

Application for resource consent or fast-track resource consent

(Or Associated Consent Pursuant to the Resource Management Act 1991 (RMA)) (If applying for a Resource Consent pursuant to Section 87AAC or 88 of the RMA, this form can be used to satisfy the requirements of [Form 9](#)). Prior to, and during, completion of this application form, please refer to [Resource Consent Guidance Notes](#) and [Schedule of Fees and Charges](#) — both available on the Council's web page.

1. Pre-Lodgement Meeting

Have you met with a council Resource Consent representative to discuss this application prior to lodgement?

☐ Yes ☒ No

2. Type of consent being applied for

(more than one circle can be ticked):

- | | |
|---|---|
| ☐ Land Use | ☐ Discharge |
| ☐ Fast Track Land Use* | ☐ Change of Consent Notice (s.221(3)) |
| ☐ Subdivision | ☐ Extension of time (s.125) |
| ☒ Consent under National Environmental Standard
(e.g. Assessing and Managing Contaminants in Soil) | |
| ☒ Other (please specify) <u>Outline Plan of Works</u> | |

**The fast track is for simple land use consents and is restricted to consents with a controlled activity status.*

3. Would you like to opt out of the fast track process?

☒ Yes ☐ No

4. Consultation

Have you consulted with Iwi/Hapū? ☐ Yes ☒ No

If yes, which groups have you consulted with?

Who else have you consulted with?

For any questions or information regarding iwi/hapū consultation, please contact Te Hono at Far North District Council, tehonosupport@fndc.govt.nz

5. Applicant details

Name/s:	Top Energy Limited - Taryn Collins	
Email:		
Phone number:	Work (	Home
Postal address: (or alternative method of service under section 352 of the act)	PO Box 43, Kerikeri, 0245	
	Postcode	

Have you been the subject of abatement notices, enforcement orders, infringement notices and/or convictions under the Resource Management Act 1991? ☐ Yes ☒ No

If yes, please provide details.

6. Address for correspondence

Name and address for service and correspondence (if using an Agent write their details here)

Name/s:	Barker & Associates - Moana Schoffa	
Email:		
Phone number:	Work	Home
Postal address: (or alternative method of service under section 352 of the act)	PO Box 1986, Shortland Street, Auckland, 1140	
	Postcode	

All correspondence will be sent by email in the first instance. Please advise us if you would prefer an alternative means of communication.

Preference is email.

7. Details of property owner/s and occupier/s

Name and Address of the owner/occupiers of the land to which this application relates (where there are multiple owners or occupiers please list on a separate sheet if required)

Name/s:	Top Energy Limited	
Property address/ location:	498 Wiroa Road, Kerikeri	
	Postcode 293	

8. Application site details

Location and/or property street address of the proposed activity:

Name/s:

Top Energy Limited

Site address/
location:

498 Wiroa Road, Kerikeri

Postcode 293

Legal description:

Lot 2 DP 461681

Val Number:

227/116

Certificate of title:

607620

Please remember to attach a copy of your Certificate of Title to the application, along with relevant consent notices and/or easements and encumbrances (search copy must be less than 6 months old)

Site visit requirements:

Is there a locked gate or security system restricting access by Council staff? ☒ Yes ☐ No

Is there a dog on the property? ☐ Yes ☒ No

Please provide details of any other entry restrictions that Council staff should be aware of, e.g. health and safety, caretaker's details. This is important to avoid a wasted trip and having to re-arrange a second visit.

Please contact Taryn Collins from Top Energy to arrange a site visit.

9. Description of the proposal

Please enter a brief description of the proposal here. Please refer to Chapter 4 of the *District Plan, and Guidance Notes*, for further details of information requirements.

The proposal is to undertake upgrades at the Wiroa Substation site. Please refer to the attached AEE for further detail.

If this is an application for a Change or Cancellation of Consent Notice conditions (s.221(3)), please quote relevant existing Resource Consents and Consent Notice identifiers and provide details of the change(s), with reasons for requesting them.

10. Would you like to request public notification?

☐ Yes ☒ No

11. Other consent required/being applied for under different legislation

(more than one circle can be ticked):

☐ Building Consent

☐ Regional Council Consent (ref # if known)

☒ National Environmental Standard Consent

☐ Other (please specify)

12. National Environmental Standard for Assessing and Managing Contaminants in Soil to Protect Human Health:

The site and proposal may be subject to the above NES. In order to determine whether regard needs to be had to the NES please answer the following:

Is the piece of land currently being used or has it historically ever been used for an activity or industry on the Hazardous Industries and Activities List (HAIL)? ☒ Yes ☐ No ☐ Don't know

Is the proposed activity an activity covered by the NES? Please tick if any of the following apply to your proposal, as the NESCS may apply as a result? ☒ Yes ☐ No ☐ Don't know

☐ Subdividing land

☒ Disturbing, removing or sampling soil

☐ Changing the use of a piece of land

☐ Removing or replacing a fuel storage system

13. Assessment of environmental effects:

Every application for resource consent must be accompanied by an Assessment of Environmental Effects (AEE). This is a requirement of Schedule 4 of the Resource Management Act 1991 and an application can be rejected if an adequate AEE is not provided. The information in an AEE must be specified in sufficient detail to satisfy the purpose for which it is required. Your AEE may include additional information such as written approvals from adjoining property owners, or affected parties.

Your AEE is attached to this application ☒ Yes

14. Draft conditions:

Do you wish to see the draft conditions prior to the release of the resource consent decision? ☒ Yes ☐ No

If yes, please be advised that the timeframe will be suspended for 5 working days as per s107G of the RMA to enable consideration for the draft conditions.

15. Billing Details:

This identifies the person or entity that will be responsible for paying any invoices or receiving any refunds associated with processing this resource consent. Please also refer to Council's Fees and Charges Schedule.

Name/s: (please write in full)

Top Energy Limited

Email:

Phone number:

Work

Home

Postal address:
(or alternative method of service under section 352 of the act)

PO Box 43, Kerikeri, 0245

Postcode

Fees Information

An instalment fee for processing this application is payable at the time of lodgement and must accompany your application in order for it to be lodged. Please note that if the instalment fee is insufficient to cover the actual and reasonable costs of work undertaken to process the application you will be required to pay any additional costs. Invoiced amounts are payable by the 20th of the month following invoice date. You may also be required to make additional payments if your application requires notification.

15. Billing details continued...

Declaration concerning Payment of Fees

I/we understand that the Council may charge me/us for all costs actually and reasonably incurred in processing this application. Subject to my/our rights under Sections 357B and 358 of the RMA, to object to any costs, I/we undertake to pay all and future processing costs incurred by the Council. Without limiting the Far North District Council's legal rights if any steps (including the use of debt collection agencies) are necessary to recover unpaid processing costs I/we agree to pay all costs of recovering those processing costs. If this application is made on behalf of a trust (private or family), a society (incorporated or unincorporated) or a company in signing this application I/we are binding the trust, society or company to pay all the above costs and guaranteeing to pay all the above costs in my/our personal capacity.

Name: (please write in full)

Taryn Collins

Signature:

(signature of bill payer)

Date 01-Dec-2025

MANDATORY

16. Important Information:

Note to applicant

You must include all information required by this form. The information must be specified in sufficient detail to satisfy the purpose for which it is required.

You may apply for 2 or more resource consents that are needed for the same activity on the same form.

You must pay the charge payable to the consent authority for the resource consent application under the Resource Management Act 1991.

Fast-track application

Under the fast-track resource consent process, notice of the decision must be given within 10 working days after the date the application was first lodged with the authority, unless the applicant opts out of that process at the time of lodgement.

A fast-track application may cease to be a fast-track application under section 87AAC(2) of the RMA.

Privacy Information:

Once this application is lodged with the Council it becomes public information. Please advise Council if there is sensitive information in the proposal. The information you have provided on this form is required so that your application for consent pursuant to the Resource Management Act 1991 can be processed under that Act. The information will be stored on a public register and held by the Far North District Council. The details of your application may also be made available to the public on the Council's website, www.fndc.govt.nz. These details are collected to inform the general public and community groups about all consents which have been issued through the Far North District Council.

17. Declaration

The information I have supplied with this application is true and complete to the best of my knowledge.

Name (please write in full)

Moana Schoffa

Signature

Date 01-Dec-2025

A signature is not required if the application is made by electronic means

See overleaf for a checklist of your information...

Checklist

Please tick if information is provided

- ☐ Payment (cheques payable to Far North District Council)
- ☒ A current Certificate of Title (Search Copy not more than 6 months old)
- ☐ Details of your consultation with Iwi and hapū
- ☒ Copies of any listed encumbrances, easements and/or consent notices relevant to the application
- ☒ Applicant / Agent / Property Owner / Bill Payer details provided
- ☒ Location of property and description of proposal
- ☒ Assessment of Environmental Effects
- ☐ Written Approvals / correspondence from consulted parties
- ☒ Reports from technical experts (if required)
- ☐ Copies of other relevant consents associated with this application
- ☒ Location and Site plans (land use) AND/OR
- ☐ Location and Scheme Plan (subdivision)
- ☐ Elevations / Floor plans
- ☐ Topographical / contour plans

Please refer to Chapter 4 of the District Plan for details of the information that must be provided with an application. Please also refer to the RC Checklist available on the Council's website. This contains more helpful hints as to what information needs to be shown on plans.



**RECORD OF TITLE
UNDER LAND TRANSFER ACT 2017
FREEHOLD
Search Copy**




R.W. Muir
Registrar-General
of Land

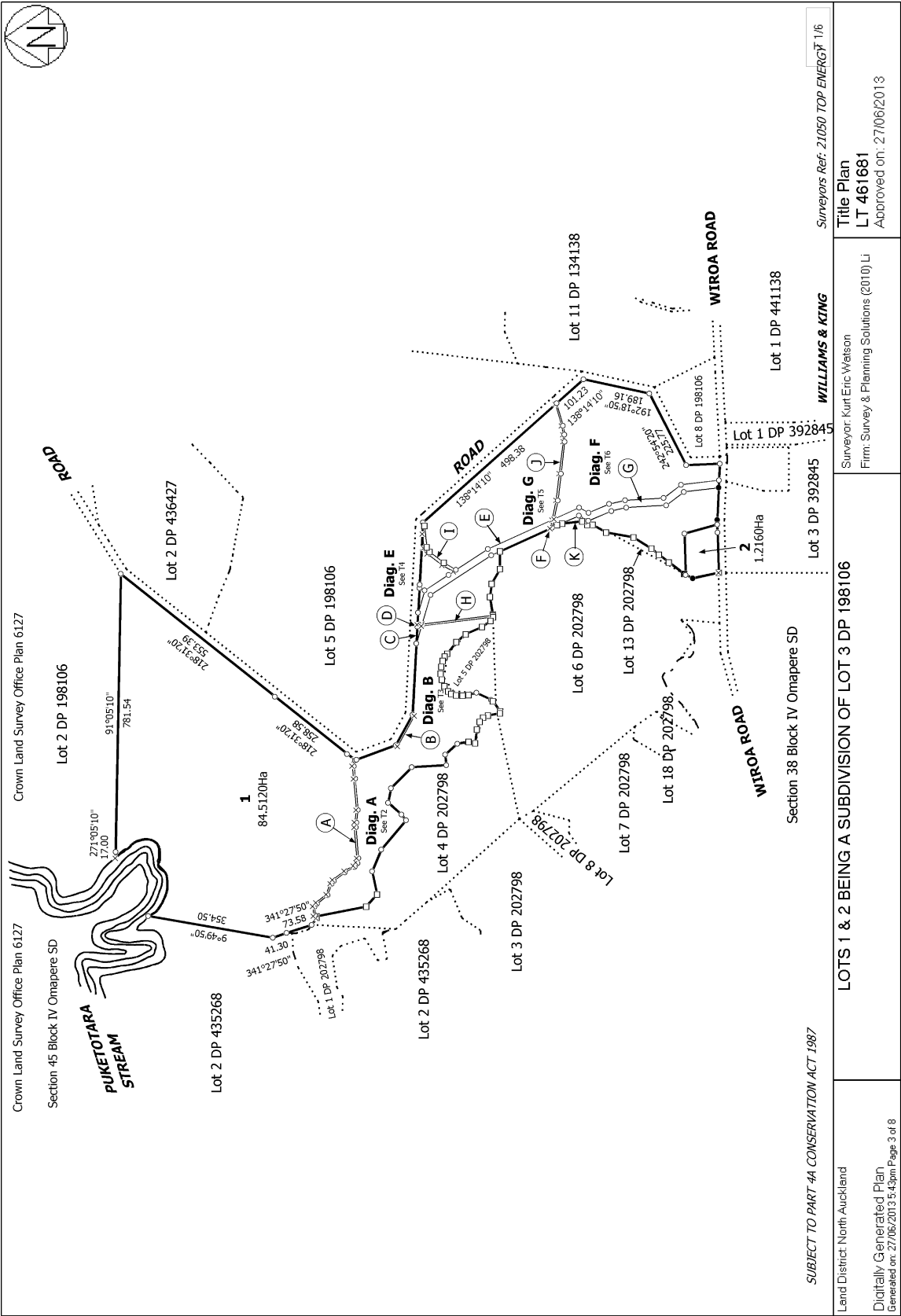
Identifier **607620**
Land Registration District **North Auckland**
Date Issued 07 August 2013

Prior References
NA127A/548

Estate Fee Simple
Area 1.2160 hectares more or less
Legal Description Lot 2 Deposited Plan 461681
Registered Owners
Top Energy Limited

Interests

Subject to Section 8 Mining Act 1971
Subject to Section 168A Coal Mines Act 1925
Subject to Section 59 Land Act 1948
9453107.6 Consent Notice pursuant to Section 221 Resource Management Act 1991 - 7.8.2013 at 3:14 pm



A large, dark blue triangle pointing downwards, located in the top-left corner of the page.

WIROA 110kV SUBSTATION DETAILED DESIGN CIVIL AND STRUCTURAL DRAWINGS – ISSUED FOR APPROVAL

Work Pack Ref: Work_Pack_Ref

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1. ALL WORK SHALL BE CARRIED OUT IN ACCORDANCE WITH THE NEW ZEALAND HEALTH & SAFETY LEGISLATION. 2. THE STRUCTURAL DRAWINGS SHALL BE READ IN CONJUNCTION WITH THE SPECIFICATION & WITH ARCHITECTURAL, SERVICES, CIVIL AND OTHER PROJECT DRAWINGS. ANY DISCREPANCIES SHALL BE REFERRED TO THE ENGINEER FOR RESOLUTION. 3. THE PRESENCE, LOCATION & DETAILS OF NIBS, PLINTHS, RECESSES, REBATES, PENETRATIONS, SLEEVES, CHASES, DUCTS, CAST-IN FIXINGS, INSERTS, BRACKETS, FLASHINGS, DAMP-PROOFING AND WATERPROOFING ETC. ARE NOT NECESSARILY SHOWN ON THE STRUCTURAL DRAWINGS. REFER TO ARCHITECTURAL SERVICES, CIVIL, AND OTHER PROJECT DRAWINGS AND SPECIFICATIONS FOR THESE ITEMS. 4. THE LOCATION, SIZE AND DETAILS OF ALL NIBS, PLINTHS, RECESSES, REBATES, PENETRATIONS ETC. IN STRUCTURAL MEMBERS, MUST BE APPROVED BY THE ENGINEER PRIOR TO CONSTRUCTION UNLESS SHOWN ON THE STRUCTURAL DRAWINGS. THESE ITEMS SHALL BE CAST-IN FORMED, OR SHOP FABRICATED AND SHALL NOT BE CUT OR CORED ON SITE, UNLESS NOTED OTHERWISE OR APPROVED BY THE ENGINEER. 5. SUBSTITUTION FOR OR AMENDMENT OF DETAILS SHOWN OR MATERIALS SPECIFIED SHALL NOT BE CARRIED OUT WITHOUT APPROVAL OF THE ENGINEER. 6. IN THE EVENT THAT THERE IS ANY CONFLICT BETWEEN THE DRAWINGS AND THE SPECIFICATION THEN THE REQUIREMENTS OF THE DRAWINGS SHALL TAKE PRECEDENCE, WITH THE DETAIL. DRAWINGS TAKING PRECEDENCE OVER THESE GENERAL NOTES. 7. UNLESS OTHERWISE SPECIFIED OR DETAILED ON THE DRAWINGS, THESE NOTES AND DETAILS SHALL APPLY. INCLUSION OF THIS SN SERIES OF SHEETS IN THIS CONTRACT DOES NOT IMPLY THAT ALL DETAILS APPLY. 8. ANY DISCREPANCIES IN THESE DRAWINGS AND/OR SPECIFICATION OR WITH ARCHITECTURAL OR OTHER TRADES DRAWINGS AND/OR SPECIFICATION SHALL BE REFERRED TO THE ENGINEER/ARCHITECT FOR CLARIFICATION PRIOR TO COMMENCING THAT SECTION OF WORK. 9. THE CONTRACTOR IS RESPONSIBLE TO ADEQUACY OF COMPONENTS FOR LIFTING AND ERECTION, AND FOR PROPPING AND PROVIDING LATERAL RESTRAINT DURING CONSTRUCTION UNTIL ALL STEEL IS FULLY IN PLACE AND ALL CONCRETE UP TO THAT LEVEL IS ADEQUATELY CURED TO CARRY THE CONSTRUCTION LOADS. 10. WHERE ALTERNATIVE PRODUCTS ARE USED OR CONSIDERED FULL ENGINEERING SPECIFICATIONS ARE TO BE PROVIDED TO DEMONSTRATE ADEQUACY.					1. ALL DIMENSIONS ARE IN MILLIMETRES, EXCEPT LEVELS AND COORDINATES WHICH ARE IN METRES, UNO. 2. DO NOT SCALE THE DRAWINGS. 3. ALL DIMENSIONS TO EXISTING WORK SHALL BE VERIFIED BY SITE MEASUREMENT PRIOR TO FABRICATION U.N.O. 4. DIMENSIONS ARE AS FOLLOWS: (a) FOR UB & UC SECTIONS TO : CENTRE LINE (b) FOR CHANNELS AND ANGLES : TO BACK (c) FOR CLEATS : TO ONE SIDE					1. ALL STEELWORK SHALL BE FABRICATED AND ERECTED TO NZS 3404 2. <u>STEEL GRADES :</u> HOT ROLLED STRUCTURAL SECTIONS TO RECTANGULAR HOLLOW SECTIONS TO OneSteel-300PLUS, AS1163 GRADE C350. HOT ROLLED PLATES TO AS3678 GRADE 250. CIRCULAR HOLLOW SECTIONS TO AS1163 GRADE C250. 3. ALL WELDING TO AS/NZS 1554.1 CATEGORY SP U.N.O. ALL WELDING SHALL BE CARRIED OUT BY PERSONS HOLDING A CURRENT TEST CERTIFICATE FOR THE REQUIRED POSITIONS ISSUED BY A RECOGNISED AUTHORITY. WELDS TO BE GRADE E49 OR EQUIVALENT ELECTRODE MATERIAL. 4. ALL WELDS SHALL BE 6 mm FILLET WELD ALL ROUND U.N.O., SUBJECT TO MINIMUM WELD SIZE REQUIREMENT OF AS/NZS 1554.1. 5. ALL STRUCTURAL BOLTS AND NUTS SHALL BE GRADE 8.8 TO AS1252 C/W HARDENED WASHER, UNO. 6. <u>BOLTING NOMENCLATURE :</u> 8.8/S - GRADE 8.8 BOLT TIGHTENED IN SNUG TIGHT MODE. TYPICAL U.N.O. 8.8/TB - GRADE 8.8 BOLT TIGHTENED USING PART TURN METHOD, IN ACCORDANCE WITH NZS 3404 8.8/TF - GRADE 8.8 BOLT TIGHTENED USING PART TURN METHOD, IN ACCORDANCE WITH NZS 3404 THE SURFACE FINISHES OF ALL MATING SURFACES SHALL BE SUITABLE FOR FRICTION MODE BOLTING. 7. ALL BOLTS, NUTS AND WASHERS SHALL BE GALVANISED BY THE MANUFACTURER. 8. HOLDING-DOWN BOLTS SHALL BE GRADE 4.6 OR GRADE 400 UNO. 9. NO GRADE 8.8 BOLT OR NUT SHALL BE WELDED, TACK WELDED OR IN ANY OTHER WAY DAMAGED. 10. ALL HOLES SHALL BE PUNCHED OR DRILLED 2 mm LARGER THAN THE BOLT DIAMETER U.N.O. HOLES IN BASE PLATES MAY BE UP TO 6 mm LARGER THAN THE BOLT DIAMETER U.N.O. 11. ALL HOLES IN STEEL SECTIONS SHALL BE DIMENSIONED TO GAUGE LINES AS SHOWN IN AISC : DESIGN CAPACITY TABLES FOR STRUCTURAL STEEL. 12. NO STEEL SHALL BE GAS CUT OR HOLES BLOWN OUT TO AID ERECTION WITHOUT THE WRITTEN PERMISSION OF THE ENGINEER. 13. PURLINS SHALL BE DIMOND HI-SPAN, FABRICATED FROM HIGH STRENGTH, COLD ROLLED GALVANISED STEEL. 14. THE PURLINS SHALL BE INSTALLED COMPLETE WITH THE ROWS OF SAG RODS AND CHANNEL BRACES SHOWN ON THE DRAWINGS. ALL DETAILING SHALL BE CONSISTENT WITH DIMOND'S RECOMMENDATIONS. 15. PURLIN CLEATS SHALL BE CONSISTENT WITH THE DIMOND INDUSTRIES STANDARD DETAILS. 16. THE STRUCTURAL STEELWORK DRAWINGS SHOW THE DESIGN INTENT. THE STRUCTURAL STEELWORK SUPPLIER SHALL TAKE AND VERIFY ALL SITE DIMENSIONS AND LEVELS NECESSARY, PRODUCE SHOP DRAWINGS AND SUBMIT THEM TO THE ENGINEER FOR INSPECTION. THE ACCURACY OF SHOP DRAWINGS REMAIN THE RESPONSIBILITY OF THE CONSTRUCTOR. 17. ALL HOLLOW SECTIONS ARE TO BE CAPPED AND ALL JOINTS SEALED (UNO). 18. WHERE ITEMS ARE TO BE HOT DIPPED GALVANISED, ALLOW FOR TOLERANCES, VENT HOLES ETC. 19. DISSIMILAR METALS ARE TO BE APPRPRATELY ISOLATED OR AVOIDED. REFER ANY ISSUE TO THE ENGINEER. 20. ALL STEEL CAST IN OR EMBEDDED INTO CONCRETE TO HAVE ALL STEEL IN CONTACT WITH CONCRETE PAINTED WITH PAINT TO EXTEND 100mm BEYOND CONCRETE SURFACE. 21. ALL EXTERNAL POSTS & UDB'S TO BE PAINTED WITH NOXCYDE INCLUDING CONCRETE BASE PLATE 22. EARTHING - REFER TO SECTION O: 23. ALL STEEL WORK TO BE HOT DIP GALVANIZED AND EXTERIOR STEEL TO BE MIN. HDG 600. 24. THE CONTRACTOR IS TO REVIEW ALL DRAWINGS INCLUDING ARCHITECTURAL & STRUCTURAL FOR THE PRODUCTION OF SHOP DRAWINGS 25. 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BOLT</td><td>HOLDING DOWN BOLT</td><td>UA</td><td>UNEQUAL ANGLE</td></tr><tr><td>H.D. GALV.</td><td>HOT DIPPED GALVANISED</td><td>UB</td><td>UNIVERSAL BEAM</td></tr><tr><td>HORZ</td><td>HORIZONTAL</td><td>UC</td><td>UNIVERSAL COLUMN</td></tr><tr><td>HR</td><td>PLAIN BAR GRADE 500</td><td>U.N.O.</td><td>UNLESS NOTED OTHERWISE</td></tr><tr><td>ID</td><td>INSIDE DIAMETER</td><td>U/S</td><td>UNDERSIDE</td></tr><tr><td>IL</td><td>INVERT LEVEL</td><td>VERT</td><td>VERTICAL</td></tr><tr><td>IP</td><td>INTERSECTION POINT</td><td>VL</td><td>VARYING LENGTH</td></tr><tr><td>LAR</td><td>LAP AT RANDOM</td><td>„JL</td><td>DOUBLE ANGLE BACK TO BACK</td></tr></table>					ALT	ALTERNATE	LG	LONG	APPROX						APPROXIMATE	MAX	MAXIMUM	ADDNL	ADDITIONAL	MIN	MINIMUM	B	BOTTOM	MS	MILD STEEL	BLKG	BLOCKING	(N)	NEW	BS	BOTH SIDES	N/A	NOT APPLICABLE	C	COVER or CENTRAL	NB	NOMINAL BORE	CAR	COVER ALL ROUND	NDT	NON DESTRUCTIVE TESTING	CB	T' CUT FROM UB	NF	NEAR FACE	C/C	CENTRE TO CENTRE	NS	NEAR SIDE	CHS	CIRCULAR HOLLOW SECTION	NTS	NOT TO SCALE	CJ	CONSTRUCTION JOINT	O/A	OVERALL	CL	CENTRE LINE	O/H	OVERHEAD	COL	COLUMN	OD	OUTSIDE DIAMETER	CONC	CONCRETE	OPP	OPPOSITE	CONN	CONNECTION	PC	PRECAST CONCRETE	CONT	CONTINUOUS	PCD	PITCH CIRCLE DIAMETER	C.O.S.	CHECK ON SITE	PFC	PARALLEL FLANGE CHANNEL	CRS	CENTRES	PL	PLATE	CT	T' CUT FROM UC	PSC	PRESTRESSED CONCRETE	C/W	COMPLETE WITH	R	PLAIN BAR GRADE 300	d	BOLT OR BAR DIAMETER	RAD	RADIUS	D	DEFORMED BAR GRADE 300	RC	REINFORCED CONCRETE	DET	DETAIL	REF	REFER, REFERENCE	DIA, Ø	DIAMETER	REINF	REINFORCING	DIAG	DIAGONAL	RHS	RECTANGULAR HOLLOW SECTION	DIM	DIMENSION	RL	REDUCED LEVEL	DOS	DETERMINE ON SITE	SFL	STRUCTURAL FLOOR LEVEL	DP	DOWN PIPE	SHS	SQUARE HOLLOW SECTION	DPC	DAMP PROOF COURSE	SIM	SIMILAR	DWG	DRAWING	SJ	SAWCUT JOINT	EA	EQUAL ANGLE	SQ	SQUARE	EF	EACH FACE	SS	STAINLESS STEEL	EL, ELEV	ELEVATION	STA	STARTER	EW	EACH WAY	STD	STANDARD	EX	OUT OF	STG	STAGGER	EXTG, (E)	EXISTING	STIFF	STIFFENER	FDN	FOUNDATION	STRP	STIRRUP	FF	FAR FACE	SYMM	SYMMETRICAL	FFL	FINISHED FLOOR LEVEL	T	TOP	FIG	FIGURE	TFB	TAPER FLANGE BEAM	FL	FLAT	TFC	TAPER FLANGE CHANNEL	FLG	FLANGE	THK	THICK	FRR	FIRE RESISTANCE RATING	TO	TOP OF	FS	FAR SIDE	TOC	TOP OF CONCRETE	FW	FILLET WELD	TOG	TOP OF GRATING	FWAR	FILLET WELD ALL ROUND	TORC	TOP OF ROUGH CONCRETE	g	GAUGE	TOS	TOP OF STEEL	GL	GROUND LEVEL	TRM	TRIMMER	HD	DEFORMED BAR GRADE 500	TYP	TYPICAL	H.D. 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					1. <u>EXPANSION ANCHORS:</u> EXPANSION ANCHORS SHALL BE RAMSET TRUBOLT XTREM OR APPROVED EQUIVALENT C2 SEISMIC CATEGORY ANCHOR, WITH EDGE DISTANCES EXCEEDING MANUFACTURERS REQUIREMENTS. HD GALV ON S/S DEPENDING ON EXPOSURE LOCATION. 2. <u>CHEMICAL ANCHORS:</u> THE CHEMSET ANCHORAGE SYSTEM SHALL BE THE RAMSET EPCON C8 XTREM EPOXY SYSTEM INSTALLED IN STRICT ACCORDANCE WITH THE MANUFACTURERS RECOMMENDATIONS. HOLES SHALL BE DRILLED WITH A MASONRY BIT AND THOROUGHLY CLEANED BEFORE ANCHOR INSTALLATION. IN DRY, INTERIOR AREAS THE ANCHOR BOLTS MAY BE RAMSET THREADED ANCHORS WITH PASSIVATED ZINC COATING. IN EXTERIOR AREAS, THE ANCHORS SHALL BE FULLY THREADED MILD STEEL ROUNDS HOT DIP GALVANISED AFTER FABRICATION OR STAINLESS STEEL DEPENDING ON LOCATION. 3. ALTERNATE ANCHORS TO THOSE SPECIFIED IN DRAWINGS OR ABOVE ARE NOT ACCEPTABLE UNLESS CALCULATIONS PROVIDED TO DEMONSTRATE COMPLIANCE.																																																																																																																																																																																																																																												
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		By	Date	By	Date	By	Date	By	Date						
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25			022 - WIROA 110kV SUBSTATION			02022-0120-01	1	

Work Pack Ref: Work_Pack_Ref

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H : CONCRETE

- ALL STRUCTURAL CONCRETE WORKMANSHIP AND MATERIALS SHALL BE IN ACCORDANCE WITH NZS 3109
- ALL CONCRETE WORKS ON THIS PROJECT ARE TO BE CURED. REFER TO THE STRUCTURAL ENGINEERING SPECIFICATION FOR ACCEPTABLE CURING METHODS. SUBMIT PROPOSED CURING PROCEDURES TO THE STRUCTURAL ENGINEER FOR REVIEW.
- ALL GRADE 500E REINFORCEMENT SHALL COMPLY WITH AS/NZS 4671 AND BE MANUFACTURED USING THE MICRO ALLOY PROCESS. QUENCH AND TEMPERED STEEL (QT) SHALL NOT BE USED ON THIS PROJECT.
- ALL REINFORCING AND MESH USED ON THIS PROJECT TO BE SEISMIC GRADE '500E'.
- ALL STRUCTURAL CONCRETE SHALL BE SPECIAL GRADE TO NZS 3104. STRENGTHS SHALL BE AS FOLLOWS U.N.O. :

FOUNDATIONS	- 30 MPa
CAST INSITU SLABS, BEAMS & COLUMNS	- 30 MPa
PRE-CAST ITEMS	- 40 MPa
- SURFACE FINISHES SHALL BE TO NZS 3114, TYPICALLY AS FOLLOWS U.N.O. :

BURIED FOUNDATIONS	- F1 or U1
CONCRETE EXPOSED TO VIEW	- F4 or U3
OTHER	- REFER TO SPEC
- REINFORCEMENT SHALL BE TO :

AS/NZS 4671:2001 HOT ROLLED STEEL BARS	
AS/NZS 4671:2001 WELDED FABRIC OF DRAWN STEEL WIRE	
- NOMENCLATURE :

D	- DEFORMED BAR GRADE 300E
HD	- DEFORMED BAR GRADE 500E
R	- PLAIN BAR GRADE 300E
HR	- PLAIN BAR GRADE 500E
- REINFORCING NOTATION :

TYPE OF BAR	D16 - 250 T & B	BAR LOCATION
BAR DIAMETER		BAR SPACING
- NO REINFORCING IS TO BE WELDED WITHOUT THE WRITTEN AUTHORITY OF THE ENGINEER. THE WELDING OF REINFORCING IS TO BE IN ACCORDANCE WITH AS/NZS 1554.3.
- NO REINFORCING SHALL BE RE-BENT ON SITE UNLESS SHOWN ON THE DRAWINGS, AND WHERE RE-BENT SHALL ONLY BE RE-BENT ONCE.
- SAWCUTS TO BE 5mm WIDE AND EXTEND TO A THIRD DEPTH OF SLAB. SAW CUTTING TO TAKE PLACE NO LATER THAN 24 HOURS FOR AVERAGE AMBIENT TEMPERATURE ABOVE 20°C AND 48 HOURS FOR BELOW 20°C.
- LAP OR SPLICE LENGTHS :

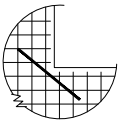
SPLICE LENGTHS SHALL BE IN ACCORDANCE WITH NZS 3101 AND FOR F _c SHOWN SHALL BE A MINIMUM OF:	
(a) FOR DEFORMED MILD STEEL BARS GRADE 300	
(b) FOR DEFORMED HIGH YIELD BARS GRADE 500E	

BAR DESIGNATION	SPLICE LENGTHS	
	25 MPa	30 MPa or HIGHER
D10	300 / 390	275 / 360
D12	365 / 470	330 / 430
D16	485 / 625	435 / 570
D20	600 / 780	550 / 715
D25	750 / 975	690 / 890
D32	965 / 1250	880 / 1140
D40	1200 / 1560	1095 / 1425

BAR DESIGNATION	SPLICE LENGTHS	
	25 MPa	30 MPa or HIGHER
HD10	500 / 650	460 / 595
HD12	600 / 780	550 / 715
HD16	800 / 1040	740 / 950
HD20	1000 / 1300	920 / 1190
HD25	1250 / 1625	1150 / 1485
HD32	1600 / 2080	1460 / 1900
HD40	2000 / 2600	1825 / 2375

SPLICE LENGTH NOTATION :
FOR COLUMNS, BOTTOM BEAM OR SLAB BARS OR TOP BEAM BARS WHERE LESS THAN 300mm OF CONCRETE IS PLACED BELOW THE BEAM BARS
TOP BEAM BARS WHERE MORE THAN 300mm OF CONCRETE IS PLACED BELOW THE BEAM BARS

- RE-ENTRANT CORNERS :
ALL RE-ENTRANT CORNERS SHALL HAVE DIAGONAL TRIM BARS OF D12 OR THE LARGEST REINFORCING BAR OF 2 X SPLICE LENGTH.



H : CONCRETE

- (a) DENOTES
(b) DENOTES
(c) DENOTES or BEND AND STANDARD LEG
(d) CRANKED BARS SHALL BE DIMENSIONED AS FOLLOWS :

OFFSET LAPS IN MAIN BARS SHALL BE 1:6 MINIMUM FOR GRADE 300 AND 1:9 MINIMUM FOR GRADE 500 BARS.
(e) SPLICE AND END ANCHORAGE OF SPIRAL REINFORCEMENT :
 ANCHOR AT ENDS WITH COMPLETE HORIZONTAL LOOP AND ADDITIONAL HALF TURN WITH 135° HOOK AROUND LONGITUDINAL BAR (OR APPROVED WELDED EQUIVALENT)
SPLICES IN SPIRALS SHALL BE A MINIMUM OF 2 ADJACENT BARS
SPLICE
END

- COVER TO REINFORCEMENT :
COVER SHALL BE AS NOTED UNLESS SHOWN OTHERWISE ON THE DRAWINGS.
(i) CAST AGAINST GROUND - 75mm
(ii) CAST AGAINST GROUND ON DPM - 65mm

EXPOSURE CLASSIFICATION	COVER FOR F _c =		
	25	30	40
A1 FOR INTERIOR SURFACES	35	30	30
A2 FOR FORMED SURFACES BELOW GROUND	50	40	35
B1 FOR EXTERIOR SURFACES	55	50	40
XA2 FOR EXTERIOR SURFACES	65	65	65

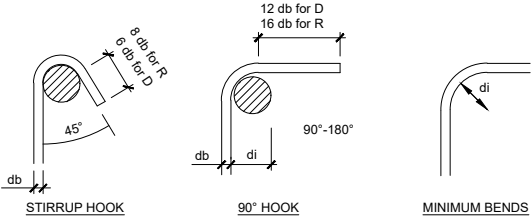
- CONSTRUCTION JOINTS SHALL BE PROPERLY FORMED AND USED ONLY WHERE SHOWN OR SPECIFICALLY APPROVED BY THE ENGINEER. CONSTRUCTION JOINTS SHALL BE PREPARED BY RETARDING THE INTERFACE SURFACE, THEN WATER BLASTING TO PRODUCE A SURFACE WHICH IS CLEAN, FREE OF LAITANCE AND INTENTIONALLY ROUGHENED TO A FULL AMPLITUDE OF NOT LESS THAN 5 mm.
- ALL CONCRETE SHALL BE FULLY CURED. SPRAY-ON MEMBRANES SHALL BE COMPATIBLE WITH FINISHES.
- PRINCIPAL REINFORCEMENT DETAILS :
(a) QT STEEL SHALL NOT BE USED WHERE BENDING OR HEATING OF BARS IS REQUIRED, (BARS WITH HOOKS OR SPLICE OFFSETS, GALVANISING, WELDING, THREADING, ETC).
DETAILS OF BAR BENDS SHALL BE AS FOLLOWS:
(b) MINIMUM BENDS
180° HOOK
90° HOOK

f _y (MPa)	BAR DIAMETER db, (mm)	MIN. DIAMETER OF BEND, di(mm)
300 or 500	6 - 20	5db
	25 - 40	6db

H : CONCRETE

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- SECONDARY REINFORCEMENT DETAILS :
(a) LINKS, TIES, STIRRUPS AND U BARS SHALL BE BENT GENERALLY AROUND PINS OF THE SAME DIAMETER AS THE BARS THEY ARE TO ENCLOSE, WITH A MINIMUM DIAMETER OF BENDS AS GIVEN BELOW.
(b) ALL TIES AND LINKS SHALL FIT CLOSELY AROUND MAIN BARS.
(c) THE FIRST STIRRUPS SHALL BE PLACED NOT FURTHER THAN HALF THE TIE SPACING FROM FACE OF SUPPORT.
(d) QT STEEL SHALL NOT BE USED WHERE BENDING OF BARS IS REQUIRED.
(e) DETAILS OF BAR BENDS SHALL BE AS FOLLOWS:



f _y (MPa)	BAR DIAMETER db, (mm)	MIN. DIAMETER OF BEND, di(mm)	
		PLAIN BARS (R)	DEFORMED BARS (D)
300 OR 500E	6 - 20	2db	4db
	25	3db	6db

- PRECAST FLOOR SYSTEMS :
(a) SYSTEMS ARE TO BE AS NOTED ON THE DRAWINGS AND ARE TO BE DESIGNED BY THE MANUFACTURER AND PS1 PRODUCER STATEMENT PROVIDED ACCORDINGLY
(b) SEATING OF UNITS :
IN DIRECTION OF SPAN - 75 mm U.N.O.
NOT IN DIRECTION OF SPAN - 25 mm U.N.O.
(c) PRECAST FLOOR UNITS SHALL BE DESIGNED FOR THE FOLLOWING MINIMUM LOADING, IN ADDITION TO DEAD LOAD :
SDL - 0.5 kPa
LL - 15.0 kPa
(d) 65mm MIN. TOPPING IS REQUIRED ON ALL UNITS. ALLOWANCE SHALL BE MADE FOR GREATER THAN THE SPECIFIED MINIMUM TOPPING NEAR THE PRECAST SUPPORTS TO ALLOW FOR ANY CAMBER IN THE PRECAST & SHELL BEAM UNITS. THE CONSTRUCTOR IS TO LIAISE WITH PRECAST UNIT & SHELL BEAM MANUFACTURER TO ENSURE THE FLOORS ARE INSTALLED TO THE CORRECT LEVELS.
(e) ALL SIZES SHOWN ARE INDICATIVE ONLY AND TO BE CONFIRMED BY PRECAST FLOOR MANUFACTURER.
(f) PROP ALL FLOOR BEAMS FOR 28 DAYS AFTER TOPPING HAS BEEN POURED.
(g) TEMPORARY PROPPING OF THE PRECAST UNITS SHALL BE THE RESPONSIBILITY OF THE CONSTRUCTOR & SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
(h) CUSTOM MESH EQUIVALENT TO STANDARD MESH WITH BARS AT GREATER THAN 250 CRS IS NOT ACCEPTABLE FOR THE SUSPENDED FLOOR TOPPING.

I : CIVIL

- YARD GRAVEL
1.1. IS TO BE A LAYOUT OF GAP65 NO FINES TO SPECIFICATION TP PS 52.04 OR REFER TO EEA EARTHING GUIDE. RAILWAY BALLAST OR REFER TO NO FINES GAP65 SIMILAR PROFILES BUT TO CONFORM. SOME UTILITIES OR PROJECTS MAY REQUIRE A NO FINES GAP40, WHICH IS ALSO COMMONLY USED IN DRAINAGE APPLICATIONS.
1.2. ALL CRUSHED ROCK MATERIAL MUST BE SCREENED & CRUSHED FROM RIVER-RUN GRAVEL OR QUARRIED AGGREGATE. THE SOURCE MATERIAL MUST CONSIST OF HARD, SOUND MATERIAL OF UNIFORM QUALITY, FREE FROM SOFT OR FRIABLE STONE, WOOD, CLAY, OR OTHER DELETERIOUS MATERIAL
1.3. CRUSHED ROCK COMPRISING A COMBINATION OF PARTICLES SIZES ENSURES SUFFICIENT AIR VOIDS WHEN TESTED IN ACCORDANCE WITH NZS 4407.1. TEST 3.8.2, THE PARTICLE SIZE DISTRIBUTION OF THE CRUSHED ROCK MUST COMPLY WITH THE LIMITS IN TABLE 1.

YARD GRAVEL - TABLE 1a - 65mm								
CRUSHED ROCK PARTICLE SIZE DISTRIBUTION (% PASSING BY DRY MASS)	APERTURE (mm)							
	63	53	37.5	26.5	19	13.2	9.5	6.7
LOWER LIMIT	100	75	30	0	0	0	0	0
UPPER LIMIT	100	99	65	25	3	25	10	5

YARD GRAVEL - TABLE 1b - 40mm								
CRUSHED ROCK PARTICLE SIZE DISTRIBUTION (% PASSING BY DRY MASS)	APERTURE (mm)							
	63	53	37.5	26.5	19	13.2	9.5	6.7
LOWER LIMIT	100	100	100	65	20	0	0	0
UPPER LIMIT	100	100	100	85	50	25	10	5

- ALL DUCTS TO BE HEAVY DUTY GRADE
- ALL DUCTS TO HAVE 'FISH TAPE' DRAW WIRES INSTALLED. OR 6mm DRAW LINE EXTENDING A MINIMUM OF 5m AT THE ENTRY & EXIT POINT FOR PULLING CABLE.

FOR APPROVAL
NOT FOR CONSTRUCTION

Rev	Description	Designed	Drawn	Checked	Approved
1	ISSUED FOR APPROVAL	By SP Date JUL'25	By NS Date 23.09.25	By SP Date 23.09.25	By Date

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Designed	SP	July'25	Project	022 - WIROA 110kV SUBSTATION
Drawn	NS	July'25		
Checked	SP	July'25		
Approved				
Scale				
File Path	02022-0120-02		Drawing Title	GENERAL NOTES - SHEET 2
Date Issued				

Drawing Number	REV
02022-0120-02	1

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Work Pack Ref: Work_Pack_Ref

A1

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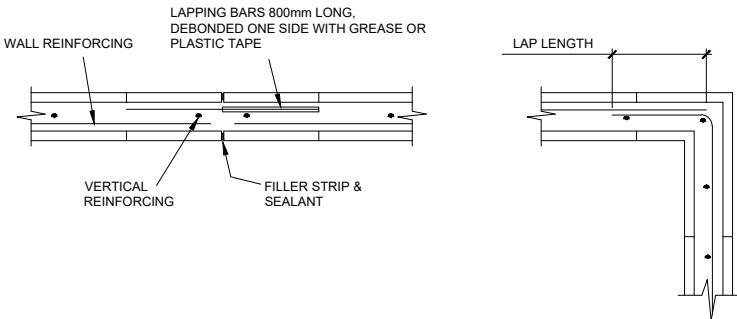
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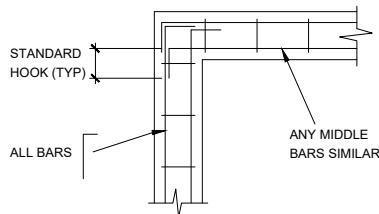
J : MASONRY

- REINFORCED CONCRETE MASONRY SHALL COMPLY WITH NZS 4230 & NZS 4210
- MASONRY SHALL BE GRADE B ALL CELLS FILLED MIN. 28 DAYS GROUT STRENGTH 17.5 MPa.
- ALL BLOCKS 200 SERIES U.N.O.
- BLOCKS SHALL BE LAID IN STRETCHER BOND.
- IF HIGH GROUTING IS USED, CLEAN OUT PORTS SHALL BE PROVIDED AT EVERY VERTICAL BAR, AND AT THE BOTTOM OF EVERY LIFT.
- MORTAR JOINTS ON EXPOSED WALLS SHALL BE RAKED WITH A HALF ROUND TOOL WHEN MORTAR IS PARTIALLY SET.
- UNLESS SPECIFIED OTHERWISE ON THE DRAWINGS. MINIMUM SPLICE LAP LENGTH FOR DEFORMED BARS SHALL BE :
40 BAR DIAMETERS FOR GRADE 300 STEEL
70 BAR DIAMETERS FOR GRADE 500 STEEL.
- ALL OPENINGS SHALL BE TRIMMED WITH D16 BARS U.N.O.
- MOVEMENT JOINTS SHALL BE AT MAXIMUM 6m CRS. AT LOCATIONS TO BE AGREED WITH THE ENGINEER AND ARCHITECT, OR SHOWN ON DRAWINGS.

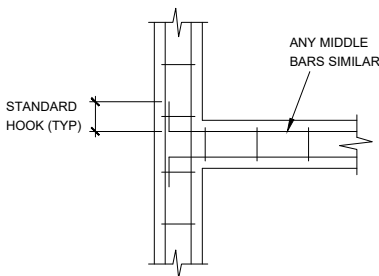
10. PLAN - CONSTRUCTION JOINT : 11. PLAN - TYPICAL CORNER DETAIL :



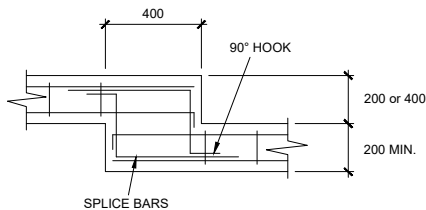
12. PLAN - FOUNDATION CORNER :



13. PLAN - FOUNDATION JUNCTION :



14. ELEVATION - FOUNDATION STEP :



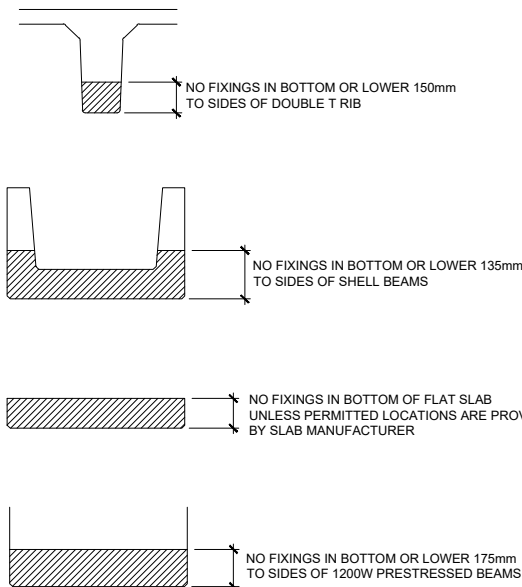
K : FIRE RESISTANCE RATING (FRR)

- FOR REINFORCED CONCRETE MEMBERS MAIN BAR REINFORCING MINIMUM CONCRETE COVERS FOR FIRE (DURABILITY MAY REQUIRE LARGER COVERS) ARE

	REBAR	PRESTRESSING
SIMPLY SUPPORTED BEAMS	25	40
CONTINUOUS BEAMS (1 END)	15	30
RIBBED FLOOR SLABS	25	40
FLAT FLOOR SLABS	20	35
COLUMNS	45	-
WALLS (130 MIN. THK.)	10	-

L : FITOUT AND SERVICES FIXINGS

- NO FIXINGS ARE TO BE DRILLED OR DRIVEN INTO PRESTRESSED REGIONS OF DOUBLE T's, FLAT SLABS, SHELL BEAMS OR PRESTRESSED BEAMS



M : CONSTRUCTION EQUIPMENT

- FORK HOISTS OR SIMILAR UP TO 3.5T GROSS VEHICLE WEIGHT OR 2.5T MAX. AXLE LOAD PERMITTED ON GENERAL SLAB ON GRADE AREAS WITH NO OTHER LOADING OR MATERIALS ON THE FLOOR.
- NO CONSTRUCTION EQUIPMENT IS PERMITTED ON SUSPENDED SLABS UNLESS CONFIRMED BY BOTH FLOOR SUPPLIER AND ENGINEER.
- FOR SWITCHGEAR INSTALLATION CONTRACTOR TO PROVIDE ADDITIONAL LOAD SUPPORT / PLATES TO SPREAD LOADS APPLIED TO FRP.

N : SAFETY IN DESIGN

- REFER TO PROJECT SPECIFIC RISK REGISTER.
- PRESENCE OF H₂S. CONTRACTOR TO AVOID ENTERING PITS OR TRENCHES WITHOUT CHECKING.

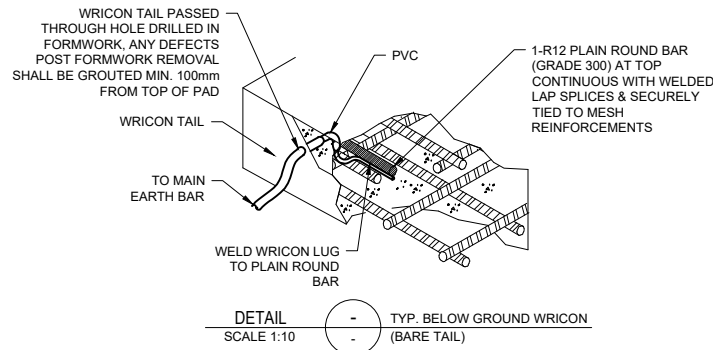
SAFETY IN DESIGN

ALL REASONABLY PRACTICABLE STEPS HAVE BEEN TAKEN TO ENSURE SAFETY IN DESIGN HAS BEEN CONSIDERED WITHIN ERGO'S SCOPE OF WORK IN THIS DESIGN IN ACCORDANCE WITH IPENZ PRACTICE NOTE 07 'DESIGN FOR SAFETY IN BUILDINGS AND OTHER STRUCTURES' (JULY 2006). IT REMAINS THE RESPONSIBILITY OF THE OWNER AND/OR OPERATOR TO ENSURE APPROPRIATE PRACTICES ARE IN PLACE TO PROTECT THE SAFETY OF WORKERS AND THE PUBLIC IN THE OPERATION OF THE FACILITY. FOR CLARIFICATION OF PROJECT SPECIFIC RISKS, REFER TO PROJECT RISK REGISTER & ERGO DESIGN REPORT, CONTRACTOR TO PARTICULARLY TAKE NOTE OF H₂S & ACIDIC SOILS.

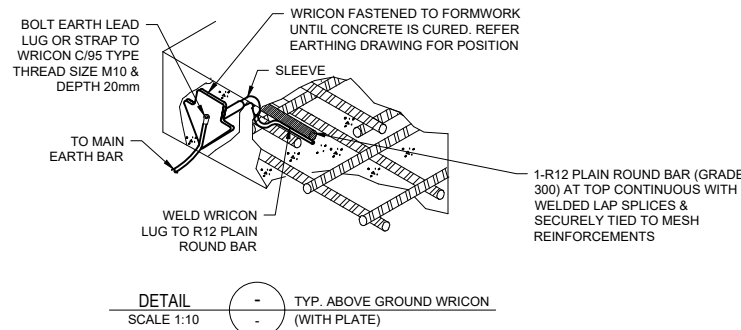
EQUIPMENT TO BE PLACED ON PADS AFTER MIN. 7 DAYS CURING

O : EARTHING

- TYPICALLY REFER TO DRAWINGS FOR DETAILS OF EARTHING
 - EARTHING OF CONCRETE FOUNDATIONS, SLABS & WALLS
- A. WRICON TO BE PLACED ON TWO CORNERS OF THE FOUNDATION AND FIXED TO A LOCATION ABOVE GROUND LEVEL.
B. WRICON TO BE C/95 TYPE THREAD SIZE M10 AT 20mm DEPTH U.N.O BY EARTHING REPORT.
C. ALL WRICONS TO BE TESTED BEFORE POURING CONCRETE. REFER TO THE ENGINEER FOR GUIDANCE OR TEST REQUIREMENTS
D. TYPICAL OUTDOOR FOUNDATION WRICON CONNECTION:



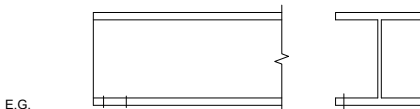
- E. TYPICAL INDOOR WRICON DETAIL:



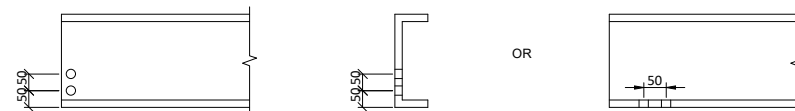
STEELWORK

- ALL STEELWORK SECTIONS TO BE PROVIDED WITH 2-Ø 13 HOLES FOR CONNECTION OF EARTHING. LOCATION TO BE ACCESSIBLE BY HAND AFTER INSTALLATION. FOR EXAMPLE:

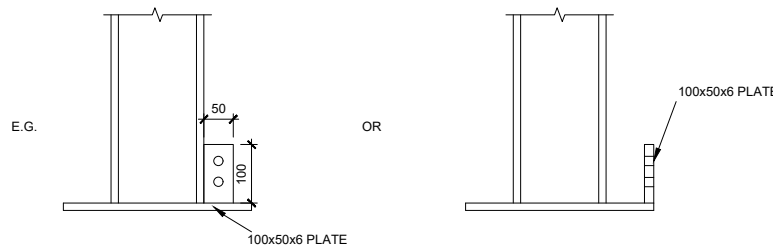
- 3.1. BEAMS TO HAVE HOLE DRILLED ON LOWER FLANGE, TYPICALLY:



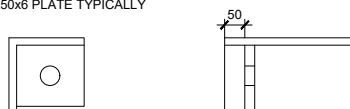
- 3.2. FLOOR MOUNTED STANDS TO HAVE HOLE DRILLED 50mm FROM BASE, TYPICALLY



- 3.3. BASE PLATES TO HAVE TABS WHERE HOLE NOT ABLE TO BE PROVIDED ON BEAM / COLUMN, TYPICALLY



- 3.4. ANLGES TO HAVE 50x50x6 PLATE TYPICALLY



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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved		
Scale		
File Path	02022-0120-03	
Date Issued		

Project	022 - WIROA 110kV SUBSTATION	Drawing Number	REV
		02022-0120-03	1
Drawing Title	GENERAL NOTES - SHEET 3		



- NOTES:
1. REFER TO GENERAL NOTES DRAWINGS.
 2. ALL EXISTING SITE INFORMATION SHOWN ON THIS DRAWING IS BASED ON THE SURVEY DRAWING SHEET 1/1, REVISION 2 DATED 03/06/2025 PREPARED BY WILLIAMS & KING.
 3. HORIZONTAL DATUM IS NZGD 2000, MERIDIONAL CIRCUIT IS MT EDEN 2000.
 4. HEIGHT DATUM IS NEW ZEALAND VERTICAL DATUM 2016 (NZVD16) FROM EAV4 - IT III SO 64371 RL=151.05m.
 5. ALL BOUNDARIES SHOWN ON THIS PLAN ARE FROM LANDONLINE. IF THE POSITION OF THE BOUNDARIES IS REQUIRED A REDEFINITION SURVEY SHOULD BE UNDERTAKEN.
 6. NOT ALL UNDERGROUND SERVICES MAY BE SHOWN ON THIS DRAWING.
 7. UNLESS OTHERWISE SHOWN THE POSITION AND ALIGNMENT OF SERVICES SHOWN ON THIS PLAN HAVE BEEN OBTAINED FROM COUNCIL RECORDS AND ARE SUBJECT TO THE ERRORS OR OMISSIONS OF THAT DATA, THEY SHOULD NOT BE USED FOR DESIGN PURPOSES. ALL SERVICES SHOULD BE LOCATED BEFORE ANY DESIGN OR CONSTRUCTION BEGINS.

EXISTING SITE PLAN

1:200 (A1)
1:200 (A3)

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CONSENT

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

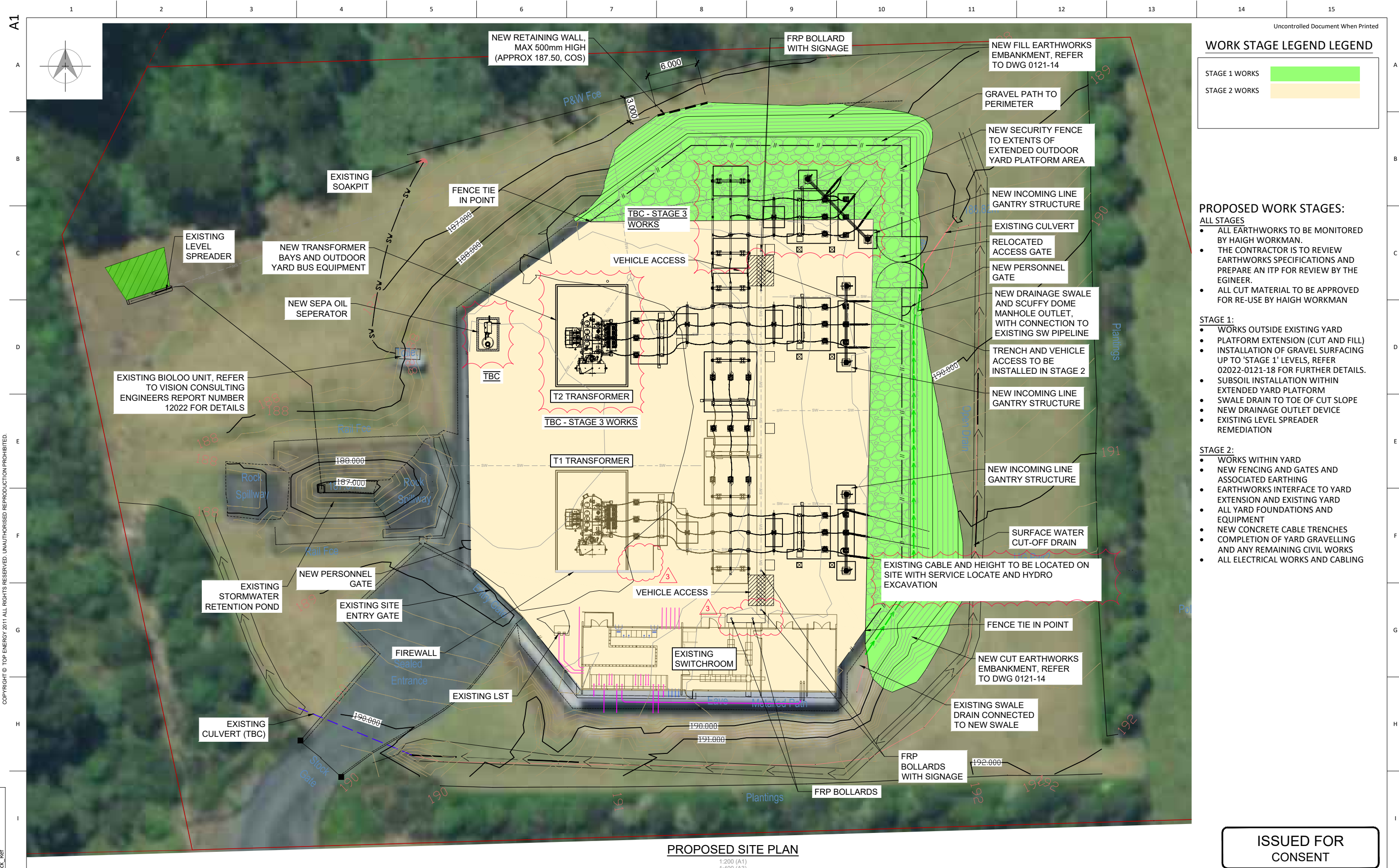
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Designed	SP	July'25
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Checked	SP	July'25
Approved	NS	Aug'25
Scale	Scale	
File Path	02022-0121-11	
Date Issued		

Project	022 - WIROA 110kV SUBSTATION	
Drawing Title	EXISTING SITE PLAN	

Drawing Number	REV
02022-0121-11	2



WORK STAGE LEGEND

- STAGE 1 WORKS
- STAGE 2 WORKS

PROPOSED WORK STAGES:

- ALL STAGES
- ALL EARTHWORKS TO BE MONITORED BY HAIGH WORKMAN.
 - THE CONTRACTOR IS TO REVIEW EARTHWORKS SPECIFICATIONS AND PREPARE AN ITP FOR REVIEW BY THE ENGINEER.
 - ALL CUT MATERIAL TO BE APPROVED FOR RE-USE BY HAIGH WORKMAN

STAGE 1:

- WORKS OUTSIDE EXISTING YARD
- PLATFORM EXTENSION (CUT AND FILL)
- INSTALLATION OF GRAVEL SURFACING UP TO 'STAGE 1' LEVELS, REFER 02022-0121-18 FOR FURTHER DETAILS.
- SUBSOIL INSTALLATION WITHIN EXTENDED YARD PLATFORM
- SWALE DRAIN TO TOE OF CUT SLOPE
- NEW DRAINAGE OUTLET DEVICE
- EXISTING LEVEL SPREADER REMEDIATION

STAGE 2:

- WORKS WITHIN YARD
- NEW FENCING AND GATES AND ASSOCIATED EARTHING
- EARTHWORKS INTERFACE TO YARD EXTENSION AND EXISTING YARD
- ALL YARD FOUNDATIONS AND EQUIPMENT
- NEW CONCRETE CABLE TRENCHES
- COMPLETION OF YARD GRAVELLING AND ANY REMAINING CIVIL WORKS
- ALL ELECTRICAL WORKS AND CABLING

PROPOSED SITE PLAN

1:200 (A1)
1:400 (A3)

ISSUED FOR
CONSENT

Rev	Description	Designed By Date	Drawn By Date	Checked By Date	Approved By Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP JUL'25	NS 28.07.25	SP 28.07.25	
2	ISSUED FOR CONSENT AND TENDER	SP JUL'25	NS 08.08.25	SP 08.08.25	NS 08.08.25
3	ISSUED FOR CONSENT AND TENDER - UPDATED AS CLOUDED	SP JUL'25	AS 03.10.25	SP 03.10.25	

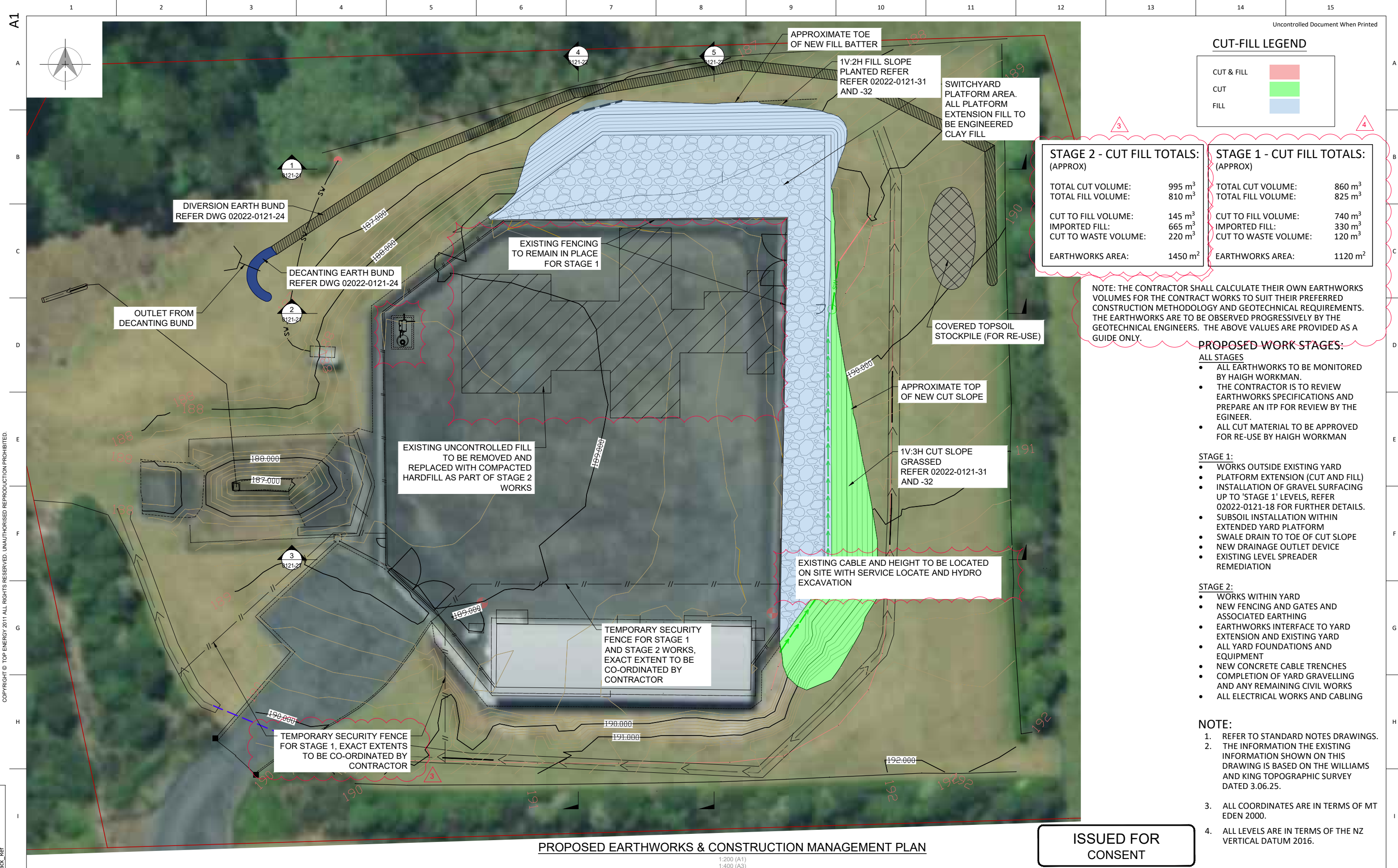
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Checked	SP	July'25
Approved	NS	Aug'25
Scale	Scale	
File Path	02022-0121-12	
Date Issued		

Project
022 - WIROA 110KV SUBSTATION

Drawing Title
PROPOSED SITE PLAN

Drawing Number	REV
02022-0121-12	3



CUT-FILL LEGEND

CUT & FILL	
CUT	
FILL	

STAGE 2 - CUT FILL TOTALS: (APPROX)	
TOTAL CUT VOLUME:	995 m ³
TOTAL FILL VOLUME:	810 m ³
CUT TO FILL VOLUME:	145 m ³
IMPORTED FILL:	665 m ³
CUT TO WASTE VOLUME:	220 m ³
EARTHWORKS AREA:	1450 m ²

STAGE 1 - CUT FILL TOTALS: (APPROX)	
TOTAL CUT VOLUME:	860 m ³
TOTAL FILL VOLUME:	825 m ³
CUT TO FILL VOLUME:	740 m ³
IMPORTED FILL:	330 m ³
CUT TO WASTE VOLUME:	120 m ³
EARTHWORKS AREA:	1120 m ²

NOTE: THE CONTRACTOR SHALL CALCULATE THEIR OWN EARTHWORKS VOLUMES FOR THE CONTRACT WORKS TO SUIT THEIR PREFERRED CONSTRUCTION METHODOLOGY AND GEOTECHNICAL REQUIREMENTS. THE EARTHWORKS ARE TO BE OBSERVED PROGRESSIVELY BY THE GEOTECHNICAL ENGINEERS. THE ABOVE VALUES ARE PROVIDED AS A GUIDE ONLY.

PROPOSED WORK STAGES:

- ALL STAGES**
- ALL EARTHWORKS TO BE MONITORED BY HAIGH WORKMAN.
 - THE CONTRACTOR IS TO REVIEW EARTHWORKS SPECIFICATIONS AND PREPARE AN ITP FOR REVIEW BY THE ENGINEER.
 - ALL CUT MATERIAL TO BE APPROVED FOR RE-USE BY HAIGH WORKMAN

- STAGE 1:**
- WORKS OUTSIDE EXISTING YARD
 - PLATFORM EXTENSION (CUT AND FILL)
 - INSTALLATION OF GRAVEL SURFACING UP TO 'STAGE 1' LEVELS, REFER 02022-0121-18 FOR FURTHER DETAILS.
 - SUBSOIL INSTALLATION WITHIN EXTENDED YARD PLATFORM
 - SWALE DRAIN TO TOE OF CUT SLOPE
 - NEW DRAINAGE OUTLET DEVICE
 - EXISTING LEVEL SPREADER REMEDIATION

- STAGE 2:**
- WORKS WITHIN YARD
 - NEW FENCING AND GATES AND ASSOCIATED EARTHING
 - EARTHWORKS INTERFACE TO YARD EXTENSION AND EXISTING YARD
 - ALL YARD FOUNDATIONS AND EQUIPMENT
 - NEW CONCRETE CABLE TRENCHES
 - COMPLETION OF YARD GRAVELLING AND ANY REMAINING CIVIL WORKS
 - ALL ELECTRICAL WORKS AND CABLING

- NOTE:**
- REFER TO STANDARD NOTES DRAWINGS.
 - THE INFORMATION THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS BASED ON THE WILLIAMS AND KING TOPOGRAPHIC SURVEY DATED 3.06.25.
 - ALL COORDINATES ARE IN TERMS OF MT EDEN 2000.
 - ALL LEVELS ARE IN TERMS OF THE NZ VERTICAL DATUM 2016.

PROPOSED EARTHWORKS & CONSTRUCTION MANAGEMENT PLAN

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1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25
3	ISSUED FOR CONSENT AND TENDER - UPDATED AS CLOUDED	SP	JUL'25	AS	03.10.25	SP	03.10.25		
4	ISSUED FOR CONSENT AND TENDER - UPDATED AS CLOUDED	JH	NOV '25	AS	24.11.25	SP	24.11.25	SP	24.11.25

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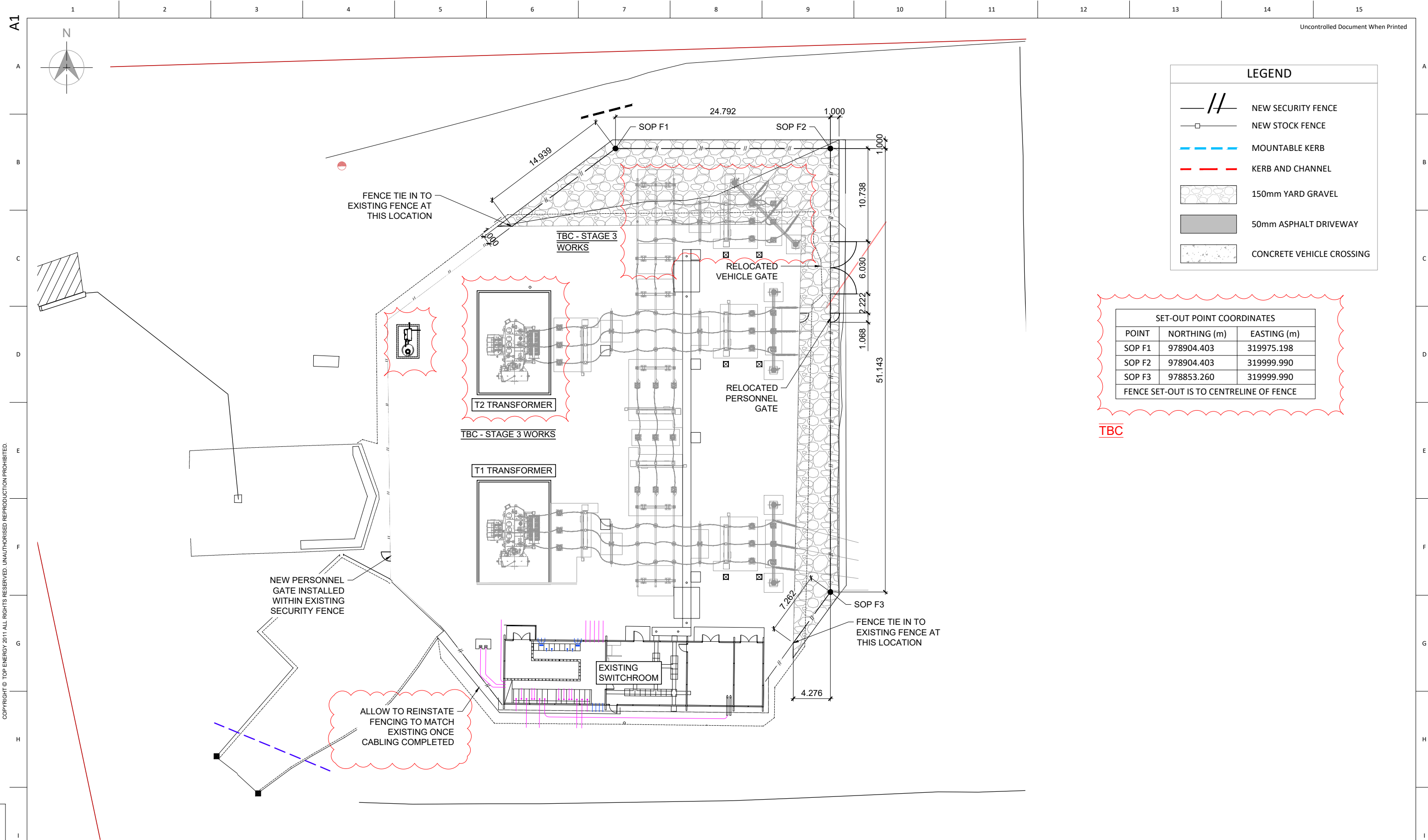
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Drawn	NS	July'25		02022-0121-14	4
Checked	SP	July'25			
Approved	NS	Aug'25			
Scale	Scale				
File Path	02022-0121-14		Drawing Title EARTHWORKS AND CONSTRUCTION MANAGEMENT PLAN		
Date Issued					

1:200 (A1)
1:400 (A3)

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved	NS	Aug'25
Scale	Scale	
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Drawing Title
DRAINAGE - STAGE 1 - PLAN



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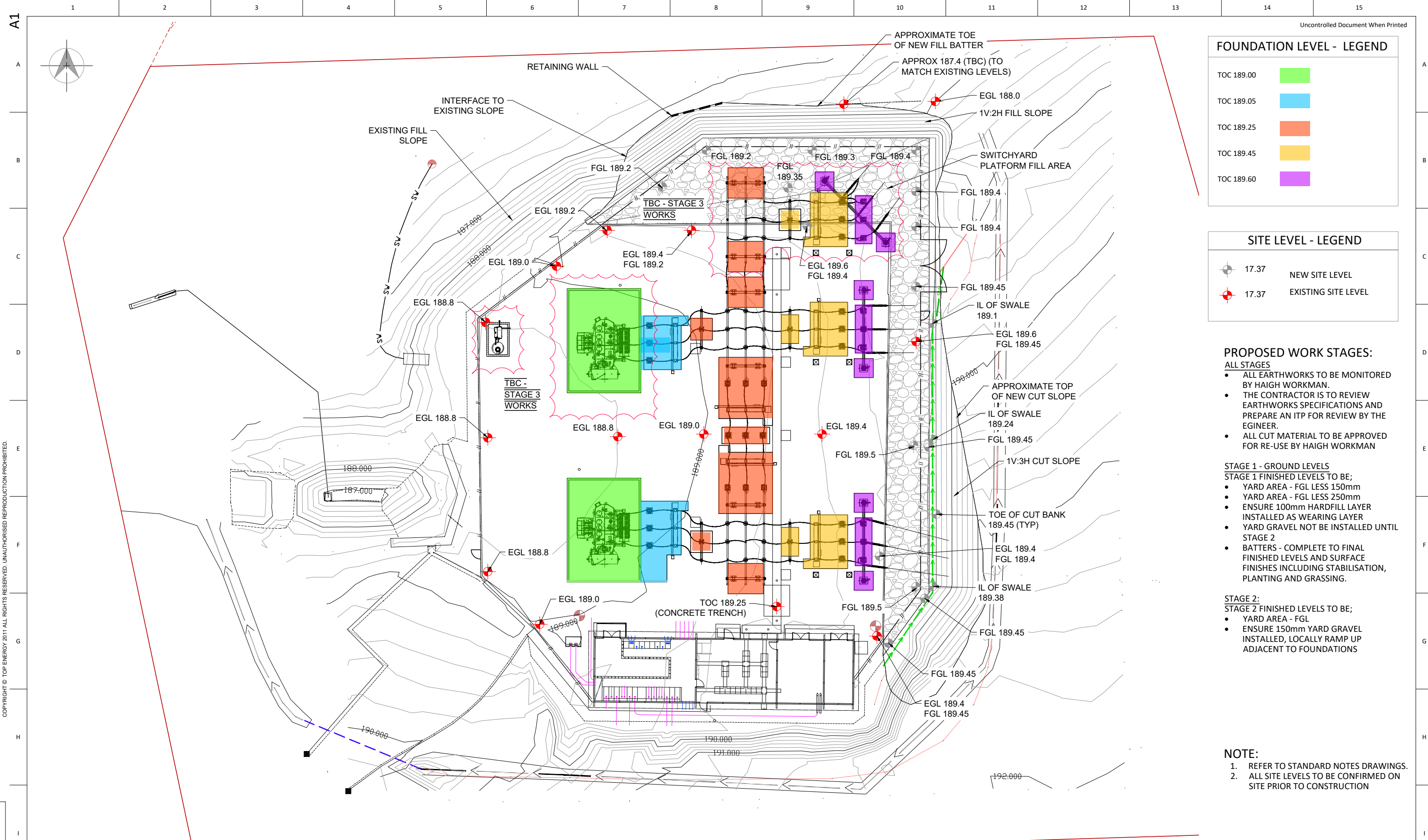
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File Path	02022-0121-17	
Date Issued		

Project	022 - WIROA 110KV SUBSTATION	
Drawing Title	FENCING LAYOUT PLAN	

ISSUED FOR CONSENT	
Drawing Number	REV
02022-0121-17	3



FOUNDATION LEVEL - LEGEND	
TOC 189.00	
TOC 189.05	
TOC 189.25	
TOC 189.45	
TOC 189.60	

SITE LEVEL - LEGEND	
17.37	NEW SITE LEVEL
17.37	EXISTING SITE LEVEL

- PROPOSED WORK STAGES:**
- ALL STAGES
- ALL EARTHWORKS TO BE MONITORED BY HAIGH WORKMAN.
 - THE CONTRACTOR IS TO REVIEW EARTHWORKS SPECIFICATIONS AND PREPARE AN ITP FOR REVIEW BY THE ENGINEER.
 - ALL CUT MATERIAL TO BE APPROVED FOR RE-USE BY HAIGH WORKMAN
- STAGE 1 - GROUND LEVELS
- STAGE 1 FINISHED LEVELS TO BE;
- YARD AREA - FGL LESS 150mm
 - YARD AREA - FGL LESS 250mm
 - ENSURE 100mm HARDFILL LAYER INSTALLED AS WEARING LAYER
 - YARD GRAVEL NOT BE INSTALLED UNTIL STAGE 2
- STAGE 2
- BATTERS - COMPLETE TO FINAL FINISHED LEVELS AND SURFACE FINISHES INCLUDING STABILISATION, PLANTING AND GRASSING.
- STAGE 2:
- STAGE 2 FINISHED LEVELS TO BE;
- YARD AREA - FGL
 - ENSURE 150mm YARD GRAVEL INSTALLED, LOCALLY RAMP UP ADJACENT TO FOUNDATIONS

- NOTE:**
- REFER TO STANDARD NOTES DRAWINGS.
 - ALL SITE LEVELS TO BE CONFIRMED ON SITE PRIOR TO CONSTRUCTION

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Drawn	NS	July'25		02022-0121-18	3	
Checked	SP	July'25				
Approved	NS	Aug'25				
Scale	Scale					
File Path	02022-0121-18		Drawing Title			
			PAVEMENT AND FINISHED LEVELS PLAN			
Date Issued						

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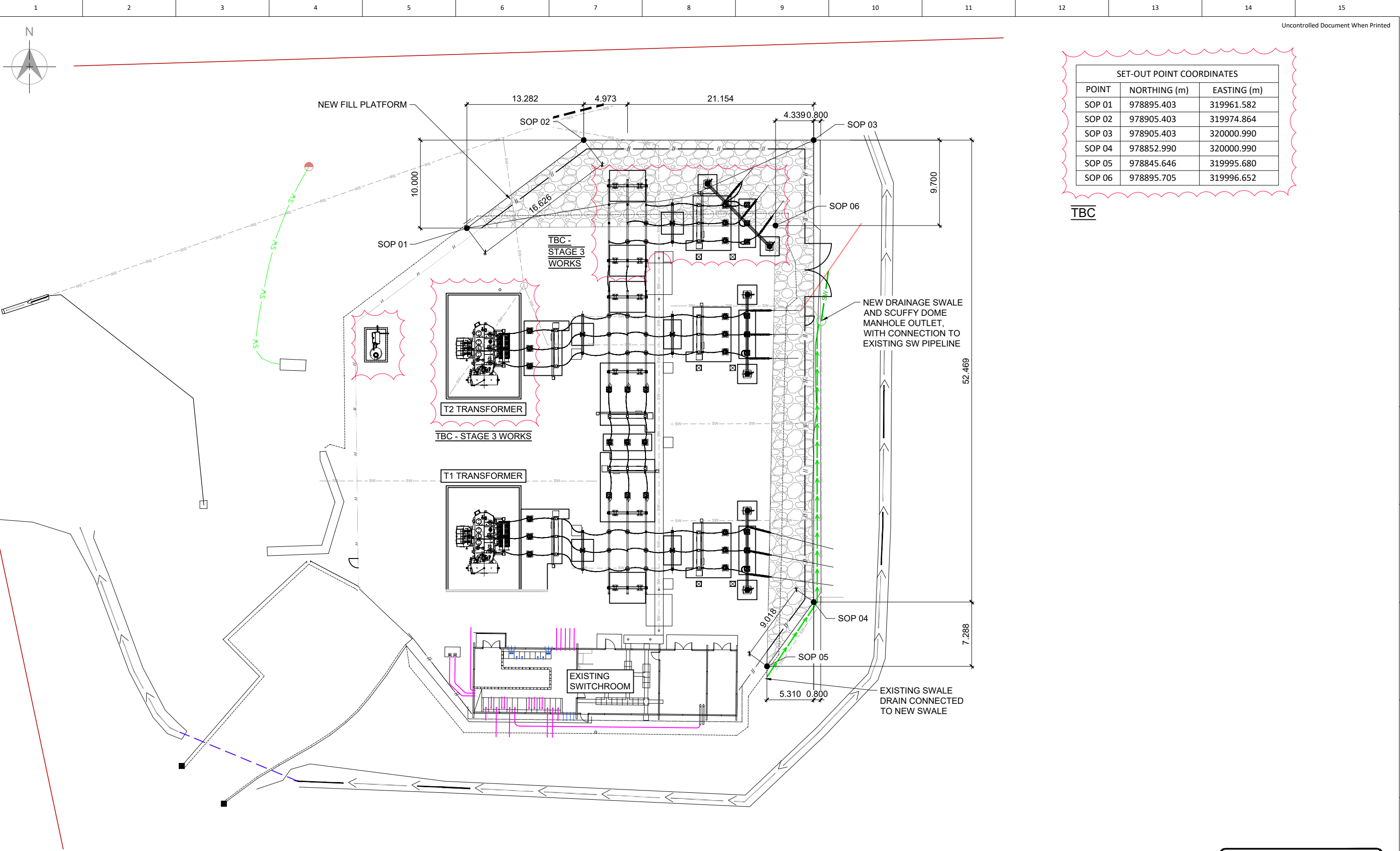
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PROPOSED FOUNDATION SETOUT PLAN

1:200 (A1)
1:400 (A3)

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File Path	02022-0121-19	
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Project	022 - WIROA 110kV SUBSTATION
Drawing Number	
REV	
Drawing Title	SETOUT PLAN

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Drawing Number	REV
02022-0121-19	3

SET-OUT POINT COORDINATES		
POINT	NORTHING (m)	EASTING (m)
SOP 01	978895.403	319961.582
SOP 02	978905.403	319974.864
SOP 03	978905.403	320000.990
SOP 04	978852.990	320000.990
SOP 05	978845.646	319995.680
SOP 06	978895.705	319996.652

TBC

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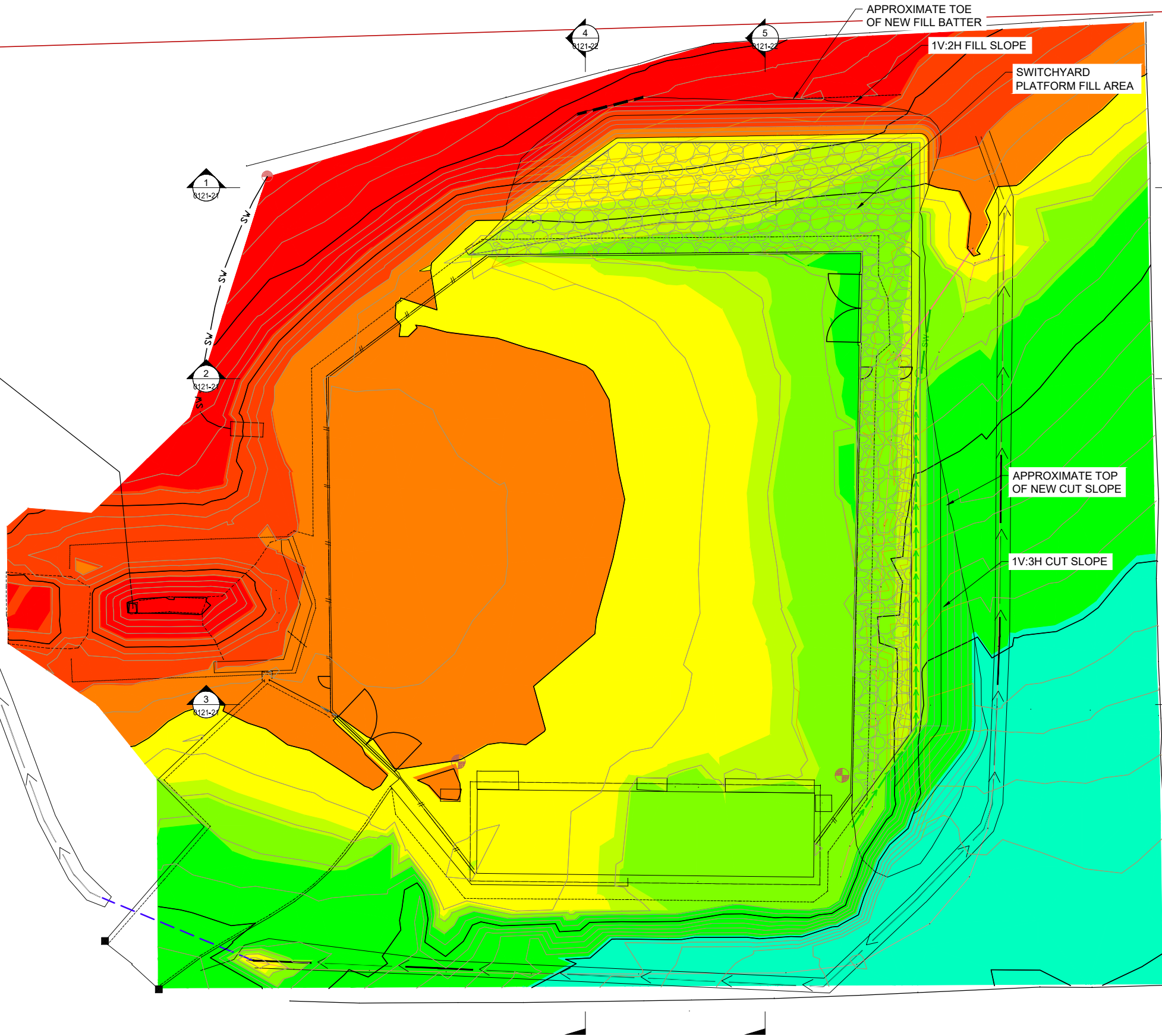
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SURFACE ANALYSIS: ELEVATION RANGES			
NUMBER	COLOUR	Min. Elevation (m)	Max. Elevation (m)
1		186.26	187.76
2		187.76	188.62
3		188.62	189.00
4		189.00	189.33
5		189.33	189.42
6		189.42	189.64
7		189.64	190.98
8		190.98	192.15

- NOTE:
- REFER TO STANDARD NOTES DRAWINGS.
 - THE EXISTING INFORMATION SHOWN ON THIS DRAWING IS BASED ON THE WILLIAMS AND KING TOPOGRAPHIC SURVEY DATED 3.06.25.
 - ALL COORDINATES ARE IN TERMS OF MT EDEN 2000.
 - ALL LEVELS ARE IN TERMS OF THE NZ VERTICAL DATUM 2016.

PROPOSED SITE ELEVATIONS PLAN

1:200 (A1)
1:400 (A3)

ISSUED FOR
CONSENT

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved	NS	Aug'25
Scale	Scale	
File Path	02022-0121-20	
Date Issued		

Project	022 - WIROA 110KV SUBSTATION	
Drawing Title	SITE ELEVATIONS PLAN	

Drawing Number	REV
02022-0121-20	2

VERT. EXAG. 1:1
DATUM R.L. 180.00m

DESIGN	EXISTING	LEVEL DIFF.	CHAINAGE
			0.00
			5.00
	191.62		10.00
	189.48		15.00
	189.49		20.00
	189.41		25.00
	189.32		30.00
	189.32		35.00
	189.35		40.00
	189.37		45.00
	189.39		50.00
	189.37		55.00
	189.36		60.00
	189.39		65.00
	189.42		70.00
	189.43	0.10	75.00
	189.33	1.16	80.00
	187.76	0.27	85.00
	187.06		90.00
			93.80

ALIGNMENT - (5) LONG SECTION

SECTION 5
1:200 HORIZ
1:200 VERT

EXISTING GL
EXISTING SWITCHYARD
8.3 PLATFORM EXTENSION
1V:2H FILL SLOPE
APPROXIMATE TOE OF NEW FILL BATTER

- ISSUED FOR
CONSENT

WORK PACK REL.	WORK PACK REF

Work Pack Ref: Work_Pack_Ref

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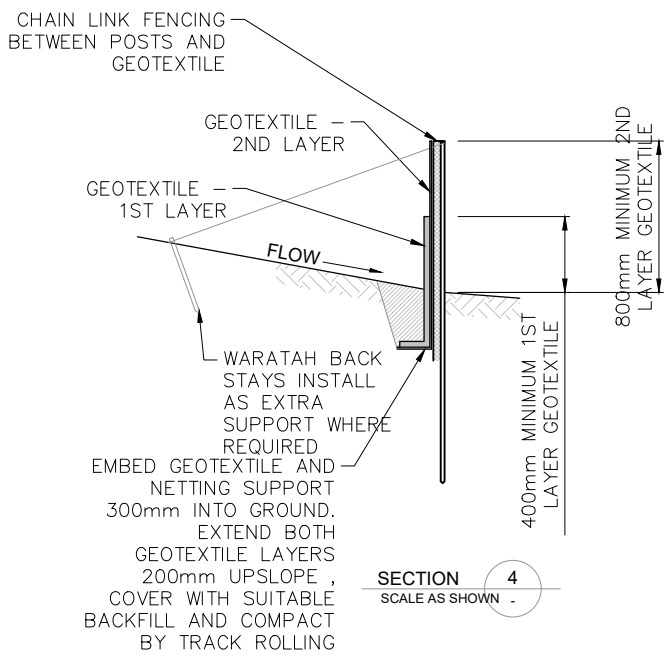
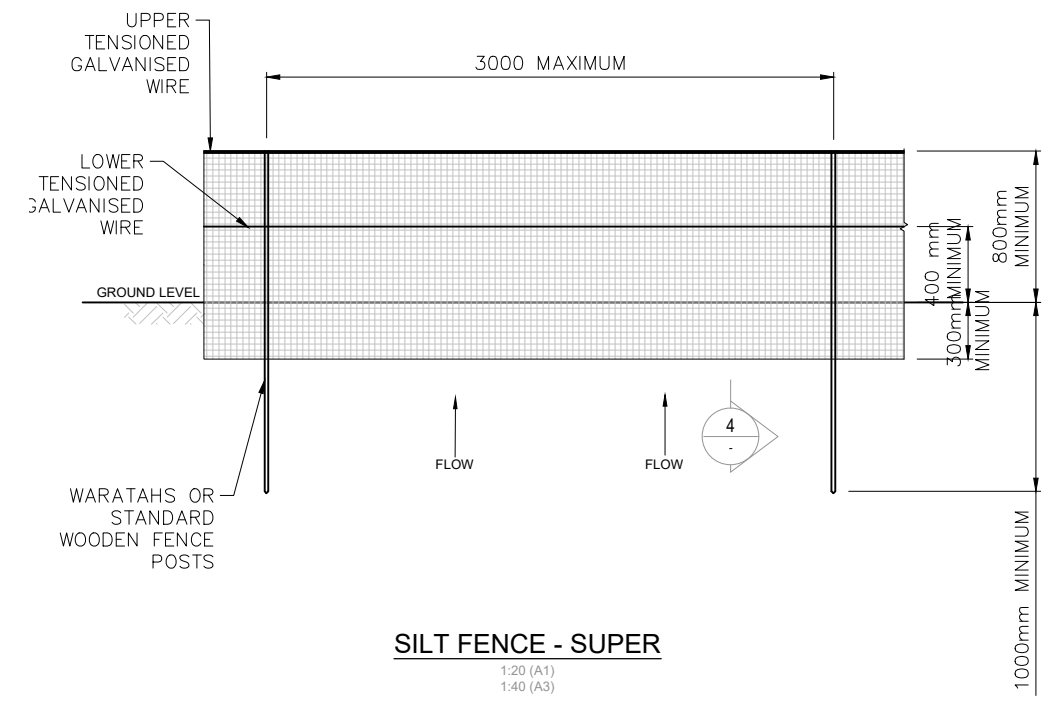
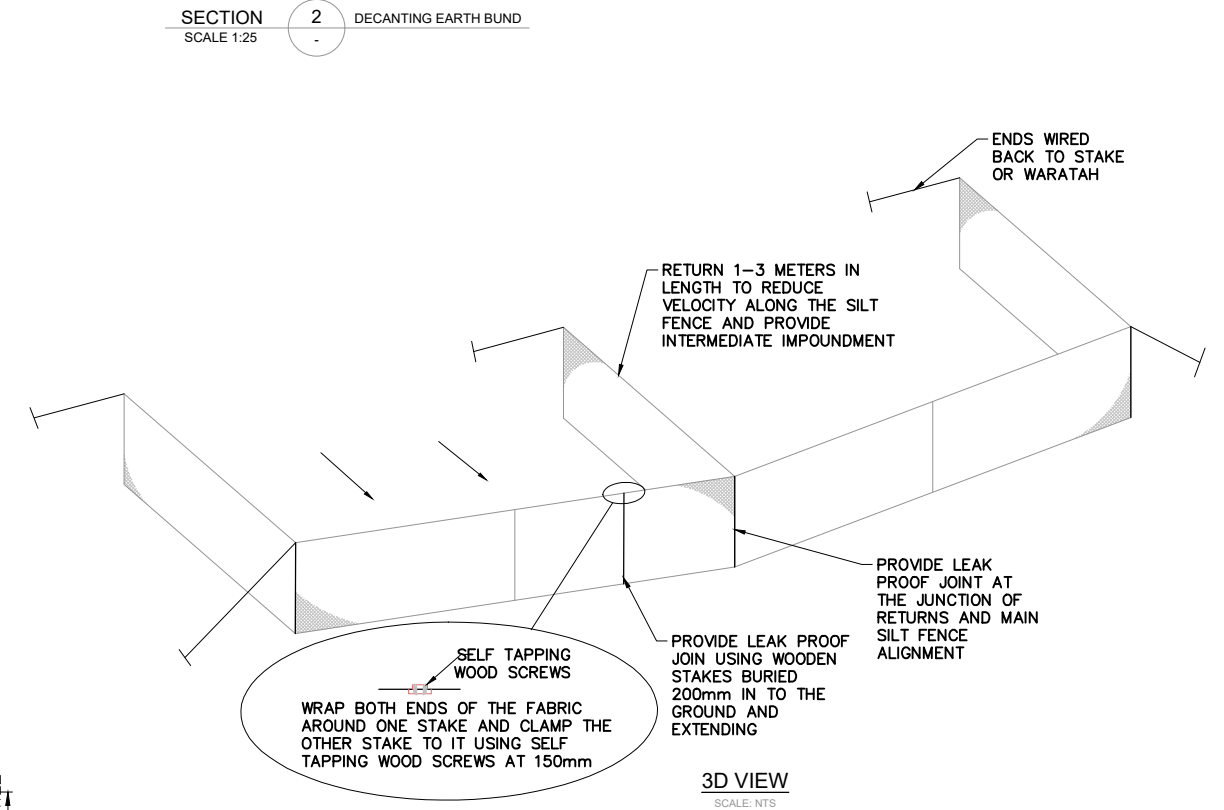
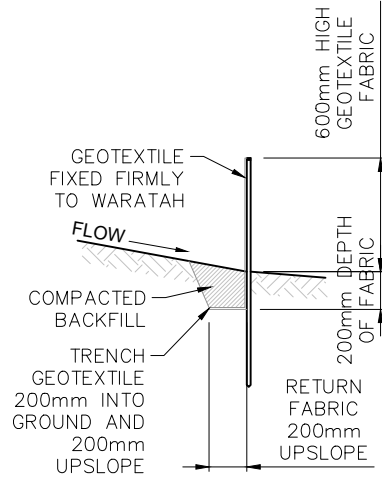
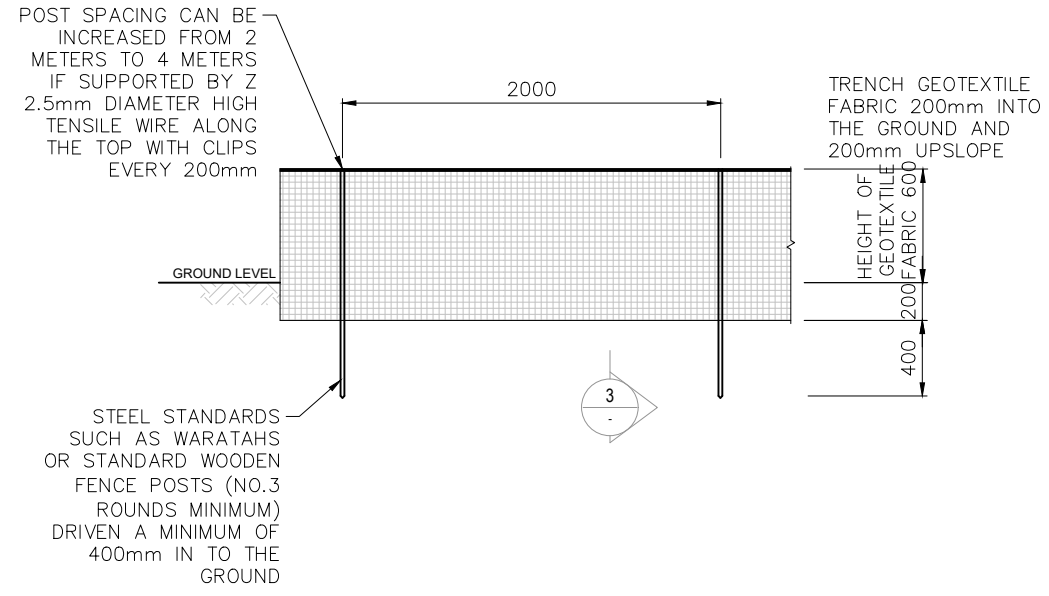
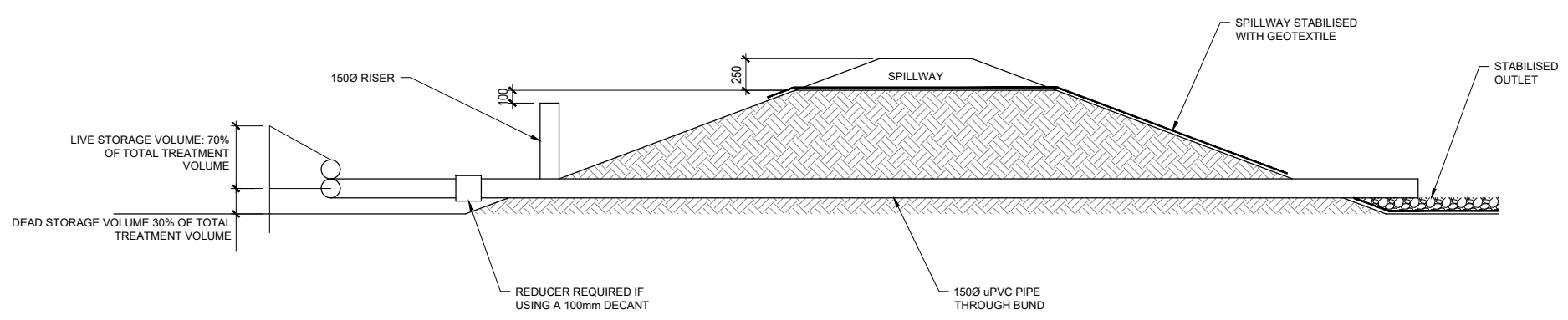
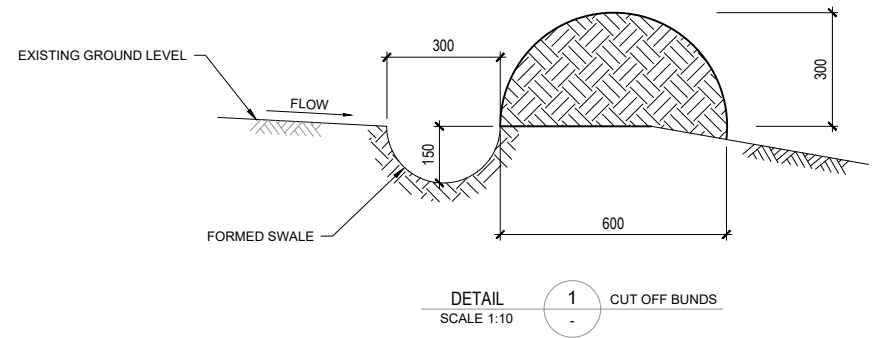
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Rev	Description	Designed By	Designed Date	Drawn By	Drawn Date	Checked By	Checked Date	Approved By	Approved Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved	NS	Aug'25
Scale	Scale	
File Path	02022-0121-24	
Date Issued		

Project	022 - WIROA 110KV SUBSTATION	
Drawing Title	EARTHWORKS DETAILS SHEET 2	
Drawing Number	02022-0121-24	REV
		2

Work Pack Ref: Work_Pack_Ref

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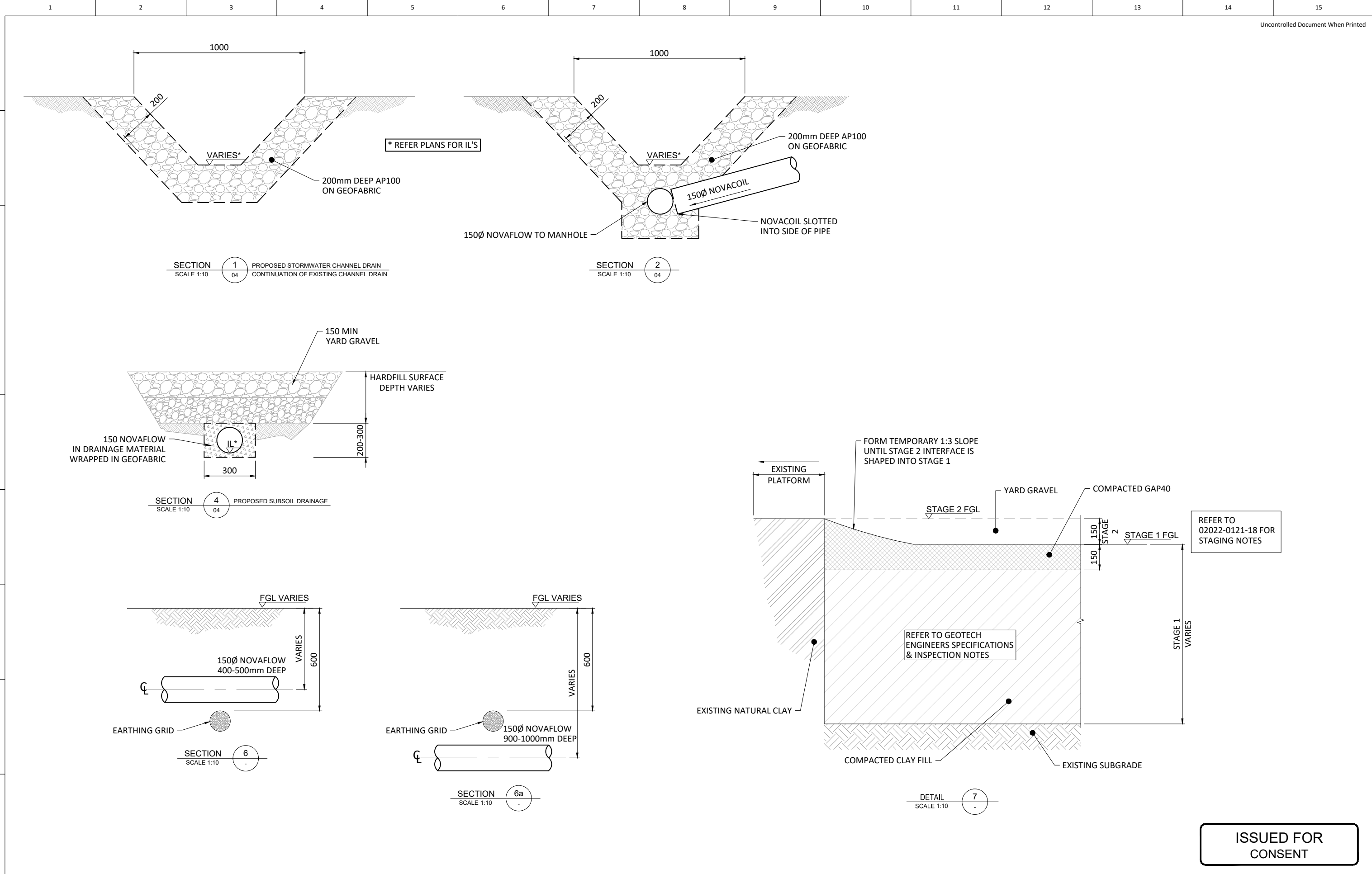
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CONSENT

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION Drawing Title DRAINAGE DETAILS SHEETS 1	Drawing Number	REV
Drawn	NS	July'25		02022-0121-31	2
Checked	SP	July'25			
Approved	NS	Aug'25			
Scale	AS SHOWN				
File Path	02022-0121-31				
Date Issued					

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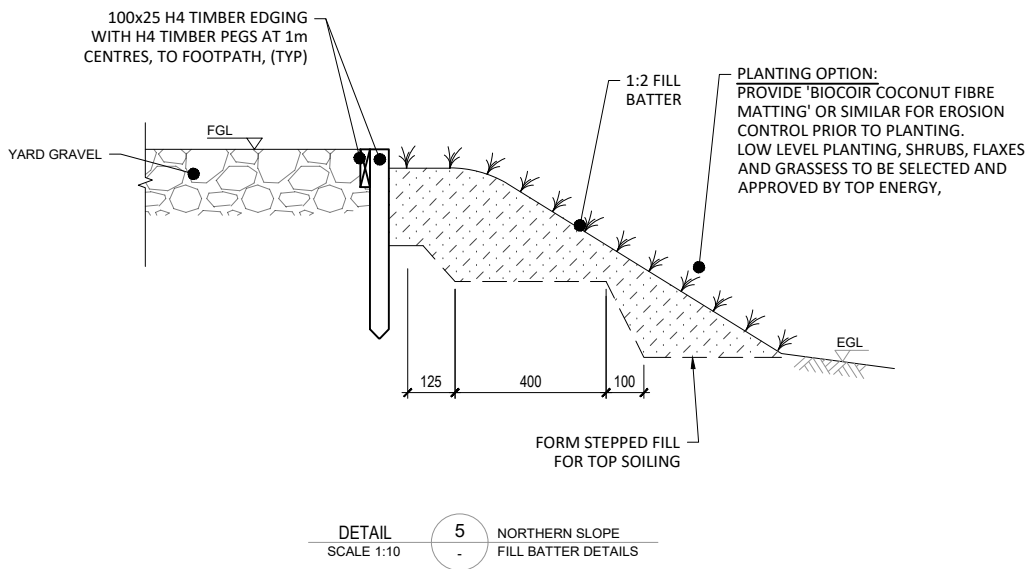
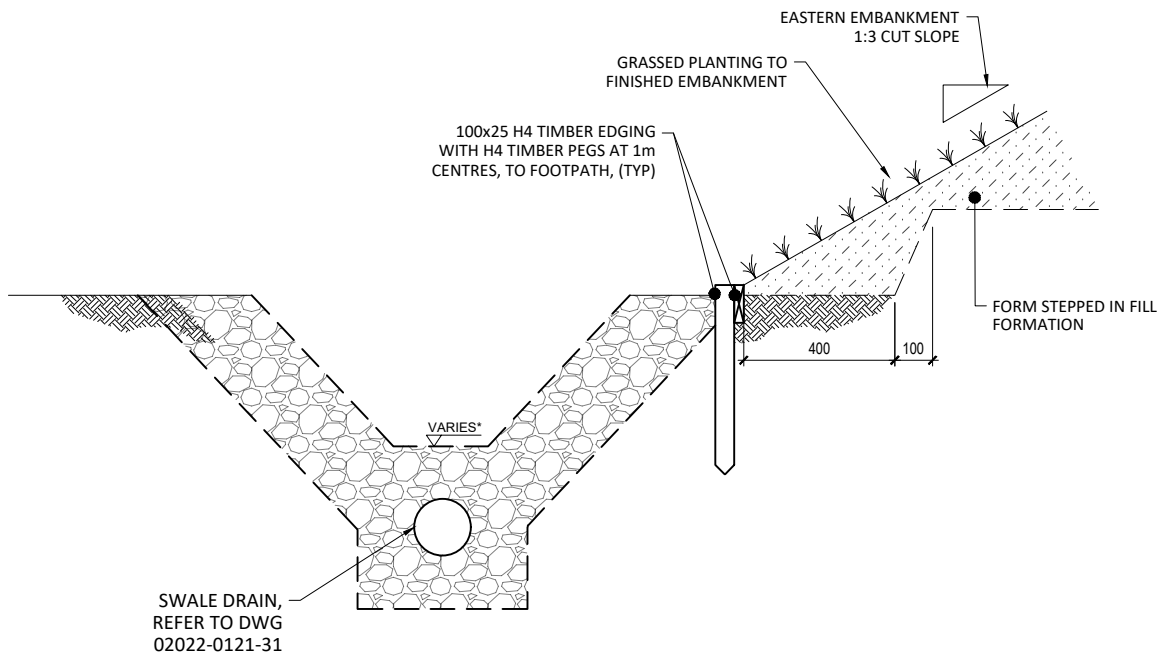
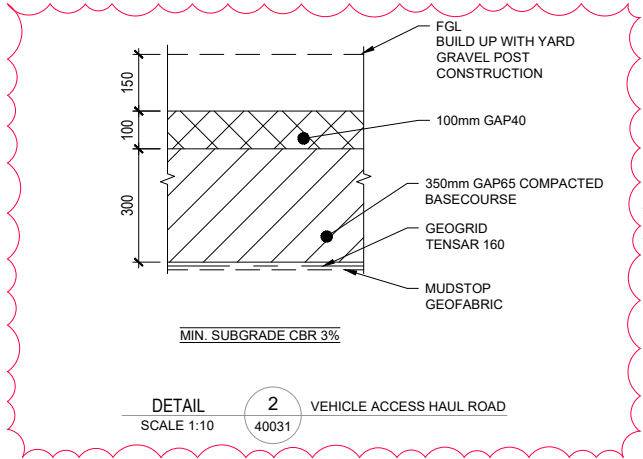
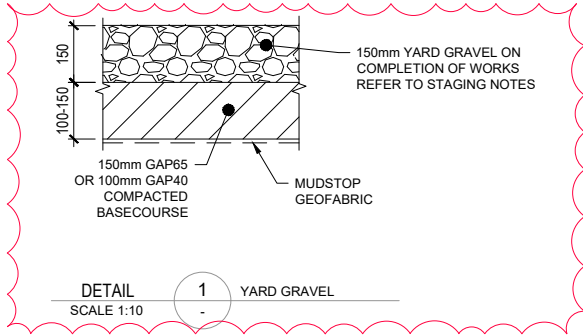
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved	NS	Aug'25
Scale	Scale	
File Path	02022-0121-32	
Date Issued		

Project	022 - WIROA 110kV SUBSTATION	
Drawing Title	DRAINAGE DETAILS SHEETS 2	

Drawing Number	REV
02022-0121-32	2

Work Pack Ref: Work_Pack_Ref

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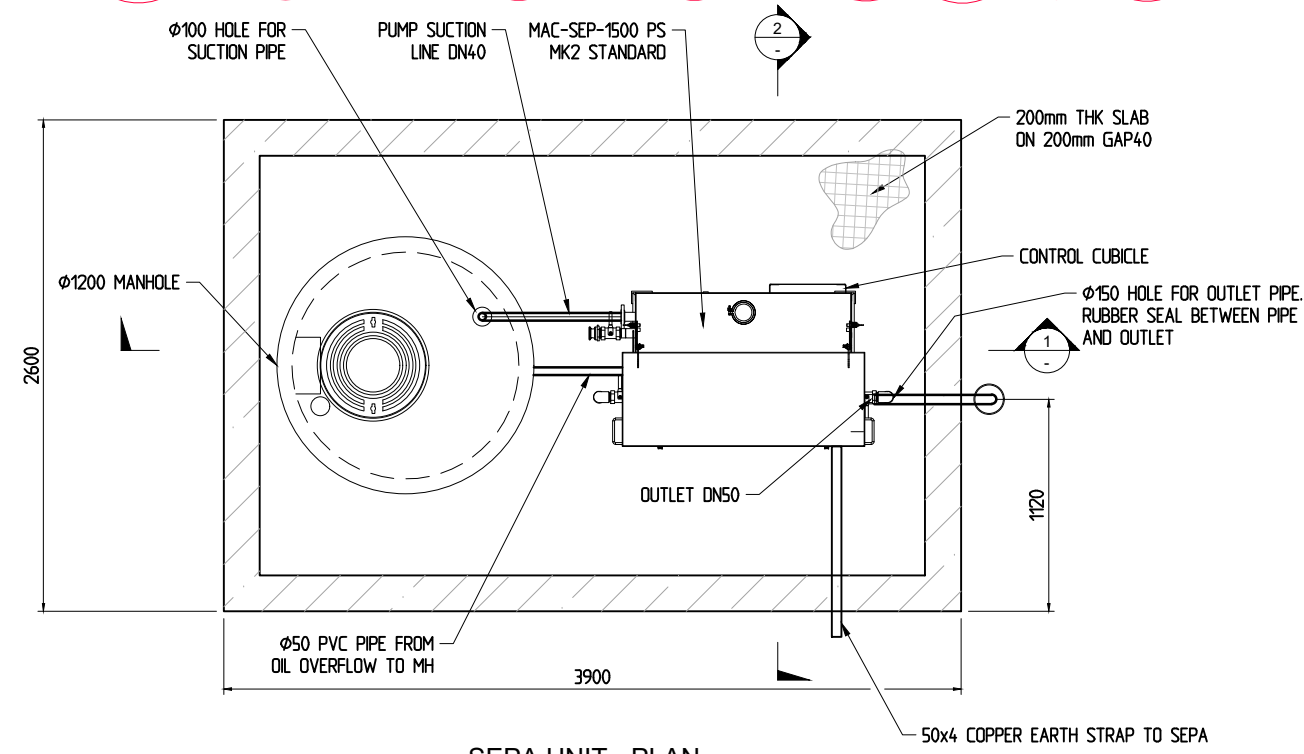
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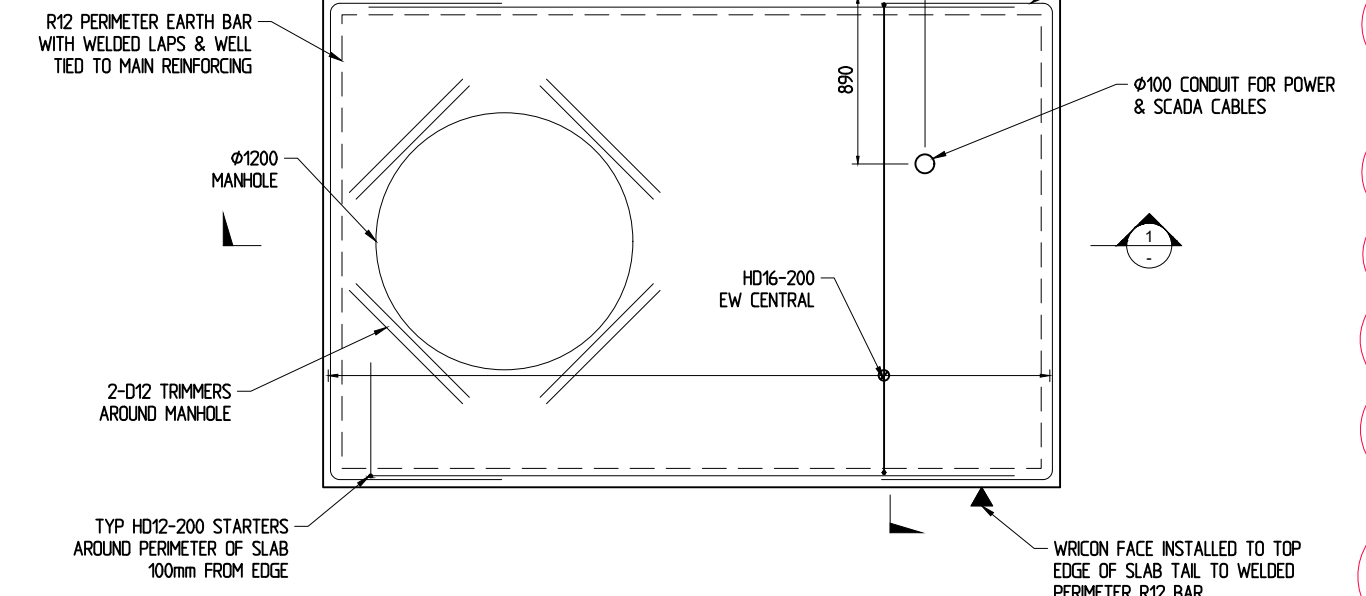
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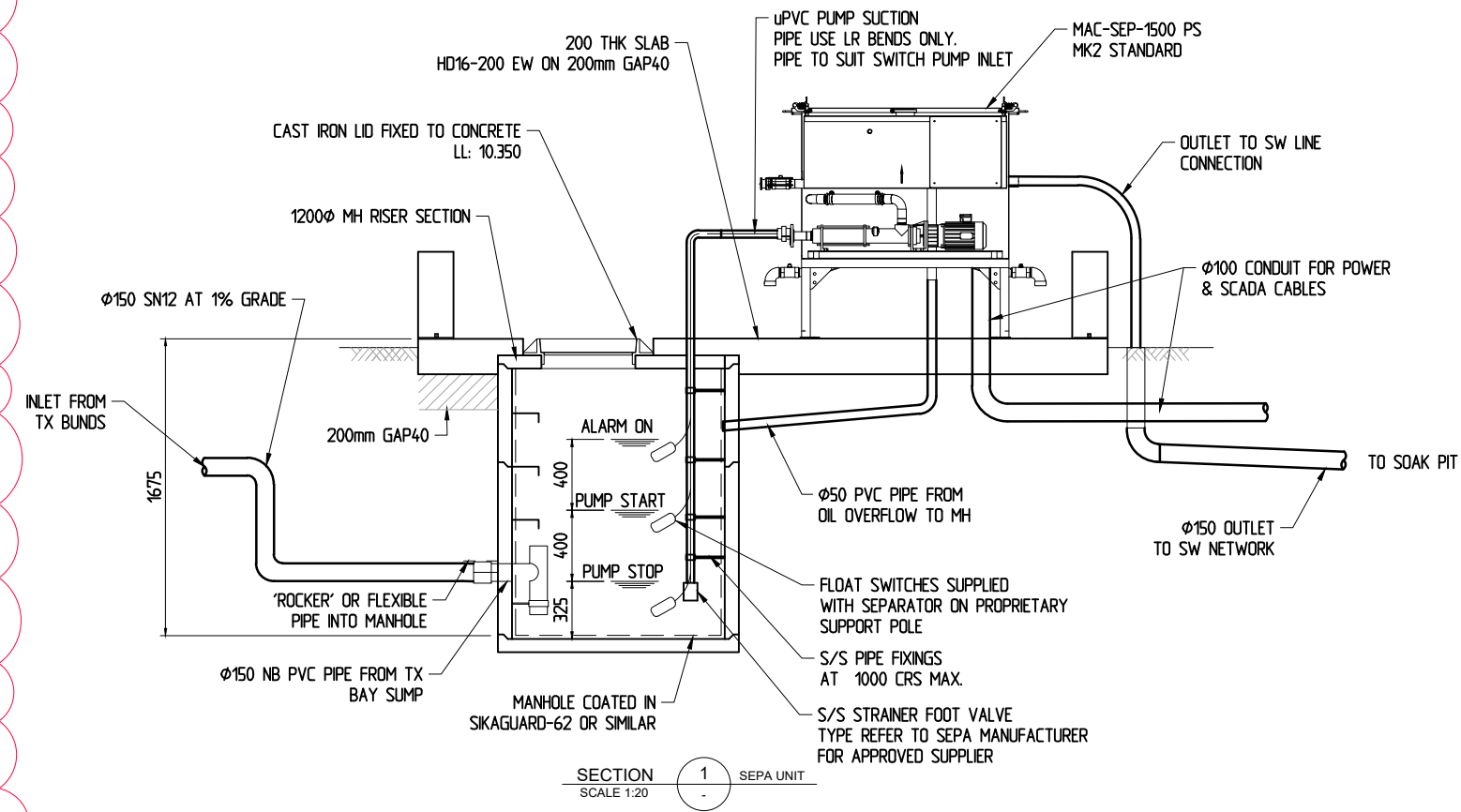
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1:40 (A3)

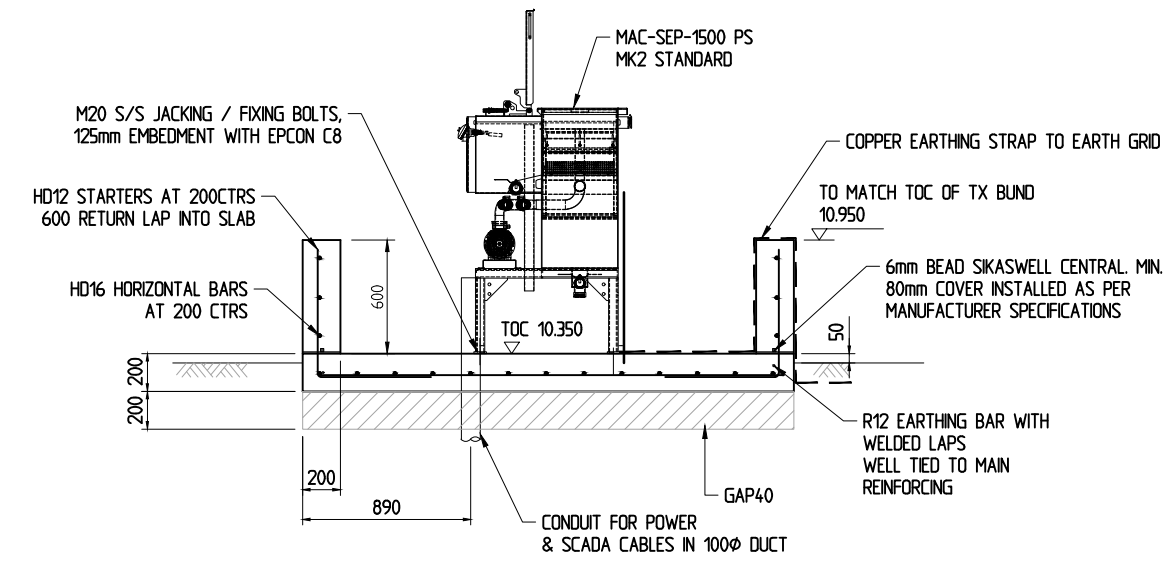


REINFORCING - PLAN

1:20 (A1)
1:40 (A3)



SECTION 1
SCALE 1:20



SECTION 2
SCALE 1:20

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	19.09.25	SP	19.07.25		

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved		
Scale	Scale	
File Path	02022-0121-33	
Date Issued		

Project	022 - WIROA 110KV SUBSTATION
Drawing Title	SEPA UNIT DETAILS SHEET 1

Drawing Number	REV
02022-0121-33	1

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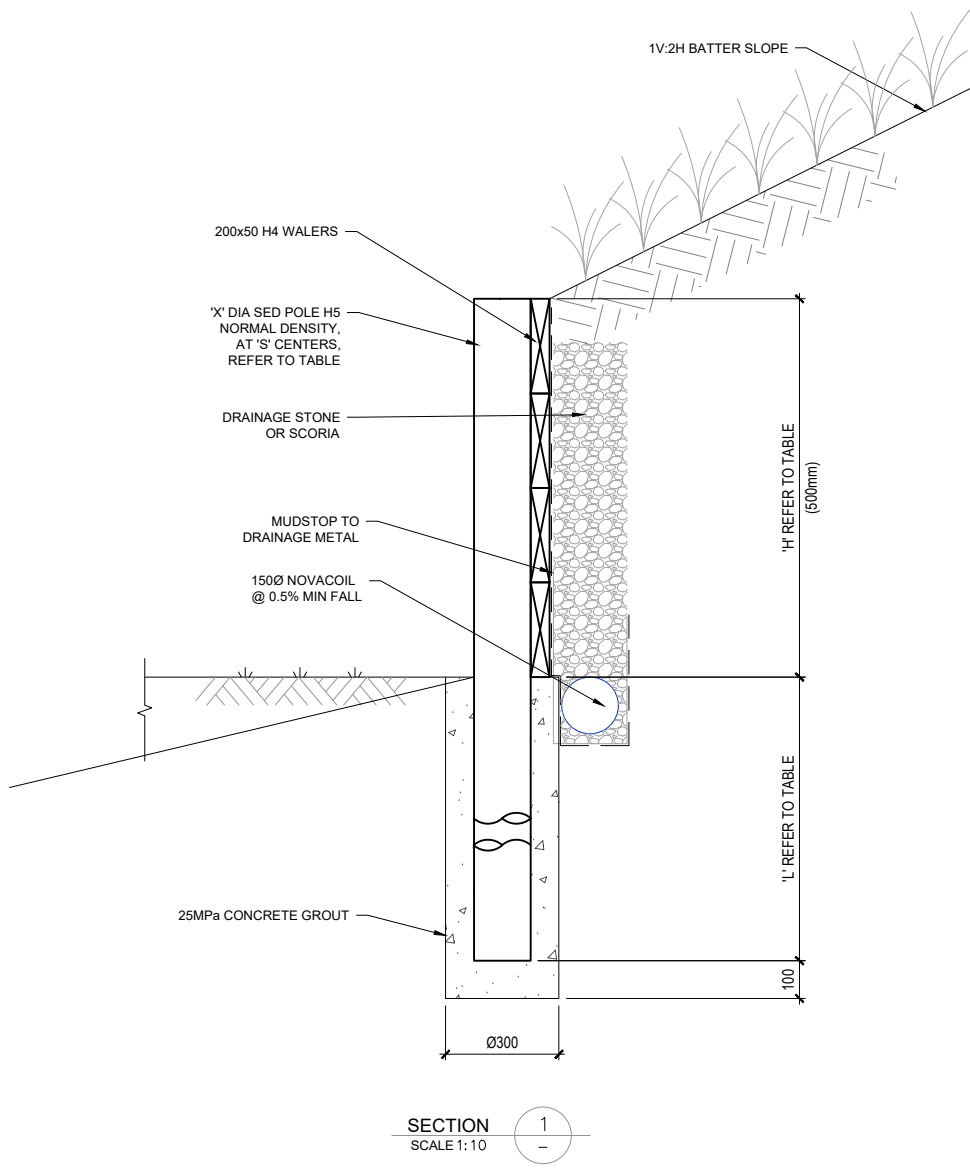
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RETAINING WALL SUMMARY TABLE			
RETAINED HEIGHT 'H'	POLE DIA 'X'	EMBEDMENT 'L'	POLE SPACING 'S'
500mm	150 SED	1400mm	1000mm

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CONSENT

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	JUL'25	NS	28.07.25	SP	28.07.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number 02022-0121-35	REV 2
Drawn	NS	July'25			
Checked	SP	July'25			
Approved	NS	Aug'25			
Scale	AS SHOWN				
File Path	02022-0121-35		Drawing Title RETAINING WALL DETAILS		
Date Issued					

Work Pack Ref: Work_Pack_Ref

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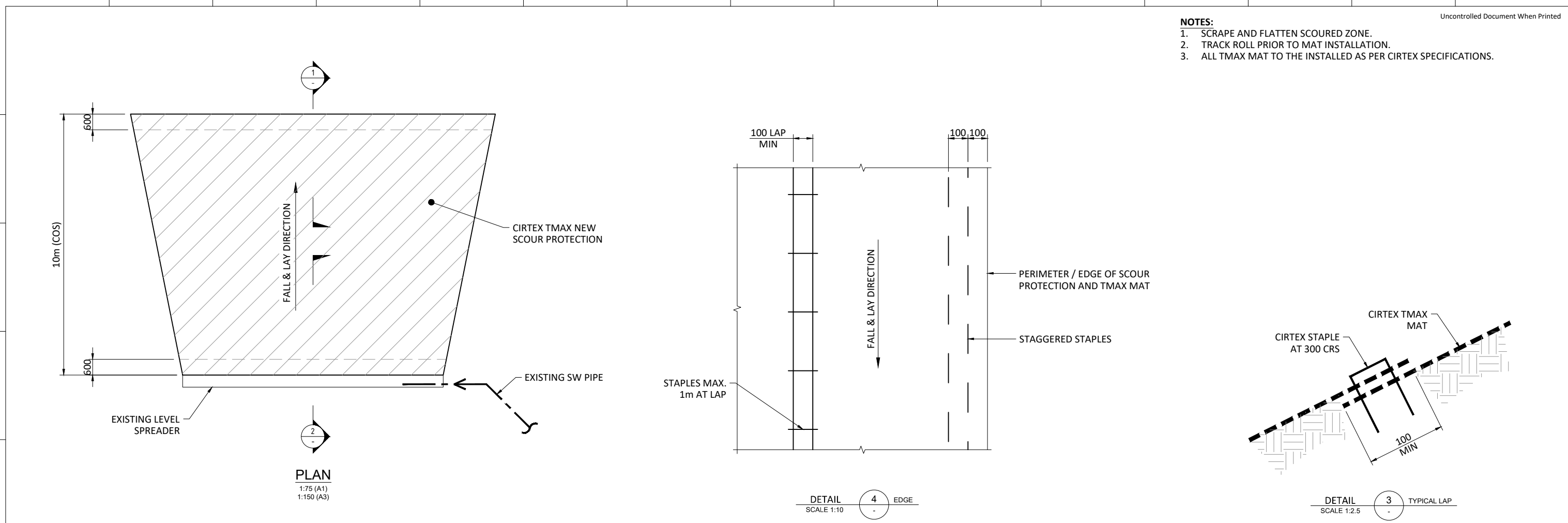
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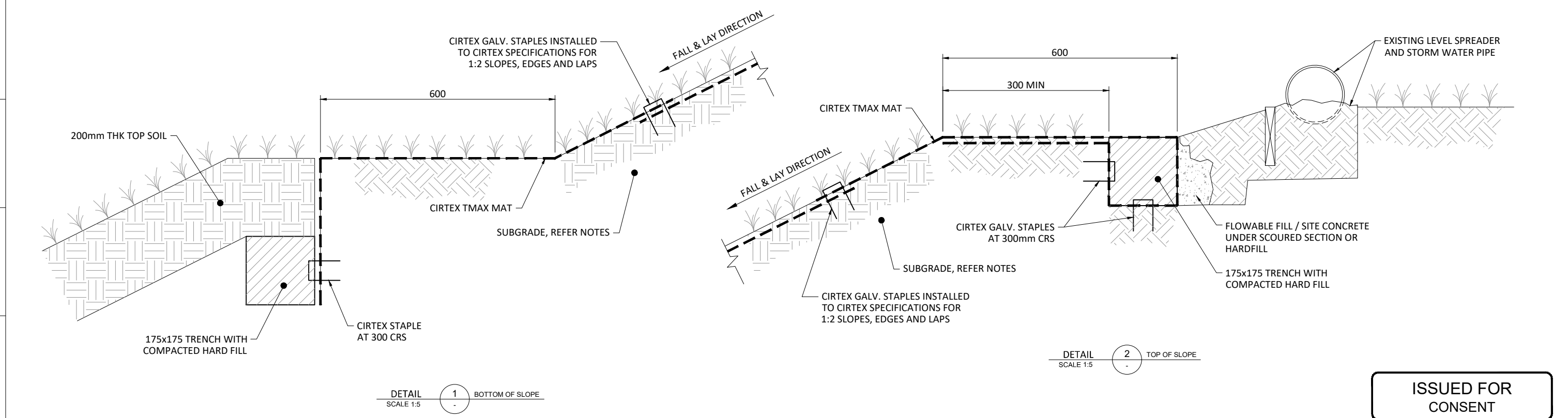
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- NOTES:
1. SCRAPE AND FLATTEN SCOURED ZONE.
 2. TRACK ROLL PRIOR TO MAT INSTALLATION.
 3. ALL TMAX MAT TO BE INSTALLED AS PER CIRTEX SPECIFICATIONS.



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CONSENT

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR TENDER AND OPW CONSENT	SP	AUG'25	BC	06.08.25	SP	06.08.25		
2	ISSUED FOR CONSENT AND TENDER	SP	JUL'25	NS	08.08.25	SP	08.08.25	NS	08.08.25

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Designed	SP	Aug'25
Drawn	BC	Aug'25
Checked	SP	Aug'25
Approved	NS	Aug'25
Scale	AS SHOWN	
File Path	02022-0121-36	
Date Issued		

Project	022 - WIROA 110kV SUBSTATION		Drawing Number	REV
			02022-0121-36	2
Drawing Title		LEVEL SPREADER REMEDIATION		



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Designed	SP	July/25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July/25		02022-0121-41	1
Checked	SP	July/25			
Approved					
Scale					
File Path	02045-0110-02		Drawing Title		
			SITE SECURITY FENCE DETAILS		
Date Issued					



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Designed	SP	July/25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July/25		02022-0121-42	1
Checked	SP	July/25			
Approved Scale					
File Path	02045-0110-03		Drawing Title		
			SITE SECURITY GATE DETAILS SHEET 1		
Date Issued					

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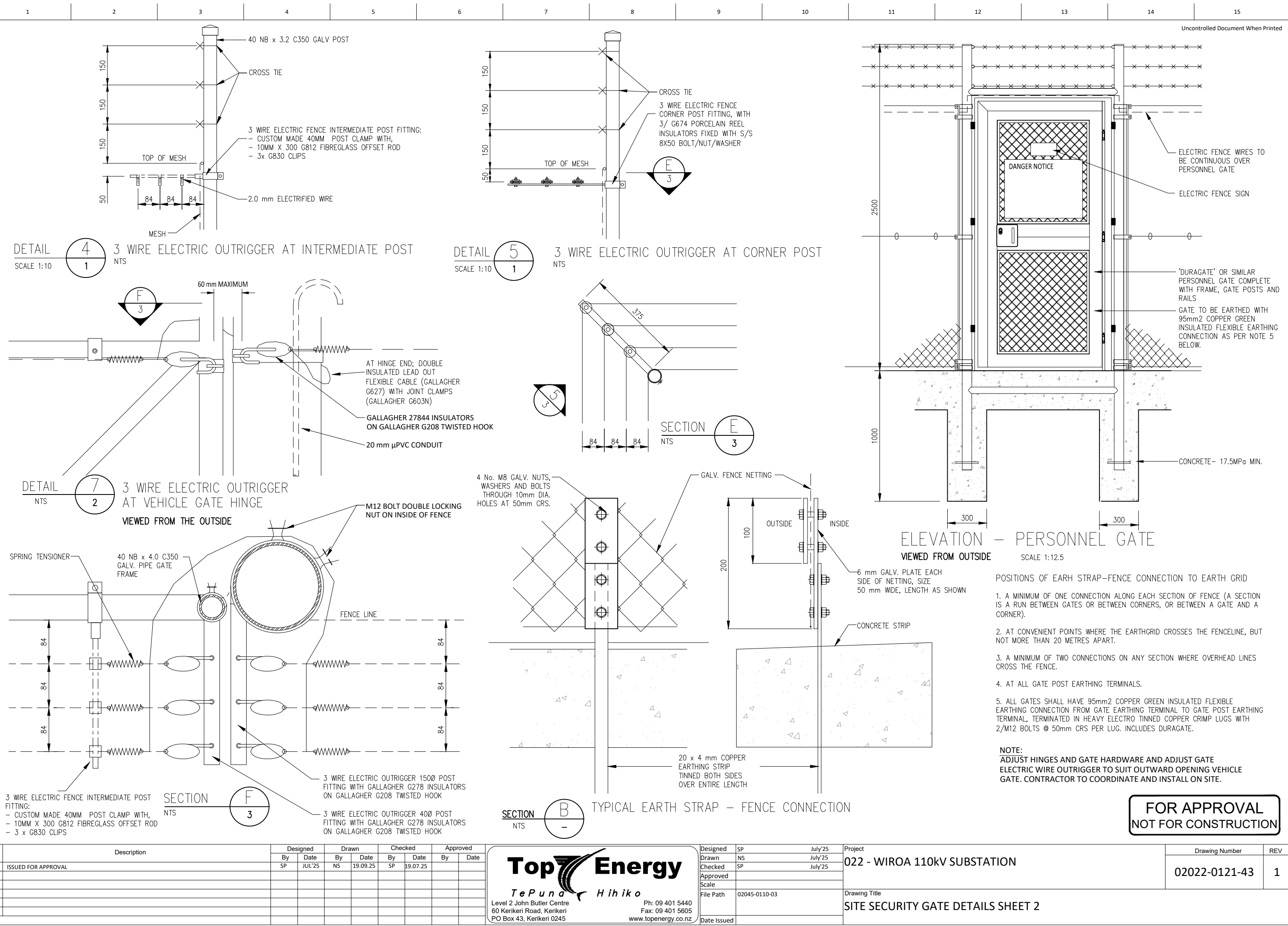
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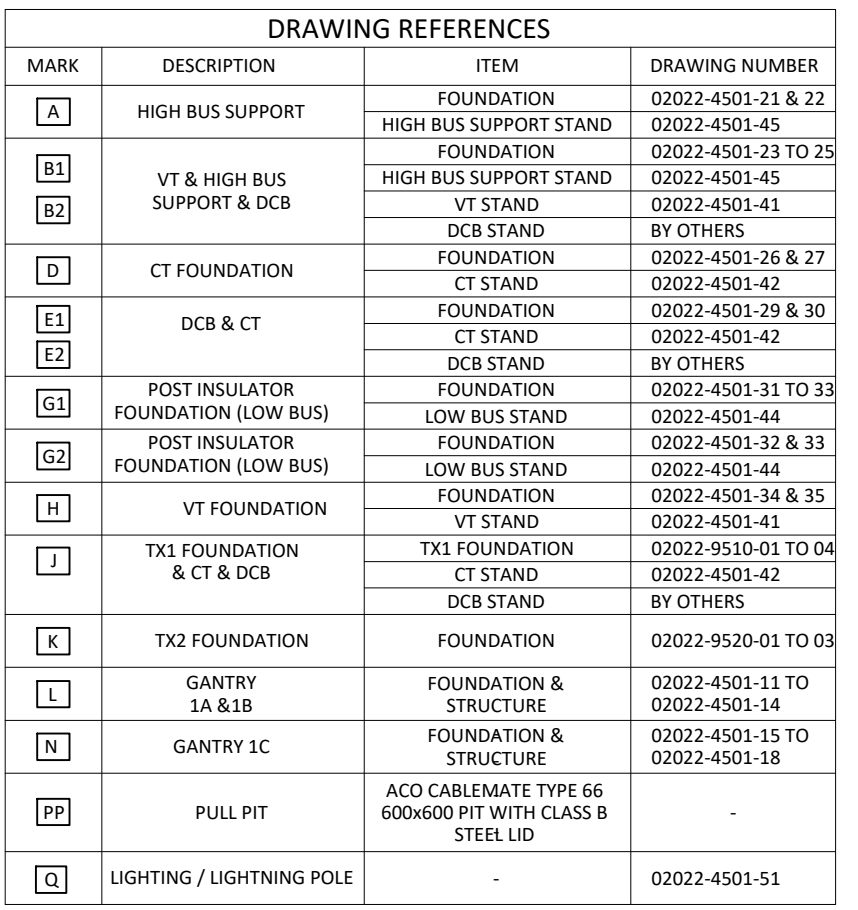


Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	19.09.25	SP	19.07.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-0121-43	1
Checked	SP	July'25			
Approved					
Scale			Drawing Title SITE SECURITY GATE DETAILS SHEET 2		
File Path	02045-0110-03				
Date Issued					



SETOUT POINTS		
SETOUT POINT	mN	mE
SOP-B1	-	-
SOP-B2	-	-
BUS SETOUT IS TO BUS CENTRELINE		
SOP-T1	978860.3955	319963.5569
SOP-T2	978882.2533	319963.5569
TX PAD SETOUT IS TO GRID INTERSECTIONS, INSIDE FACE OF NIB WALLS		

TBC

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PROPOSED FOUNDATION SETOUT PLAN

1:200 (A1)
1:400 (A3)

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved		
Scale	Scale	
File Path	02022-4501-01	
Date Issued		

Project	Drawing Number	REV
022 - WIROA 110kV SUBSTATION	02022-4501-01	1
Drawing Title		
PROPOSED YARD AND EQUIPMENT SETOUT PLAN		



KEY:	
	SECONDARY DUCTING Ø100
	SECONDARY DUCTING Ø150
	SECONDARY DUCTING Ø50
	33Kv POWER CABLE
	415V POWER CABLE
	FIBRE CABLE

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PROPOSED FOUNDATION SETOUT PLAN

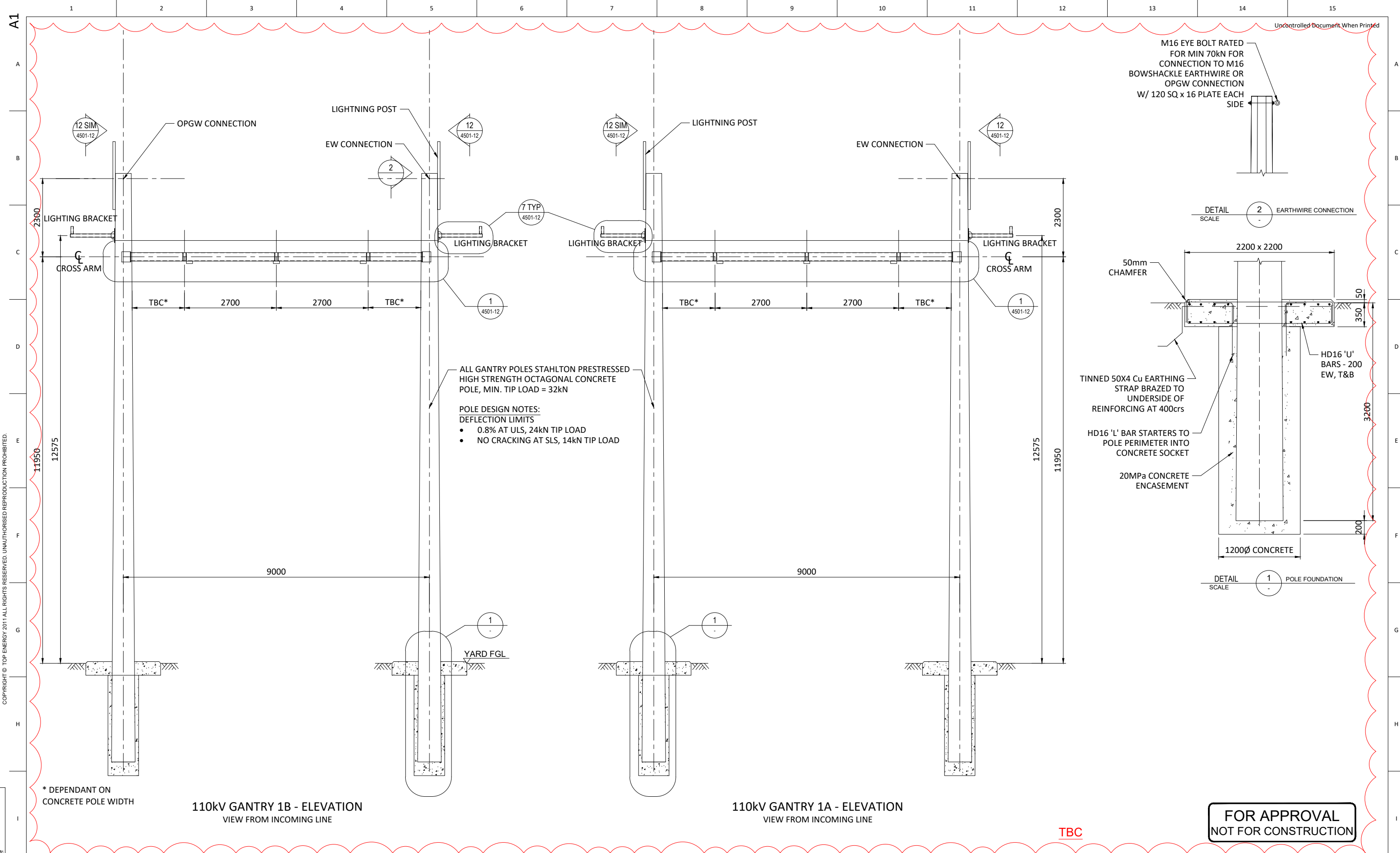
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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number		REV
Drawn	NS	July'25		02022-4501-02	1	
Checked	SP	July'25				
Approved						
Scale	Scale					
File Path	02022-4501-02		Drawing Title PROPOSED YARD PRIMARY & SECONDARY CABLING PLAN			
Date Issued						

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Rev	Description	Designed		Drawn		Checked		Approved	
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1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-11	1
Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-11				
Date Issued			Drawing Title 110kV INCOMING GANTRIES - 1A & 1B		

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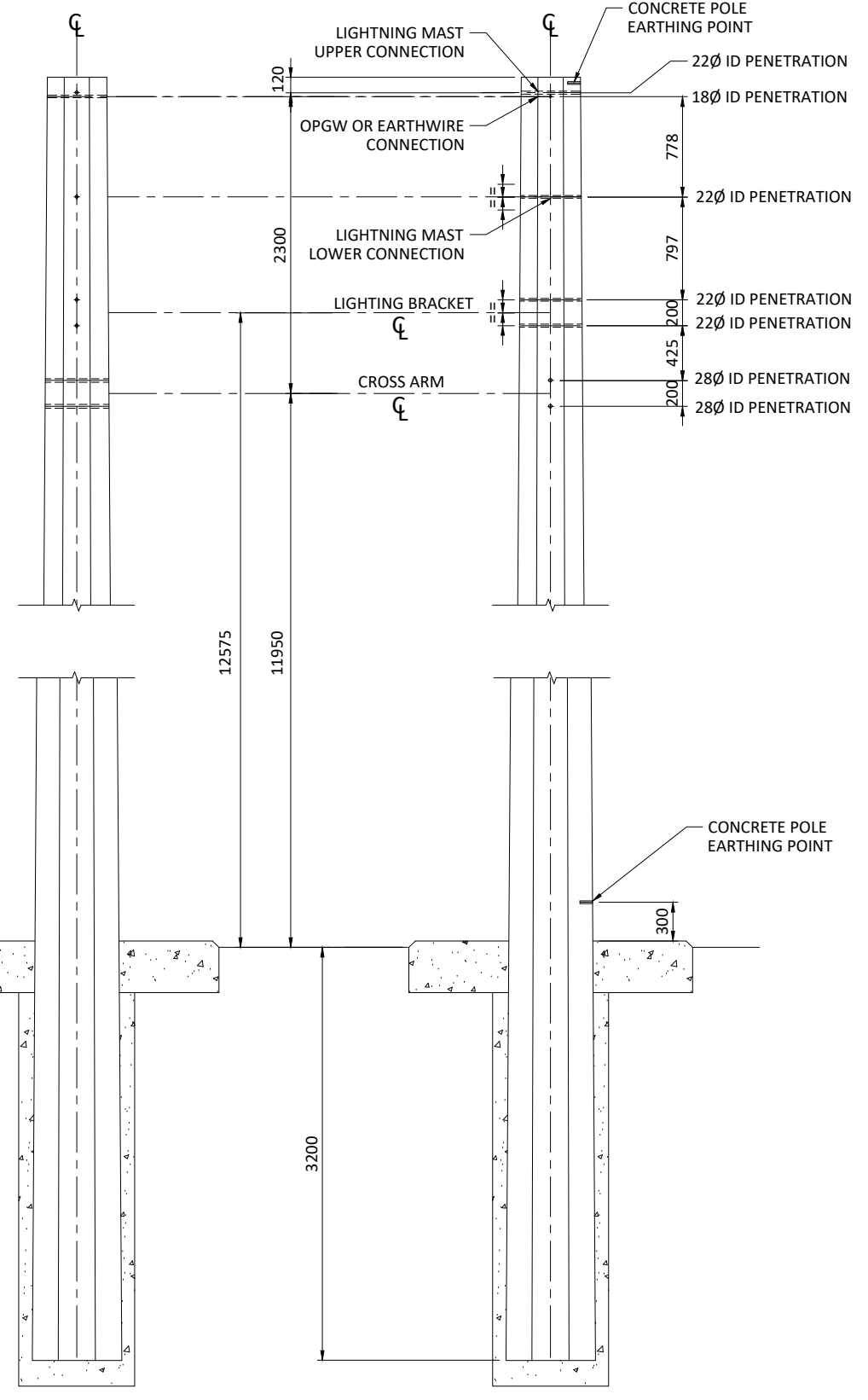
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number 02022-4501-12	REV 1
Drawn	NS	July'25			
Checked	SP	July'25			
Approved			Drawing Title 110kV INCOMING GANTRY POLE - 1A AND 1B ELEVATIONS		
Scale					
File Path	02022-4501-12				
Date Issued					

Work Pack Ref: Work_Pack_Ref

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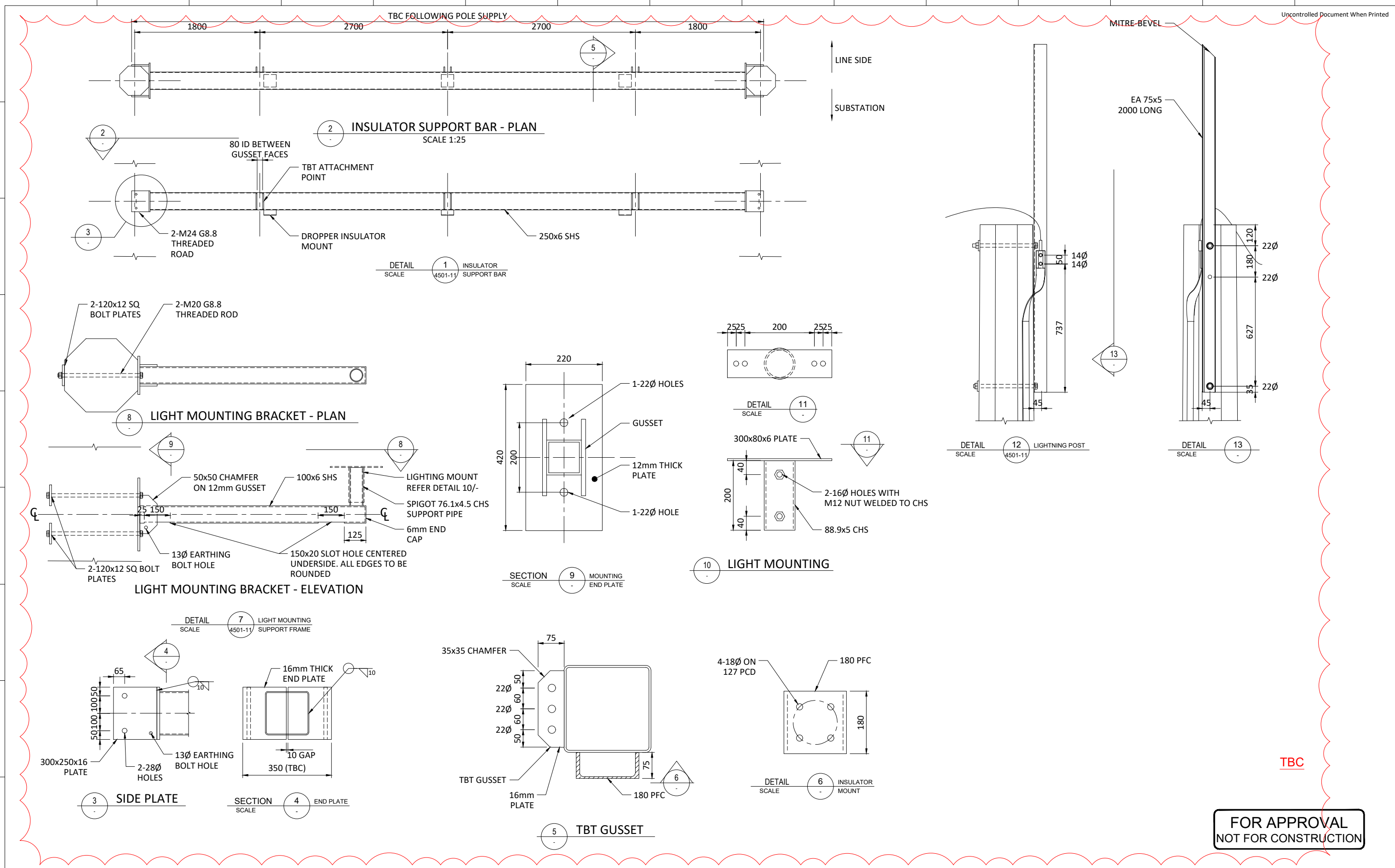
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number		REV
Drawn	NS	July'25		02022-4501-14	1	
Checked	SP	July'25				
Approved						
Scale						
File Path	02022-4501-14					
Date Issued			Drawing Title 110kV INCOMING GANTRY DETAILS - 1A AND 1B			

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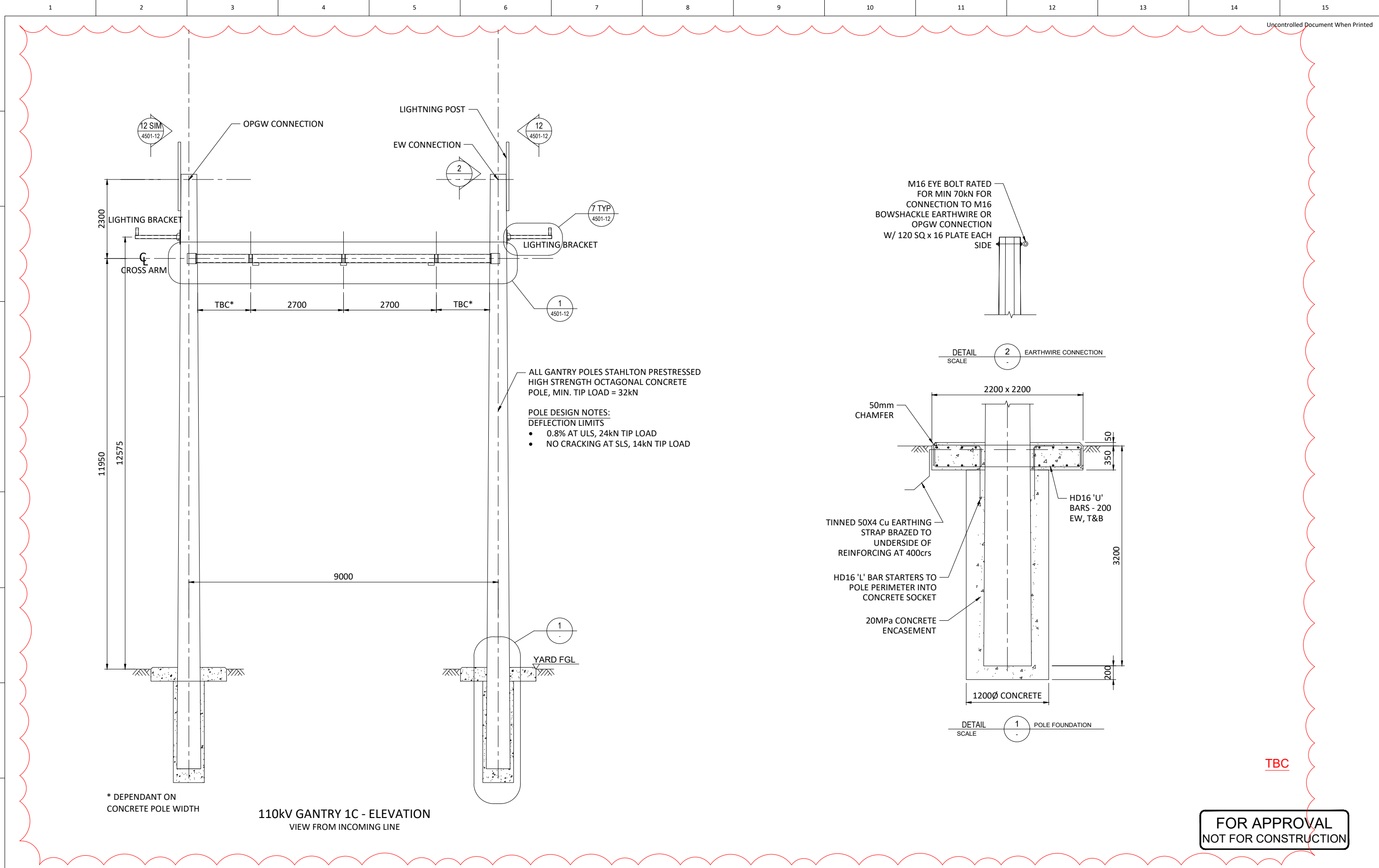
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-15	1
Checked	SP	July'25			
Approved			Drawing Title 110kV INCOMING GANTRIES - 1C		
Scale					
File Path	02022-4501-15				
Date Issued					

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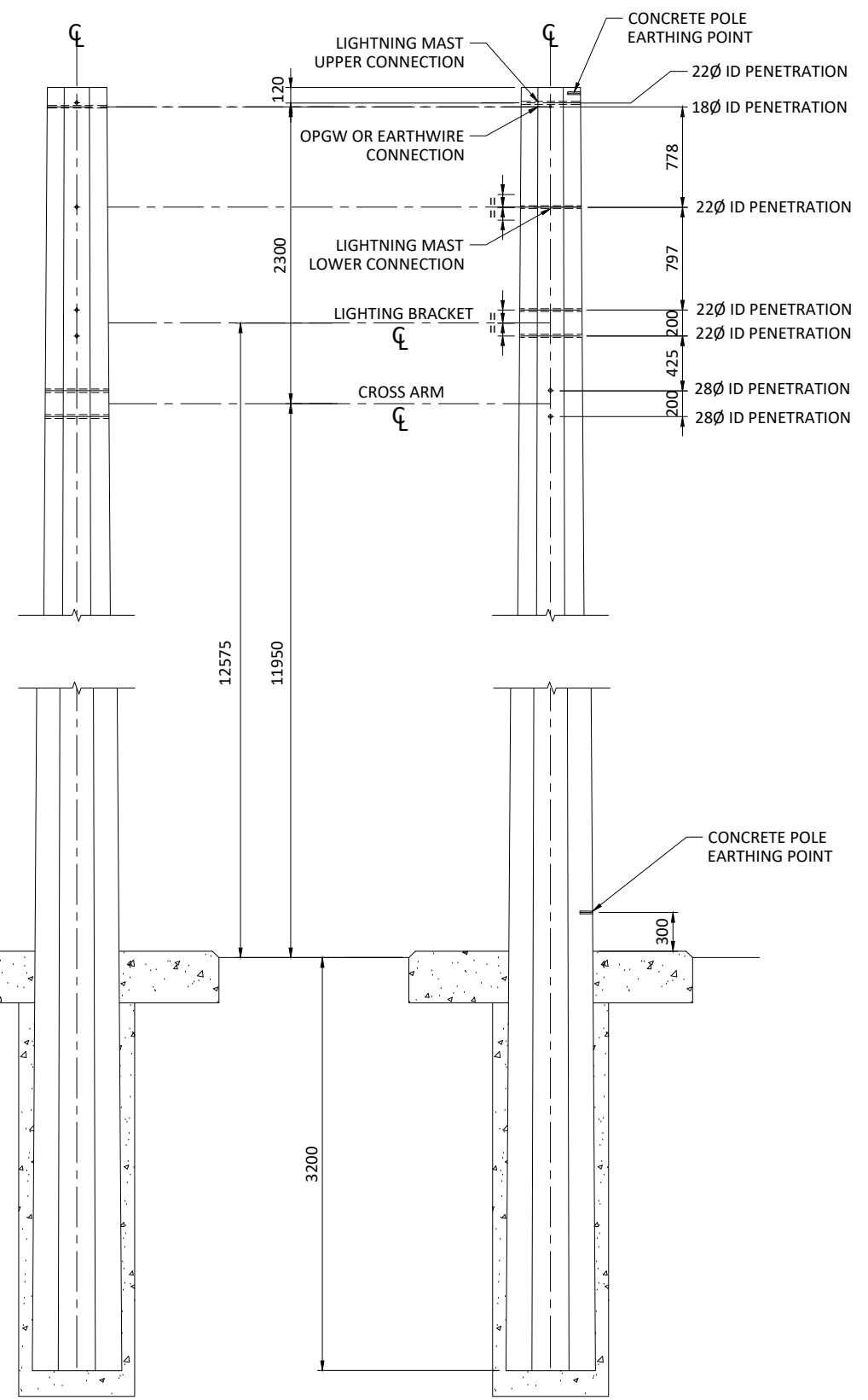
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1 TYPICAL POLE, ELEVATION 1 1 TYPICAL POLE, ELEVATION 2

TBC

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Ph: 09 401 5440
Fax: 09 401 5605
www.topenergy.co.nz

Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION
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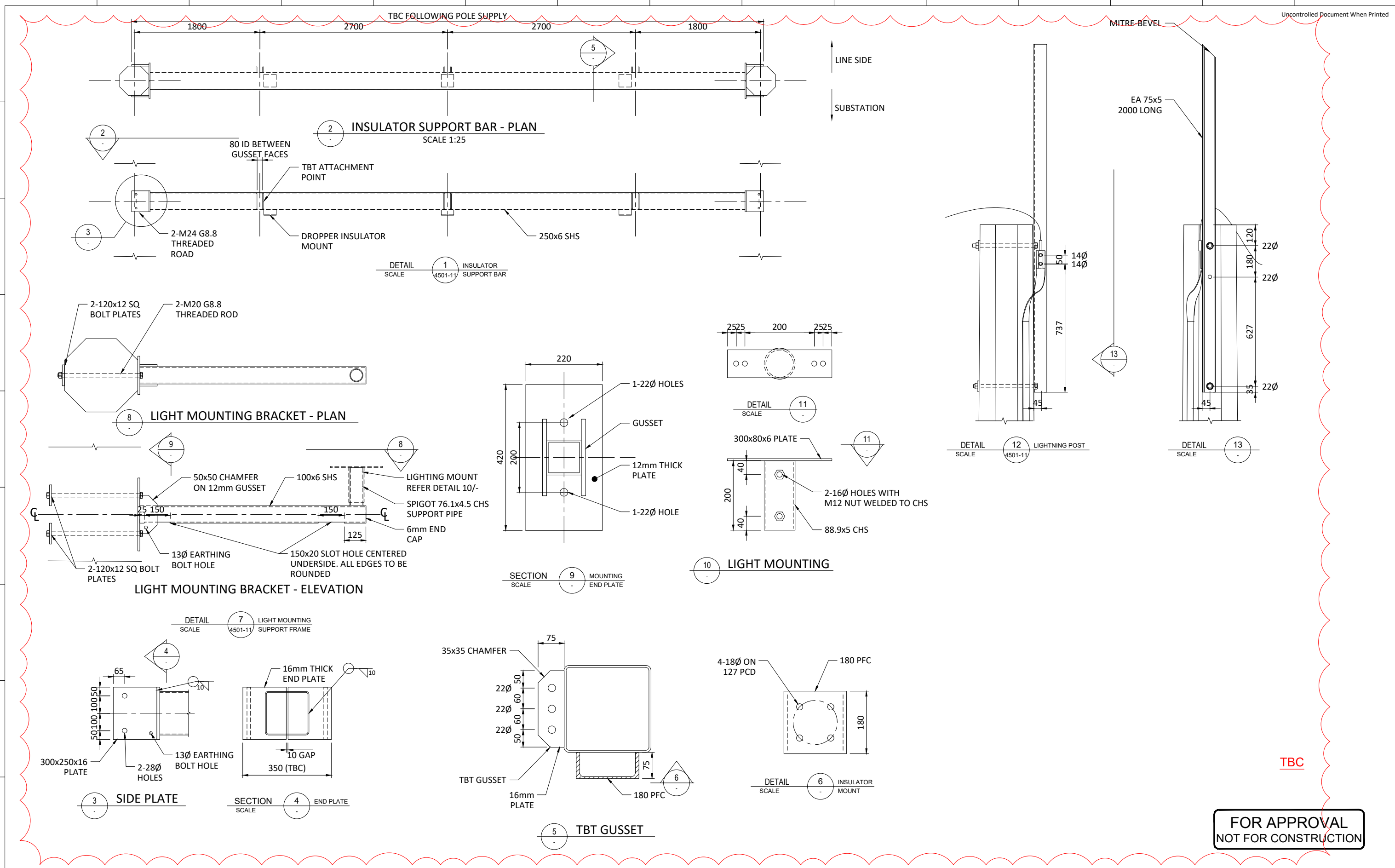
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number		REV
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Checked	SP	July'25				
Approved						
Scale						
File Path	02022-4501-18			Drawing Title		
			110kV INCOMING GANTRY DETAILS - 1C			
Date Issued						

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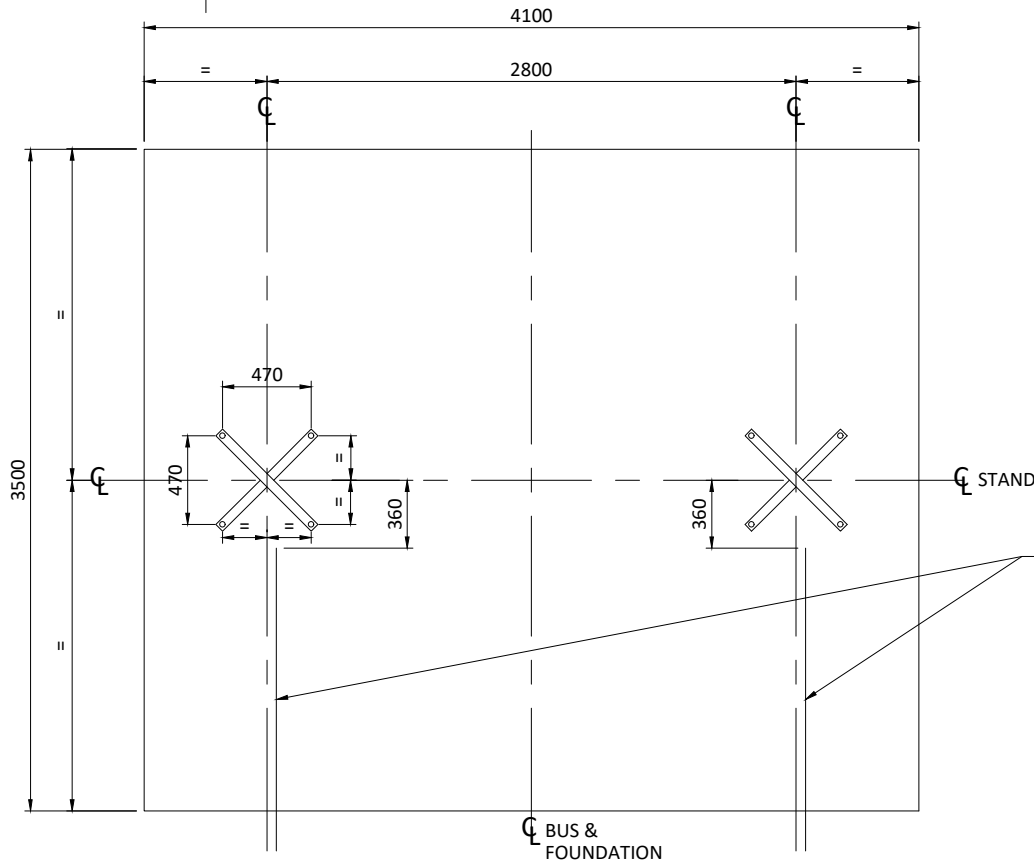
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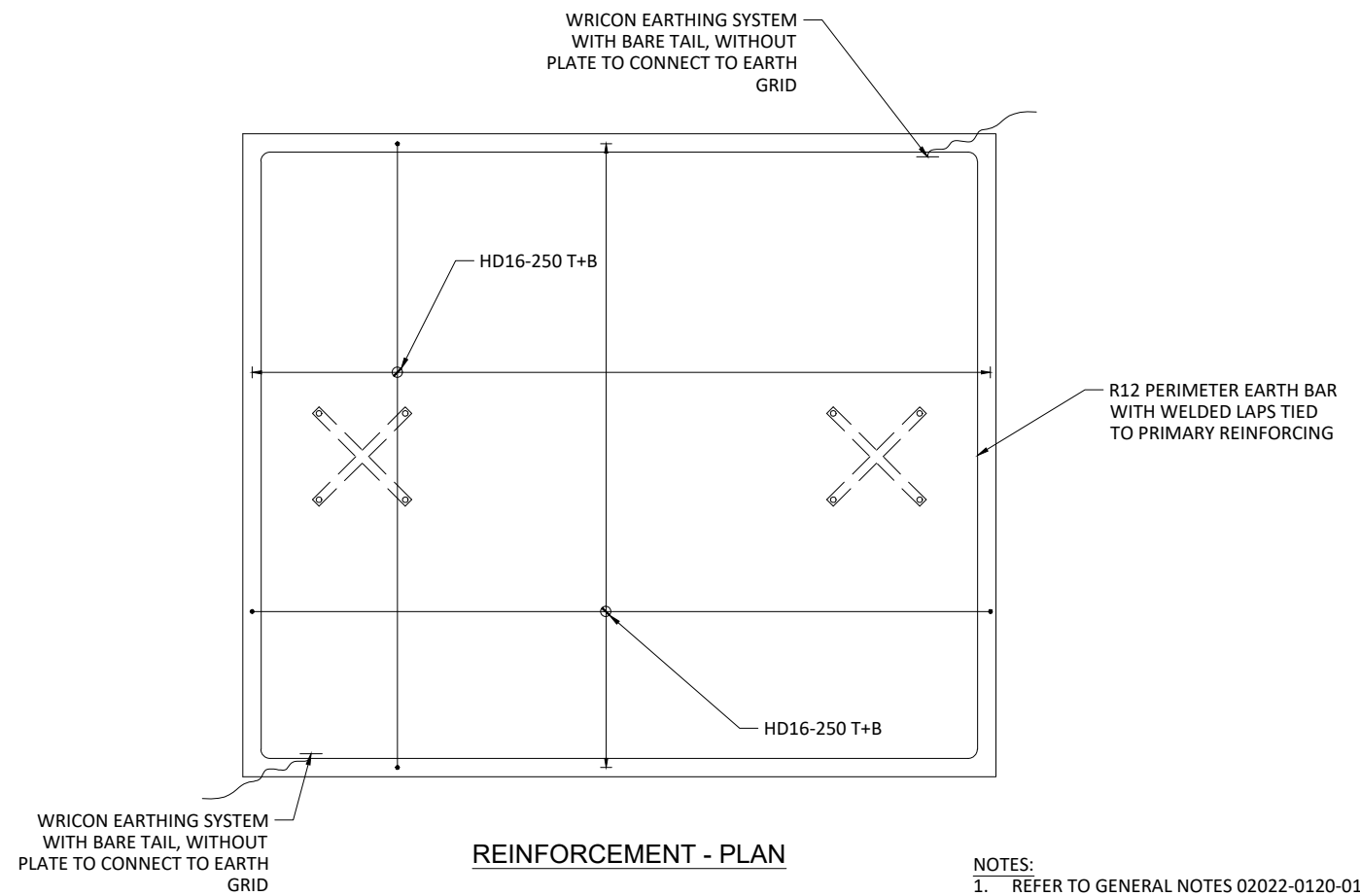
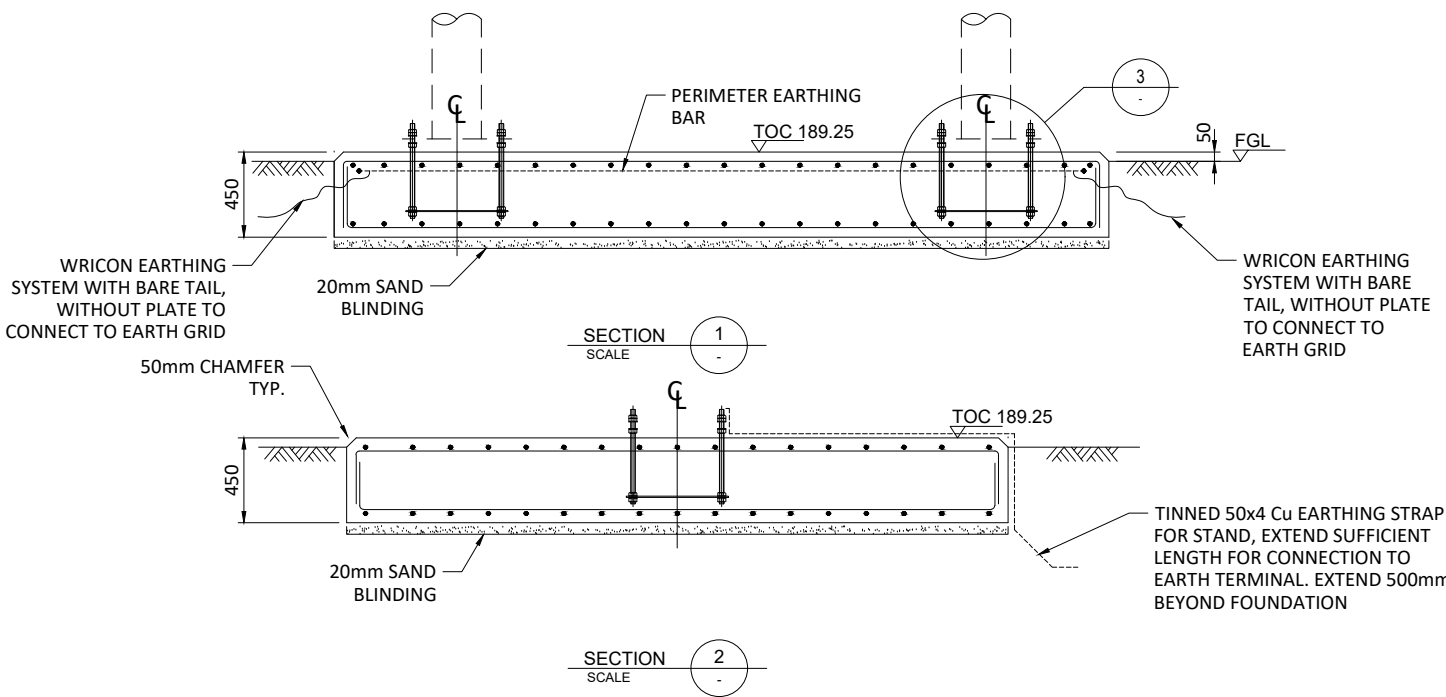
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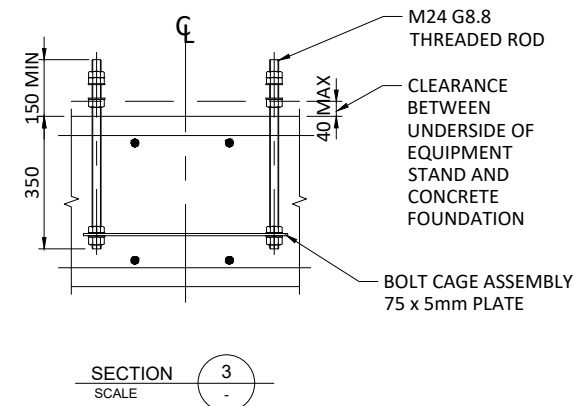


FOUNDATION - PLAN



REINFORCEMENT - PLAN

- NOTES:
- REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 - ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
 - NOXCYDE CORROSION PROTECTION TO BE APPLIED TO ALL SIDES OF BASE PLATES, GUSSETS, HOLD DOWN BOLTS & POSTS (TO MATCH GUSSET HEIGHT). NOXCYDE TO BE APPLIED TO CONCRETE UNDER BASE PLATES AND PROJECT PAST BASE PLATE + 50mm ON ALL SIDES.
 - PADS TO BE 30MPa CONCRETE
 - REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 - REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.



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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project	022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25			02022-4501-21	1
Checked	SP	July'25				
Approved						
Scale						
File Path	02022-4501-21		Drawing Title			
			110kV SWITCHYARD FOUNDATION HIGH LEVEL BUS SUPPORT			
Date Issued						

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[Work Pack Ref: Work_Pack_Ref]

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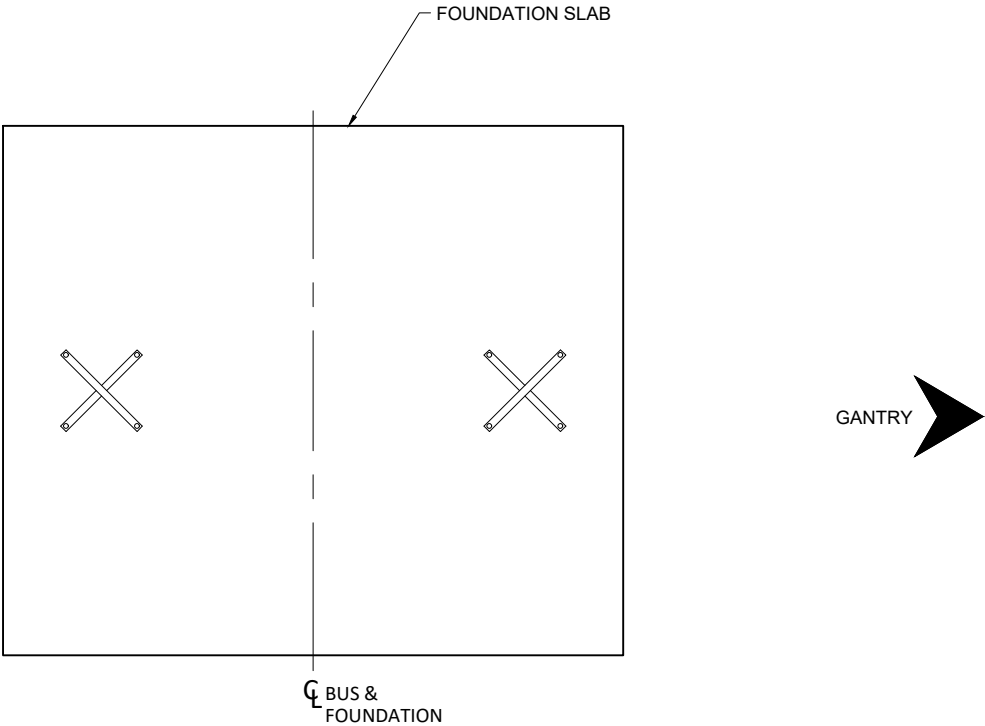
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- NOTES:
- REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
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 - PADS TO BE 30MPa CONCRETE
 - REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 - REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.



FOUNDATION 'A' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-22	1
Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-22		Drawing Title		
			110kV SWITCHYARD FOUNDATION HIGH LEVEL BUS SUPPORT - ORIENTATION KEY		
Date Issued					

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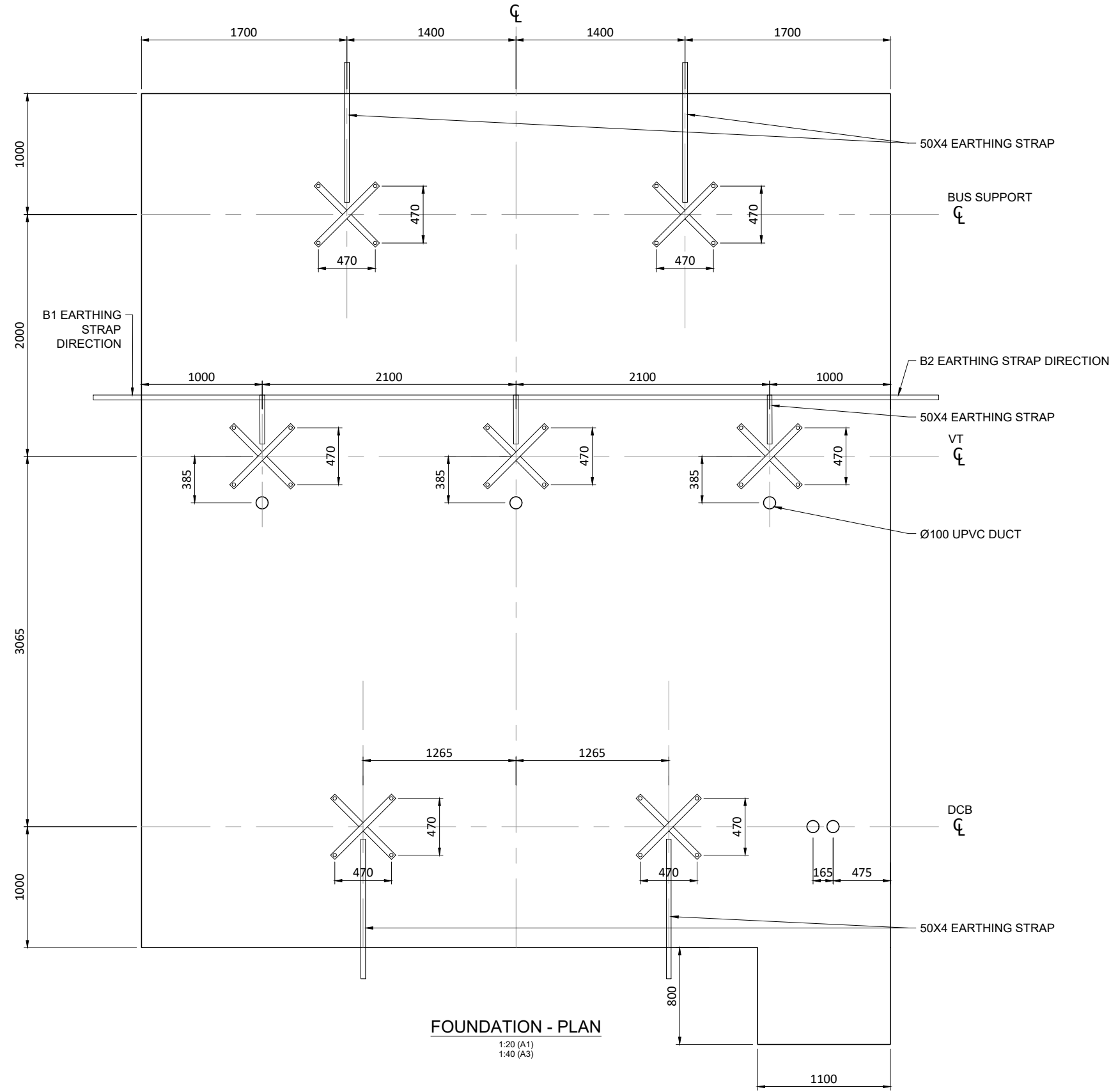
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FOUNDATION - PLAN

1:20 (A1)
1:40 (A3)

REFER TO 02022-4501-25 FOR
B1 & B2 PAD OREINTATIONS

NOTES:

1. REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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4. PADS TO BE 30MPa CONCRETE
5. REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
6. REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July/25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July/25		02022-4501-23	1
Checked	SP	July/25			
Approved					
Scale	1:20 (A1) & 1:10 (A1)		Drawing Title 110kV SWITCHYARD FOUNDATION VT & HIGH BUS SUPPORT & DCB		
File Path	02022-4501-23				
Date Issued					

Work Pack Ref: Work_Pack_Ref

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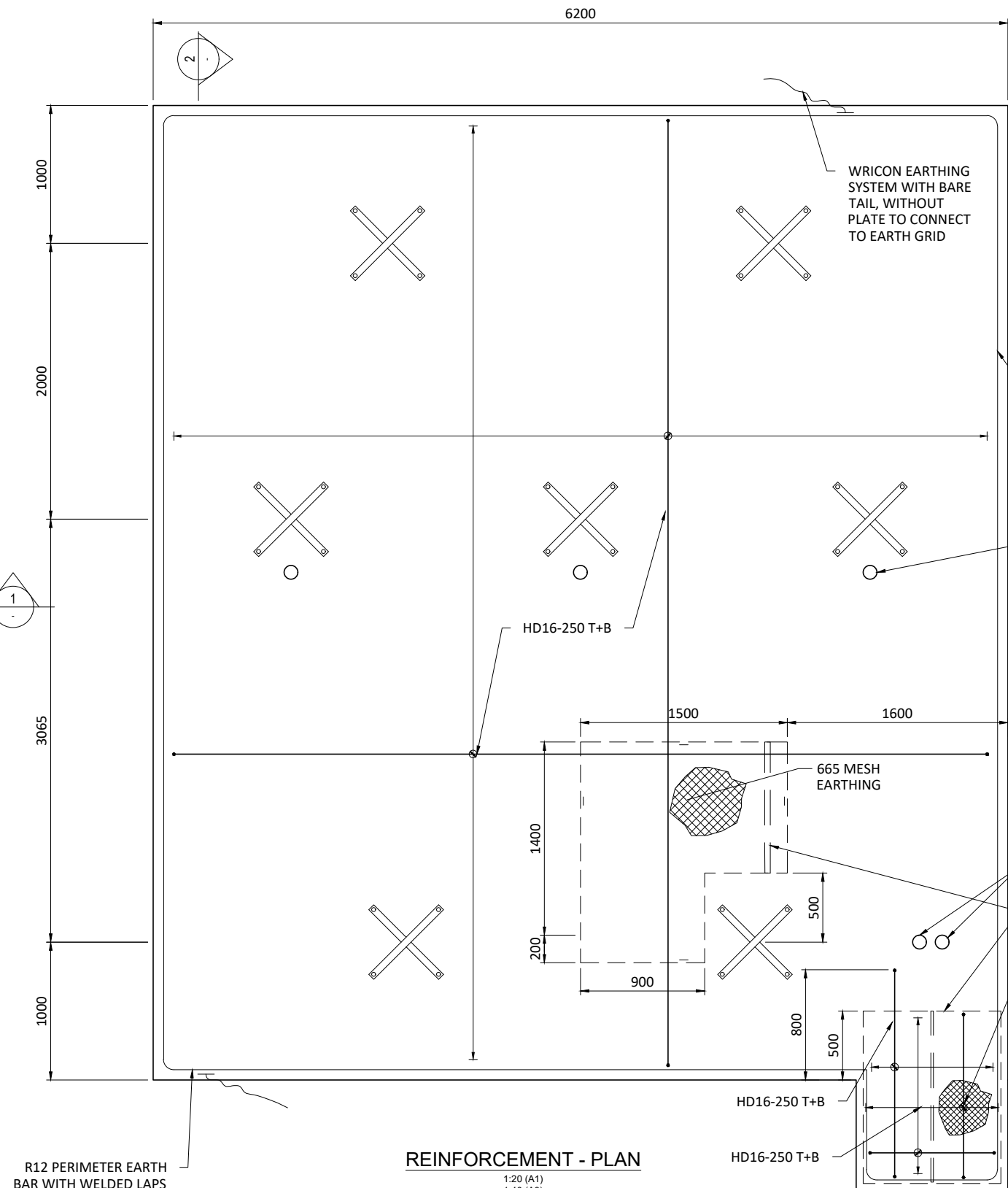
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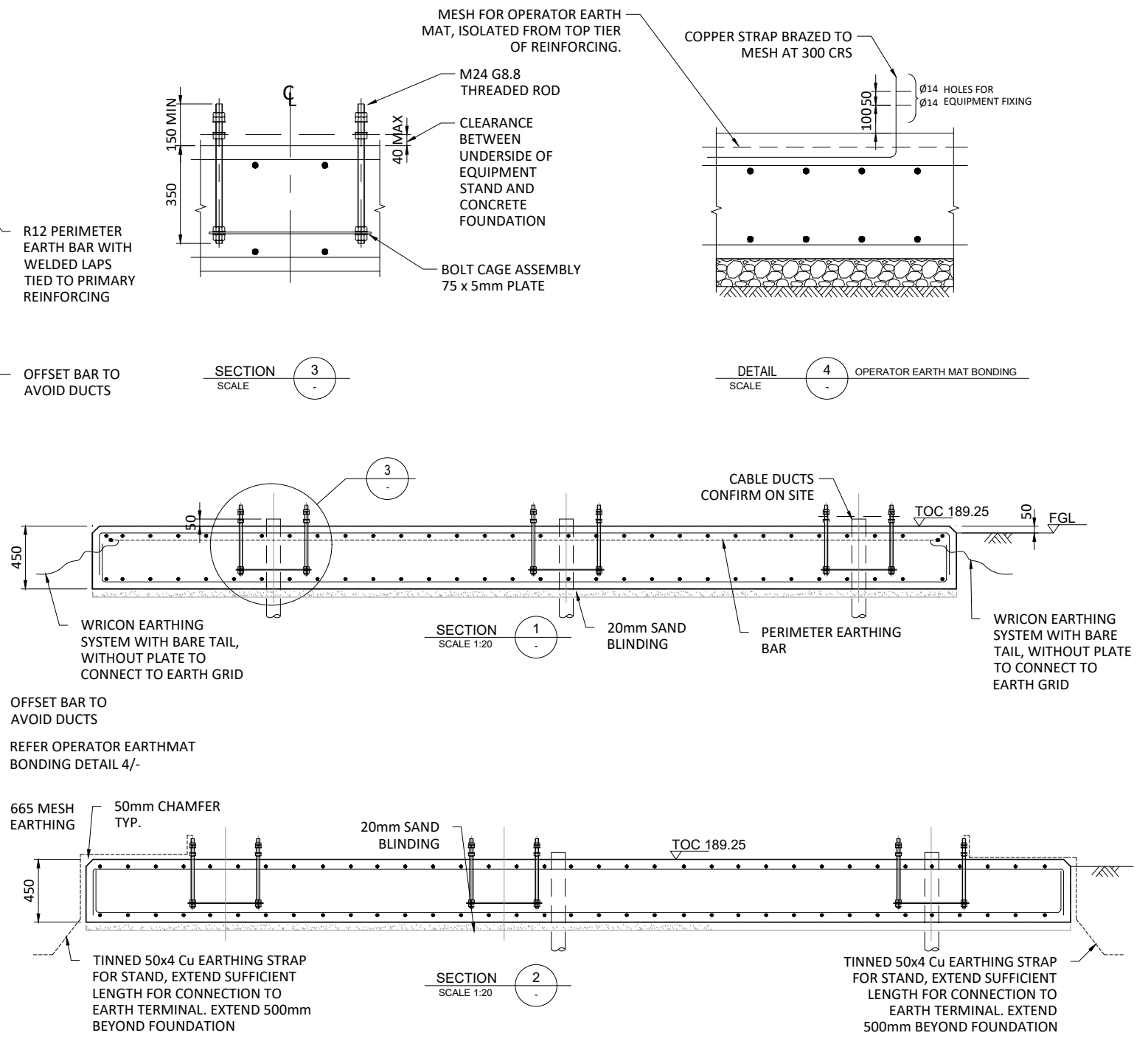
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- NOTES:
1. REFER TO GENERAL NOTES 02045-0120-01, 02045-0120-02 & 02045-0120-03
 2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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 4. PADS TO BE 30MPa CONCRETE
 5. REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 6. REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.



REINFORCEMENT - PLAN
1:20 (A1)
1:40 (A3)



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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION <
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- NOTES:
1. REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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 4. PADS TO BE 30MPa CONCRETE
 5. REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 6. REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

DCB
CL

ALLOW TO CORE DRILL INTO SIDE OF CABLE TRENCH TO INSTALL DUCTS. REFER 6/4501-55

CABLE DUCTS

GANTRY

VT
CL

CABLE TRENCH

FOUNDATION SLAB

BUS SUPPORT
CL

CABLE TRENCH

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FOUNDATION 'B1' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)

CABLE TRENCH

FOUNDATION 'B2' - ORIENTATION PLAN

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1:50 (A3)

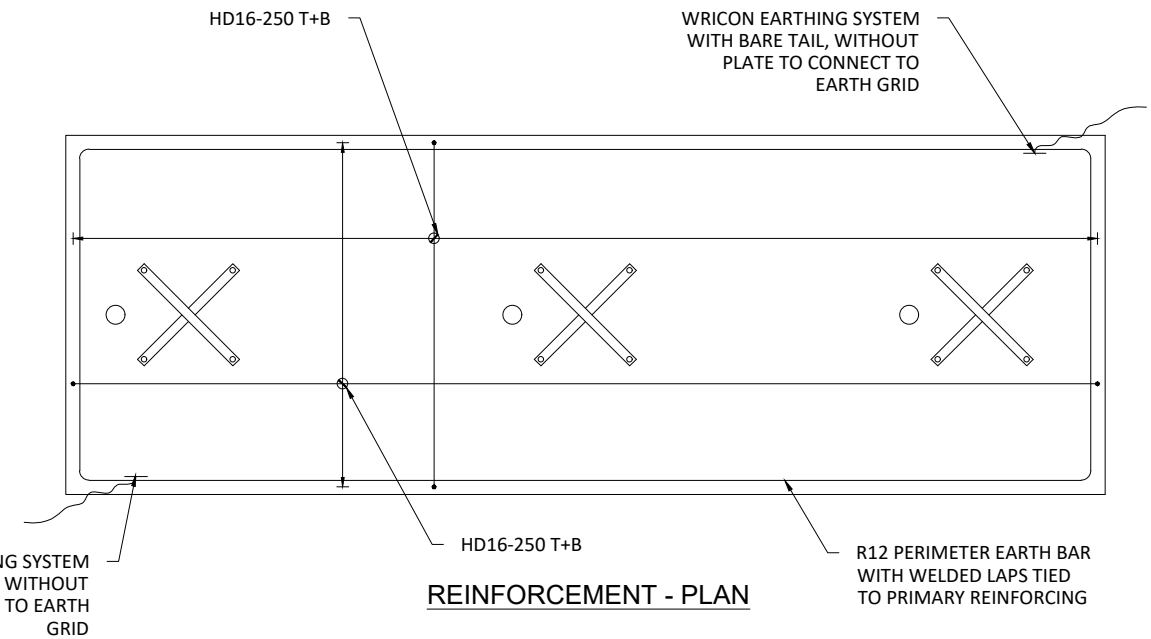
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		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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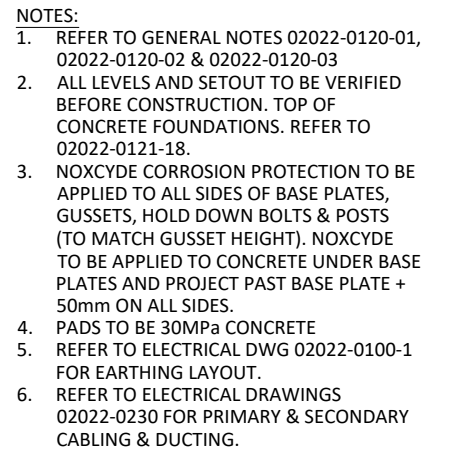
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Drawn	NS	July'25		02022-4501-25		1
Checked	SP	July'25				
Approved				Drawing Title 110kV SWITCHYARD FOUNDATION LOWLEVEL BUS SUPPORT - ORIENTATION KEY		
Scale						
File Path	02022-4501-25					
Date Issued						



REINFORCEMENT - PLAN

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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved		
Scale		
File Path	02022-4501-26	
Date Issued		

Drawing Number	REV
02022-4501-26	1

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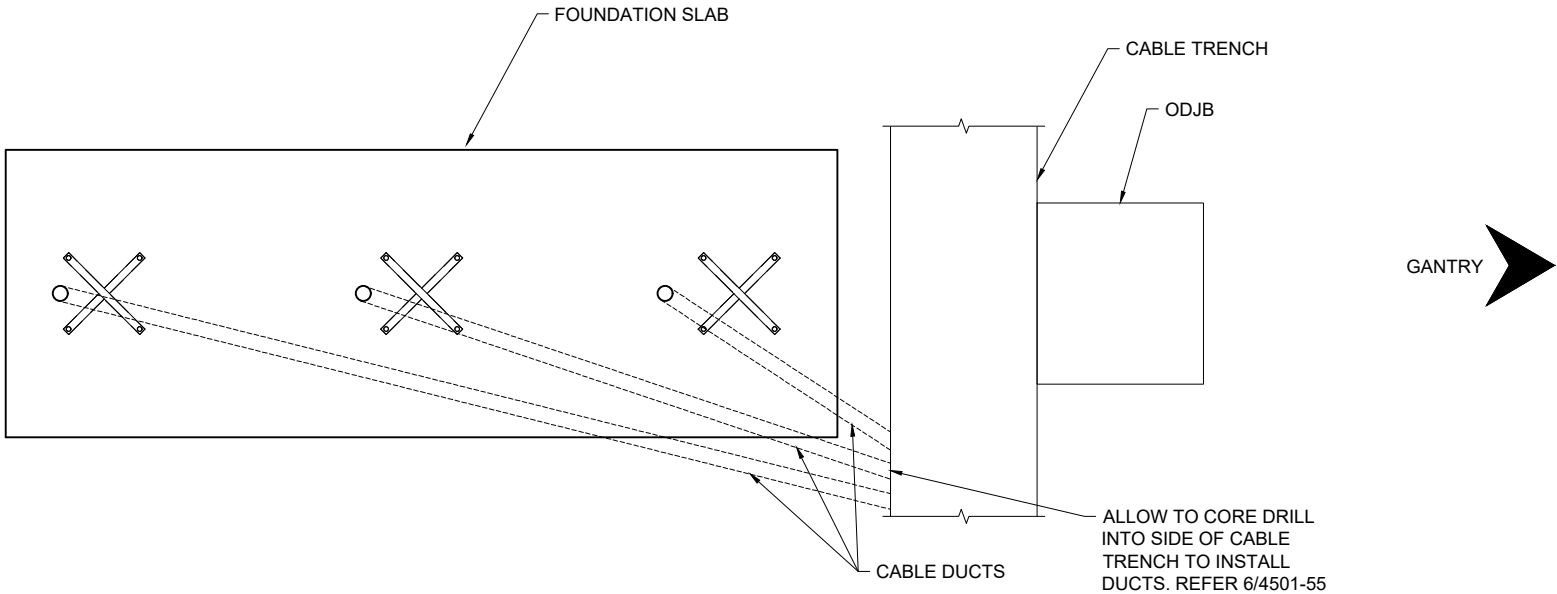
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- NOTES:
1. REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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 4. PADS TO BE 30MPa CONCRETE
 5. REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 6. REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.



FOUNDATION 'D' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-27	1
Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-27				
			Drawing Title 110kV SWITCHYARD FOUNDATION CT - ORIENTATION KEY		
Date Issued					

Work Pack Ref: Work_Pack_Ref

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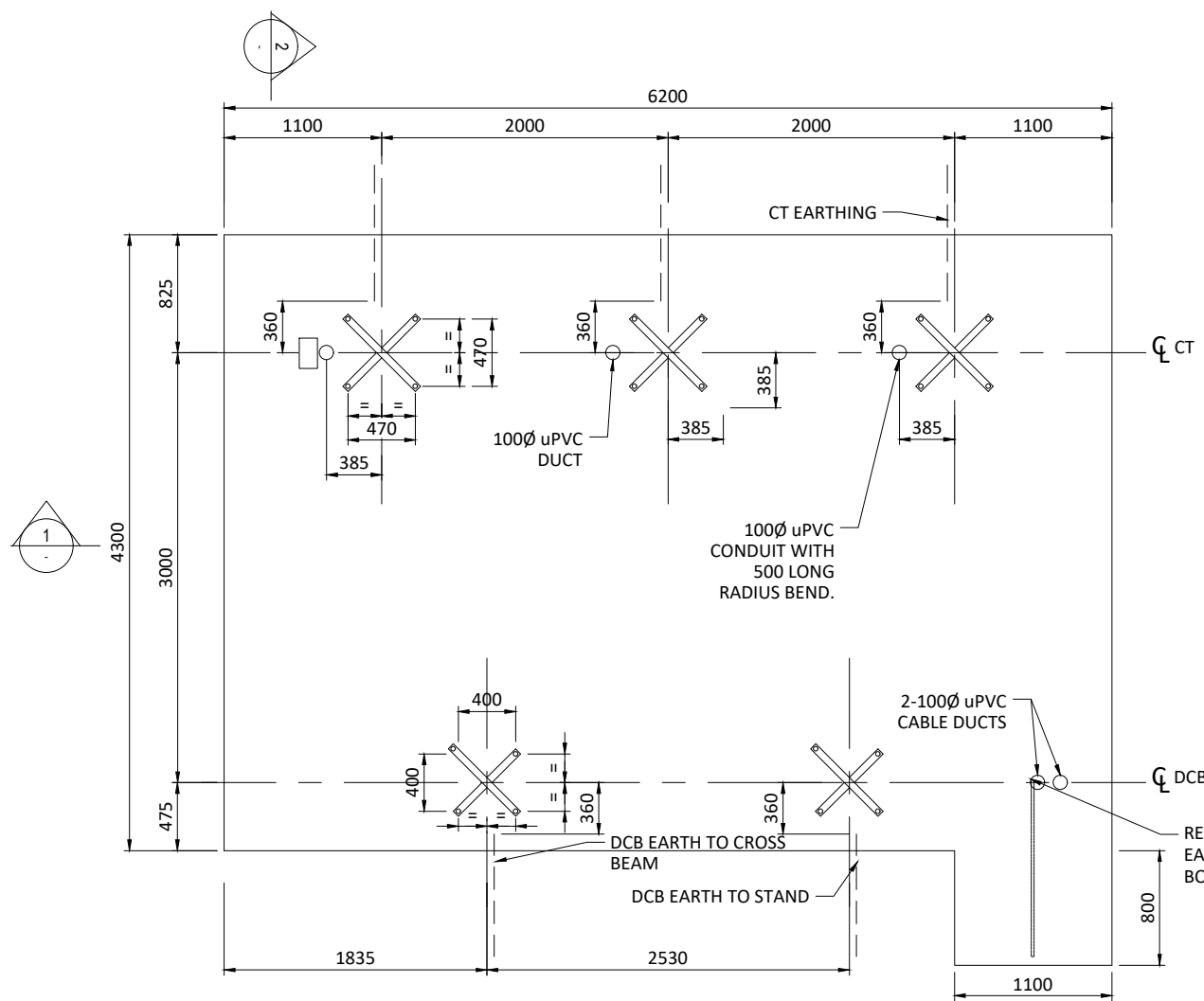
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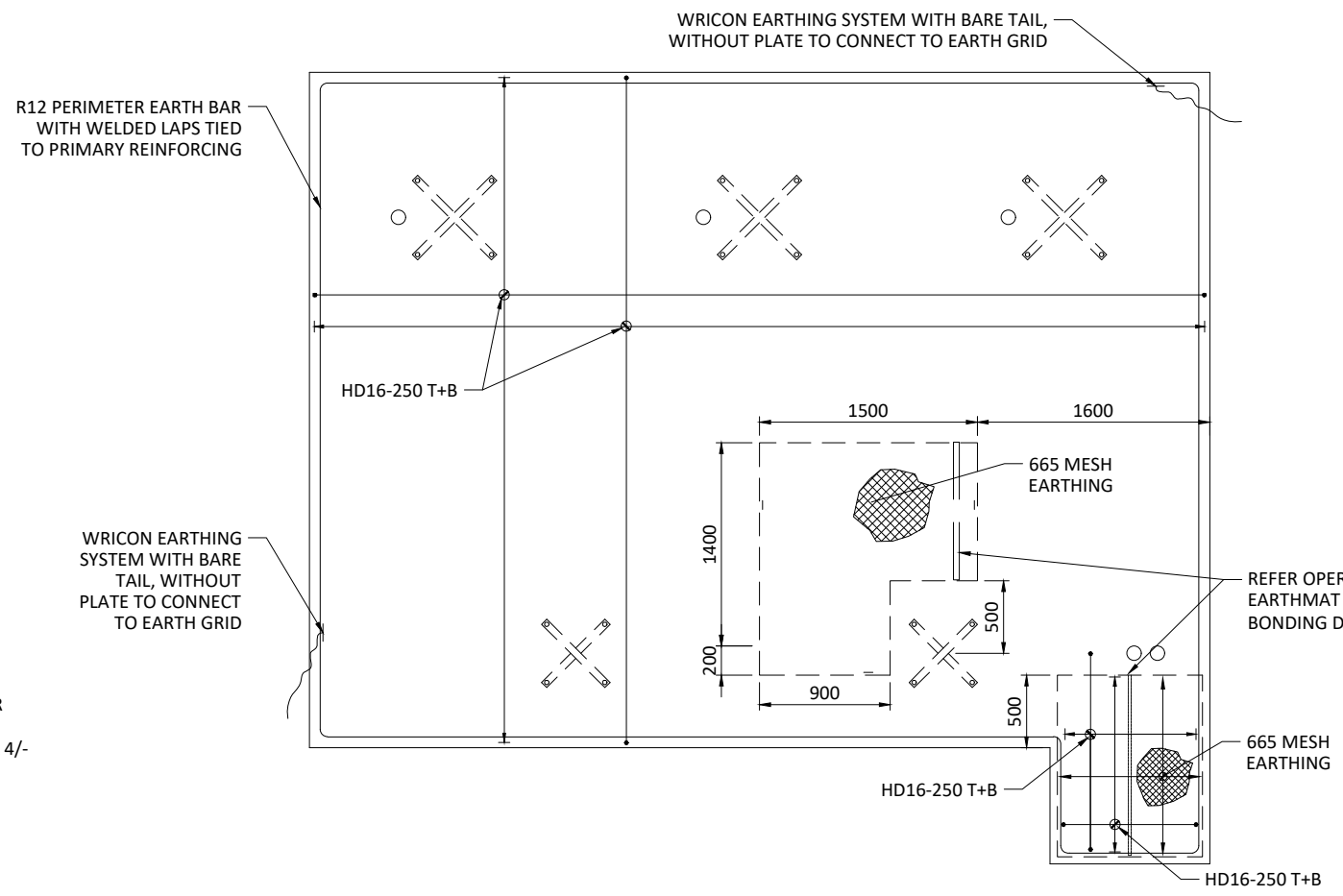
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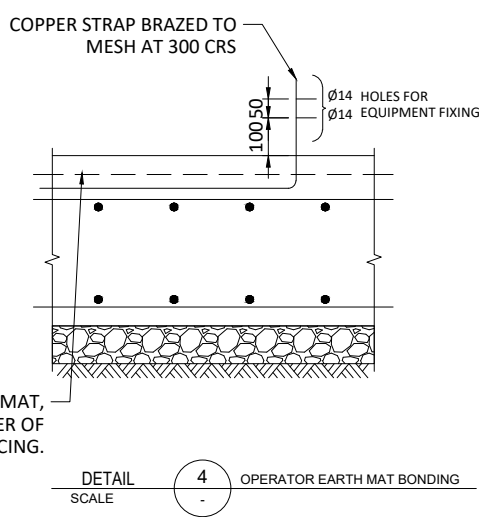
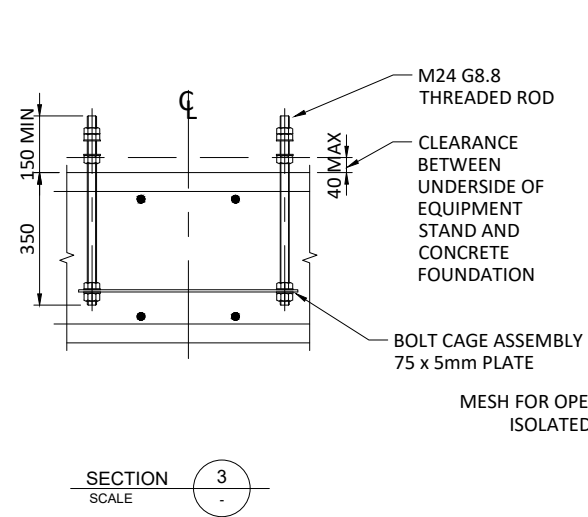
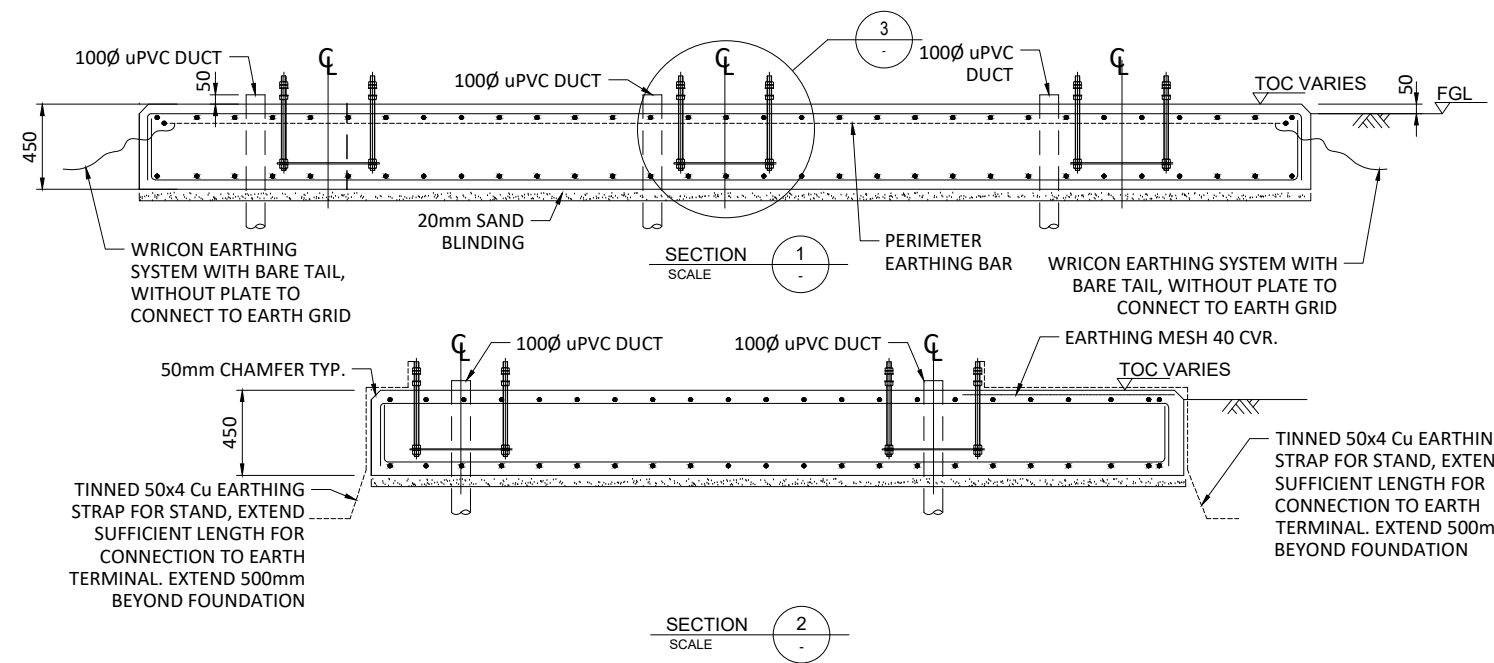
- NOTES:
1. REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
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FOUNDATION - PLAN



REINFORCEMENT - PLAN



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Rev	Description	Designed		Drawn		Checked		Approved	
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Designed	SP	July'25	Project	022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25			02022-4501-29	1
Checked	SP	July'25				
Approved						
Scale						
File Path	02022-4501-29		Drawing Title			
			110kV SWITCHYARD FOUNDATION DCB & CT			
Date Issued						

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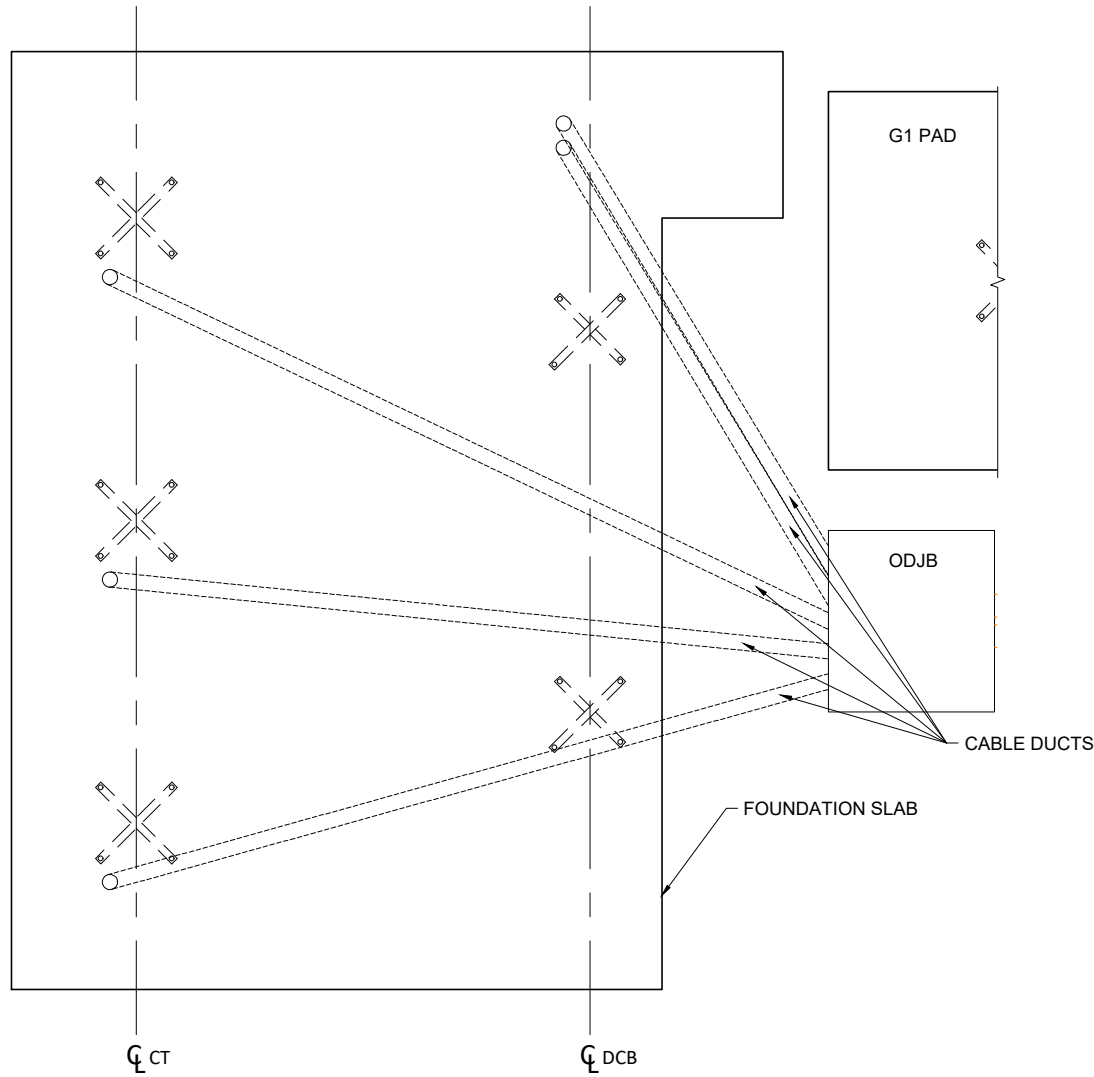
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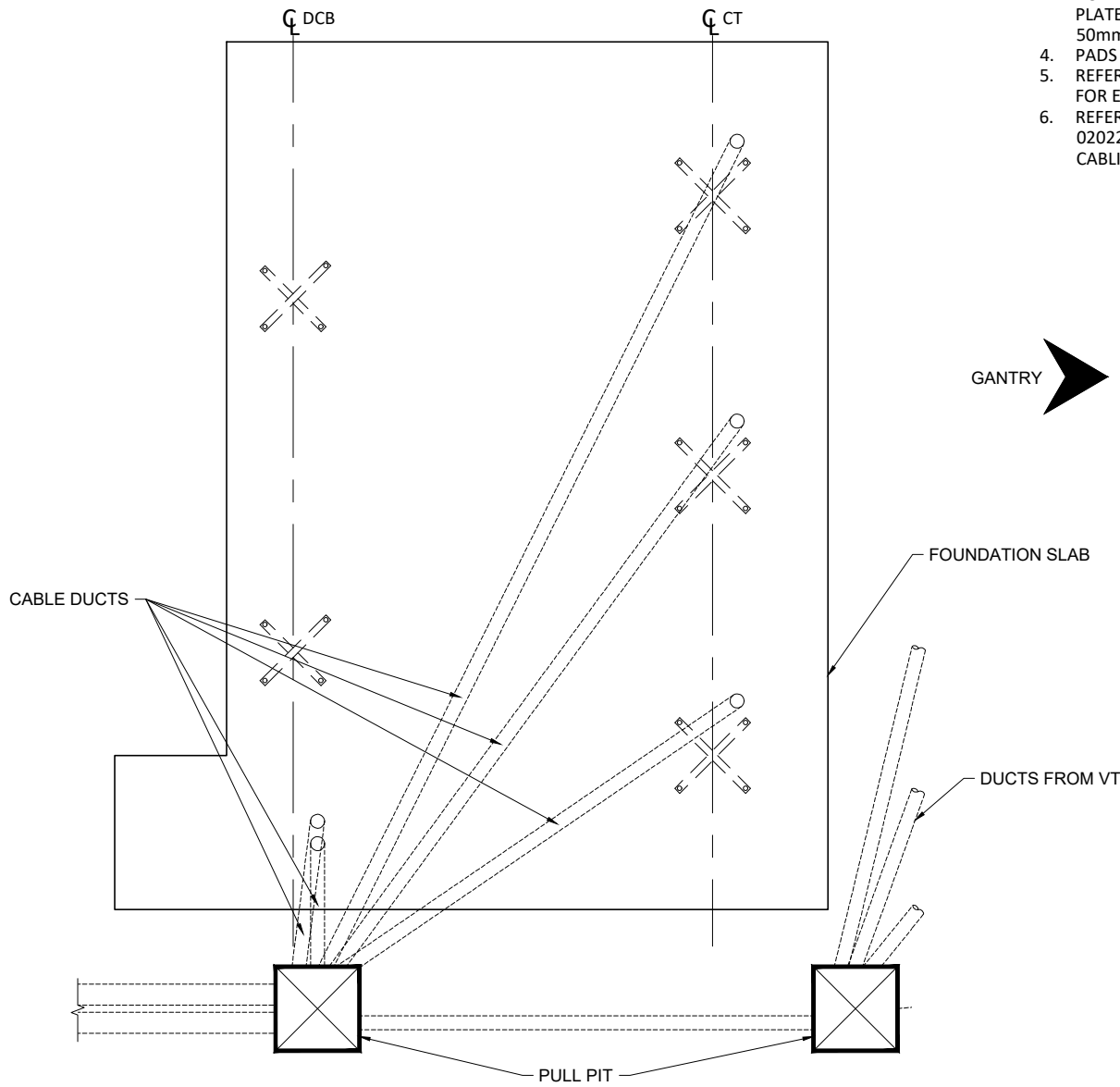
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2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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FOUNDATION 'E1' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)



FOUNDATION 'E2' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
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Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-30				
Drawing Title					
Date Issued			110kV SWITCHYARD FOUNDATION DCB & CT - ORIENTATION KEY		

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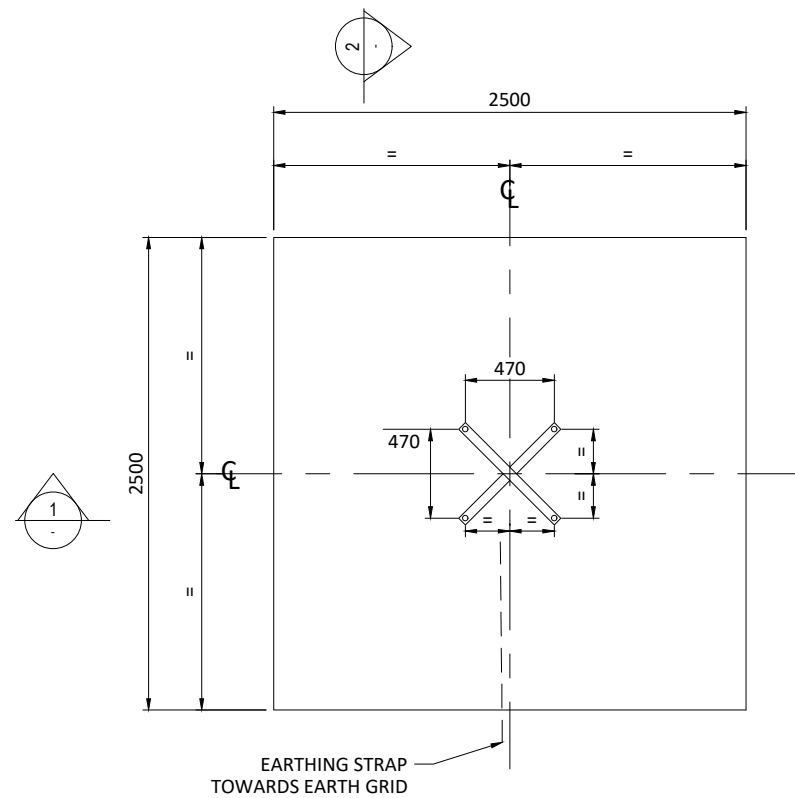
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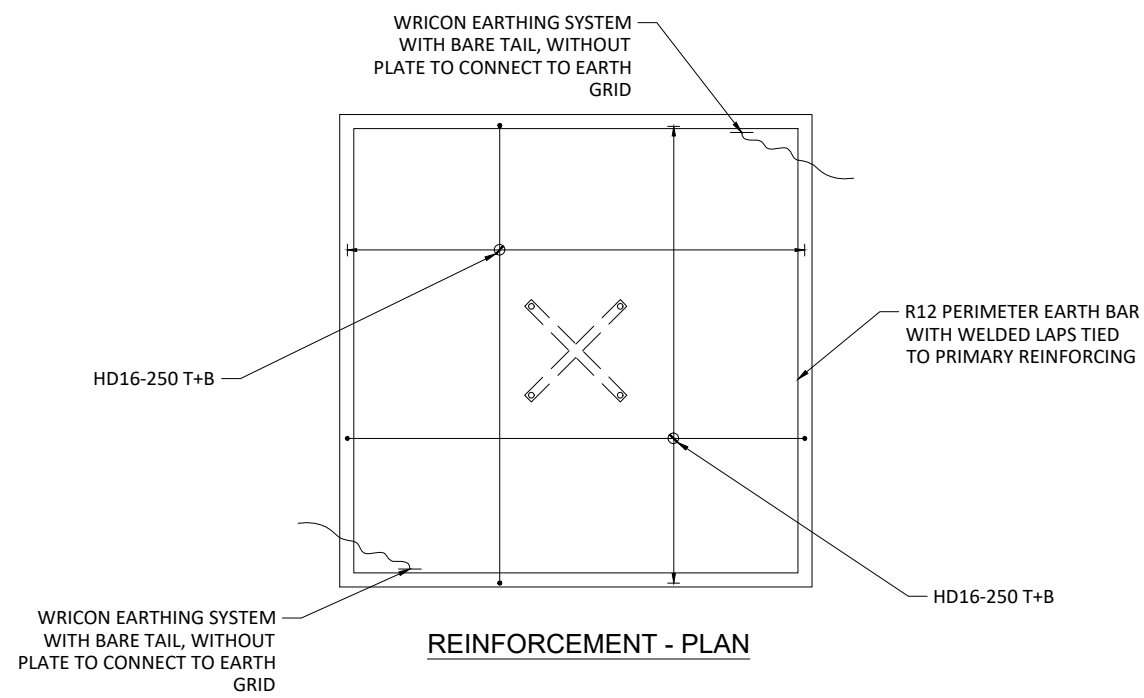
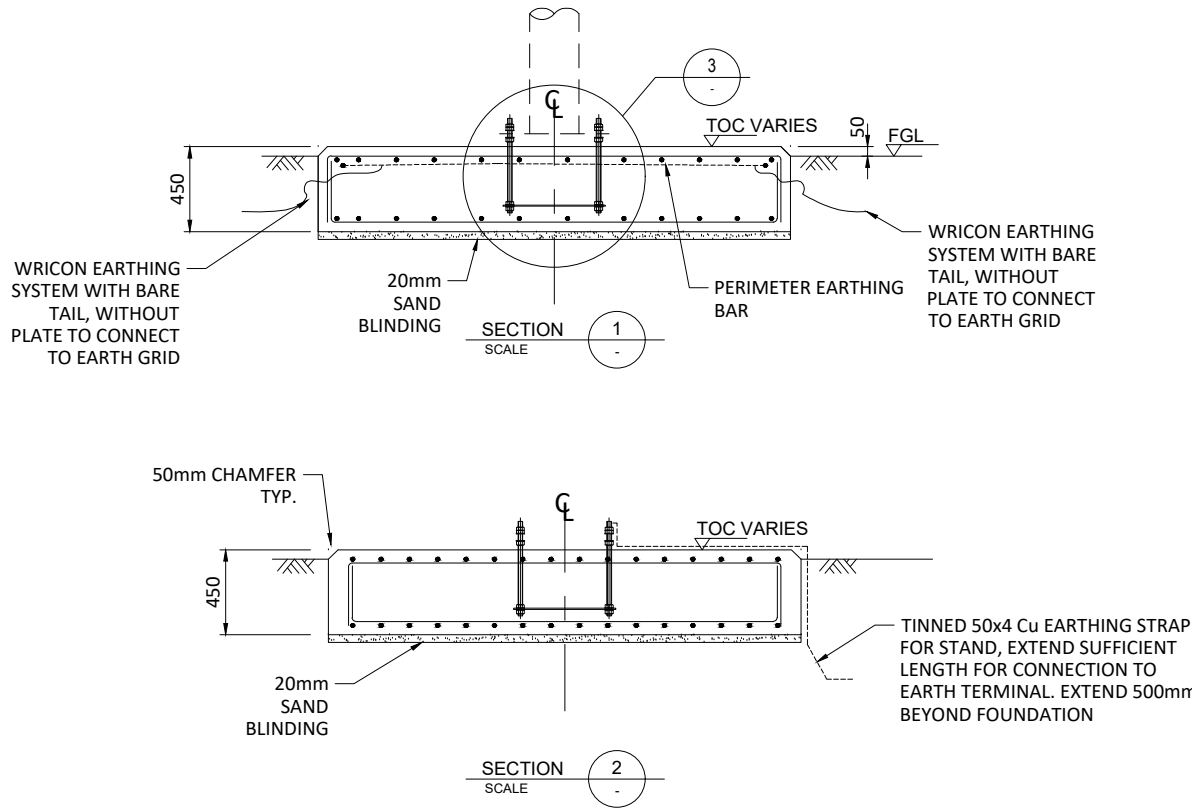
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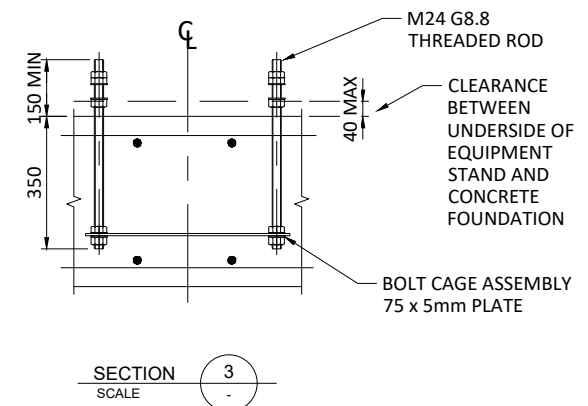
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FOUNDATION - PLAN "G1"



REINFORCEMENT - PLAN



- NOTES:
- REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 - ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
 - NOXCYDE CORROSION PROTECTION TO BE APPLIED TO ALL SIDES OF BASE PLATES, GUSSETS, HOLD DOWN BOLTS & POSTS (TO MATCH GUSSET HEIGHT). NOXCYDE TO BE APPLIED TO CONCRETE UNDER BASE PLATES AND PROJECT PAST BASE PLATE + 50mm ON ALL SIDES.
 - PADS TO BE 30MPa CONCRETE.
 - REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 - REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

FOR APPROVAL
NOT FOR CONSTRUCTION

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-31	1
Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-31		Drawing Title	110kV SWITCHYARD FOUNDATION LOW LEVEL BUS SUPPORT	
Date Issued					

Work Pack Ref: Work_Pack_Ref

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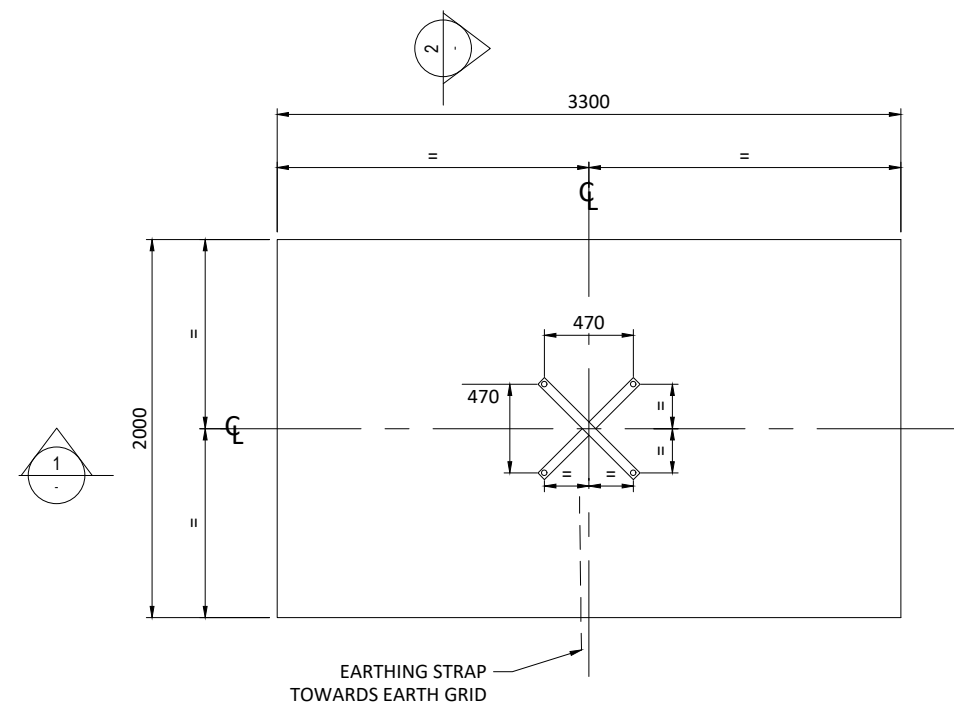
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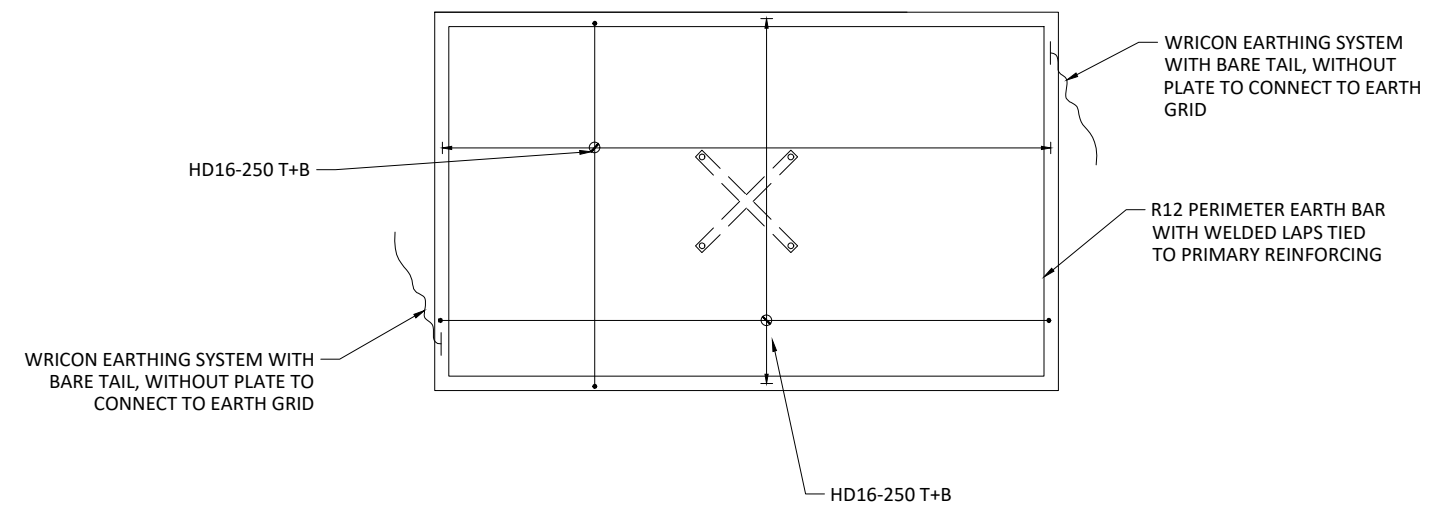
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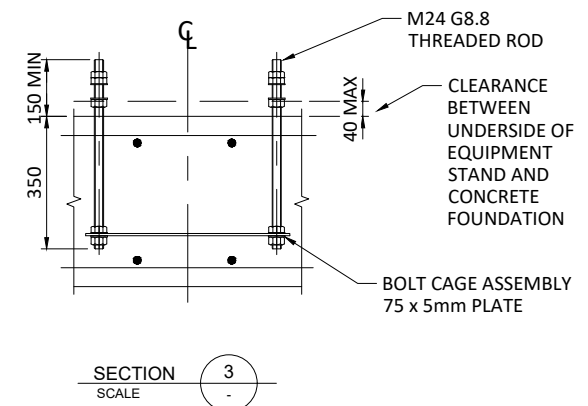
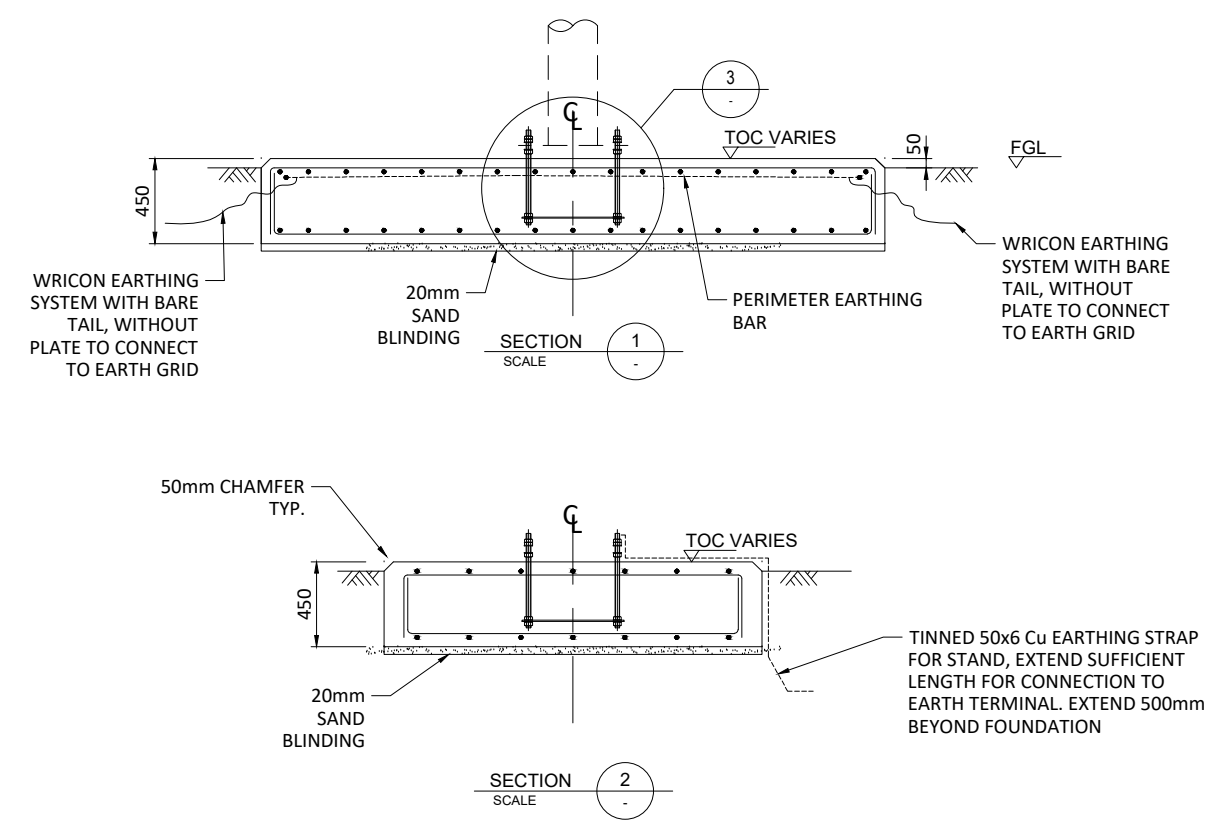
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FOUNDATION - PLAN "G2"



REINFORCEMENT - PLAN



- NOTES:
- REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 - ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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 - PADS TO BE 30MPa CONCRETE.
 - REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 - REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project	022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25			02022-4501-32	1
Checked	SP	July'25				
Approved						
Scale						
File Path	02022-4501-32		Drawing Title			
			110kV SWITCHYARD FOUNDATION LOW LEVEL BUS SUPPORT			
Date Issued						

Work Pack Ref: Work_Pack_Ref

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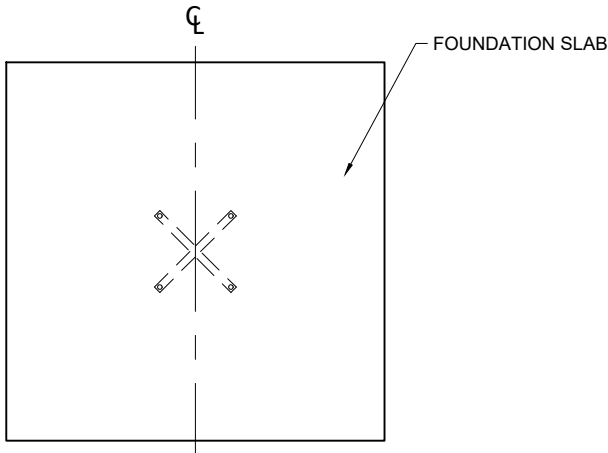
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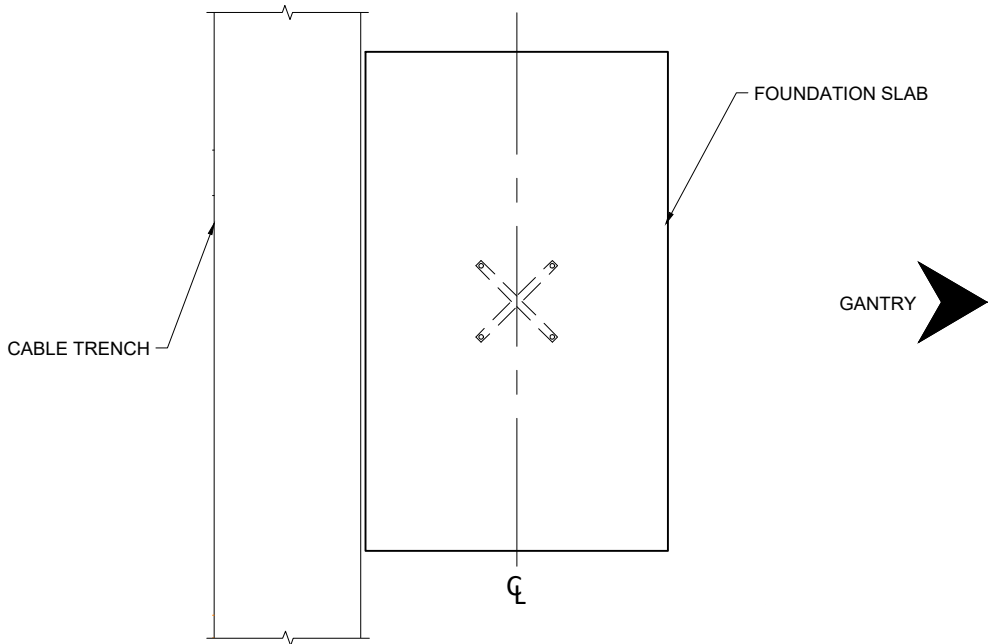
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FOUNDATION 'G1' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)



FOUNDATION 'G2' - ORIENTATION PLAN

1:25 (A1)
1:50 (A3)

- NOTES:
- REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 - ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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 - PADS TO BE 30MPa CONCRETE.
 - REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 - REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-33	1
Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-33		Drawing Title 110kV SWITCHYARD FOUNDATION LOW LEVEL BUS SUPPORT - ORIENTATION KEY		
Date Issued					

Work Pack Ref: Work_Pack_Ref

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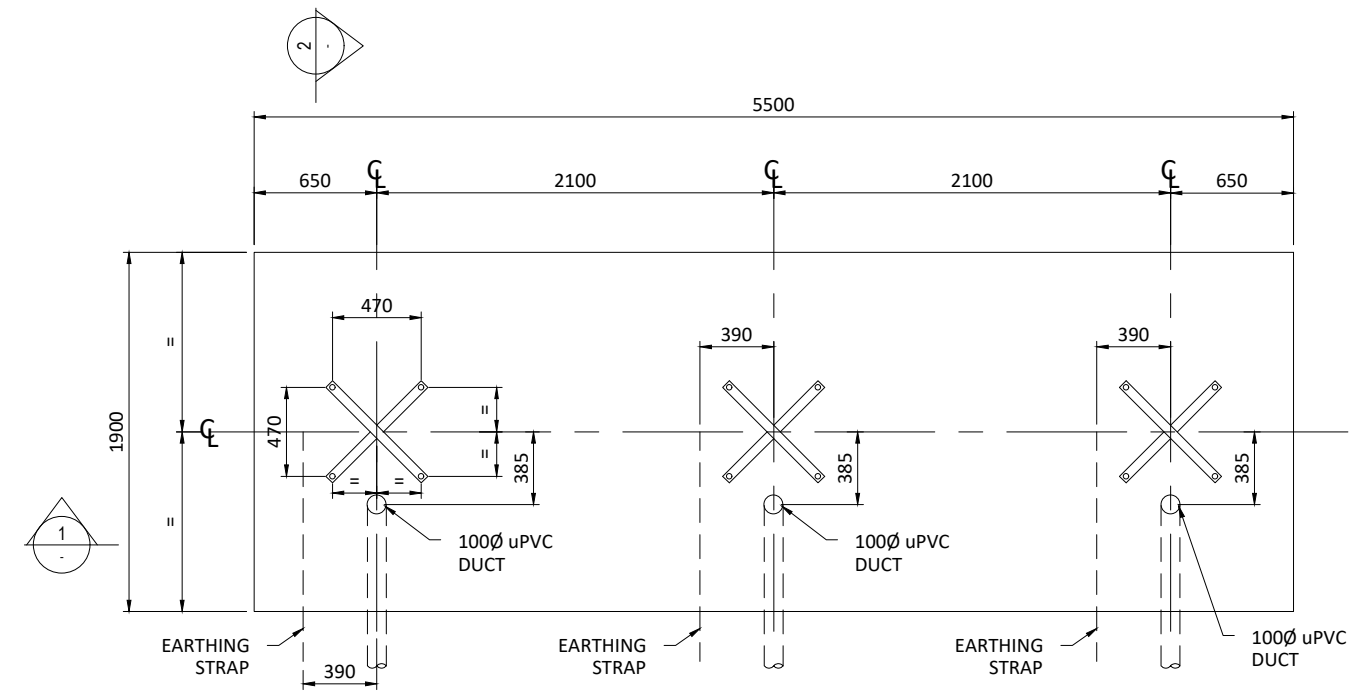
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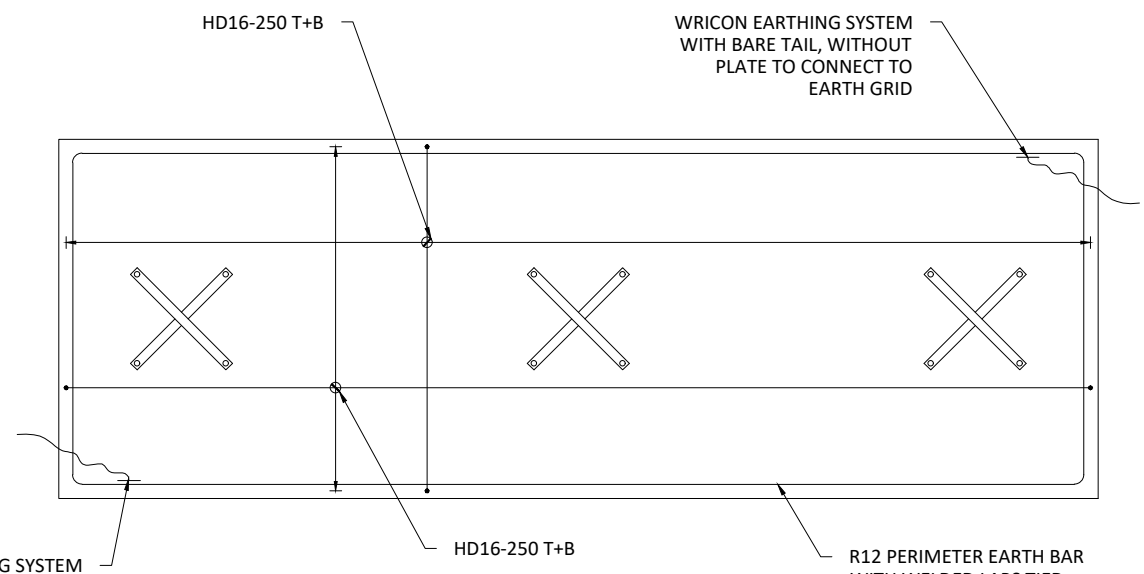
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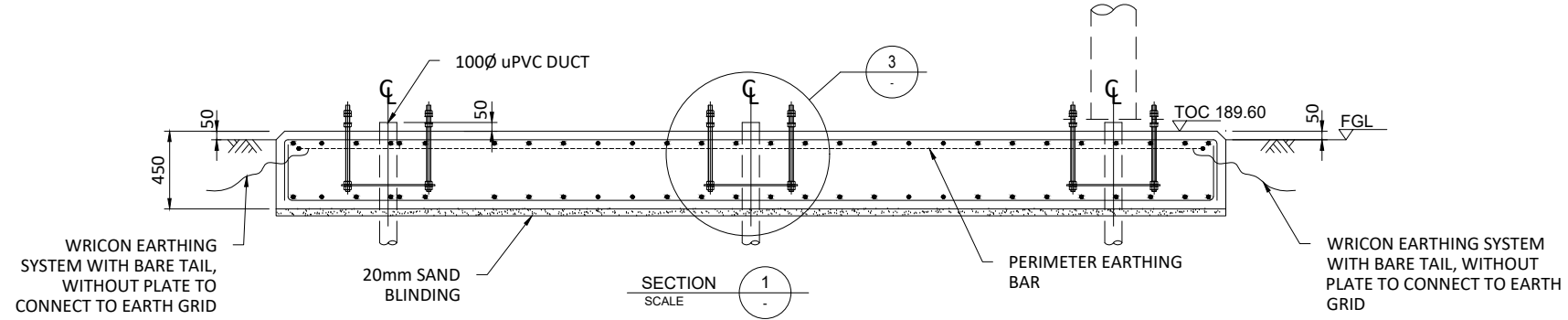
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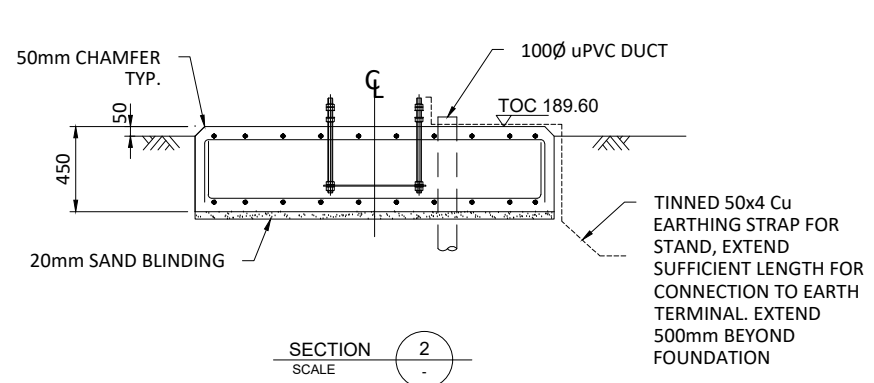
FOUNDATION - PLAN



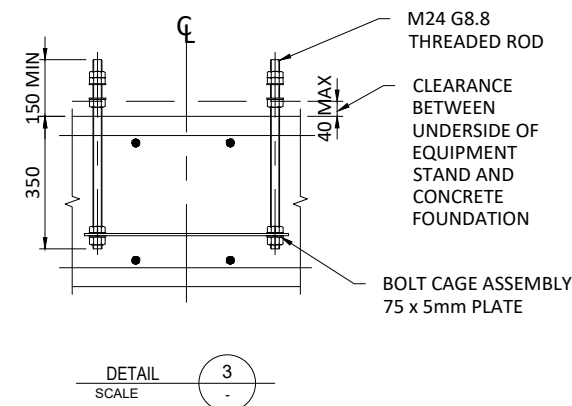
REINFORCEMENT - PLAN



SECTION 1
SCALE



SECTION 2
SCALE



DETAIL 3
SCALE

- NOTES:
1. REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
 2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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 4. PADS TO BE 30MPa CONCRETE.
 5. REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
 6. REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

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NOT FOR CONSTRUCTION

Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-34	1
Checked	SP	July'25			
Approved					
Scale					
File Path	02022-4501-34				
Date Issued			Drawing Title 110kV SWITCHYARD FOUNDATION VT		

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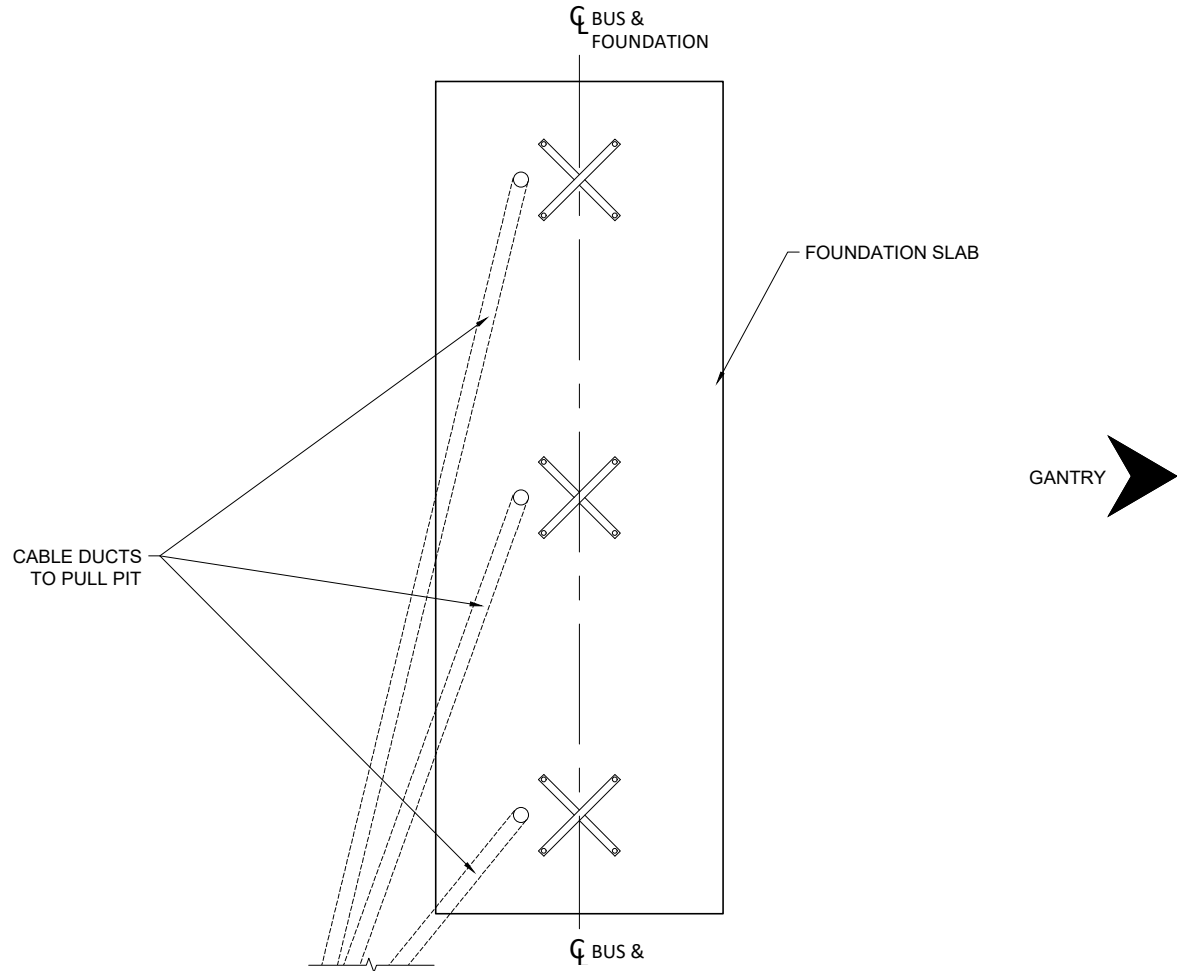
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FOUNDATION 'H' - ORIENTATION PLAN

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NOTES:

1. REFER TO GENERAL NOTES 02022-0120-01, 02022-0120-02 & 02022-0120-03
2. ALL LEVELS AND SETOUT TO BE VERIFIED BEFORE CONSTRUCTION. TOP OF CONCRETE FOUNDATIONS. REFER TO 02022-0121-18.
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4. PADS TO BE 30MPa CONCRETE.
5. REFER TO ELECTRICAL DWG 02022-0100-1 FOR EARTHING LAYOUT.
6. REFER TO ELECTRICAL DRAWINGS 02022-0230 FOR PRIMARY & SECONDARY CABLING & DUCTING.

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number 02022-4501-35	REV 1
Drawn	NS	July'25			
Checked	SP	July'25			
Approved			Drawing Title 110kV SWITCHYARD FOUNDATION VT - ORIENTATION KEY		
Scale					
File Path	02022-4501-35				
Date Issued					

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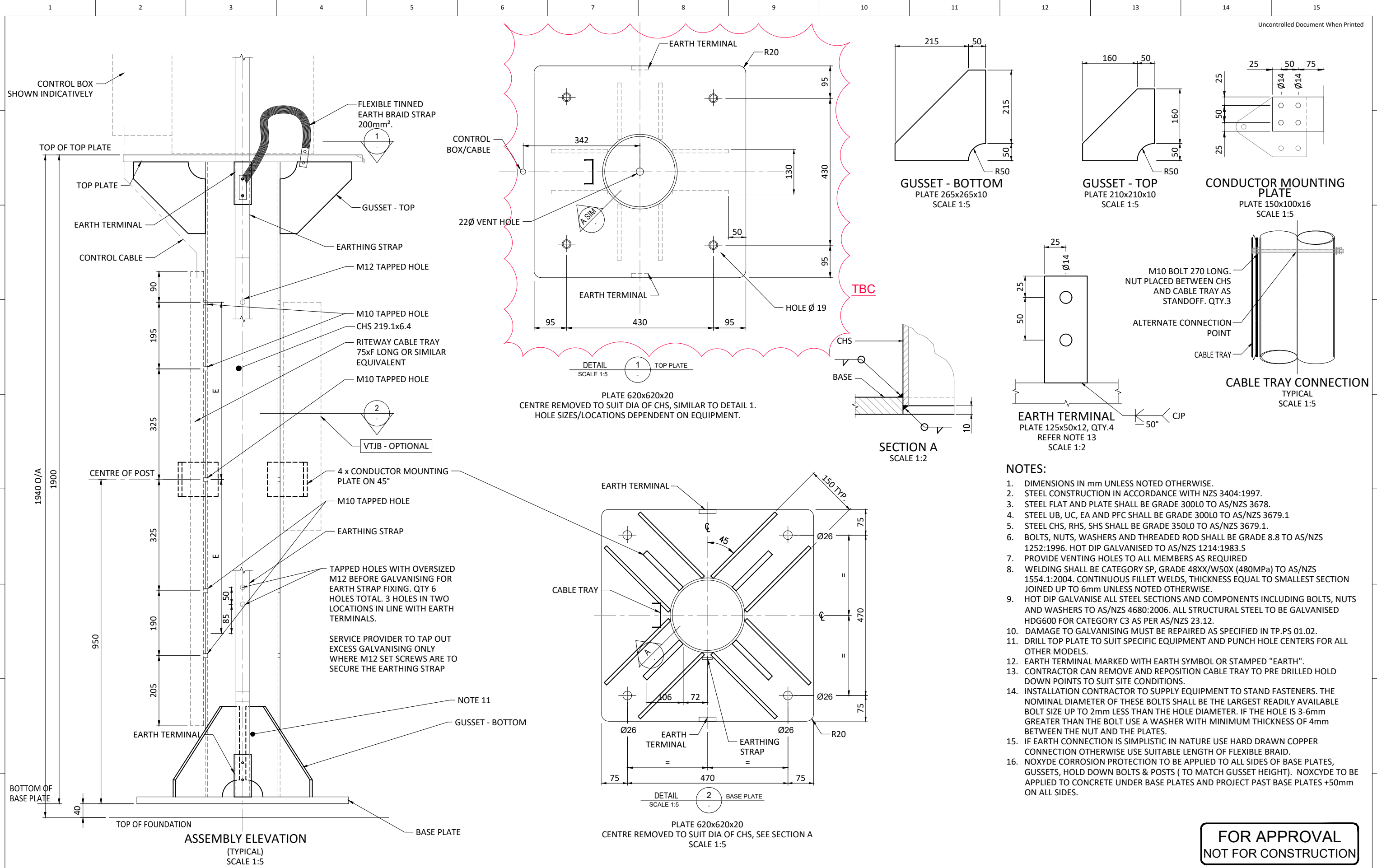
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- NOTES:
- DIMENSIONS IN mm UNLESS NOTED OTHERWISE.
 - STEEL CONSTRUCTION IN ACCORDANCE WITH NZS 3404:1997.
 - STEEL FLAT AND PLATE SHALL BE GRADE 300L0 TO AS/NZS 3678.
 - STEEL UB, UC, EA AND PFC SHALL BE GRADE 300L0 TO AS/NZS 3679.1
 - STEEL CHS, RHS, SHS SHALL BE GRADE 350L0 TO AS/NZS 3679.1.
 - BOLTS, NUTS, WASHERS AND THREADED ROD SHALL BE GRADE 8.8 TO AS/NZS 1252:1996. HOT DIP GALVANISED TO AS/NZS 1214:1983.S
 - PROVIDE VENTING HOLES TO ALL MEMBERS AS REQUIRED
 - WELDING SHALL BE CATEGORY SP, GRADE 48XX/W50X (480MPa) TO AS/NZS 1554.1:2004. CONTINUOUS FILLET WELDS, THICKNESS EQUAL TO SMALLEST SECTION JOINED UP TO 6mm UNLESS NOTED OTHERWISE.
 - HOT DIP GALVANISE ALL STEEL SECTIONS AND COMPONENTS INCLUDING BOLTS, NUTS AND WASHERS TO AS/NZS 4680:2006. ALL STRUCTURAL STEEL TO BE GALVANISED HDG600 FOR CATEGORY C3 AS PER AS/NZS 23.12.
 - DAMAGE TO GALVANISING MUST BE REPAIRED AS SPECIFIED IN TP.PS 01.02.
 - DRILL TOP PLATE TO SUIT SPECIFIC EQUIPMENT AND PUNCH HOLE CENTERS FOR ALL OTHER MODELS.
 - EARTH TERMINAL MARKED WITH EARTH SYMBOL OR STAMPED "EARTH".
 - CONTRACTOR CAN REMOVE AND REPOSITION CABLE TRAY TO PRE DRILLED HOLD DOWN POINTS TO SUIT SITE CONDITIONS.
 - INSTALLATION CONTRACTOR TO SUPPLY EQUIPMENT TO STAND FASTENERS. THE NOMINAL DIAMETER OF THESE BOLTS SHALL BE THE LARGEST READILY AVAILABLE BOLT SIZE UP TO 2mm LESS THAN THE HOLE DIAMETER. IF THE HOLE IS 3-6mm GREATER THAN THE BOLT USE A WASHER WITH MINIMUM THICKNESS OF 4mm BETWEEN THE NUT AND THE PLATES.
 - IF EARTH CONNECTION IS SIMPLISTIC IN NATURE USE HARD DRAWN COPPER CONNECTION OTHERWISE USE SUITABLE LENGTH OF FLEXIBLE BRAID.
 - NOXYDE CORROSION PROTECTION TO BE APPLIED TO ALL SIDES OF BASE PLATES, GUSSETS, HOLD DOWN BOLTS & POSTS (TO MATCH GUSSET HEIGHT). NOXYCDE TO BE APPLIED TO CONCRETE UNDER BASE PLATES AND PROJECT PAST BASE PLATES +50mm ON ALL SIDES.

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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-41	1
Checked	SP	July'25			
Approved					
Scale	1:5 (A1) & 1:2 (A1)				
File Path	02022-4501-41				
Date Issued			Drawing Title 110kV VT STAND		

Work Pack Ref: Work_Pack_Ref

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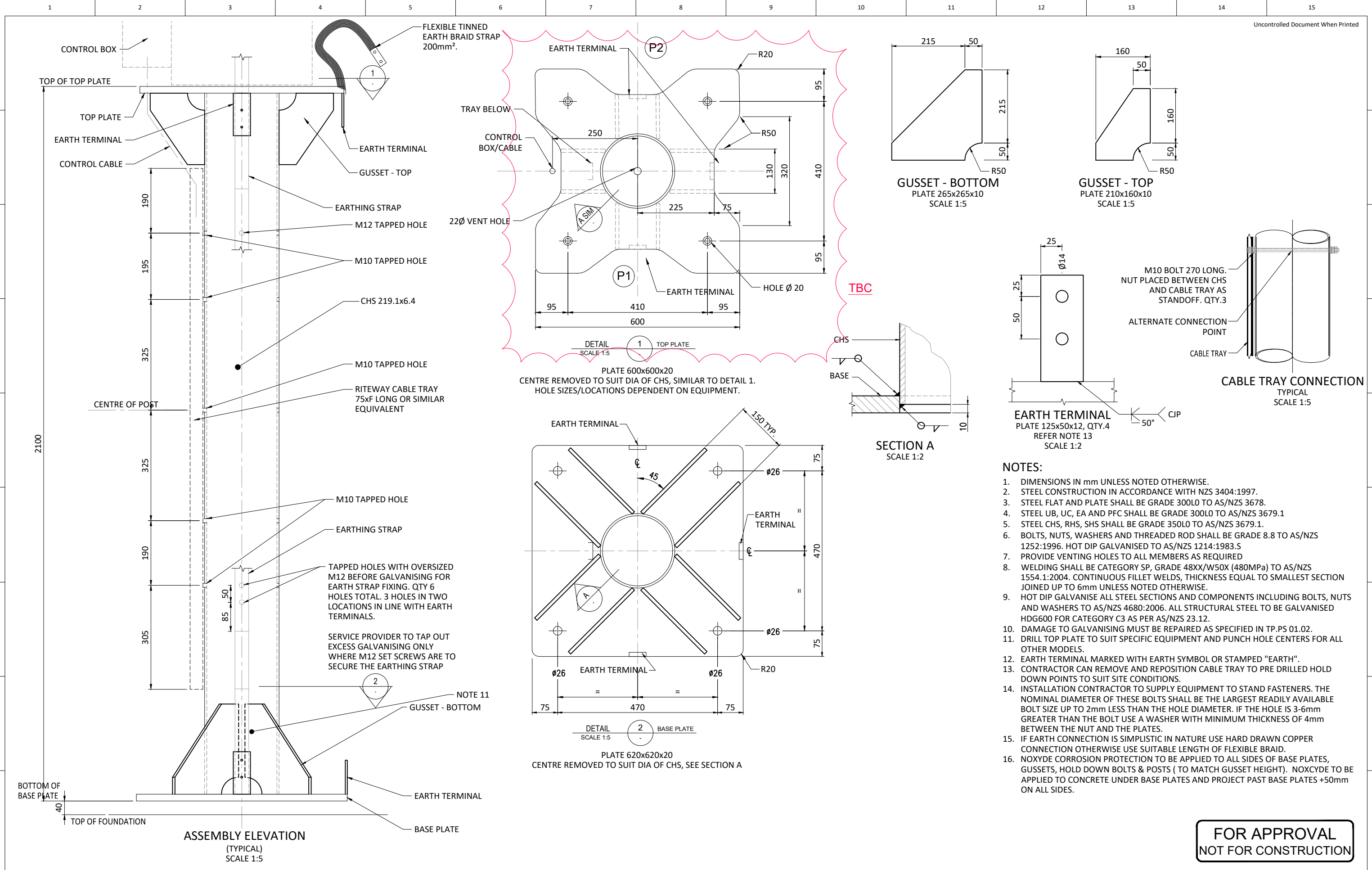
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July'25		02022-4501-42	1
Checked	SP	July'25			
Approved					
Scale	1:5 (A1) & 1:2 (A1)				
File Path	02022-4501-42				
Date Issued			Drawing Title 110kV CT STAND		

Work Pack Ref: Work_Pack_Ref

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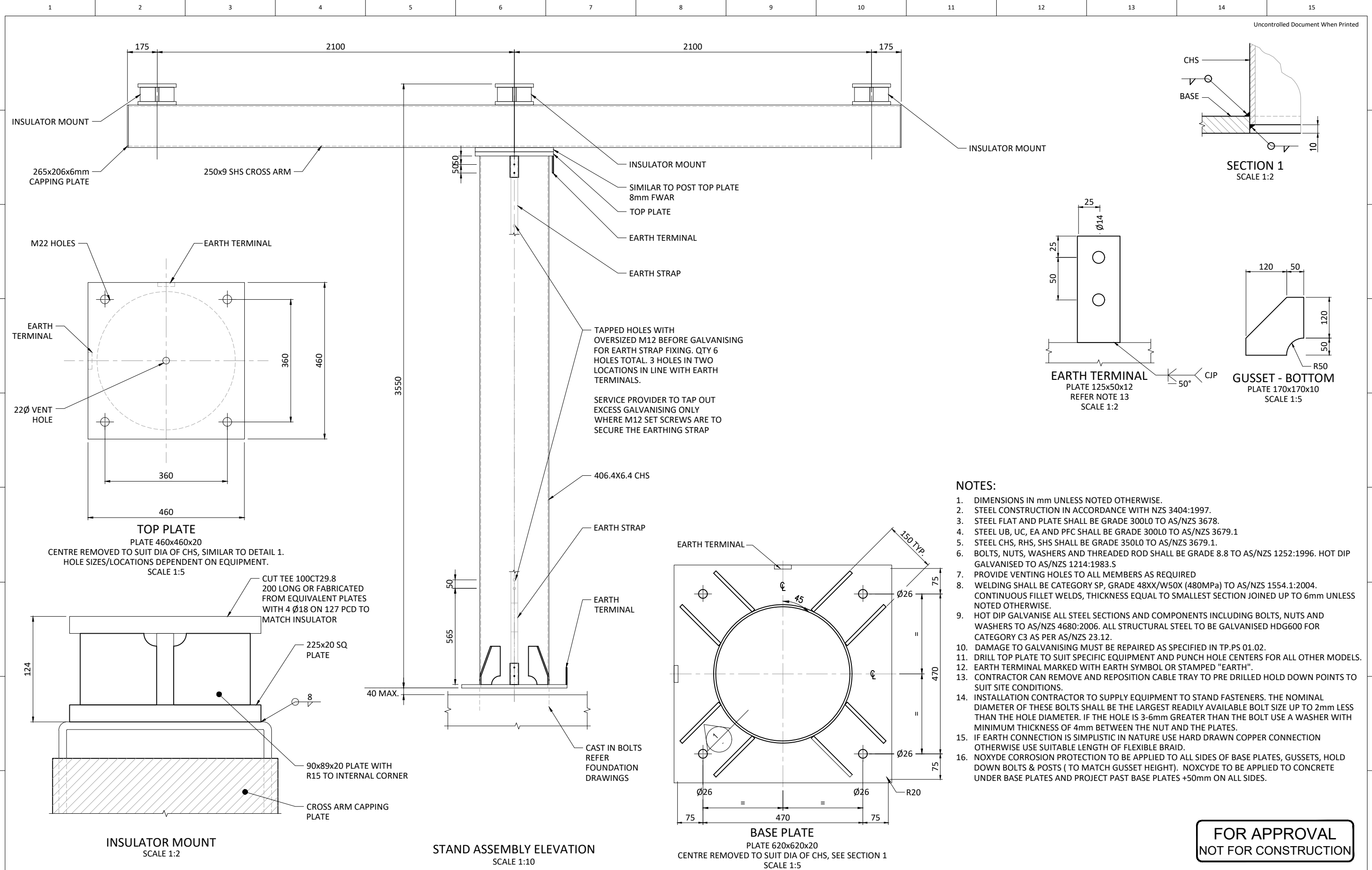
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- NOTES:**
- DIMENSIONS IN mm UNLESS NOTED OTHERWISE.
 - STEEL CONSTRUCTION IN ACCORDANCE WITH NZS 3404:1997.
 - STEEL FLAT AND PLATE SHALL BE GRADE 300L0 TO AS/NZS 3678.
 - STEEL UB, UC, EA AND PFC SHALL BE GRADE 300L0 TO AS/NZS 3679.1
 - STEEL CHS, RHS, SHS SHALL BE GRADE 350L0 TO AS/NZS 3679.1.
 - BOLTS, NUTS, WASHERS AND THREADED ROD SHALL BE GRADE 8.8 TO AS/NZS 1252:1996. HOT DIP GALVANISED TO AS/NZS 1214:1983.5
 - PROVIDE VENTING HOLES TO ALL MEMBERS AS REQUIRED
 - WELDING SHALL BE CATEGORY SP, GRADE 48XX/W50X (480MPa) TO AS/NZS 1554.1:2004. CONTINUOUS FILLET WELDS, THICKNESS EQUAL TO SMALLEST SECTION JOINED UP TO 6mm UNLESS NOTED OTHERWISE.
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 - DAMAGE TO GALVANISING MUST BE REPAIRED AS SPECIFIED IN TP.PS 01.02.
 - DRILL TOP PLATE TO SUIT SPECIFIC EQUIPMENT AND PUNCH HOLE CENTERS FOR ALL OTHER MODELS.
 - EARTH TERMINAL MARKED WITH EARTH SYMBOL OR STAMPED "EARTH".
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

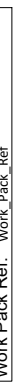
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Te Puna Hihiko

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PO Box 43, Kerikeri 0245

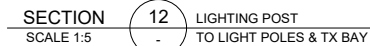
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Designed	SP	July'25
Drawn	NS	July'25
Checked	SP	July'25
Approved		
Scale	AS SHOWN	
File Path	02022-4501-44	
Date Issued		

Project	022 - WIROA 110kV SUBSTATION		Drawing Number	REV
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Drawing Title				
110kV LOW LEVEL BUS SUPPORT STAND				



Rev	Description	Designed		Drawn		Checked		Approved		<
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Designed	SP	July/25	Project 022 - WIROA 110kV SUBSTATION	Drawing Number	REV
Drawn	NS	July/25		02022-4501-51	1
Checked	SP	July/25			
Approved					
Scale					
File Path	02022-4501-51		Drawing Title		
			LIGHTING POLE		
Date Issued					

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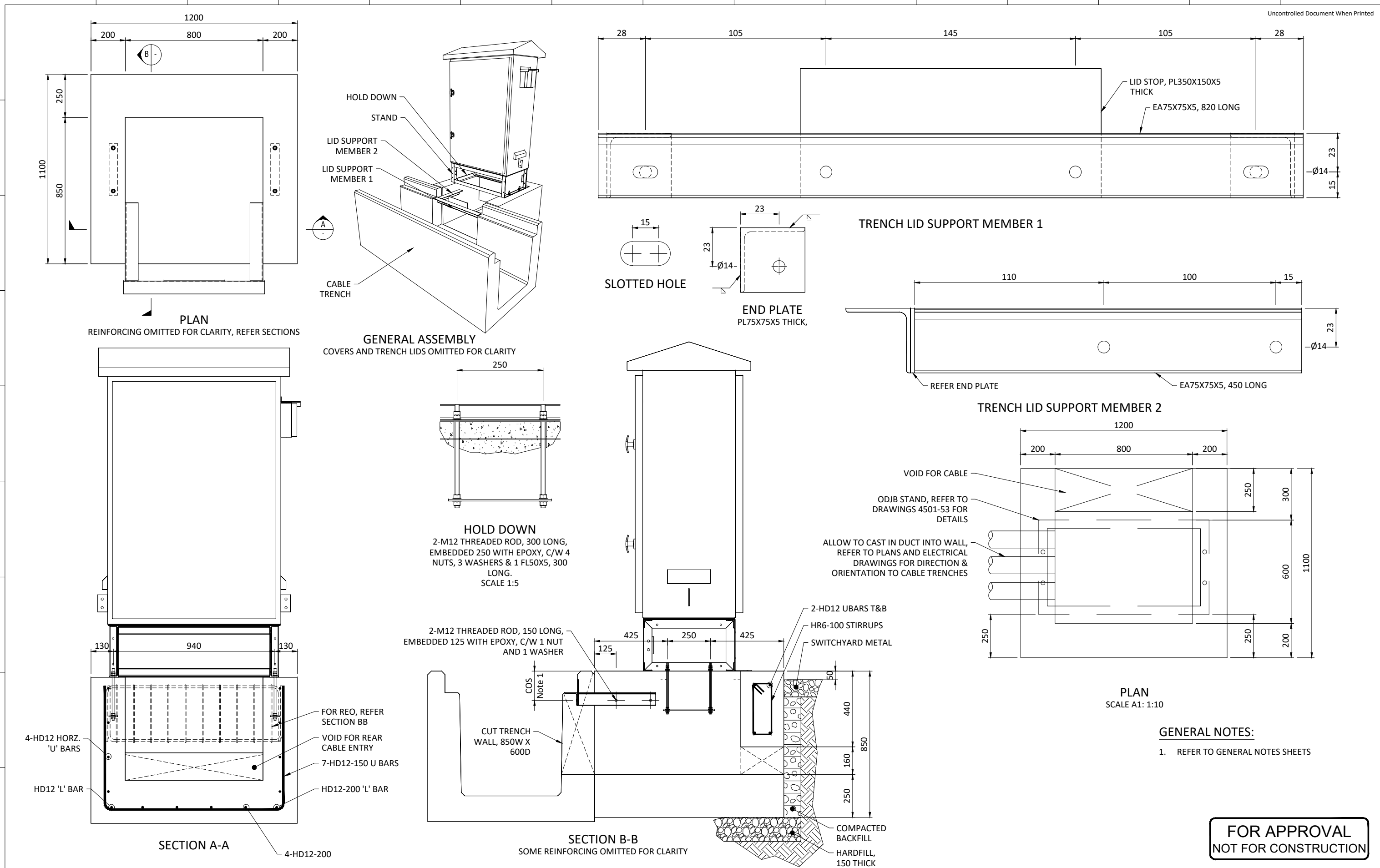
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Rev	Description	Designed		Drawn		Checked		Approved	
		By	Date	By	Date	By	Date	By	Date
1	ISSUED FOR APPROVAL	SP	JUL'25	NS	23.09.25	SP	23.09.25		

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Designed	SP	July'25	Project 022 - WIROA 110kV SUBSTATION <
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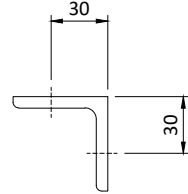
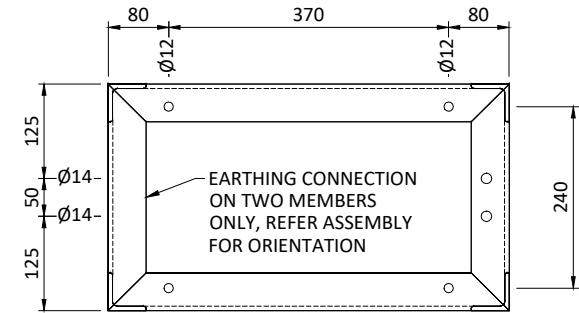
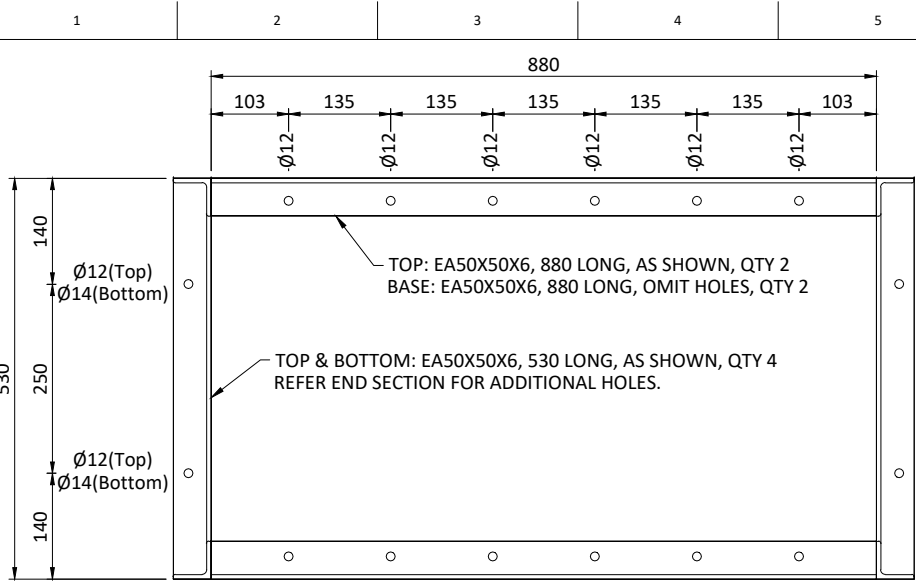
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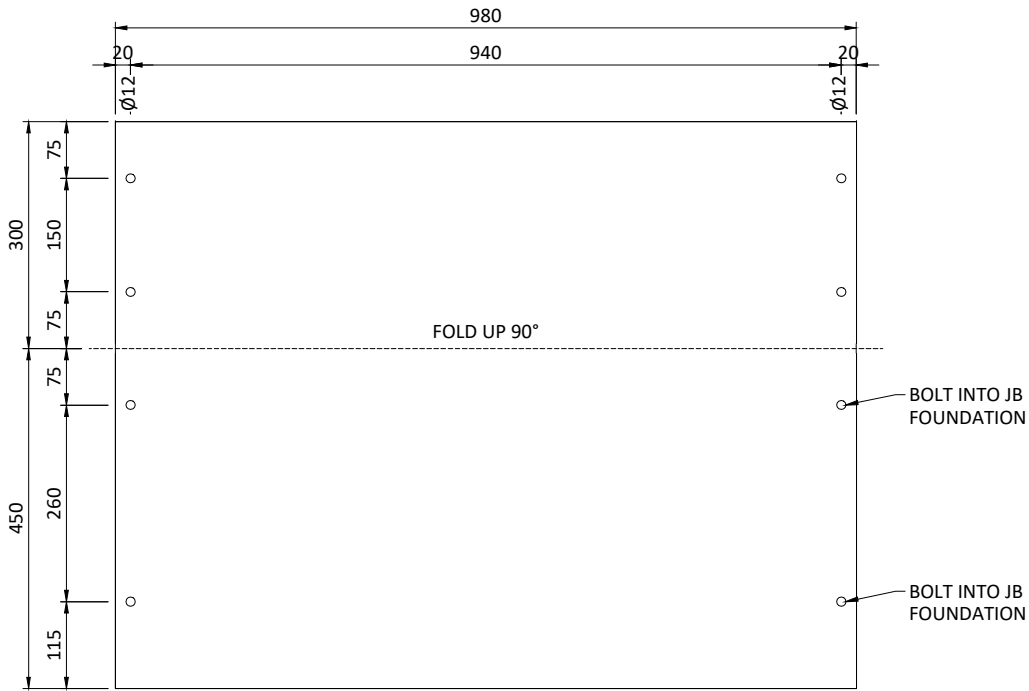
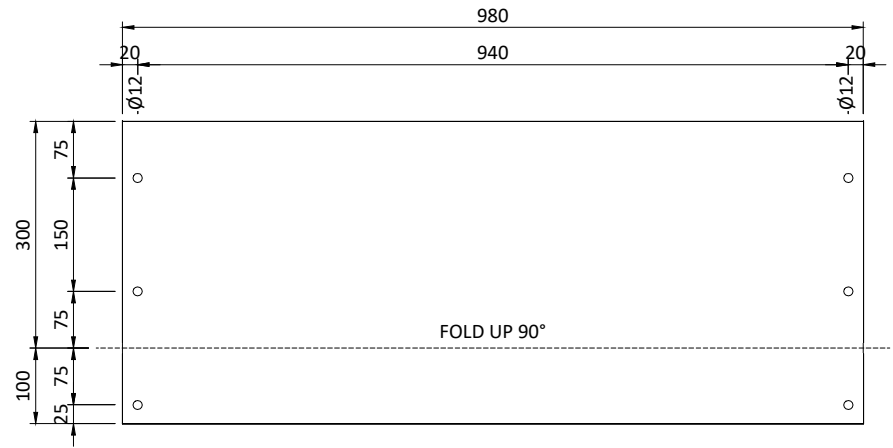
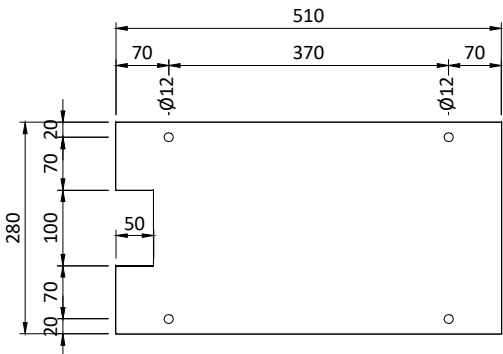
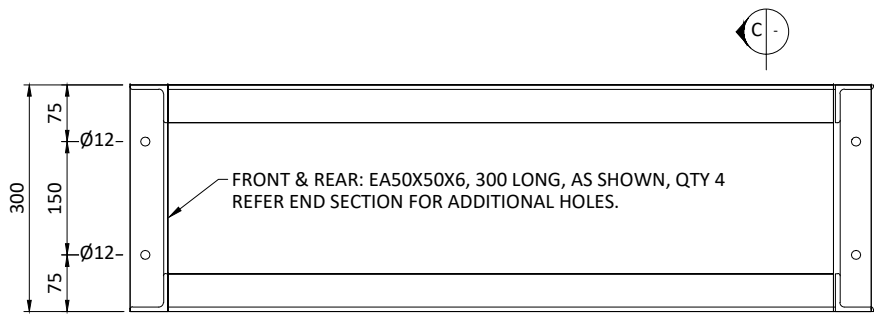
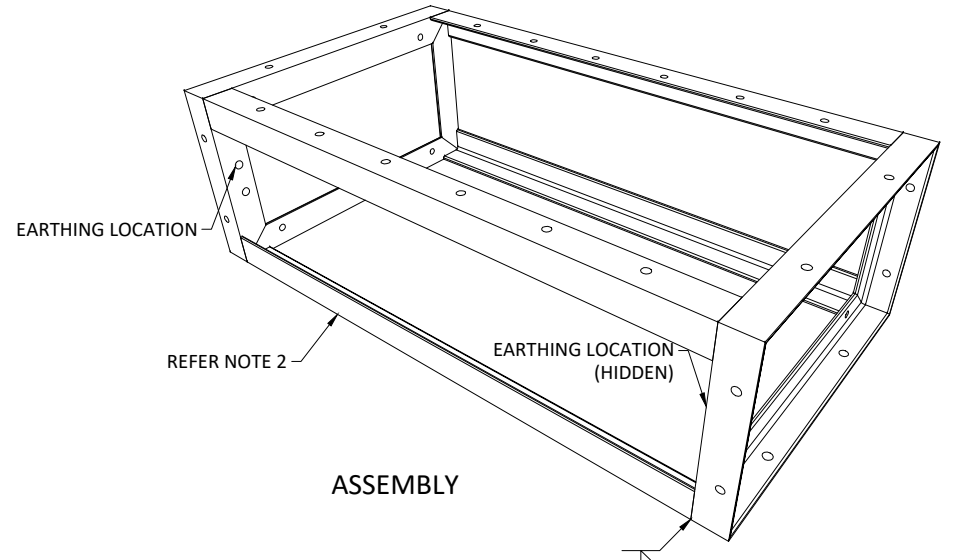
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Ph: 09 401 5440
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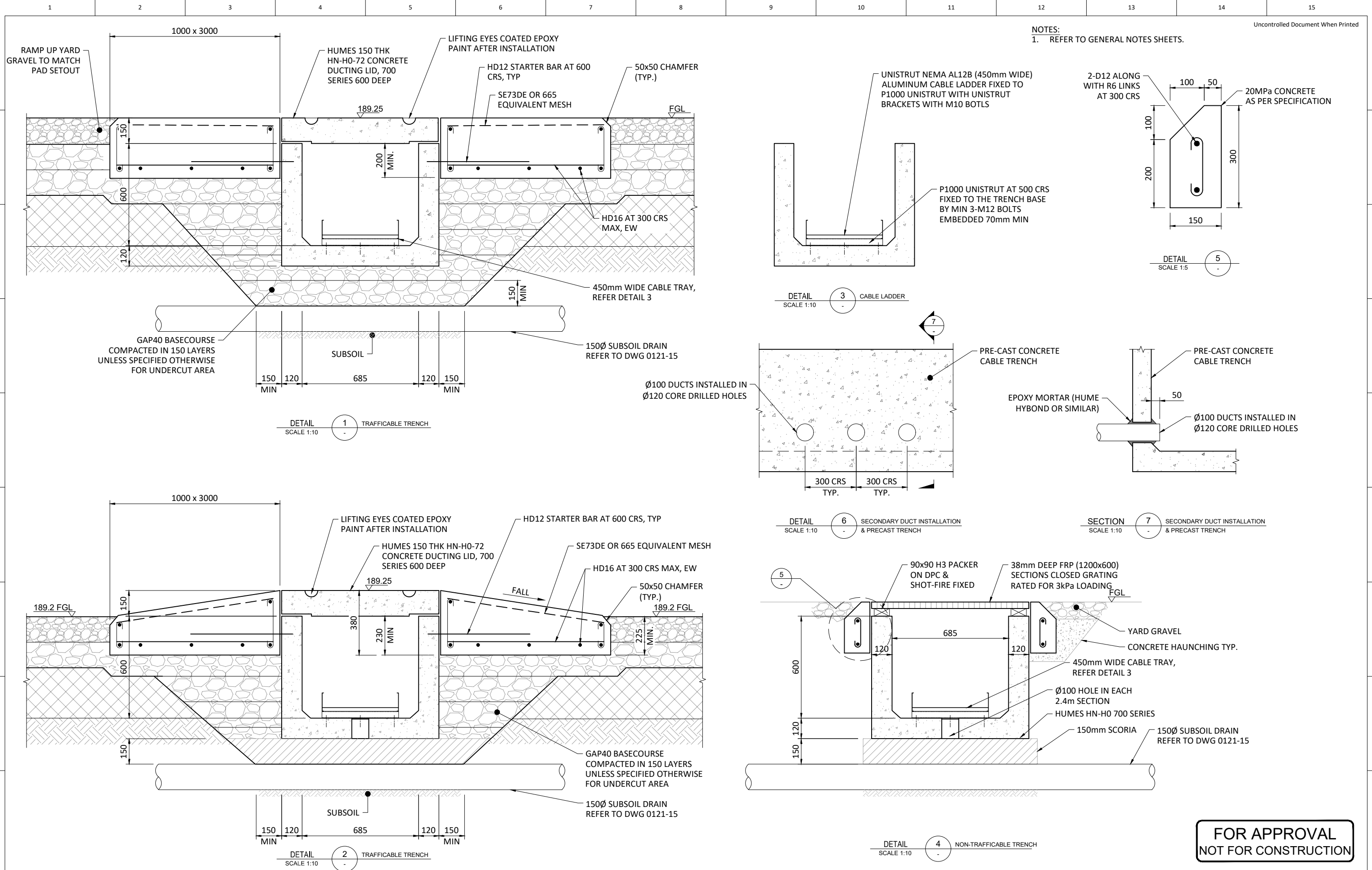
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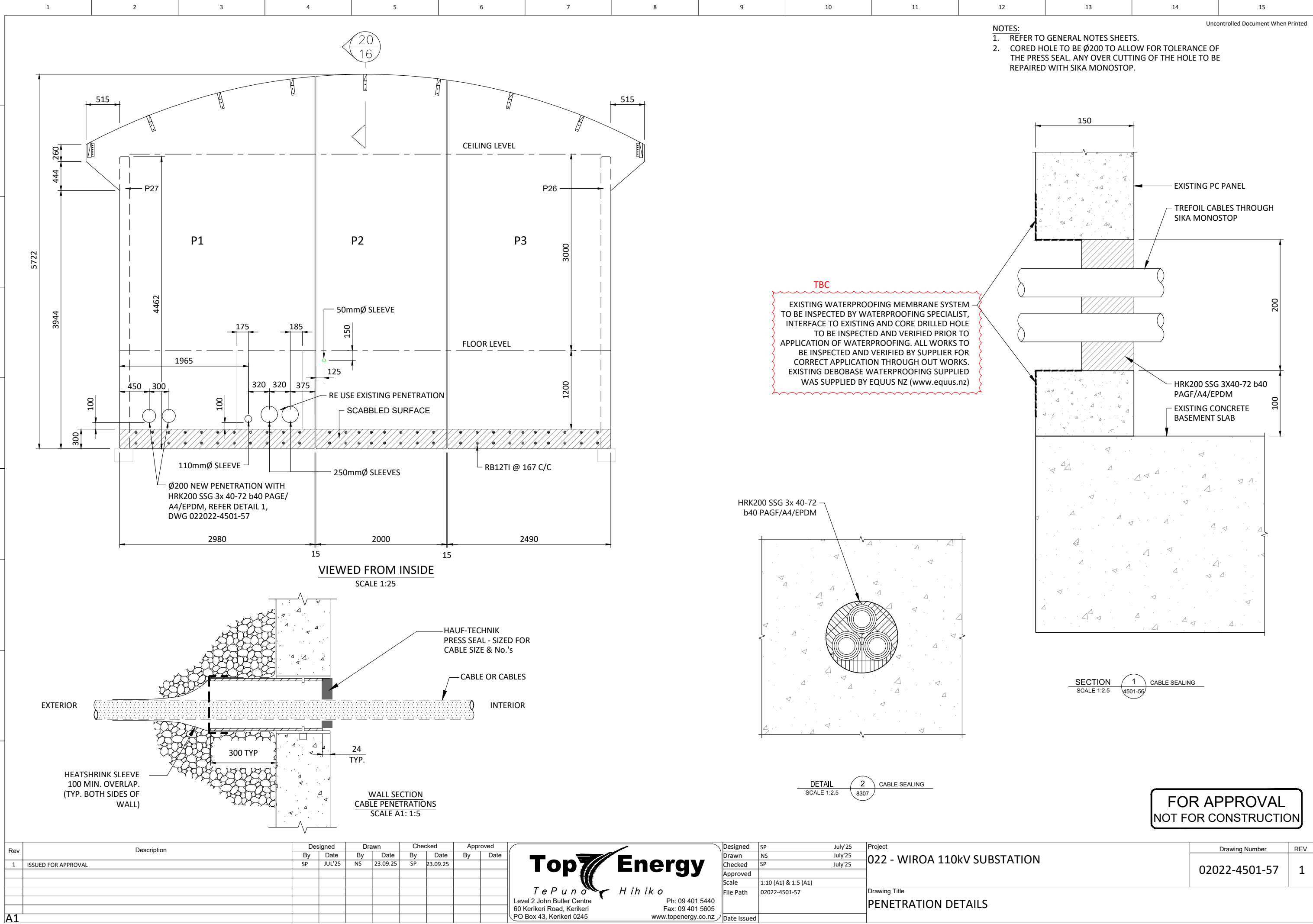
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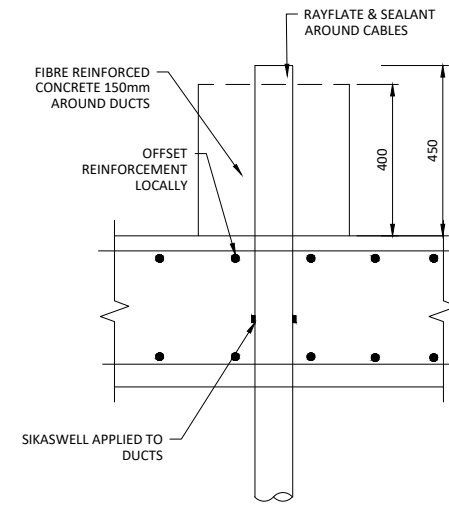


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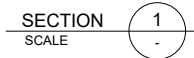
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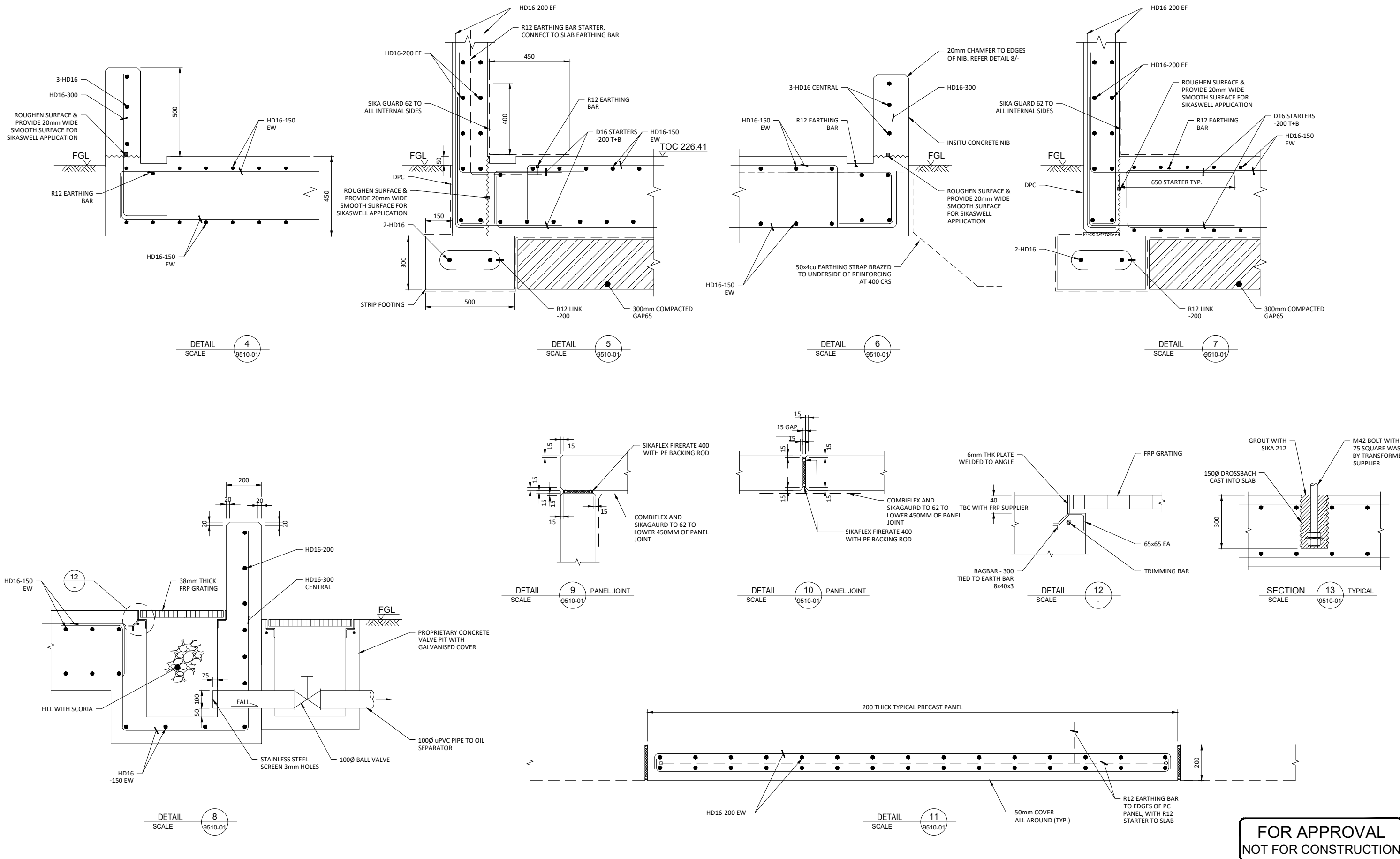
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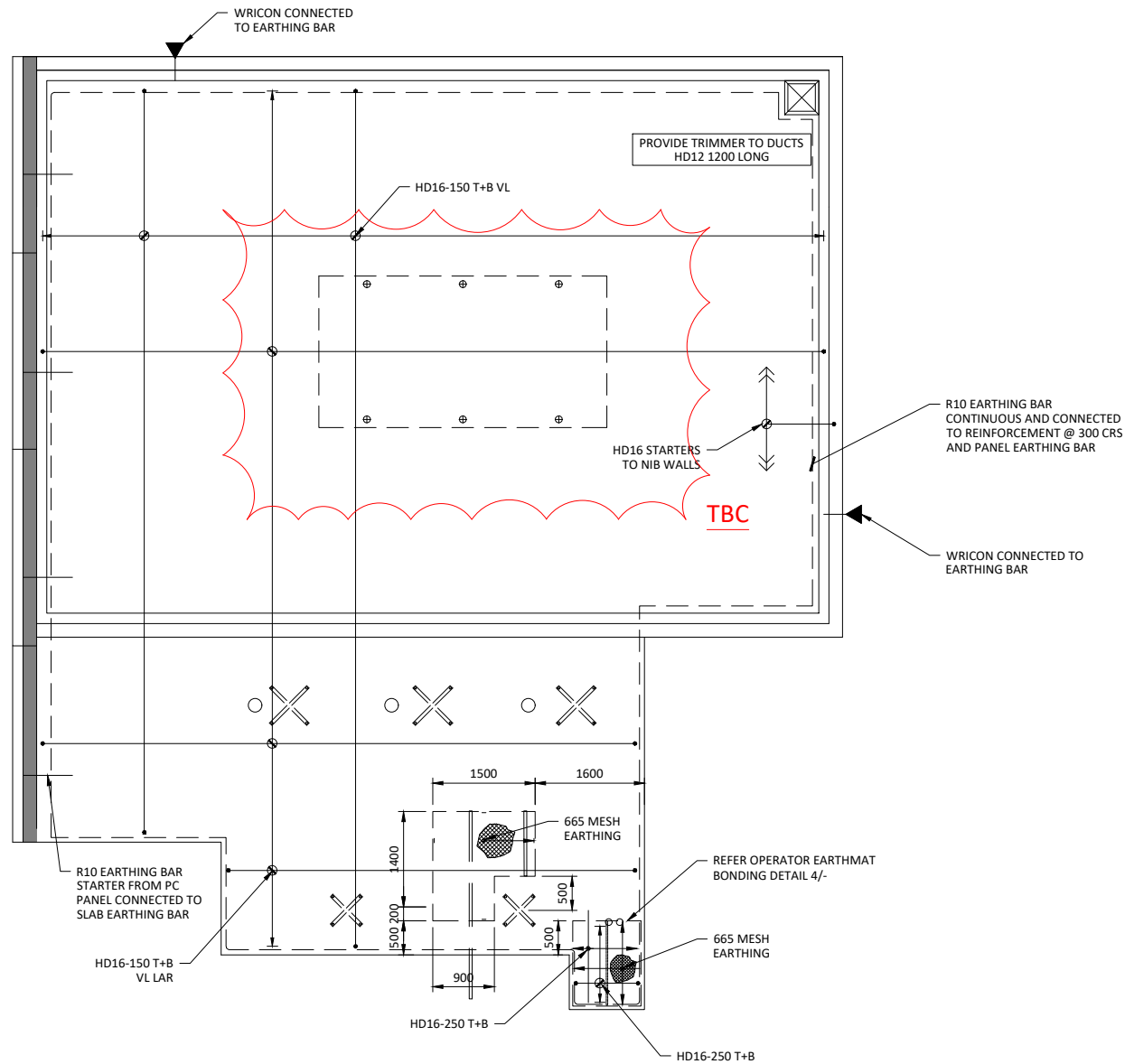
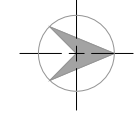
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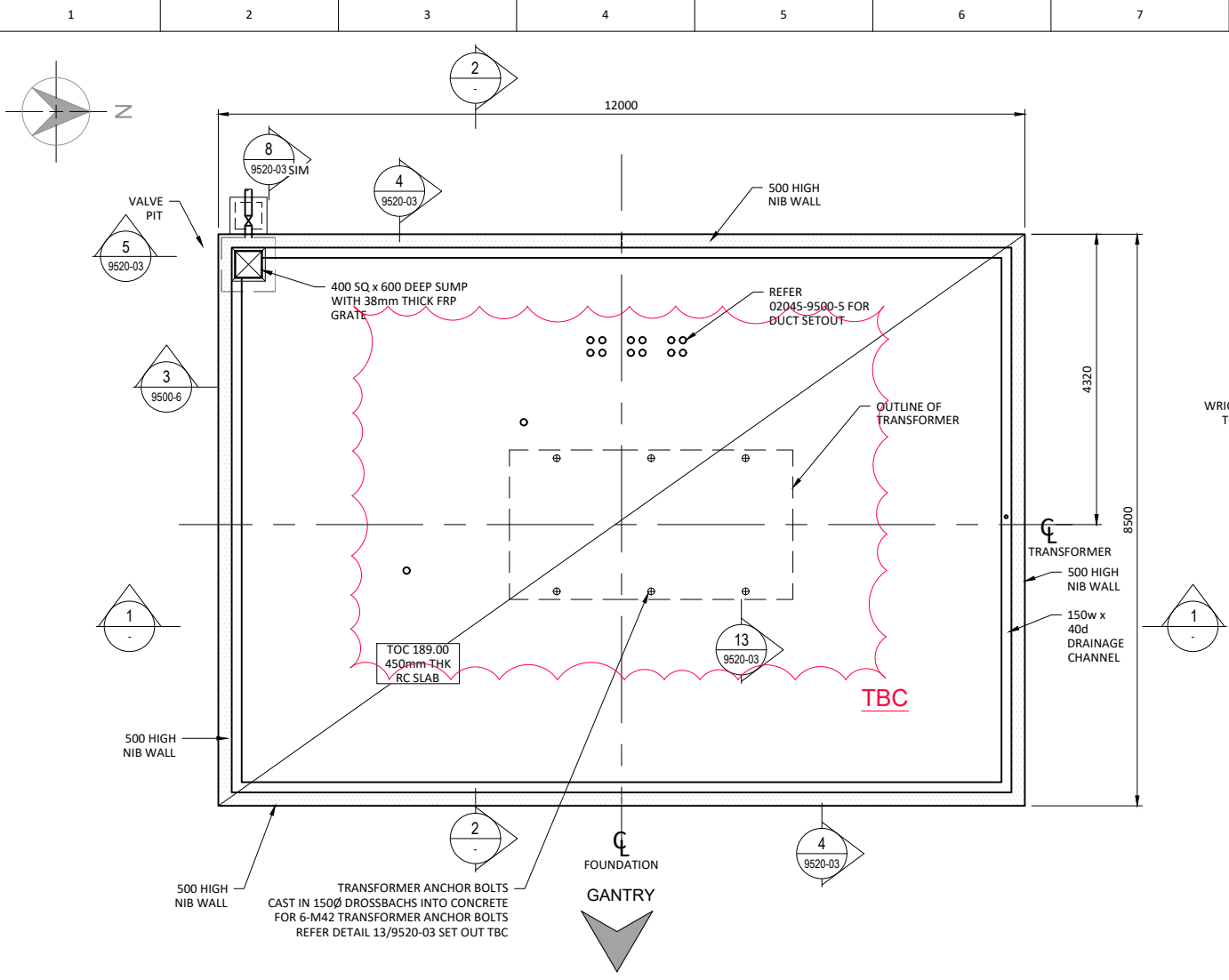
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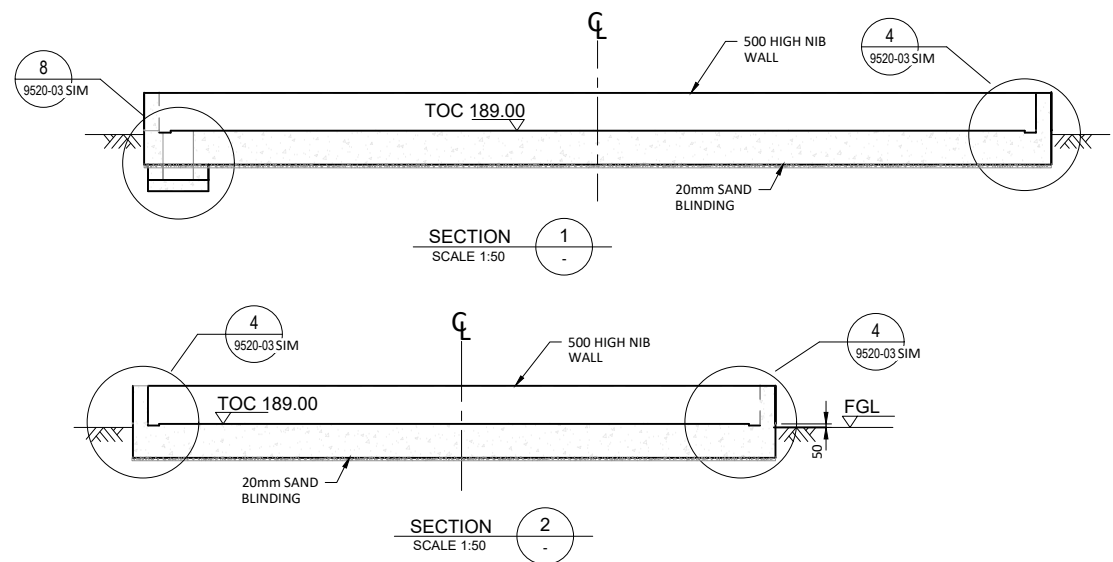
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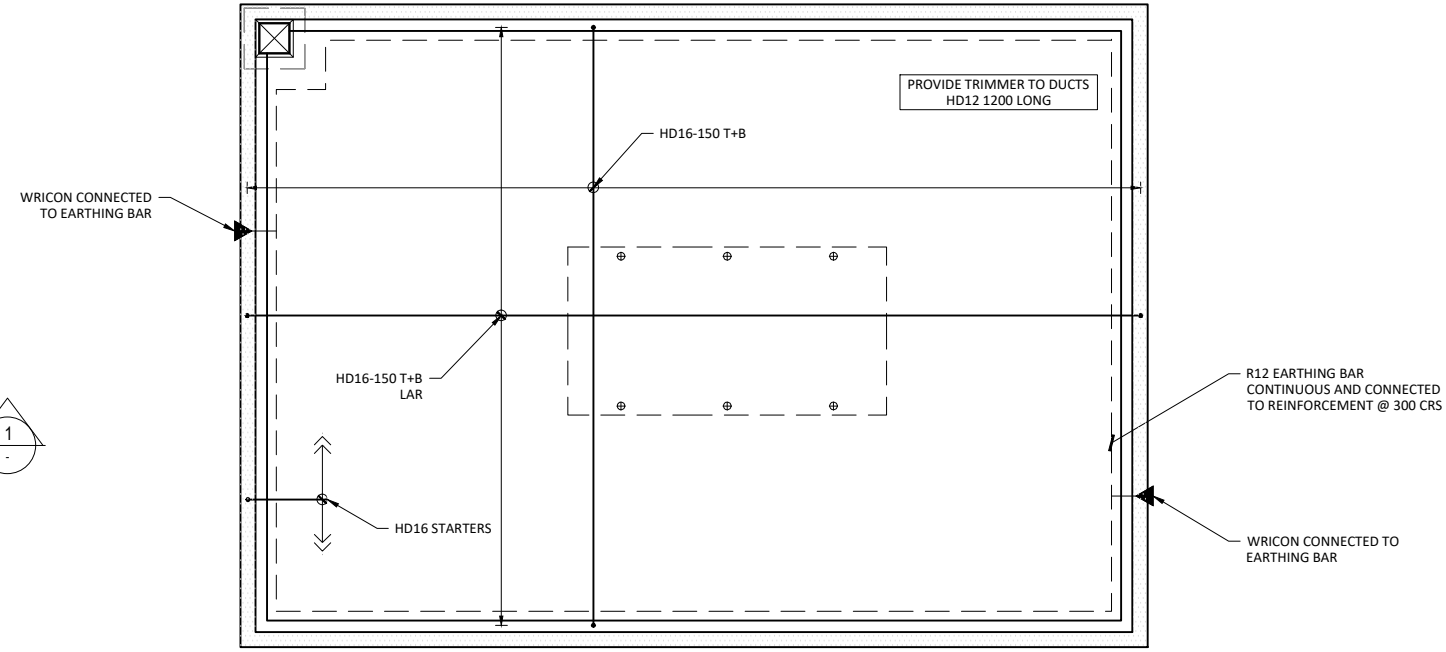
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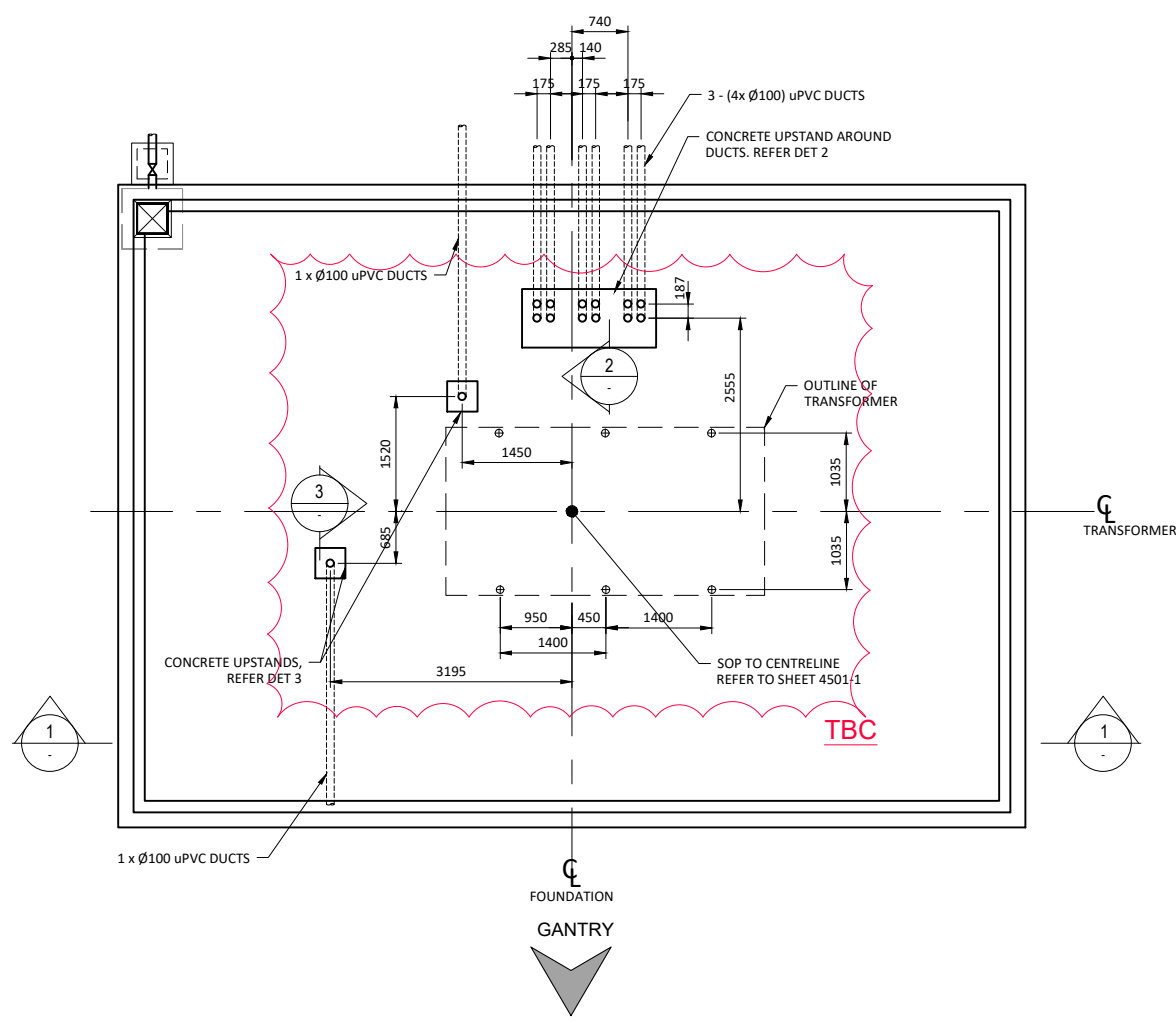
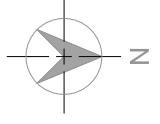
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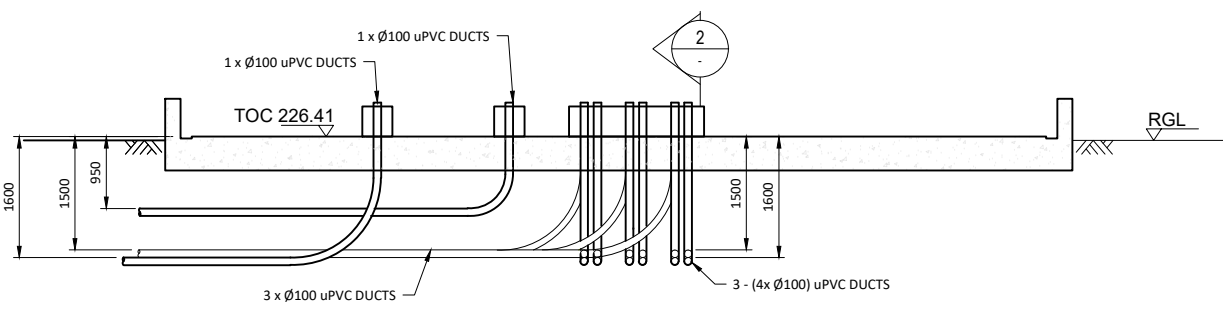
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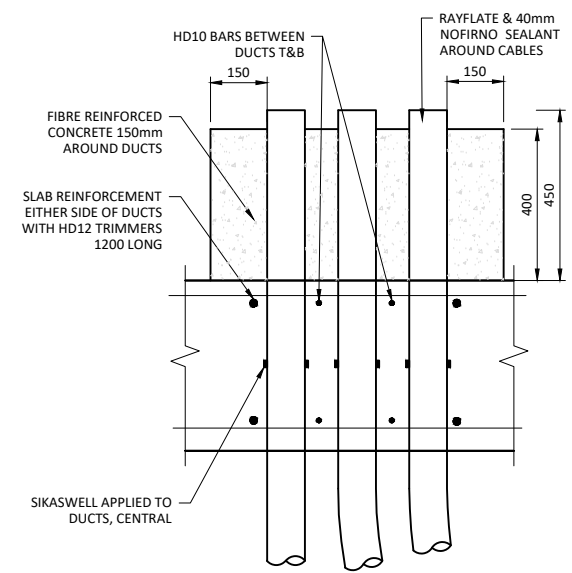
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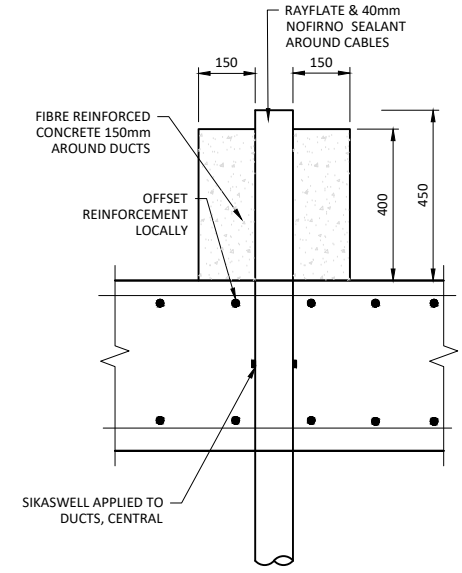
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Wiroa Substation Upgrades

498 Wiroa Road, Kerikeri

Outline Plan of Works Application Pursuant to S176A of the RMA
1991 and Land Use Consent under the NES for Contaminated Soils

1 December 2025

B&A
Urban & Environmental

Prepared for:
Top Energy Limited

B&A Reference:

26393

Status:

Final Revision 1

Date:

1 December 2025

Prepared by:



Moana Schoffa

Senior Planner, Barker & Associates Limited

Reviewed by:



David Badham

Partner, Barker & Associates Limited

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Appendices

Appendix 1	Record of Title and Interests
Appendix 2	Civil and Structural Design Drawings Package
Appendix 3	Preliminary & Detailed Site Investigation

1.0 Applicant and Property Details

To:	Far North District Council (' FNDC ')
Site Address:	498 Wiroa Road, Kerikeri
Applicant Name:	Top Energy Limited
Address for Service:	Barker & Associates Ltd PO Box 1986, Shortland Street, Auckland 1140 Attention: Moana Schoffa
Legal Description:	Lot 2 DP 461681 (refer to Record of Title as Appendix 1)
Site Area:	1.2152ha
Site Owner:	Top Energy Limited
District Plan:	Operative Far North District Plan (' ODP ')
ODP Zoning:	Rural Production Zone & Lakes and Rivers Zone
ODP Overlays & Controls:	Nil
Designations:	TE247 – Wiroa Substation – the operation, maintenance, and upgrading of an electricity substation, and related infrastructure, required for electricity supply and distribution.
Locality Diagram:	Refer to Figure 1
Brief Description of Proposal:	The proposal involves upgrading the Wiroa Substation which includes the construction of new transformer bays and outdoor yard bus equipment
Summary of Reasons for Consent:	Outline Plan: required pursuant to section 176A of the RMA. NES-CS: Resource Consent is required for a controlled activity pursuant to regulation 9(1).

2.0 Introduction

This report has been prepared to support an application for an Outline Plan of Works (**OPW**), as well as a resource consent application to obtain a land use consent under the Resource Management (National Environmental Standard for Assessing and Managing Contaminants in soil to Protect Human Health) Regulations 2011 (**NES-CS**) by Top Energy Limited (**Top Energy**), to provide for upgrade works to the existing Wiroa Substation.

Top Energy is an electricity distribution company, based in the Far North District. Top Energy is a requiring authority pursuant to section 167 of the Resource Management Act 1991 (**RMA**) and is specified as a requiring authority in the Designations chapter of the ODP.

This Report and its attachments are compiled and lodged in accordance with the requirements of section 88 and schedule 4, as well as section 176A of the RMA.

3.0 Site Context

3.1 Site Description

The substation site is located at 498 Wiroa Road, Kerikeri. It is located approximately 8km southwest of Kerikeri.

The site is legally described as Lot 2 DP 461681 (see **Figure 1** below), measuring approximately 1.2152ha in area.

The site itself is utilised as an electrical substation containing an existing switch room building. The balance of the site is paved or grassed.



Figure 1: Locality Plan

The surrounding environment is predominantly rural to rural-lifestyle in nature, with rural land located to the north, east, west and south.

4.0 Proposal

Top Energy owns and operates the electricity lines network within the Far North District, servicing an area of 6,822km² and serving over 32,000 customers. Top Energy's current electricity network has a total system length of 4,016km and includes seventeen substations that are subject to designations.

Top Energy are seeking to upgrade the existing Wiroa Substation to include a new 110kV switchyard which will comprise two new 80 MVA 110/33 kV transformers and yard equipment. Yard equipment will include current transformers, Voltage transformers, Disconnecting Circuit Breakers, high-level bus (conductor) support, and low-level bus support.

The substation upgrades are considered necessary to reinforce the northern network for Top Energy networks. The importance level of the structure and transformer bays are IL4 (Critical), and the design life is 50 years.

The scope of the work proposed is split into four stages, and includes the following:

- **Stage 1** – Yard extension civil works. These works will extend the switchyard platform to accommodate the required 110 kV equipment as well as upgrading site stormwater runoff and sediment controls. Stage 1 works are scheduled to commence and be completed early 2026;
- **Stage 2** – Switchyard civil works. These works will complete the switchyard surface, install equipment foundations, cable routes, earth grid, and permanent site security fencing. Stage 2 works are scheduled to commence mid-2026 and be completed early 2027;
- **Stage 3** – Transformer 1 (T1) electrical installation. These works will install all required supporting electrical equipment for T1 and Transformer 2 (T2), and includes the installation and commissioning of T1. Stage 3 works are scheduled to commence and be completed in 2027;
- **Stage 4** - T2 installation. These works will install and commission the second (T2) 110/33 kV transformer. Stage 4 works are expected to be completed in approximately 2035; and

The proposed earthworks volumes for Stages 1 and 2 will comprise approximately 1,855m³ of cut and 1,635m³ of fill over an area of 2,570m² for the civil works associated with the substation upgrades.

Figure 2 below shows the proposed site layout.

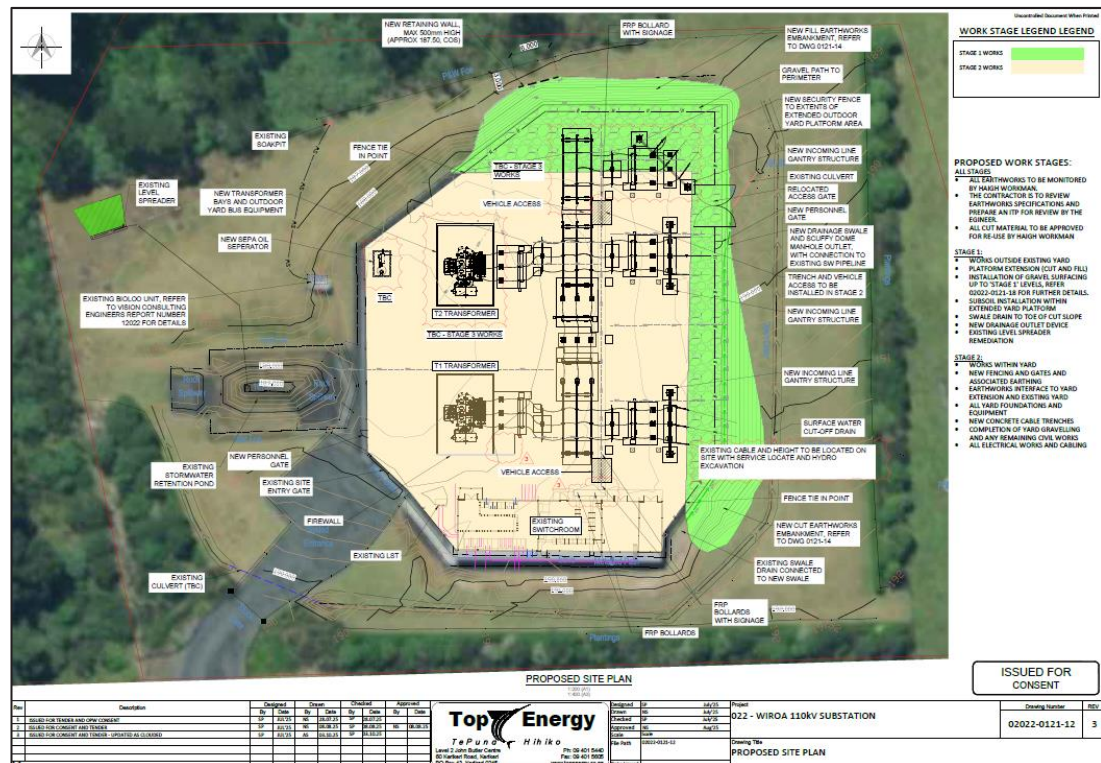


Figure 2: Proposed Site Layout

Further detail of each element above is provided in the Civil and Structural Design Drawings Package attached to **Appendix 2** of this Report.

5.0 Reasons for the Application

5.1 Activity A - Outline Plan

The Wiroa Substation is designated as TE-247 under the ODP, with its purpose being as follows:

“Wiroa Substation. The operation, maintenance, and upgrading of an electricity substation, and related infrastructure, required for electricity supply and distribution.”

The requirements for an OPW are set out in section 176A of the RMA. An outline plan of the public work to be constructed on designated land must be submitted by the requiring authority to territorial authority.¹

None of the exceptions in section 176A(2) are considered to apply as the work has not been otherwise approved under the Act, the details are were not included in the designation, and no request has been made for the outline plan requirement to be waived.

This Report and attached information are provided in accordance with the requirements set out in section 176A(3) for the OPW to show a range of details.

Within 20 working days after receiving the OPW, the territorial authority may request the requiring authority to make changes.²

¹ Section 176A(1) of the RMA.

² Section 176A(4) of the RMA.

The territorial authority may appeal to the Environment Court any decision by the requiring authority not to make changes so requested.³

5.2 Activity B - National Environmental Standards – Contaminated Soils

While the subject site is designated under the ODP, section 43D(3) of the RMA states that a national environmental standard prevails over a designation that requires an outline plan, if, when the standard is made –

- The designation exists; and
- No outline plan for the designation is completed.

The above applies to the current proposal and designation, therefore an assessment against the relevant requirements of the NES-CS is required regardless of the status of the site as a designated site in the ODP.

The NES-CS was gazetted on 13 October 2011 and took effect on 1 January 2012. The standards are applicable if the and in question, is, or has been, or is more likely than not to have been used for a hazardous activity or industry and the applicant proposes to subdivide or change the use of the land, or disturb the soil, or remove or replace a fuel storage system.

Substations and switchyards are included as a HAIL item B.4. and soil disturbance is required to facilitate the proposal. Accordingly, Haigh Workman were engaged to undertake an assessment of the site and have prepared a preliminary & detailed site investigation (PSI/DSI) provided as **Appendix 3** to this application.

Methodology

The methodology followed by Haigh Workman is in accordance with the Ministry for the Environment Contaminated Land Management Guidelines and included desktop review, site inspection, conceptual site modelling and soil sampling. The sampling was sent to Eurofins Laboratory for analysis, quality assurance and quality control procedures were followed.

Summary of Findings and Consent Requirements

The assessment of available information from the site walkover indicated that the following Hazardous Activities and Industries list activities have, or potentially have, occurred at the site:

- Persistent pesticide bulk storage or use associated with horticultural activities (HAIL cat. A.10); and
- Undocumented fill (HAIL Cat. L).

The soil sample investigation undertaken as part of the PSI/DSI confirms while all contaminants of concern concentrations were below applicable commercial / industrial human health criteria, metal concentrations were above background levels in all samples and total petroleum hydrocarbon concentrations were also above laboratory method detection limits in one of the soil samples.

³ Section 176A(5) of the RMA.

Subsequently, resource consent is required for a **controlled activity** under regulation 9(1) of the NES-CS to disturb soil because the proposed earthworks volumes exceed the permitted volumes (by approximately 360m³) under regulation 8(3) of the NES-CS.

Mitigation Measures Offered

The following mitigation measures and any necessary conditions of consent required to implement these measures are offered as part of Activity B – NES-CS Consent:

- Appropriate erosion and sediment control measures shall be constructed and maintained in accordance with the principles and practices contained within the Auckland Council document entitled “GD05: Erosion and Sediment Control Guide for Land Disturbing Activities in the Auckland Region” (GD05);
- Any proposed removal of material exceeding background level criteria will be disposed of at an appropriately licenced facility; and
- Any visual / olfactory evidence of contamination discovered during site works shall be segregated and analysed by a ‘Suitably Qualified Expert’ (SQEP) prior to disposal.

6.0 Activity A – Outline Plan

The following assessment relates to the Outline Plan of Works component of this Application.

6.1 Assessment against Section 176A of RMA

Pursuant to section 176A of the RMA, the OPW must show the following:

- a) The height, shape, and bulk of the public work, project, or work; and*
- b) The location on the site of the public work, project, or work; and*
- c) The likely finished contour of the site; and*
- d) The vehicular access, circulation, and the provision for parking; and*
- e) The landscaping proposed; and*
- f) Any other matters to avoid, remedy, or mitigate any adverse effects on the environment.*

6.2 Height, Shape, and Bulk of the Public Work, Project, or Work

The drawings package prepared by Ergo Consulting, provided as **Appendix 2** includes site plans and elevations with information addressing information required by clause a).

6.3 The Location of the Site of the Public Work, Project, or Work

The drawings package prepared by Ergo Consulting, provided as **Appendix 2** includes site plans and elevations with information addressing information required by clause b).

6.4 The likely Finished Contour of the Site

Approximately 3490m³ of earthworks (cut & fill) is required over 2,570m² to facilitate the substation upgrades. The earthworks will not result in any changes to the finished ground contour of the site.

6.5 The Vehicular Access, Circulation, and the Provision for Parking

The proposal will not result in any significant changes to vehicle access and circulation within the site, and there will be ample room for parking.

6.6 The Proposed Landscaping

Top Energy are not proposing any landscaping on the subject site. Furthermore, any landscaping within the site could result in operation and maintenance issues.

6.7 Any other Matters to Avoid, Remedy, or Mitigate any Adverse Effects on the Environment

The proposed works are considered minor in scale involving additions and alterations to an existing substation located within Designation TE247. The proposed additions and alterations will result in a new 110kV switchyard which will comprise two new 80 MVA 110/33 kV transformers and yard equipment. These substation upgrades are required to modernise the substation and ensure its ongoing efficient and safe operation.

As such, it is considered that any resultant effects on the environment will be negligible.

7.0 Activity B – NES Contaminated Soil

The following assessment relates to Activity B being the land use component of the Application seeking resource consent under the NES-CS.

7.1 Public Notification Assessment (Sections 95A, 95C and 95D)

7.1.1 Assessment of Steps 1 to 4 (Sections 95A)

Section 95A specifies the steps the council is to follow to determine whether an application is to be publicly notified. These are addressed in statutory order below.

7.1.1.1 Step 1: Mandatory public notification is required in certain circumstances

Step 1 requires public notification where this is requested by the applicant; or the application is made jointly with an application to exchange of recreation reserved land under section 15AA of the Reserves Act 1977.

The above does not apply to the proposal.

7.1.1.2 Step 2: If not required by step 1, public notification precluded in certain circumstances

Step 2 describes that public notification is precluded where all applicable rules and national environmental standards preclude public notification; or where the application is for a controlled activity; or a restricted discretionary, discretionary or non-complying boundary activity.

In this case, the proposal is a controlled activity or a boundary activity. Therefore, public notification is precluded.

7.1.1.3 Step 3: If not required by step 2, public notification required in certain circumstances

Step 3 describes that where public notification is not precluded by step 2, it is required if the applicable rules or national environmental standards require public notification, or if the activity is likely to have adverse effects on the environment that are more than minor.

As noted under step 2 above, public notification is precluded, and an assessment under section 95A is not required.

7.1.1.4 Step 4: Public notification in special circumstances

If an application is not required to be publicly notified as a result of any of the previous steps, then the council is required to determine whether special circumstances exist that warrant it being publicly notified.

Special circumstances are those that are:

- Exceptional or unusual, but something less than extraordinary; or
- Outside of the common run of applications of this nature; or
- Circumstances which make notification desirable, notwithstanding the conclusion that the adverse effects will be no more than minor.

The proposed land use is provided for as a controlled activity under the NES-CS and this is based on the conclusions provided by Haigh Workman within their PSI/DSI.

It is considered that there is nothing noteworthy about the proposal. It is therefore considered that the application cannot be described as being out of the ordinary or giving rise to special circumstances.

7.1.2 Section 95D Statutory Matters

In determining whether to publicly notify an application, section 95D specifies a council must decide whether an activity will have, or is likely to have, adverse effects on the environment that are more than minor.

In determining whether adverse effects are more than minor:

- Adverse effects on persons who own or occupy the land within which the activity will occur, or any land adjacent to that land, must be disregarded.

The land to be excluded from the assessment is listed in section 7.5 below.

- Adverse effects permitted by a rule in a plan or national environmental standard (the 'permitted baseline') may be disregarded.

In this case, there is no relevant permitted baseline as the proposed soil disturbance volumes exceed the permitted volumes (25m³ per 500m²) under regulation 8(3) of the NES-CS.

- As a controlled activity, only those matters within the council's control can be considered.

The matters of control are listed in section **Error! Reference source not found.** below.

- Trade competition must be disregarded.

This is not considered to be a relevant matter in this case.

- The adverse effects on those persons who have provided their written approval must be disregarded.

No persons have provided their written approval for this proposal.

The sections below set out an assessment in accordance with section 95D, including identification of adjacent properties, matters of control, and an assessment of adverse effects.

7.2 Public Notification Conclusion

Having undertaken the section 95A public notification tests, the following conclusions are reached:

- Under step 1, public notification is not mandatory;
- Under step 2, public notification is precluded;
- Under step 3, public notification is not required as public notification is precluded under Step 2, and regardless it is considered that the activity will result in less than minor adverse effects; and
- Under step 4, there are no special circumstances.

Therefore, based on the conclusions reached under steps 3 and 4, it is recommended that this application be processed without public notification.

7.3 Limited Notification Assessment (Sections 95B, 95E to 95G)

7.3.1 Assessment of Steps 1 to 4 (Sections 95B)

If the application is not publicly notified under section 95A, the council must follow the steps set out in section 95B to determine whether to limited notify the application. These steps are addressed in the statutory order below.

7.3.2 Step 1: Certain affected protected customary rights groups must be notified

Step 1 requires limited notification where there are any affected protected customary rights groups or customary marine title groups; or affected persons under a statutory acknowledgement

affecting the land (being on land, or adjacent to land, that is subject to a statutory acknowledgement area).

The above does not apply to this proposal.

7.3.3 Step 2: If not required by step 1, limited notification precluded in certain circumstances

Step 2 describes that limited notification is precluded where all applicable rules and national environmental standards preclude limited notification; or the application is for a controlled activity (other than the subdivision of land).

In this case, the proposal is a controlled activity (other than the subdivision of land). Therefore, limited notification is precluded.

7.3.4 Step 3: If not precluded by step 2, certain other affected persons must be notified

Step 3 requires that, where limited notification is not precluded under step 2 above, a determination must be made as to whether any of the following persons are affected persons:

- In the case of a boundary activity, an owner of an allotment with an infringed boundary;
- In the case of any other activity, a person affected in accordance with s95E.

The application is not for a boundary activity, and therefore an assessment in accordance with section 95E is required and is set out below.

Overall, it is considered that any adverse effects on persons will be less than minor, and accordingly, that no persons are adversely affected.

7.3.5 Step 4: Further notification in special circumstances

In addition to the findings of the previous steps, the council is also required to determine whether special circumstances exist in relation to the application that warrant notification of the application to any other persons not already determined as eligible for limited notification.

In this instance, having regard to the assessment in section 7.1.1.4 above, it is considered that special circumstances do not apply.

7.4 Section 95E Statutory Matters

If the application is not publicly notified, a council must decide if there are any affected persons and give limited notification to those persons. A person is affected if the effects of the activity on that person are minor or more than minor (but not less than minor).

In deciding who is an affected person under section 95E:

- Adverse effects permitted by a rule in a plan or national environmental standard (the 'permitted baseline') may be disregarded;
- Only those effects that relate to a matter of control or discretion can be considered (in the case of controlled or restricted discretionary activities); and

- The adverse effects on those persons who have provided their written approval must be disregarded.

These matters were addressed in section 7.1.2 above, and no written approvals have been obtained.

Having regard to the above provisions, an assessment is provided below.

7.5 Assessment of Effects on Persons

The relevant adjacent properties are shown in **Figure X** below, and include:

- Lot 1-18 DP 202798, Kerikeri Irrigation Company Limited;
- 471 Wiroa Road, Kerikeri, Wiroa Property Limited; and
- Lot 3 DP 515337, Kariene Nelda Gardiner, David Alexander Gillett, John Raymond Gillett, Michael James Gillett, Freeman Trustee 2024 Limited.

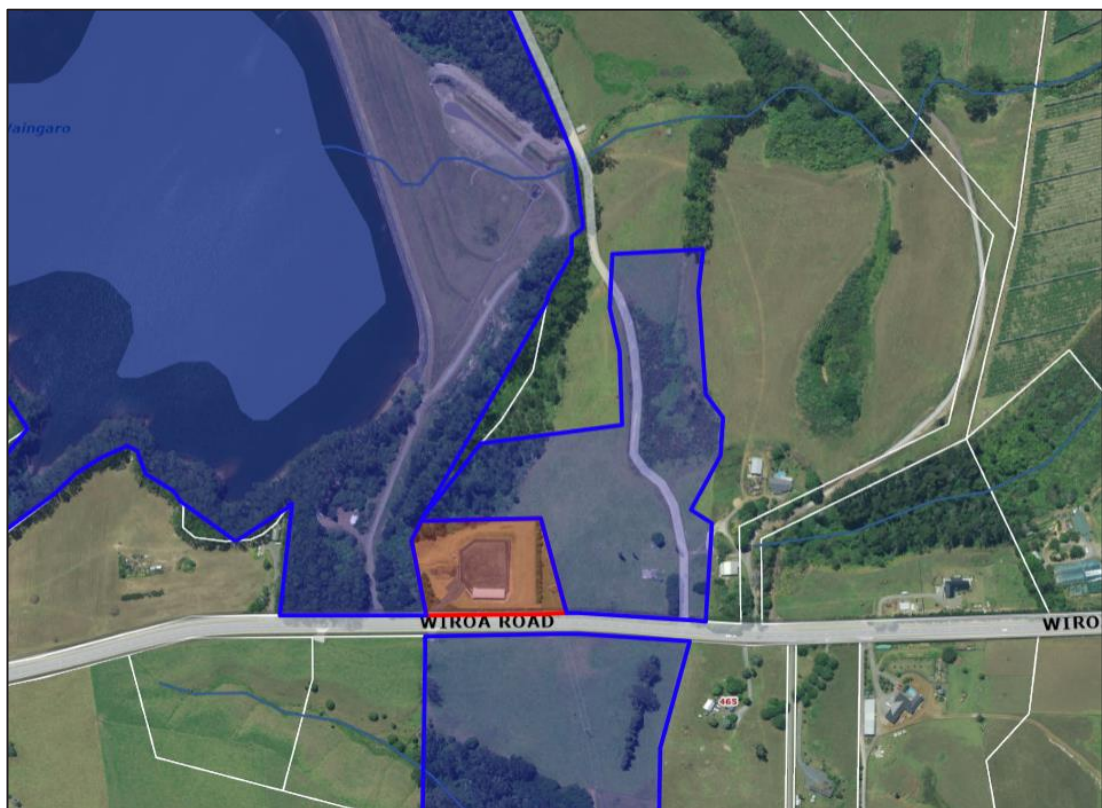


Figure 3: Adjacent Properties in relation to the subject site outlined in red. Source: Emap

7.5.1 Matters of Control

Under section 104A of the Act, as a controlled activity, the consent authority must consider only those matters over which it has reserved its control in its plan. These matters are those listed in Regulation 9(2) and are generally related to:

- The adequacy of the detailed site investigation, including, site sampling, laboratory analysis and risk assessment;
- How the activity is managed, monitored and reported on;

- Transport and disposal of materials; and
- Timing and nature of review conditions and duration of consent.

7.5.2 Assessment of Effects

The following section sets out an assessment of effects of the proposal on the localised environment which it is considered is limited to effects on ecological values and human health. Other matters of control specified in Regulation (9) are addressed throughout the application.

7.5.2.1 Soil Contamination

In summary, it can be concluded that any risk to future site users and earthworks contractors is negligible, given the Conceptual Site Model's assessment of 'incomplete pathway' due to contaminant concentrations being below applicable Human Health criteria.

The PSI/DSI further confirms that there are no significant contaminated land related constraints on development of the land for commercial / industrial purposes, and makes the following recommendations:

- Erosion and sediment control measures will be appropriate for managing soil disturbance activities;
- If removal of material exceeding background level criteria is proposed, it shall be disposed of at an appropriately licenced facility;
- The retention and re-use of any material exceeding background level criteria on-site may be a sustainable option; and
- Any visual / olfactory evidence of contamination discovered during site works shall be segregated and analysed by a SQEP prior to disposal. Should visual and / or olfactory evidence of gross contamination be identified during excavation works, works should cease in that area, and a SQEP familiar with the site shall attend to inspect the impacted soils. If required, the SQEP will undertake sampling to confirm the level and scope of contamination. The area should also be physically isolated using a high visibility fence if practicable.

7.5.3 Summary of Effects

Overall, it is considered that any adverse effects on the environment relating to this proposal will be less than minor.

7.6 Limited Notification Conclusion

Having undertaken the section 95B limited notification tests, the following conclusions are reached:

- Under step 1, limited notification is not mandatory;
- Under step 2, limited notification is not precluded;
- Under step 3, limited notification is not required as it is considered that the activity will not result in any adversely affected persons; and
- Under step 4, there are no special circumstances.

Therefore, it is recommended that this application be processed without limited notification.

7.7 Consideration of Applications (Section 104)

7.7.1 Statutory Matters

Subject to Part 2 of the Act, when considering an application for resource consent and any submissions received, a council must, in accordance with section 104(1) of the Act have regard to:

- Any actual and potential effects on the environment of allowing the activity;
- Any relevant provisions of a national environmental standard, other regulations, national policy statement, a New Zealand coastal policy statement, a regional policy statement or proposed regional policy statement; a plan or proposed plan; and
- Any other matter a council considers relevant and reasonably necessary to determine the application.

As a controlled activity, section 104A of the Act states that a council:

- (a) must grant the resource consent, unless it has insufficient information to determine whether or not the activity is a controlled activity; and
- (b) may impose conditions on the consent under section 108 only for those matters over which it has reserved its control in its plan.

7.8 Effects on the Environment (Section 104(1)(A))

Having regard to the actual and potential effects on the environment of the activity resulting from the proposal, it was concluded in the assessment above that any wider adverse effects relating to the proposal will be less than minor and that no persons would be adversely affected by the proposal.

Further, it is considered that the proposal will also result in positive effects in that the proposal will assist in facilitating a safe and resilient electricity supply for the district and region.

Overall, it is considered that the proposal will have positive effects, and any actual and potential adverse effects on the environment of allowing the activity are less than minor.

8.0 District Plan and Statutory Documents (Section 104(1)(B))

8.1 Objectives and Policies of the Regional Policy Statement for Northland

The Northland Regional Policy Statement (**RPS**) covers the management of natural and physical resources across the Northland Region. The provisions within the RPS give guidance at a higher planning level in terms of the significant regional issues. As such it does not contain specific rules that trigger the requirement for consent but rather give guidance to consent applications and the development of District Plans on a regional level.

Northpower substations and lines are defined as Regionally Significant Infrastructure in Appendix 3 of the RPS. The RPS encourages the supply of energy particularly via:

- Objective 3.9 Security of Energy
- Policy 5.3.1 Identifying Regionally Significant Infrastructure

- Policy 5.3.2 Benefits of Regionally Significant Infrastructure
- Policy 5.3.3 Managing Adverse Effects Arising from Regionally Significant Infrastructure.

It is considered that the proposal is consistent with the direction of the RPS with respect to Regionally Significant Infrastructure and achieves a security of energy.

The RPS does not have policy directly related soil contamination, rather focuses upon the risk of contamination to fresh water. It is considered that the proposal subject to compliance with recommendations of the PSI/DSI will be consistent with the provisions of the RPS.

8.2 Summary

It is considered that the proposal is generally in accordance with the objectives and policies of the RPS. The provisions of the Operative District Plan and Proposed District Plan are not relevant given the designation that applies for the substation site.

9.0 Part 2 Matters

While it is not necessary to take recourse to Part 2 given that it has already been incorporated into the ODP, we do so for completeness.

Section 5 of Part 2 identifies the purpose of the RMA as being the sustainable management of natural and physical resources. This means managing the use, development and protection of natural and physical resources in a way that enables people and communities to provide for their social, cultural and economic well-being and health and safety while sustaining those resources for future generations, protecting the life supporting capacity of ecosystems, and avoiding, remedying or mitigating adverse effects on the environment.

Section 6 of the Act sets out a number of matters of national importance including (but not limited to) the protection of outstanding natural features and landscapes and historic heritage from inappropriate subdivision, use and development.

Section 7 identifies a number of “other matters” to be given particular regard by Council and includes (but is not limited to) Kaitiakitanga, the efficient use of natural and physical resources, the maintenance and enhancement of amenity values, and maintenance and enhancement of the quality of the environment.

Section 8 requires Council to take into account the principles of the Treaty of Waitangi.

Overall, as the effects of the proposal are considered to be less than minor, and the proposal accords with the relevant ODP objectives and policies, it is considered that the proposal will not offend against the general resource management principles set out in Part 2 of the Act.

10.0 Other Matters (Section 104(1)(C))

10.1 Record of Title Interests

The Record of Title is included as **Appendix 1**. There are no interests of relevance to this proposal.

11.0 Conclusion

11.1 Activity A – Outline Plan of Works

Overall, it is considered that pursuant to section 176A of the RMA, the proposal is consistent with the purpose of the designation and can subsequently be approved by the territorial authority.

11.2 Activity B – NES – Contaminated Soils

The proposal involves the disturbance of soil within land identified as contaminated pursuant to regulation 9(1) of the NES-CS.

Based on the above, it is considered that:

- Public notification is precluded;
- Limited notification is not required as no persons at adjacent properties are considered to be adversely affected by the proposal when taking into account the permitted baseline for development and the matters of control;
- Any adverse effects are considered to be less than minor, and acceptable when considering the positive effects of the proposal which includes the provision of electricity to the Far North District;
- The proposal accords with the relevant RPS objectives and policies;
- The proposal meets the relevant NES-CS matters of control; and
- The proposal is considered to be consistent with Part 2 of the RMA.

It is therefore concluded that the proposal satisfies all matters the consent authority is required to assess, and that it can be granted on a non-notified basis.