ETQ Pump Station Overview Design and construction & R&S Presentation

Engineering a new standard of excellence

Introduction

We noticed the construction of pump stations are built to a noncompliant standard across MIDA both Historically and Recently

This Overview is to provide as much general guidance to what and why we get things wrong

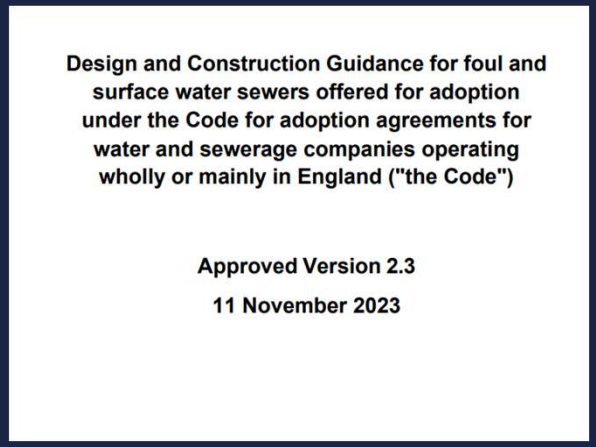
- Lack of Knowledge- difficulty with detail terminology
- Putting gangs unskilled in to finish pump station compounds
- Lack of understanding by construction managers on details
- Poor programming of details- brush finish on finishing but ordering concrete for afternoons
- It is not commercially missed in terms of detail we have checked with that department

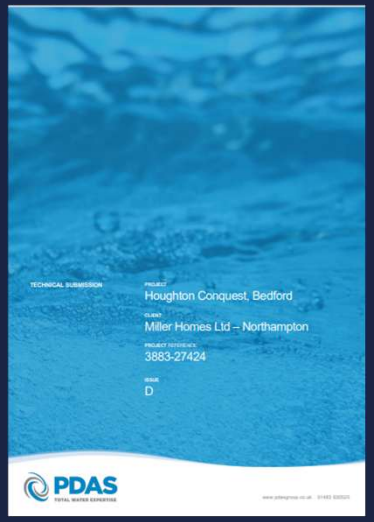
This brief is to cover as many standard details as practical but always remembering each site may be different

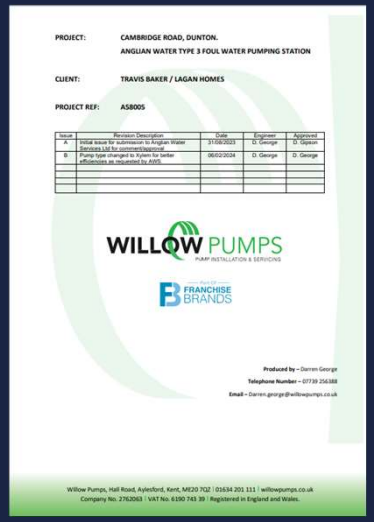
Documentation

Most Pump Stations fall under SSG Guidance for design (The Code) Approved version 2.3 11nov 2022 for small pump Stations, which is what we construct, Part D- Pumping Stations

Companies such as PDAS, generally or Willow to a lesser extent then have the Technical Submission Specific to the site and is the key document



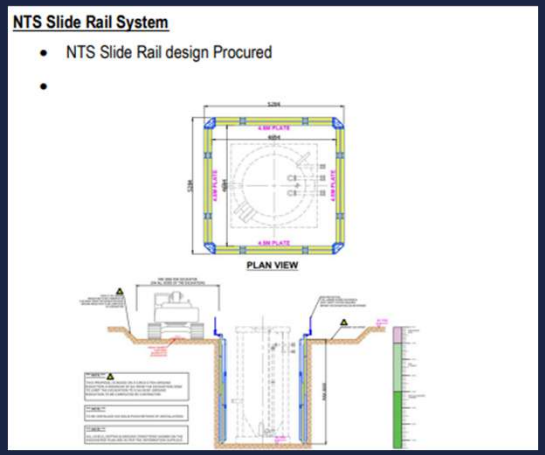




Deep Civils Works

Temporary Works

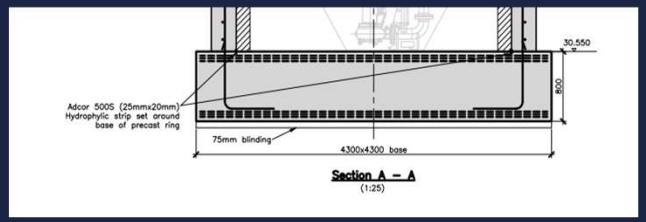
- Get a design Brief prepared by the TWC assigned to the site or ask MIDA DI for assistance
- Procure a safe TW design based upon the above and install as per TW design
- MIDA use the NTS Slide rail option successfully on a few sites now
- https://www.ntsafety.co.uk/slide-rail/
- https://www.ntsafety.co.uk/slide-rail/slide-rail-installation-training/

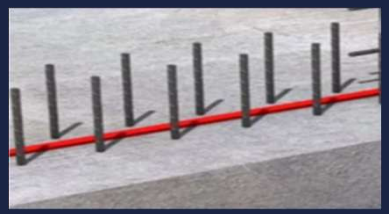


Wet Well Base & Surround

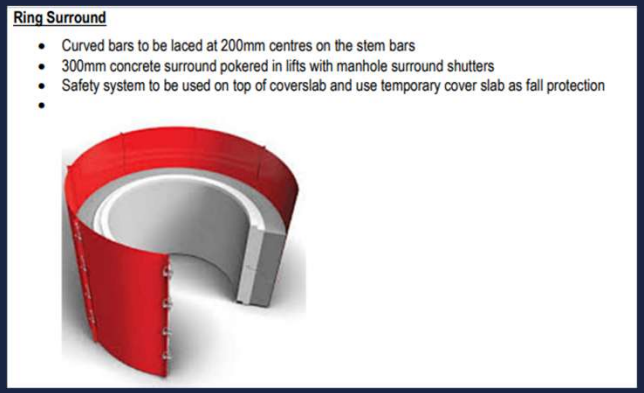
Wet Well base:

- Generally 3 sheets mesh top and bottom A393 with L bars to link into Surround which in most cases this is 300mm
- Hydrophylic Strip (Waterbar) is specifiesd to form a water tight seal at base of wet well
- Typical Base Detail, below ground concrete generally RC40/50





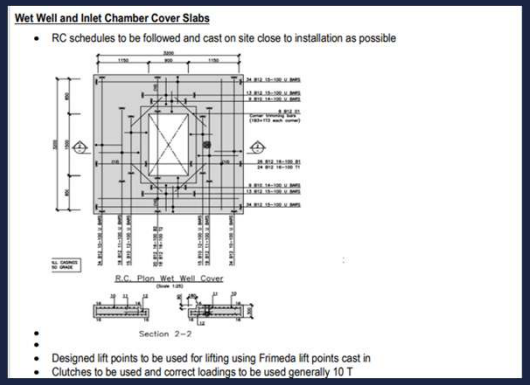
Concrete Surround:

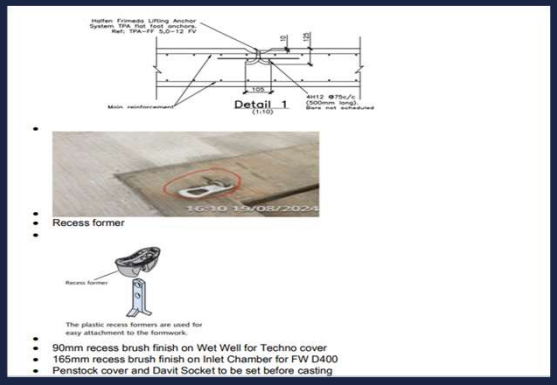


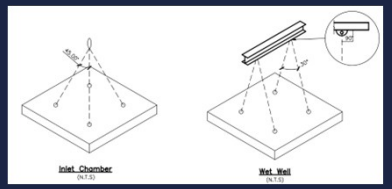
Cover Slabs

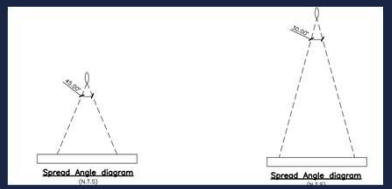
Where the option is given MIDA generally fo for Insitu Cast on site then lifted onto place:

- Use Proprietry Frimeda lift anchors on every slab where practical
- Arrange for Test Cubes if lifting is needed
- Concrete on all exposed surfaces generally PAV 2



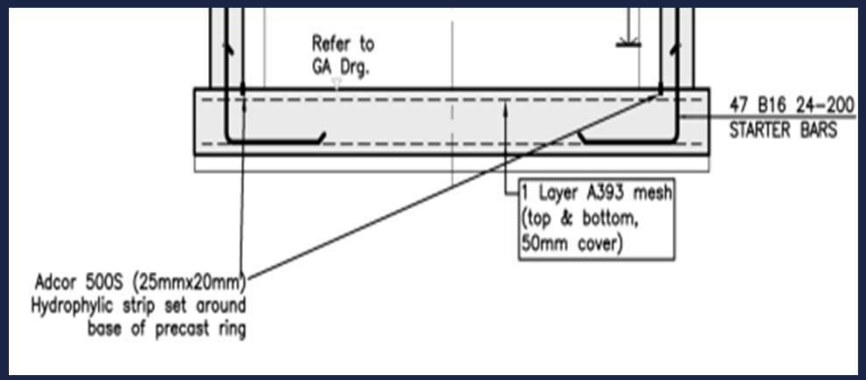


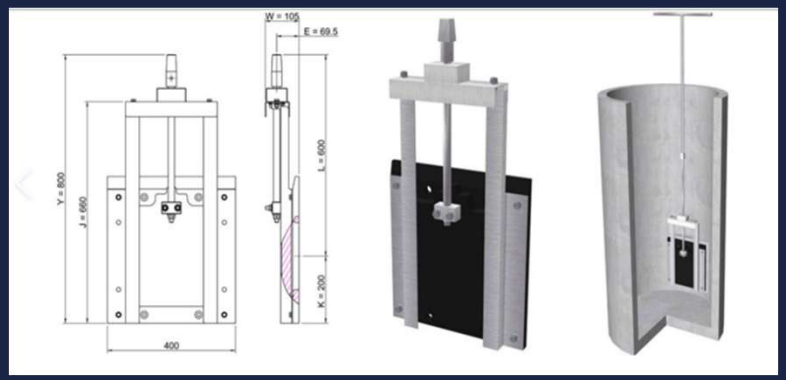




Inlet Chamber

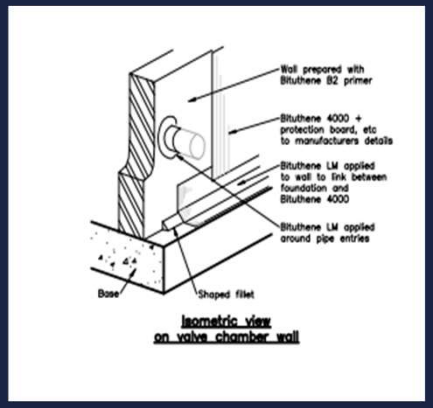
- Bases generally have 1 layer off mesh A393 top and Botton 50mm cover
- L bars to link into surround , surround generally less than wet well at 210mm pokered
- Hydrophylic strip (Waterbar) used on base joint
- Curved bars generally laced as surround reinforcement
- The penstock generally goes in the Inlet chamber and is there to shut off flows for pump maintenance
- The Penstock has guide rails supplied which need fitting

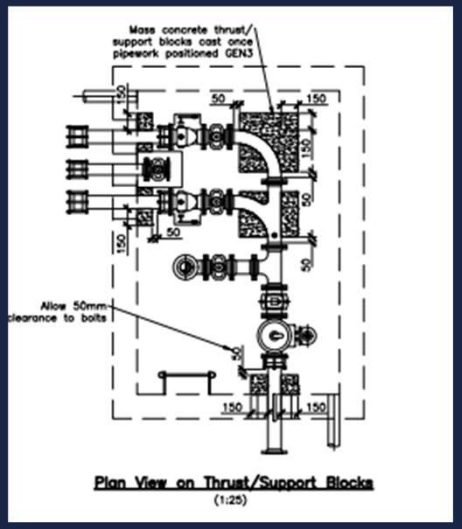




Valve Chamber

- Generally Class B solid engineering bricks SSG Clause E2.39
- Base generally 450mm deep 2 sheets mesh A393 top and bottom 50mm cover
- 400mmx400mm x50mm sump to be cast in base for watergate(benching done after)
- Traceable Marker tape from Rising main to be taken into Valve chamber by 1m via 50mm duct above rising main
- Waterproofing to detail generally as below
- Valve Chamber Cover slab cast insitu ensuring same level as Wet well and Inlet Chamber
- After First Fix support blocks cast in Gen 3
- Ladder to be installed for access





First Fix Preperation

TO ENABLE FIRST FIX INSTALLATION OF PIPEWORK AND VALVES:

1. There is reasonable hard road vehicular access to the pump chamber suitable for lorries.
2. Assistance and/or craneage will be provided free of charge, to handle 'heavy lift' items (in excess of 50 kg).
3. There is good, safe access around the pump and valve chambers.
4. Inlet Chamber, Pump and valve chambers have been constructed to the above referenced drawing 11402
5. Pump chamber floor is flat and smooth, ready for us to drill and fix the duckfeet onto.
6. The benching has not been cast in the pump chamber
7. Cover slabs on pump and valve chambers have access openings and rebate sizes constructed as per the above referenced drawing.
8. The davit socket despatched to site on the has been installed.
9. Cover slab has been firmly set in position over the pump chamber.
10. The metal access cover MUST NOT be fitted in the wet well cover slab at this stage. For Health and Safety reasons and ease of installation, it should be fitted AFTER the pipework has been installed in the wet well.
11. Box outs and access holes are of the sizes and in the positions shown on the above referenced drawing.
12. A box out has been left in the valve chamber wall for our ductile iron discharge pipe to pass through, and you will connect your rising main onto our pipe OUTSIDE the valve chamber. We will terminate with an 80mm internal diameter, 98mm external diameter pipe.
13. Pump and valve chambers are free from debris and rubble and have been emptied of water.

PDAS

CHECK LIST PRIOR TO PDAS INSTALLATION

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13. Pump and valve chambers are free from debris and rubble and have been emptied of water.

TO ENABLE SECOND FIX INSTALLATION OF CONTROL PANEL AND KIOSK:

14. Concrete Plinths for the Main Control Panel Kiosk Base has been constructed with cable ducts in place as per the PDAS Drawing.
15. Cable ducting between the pump and valve chambers to Control Panel/Kiosk Plinth has been laid and is at least 100mm internal diameter.
16. Cable Ducts have been fitted with draw ropes and the ducts are free from obstructions.
17. Earth Pit Chamber (supplied with 1st fix materials) has been installed in the position as shown on the PDAS drawings (Behind the main kiosk) C/w cable duct and draw rope.
18. Inlet Chamber D400 Cover and Pump Chamber Pro Lift Cover (supplied by PDAS) are positioned and fixed in place
19. Valve Chamber Drain Pipework (supplied by PDAS) has been installed and made good/rendered within the wet well and valve chamber.
20. Penstock Valves for the Inlet Chamber and Valve Chamber drain have been installed.
21. Wet Well Baffle Plate has been installed in the wet well chamber over the incoming drainage pipe.
22. Make Good/rendering around the pipework in the pump chamber and valve chamber
23. Make Good/rendering around the final discharge pipe as it leaves the final valve chamber
24. Make Good/rendering around the cable ducts in the wet well.
25. Exposed Pipework covered and levels reinstated
26. Concrete pipe support blocks/stools cast in the valve chamber
27. Concrete screed the valve chamber floor to fall towards the valve chamber drain

TO ENABLE PUMP STATION TO BE FULLY COMMISSIONED

28. Rising main has been laid, is a .....mm inside diameter (Black) and is ready for connection (by your groundworker).
29. An isolated three phase (plus neutral) power supply is available at the control panel. **THIS CAN ONLY BE DONE FOLLOWING THE INSTALLATION OF THE KIOSK.**
30. An isolated three phase (plus neutral) electricity meter has been installed in the control kiosk with an isolator/switched fuse.
31. The generator earth pit has been installed adjacent to the control kiosk, with a cable duct back to the kiosk.

WE WOULD ALSO RECOMMEND THAT ALL CIVILS WORKS OF BENCHING, LADDER INSTALATION AND MAKE GOOD OF WALLS AROUND PIPEWORK ARE COMPLETED PRIOR TO FLOWS ENTERING CHAMBERS.

1ST FIX ATTENDANCE:

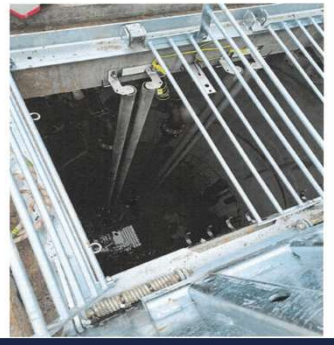
- CIVILS CONSTRUCTED CHAMBERS,
- COVER SLABS IN PLACE (Note Remove Metal Covers, currently shown below as loosely fitted for temporary fall protection)
- EARTHWORK EXCAVATED AND PROTECTED BETWEEN STRUCTURES to enable PDAS Engineers to work within
- CIVILS / SITE TO ENSURE WORK AREA IS SUITABLY FENCED/PROTECTED
- PARKING AVAILABLE for PDAS Vans

1ST FIX ATTENDANCE:

- VALVE CHAMBER PIPEWORK ASSEMBLED.
- PIPEWORK WILL BE TEMPORARILY SUPPORTED ON BLOCKWORK Civils to cast Permanent concrete supports

1ST FIX ATTENDANCE:

- WET WELL COMPLETELY DEWATERED, CLEAR OF DEBRIS AND ANY INLET DRAINS CAPPED OFF TO PREVENT INFLOW TO CHAMBER
- IDEALLY FLAT BASE within wet well to allow Pump Pedestals to be fixed to floor
- COVER SLAB IN PLACE AND CORRECTLY ORIENTATED to allow correct location of guide rails
- CORE HOLES DRILLED/FORMED WITHIN CHAMBER WALLS
- WET WELL PIPEWORK ASSEMBLED AND INSTALLED THROUGH CHAMBER WALL



1ST FIX ATTENDANCE:

- Following 'Supply only Items' left on site for Civils to fit/install prior to 2nd fix attendance
  - 4m Height Flood Light Column
  - Inlet Penstock Valve & extension Spindle, top box
  - Inlet Manhole D400 Access Cover 675mm x 675mm
  - Baffle Plate for fixing over the Inlet pipe to the wet well
  - Earth Pit

1ST FIX ATTENDANCE:

- EARTHWORK OPEN BETWEEN STRUCTURES WITH ENOUGH ROOM LEFT FOR PDAS ENGINEERS TO WORK SAFELY WITH EASE OF ACCESS/INGRESS WITHIN EXCAVATION

- A hardstanding area should be provided adjacent to the pump station where our operatives can work, cut, and assemble pipe

- The Valve Chamber should be constructed and fully operational
- The Valve Chamber must be dewatered and free from any debris prior to our arrival

Compound Works

This is the area we normally have issues with due to the amount of detail

Normal Details Required

- Any fill to bring compound and tanker stand up is subject to achieving 5% CBR
- Tanker stand 500mm type 1 with 50mm blinding above/Compound 225mm type 1 with 50mm blinding above
- Bollards to be installed as per specification normally 300mm from Kerb Face- kerbs set with 150mm face
- Tanker Hardstanding Joint with dowel bars is a normal specified detail
- 1 layer A393 on compound with flying end laps 400mm ,2 layers on Tanker Stand 20mm Hydrocell isolation around cover slabs PAV 2 concrete brush finish with Harris Trowel detail
- All Technocovers to be bolted down and grouted in
- Draw Rope all ducts sizes as per design, ensure all ducting sealed after first fix
- Run duct to floodlight position- floodlight supplied by others to be erected
- Ensure Earth Rod box and Rod installed
- Kiosk plinths to be cast 150mm above compound slab with 1 layer A393
- Thrust Blocks to be concreted in valve chamber by shuttering around blocks set by PDAS/Willow (do not remove blocks)
- Vent Pipe to be installed 1.8M high in UV sensitive pipe

Second Fix Preperation

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2nd FIX ATTENDANCE:

- JUNCTION BOX KIOSK AND MAIN KIOSK BASE PLINTHS PREPARED PRIOR TO PDAS ATTENDANCE, DUCTWORK IN PLACE WITH DRAW ROPES READY

- PDAS WITH ASSISTANCE FROM SITE TEAM LOCATE KIOSKS IN PLACE, SECURE DOWN AND SEAL TO BASE

Civils have installed Lamp Column – PDAS to fit floodlight and wire up to Kiosk

2nd FIX ATTENDANCE:

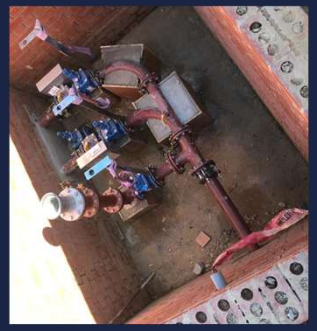
- Civils have installed Kiosk Earth Pit & Copper Rod (PDAS to wire up to kiosk)

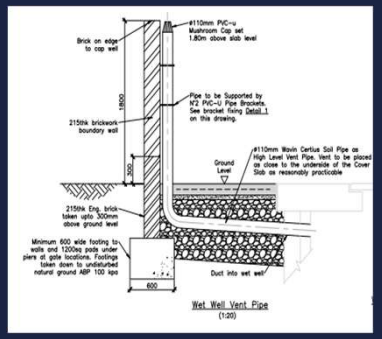
Civils have installed wet well Baffle Plate

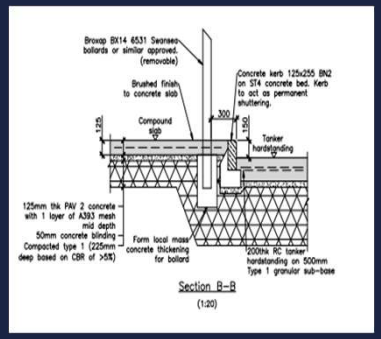
Civils have installed Inlet Manhole Penstock Valve, Spindle and Top Box

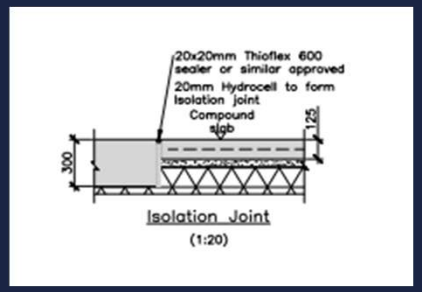
Civils have installed Concrete Pipework Supports within Valve Chamber

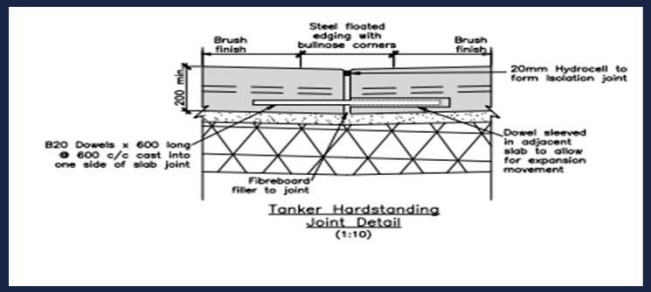
Details

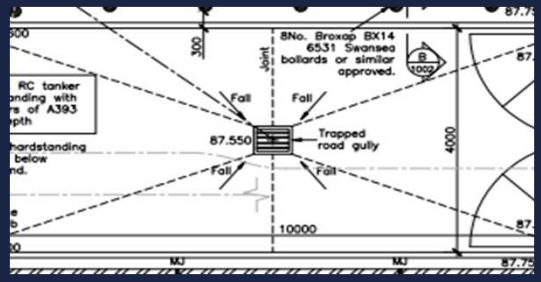






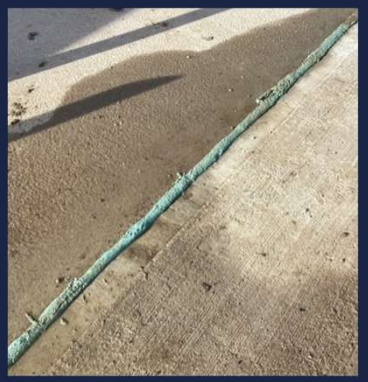
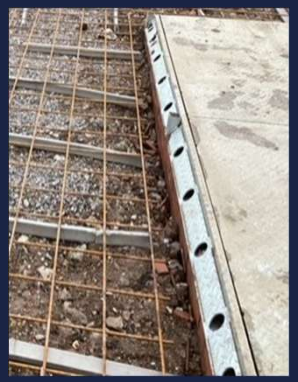




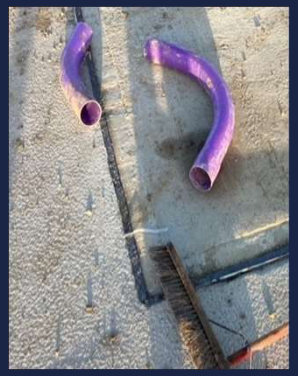


- There is so much detail in pump stations we need to ensure we follow these at all times
- If in doubt ask don’t Guess- we have to get these adopted

Poor Decisions and workmanship



Roads and Sewer Overview

MIDA have improved continuously over last 3 years with R&S- below is recap on where we must ensure we get right as still see knowledge gaps creeping back in

Drainage:
From 2020 Adoptable drainage for S104 agreements should be to SSG Approved version currently V2.3 11th Nov 2023 this guidance is for use by developers when planning, designing and constructing foul and surface water drainage systems (including pumping stations and rising mains) intended for adoption under an agreement made in accordance with Section 104 of the Water Industry Act 1991

Manhole Types

Minimum manhole diameters for Type A, B and C manholes should be in accordance with Table B 1.

Table B 1
Manhole diameters

Nominal Internal Diameter of Largest Pipe in Manhole (mm)	Minimum Nominal Internal Dimension of Manhole (mm)
Less than 375	1200
375 – 450	1350
500 – 700	1500
750 – 900	1800
Greater than 900	Pipe diameter + 900

Type A- Cover to soffit 3-6m with Ladder access

Type B- Cover to soffit 1.5-3m with steps

Type C- Cover to soffit less than 1.5m to be minimum 1350mm diameter although normally upsized to 1500mm as few manufacture 1350mm and a double opening cover slab 1220x685mm with steps

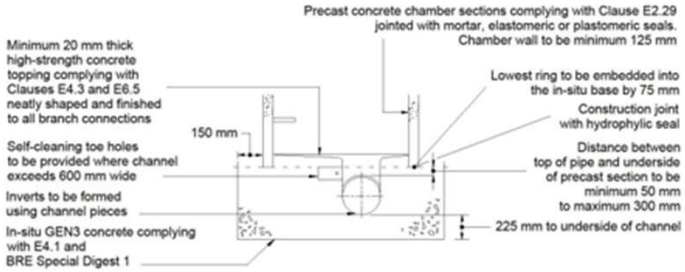
Roads and Sewer Overview

Key Drainage notes:

- 1 course minimum 675mm to top step
- 450mm minimum landing space on benching
- Sewers for Adoption specifies that all manhole frames located in adopted highways must be a minimum of 150mm deep and only100mm frames are permitted in residential cul-de-sacs. Covers must be Kitemarked and comply with BS EN124 with Class D400 covers used in all areas used by road vehicles.
- Traditional Manhole Base with Wide wall rings, this is allowable as below, ensure waterbar is used to stop leaks especially in high water tables

Traditional Base with Wide Wall Rings Alternative Base:

Figure B 11
Alternative base detail for Type A and Type B manholes without concrete surround



Roads and Sewer Overview

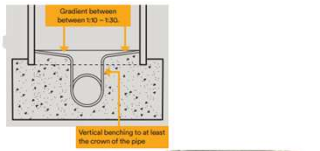
Traditional Manhole Construction:

For Traditional Manhole Construction:

Minimum Channel Lengths and benching:

Minimum length of channel

Chamber diameter	"X" min
1200	950
1500	1050
1800	1150
2100	1300
2400	1450
2700	1550
3000	1700



Positioning Of Cover Slabs:

Cover slabs must be positioned in square alignment with step irons or ladders and provide a minimum 600 x 600mm square unobstructed opening. The internal face of the cover slab must be plumb with the outer edge of the step irons

Brickwork and Concrete Risers:

Minimum 1 course Concrete riser or Class B engineering Brick in English Bond

Manhole Cover and Frames

Sewers for Adoption specifies that all manhole frames located in adopted highways must be a minimum of 150mm deep and only100mm frames are permitted in residential cul-de-sacs. Covers must be Kitemarked and comply with BS EN124 with Class D400 covers used in all areas used by road vehicles.

Rocker Lengths:

Where rigid pipes are used, a flexible joint shall be provided as close as is feasible to the outside face of any structure into which a pipe is built, within 150 mm for pipe diameters less than 300 mm. The design of the joints shall be compatible with any subsequent movement.

Table E 13

Nominal Diameter (mm)	Effective Length (m)
150 to 600	0.6
601 to 750	1.0
over 750	1.25

Roads and Sewer Overview

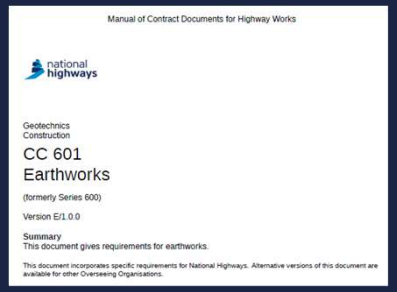
Road Construction Key points to reinforce:

- Collect Up Road Pins and Kerb Race Pins for reuse
- Collect up and return Manhoe and Gully Plates when not in use
- Construct in stone run outs on bellmouths for kerb extruder to run past ends
- Close off bellmouths and road ends in kerb race and block if required to camber or crossfall
- Install all manhole protection with zip tie handles and maintain to remove silts
- Use silt bags on pumps
- Paint older covers and gullies black at surfacing stage, rusty covers look bad
- Use HAPAS approved epoxy Mortar when setting manhole lids
- Use Smaller 360 machines for trimming as we are getting too many cover slab defects as these are now within the type 1 layer with the 1 course only standard
- Ensure correct Compaction passes and layer depths are used for the plant selected
- Ensure duct crossings are the correct depth and this will lead to mains correctly installed, we have seen many as builts where the mains re outside service margins and this needs improving
- First Off manholes-we now as built and relay back to site teams where these are incorrect to improve process
- MIDA have Pac-o -Patch accreditation now with Tom Berrie`s gang
- Where we can set and pad manholes as gives a better finish or ensure lids set correctly not thrown in dry by tarmac contractor
- Use Back to Back sweepers on all surfacing works- this is in MIDA T&C`s

Roads and Sewer Overview

Road Construction Compaction Table:

- What was Known as SHW 600 has now been superseded by CC 601
- Check you are using the right number of passes as we are seeing a spike in trench failures especially if you are using site won material
- Adhere to the recommended layers as in table below



Manual of Contract Documents for Highway Works

national highways

Geotechnics
Construction

CC 601
Earthworks

(formerly Series 600)

Version E/1.0.0

Summary
This document gives requirements for earthworks.

This document incorporates specific requirements for National Highways. Alternative versions of this document are available for other Overseeing Organisations.

Table 6.4 Control for the compaction of earthworks fill

Earthworks material class	Compaction control	Method of earthworks compaction
Class 1A	Method compaction	Method 2
Class 1B	Method compaction	Method 3
Class 1C	Method compaction	Method 5
Class 2A	Method compaction	Method 1
Class 2B	Method compaction	Method 2
Class 2C	Method compaction	Method 2

Table 6.5 Method compaction of earthworks materials (Continued)

Type of compaction plant	Compaction plant category	Method 1		Method 2		Method 3		Method 4		Method 5		Pavement formation compaction	
												A	B
		D	N	D	N	D	N	D	N	D	N	N	N
Tamping roller (with vibration)	over 700 kg up to 1,300 kg	100	12	100	12	150	12	100	10	-		-	-
	over 1,300 kg up to 1,800 kg	125	12	125	12	175	12*	175	8	-		-	-
	over 1,800 kg up to 2,300 kg	150	12	150	12	200	12*	-		-		-	-
	over 2,300 kg up to 2,900 kg	150	9	150	9	250	12*	-		400	5	-	-
	over 2,900 kg up to 3,600 kg	200	9	200	9	275	12*	-		500	6	-	-
	over 3,600 kg up to 4,300 kg	225	9	225	9	300	12*	-		600	6	-	-
	over 4,300 kg up to 5,000 kg	250	9	250	9	300	9*	-		700	6	12	-
	over 5,000 kg	275	9	275	9	300	7*	-		800	6	10	-

Earthworks Understanding

Earthworks Testing and Terminology

- U1 Exemption
- You can use up to a total of 1,000 tonnes over any 3 year period of soil and stones from a construction site not containing hazardous substances, this process allows for material to be brought in to assist build programmes before enough is generated on site

- MMP/Cl:aire
- Contaminated Land:Applications in Real Environments
- Certainty of Use- The holder of the material must be able to demonstrate that the material will actually be used and that the use is not just a probability, but a certainty.
- A Direct Transfer is restricted to the use of clean naturally occurring soils and mineral materials from one site to another development site for use, without the need for waste legislation being applied (i.e. the receiving development site does not require an Environmental Permit or Waste Exemption)
- Clean Naturally occurring soils and minerals include both topsoil and subsoil
- All material must be suitable for use and must not pose unacceptable risks to the environment
- A donor site must ensure their wastes sufficiently to comply with Duty of Care legislation
- MMPs - All materials subject to excavation, disposal, treatment and/or reuse must be tracked throughout and evidence generated to provide an auditable trail of tickets.
- Records should be kept of where placed
- An MMP declaration has to be signed of by a Qualified Person registered with Cl:aire
- Donor Materials to be tested to ensure compliance and Human Health Suite requirements as well as material characteristics for placement at Receiving site
- The Receiver site is responsible for signing the delivery ticket and recording where the accepted materials are placed. The delivery ticket should include a facility to ensure that only the required amount is received, e.g. a running tally. The process has to be reasonably auditable

Earthworks Understanding

Earthworks Testing and Terminology

- Testing Prior to placement

- To ensure the donor material can be classified under Highways 600 CC601 series the following tests are normally required
- Natural Moisture Content
- Particle Size Distribution & Classification
- Atterberg Limits (Plasticity PI) Atterberg limits tests establish the moisture contents at which fine-grained clay and silt soils transition between solid, semi-solid, plastic, and liquid states. Soil descriptions based on PI:
- (0) – Non-plastic
- (<7) – Slightly plastic
- (7-17) – Medium plastic
- (>17) – Highly plastic
- Lab compaction (OMC/MDD) 2.5kg or 4.5kg rammer method- most specifications are for 2.5Kg proctor
- Moisture Content Value (not be suitable for granular material):
- Chemical Analysis at a rate of 1 test per 1000m3 of imported material from the registered donor site is required

- Testing under placement

- This will normally be under the requirements of the earthwork's specification drawn up by the client or Adopting Highways requirements but will generally be along the lines of the below
- The material will be classified under Highways 600 table 6/1 with granular being class 1 and cohesive class 2 and chalks class 3
- This table will give the compaction methods under table 6/4 giving the layers number of passes and plant requirements
- In situ compaction NDM testing with moisture content measurements should be based on a minimum number and grid 1 per 25mx25m grid per layer and a minimum of 3 per day or core cutter test if allowable to ensure dry density
- Moisture Content and Atterberg Limits minimum 1 test per layer at 100m centres
- Hand Shear Vane minimum 1 test per layer at 100m centres generally needed over 50 Kpa
- CBR testing/LWD`s finished formation level 1 test per 100m2
- Generally 95% compaction of maximum dry density to be proved in layers

Earthworks Understanding

Earthworks Testing and Terminology

- Types of Site Tests

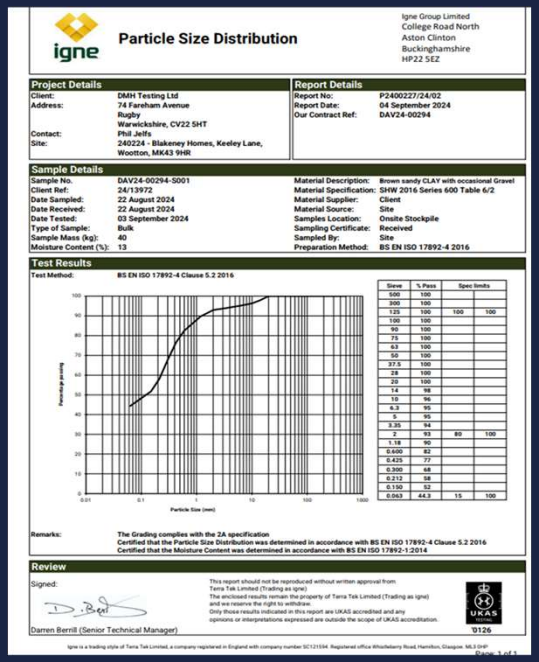
- **Hand Shear Vane** is a method of measuring the undrained shear strength of a cohesive soil. Normal practice is test lowest result is 50Kpa
- **NDM** is a method to determine the in situ density and moisture content of soils, aggregates and bituminous materials. Can be used in back scatter or probe
- **LWD** is a light weight portable tool used for measuring the bearing capacity (deflection) of subgrade/subsoils and unbound base layers, granular layers and backfilling materials.
- **CBR** measures the pressure required to penetrate a soil sample with a plunger of standard area The CBR test is carried out on soils with a maximum particle size of 20mm
- Plate Load Tests

- **A plate load test** (also known as a plate bearing test) determines the ground's bearing capacity and actual strength by applying an increasing load from a circular steel plate to induce settlement. It is used in cases where the ground particle sizes are large or the soil has a firmer texture

Earthworks Understanding

Earthworks Testing and Terminology

PSD & Material classification



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Particle Size Distribution

Igne Group Limited
College Road North
Aston Clinton
Buckinghamshire
HP22 5EZ

Project Details		Report Details	
Client:	DMH Testing Ltd	Report No:	P2400227/24/02
Address:	74 Fareham Avenue Rugby Warwickshire, CV22 5HT	Report Date:	04 September 2024
		Our Contract Ref:	DAV24-00294
Contact:	Phil Jelfs		
Site:	240224 - Blakeney Homes, Keeley Lane, Wootton, MK43 9HR		

Sample Details

Sample No.	DAV24-00294-S001	Material Description:	Brown sandy CLAY with occasional Gravel
Client Ref:	24/13972	Material Specification:	SHW 2016 Series 600 Table 6/2
Date Sampled:	22 August 2024	Material Supplier:	Client
Date Received:	22 August 2024	Material Source:	Site
Date Tested:	03 September 2024	Samples Location:	Onsite Stockpile
Type of Sample:	Bulk	Sampling Certificate:	Received
Sample Mass (kg):	40	Sampled By:	Site
Moisture Content (%):	13	Preparation Method:	BS EN ISO 17892-4 2016

Test Results

Test Method: BS EN ISO 17892-4 Clause 5.2 2016

Sieve	% Pass	Spec limits	
500	100		
300	100		
125	100	100	100
100	100		
90	100		
75	100		
63	100		
50	100		
37.5	100		
28	100		
20	100		
14	98		
10	96		
6.3	95		
5	95		
3.35	94		
2	93	80	100
1.18	90		
0.600	82		
0.425	77		
0.300	68		
0.212	58		
0.150	52		
0.063	44.3	15	100

Remarks: The Grading complies with the 2A specification
Certified that the Particle Size Distribution was determined in accordance with BS EN ISO 17892-4 Clause 5.2 2016
Certified that the Moisture Content was determined in accordance with BS EN ISO 17892-1:2014

Review

Signed:

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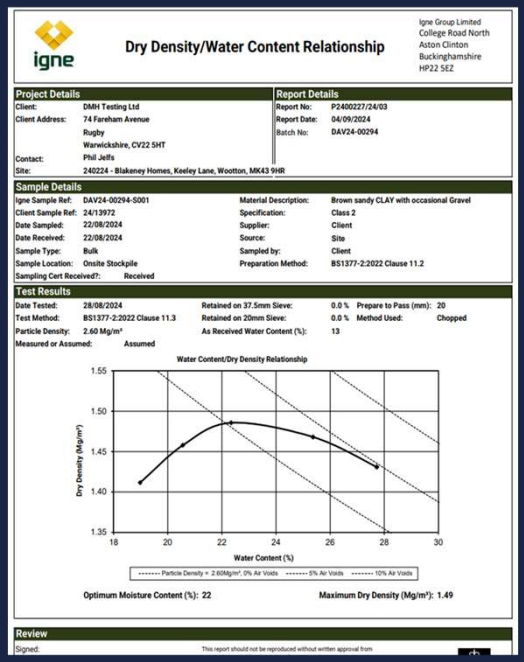
0126

Darren Berrill (Senior Technical Manager)

Igne is a trading style of Terra Tek Limited, a company registered in England with company number SC121594. Registered office Whistleberry Road, Hamilton, Glasgow, ML3 0HP

Dry Density/Water content Relationship giving OMC



igne

Dry Density/Water Content Relationship

Igne Group Limited
College Road North
Aston Clinton
Buckinghamshire
HP22 5EZ

Project Details		Report Details	
Client:	DMH Testing Ltd	Report No:	P2400227/24/03
Client Address:	74 Fareham Avenue Rugby Warwickshire, CV22 5HT	Report Date:	04/09/2024
		Batch No:	DAV24-00294
Contact:	Phil Jelfs		
Site:	240224 - Blakeney Homes, Keeley Lane, Wootton, MK43 9HR		

Sample Details

Igne Sample Ref:	DAV24-00294-S001	Material Description:	Brown sandy CLAY with occasional Gravel
Client Sample Ref:	24/13972	Specification:	Class 2
Date Sampled:	22/08/2024	Supplier:	Client
Date Received:	22/08/2024	Source:	Site
Sample Type:	Bulk	Sampled by:	Client
Sample Location:	Onsite Stockpile	Preparation Method:	BS1377-2:2022 Clause 11.2
Sampling Cert Received?:	Received		

Test Results

Date Tested:	28/08/2024	Retained on 37.5mm Sieve:	0.0 % Prepare to Pass (mm): 20
Test Method:	BS1377-2:2022 Clause 11.3	Retained on 20mm Sieve:	0.0 % Method Used: Chopped
Particle Density:	2.60 Mg/m³	As Received Water Content (%):	13
Measured or Assumed:	Assumed		

Water Content/Dry Density Relationship

Optimum Moisture Content (%): 22

Maximum Dry Density (Mg/m³): 1.49

Review

Signed:

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Earthworks Understanding

Earthworks Good Practice

•Smooth drum roll to falls each end of shift to ensure water is not trapped on surface or in pad foot marks, water is issue in earthworks causing delays

•If you need to dry subgrade fill due to excessive moisture in the correct conditions it should be ripped or disced and left to dry

•Similarly, if to dry may need water cart to get the OMC levels to comply

•Use silt bags on pump ends and geotextile to control run off or silt ponds to manage and control

•Lay in layers and manage rolling process to avoid open texture and pockets

•Create run off channels for water control to avoid sitting water especially on large batters

Conclusion

Feedback and AOB:

Thank you, lets do it once and do it the right way…….