

# Standard Details for Adoptable Pump Station Design

April 2024



YorkshireWater

# Standard Details for Adoptable Pump Station Design

The drawings included in this document are typical details for an adoptable pump station designed in accordance with the Design and Construction Guidance, Local Practices and Technical Standards contained within Code for Adoption.

Please refer to our Local Practice for Pump Stations (Design Criteria for the Adoption of Small Submersible Foul and Surface Water Pumping Stations) which can be found on our website

<https://www.yorkshirewater.com/developers/sewerage/>

These drawings are to be used as a guide for our design criteria. All drawings submitted for assessment must be site specific and detailed as such accordingly.

This document contains the following Standard Details for Adoptable Pump Station Design:

- YW-DS-SPS-001 – Pump Station Plan View General Arrangement
- YW-DS-SPS-002 – Pump Station Elevation General Arrangement
- YW-DS-SPS-003 – Compound (Single) General Arrangement
- YW-DS-SPS-004 – Pump Station Kiosk General Arrangement
- YW-DS-SPS-005 – Storage Kiosk General Arrangement
- YW-DS-SPS-006 – Pump Station Hazardous Zoning Detail
- YW-DS-SPS-007 – Pump Station – Site View (Dual Pump)
- YW-DS-SPS-008 – Pump Station – Boundary Treatment

## For further information please contact us:

Telephone 0345 120 8482

Email [technical.sewerage@yorkshirewater.co.uk](mailto:technical.sewerage@yorkshirewater.co.uk)

Web <https://www.yorkshirewater.com/developers/sewerage/>

Electric hoist equipment must be provided when the pumping traverse distance is in excess of 6m and a 110 volt plug must be installed within the kiosk for the hoist

All Adoptable Sewer works & materials to be in accordance with the Code for Adoption Edition, the relevant British, European & Yorkshire Water standards, requirements & Local Practice to the Mechanical & Electrical Specification and Kite Marked.

IF BOXOUT HOLES TO BE CORE DRILLED. Civil's To Ensure All Core Drillings Are Parallel To Centre Line / Perpendicular To Valve Chamber

All Cut Pipe Joints As Close To Structures As Possible Consistent With Making The Joint. The Rocker Pipes To Be 1m Or Equal To One Nominal Pipe Diameter Whichever Is The Larger

**Operating Levels**

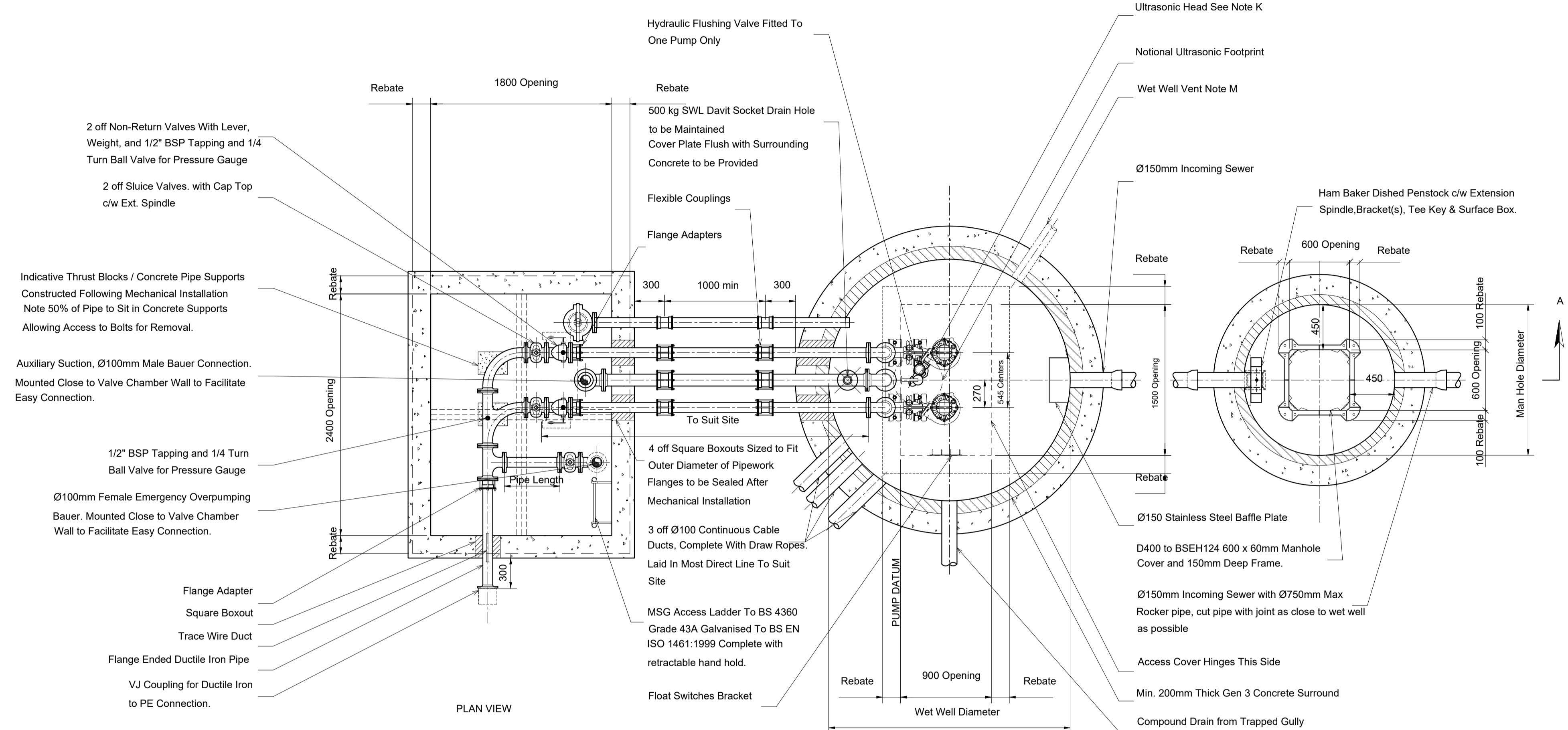
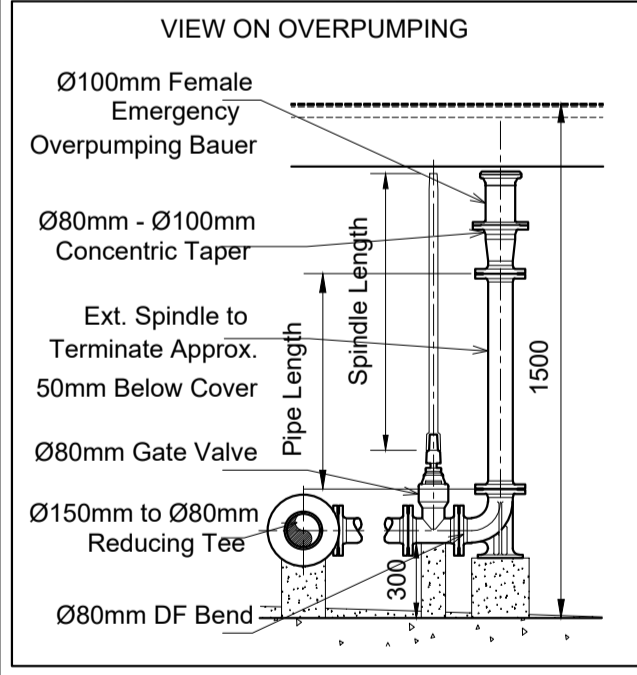
Storage TWL	=	***
Invert Of Inlet	=	***
Invert Of H.L.A.	=	***
Invert Of P2 Start	=	***
Invert Of P1 Start	=	***
Invert Of B.W.L.	=	***
Invert Of W/W Floor	=	***
Dead Area	=	***mm
Operating Depth	=	***mm
Operating Volume	=	*** Litres
Pump Flow	=	*** Litres/second

From the above: (\*\*\* x 2)/(\*\*\* / 2) = \*\*\* secs  
\*\*\* seconds divided into 3600 = \*\*\* starts / hour

**Telemetry**  
The developer will supply, install and commission the telemetry at their expense. Yorkshire Water telemetry system is the Metashere MMIM Outstation

**Guide Rails**  
Galvanised steel twin circular cross section guard rails are required. Maximum 3m lengths. Where the depth of the wet well is greater than 3m, ie. 5m then 2 x 25m lengths supported joined by an intermediate bracket at the midpoint. The top of the guide rail bracket shall be securely fixed no more than 150mm below the level of the access cover, and shall be electrically earthed with equipotential bonding.

The top guide rail support bracket shall have a suitable hopok for the attachment of the submersible pumps stainless steel lifting chain when it is not in use.

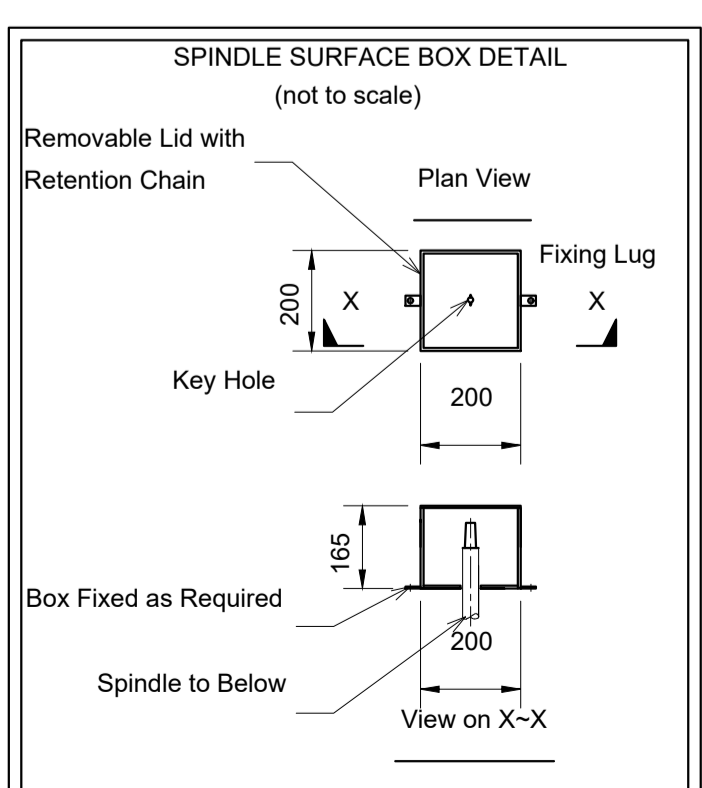


- Cover to re-inforcement to be 40mm to both faces
- Spacers to be 1200mm centre to centre.
- Concrete to be 30 N/mm at 28 days.
- Ground bearing pressure taken as 50 KN/M.
- No day work joints permitted in slabs.
- All soft spots to be removed and replaced by suitable material
- Provide 50mm blinding concrete.
- All workmanship and materials must conform to current codes of practice and building regulations
- Minimum bar lap length 800mm.
- Wet well and valve chamber covers to be as supplied by pump supplier.
- To be read in conjunction with the civils details.
- Any over break between the last access chamber and the wet well and between the wet well and the valve chamber to be filled with lean mix concrete.
- Wet well to be clean and dry before installation of pumps commences.
- Dewatering to be provided if necessary as works proceed
- Rising main to be (specification and length to be confirmed) long, marked with non degradable marker tape above rising main containing a trace wire terminating with 1m of wire coiled inside the valve chamber. Colour of rising main to be black/grey
- Cut out and cut in levels to be established on site by pump supplier
- The bracket for holding the davit equipment should be kept in the kiosk.
- All regular level switches used within the hazardous area must be "ex rated"

All Adoptable Sewer works & materials to be in accordance with Codes For Adoption, the relevant British, European & Yorkshire Water standard requirements & Local Practice to the Mechanical and Electrical Specification and Kite Marked.

IF BOXOUT HOLES TO BE CORE DRILLED. Civil's To Ensure All Core Drillings Are Parallel To Centre Line / Perpendicular To Valve Chamber

All Cut Pipe Joints As Close To Structures As Possible Consistent With Making The Joint. The Rocker Pipes To Be 1m Or Equal To One Nominal Pipe Diameter Whichever Is The Larger



**PUMP INFORMATION**

PUMP TYPE	: ***
IMPELLER	: ***
MOTOR RATING	: ***k.W. Ex.P. ***A FLC
DUTY FLOW	: ***l/s
HEAD GENERATED	: ***m
PIPE / VALVE SIZE	: Ø***mm
TYPE OF LEVEL CONTROL	HYDRORANGER
	ULTRASONIC C/W HIGH LEVEL ALARM AND BACK UP FLOAT SWITCHES
FINAL CONNECTION	: DUCTILE IRON
TERMINATION	: FLANGE ENDED
PIPE O.D.	: Ø***mm
FLANGE DATA	: PN16
RM COUPLER	: Ø***OD Ductile Ø*** PE Converter

**Notes**

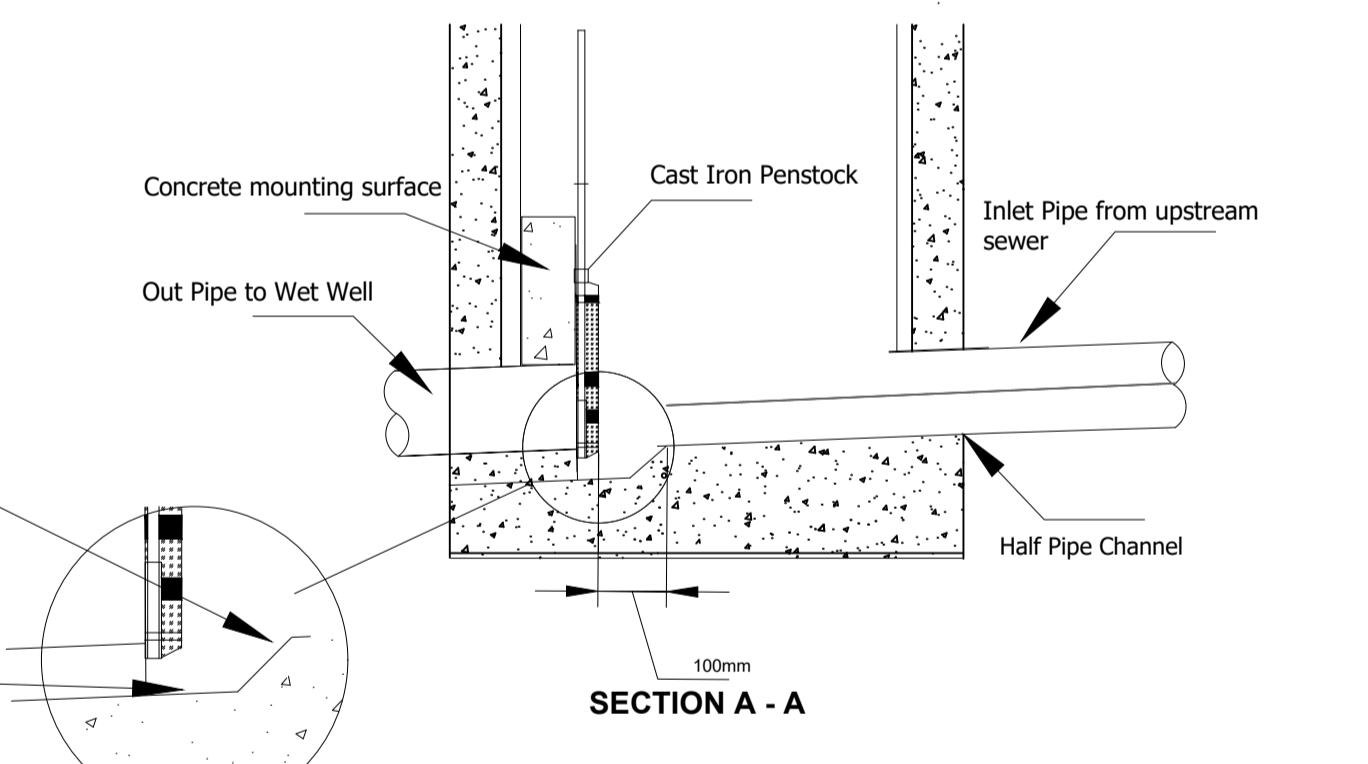
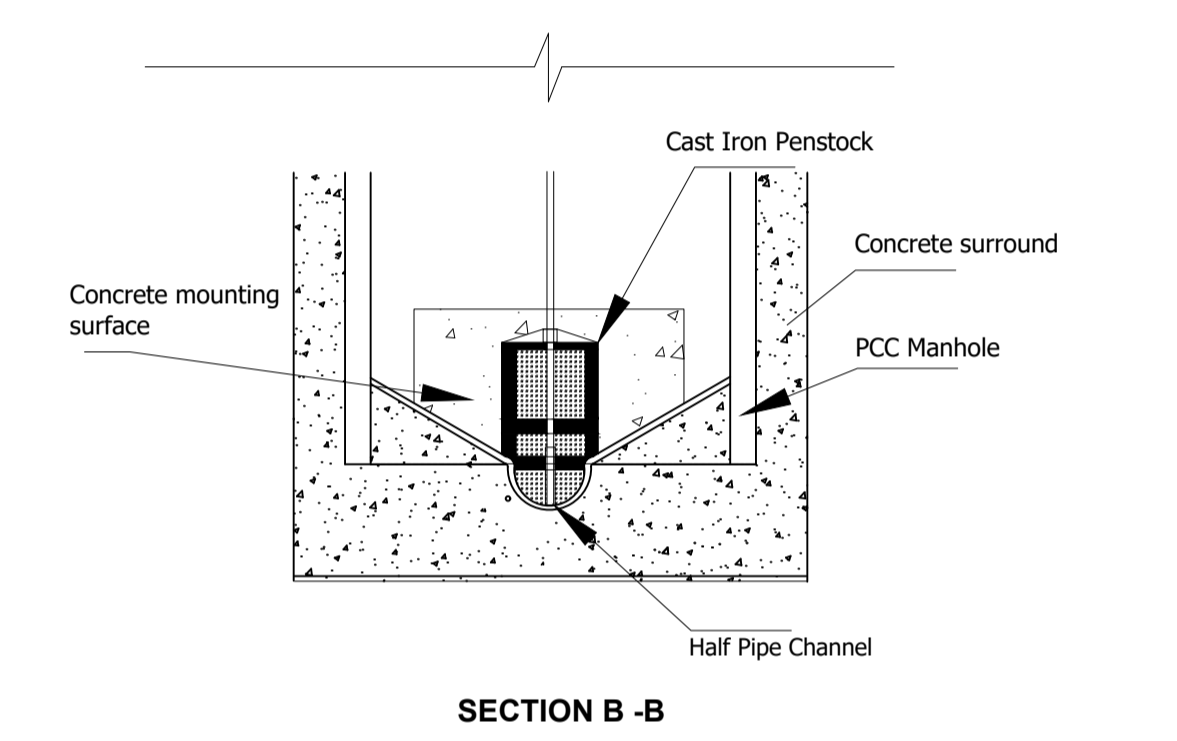
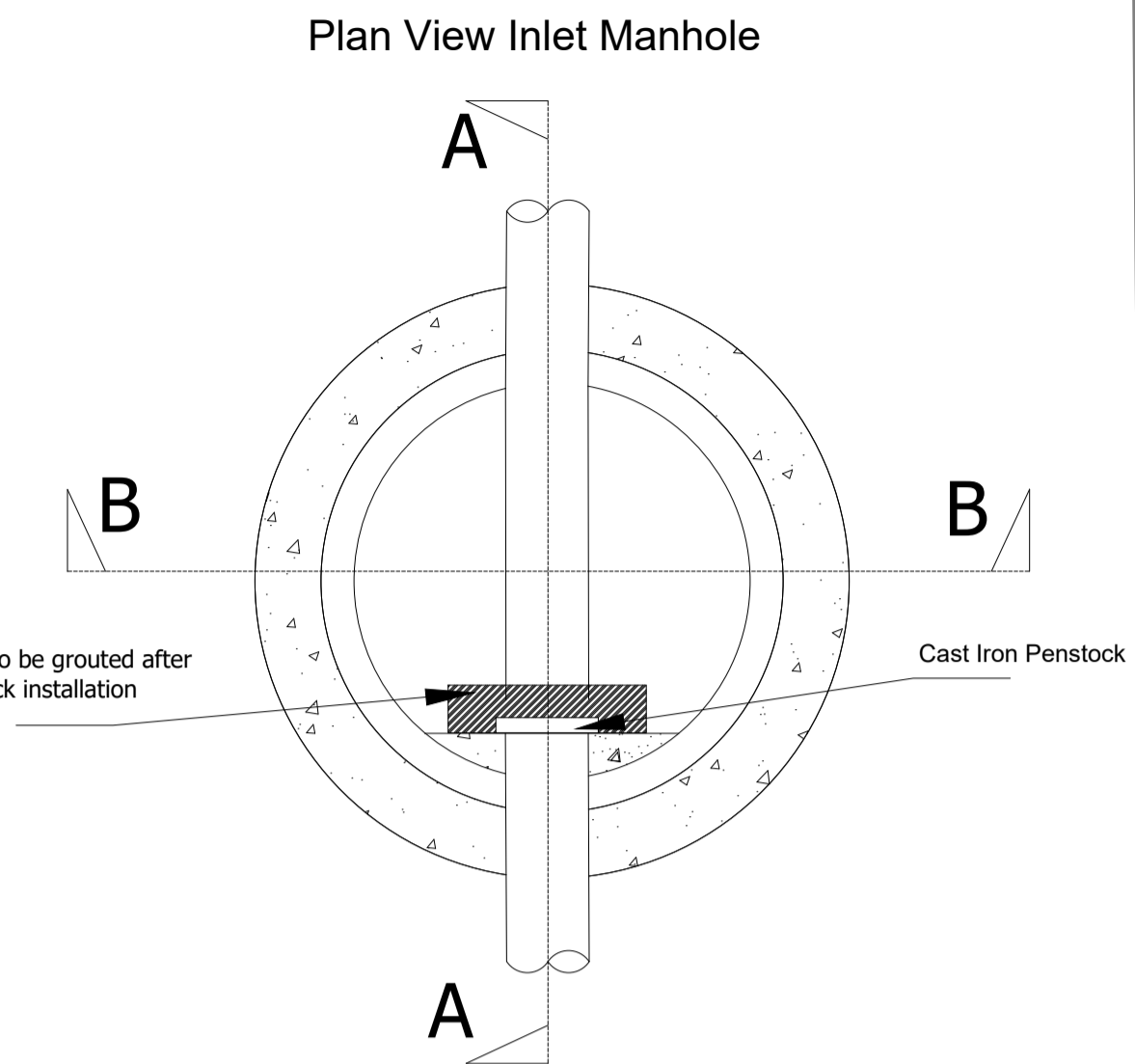
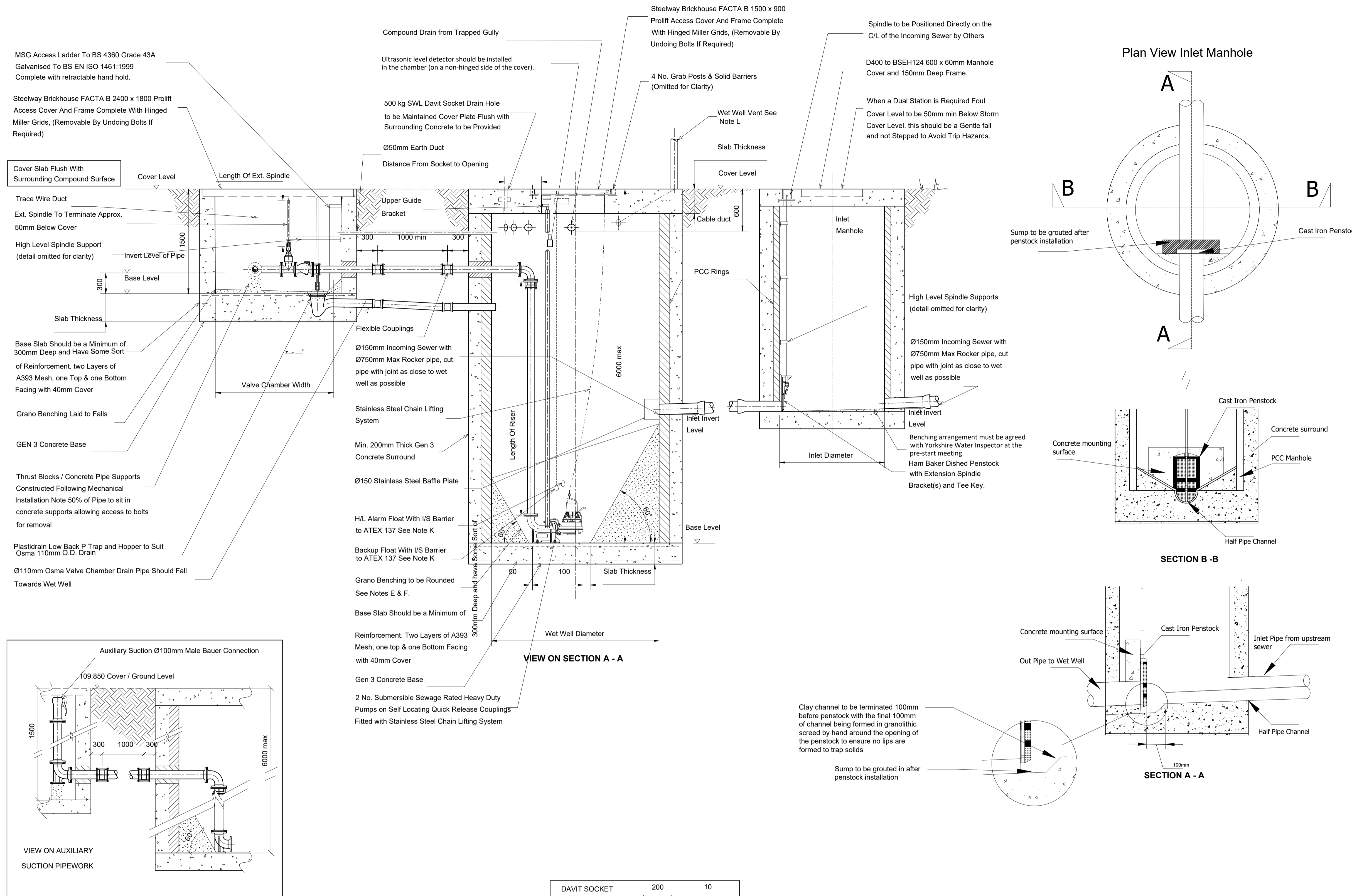
- Do not scale
- All dimensions in millimetres.
- All inverts in metres Above Ordnance Datum (AOD) unless otherwise stated.
- All civil work by others including making good around pipes after installation benching, fixing access covers and laying cable ducts.
- Reinforcing bars to be 75mm min. Below surface. Structural detail illustrative only, may be worked to for dimensions
- Benching to be formed as laid down in 'Code for Adoption' and to local/adopting authority specifications.
- Benching to be formed after pump installation.
- All ducts 100 i.d. Min. Complete with draw ropes and avoiding acute changes of direction. Service ducts to suppliers specifications
- Direction of ducts shown diagrammatically - all ducts to be laid on most direct line to suit service being carried.
- Site plan illustrative if no specific details previously provided.
- Level controls shown notionally, to be positioned away from obstructions, levels readily adjustable after installation.
- Civil works are indicative and should not be used for construction.
- Galvanised mild steel vent stack with a minimum diameter of 100mm fitted with a mild steel mesh at the top; where located in a fenced compound the vent stack should terminate at the same height as the boundary fencing or in residential areas the stack can be a minimum of 100mm or up to the height of the fence with a swan neck.
- Covers to be capable of being lifted with an effort not exceeding 25kg.
- All fittings to be stainless steel.

Developer Services

Title	PUMP STATION PLAN VIEW GENERAL ARRANGEMENT
Drawing No	YW-DS-SPS-001
Date	01/04/2024

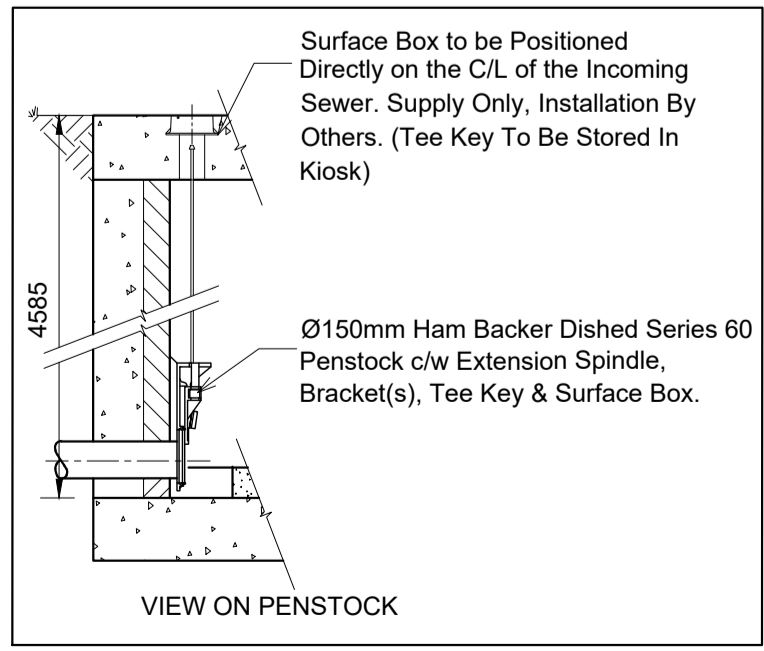
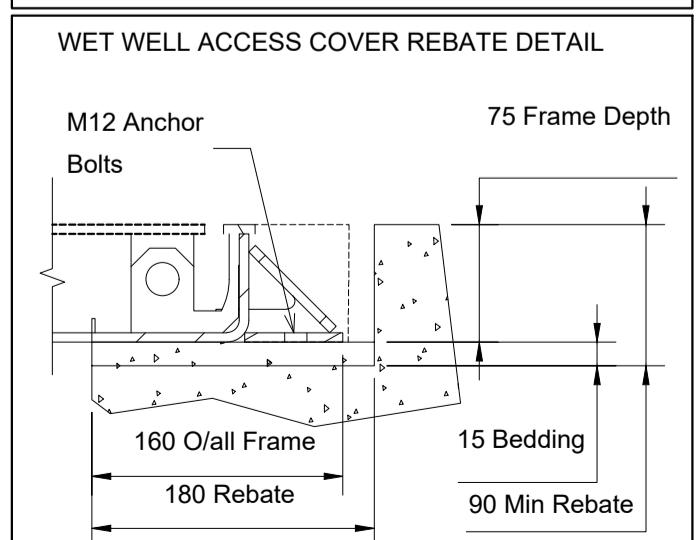
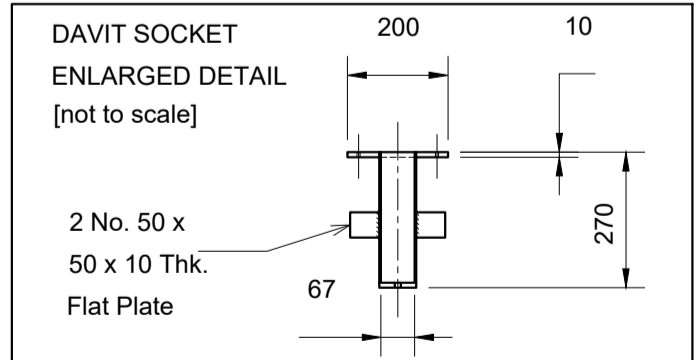






- Notes**
- A. Do not scale
  - B. All dimensions in millimetres.
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  - D. All civil work by others including making good around pipes after installation benching, fixing access covers and laying cable ducts.
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  - I. Direction of ducts shown diagrammatically - all ducts to be laid on most direct line to suit service being carried.
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  - K. Level controls shown notionally, to be positioned away from obstructions, levels readily adjustable after installation.
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  - M. Galvanized mild steel vent stack with a minimum diameter of 100mm fitted with a mild steel mesh at the top; where located in a fenced compound the vent stack should terminate at the same height as the boundary fencing or in residential areas the stack can be a minimum of 100mm or up to the height of the fence with a swan neck.
  - N. Covers to be capable of being lifted with an effort not exceeding 25kg.
  - O. All fittings to be stainless steel.

1. Cover to re-inforcement to be 40mm to both faces
2. Spacers to be 1200mm centre to centre.
3. Concrete to be 30 N/mm at 28 days.
4. Ground bearing pressure taken as 50 KN/M.
5. No day work joints permitted in slabs.
6. All soft spots to be removed and replaced by suitable material
7. Provide 50mm blinding concrete.
8. All workmanship and materials must conform to current codes of practice and building regulations
9. Minimum bar lap length 800mm.
10. Wet well and valve chamber covers to be as supplied by pump supplier.
11. To be read in conjunction with the civils details.
12. Any over break between the last access chamber and the wet well and between the wet well and the valve chamber to be filled with lean mix concrete.
13. Wet well to be clean and dry before installation of pumps commences.
14. Dewatering to be provided if necessary as works proceed
15. Rising main to be (specification and length to be confirmed) long, marked with non degradable marker tape above rising main containing a trace wire terminating with 1m of wire coiled inside the valve chamber. Colour of rising main to be black/grey
16. Cut out and cut in levels to be established on site by pump supplier
17. The bracket for holding the davit equipment should be kept in the kiosk.
18. All regular level switches used within the hazardous area must be "ex rated"
19. Thrust blocks to be provided at changes in direction.
20. Statutory services to provide adequate services to pump station and kiosk and to allow for all necessary requirements
21. Kiosk to be provided to the latest yw codes for adoption m & e addendum.
22. Ducts within wet well should not be sealed with foam, they should be sealed within the kiosk.
23. External levels around the boundary compound to be agreed in a pre-start meeting with an inspector, so that they flow towards the gully.



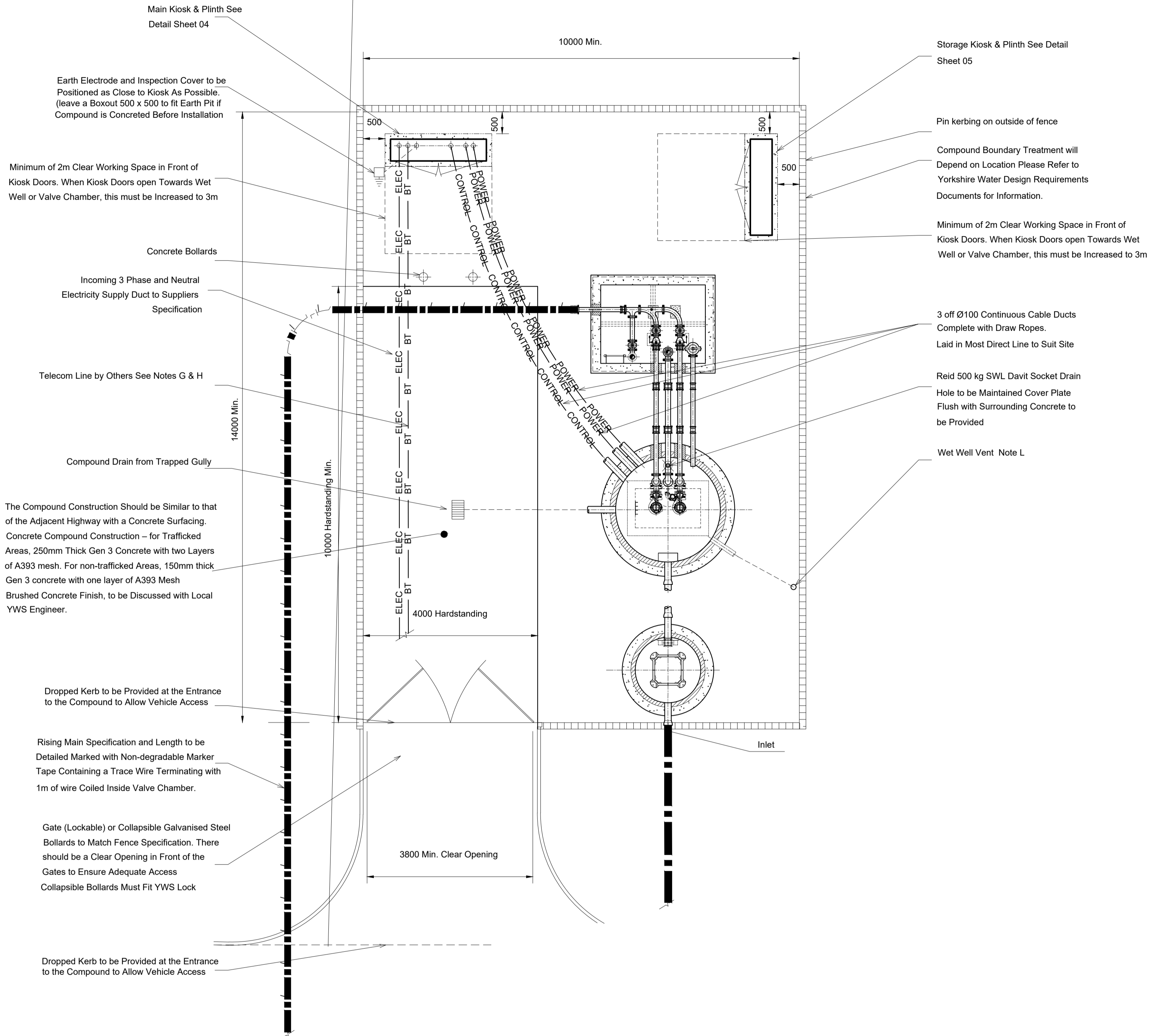
- Preparation**
- The penstock mounting surface is to be clean, flat and free from debris
  - The operating spindle at a suitable point of access for operating.
  - The mounting surface must be large enough to accommodate the penstock, see section B-B.
  - In order to fit the penstock an area of the manhole base will need to be left unfinished and then complete once the penstock is fitted, see section A-A and B-B.
- Fitting**
- The penstock must be fitted to the mounting surface as per the manufactures details which will include the supplied gasket or a YW approved sealing compound.
- Half channel and benching**
- With the penstock in the open position, the half channel will be to the face of the penstock gate and cut short 100mm.
  - The 100mm half channel gap must be complete by hand to a smooth finish.
  - The penstock must be checked to ensure the gate can open and close smoothly.
  - The manhole must then be benched at 30°.

**Developer Services**

Title	PUMP STATION ELEVATION GENERAL ARRANGEMENT
Drawing No	YW-DS-SPS-002
Date	01/04/2024







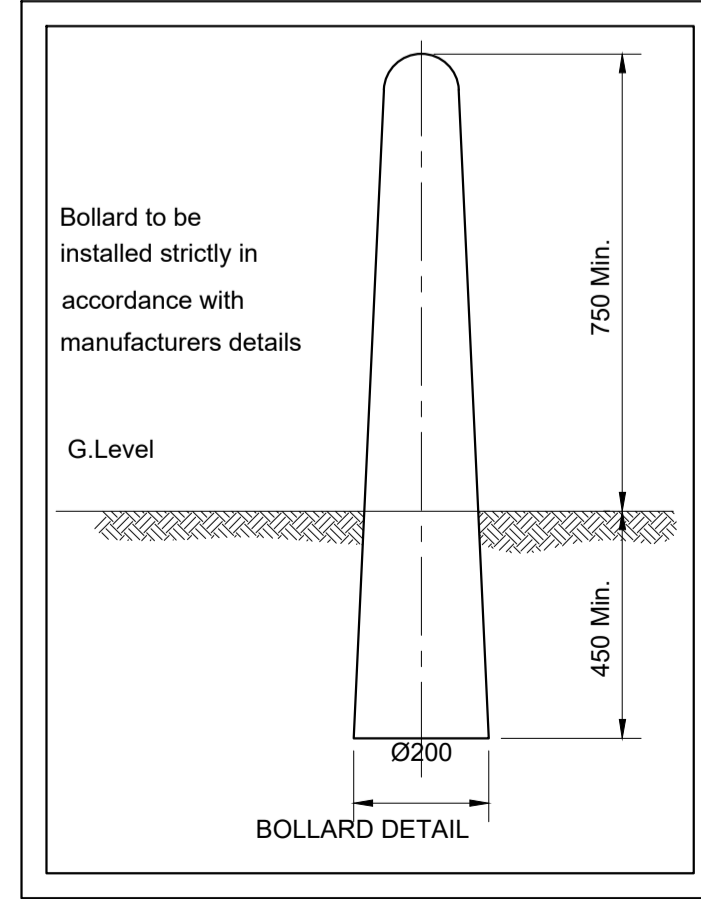
**Notes**

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- D. All civil work by others including making good around pipes after installation benching, fixing access covers and laying cable ducts.
- E. Reinforcing bars to be 75mm min. Below surface. Structural detail illustrative only, may be worked to for dimensions
- F. Benching to be formed as laid down in 'Code for Adoption' and to local/adopting authority specifications.
- G. Benching to be formed after pump installation.
- H. All ducts 100 i.d. Min. Complete with draw ropes and avoiding acute changes of direction. Service ducts to suppliers specifications
- I. Direction of ducts shown diagrammatically - all ducts to be laid on most direct line to suit service being carried.
- J. Site plan illustrative if no specific details previously provided.
- K. Level controls shown notionally, to be positioned away from obstructions, levels readily adjustable after installation.
- L. Civil works are indicative and should not be used for construction.
- M. Galvanized mild steel vent stack with a minimum diameter of 100mm fitted with a mild steel mesh at the top; where located in a fenced compound the vent stack should terminate at the same height as the boundary fencing or in residential areas the stack can be a minimum of 100mm or up to the height of the fence with a swan neck.
- N. Covers to be capable of being lifted with an effort not exceeding 25kg.
- O. All fittings to be stainless steel.

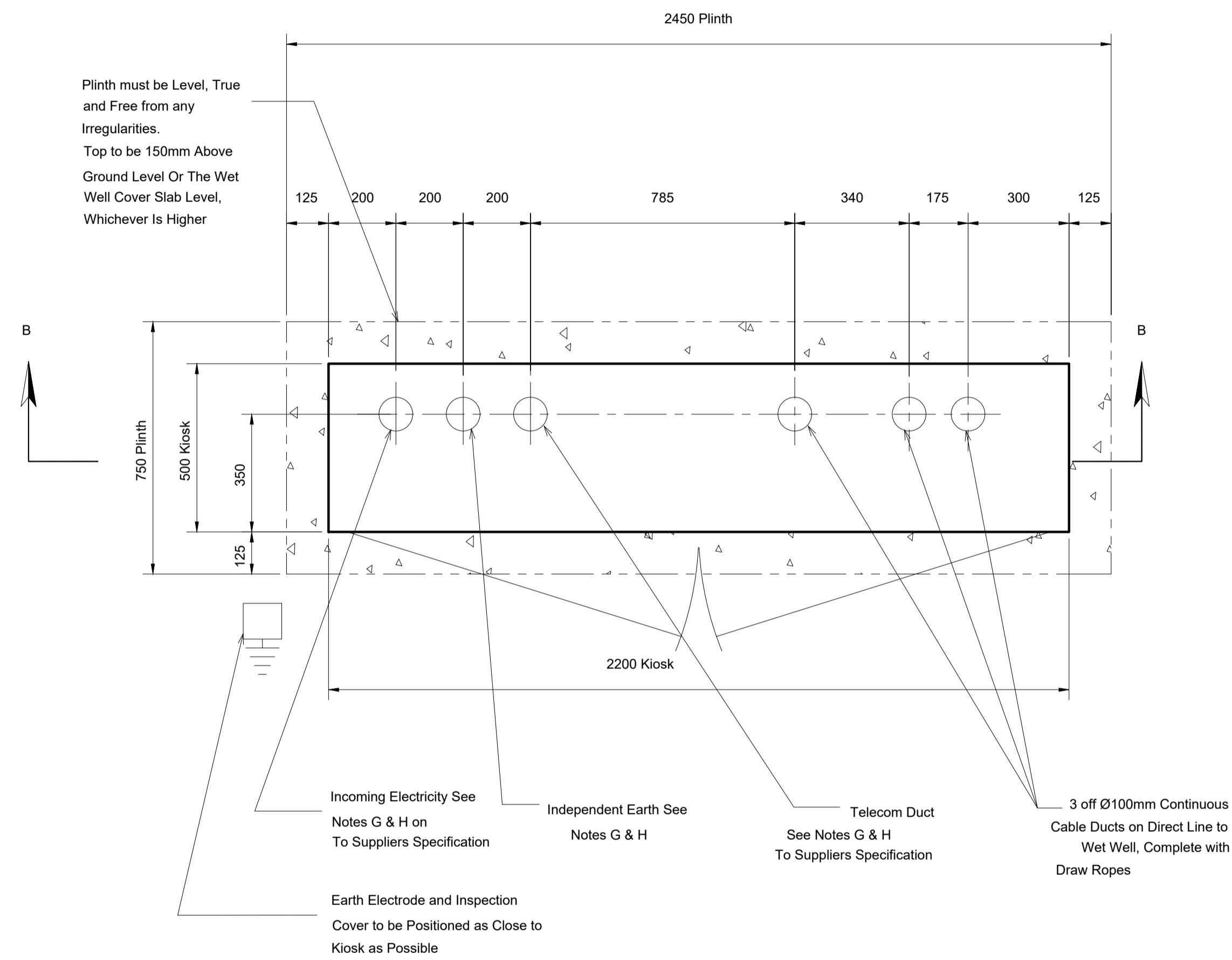
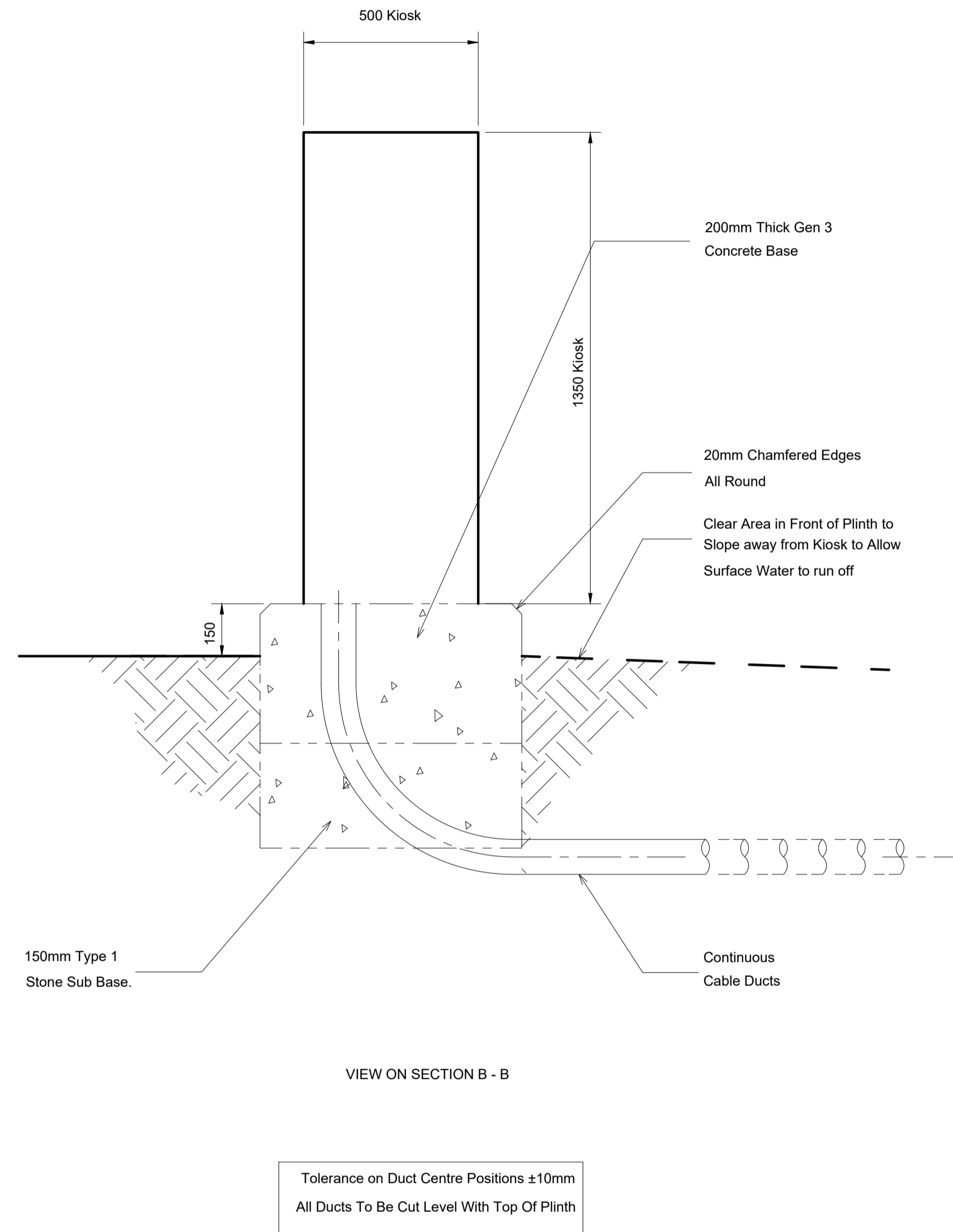
Developer Services

Title	COMPOUND (SINGLE) GENERAL ARRANGEMENT
Drawing No	YW-DS-SPS-003
Date	01/04/2024

- 1. Cover to re-inforcement to be 40mm to both faces
- 2. Spacers to be 1200mm centre to centre.
- 3. Concrete to be 30 N/mm at 28 days.
- 4. Ground bearing pressure taken as 50 KN/M.
- 5. No day work joints permitted in slabs.
- 6. All soft spots to be removed and replaced by suitable material
- 7. Provide 50mm blinding concrete.
- 8. All workmanship and materials must conform to current codes of practice and building regulations
- 9. Minimum bar lap length 800mm.
- 10. Wet well and valve chamber covers to be as supplied by pump supplier.
- 11. To be read in conjunction with the civils details.
- 12. Any over break between the last access chamber and the wet well and between the wet well and the valve chamber to be filled with lean mix concrete.
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- 14. Dewatering to be provided if necessary as works proceed
- 15. Rising main to be (specification and length to be confirmed) long, marked with non degradable marker tape above rising main containing a trace wire terminating with 1m of wire coiled inside the valve chamber. Colour of rising main to be black/grey
- 16. Cut out and cut in levels to be established on site by pump supplier
- 17. The bracket for holding the davit equipment should be kept in the kiosk.
- 18. All regular level switches used within the 'hazardous area must be "ex rated"
- 19. Thrust blocks to be provided at changes in direction.
- 20. Statutory services to provide adequate services to pump station and kiosk and to allow for all necessary requirements
- 21. Kiosk to be provided to the latest yw codes for adoption m & e addendum.
- 22. Ducts within wet well should not be sealed with foam, they should be sealed within the kiosk.
- 23. External levels around the boundary compound to be agreed in a pre-start meeting with an inspector, so that they flow towards the gully.



Kiosk Complies With Yorkshire Water's Code For Adoption  
The Kiosk standard must be LPCB SR3



**Notes**

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- N. Covers to be capable of being lifted with an effort not exceeding 25kg.
- O. All fittings to be stainless steel.

- 1. Cover to re-inforcement to be 40mm to both faces
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- 8. All workmanship and materials must conform to current codes of practice and building regulations
- 9. Minimum bar lap length 800mm.
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- 23. External levels around the boundary compound to be agreed in a pre-start meeting with an inspector, so that they flow towards the gully.
- 24. The Kiosk standard must be LPCB SR3

KIOSK DOORS FITTED WITH TRIANGULAR KEYED CAMLOCKS AT THE TOP AND BOTTOM OF EACH DOOR AND A SECURE HARDENED HASP AND STAPLE SIZED TO TAKE A YORKSHIRE WATER SIZED SERVICES PADLOCK.

ALL CABLE DUCTS TO BE SEALED IN THE KIOSK AND CAPPED WITH A WITH A GAS TIGHT SEALING PUTTY 10ATEX 137 DIRECTIVE.

Developer Services

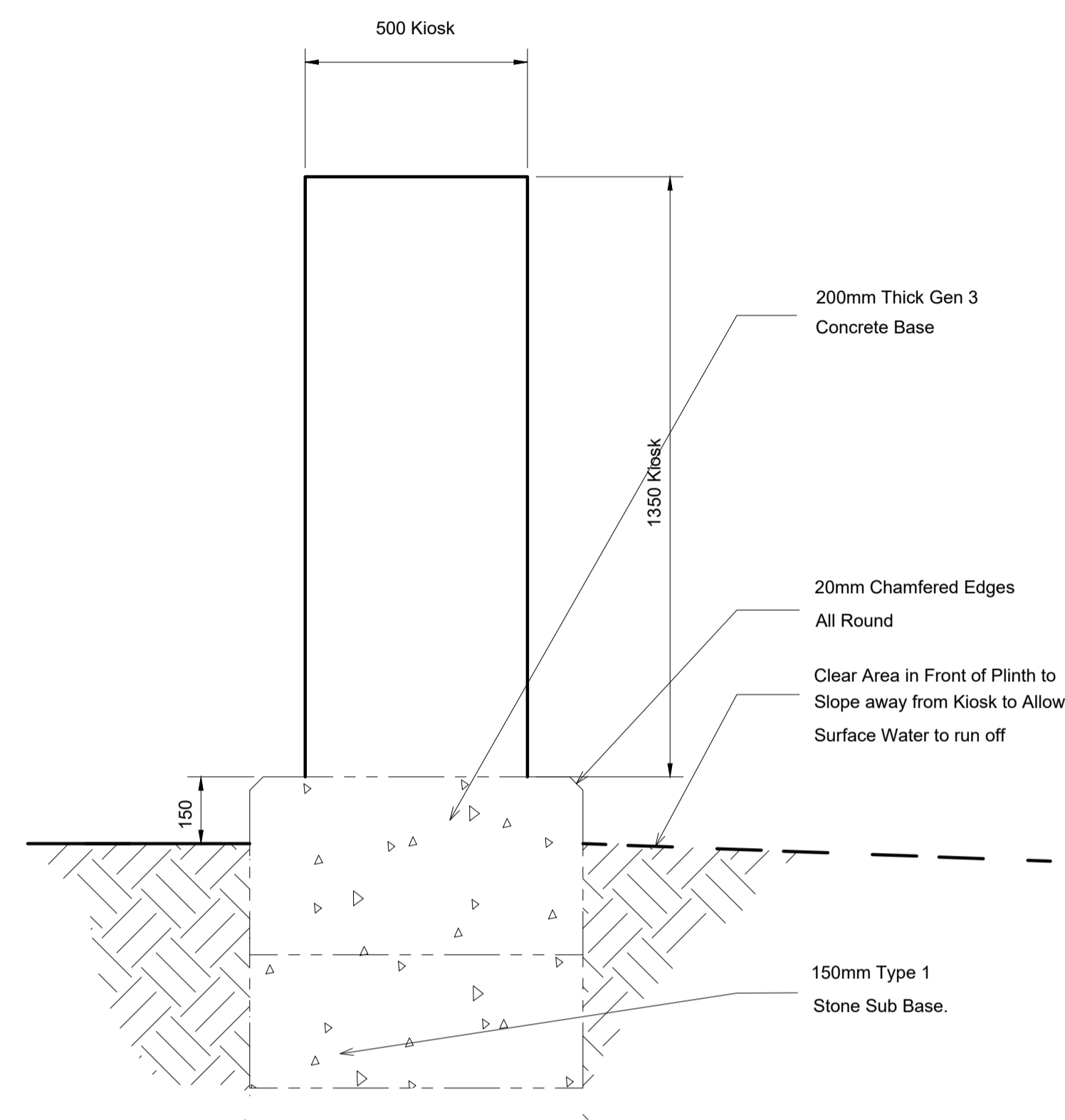
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Drawing No	YW-DS-SPS-004
Date	01/04/2024



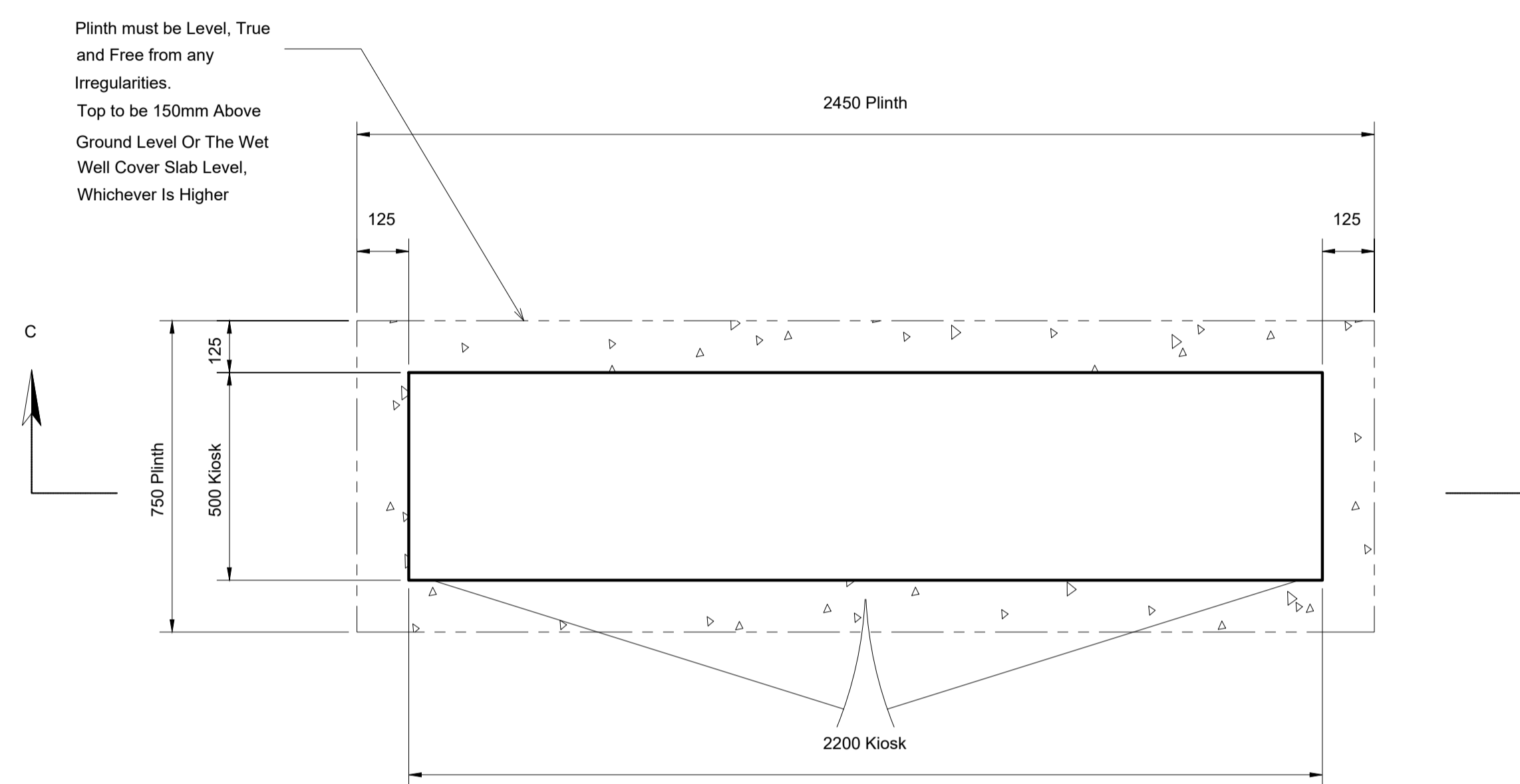


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- O. All fittings to be stainless steel.



VIEW ON SECTION C - C



- |   |   |  |
|---|---|--|
| <ol style="list-style-type: none"> <li>1. Cover to re-inforcement to be 40mm to both faces</li> <li>2. Spacers to be 1200mm centre to centre.</li> <li>3. Concrete to be 30 N/mm at 28 days.</li> <li>4. Ground bearing pressure taken as 50 KN/M.</li> <li>5. No day work joints permitted in slabs.</li> <li>6. All soft spots to be removed and replaced by suitable material</li> <li>7. Provide 50mm blinding concrete.</li> <li>8. All workmanship and materials must conform to current codes of practice and building regulations</li> <li>9. Minimum bar lap length 800mm.</li> <li>10. Wet well and valve chamber covers to be as supplied by pump supplier.</li> <li>11. To be read in conjunction with the civils details.</li> </ol> | <ol style="list-style-type: none"> <li>12. Any over break between the last access chamber and the wet well and between the wet well and the valve chamber to be filled with lean mix concrete.</li> <li>13. Wet well to be clean and dry before installation of pumps commences.</li> <li>14. Dewatering to be provided if necessary as works proceed</li> <li>15. Rising main to be (specification and length to be confirmed) long, marked with non degradable marker tape above rising main containing a trace wire terminating with 1m of wire coiled inside the valve chamber. Colour of rising main to be black/grey</li> <li>16. Cut out and cut in levels to be established on site by pump supplier</li> <li>17. The bracket for holding the davit equipment should be kept in the kiosk.</li> <li>18. All regular level switches used within the hazardous area must be "ex rated"</li> </ol> | <ol style="list-style-type: none"> <li>19. Thrust blocks to be provided at changes in direction.</li> <li>20. Statutory services to provide adequate services to pump station and kiosk and to allow for all necessary requirements</li> <li>21. Kiosk to be provided to the latest yw codes for adoption m &amp; e addendum.</li> <li>22. Ducts within wet well should not be sealed with foam, they should be sealed within the kiosk.</li> <li>23. External levels around the boundary compound to be agreed in a pre-start meeting with an inspector, so that they flow towards the gully.</li> <li>24. The Kiosk standard must be LPC8 SR3</li> </ol> |
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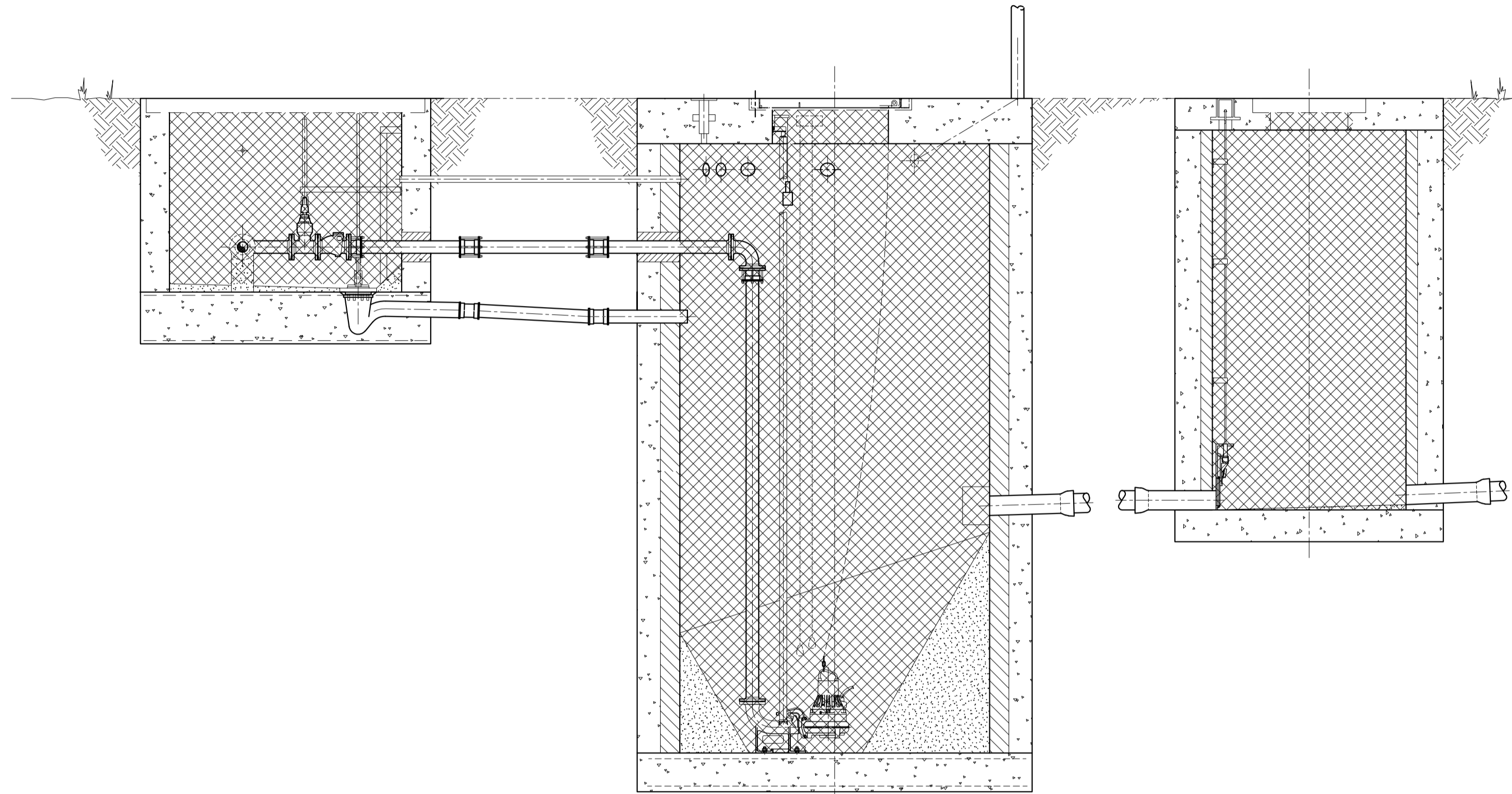
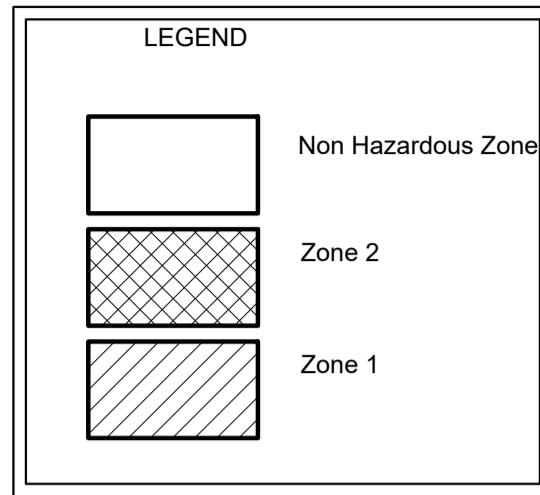
KIOSK DOORS FITTED WITH TRIANGULAR KEYED CAMLOCKS AT THE TOP AND BOTTOM OF EACH DOOR AND A SECURE HARDENED HASP AND STAPLE SIZED TO TAKE A YORKSHIRE WATER SIZED SERVICES PADLOCK.

Developer Services

Title	STORAGE KIOSK GENERAL ARRANGEMENT
Drawing No	YW-DS-SPS-005
Date	01/04/2024



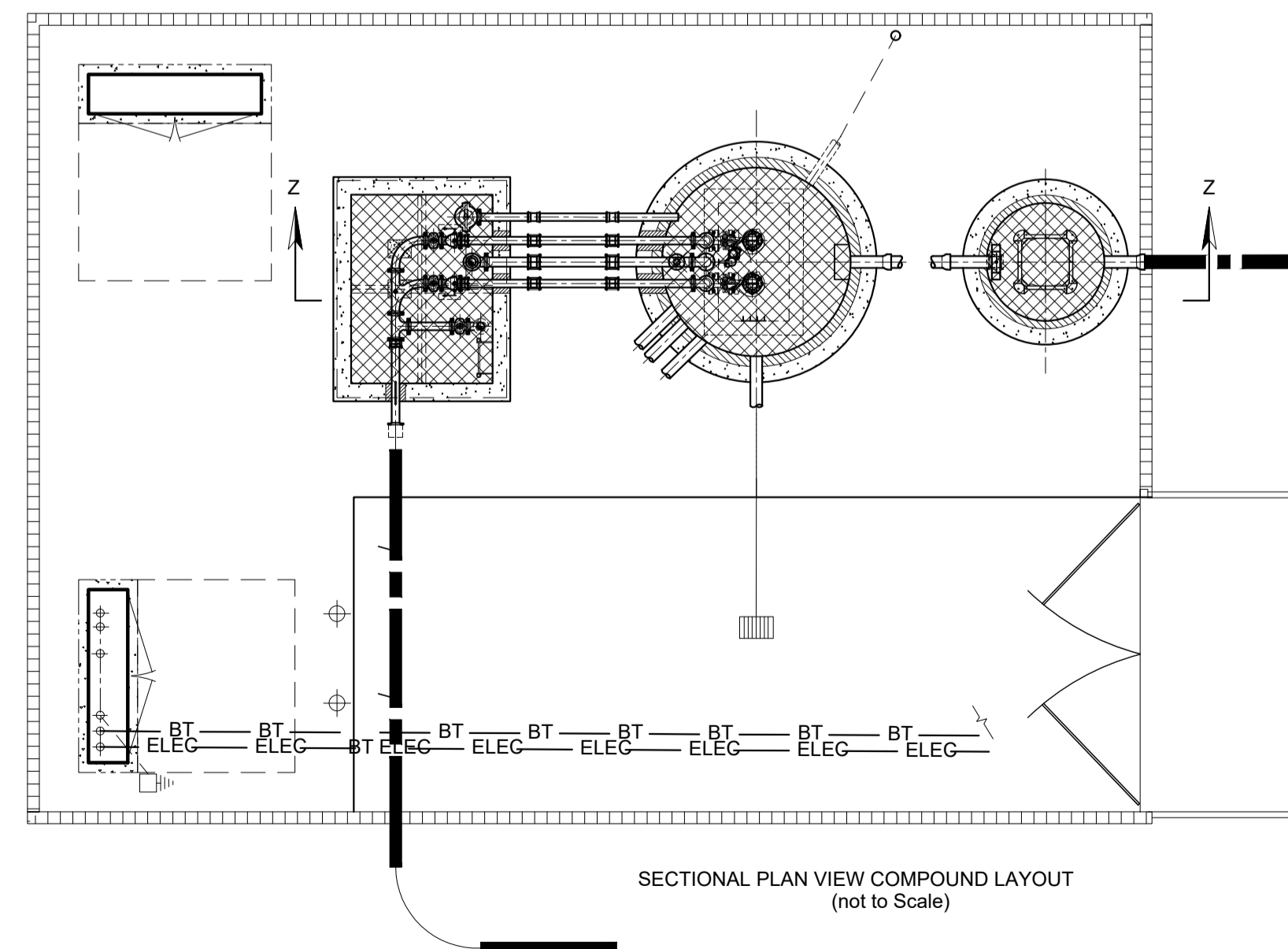




VIEW ON SECTION Z-Z  
HAZARDOUS AREA DETAIL  
IN ACCORDANCE WITH SFA7.D6.2

Cable Ducts in accordance with Code for Adoption and BS EN 1401-01 & BS 4660 sealed with rise sealant system Gas + waterproof sealant system

1. Cover to re-inforcement to be 40mm to both faces
2. Spacers to be 1200mm centre to centre.
3. Concrete to be 30 N/mm at 28 days.
4. Ground bearing pressure taken as 50 KN/M.
5. No day work joints permitted in slabs.
6. All soft spots to be removed and replaced by suitable material
7. Provide 50mm blinding concrete.
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14. Dewatering to be provided if necessary as works proceed
15. Rising main to be (specification and length to be confirmed) long, marked with non degradable marker tape above rising main containing a trace wire terminating with 1m of wire coiled inside the valve chamber. Colour of rising main to be black/grey
16. Cut out and cut in levels to be established on site by pump supplier
17. The bracket for holding the davit equipment should be kept in the kiosk.
18. All regular level switches used within the hazardous area must be "ex rated"
19. Thrust blocks to be provided at changes in direction.
20. Statutory services to provide adequate services to pump station and kiosk and to allow for all necessary requirements
21. Kiosk to be provided to the latest yw codes for adoption m & e addendum.
22. Ducts within wet well should not be sealed with foam, they should be sealed within the kiosk.
23. External levels around the boundary compound to be agreed in a pre-start meeting with an inspector, so that they flow towards the gully.



**Notes**

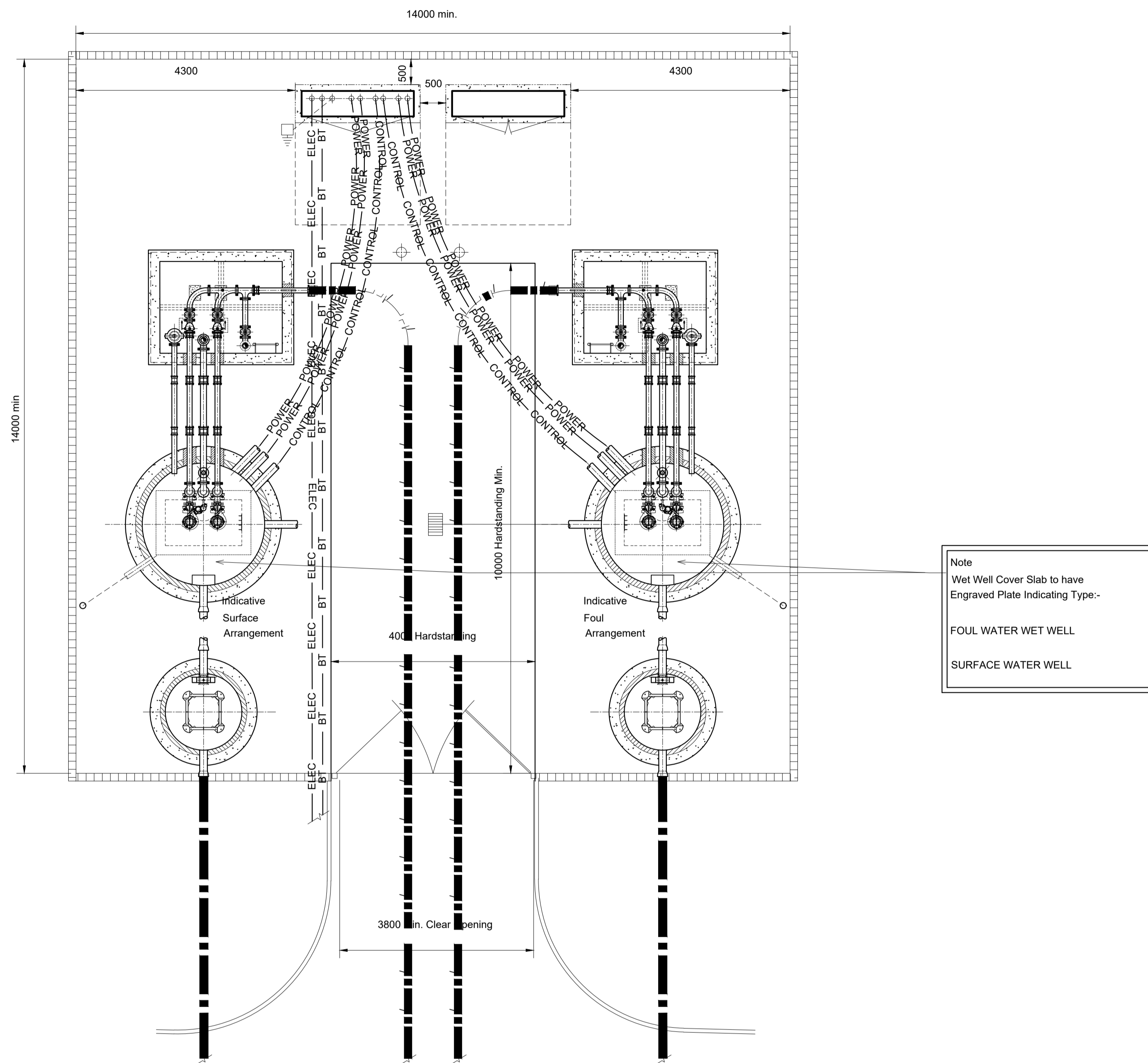
- A. Do not scale
- B. All dimensions in millimetres.
- C. All inverts in metres Above Ordnance Datum (AOD) unless otherwise stated.
- D. All civil work by others including making good around pipes after installation benching, fixing access covers and laying cable ducts.
- E. Reinforcing bars to be 75mm min. Below surface. Structural detail illustrative only, may be worked to for dimensions
- F. Benching to be formed as laid down in 'Code for Adoption' and to local/adopting authority specifications.
- G. Benching to be formed after pump installation.
- H. All ducts 100 i.d. Min. Complete with draw ropes and avoiding acute changes of direction. Service ducts to suppliers specifications
- I. Direction of ducts shown diagrammatically - all ducts to be laid on most direct line to suit service being carried.
- J. Site plan illustrative if no specific details previously provided.
- K. Level controls shown notionally, to be positioned away from obstructions, levels readily adjustable after installation.
- L. Civil works are indicative and should not be used for construction.
- M. Galvanized mild steel vent stack with a minimum diameter of 100mm fitted with a mild steel mesh at the top; where located in a fenced compound the vent stack should terminate at the same height as the boundary fencing or in residential areas the stack can be a minimum of 100mm or up to the height of the fence with a swan neck.
- N. Covers to be capable of being lifted with an effort not exceeding 25kg.
- O. All fittings to be stainless steel.

**Developer Services**

Title	PUMP STATION - HAZARDOUS ZONING DETAIL
Drawing No	YW-DS-SPS-006
Date	01/04/2024







**Notes**

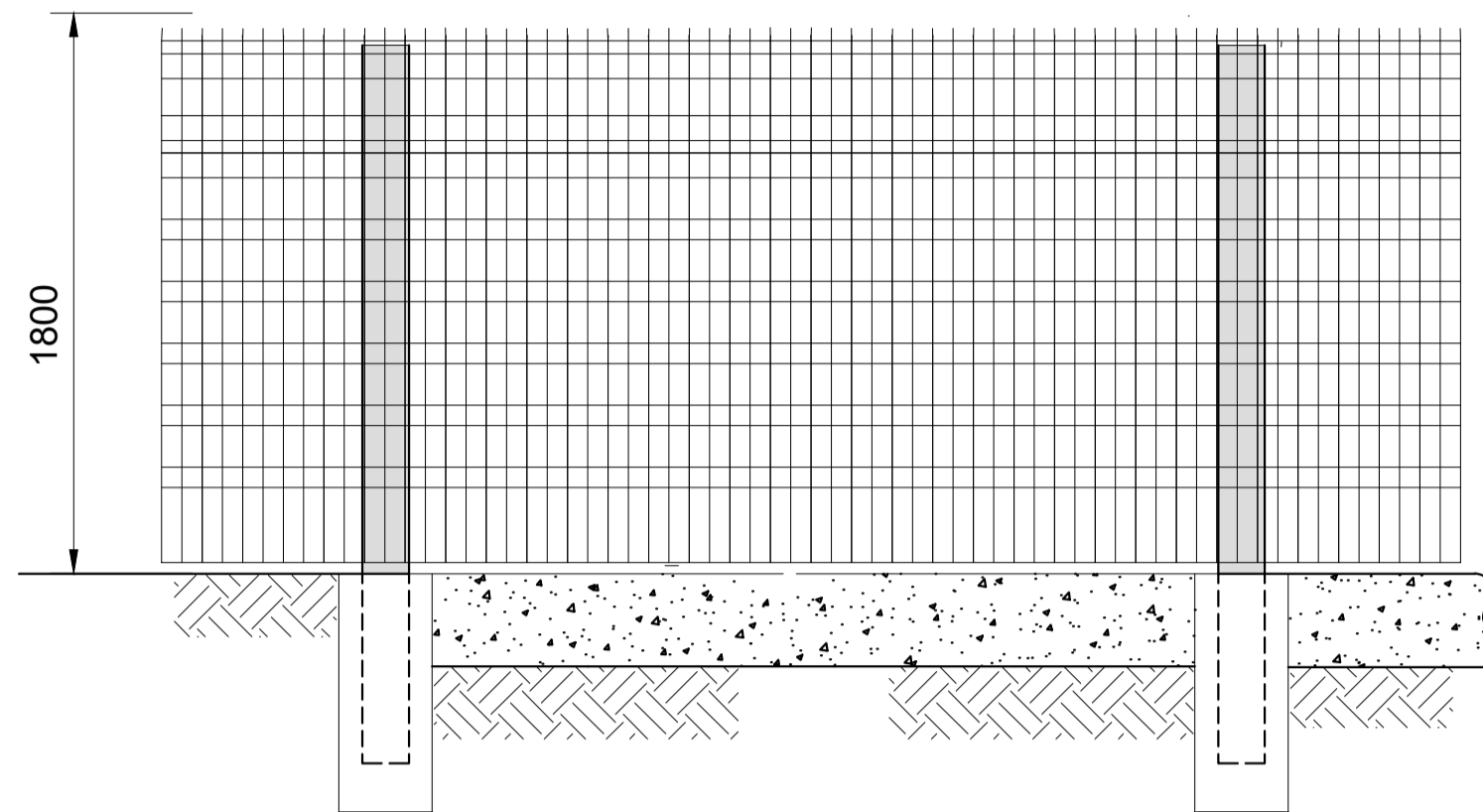
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- N. Covers to be capable of being lifted with an effort not exceeding 25kg.
- O. All fittings to be stainless steel.

- |   |   |   |
|---|---|---|
| <ol style="list-style-type: none"> <li>1. Cover to re-inforcement to be 40mm to both faces</li> <li>2. Spacers to be 1200mm centre to centre.</li> <li>3. Concrete to be 30 N/mm at 28 days.</li> <li>4. Ground bearing pressure taken as 50 KN/M.</li> <li>5. No day work joints permitted in slabs.</li> <li>6. All soft spots to be removed and replaced by suitable material</li> <li>7. Provide 50mm blinding concrete.</li> <li>8. All workmanship and materials must conform to current codes of practice and building regulations</li> <li>9. Minimum bar lap length 800mm.</li> <li>10. Wet well and valve chamber covers to be as supplied by pump supplier.</li> <li>11. To be read in conjunction with the civils details.</li> </ol> | <ol style="list-style-type: none"> <li>12. Any over break between the last access chamber and the wet well and between the wet well and the valve chamber to be filled with lean mix concrete.</li> <li>13. Wet well to be clean and dry before installation of pumps commences.</li> <li>14. Dewatering to be provided if necessary as works proceed</li> <li>15. Rising main to be (specification and length to be confirmed) long, marked with non degradable marker tape above rising main containing a trace wire terminating with 1m of wire coiled inside the valve chamber. Colour of rising main to be black/grey</li> <li>16. Cut out and cut in levels to be established on site by pump supplier</li> <li>17. The bracket for holding the davit equipment should be kept in the kiosk.</li> <li>18. All regular level switches used within the hazardous area must be "ex rated"</li> </ol> | <ol style="list-style-type: none"> <li>19. Thrust blocks to be provided at changes in direction.</li> <li>20. Statutory services to provide adequate services to pump station and kiosk and to allow for all necessary requirements</li> <li>21. Kiosk to be provided to the latest yw codes for adoption m &amp; e addendum.</li> <li>22. Ducts within wet well should not be sealed with foam, they should be sealed within the kiosk.</li> <li>23. External levels around the boundary compound to be agreed in a pre-start meeting with an inspector, so that they flow towards the gully.</li> </ol> |
|---|---|---|

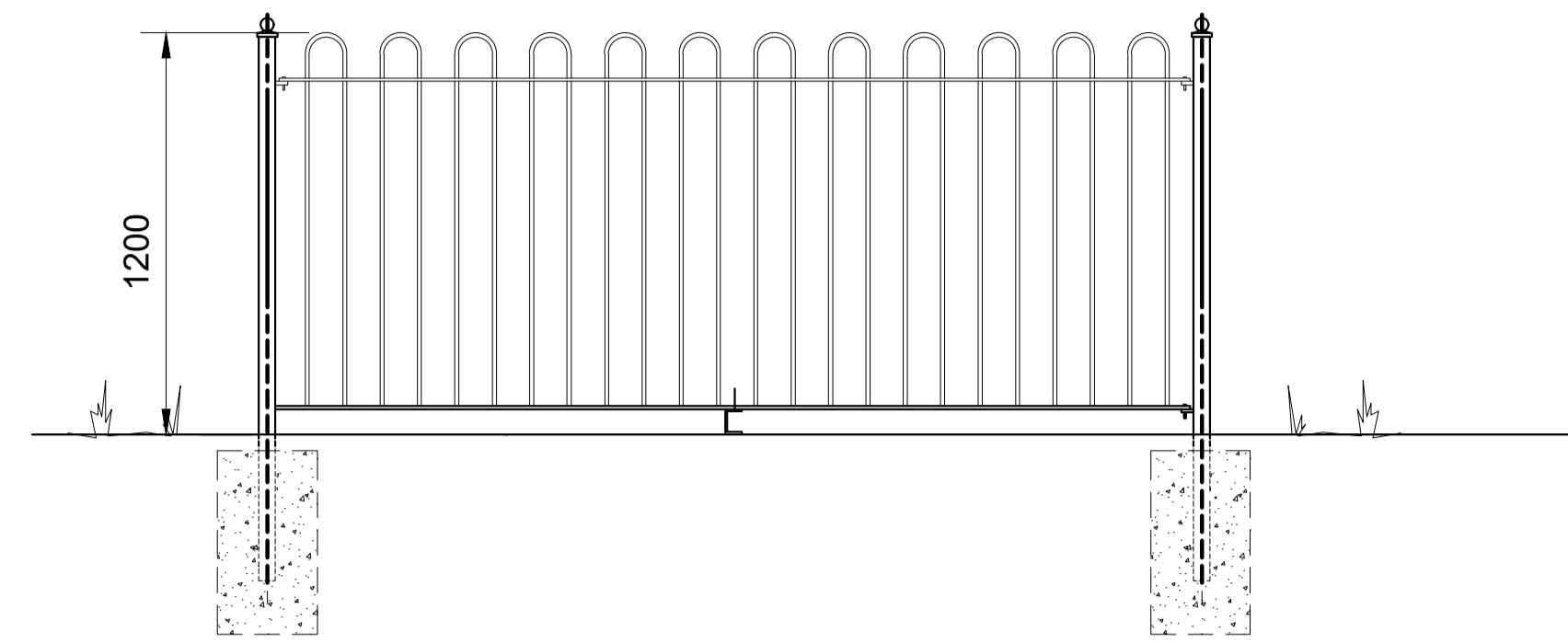
**Developer Services**

Title	PUMP STATION - SITE VIEW (DUAL PUMP)
Drawing No	YW-DS-SPS-007
Date	01/04/2024



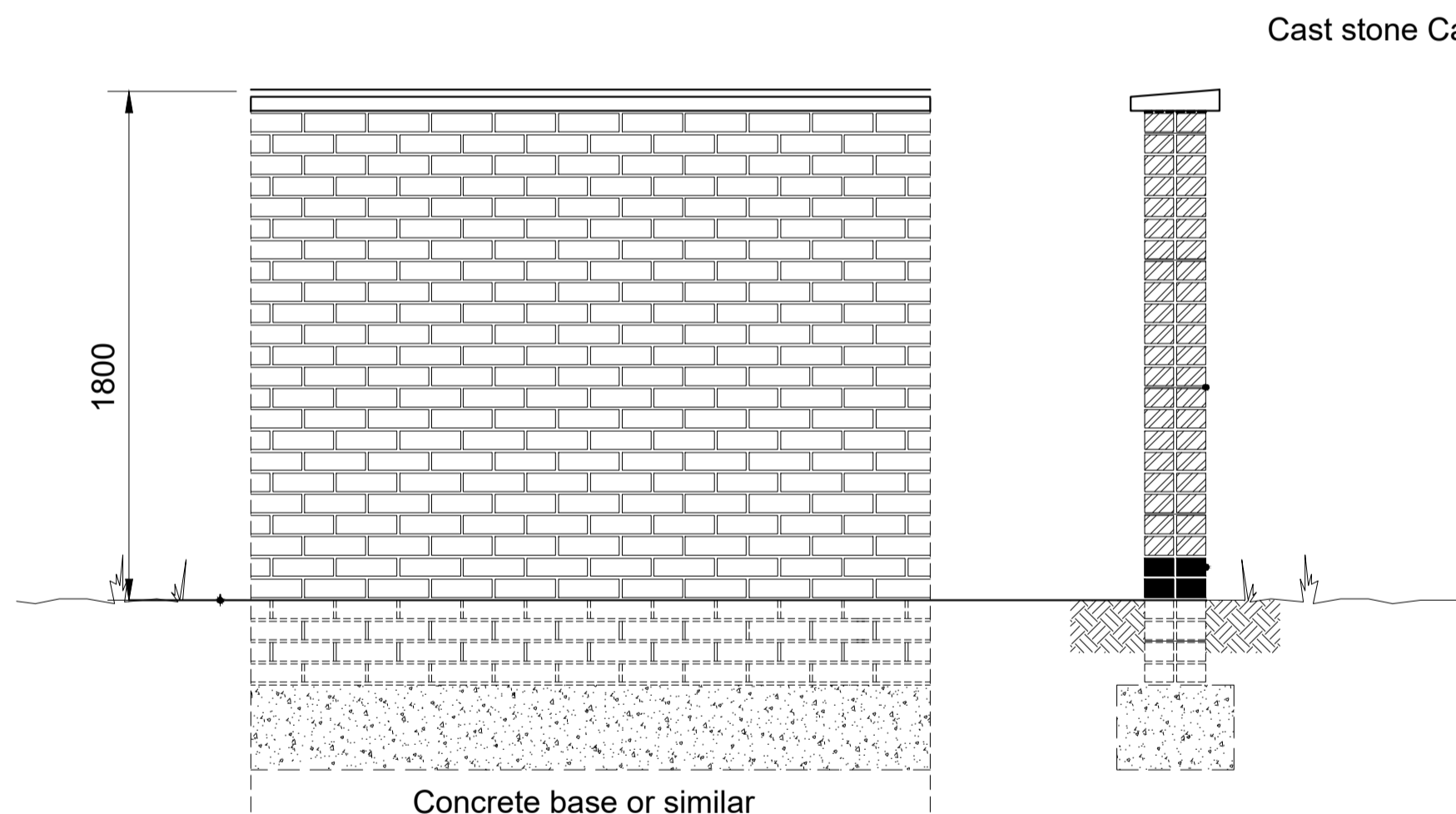


1800mm V-Mesh Fencing - Elevation



1200mm Bow Top Fencing - Elevation

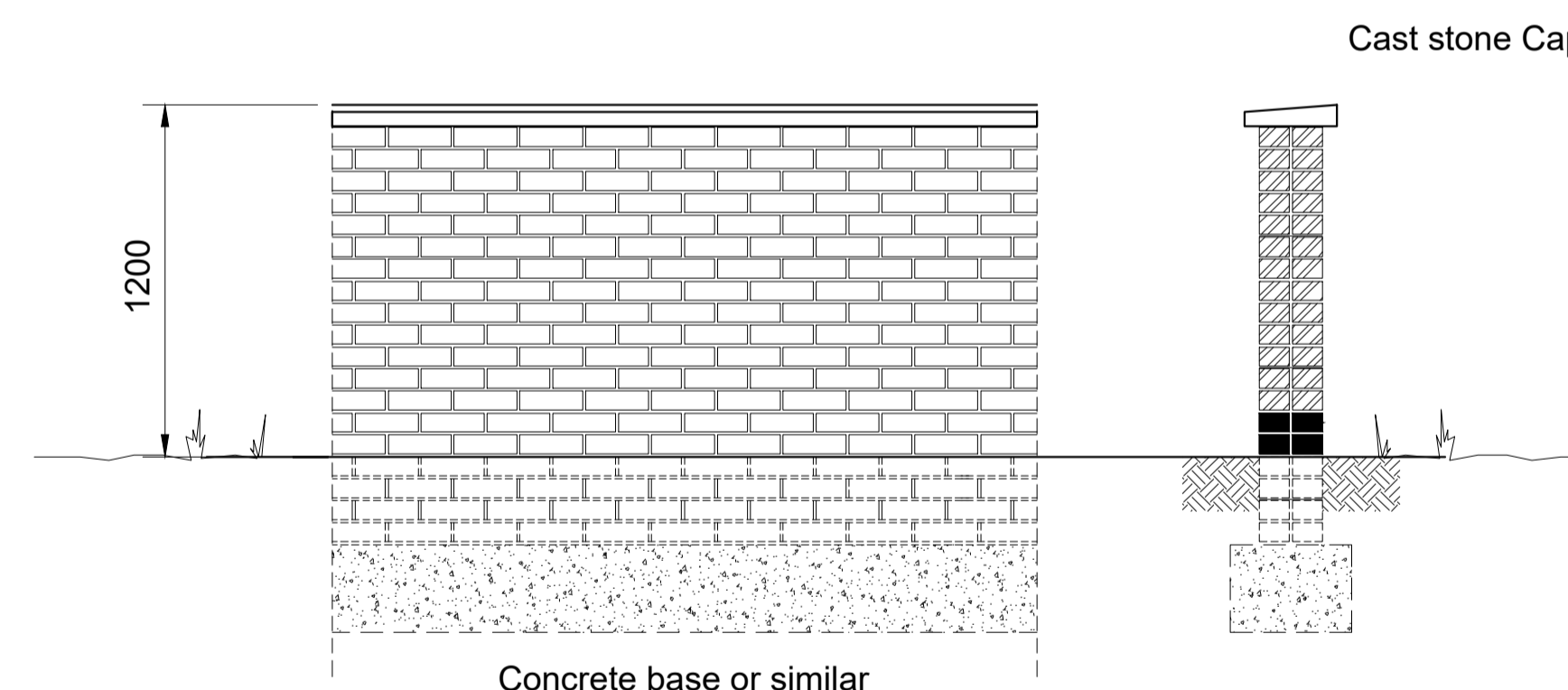
Foundation sizes to be calculated to suit weight of gates and ground conditions



Concrete base or similar

1800mm Brick Wall - Elevation

1800mm Brick Wall - Section



Concrete base or similar

1200mm Brick Wall - Elevation

1800mm Brick Wall - Section

1. Cover to re-inforcement to be 40mm to both faces
2. Spacers to be 1200mm centre to centre.
3. Concrete to be 30 N/mm at 28 days.
4. Ground bearing pressure taken as 50 KN/M.
5. No day work joints permitted in slabs.
6. All soft spots to be removed and replaced by suitable material
7. Provide 50mm blinding concrete.
8. All workmanship and materials must conform to current codes of practice and building regulations
9. Minimum bar lap length 800mm.
10. Wet well and valve chamber covers to be as supplied by pump supplier.
11. To be read in conjunction with the civils details.
12. Any over break between the last access chamber and the wet well and between the wet well and the valve chamber to be filled with lean mix concrete.
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**Notes**

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- N. Covers to be capable of being lifted with an effort not exceeding 25kg.
- O. All fittings to be stainless steel.

Developer Services

Title	PUMP STATION - BOUNDARY TREATMENT
Drawing No	YW-DS-SPS-008
Date	01/04/2024





For more information contact:

Sewer Adoption, Diversion and Requisition Team  
Developer Services

0345 120 84 82

[technical.sewerage@yorkshirewater.co.uk](mailto:technical.sewerage@yorkshirewater.co.uk)

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