPE OF PIPE AND SIZE	PROPOSED OD 40MM HDPE PIPE PN 10																																			
GEOLOGICAL CONDITION	BLACK COTTON SOIL																																			
SLOPE OF PIPE (H/V)	-1:70.02 -1:51.74 -1:65.13																																			

LONGITUDINAL SECTION



- NOTES:
- CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
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- LEGEND:
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 - ROAD / TRACK (EARTH / MURRAM)
 - FENCE / HEDGE
 - CONTOURS

- PROPOSED WATER LINE
- V.J. VIKING JOHNSON
- GV GATE VALVE
- SV-01 SECTIONAL VALVE & No.
- WO-01 WASHOUT VALVE & No.
- SAV-01 AIR VALVE & No.
- PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION				
REVISIONS		SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT: THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEERS: CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

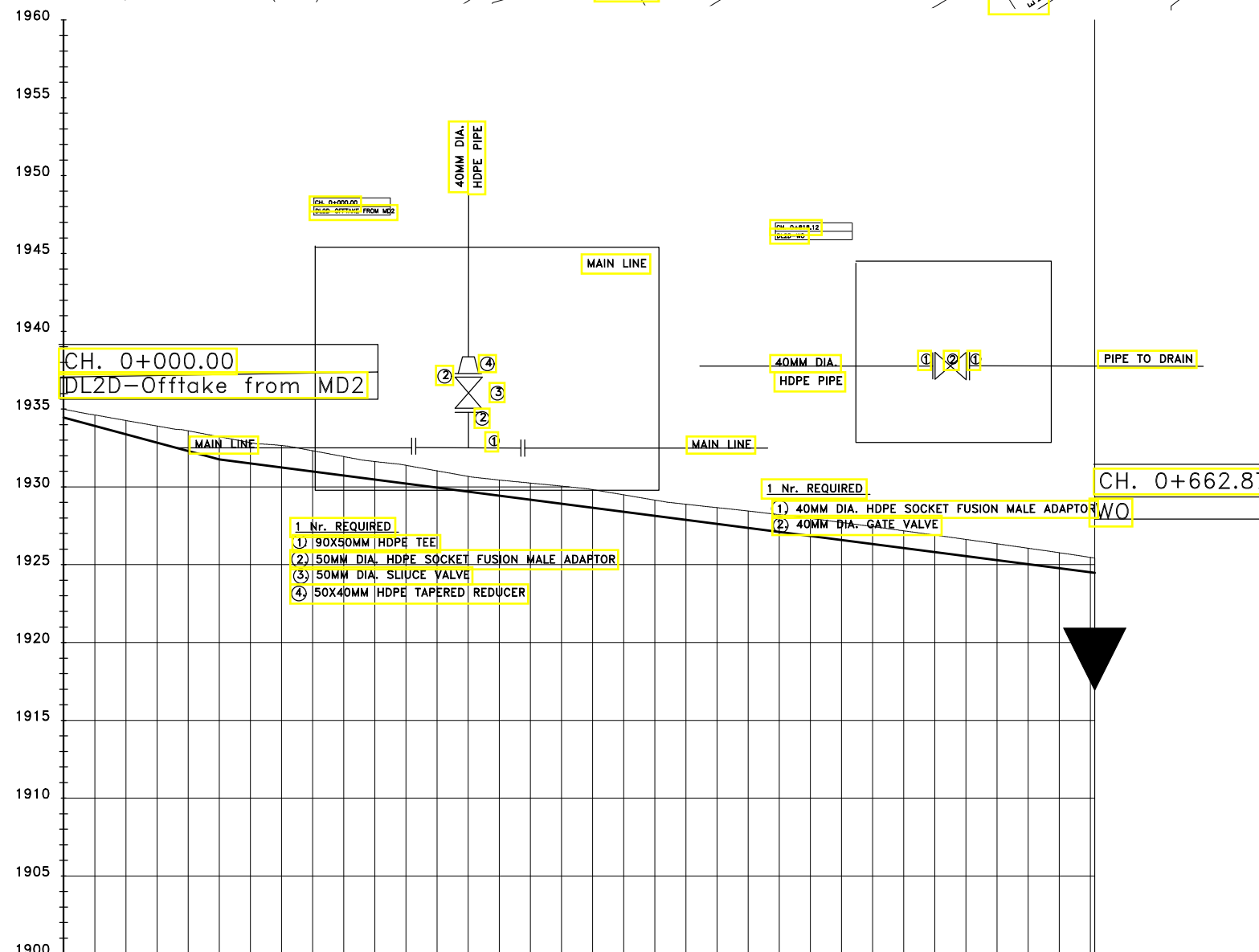
PROJECT TITLE:

REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT

DRAWING TITLE:
DISTRIBUTION LINE 2C
PLAN & LONGITUDINAL SECTION

CH. 0+000.00 - 0+692.99
SHEET 1 OF 1

Designed by: D.N.W Drawn by: A.M.M
Checked by: J.M.M Approved by: D.N.M
Scale: H: 1:4000, V: 1:400 Date: OCT 2022
DRG No. KAM/DL2C/01



CHAINAGE (m)	1930.00	1935.00	1940.00	1945.00	1950.00	1955.00	1960.00	1965.00	1970.00	1975.00	1980.00	1985.00	1990.00	1995.00	2000.00	2005.00	2010.00	2015.00	2020.00	2025.00	2030.00	2035.00	2040.00	2045.00	2050.00	2055.00	2060.00	2065.00	2070.00	2075.00	2080.00	2085.00	2090.00	2095.00	2100.00	2105.00	2110.00	2115.00	2120.00	2125.00	2130.00	2135.00	2140.00	2145.00	2150.00	2155.00	2160.00	2165.00	2170.00	2175.00	2180.00	2185.00	2190.00	2195.00	2200.00	2205.00	2210.00	2215.00	2220.00	2225.00	2230.00	2235.00	2240.00	2245.00	2250.00	2255.00	2260.00	2265.00	2270.00	2275.00	2280.00	2285.00	2290.00	2295.00	2300.00	2305.00	2310.00	2315.00	2320.00	2325.00	2330.00	2335.00	2340.00	2345.00	2350.00	2355.00	2360.00	2365.00	2370.00	2375.00	2380.00	2385.00	2390.00	2395.00	2400.00	2405.00	2410.00	2415.00	2420.00	2425.00	2430.00	2435.00	2440.00	2445.00	2450.00	2455.00	2460.00	2465.00	2470.00	2475.00	2480.00	2485.00	2490.00	2495.00	2500.00	2505.00	2510.00	2515.00	2520.00	2525.00	2530.00	2535.00	2540.00	2545.00	2550.00	2555.00	2560.00	2565.00	2570.00	2575.00	2580.00	2585.00	2590.00	2595.00	2600.00	2605.00	2610.00	2615.00	2620.00	2625.00	2630.00	2635.00	2640.00	2645.00	2650.00	2655.00	2660.00	2665.00	2670.00	2675.00	2680.00	2685.00	2690.00	2695.00	2700.00	2705.00	2710.00	2715.00	2720.00	2725.00	2730.00	2735.00	2740.00	2745.00	2750.00	2755.00	2760.00	2765.00	2770.00	2775.00	2780.00	2785.00	2790.00	2795.00	2800.00	2805.00	2810.00	2815.00	2820.00	2825.00	2830.00	2835.00	2840.00	2845.00	2850.00	2855.00	2860.00	2865.00	2870.00	2875.00	2880.00	2885.00	2890.00	2895.00	2900.00	2905.00	2910.00	2915.00	2920.00	2925.00	2930.00	2935.00	2940.00	2945.00	2950.00	2955.00	2960.00	2965.00	2970.00	2975.00	2980.00	2985.00	2990.00	2995.00	3000.00	3005.00	3010.00	3015.00	3020.00	3025.00	3030.00	3035.00	3040.00	3045.00	3050.00	3055.00	3060.00	3065.00	3070.00	3075.00	3080.00	3085.00	3090.00	3095.00	3100.00	3105.00	3110.00	3115.00	3120.00	3125.00	3130.00	3135.00	3140.00	3145.00	3150.00	3155.00	3160.00	3165.00	3170.00	3175.00	3180.00	3185.00	3190.00	3195.00	3200.00	3205.00	3210.00	3215.00	3220.00	3225.00	3230.00	3235.00	3240.00	3245.00	3250.00	3255.00	3260.00	3265.00	3270.00	3275.00	3280.00	3285.00	3290.00	3295.00	3300.00	3305.00	3310.00	3315.00	3320.00	3325.00	3330.00	3335.00	3340.00	3345.00	3350.00	3355.00	3360.00	3365.00	3370.00	3375.00	3380.00	3385.00	3390.00	3395.00	3400.00	3405.00	3410.00	3415.00	3420.00	3425.00	3430.00	3435.00	3440.00	3445.00	3450.00	3455.00	3460.00	3465.00	3470.00	3475.00	3480.00	3485.00	3490.00	3495.00	3500.00	3505.00	3510.00	3515.00	3520.00	3525.00	3530.00	3535.00	3540.00	3545.00	3550.00	3555.00	3560.00	3565.00	3570.00	3575.00	3580.00	3585.00	3590.00	3595.00	3600.00	3605.00	3610.00	3615.00	3620.00	3625.00	3630.00	3635.00	3640.00	3645.00	3650.00	3655.00	3660.00	3665.00	3670.00	3675.00	3680.00	3685.00	3690.00	3695.00	3700.00	3705.00	3710.00	3715.00	3720.00	3725.00	3730.00	3735.00	3740.00	3745.00	3750.00	3755.00	3760.00	3765.00	3770.00	3775.00	3780.00	3785.00	3790.00	3795.00	3800.00	3805.00	3810.00	3815.00	3820.00	3825.00	3830.00	3835.00	3840.00	3845.00	3850.00	3855.00	3860.00	3865.00	3870.00	3875.00	3880.00	3885.00	3890.00	3895.00	3900.00	3905.00	3910.00	3915.00	3920.00	3925.00	3930.00	3935.00	3940.00	3945.00	3950.00	3955.00	3960.00	3965.00	3970.00	3975.00	3980.00	3985.00	3990.00	3995.00	4000.00	4005.00	4010.00	4015.00	4020.00	4025.00	4030.00	4035.00	4040.00	4045.00	4050.00	4055.00	4060.00	4065.00	4070.00	4075.00	4080.00	4085.00	4090.00	4095.00	4100.00	4105.00	4110.00	4115.00	4120.00	4125.00	4130.00	4135.00	4140.00	4145.00	4150.00	4155.00	4160.00	4165.00	4170.00	4175.00	4180.00	4185.00	4190.00	4195.00	4200.00	4205.00	4210.00	4215.00	4220.00	4225.00	4230.00	4235.00	4240.00	4245.00	4250.00	4255.00	4260.00	4265.00	4270.00	4275.00	4280.00	4285.00	4290.00	4295.00	4300.00	4305.00	4310.00	4315.00	4320.00	4325.00	4330.00	4335.00	4340.00	4345.00	4350.00	4355.00	4360.00	4365.00	4370.00	4375.00	4380.00	4385.00	4390.00	4395.00	4400.00	4405.00	4410.00	4415.00	4420.00	4425.00	4430.00	4435.00	4440.00	4445.00	4450.00	4455.00	4460.00	4465.00	4470.00	4475.00	4480.00	4485.00	4490.00	4495.00	4500.00	4505.00	4510.00	4515.00	4520.00	4525.00	4530.00	4535.00	4540.00	4545.00	4550.00	4555.00	4560.00	4565.00	4570.00	4575.00	4580.00	4585.00	4590.00	4595.00	4600.00	4605.00	4610.00	4615.00	4620.00	4625.00	4630.00	4635.00	4640.00	4645.00	4650.00	4655.00	4660.00	4665.00	4670.00	4675.00	4680.00	4685.00	4690.00	4695.00	4700.00	4705.00	4710.00	4715.00	4720.00	4725.00	4730.00	4735.00	4740.00	4745.00	4750.00	4755.00	4760.00	4765.00	4770.00	4775.00	4780.00	4785.00	4790.00	4795.00	4800.00	4805.00	4810.00	4815.00	4820.00	4825.00	4830.00	4835.00	4840.00	4845.00	4850.00	4855.00	4860.00	4865.00	4870.00	4875.00	4880.00	4885.00	4890.00	4895.00	4900.00	4905.00	4910.00	4915.00	4920.00	4925.00	4930.00	4935.00	4940.00	4945.00	4950.00	4955.00	4960.00	4965.00	4970.00	4975.00	4980.00	4985.00	4990.00	4995.00	5000.00	5005.00	5010.00	5015.00	5020.00	5025.00	5030.00	5035.00	5040.00	5045.00	5050.00	5055.00	5060.00	5065.00	5070.00	5075.00	5080.00	5085.00	5090.00	5095.00	5100.00	5105.00	5110.00	5115.00	5120.00	5125.00	5130.00	5135.00	5140.00	5145.00	5150.00	5155.00	5160.00	5165.00	5170.00	5175.00	5180.00	5185.00	5190.00	5195.00	5200.00	5205.00	5210.00	5215.00	5220.00	5225.00	5230.00	5235.00	5240.00	5245.00	5250.00	5255.00	5260.00	5265.00	5270.00	5275.00	5280.00	5285.00	5290.00	5295.00	5300.00	5305.00	5310.00	5315.00	5320.00	5325.00	5330.00	5335.00	5340.00	5345.00	5350.00	5355.00	5360.00	5365.00	5370.00	5375.00	5380.00	5385.00	5390.00	5395.00	5400.00	5405.00	5410.00	5415.00	5420.00	5425.00	5430.00	5435.00	5440.00	5445.00	5450.00	5455.00	5460.00	5465.00	5470.00	5475.00	5480.00	5485.00	5490.00	5495.00	5500.00	5505.00	5510.00	5515.00	5520.00	5525.00	5530.00	5535.00	5540.00	5545.00	5550.00	5555.00	5560.00	5565.00	5570.00	5575.00	5580.00	5585.00	5590.00	5595.00	5600.00	5605.00	5610.00	5615.00	5620.00	5625.00	5630.00	5635.00	5640.00	5645.00	5650.00	5655.00	5660.00	5665.00	5670.00	5675.00	5680.00	5685.00	5690.00	5695.00	5700.00	5705.00	5710.00	5715.00	5720.00	5725.00	5730.00	5735.00	5740.00	5745.00	5750.00	5755.00	5760.00	5765.00	5770.00	5775.00	5780.00	5785.00	5790.00	5795.00	5800.00	5805.00	5810.00	5815.00	5820.00	5825.00	5830.00	5835.00	5840.00	5845.00	5850.00	5855.00	5860.00	5865.00	5870.00	5875.00	5880.00	5885.00	5890.00	5895.00	5900.00	5905.00	5910.00	5915.00	5920.00	5925.00	5930.00	5935.00	5940.00	5945.00	5950.00	5955.00	5960.00	5965.00	5970.00	5975.00	5980.00	5985.00	5990.00	5995.00	6000.00	6005.00	6010.00	6015.00	6020.00	6025.00	6030.00	6035.00	6040.00	6045.00	6050.00	6055.00	6060.00	6065.00	6070.00	6075.00	6080.00	6085.00	6090.00	6095.00	6100.00	6105.00	6110.00	6115.00	6120.00	6125.00	6130.00	6135.00	6140.00	6145.00	6150.00	6155.00	6160.00	6165.00	6170.00	6175.00	6180.00	6185.00	6190.00	6195.00	6200.00	6205.00	6210.00	6215.00	6220.00	6225.00	6230.00	6235.00	6240.00	6245.00	6250.00	6255.00	6260.00	6265.00	6270.00	6275.00	6280.00	6285.00	6290.00	6295.00	6300.00	6305.00	6310.00	6315.00	6320.00	6325.00	6330.00	6335.00	6340.00	6345.00	6350.00	6355.00	6360.00	6365.00	6370.00	6375.00	6380.00	6385.00	6390.00	6395.00	6400.00	6405.00	6410.00	6415.00	6420.00	6425.00	6430.00	6435.00	6440.00	6445.00	6450.00	6455.00	6460.00	6465.00	6470.00	6475.00	6480.00	6485.00	6490.00	6495.00	6500.00	6505.00	6510.00	6515.00	6520.00	6525.00	6530.00	6535.00	6540.00	6545.00	6550.00	6555.00	6560.00	6565.00	6570.00	6575.00	6580.00	6585.00	6590.00	6595.00	6600.00	6605.00	6610.00	6615.00	6620.00	6625.00	6630.00	6635.00	6640.00	6645.00	6650.00	6655.00	6660.00	6665.00	6670.00	6675.00	6680.00	6685.00	6690.00	6695.00	6700.00	6705.00	6710.00	6715.00	6720.00	6725.00	6730.00	6735.00	6740.00	6745.00	6750.00	6755.00	6760.00	6765.00	6770.00	6775.00	6780.00	6785.00	6790.00	6795.00	6800.00	6805.00	6810.00	6815.00	6820.00	6825.00	6830.00	6835.00	6840.00	6845.00	6850.00	6855.00	6860.00	6865.00	6870.00	6875.00	6880.00	6885.00	6890.00	6895.00	6900.00	6905.00	6910.00	6915.00	6920.00	6925.00	6930.00	6935.00	6940.00	6945.00	6950.00	6955.00	6960.00	6965.00	6970.00	6975.00	6980.00	6985.00	6990.00	6995.00	7000.00	7005.00	7010.00	7015.00	7020.00	7025.00	7030.00	7035.00	7040.00	7045.00	7050.00	7055.00	7060.00	7065.00	7070.00	7075.00	7080.00
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LONGITUDINAL SECTION



1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

	ROAD (TARMAC)
	ROAD / TRACK (EARTH / MURRAM)
	FENCE / HEDGE
	CONTOURS

PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION				
	REVISIONS	SIGN	DATE	APPROVED
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			
	BY			
	CHECKED			

CLIENT:



**THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY**
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEERS

CHIEF MANAGER TECHNICAL SERVICES

TANA WATER WORKS DEVELOPMENT AGENCY

P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

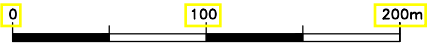
REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT

DRAWING TITLE:
DISTRIBUTION LINE 2D
PLAN & LONGITUDINAL SECTION

CH. 0+000.00 - 0+662.87
SHEET 1 OF 1

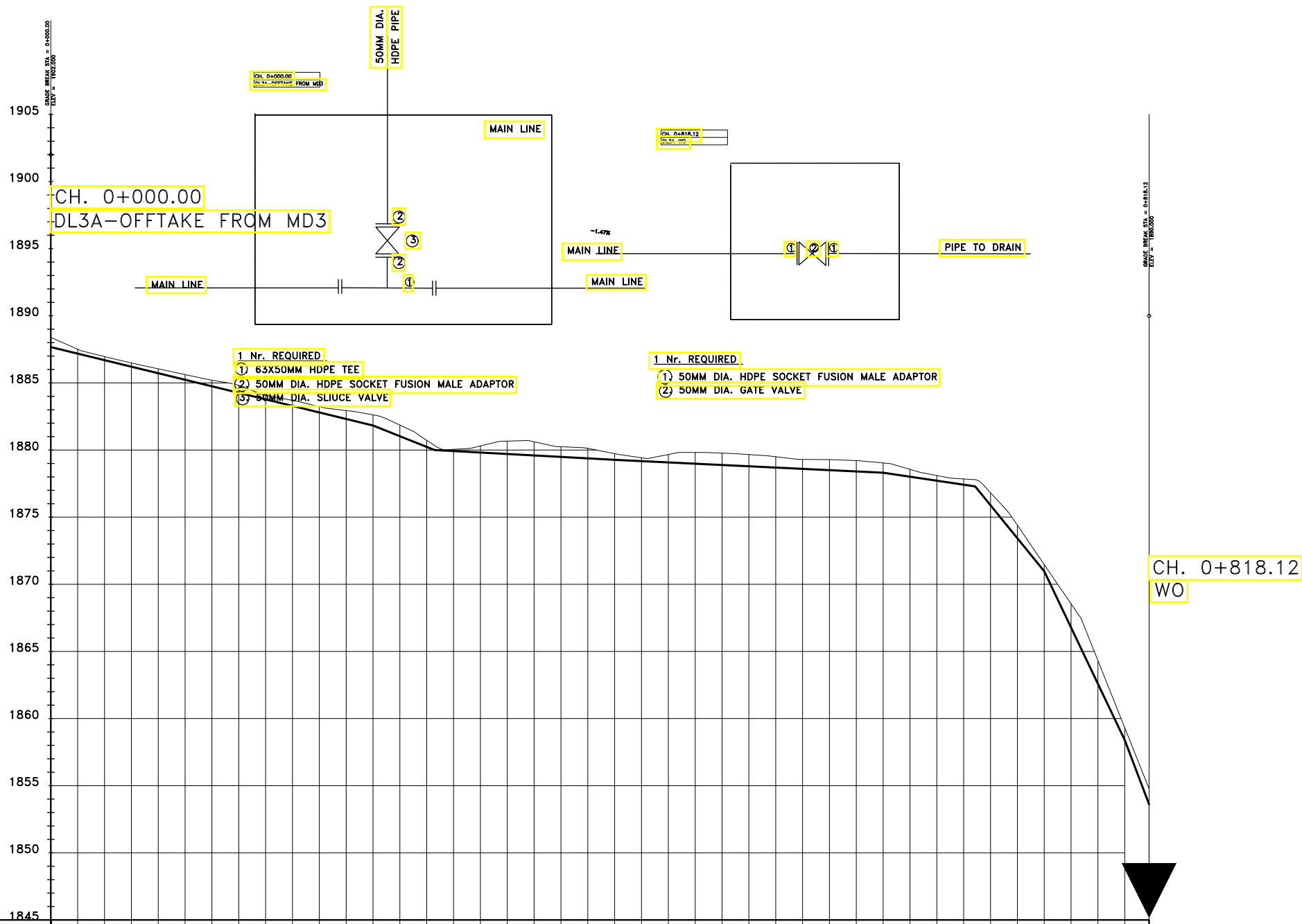
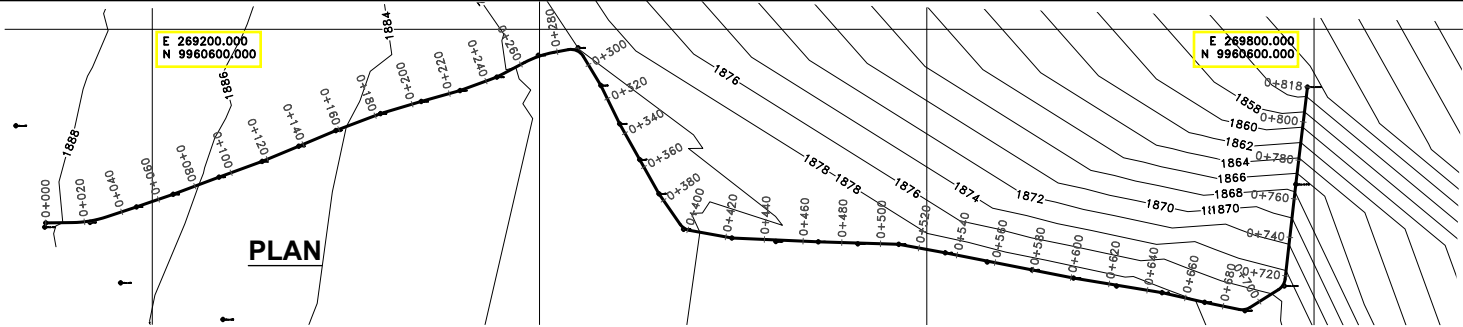
Designed by: D.N.W	Drawn by: A.M.M
Checked by: J.M.M	Approved by: D.N.M
Scale: H- 1:4000, V- 1:400	Date: OCT 2022

DRG No. **KAM/DL2D/01**



- | | |
|----------------------------|--------------------|
| Designed by: D.N.W | Drawn by: A.M.M |
| Checked by: J.M.M | Approved by: D.N.M |
| Scale: H- 1:4000, V- 1:400 | Date: OCT 2022 |
| DRG No. | KAM/DL2E/01 |

 PROPOSED MASONRY CHAMBER



CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+600.00	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00	0+800.00	0+818.12
EXISTING GROUND LEVEL (m)	1888.39	1887.51	1886.96	1886.49	1886.05	1885.62	1885.20	1884.81	1884.08	1883.70	1883.24	1882.94	1882.62	1881.86	1880.72	1880.05	1880.30	1880.67	1880.61	1880.25	1880.13	1879.73	1879.42	1879.67	1879.82	1879.77	1879.66	1879.50	1879.30	1879.29	1879.22	1879.04	1878.56	1878.10	1877.85	1876.82	1874.40	1871.47	1866.54	1864.32	1859.31	
INVERT LEVELS (m)	1887.67	1887.18	1886.69	1886.21	1885.72	1885.23	1884.75	1884.26	1883.77	1883.29	1882.80	1882.31	1881.83	1881.03	1880.23	1879.92	1879.81	1879.71	1879.60	1879.49	1879.38	1879.27	1879.17	1879.08	1879.67	1879.82	1879.77	1879.66	1879.50	1879.30	1879.29	1879.22	1879.04	1878.56	1878.10	1877.85	1876.82	1874.40	1871.47	1866.54	1864.32	1859.31
DEPTH OF INVERT (m)	0.72	0.33	0.27	0.28	0.33	0.39	0.46	0.55	0.30	0.41	0.44	0.63	0.79	0.83	0.49	0.13	0.49	0.96	1.02	0.76	0.75	0.46	0.25	0.59	0.84	0.88	0.87	0.81	0.70	0.78	0.81	0.73	0.55	0.39	0.43	0.94	0.97	1.15	1.77	1.73	0.91	
HGL DATUM (m)	1902.00	1901.71	1901.41	1901.12	1900.83	1900.53	1900.24	1999.95	1999.65	1999.36	1999.07	1998.77	1998.48	1998.19	1997.89	1997.60	1997.31	1997.01	1996.72	1996.43	1996.13	1995.84	1995.55	1995.25	1994.96	1994.67	1994.37	1994.08	1993.79	1993.49	1993.20	1992.91	1992.61	1992.32	1992.03	1991.73	1991.44	1991.15	1990.85	1990.56	1990.27	1890.00
TYPE OF PIPE AND SIZE	PROPOSED OD 50 MM HDPE PIPE (PN10)																																									
GEOLOGICAL CONDITION	BLACK COTTON SOIL																																									
SLOPE OF PIPE (H/V)	-1:41.08 -1:29.09 -1:183.99 -1:208.75 -1:167.29 -1:18.14 -1:4.77 -1:3.79																																									

- NOTES:**
1. CONTOUR LEVELS ARE IN METERS AT TWO METER INTERVALS
 2. GRID VALUES ARE IN METERS AT 200 METER INTERVALS
 3. GEOLOGICAL CONDITIONS INDICATED ON DRAWING ARE FOR GENERAL GUIDANCE ONLY

LEGEND:

- ROAD (TARMAC)
- ROAD / TRACK (EARTH / MURRAM)
- FENCE / HEDGE
- CONTOURS

PROPOSED WATER LINE

V.J. VIKING JOHNSON

GV GATE VALVE

SV-01 SECTIONAL VALVE & No.

WO-01 WASHOUT VALVE & No.

SAV-01 AIR VALVE & No.

PROPOSED MASONRY CHAMBER

ISSUED FOR CONSTRUCTION

REVISIONS	SIGN	DATE	APPROVED
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			
BY			
CHECKED			

CLIENT:

THE CHIEF EXECUTIVE OFFICER
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

ENGINEERS

CHIEF MANAGER TECHNICAL
SERVICES
TANA WATER WORKS
DEVELOPMENT AGENCY
P.O BOX 1292 - 10100,
NYERI, KENYA

PROJECT TITLE:

REHABILITATION AND AUGMENTATION
OF KAMATONGU WATER PROJECT

DRAWING TITLE:

DISTRIBUTION LINE 3A
PLAN & LONGITUDINAL SECTION

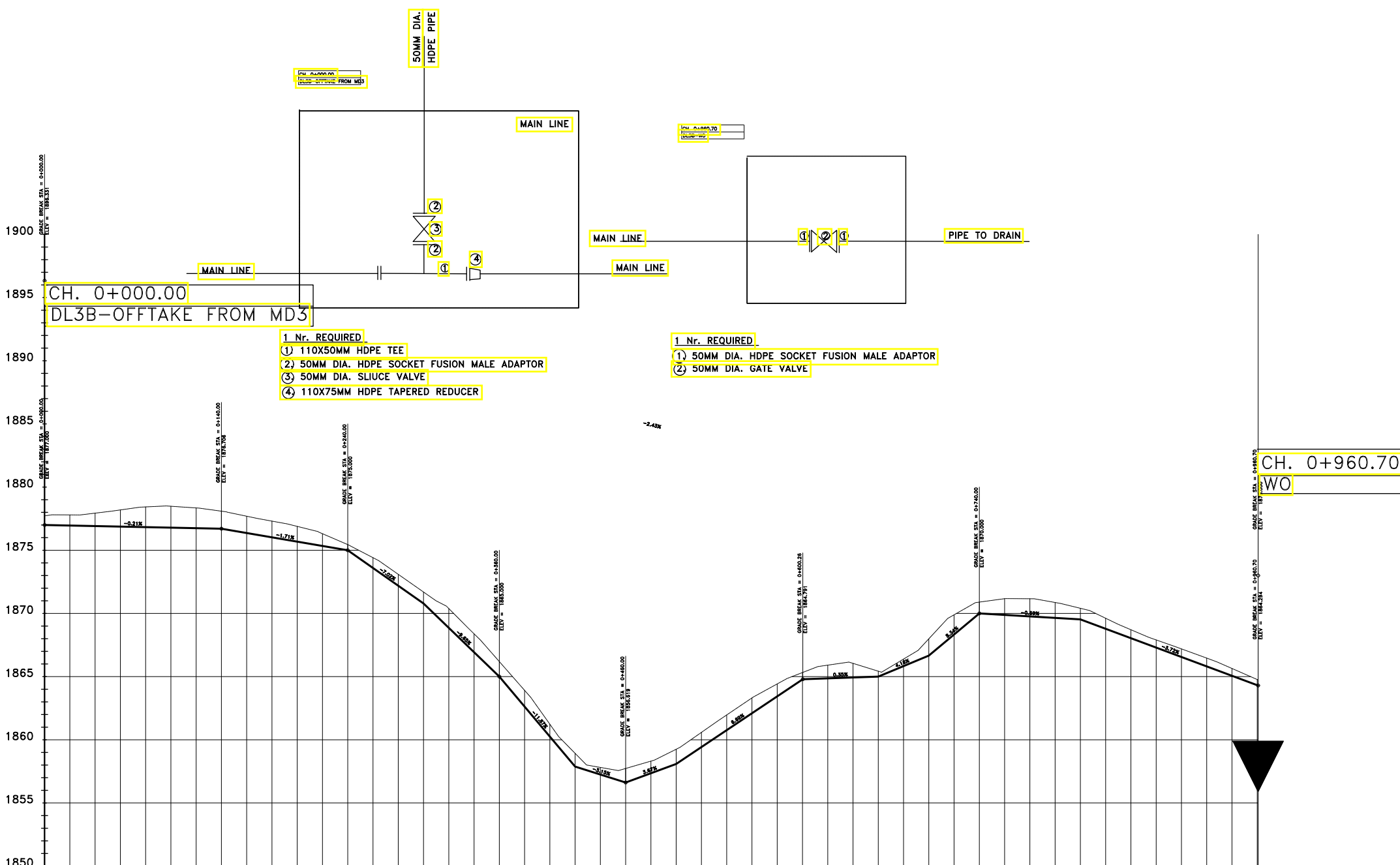
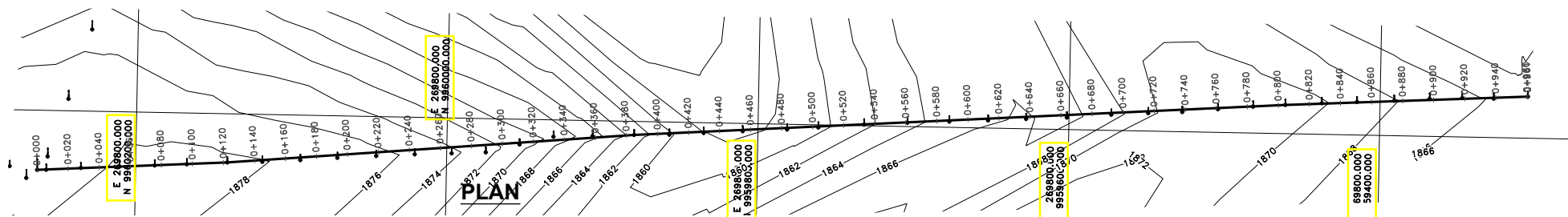
CH. 0+000.00 - 0+818.12
SHEET 1 OF 1

Designed by: D.N.W Drawn by: A.M.M

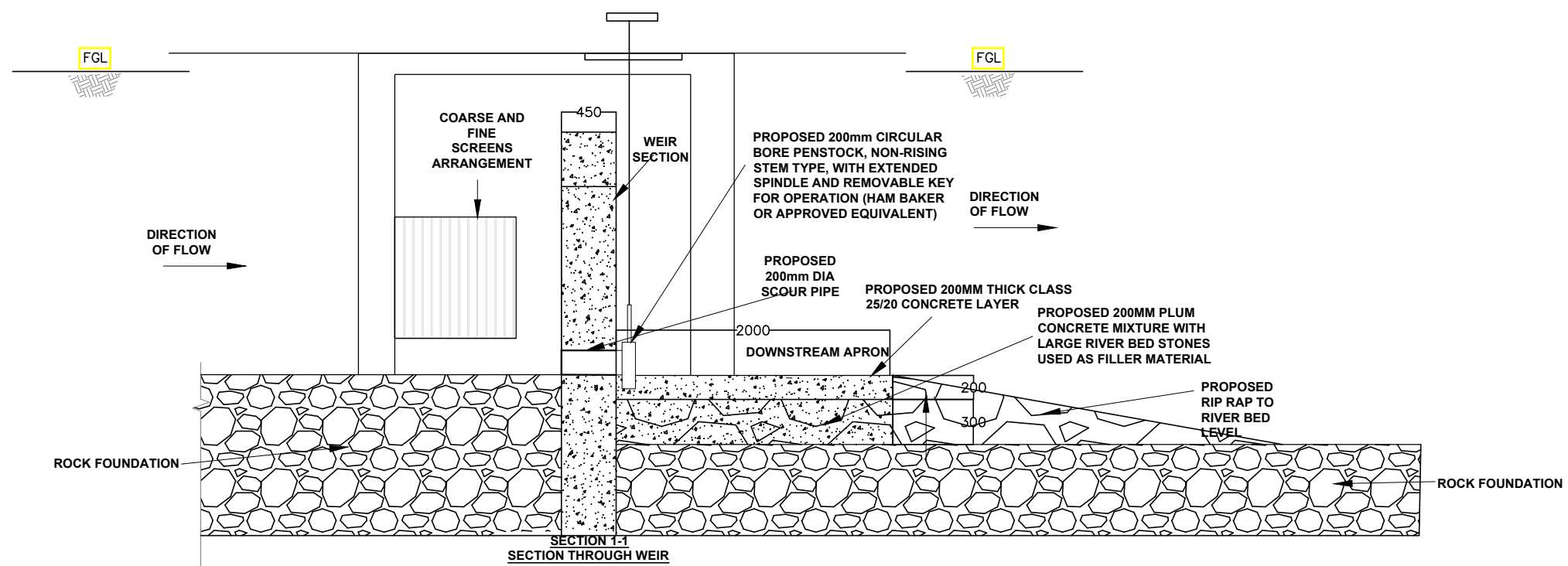
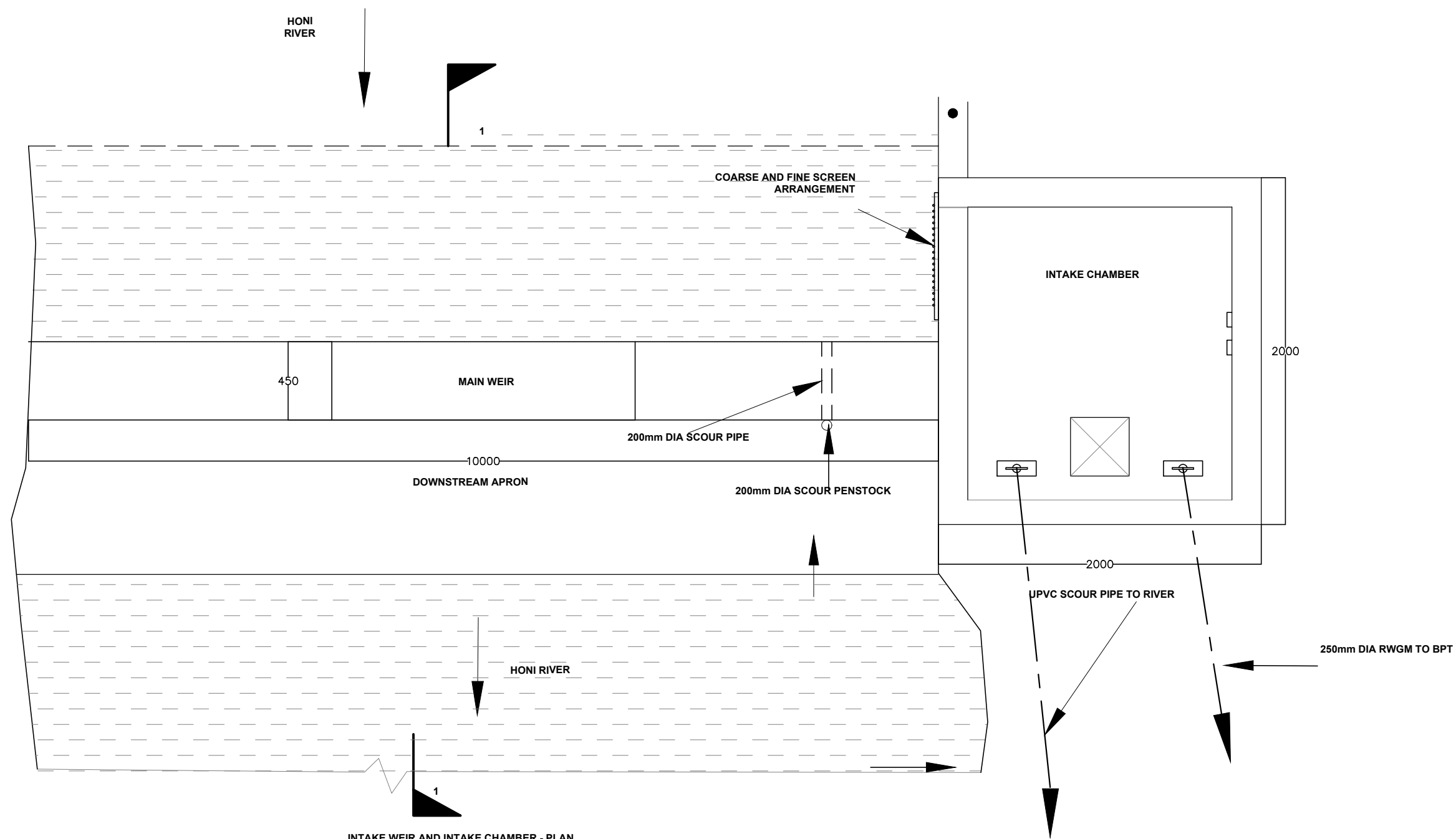
Checked by: J.M.M Approved by: D.N.M

Scale: H- 1:4000, V- 1:400 Date: OCT 2022

DRG No. KAM/DL3A/01



CHAINAGE (m)	0+000.00	0+020.00	0+040.00	0+060.00	0+080.00	0+100.00	0+120.00	0+140.00	0+160.00	0+180.00	0+200.00	0+220.00	0+240.00	0+260.00	0+280.00	0+300.00	0+320.00	0+340.00	0+360.00	0+380.00	0+400.00	0+420.00	0+440.00	0+460.00	0+480.00	0+500.00	0+520.00	0+540.00	0+560.00	0+580.00	0+600.00	0+620.00	0+640.00	0+660.00	0+680.00	0+700.00	0+720.00	0+740.00	0+760.00	0+780.00	0+800.00	0+820.00	0+840.00	0+860.00	0+880.00	0+900.00	0+920.00	0+940.00	0+960.00																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																											
EXISTING GROUND LEVEL (m)	1877.72	1877.80	1877.94	1878.19	1878.43	1878.48	1878.35	1878.09	1877.69	1877.31	1876.89	1876.31	1875.45	1874.41	1873.09	1871.69	1870.39	1868.39	1866.39	1865.19	1863.91	1861.23	1858.93	1857.81	1857.73	1858.31	1859.25	1860.59	1861.97	1863.31	1864.42	1865.32	1865.91	1866.39	1866.66	1867.99	1868.89	1870.90	1871.17	1871.16	1870.87	1869.65	1869.53	1869.62	1868.78	1868.04	1867.71	1867.90	1867.19	1866.47	1865.64	1864.73																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
INVERT LEVELS (m)	1877.00	1876.96	1876.92	1876.87	1876.83	1876.79	1876.75	1876.71	1876.36	1876.02	1875.68	1875.34	1875.00	1874.60	1873.60	1872.19	1870.79	1868.86	1866.93	1865.00	1863.07	1861.23	1859.35	1857.88	1856.62	1855.62	1854.42	1853.31	1852.10	1850.99	1849.77	1848.66	1847.55	1846.44	1845.33	1844.22	1843.11	1842.00	1840.89	1839.78	1838.67	1837.56	1836.45	1835.34	1834.23	1833.12	1832.01	1830.90	1829.79	1828.68	1827.57	1826.46																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
DEPTH OF INVERT (m)	0.72	0.84	1.02	1.32	1.60	1.69	1.60	1.38	1.33	1.28	1.21	0.97	0.45	0.82	0.90	0.91	1.29	1.53	1.46	1.19	1.11	0.96	0.56	0.87	1.11	0.88	0.67	0.40	0.39	0.55	0.81	0.86	0.91	0.99	1.56	1.22	1.12	1.01	0.89	0.80	0.71	0.62	0.53	0.44	0.35	0.26	0.17	0.08	0.09	0.10	0.11	0.12	0.13	0.14	0.15	0.16	0.17	0.18	0.19	0.20	0.21	0.22	0.23	0.24	0.25	0.26	0.27	0.28	0.29	0.30	0.31	0.32	0.33	0.34	0.35	0.36	0.37	0.38	0.39	0.40	0.41	0.42	0.43	0.44	0.45	0.46	0.47	0.48	0.49	0.50	0.51	0.52	0.53	0.54	0.55	0.56	0.57	0.58	0.59	0.60	0.61	0.62	0.63	0.64	0.65	0.66	0.67	0.68	0.69	0.70	0.71	0.72	0.73	0.74	0.75	0.76	0.77	0.78	0.79	0.80	0.81	0.82	0.83	0.84	0.85	0.86	0.87	0.88	0.89	0.90	0.91	0.92	0.93	0.94	0.95	0.96	0.97	0.98	0.99	1.00	1.01	1.02	1.03	1.04	1.05	1.06	1.07	1.08	1.09	1.10	1.11	1.12	1.13	1.14	1.15	1.16	1.17	1.18	1.19	1.20	1.21	1.22	1.23	1.24	1.25	1.26	1.27	1.28	1.29	1.30	1.31	1.32	1.33	1.34	1.35	1.36	1.37	1.38	1.39	1.40	1.41	1.42	1.43	1.44	1.45	1.46	1.47	1.48	1.49	1.50	1.51	1.52	1.53	1.54	1.55	1.56	1.57	1.58	1.59	1.60	1.61	1.62	1.63	1.64	1.65	1.66	1.67	1.68	1.69	1.70	1.71	1.72	1.73	1.74	1.75	1.76	1.77	1.78	1.79	1.80	1.81	1.82	1.83	1.84	1.85	1.86	1.87	1.88	1.89	1.90	1.91	1.92	1.93	1.94	1.95	1.96	1.97	1.98	1.99	2.00	2.01	2.02	2.03	2.04	2.05	2.06	2.07	2.08	2.09	2.10	2.11	2.12	2.13	2.14	2.15	2.16	2.17	2.18	2.19	2.20	2.21	2.22	2.23	2.24	2.25	2.26	2.27	2.28	2.29	2.30	2.31	2.32	2.33	2.34	2.35	2.36	2.37	2.38	2.39	2.40	2.41	2.42	2.43	2.44	2.45	2.46	2.47	2.48	2.49	2.50	2.51	2.52	2.53	2.54	2.55	2.56	2.57	2.58	2.59	2.60	2.61	2.62	2.63	2.64	2.65	2.66	2.67	2.68	2.69	2.70	2.71	2.72	2.73	2.74	2.75	2.76	2.77	2.78	2.79	2.80	2.81	2.82	2.83	2.84	2.85	2.86	2.87	2.88	2.89	2.90	2.91	2.92	2.93	2.94	2.95	2.96	2.97	2.98	2.99	3.00	3.01	3.02	3.03	3.04	3.05	3.06	3.07	3.08	3.09	3.10	3.11	3.12	3.13	3.14	3.15	3.16	3.17	3.18	3.19	3.20	3.21	3.22	3.23	3.24	3.25	3.26	3.27	3.28	3.29	3.30	3.31	3.32	3.33	3.34	3.35	3.36	3.37	3.38	3.39	3.40	3.41	3.42	3.43	3.44	3.45	3.46	3.47	3.48	3.49	3.50	3.51	3.52	3.53	3.54	3.55	3.56	3.57	3.58	3.59	3.60	3.61	3.62	3.63	3.64	3.65	3.66	3.67	3.68	3.69	3.70	3.71	3.72	3.73	3.74	3.75	3.76	3.77	3.78	3.79	3.80	3.81	3.82	3.83	3.84	3.85	3.86	3.87	3.88	3.89	3.90	3.91	3.92	3.93	3.94	3.95	3.96	3.97	3.98	3.99	4.00	4.01	4.02	4.03	4.04	4.05	4.06	4.07	4.08	4.09	4.10	4.11	4.12	4.13	4.14	4.15	4.16	4.17	4.18	4.19	4.20	4.21	4.22	4.23	4.24	4.25	4.26	4.27	4.28	4.29	4.30	4.31	4.32	4.33	4.34	4.35	4.36	4.37	4.38	4.39	4.40	4.41	4.42	4.43	4.44	4.45	4.46	4.47	4.48	4.49	4.50	4.51	4.52	4.53	4.54	4.55	4.56	4.57	4.58	4.59	4.60	4.61	4.62	4.63	4.64	4.65	4.66	4.67	4.68	4.69	4.70	4.71	4.72	4.73	4.74	4.75	4.76	4.77	4.78	4.79	4.80	4.81	4.82	4.83	4.84	4.85	4.86	4.87	4.88	4.89	4.90	4.91	4.92	4.93	4.94	4.95	4.96	4.97	4.98	4.99	5.00	5.01	5.02	5.03	5.04	5.05	5.06	5.07	5.08	5.09	5.10	5.11	5.12	5.13	5.14	5.15	5.16	5.17	5.18	5.19	5.20	5.21	5.22	5.23	5.24	5.25	5.26	5.27	5.28	5.29	5.30	5.31	5.32	5.33	5.34	5.35	5.36	5.37	5.38	5.39	5.40	5.41	5.42	5.43	5.44	5.45	5.46	5.47	5.48	5.49	5.50	5.51	5.52	5.53	5.54	5.55	5.56	5.57	5.58	5.59	5.60	5.61	5.62	5.63	5.64	5.65	5.66	5.67	5.68	5.69	5.70	5.71	5.72	5.73	5.74	5.75	5.76	5.77	5.78	5.79	5.80	5.81	5.82	5.83	5.84	5.85	5.86	5.87	5.88	5.89	5.90	5.91	5.92	5.93	5.94	5.95	5.96	5.97	5.98	5.99	6.00	6.01	6.02	6.03	6.04	6.05	6.06	6.07	6.08	6.09	6.10	6.11	6.12	6.13	6.14	6.15	6.16	6.17	6.18	6.19	6.20	6.21	6.22	6.23	6.24	6.25	6.26	6.27	6.28	6.29	6.30	6.31	6.32	6.33	6.34	6.35	6.36	6.37	6.38	6.39	6.40	6.41	6.42	6.43	6.44	6.45	6.46	6.47	6.48	6.49	6.50	6.51	6.52	6.53	6.54	6.55	6.56	6.57	6.58	6.59	6.60	6.61	6.62	6.63	6.64	6.65	6.66	6.67	6.68	6.69	6.70	6.71	6.72	6.73	6.74	6.75	6.76	6.77	6.78	6.79	6.80	6.81	6.82	6.83	6.84	6.85	6.86	6.87	6.88	6.89	6.90	6.91	6.92	6.93	6.94	6.95	6.96	6.97	6.98	6.99	7.00	7.01	7.02	7.03	7.04	7.05	7.06	7.07	7.08	7.09	7.10	7.11	7.12	7.13	7.14	7.15	7.16	7.17	7.18	7.19	7.20	7.21	7.22	7.23	7.24	7.25	7.26	7.27	7.28	7.29	7.30	7.31	7.32	7.33	7.34	7.35	7.36	7.37	7.38	7.39	7.40	7.41	7.42	7.43	7.44	7.45	7.46	7.47	7.48	7.49	7.50	7.51	7.52	7.53	7.54	7.55	7.56	7.57	7.58	7.59	7.60	7.61	7.62	7.63	7.64	7.65	7.66	7.67	7.68	7.69	7.70	7.71	7.72	7.73	7.74	7.75	7.76	7.77	7.78	7.79	7.80	7.81	7.82	7.83	7.84	7.85	7.86	7.87	7.88	7.89	7.90	7.91	7.92	7.93	7.94	7.95	7.96	7.97	7.98	7.99	8.00	8.01	8.02	8.03	8.04	8.05	8.06	8.07	8.08	8.09	8.10	8.11	8.12	8.13	8.14	8.15	8.16	8.17	8.18	8.19	8.20	8.21	8.22	8.23	8.24	8.25	8.26	8.27	8.28	8.29	8.30	8.31	8.32	8.33	8.34	8.35	8.36	8.37	8.38	8.39	8.40	8.41	8.42	8.43	8.44	8.45	8.46	8.47	8.48	8.49	8.50	8.51	8.52	8.53	8.54	8.55	8.56	8.57	8.58	8.59	8.60	8.61	8.62	8.63	8.64	8.65	8.66	8.67	8.68	8.69	8.70	8.71	8.72	8.73	8.74	8.75	8.76	8.77	8.78	8.79	8.80	8.81	8.82	8.83	8.84	8.85	8.86	8.87	8.88	8.89	8.90	8.91	8.92	8.93	8.94	8.95	8.96	8.97	8.98	8.99	9.00	9.01	9.02	9.03	9.04	9.05	9.06	9.07	9.08	9.09	9.10	9.11	9.12	9.13	9.14	9.15	9.16	9.17	9.18	9.19	9.20	9.21	9.22	9.23	9.24	9.25	9.26	9.27	9.28	9.29	9.30	9.31	9.32	9.33	9.34	9.35	9.36	9.37	9.38	9.39	9.40	9.41	9.42	9.43	9.44	9.45	9.46	9.47	9.48	9.49	9.50	9.51	9.52	9.53	9.54	9.55	9.56	9.57	9.58	9.59	9.60	9.61	9.62	9.63	9.64	9.65	9.66	9.67	9.68	9.69	9.70	9.71	9.72	9.73	9.74	9.75	9.76	9.77	9.78	9.79	9.80	9.81	9.82	9.83	9.84	9.85	9.86	9.87	9.88	9.89	9.90	9.91	9.92	9.93	9.94	9.95	9.96	9.97	9.98	9.99	10.00	10.01	10.02	10.03	10.04	10.05	10.06	10.07	10.08	10.09	10.10	10.11	10.12	10.13	10.14	10.15	10.16	10.17	10.18	10.19	10.20	10.21	10.22	10.23	10.24	10.25	10.26	10.27	



DRG No.	KAM/INT/01
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