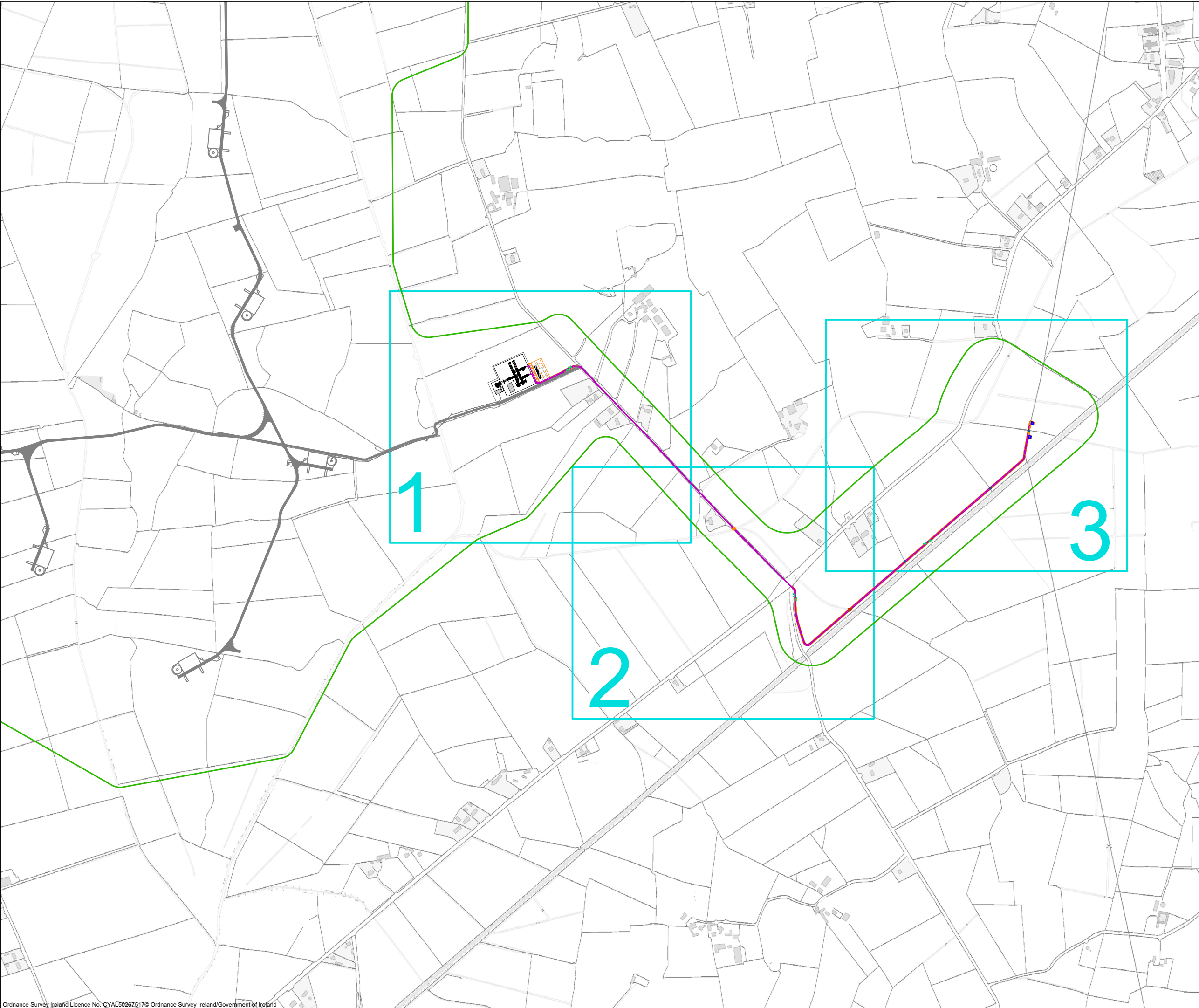




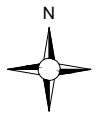
APPENDIX 4-5

**PROPOSED GRID
CONNECTION
INFRASTRUCTURE**



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 7. Exact location of cable/joint bay in the road curtilage to be subject to ESB specifications and agreement with Westmeath County Council.

- Drawing Legend**
- EIAR Site Boundary
 - Underground Electrical Cabling Route
 - Joint Bay
 - EPA watercourse, Clear span
 - HDD Crossing
 - ◆ Culvert Crossing
 - ▭ Cabling Construction Track
 - S37 Infrastructure



PROJECT TITLE:
Borrisbeg Renewable Energy Development

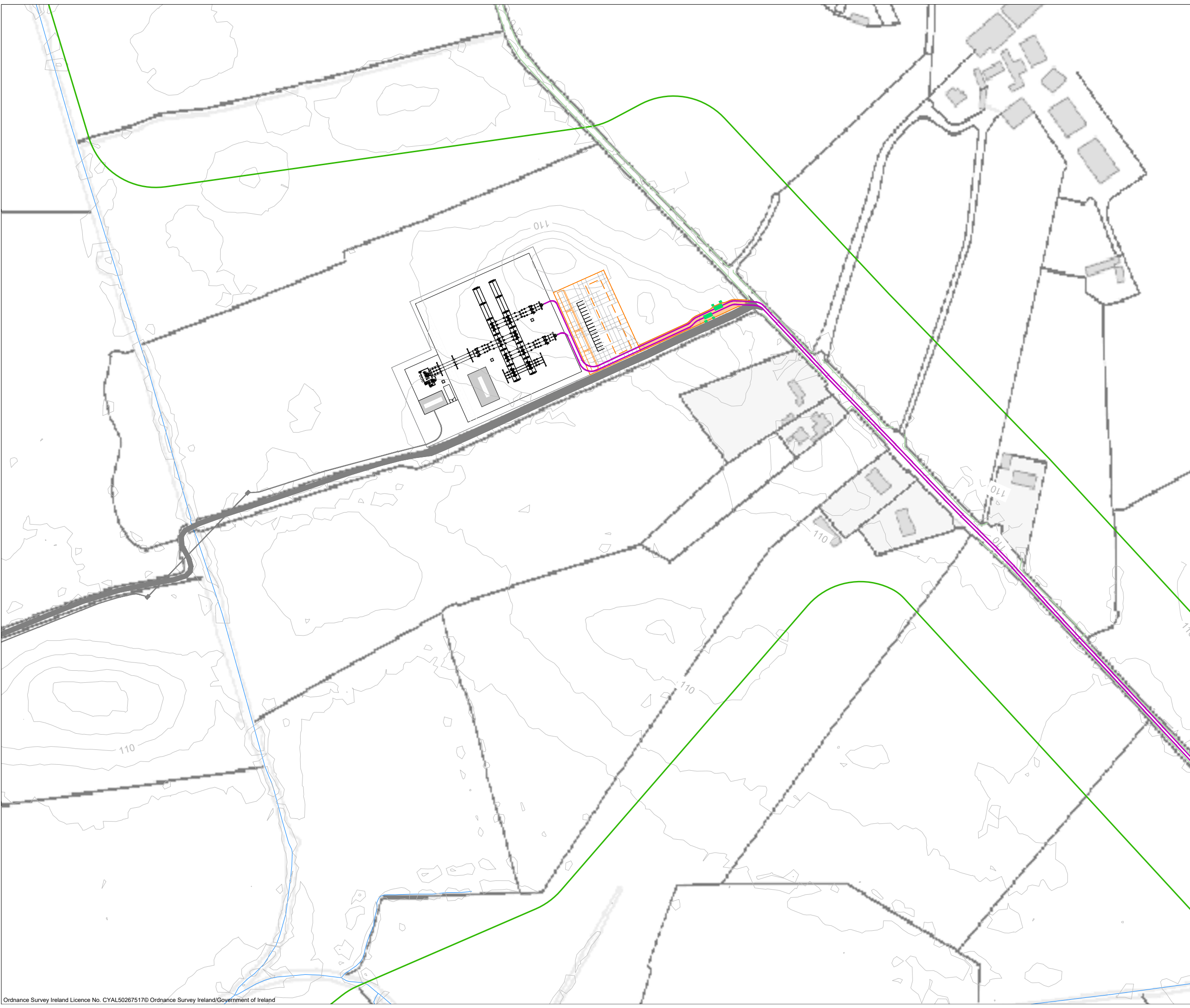
DRAWING TITLE:
**Site Layout Map Key
Plan (1:2,500)**

PROJECT No.:	DRAWING No.:	SCALE:
220310	220310 - 01	1:10,000 @ A3
DRAWN BY:	CHECKED BY:	DATE:
GO	N/A	04.12.2023
		REVISION.:
		P01

OS SHEET No.: 4341, 4342, 4399, 4400, 4457, 4458



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- Drawing Legend**
- EIA Site Boundary
 - River/Stream
 - Underground Electrical Cabling Route
 - Joint Bay
 - Cabling Construction Track
 - S37 Infrastructure
 - Hedges



PROJECT TITLE:
Borrisbeg Renewable Energy Development

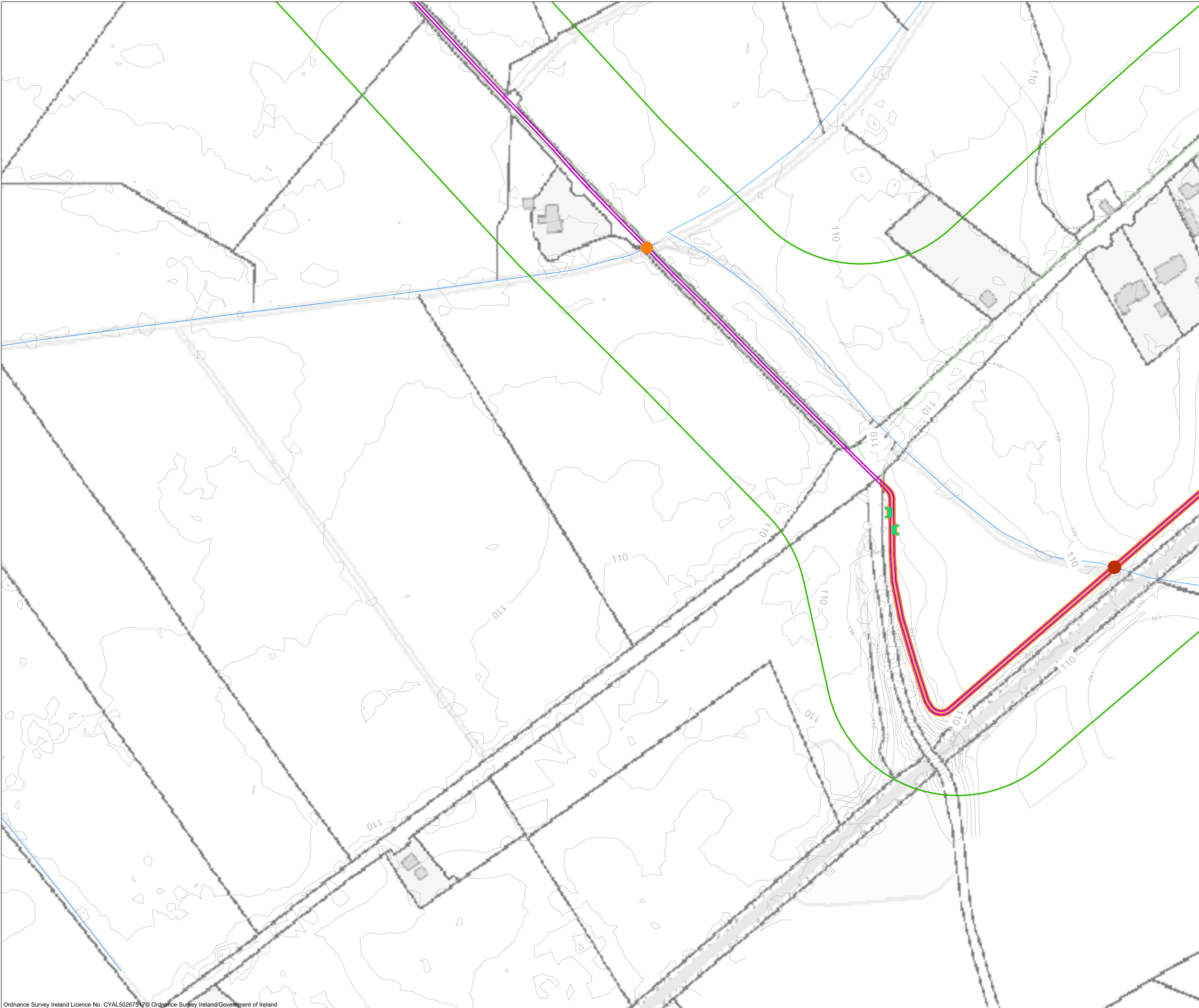
DRAWING TITLE:
Site Layout Map Sheet 1 of 3

PROJECT No.: 220310	DRAWING No.: 220310 - 02	SCALE: 1:2,500 @ A3
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023
		REVISION: P01









OS SHEET No.:
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 7. Exact location of cable/joint bay in the road curtilage to be subject to ESB specifications and agreement with Westmeath County Council.

- Drawing Legend**
-  EIAR Site Boundary
 -  River/Stream
 -  Underground Electrical Cabling Route
 -  Joint Bay
 -  EPA watercourse, Clear span
 -  HDD Crossing
 -  Cabling Construction Track
 -  Hedges



PROJECT TITLE:
Borrisbeg Renewable Energy Development

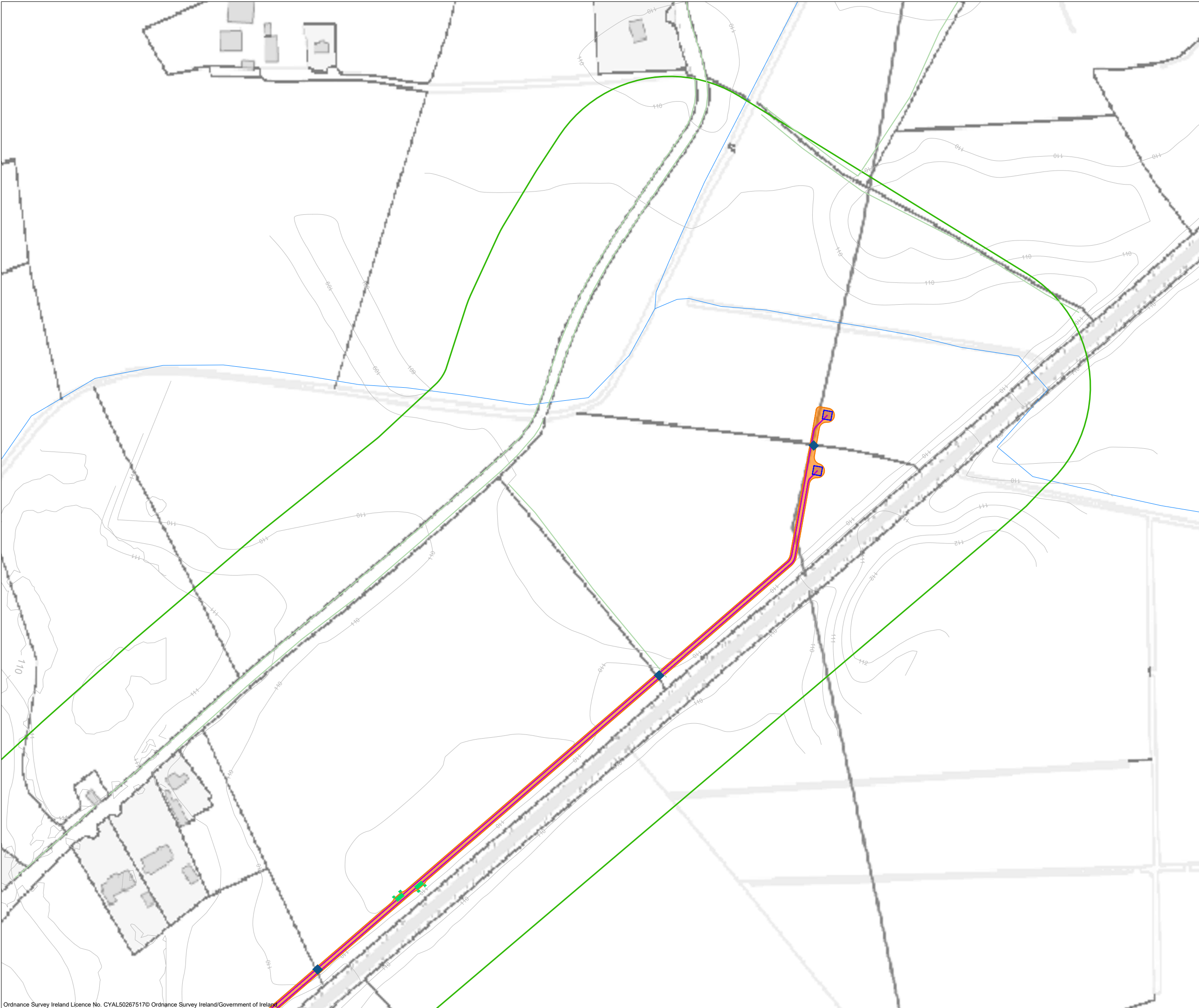
DRAWING TITLE:
Site Layout Map Sheet 2 of 3

PROJECT No.:	DRAWING No.:	SCALE:
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DRAWN BY:	CHECKED BY:	DATE:
GO	N/A	15.11.2023
		REVISION.:
		P01

OS SHEET No.: 4341, 4342, 4399, 4400, 4457, 4458

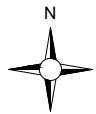


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 7. Exact location of cable/joint bay in the road curtilage to be subject to ESB specifications and agreement with Westmeath County Council.

- Drawing Legend**
- EIAR Site Boundary
 - River/Stream
 - Underground Electrical Cabling Route
 - Joint Bay
 - ◆ Culvert Crossing
 - ▭ Cabling Construction Track
 - Hedges
 - End Mast



PROJECT TITLE:
Borrisbeg Renewable Energy Development

DRAWING TITLE:
Site Layout Map Sheet 3 of 3

PROJECT No.: 220310	DRAWING No.: 220310 - 04	SCALE: 1:2,500 @ A3
DRAWN BY: GO	CHECKED BY: N/A	DATE: 04.12.2023
		REVISION: P01

OS SHEET No.:
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Drawing Legend

- Underground Electrical Cabling Route
- S37 Infrastructure



PROJECT TITLE:
Borrisbeg Renewable Energy Development

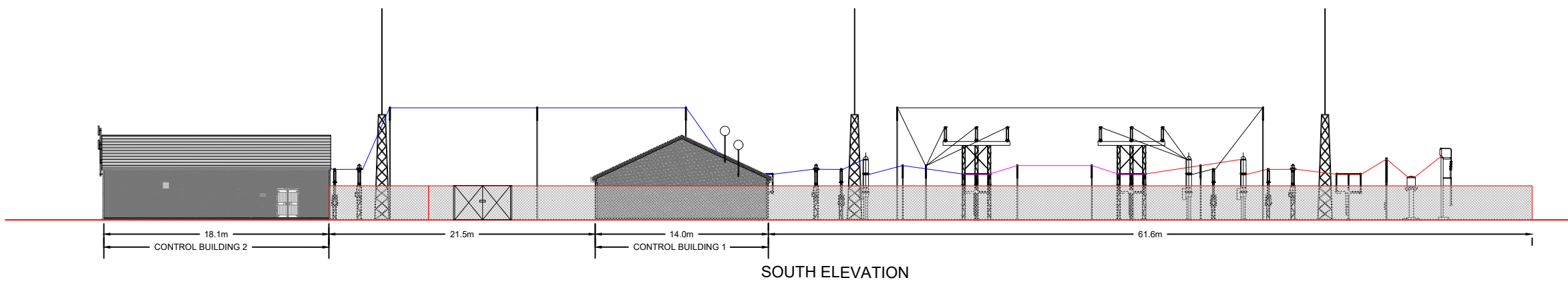
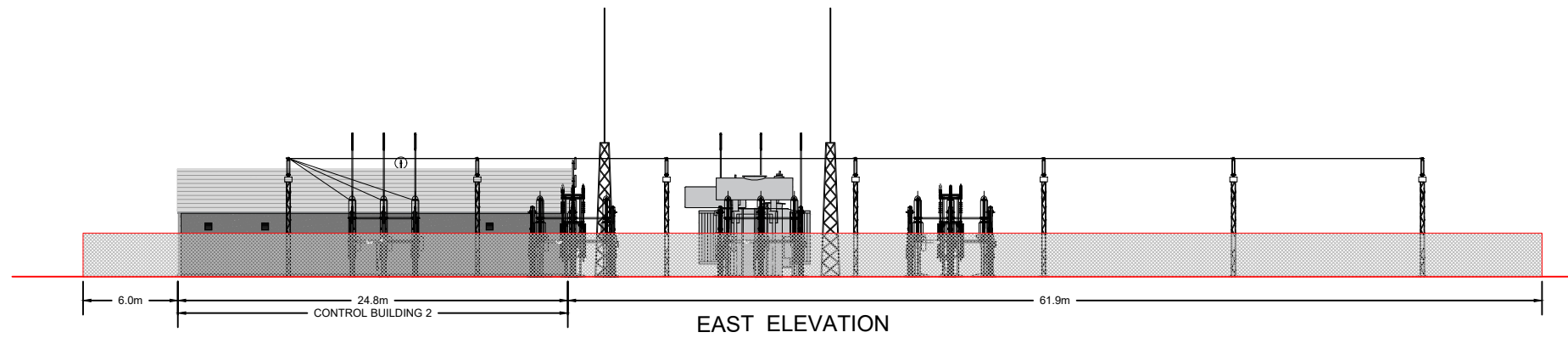
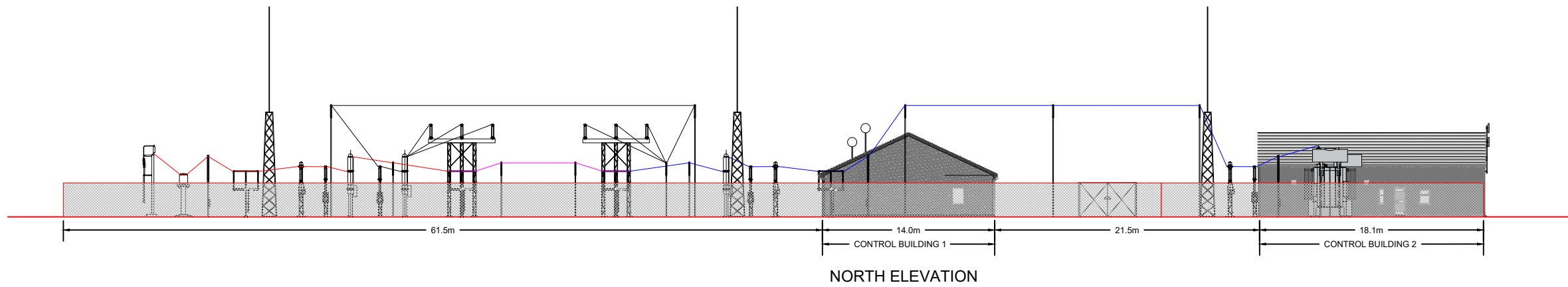
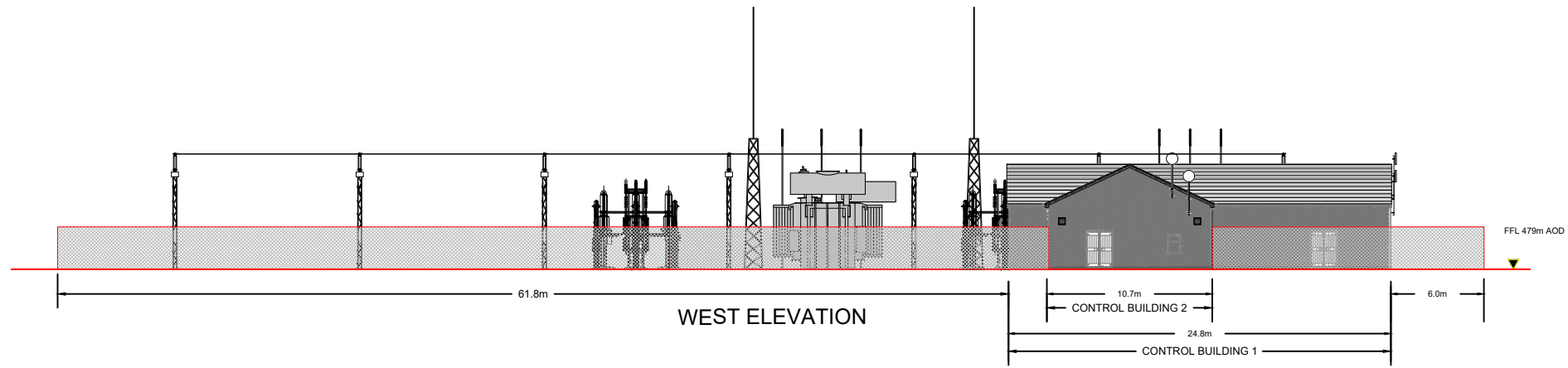
DRAWING TITLE:
Onsite 110kV Substation Drawing Layout

PROJECT No.:	DRAWING No.:	SCALE:
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DRAWN BY:	CHECKED BY:	DATE:
GO	N/A	12.12.2023
		REVISION.:
		P01

OS SHEET No.: 4341, 4342, 4399, 4400, 4457, 4458



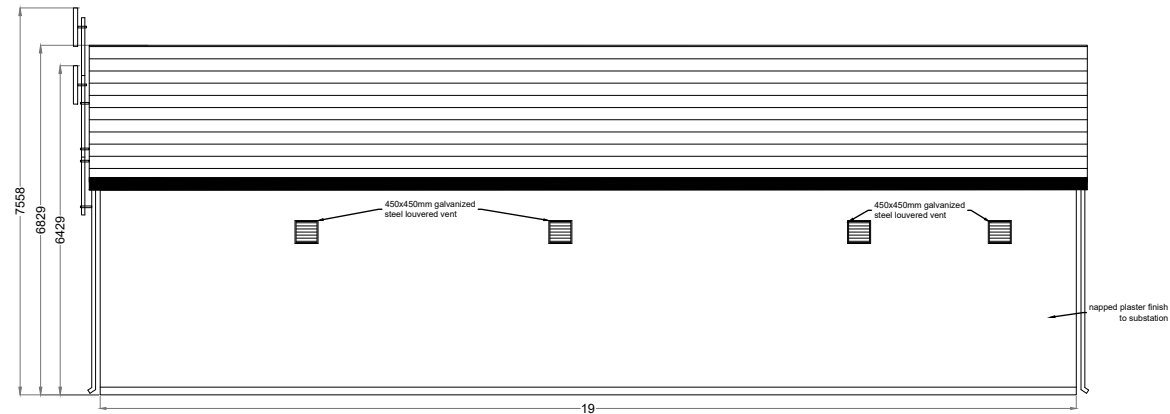
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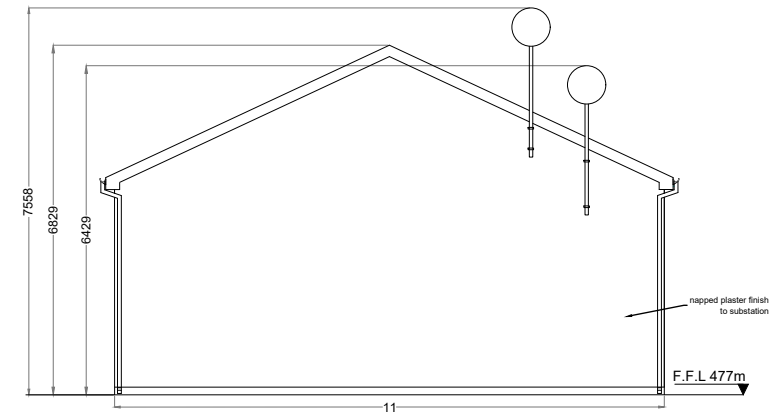
PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Onsite 110kV Substation Drawing Elevations			
PROJECT No.: 220310	DRAWING No.: Fig 4-23	SCALE: 1:200 @ A1	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023	REVISION: P01



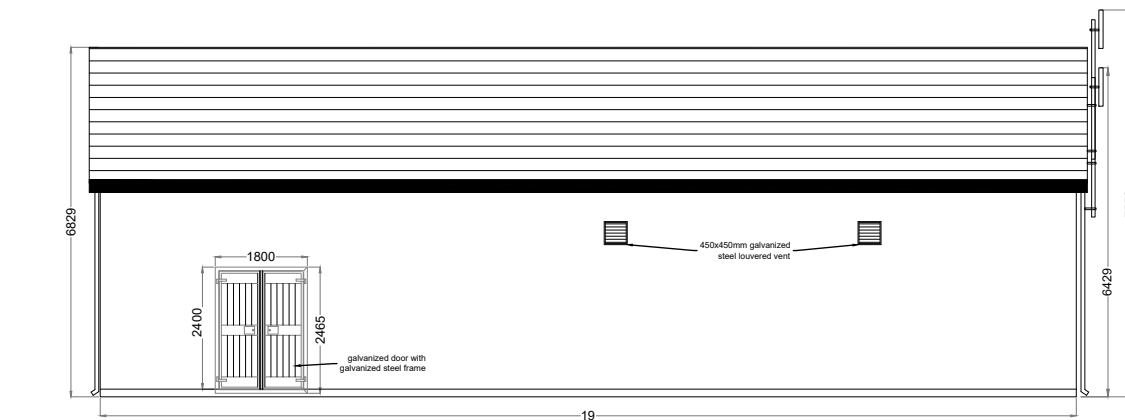
Email: info@www.mkoireland.ie / Website: www.mkoireland.ie



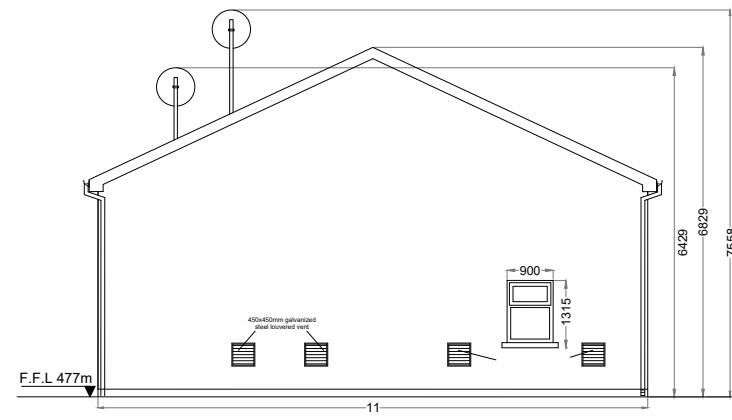
North Elevation



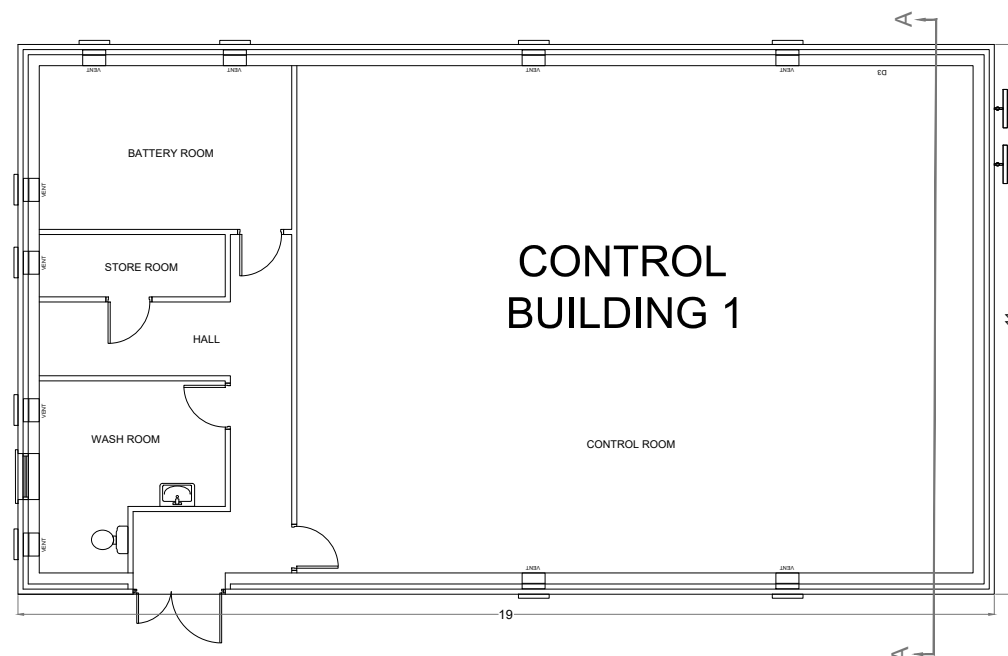
East Elevation



South Elevation



West Elevation



SECTION A-A

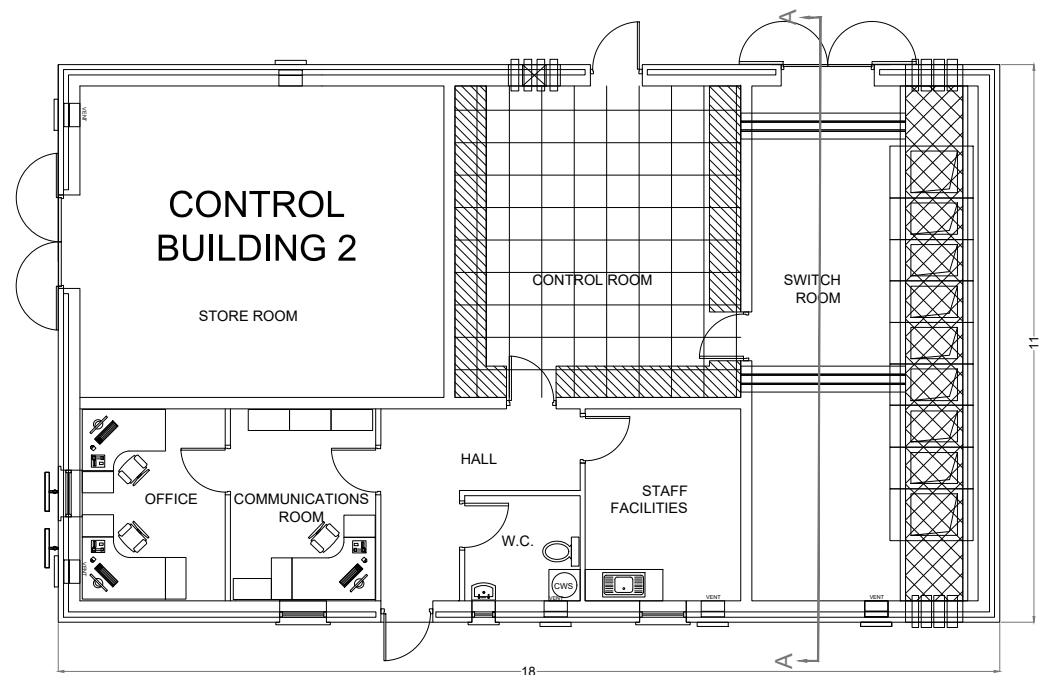
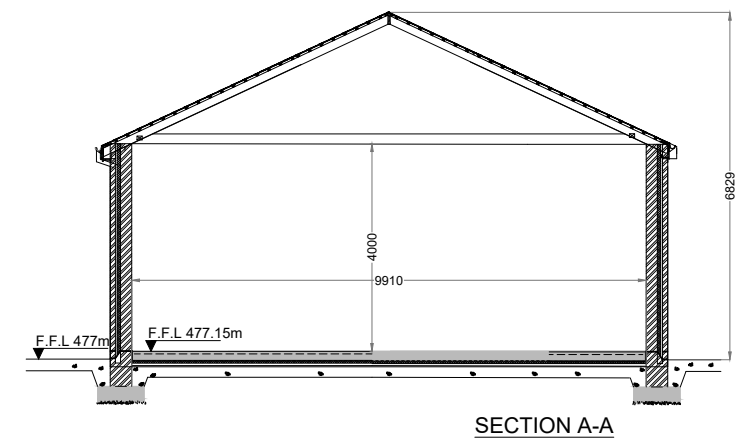
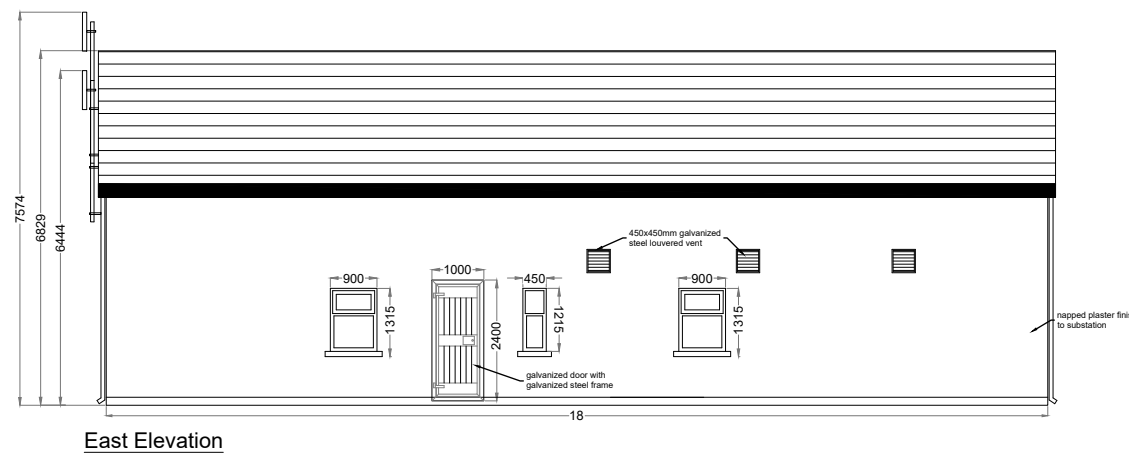
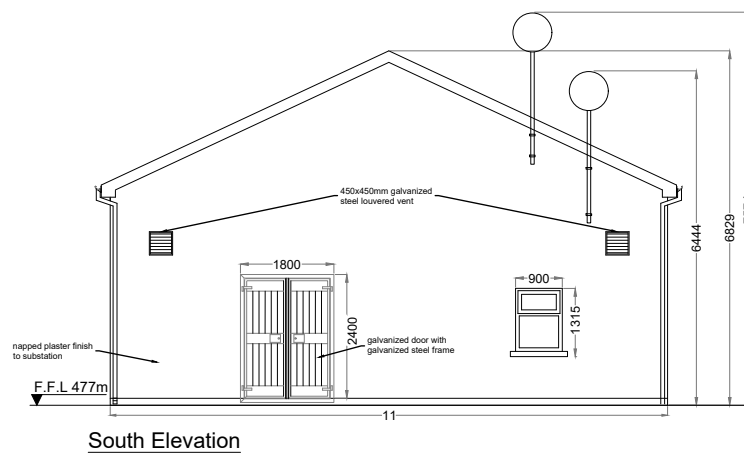
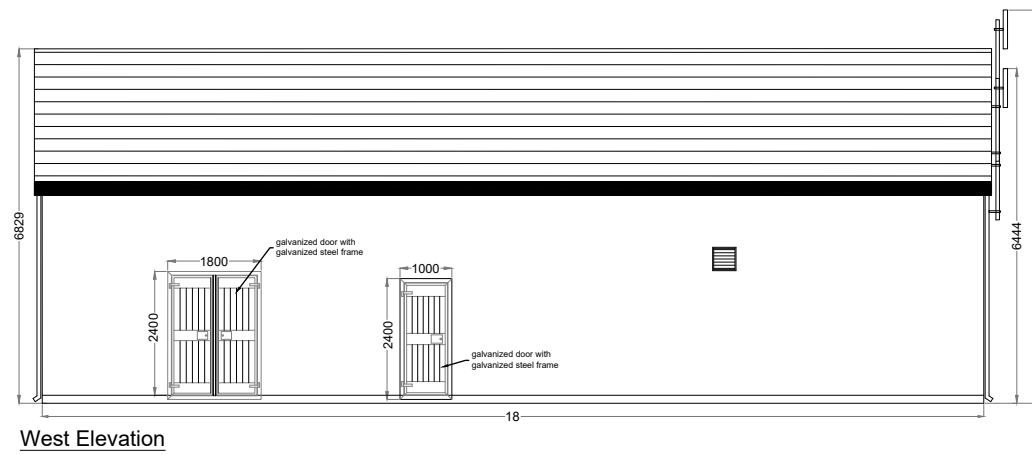
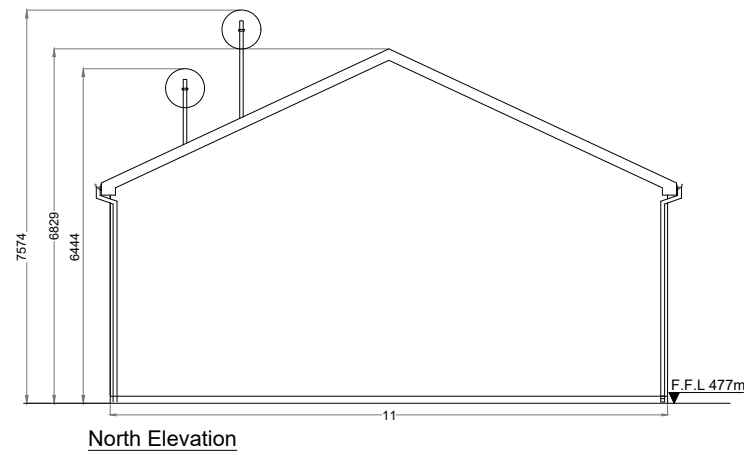
PROJECT TITLE:
Borrisbeg Renewable Energy Development

DRAWING TITLE:
**Control Building 1
Elevations & Section**

PROJECT No.: 220310	DRAWING No.: Fig 4-25	SCALE: 1:100 @ A2
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023
		REVISION: P01



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PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Control Building 2 Elevations & Section			
PROJECT No.: 220310	DRAWING No.: Fig 4-26	SCALE: 1:100 @ A2	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023	REVISION: P01



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- Drawing Legend**
-  Underground Electrical Cabling Route
 -  Joint Bay
 -  Cabling Construction Track
 -  S37 Infrastructure
 -  Hedges



PROJECT TITLE:
Borrisbeg Renewable Energy Development

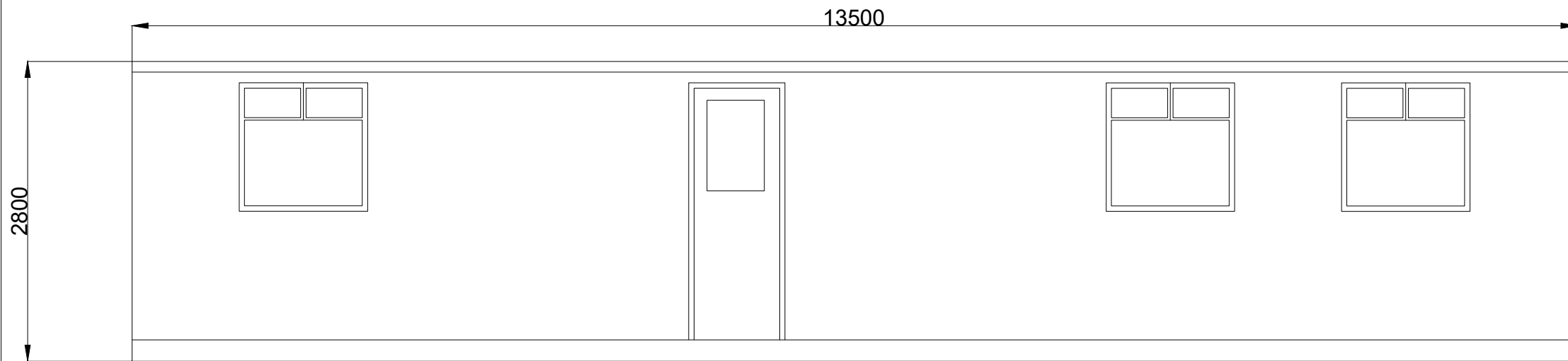
DRAWING TITLE:
Temporary Construction Compound for Grid Connection

PROJECT No.: 220310	DRAWING No.: Fig 4-28	SCALE: 1:500 @ A3
DRAWN BY: GO	CHECKED BY: N/A	REVISION: P01
DATE: 12.12.2023		

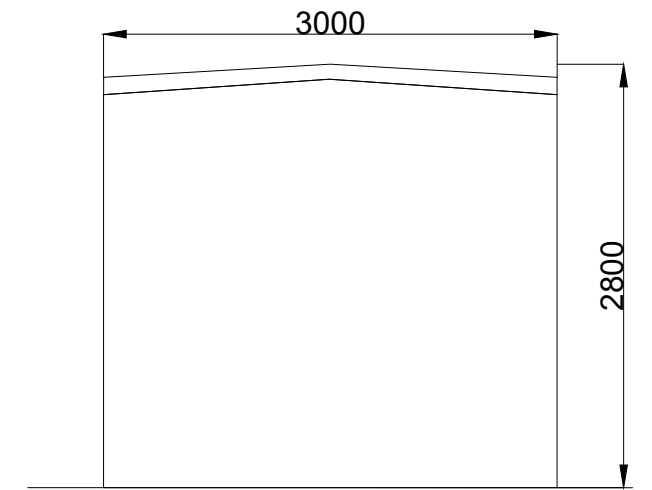
OS SHEET No.:
4341, 4342, 4399, 4400, 4457, 4458



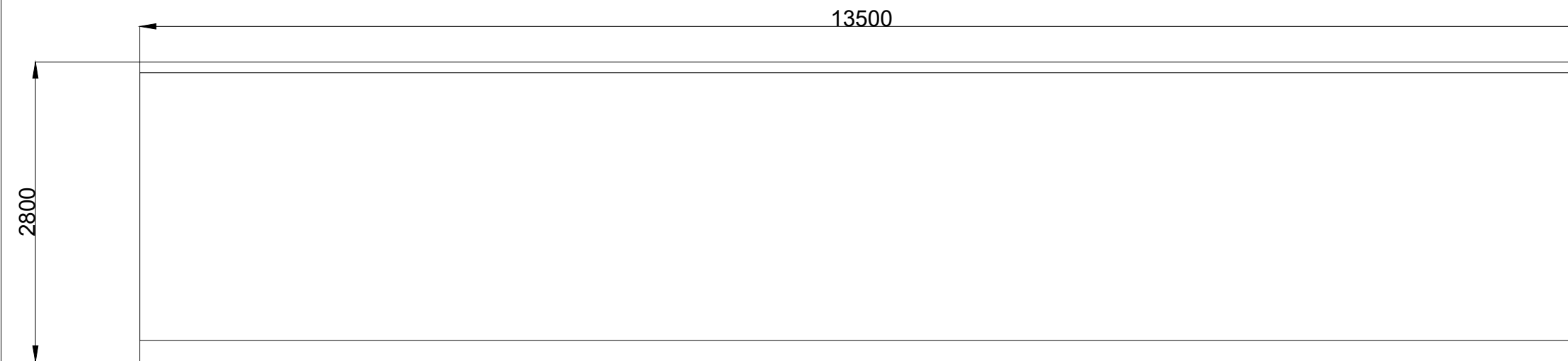
Email: info@www.mkofireland.ie / Website: www.mkofireland.ie



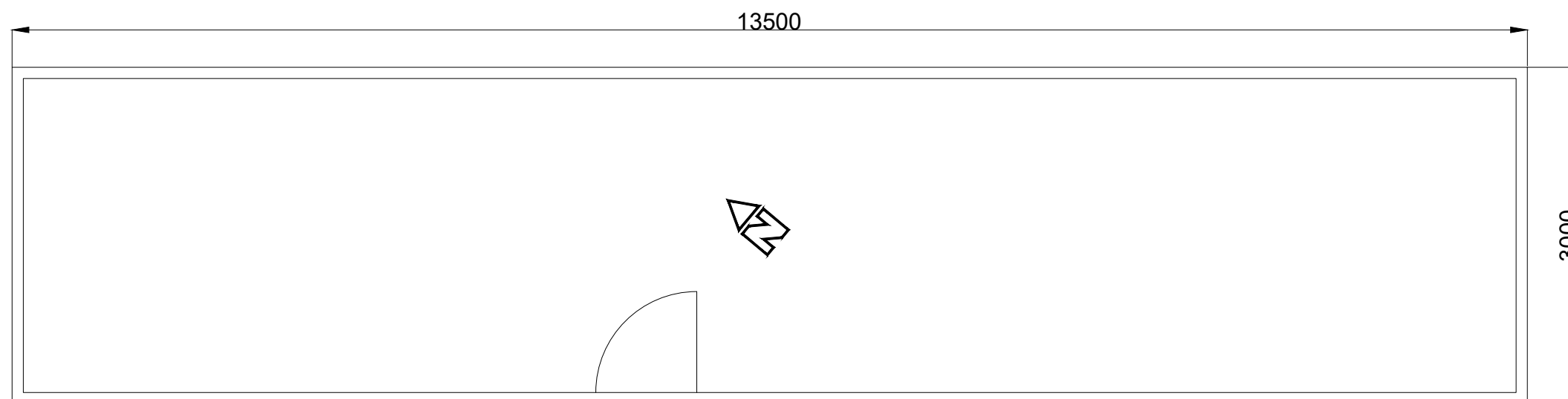
FRONT ELEVATION



SIDE ELEVATION



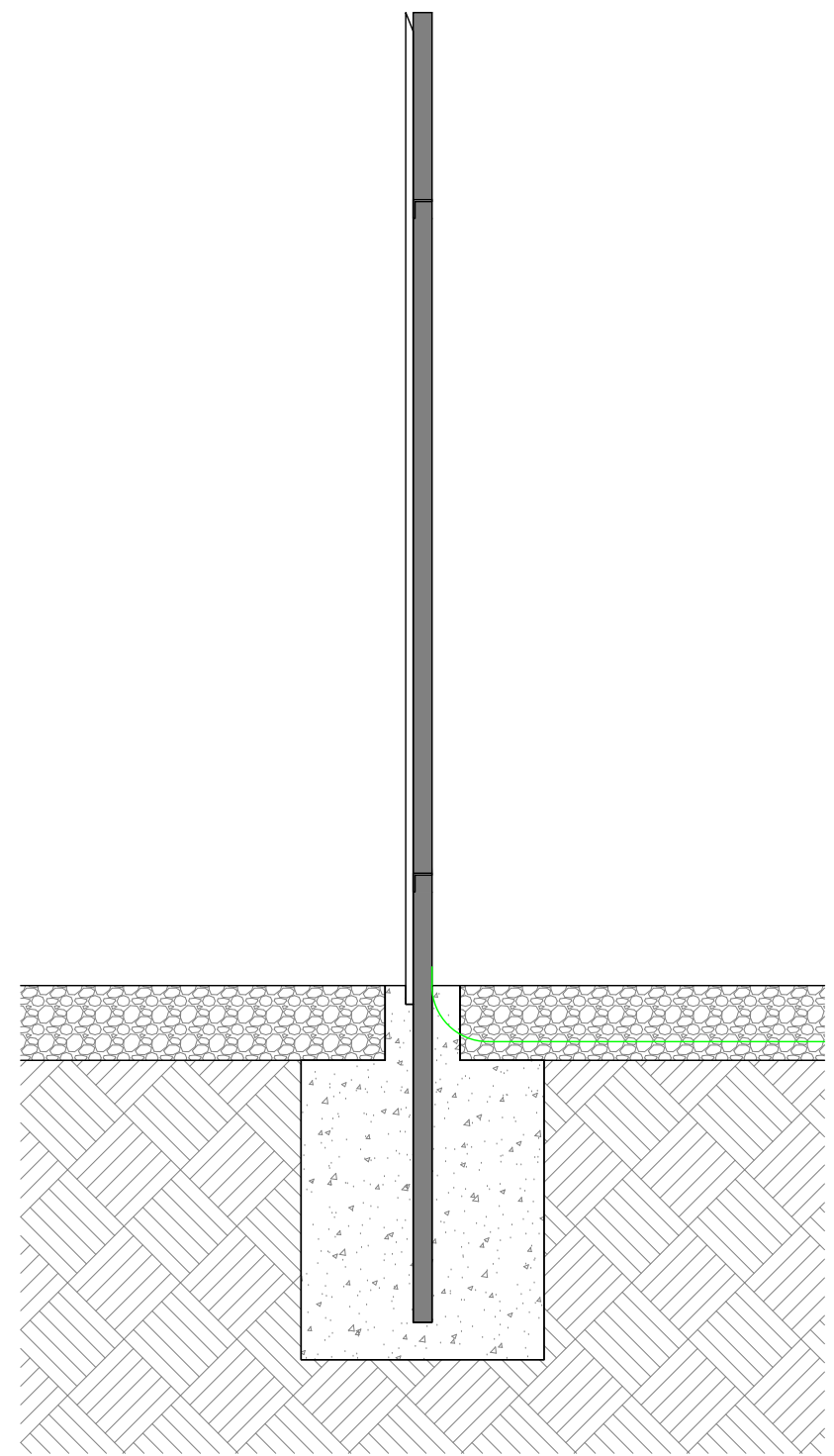
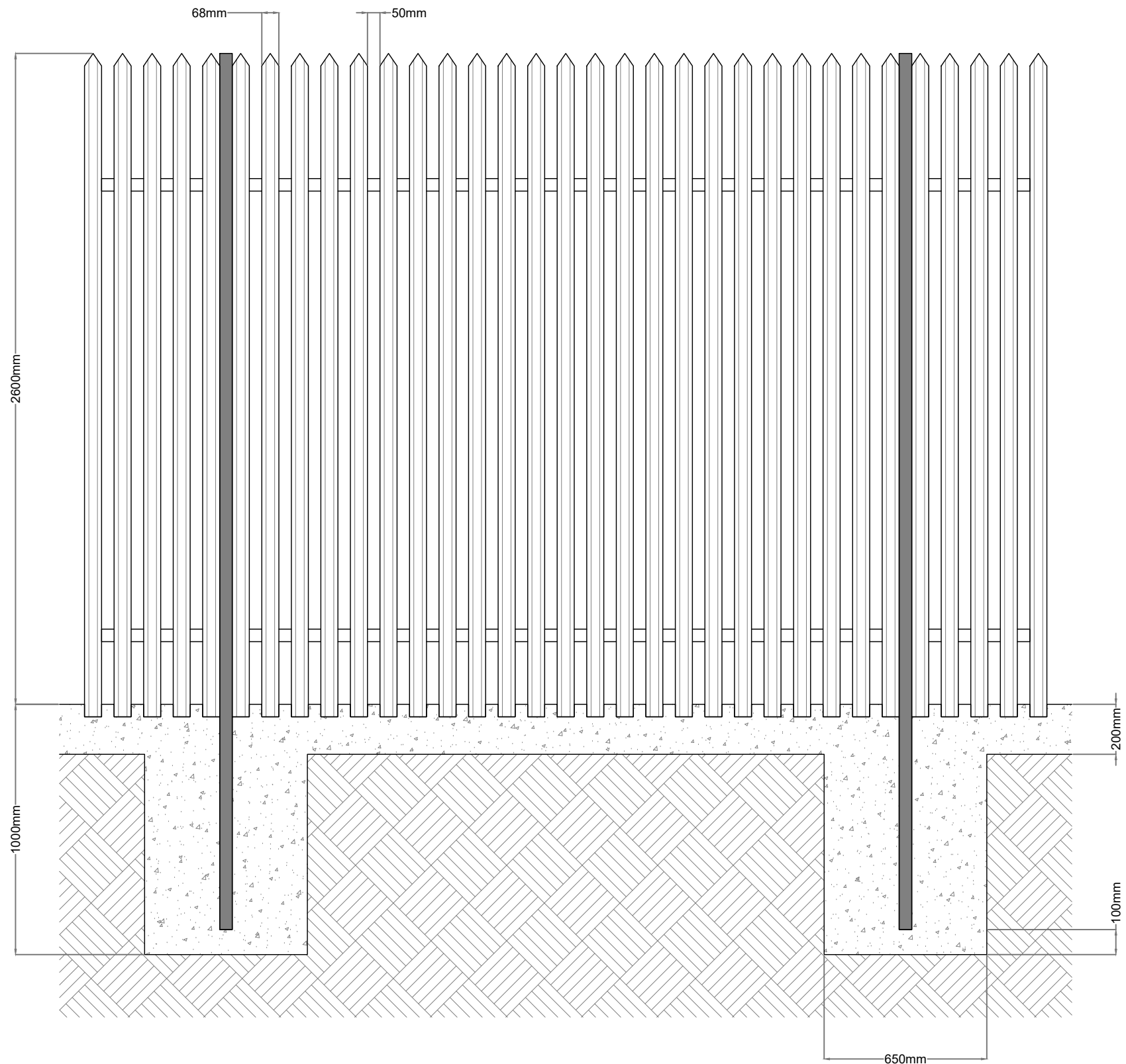
REAR ELEVATION



PLAN VIEW

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Site Office & Staff Facilities Detail			
PROJECT No.: 220310	DRAWING No.: 220310 - 06	SCALE: 1:50 @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 05.12.2023	REVISION:. P01





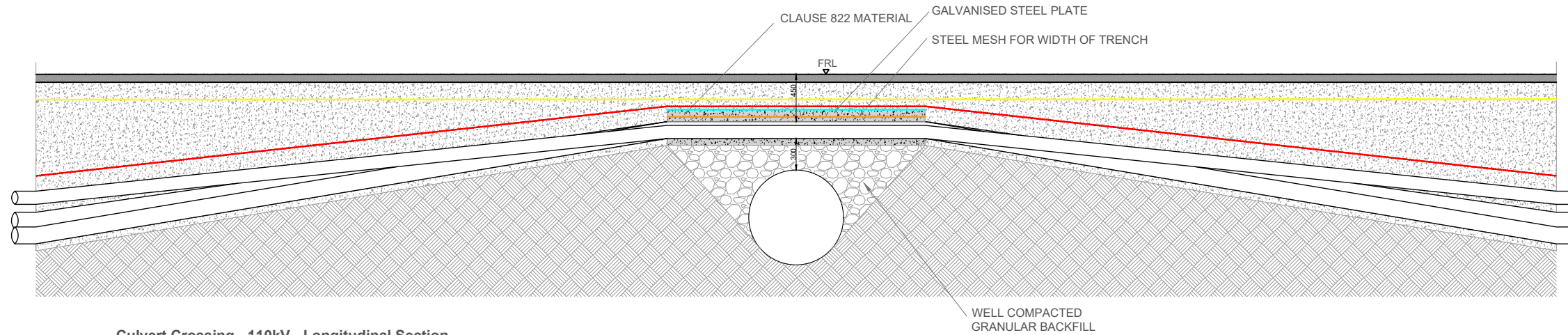
Standard Palisade Fencing
1:20

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Standard Palisade Fencing			
PROJECT No.: 220310	DRAWING No.: 220310 - 07	SCALE: 1:20 @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023	REVISION.: P01

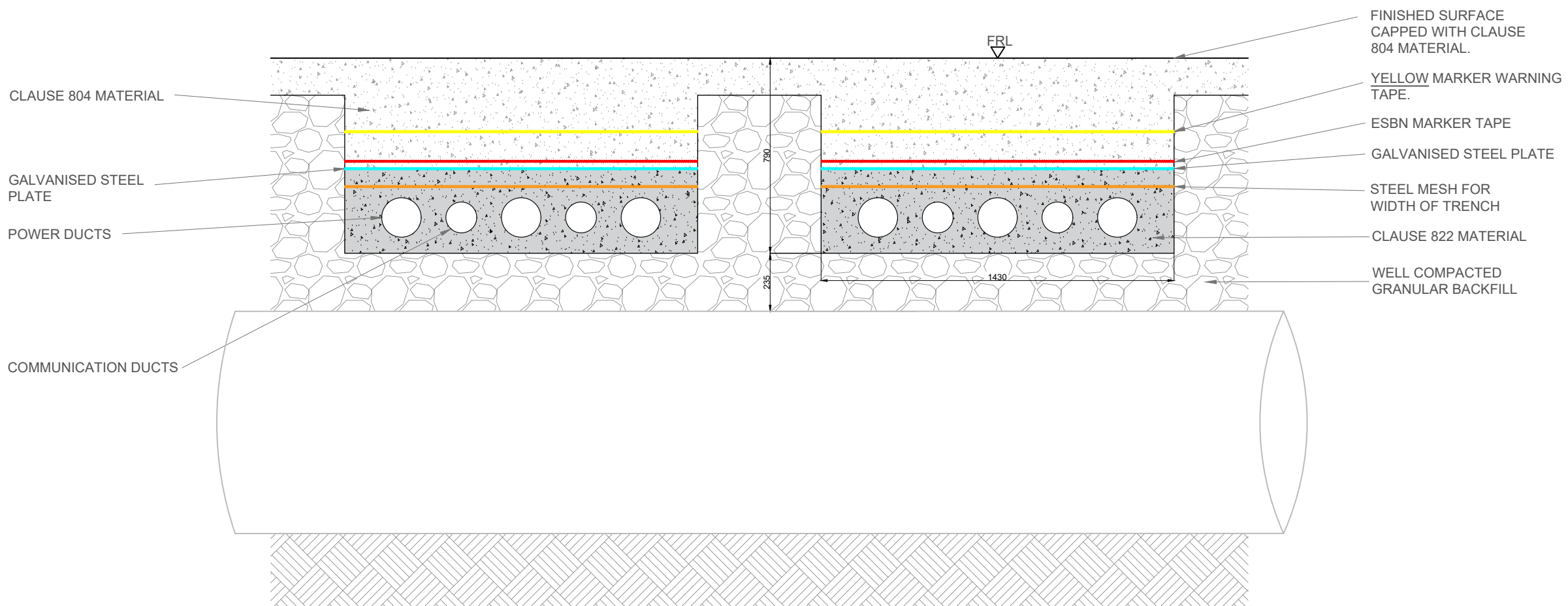


NOTES:

1. Crossings to be sized appropriately for 1 in 100yr flooding.
2. New culvert crossings to use 900mm pipes, or to be sized to engineer's requirements.
3. The exact configuration of the underground cabling will be set by the requirements of the electrical designers at detailed design stage.



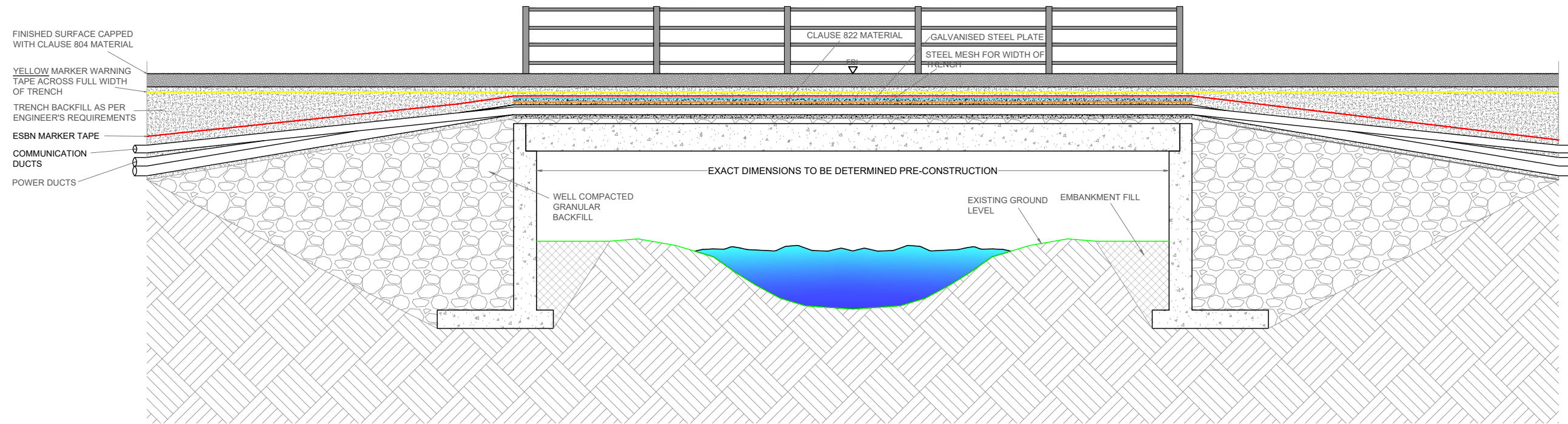
Culvert Crossing - 110kV - Longitudinal Section
SCALE 1:50



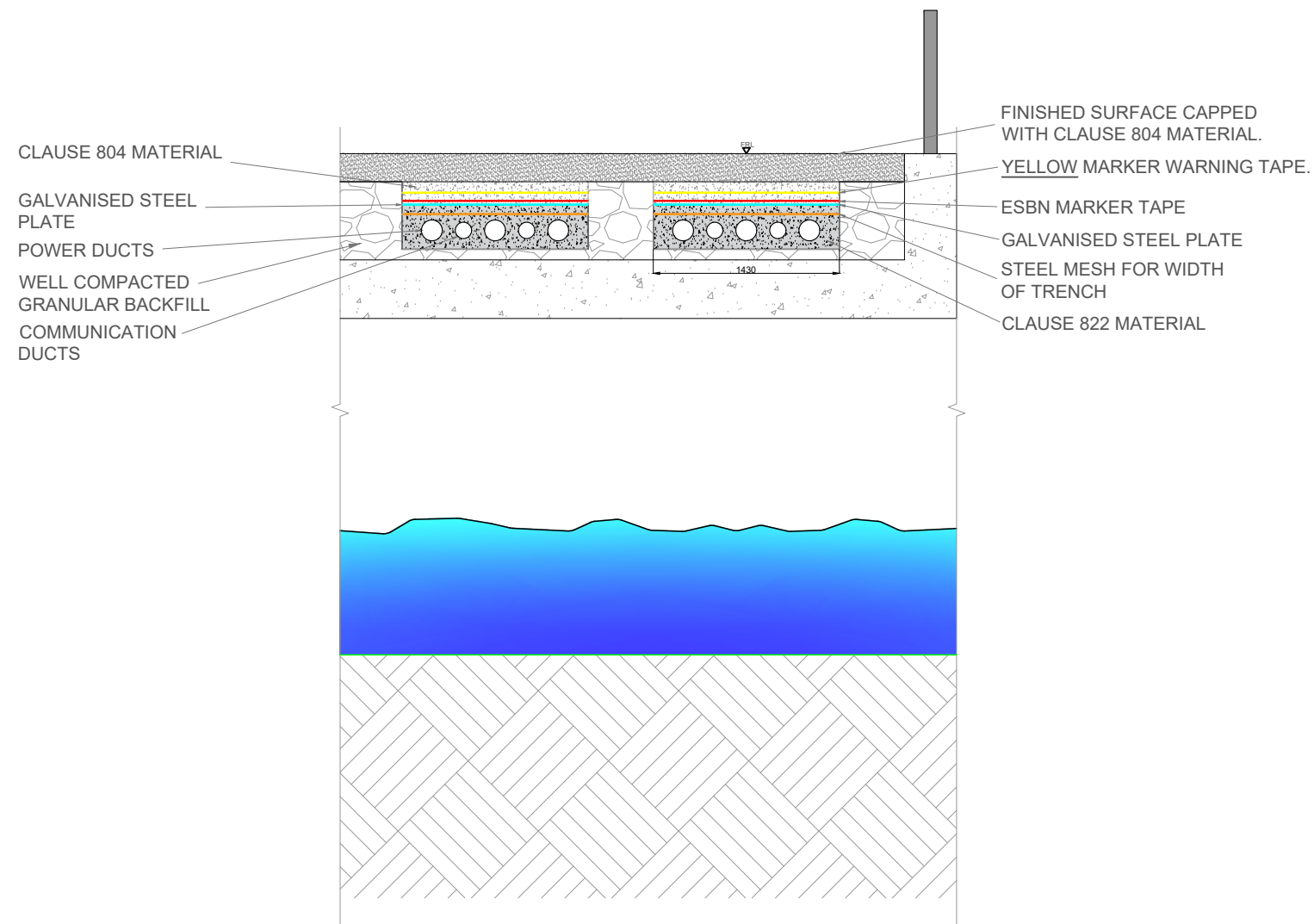
Culvert Crossing - 110kV - Cross Section
SCALE 1:20

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Standard 110kV Culvert Crossing			
PROJECT No.: 220310	DRAWING No.: 220310 - 08	SCALE: As shown @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 05.12.2023	REVISION: P01





Clear Span Watercourse Crossing - 110kV - Longitudinal Section
SCALE: 1:75



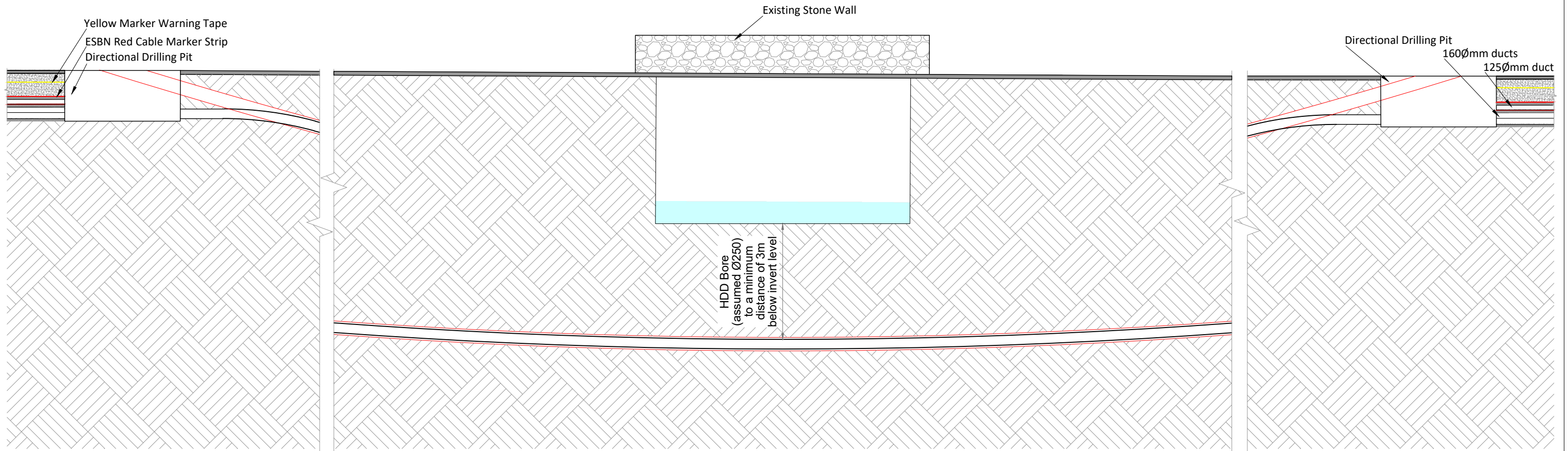
Clear Span Watercourse Crossing - 110kV - Cross Section
SCALE: 1:50

NOTES:

1. Crossings to be sized appropriately for 1 in 100yr flooding.
2. New culvert crossings to use 900mm pipes, or to be sized to engineer's requirements.
3. The exact configuration of the underground cabling will be set by the requirements of the electrical designers at detailed design stage.

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Standard 110kV Clear Span Watercourse Crossing			
PROJECT No.: 220310	DRAWING No.: 220310 - 09	SCALE: As shown @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 05.12.2023	REVISION: P01





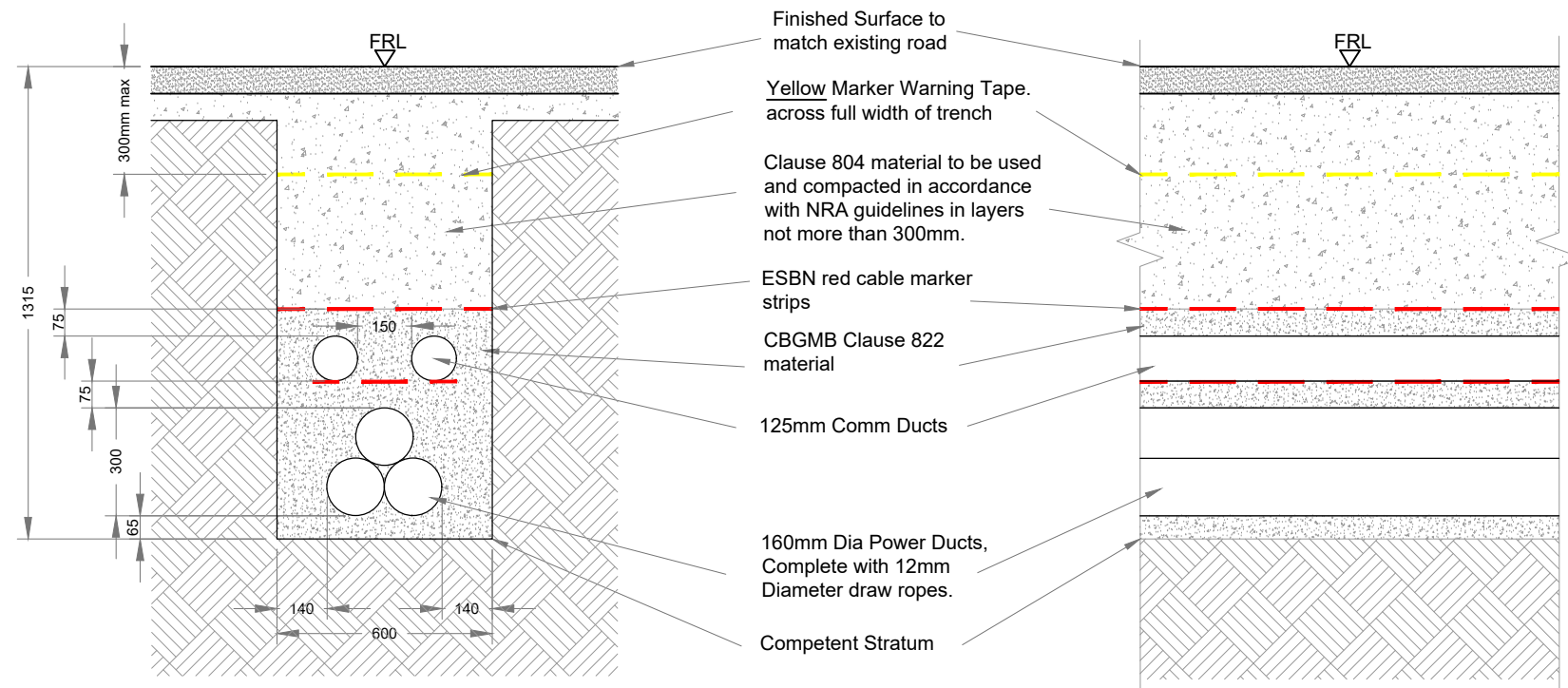
Standard Horizontal Directional Drill Under Existing Watercourse Crossing

SCALE 1:100

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Standard 110kV HDD Under Existing Watercourse Crossing			
PROJECT No.: 220310	DRAWING No.: Fig 4-19	SCALE: 1:100 @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023	REVISION: P01



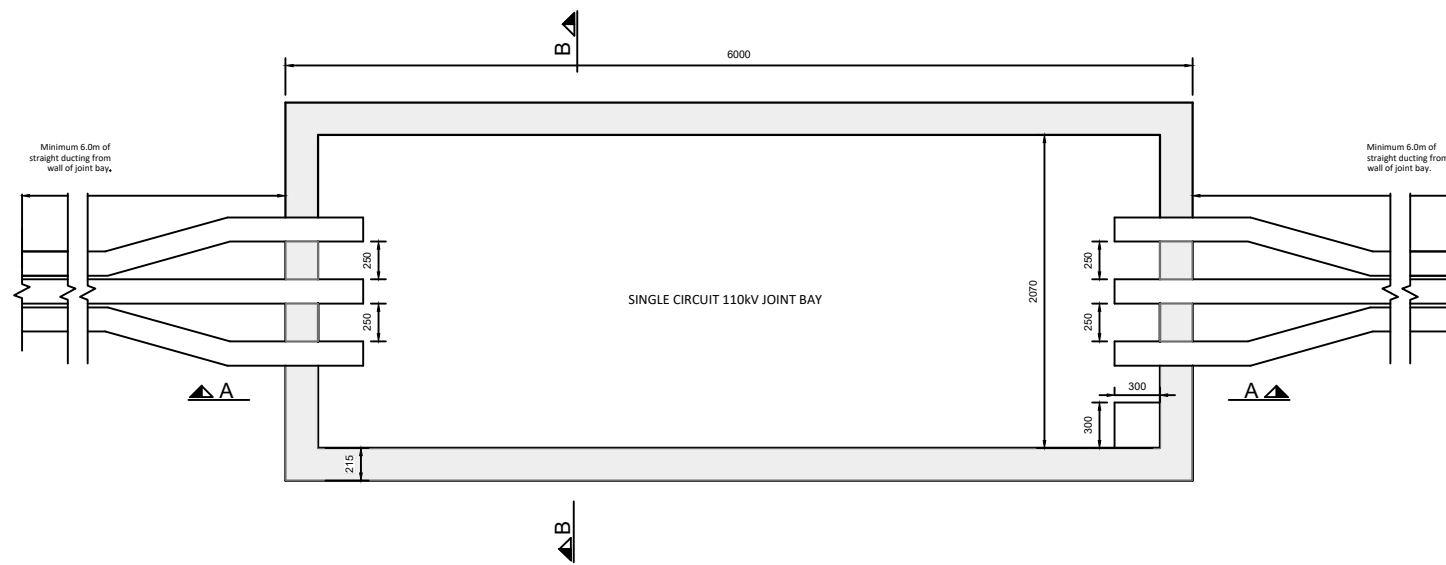
Email: info@www.mkoireland.ie / Website: www.mkoireland.ie



Standard 110kV Trench Detail
SCALE 1:20

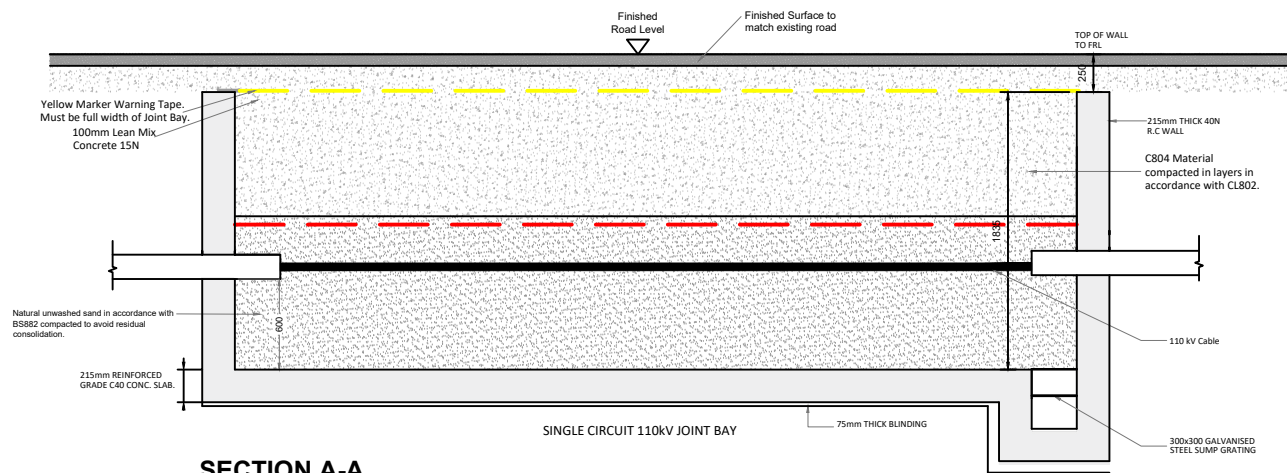
PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: 110kV Trench Detail			
PROJECT No.: 220310	DRAWING No.: 220310 - 10	SCALE: 1:20 @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 05.12.2023	REVISION.: P01





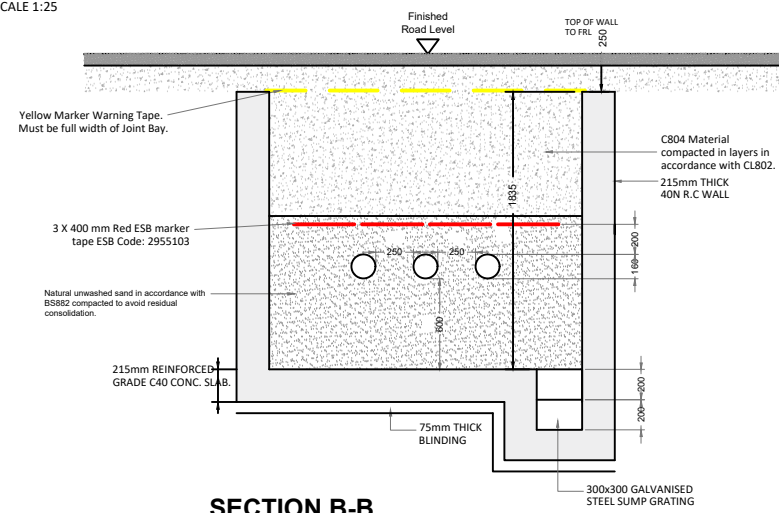
110kV JOINT BAY DETAIL

SCALE 1:25



SECTION A-A

SCALE 1:25



SECTION B-B

SCALE 1:25

PROJECT TITLE:
Borrisbeg Renewable Energy Development

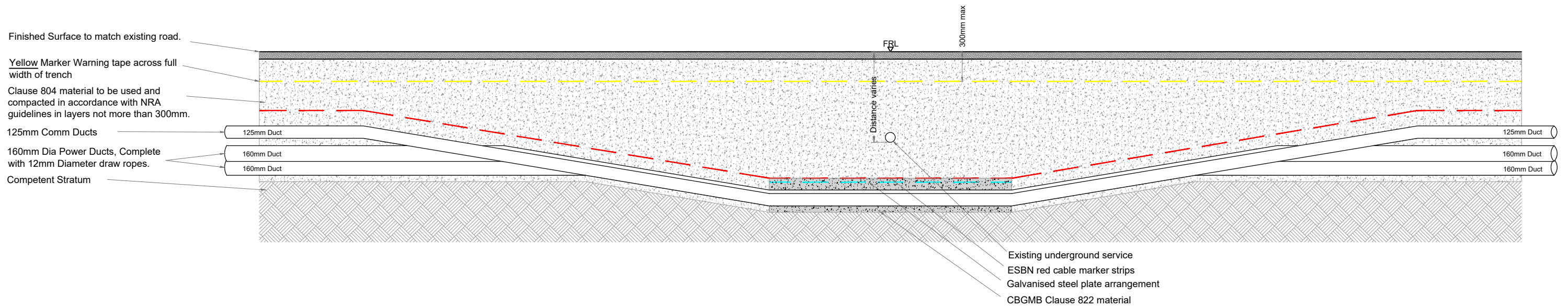
DRAWING TITLE:
110kV Joint Bay Detail

PROJECT No.: 220310	DRAWING No.: 220310 - 11	SCALE: As shown @ A3
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DRAWN BY: GO	CHECKED BY: N/A	DATE: 05.12.2023	REVISION: P01
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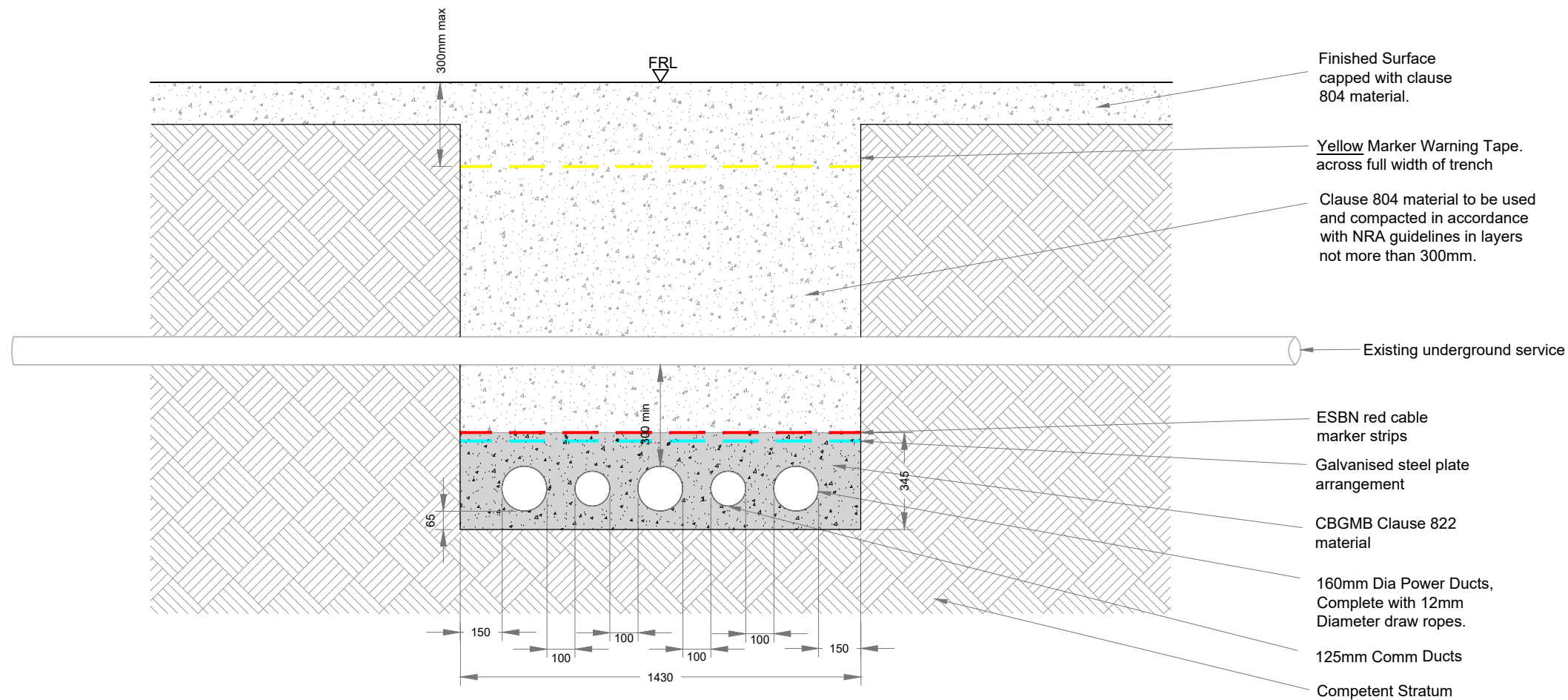


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Option B - Flat bed under existing service - 110kV

SCALE 1:40

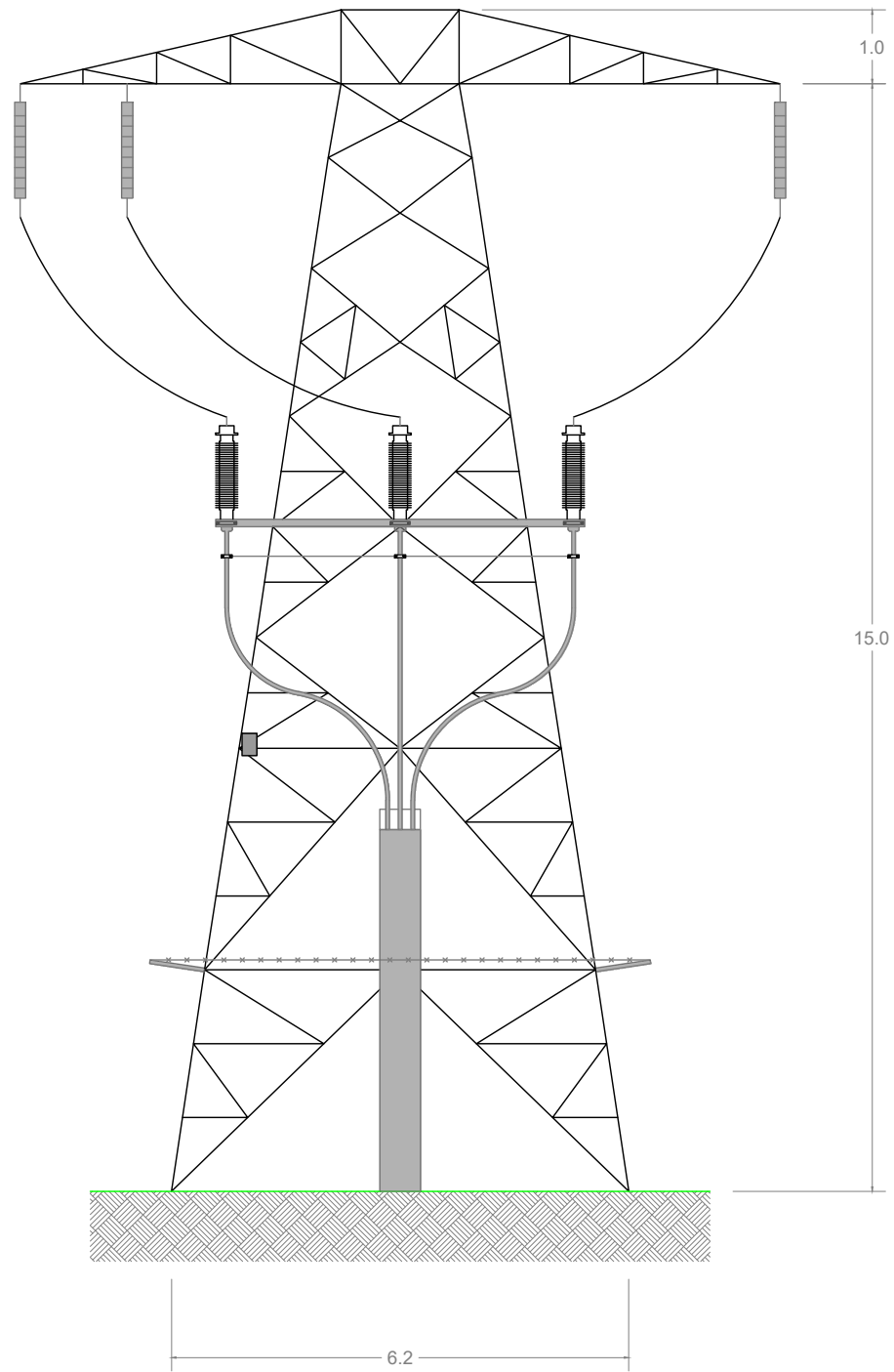


Option B - Flat bed under existing service - 110kV

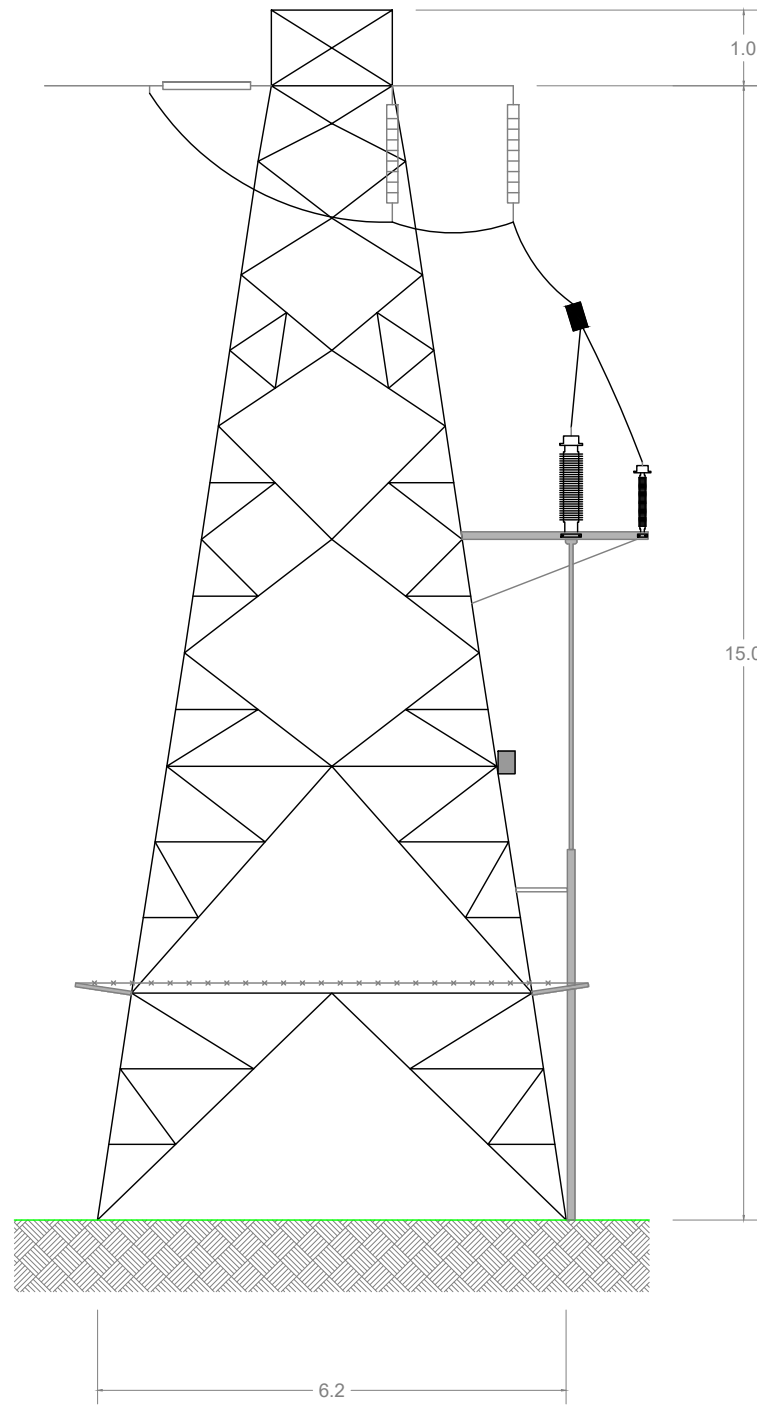
SCALE 1:20

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: Flat Bed Under - Existing Service			
PROJECT No.: 220310	DRAWING No.: 220310 - 13	SCALE: As shown @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 05.12.2023	REVISION: P01

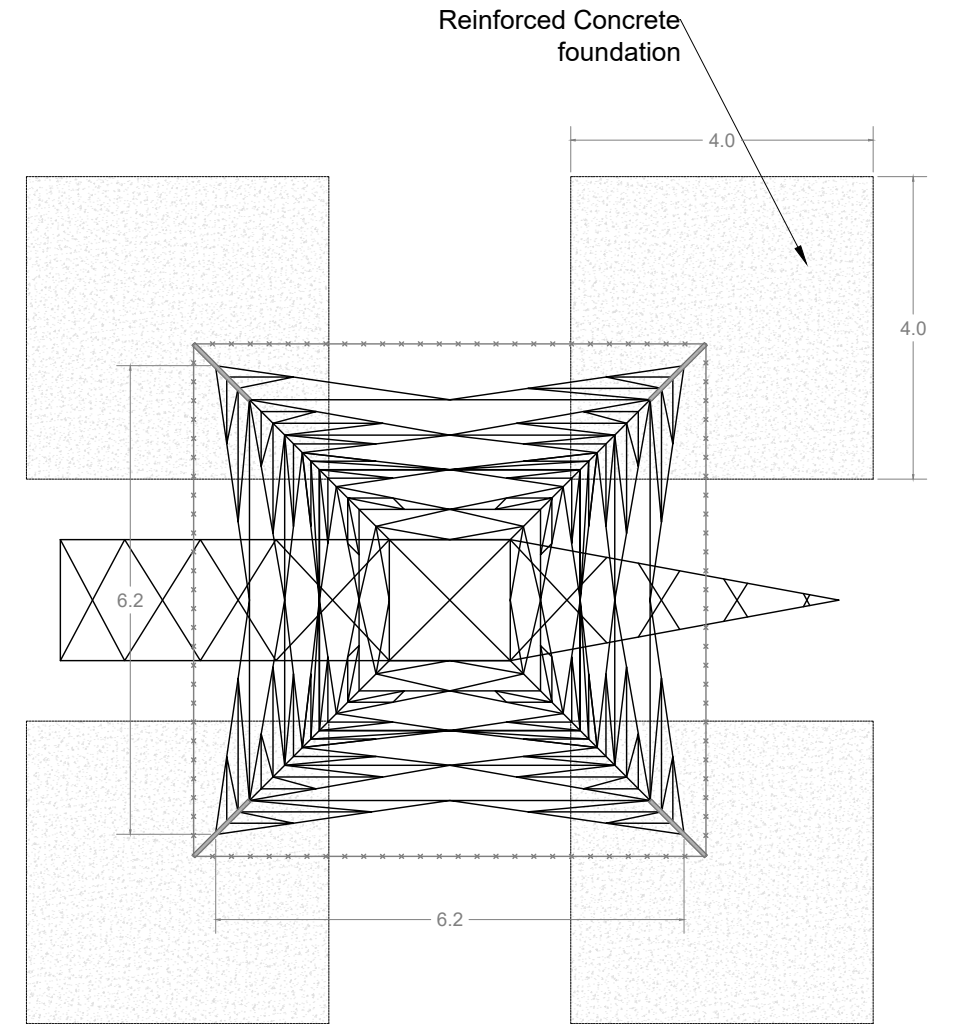




Standard 110kV End Mast - Elevation
Scale 1:100



Standard 110kV End Mast - End View
Scale 1:100



Standard 110kV End Mast - Plan
Scale 1:100

PROJECT TITLE: Borrisbeg Renewable Energy Development			
DRAWING TITLE: 110kV End Mast			
PROJECT No.: 220310	DRAWING No.: 220310 - 05	SCALE: 1:100 @ A3	
DRAWN BY: GO	CHECKED BY: N/A	DATE: 15.11.2023	REVISION: P01



POLLUTION PREVENTION NOTES:

- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
- SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
- SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.

DISCHARGES

- WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP.
- NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
- PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
- PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
- VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.

EXCAVATIONS

- WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.

EXPOSED GROUND & STOCKPILES

- THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.

SITE TRACKS

- USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
- CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.

REFUELLING

- REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
- SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.

CONCRETE

- CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
- CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.

IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:

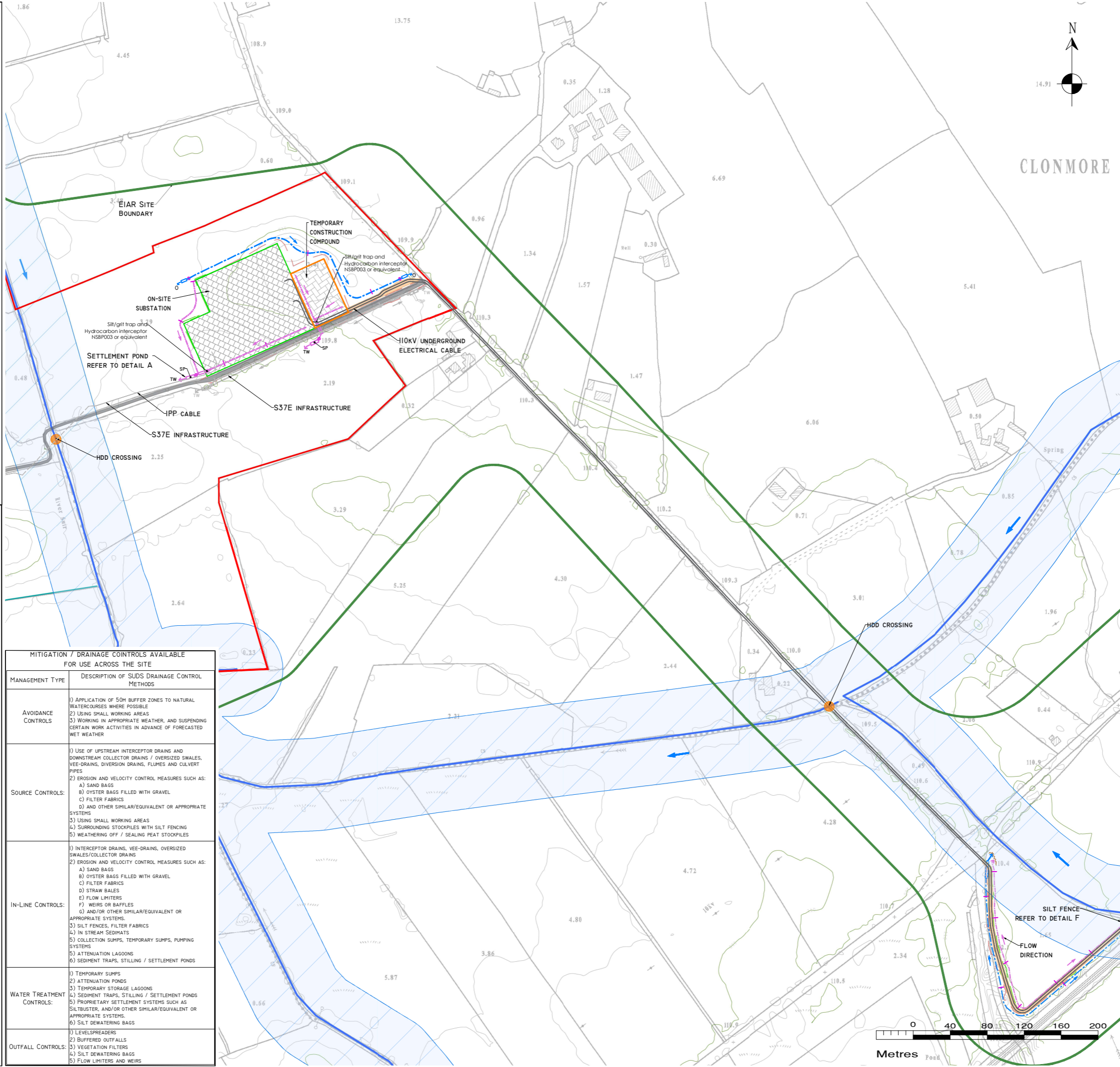
STOP - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.

CONTAIN - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.

NOTIFY - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.

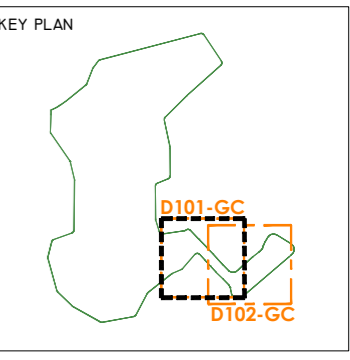
DRAINAGE NOTES:

- ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
- SPARE STRAW BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTBUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
- SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
- SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
- INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
- DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
- BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
- TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAINMENT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.
- SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON CATCHMENT AREA SERVED. SAMPLE POND SIZES SHOWN ON DRAWING D501.
- STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPOIL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
- SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN <15M OF EDGE OF ANY DITCH / EPHEMERAL CHANNELS.
- SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER (PEAT "SOD" OR "SCRAW") FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
- AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
- CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS 40MM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100MM STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
- BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
- SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
- LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY FILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.
- OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
- SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.



DRAWING LEGEND:

- RIVERS/STREAMS
- DRAINS
- RIVERS/STREAMS 50M BUFFER
- DIRECTION OF FLOW
- STREAM FLOW DIRECTION
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- UPSTREAM INTERCEPTOR DRAIN
- SWALES/DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- OUTFALL
- CHECK DAM "TYPE A"
- PROPOSED WC CROSSING
- INTERCEPTOR DITCH CULVERT
- HDD CROSSING
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEM-NATURAL VEGETATION SWALE / FILTER BED / SECONDARY SP
- EIAIAR SITE BOUNDARY
- EXISTING GROUND SURFACE INTERMEDIATE CONTOUR (5 M INTERVAL)
- EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
- PROPOSED NEW ROADS
- EXISTING ROADS PROPOSED TO BE UPGRADED
- SUBSTATION
- CONSTRUCTION COMPOUND
- IPP CABLE
- PROPOSED CABLE ROUTE
- RED LINE BOUNDARY
- CUT AREA
- FILL AREA



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- ALL DIMENSIONS ARE IN METRES.

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE	
MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE USING SMALL WORKING AREAS WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER
SOURCE CONTROLS:	<ol style="list-style-type: none"> USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE-DRAINS, DIVERSION DRAINS, FLUMES AND CULVERT PIPES EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OSTER BAGS FILLED WITH GRAVEL FILTER FABRICS AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS USING SMALL WORKING AREAS SURROUNDING STOCKPILES WITH SILT FENCING WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS:	<ol style="list-style-type: none"> INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OSTER BAGS FILLED WITH GRAVEL FILTER FABRICS STRAW BALES FLOW LIMITERS WEIRS OR Baffles AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. SILT FENCES, FILTER FABRICS IN STREAM SEDIMENTS COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS ATTENUATION LAGOONS SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS:	<ol style="list-style-type: none"> TEMPORARY SUMPS ATTENUATION PONDS TEMPORARY STORAGE LAGOONS SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTBUSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. SILT DEWATERING BAGS
OUTFALL CONTROLS:	<ol style="list-style-type: none"> LEVELSPREADERS BUFFERED OUTFALLS VEGETATION FILTERS SILT DEWATERING BAGS FLOW LIMITERS AND WEIRS

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Date	Description	Chkd	Signed

Revisions

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Client: MKO

Job: BORRISBEG RENEWABLE ENERGY DEVELOPMENT

Title: PROPOSED DRAINAGE LAYOUT - PROPOSED GRID CONNECTION INFRASTRUCTURE

Figure No: D101 - GC

Drawing No: P1619-0-1123-A1-D101-GC-00A

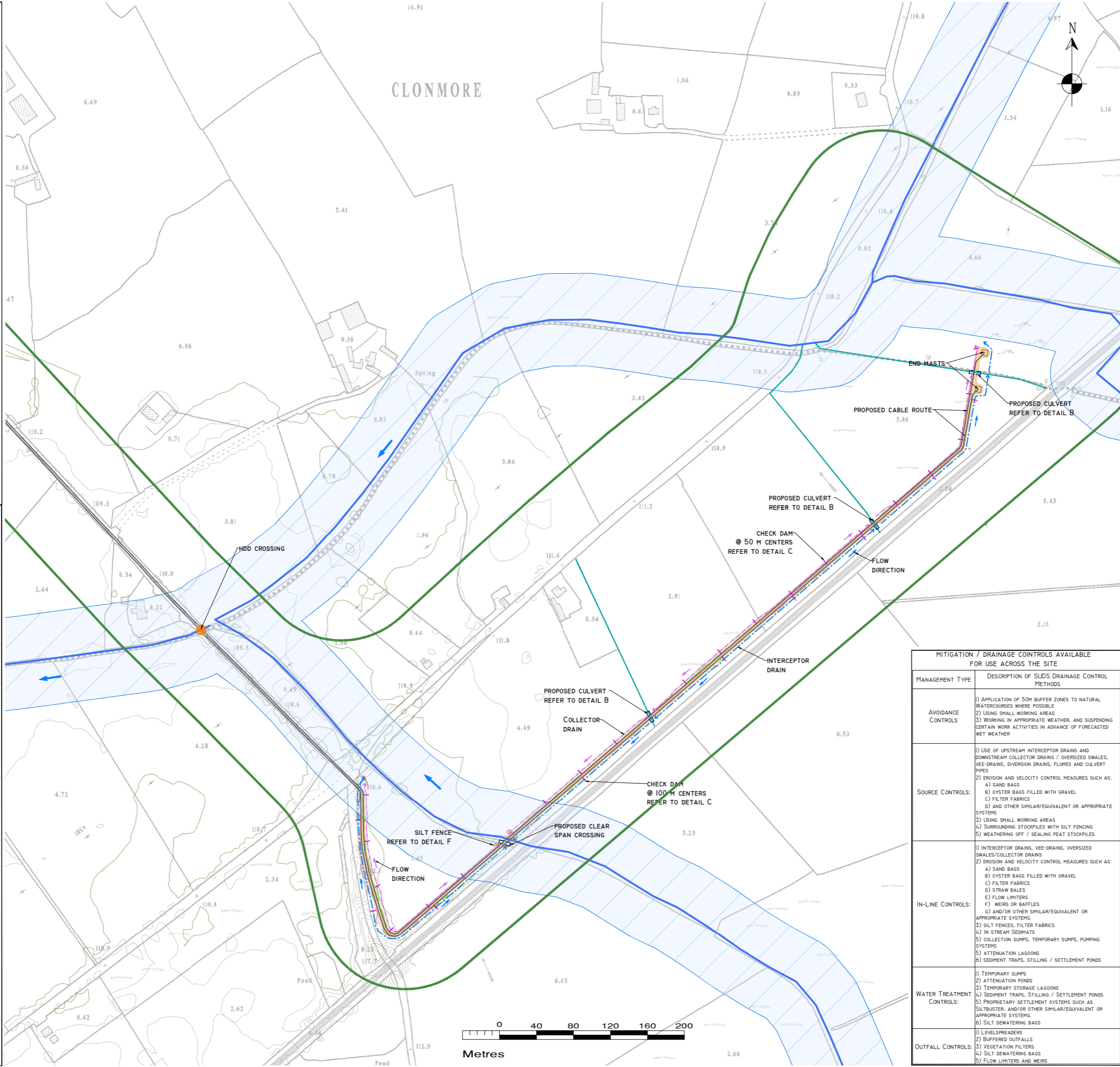
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Scale: 1:2,000 (A1) Drawn By: GD

Date: 29/11/2023 Checked By: MG

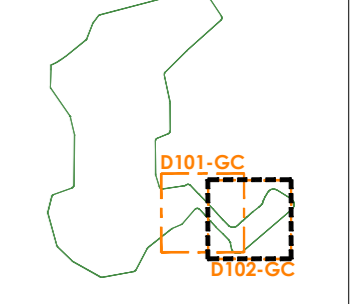
POLLUTION PREVENTION NOTES:

- SITE MANAGEMENT PROPOSALS ARE INTENDED TO ENSURE PROTECTION AGAINST SURFACE WATER AND GROUNDWATER POLLUTION, SILTATION AND EROSION.
 - SUITABLE DRAINAGE CONTROL MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO OFF SITE RECEIVING WATERCOURSES.
 - SILTY WATER CAN ARISE FROM DEWATERING EXCAVATIONS, EROSION OF EXPOSED/DISTURBED GROUND, TEMPORARY STOCKPILES, PLANT AND WHEEL WASH, SITE ROADS/TRACKS, AND DISTURBANCE OF EXISTING FIELD DRAINS AND DITCHES.
- DISCHARGES**
- WATER CONTAINING SILT WILL NOT BE PUMPED DIRECTLY TO ANY NATURAL WATERCOURSE. ALL DISCHARGES TO BE MADE OVER OPEN GROUND OR INTO EXISTING FIELD DRAIN WITH SILT TRAP.
 - NO EXCAVATED MATERIAL IS TO BE STORED WITHIN ANY SURFACE WATER BUFFER ZONE.
 - PUMPED WATER WILL BE DIRECTED INTO TRACK SIDE DITCHES AND TREATED IN SETTLEMENT PONDS AND VEGETATION SWALES PRIOR TO OVERLAND DISCHARGE.
 - PUMPING OF CLEAN WATER FROM EXCAVATIONS / OR OVER-PUMPING IN DRAINS/DITCHES/STREAMS WILL BE COMPLETED IN A MANNER THAT DOES NOT CAUSE SCOUR OR EROSION AT THE POINT OF RELEASE/DISCHARGE. THIS WILL BE DONE BY REDUCING THE FLOW VELOCITIES OR BY USE OF SPLASH PLATES, AND OTHER SIMILAR DISCHARGE CONTROLS.
 - VEGETATION WILL NOT BE STRIPPED FROM EXISTING DRAINS/DITCHES UNLESS ABSOLUTELY NECESSARY.
- EXCAVATIONS**
- WHERE DEEP EXCAVATIONS ARE PROPOSED CUT-OFF DRAINS WILL BE USED TO REDUCE THE AMOUNT OF SURFACE WATER ENTERING THE EXCAVATION. THIS WILL BE THE CASE AROUND TURBINE BASE EXCAVATIONS.
- EXPOSED GROUND & STOCKPILES**
- THE AMOUNT OF EXPOSED GROUND AND TEMPORARY STOCKPILES OPEN AT ANY ONE TIME WILL BE MINIMISED, AS FAR AS PRACTICABLE.
- SITE TRACKS**
- USE OF TRACK SIDE SWALES WITH CHECK DAMS, AND/OR FILTRATION CHECK DAMS WILL REDUCE SILT IN RUNOFF WATER AS REQUIRED.
 - CHECK DAMS TO BE INSPECTED AND CLEANED REGULARLY.
- REFUELLING**
- REFUELLING OF MOBILE PLANT WILL BE COMPLETED IN DESIGNATED REFUELLING AREAS ONLY, PREFERABLY ON AN IMPERMEABLE SURFACE AND AWAY FROM FIELD DRAINS / DITCHES AND WATERCOURSES / WATERBODIES.
 - SPILL KITS AND DRIP TRAYS WILL BE AVAILABLE ON SITE FOR USE AS REQUIRED.
- CONCRETE**
- CARE WILL BE TAKEN WHEN COMPLETING CONCRETE WORKS ON SITE TO ENSURE NO DISCHARGES OCCUR.
 - CONCRETE WASH WATER, AND WASTE CONCRETE WILL BE MANAGED APPROPRIATELY ON SITE.
- IF WATER POLLUTION IS IDENTIFIED THE FOLLOWING STEPS WOULD BE ADHERED TO:**
- STOP** - WORK IN THE IMMEDIATE AREA SHOULD BE STOPPED AND THE SOURCE OF THE POLLUTION IDENTIFIED.
- CONTAIN** - THE SOURCE OF THE POLLUTION SHOULD BE BUNDED USING A SUITABLE METHOD. NATURAL WATERCOURSES SHOULD BE TEMPORARILY DIVERTED AROUND THE SOURCE OF POLLUTION.
- NOTIFY** - THE RELEVANT AUTHORITIES (SITE MANAGER / FISHERIES / NPWS / LOCAL AUTHORITY ETC.) SHOULD BE NOTIFIED IMMEDIATELY TO ENSURE THAT MEASURES CAN BE IMPLEMENTED DOWNSTREAM TO PROTECT FISHERIES AND OTHER SENSITIVE AREAS.
- DRAINAGE NOTES:**
- ROADWAY SURFACING DESIGN AND CONSTRUCTION TO ENGINEER'S SPECIFICATION (I.E. BY OTHERS).
 - SARE STRAW BALES/SILT FENCING/ OR SIMILAR, TO BE STORED ON SITE. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED BY PLACING SILT FENCES, STRAW BALES / OR SIMILAR OR ADDITIONAL CHECK DAMS AT THE PROBLEM AREAS. MOBILE SILTTRUSTER SYSTEM TO BE AVAILABLE ON-SITE FOR USE AS REQUIRED ALSO.
 - SUDS SYSTEM TO BE CONSTRUCTED PRIOR TO, OR AT THE SAME TIME AS THE ACCESS TRACKS. INTERIM MEASURES SUCH AS THE PLACEMENT OF STRAW BALES/SILT FENCING/OR SIMILAR APPROVED METHOD OR ADDITIONAL CHECK DAMS AND SILT FENCES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS TRACKS IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL EFFECTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
 - SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SIGNIFICANT VOLUMES OF SILT TO RECEIVING WATERCOURSES. SEE NOTES ON POLLUTION PREVENTION.
 - INTERCEPTOR SWALES / DITCHES TO BE USED TO COLLECT UPSTREAM SURFACE WATER FLOWS. REGULAR CROSS DRAINS / DISCHARGE TO FIELD DITCHES/DRAINS WILL BE REQUIRED TO TRANSFER / DISCHARGE SURFACE WATER IN INTERCEPTOR DRAINS TO SUITABLE FIELD DRAIN OUTFALL POINTS.
 - DRAINAGE SWALES / DITCHES TO BE EXCAVATED ADJACENT TO THE ACCESS TRACKS. REGULAR CROSS DRAINS TO BE LOCATED ALONG ACCESS TRACKS TO PREVENT EXCESSIVE VOLUMES OF WATER COLLECTING IN THE SWALES / DITCHES. LOCATIONS OF CROSS DRAINS TO BE AGREED WITH THE ENGINEER ON SITE. SURFACE WATER WILL NOT BE ALLOWED TO DISCHARGE DIRECTLY INTO EXISTING WATERCOURSES.
 - BATTERS OF ALL PROPOSED SWALES / DITCHES TO HAVE A SLOPE OF BETWEEN 1 : 1.5 TO 1 : 2 DEPENDING UPON DEPTH OF SWALE/DITCH AND WILL BE LEFT AS CUT TO RE-VEGETATE WITH LOCAL SPECIES.
 - TRACK SIDE SWALES / DITCHES TO BE SHALLOW WITH MODERATE GRADIENTS TO PREVENT SCOURING. IN STEEP AREAS CHECK DAMS SHOULD BE INSTALLED TO REDUCE FLOW VELOCITIES AND PROVIDE SOURCE CONTROL OF SILT CONTAINMENT. WHERE NECESSARY THESE HAVE BEEN DESIGNATED IN CONJUNCTION WITH SETTLEMENT PONDS AND SILT TRAPS, PRIOR TO DISCHARGE.
 - SETTLEMENT PONDS TO BE CONSTRUCTED FOR SILT REMOVAL AT TURBINE BASES AND HARD STAND AREAS. POND SIZES DEPENDS ON CATCHMENT AREA SERVED. SAMPLE POND SIZES SHOWN ON DRAWING D501.
 - STRAW BALES / OR SIMILAR AND SILT FENCES TO BE USED ALSO AROUND SPOIL HEAPS TO MITIGATE SILT RUNOFF. SILT FENCES MAY BE REMOVED WHEN SUITABLE VEGETATION COVER IS ESTABLISHED.
 - SILT FENCES TO BE PROVIDED ALONG EDGE OF EXISTING WATERCOURSE WHERE WORKS COMES WITHIN <15M OF EDGE OF ANY DITCH / EPHEMERAL CHANNELS.
 - SLOPES OF THE SWALES / DITCHES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER (PEAT 'SOD' OR 'SCRAW') FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALES / DITCHES OR LONGITUDINAL MOUNDS OF VEGETATION SWALES AT FIELD DRAIN DISCHARGE POINTS.
 - AREAS STRIPPED OF VEGETATION SHOULD BE KEPT TO A MINIMUM.
 - CLEAN STONE FLOW CONTROL CHECK DAMS TO BE MADE OF LOCALLY WON / GEOLOGICALLY SIMILAR WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 20-40MM CLEAN STONE. ON SLOPING SECTIONS OF THE ACCESS TRACKS, 40MM CHECK DAMS TO BE PROTECTED FROM WASHING AWAY THROUGH THE PLACEMENT OF 100M STONE ON THE DOWNHILL FACE OF THE CHECK DAM AND BY WRAPPING IN GEOTEXTILE.
 - BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING DRAINAGE MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT.
 - SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDENT UPON LONGITUDINAL GRADIENT OF SWALE.
 - LOCATION OF FILTRATION CHECK DAMS (IF REQUIRED) TO BE AGREED ON SITE WITH ENGINEER. SETTLEMENT PONDS TO BE CONSTRUCTED IN A MANNER WHERE THEY MAY BE EASILY INFILLED AT A LATER DATE (POST COMPLETION OF THE TURBINE BASE AND HARDSTAND CONSTRUCTION). ONLY SUITABLE MATERIALS EXCAVATED FROM THE POND TO BE USED TO FORM PART OF THE EMBANKMENT AROUND THE POND.
 - OIL FUEL SHOULD BE STORED WITHIN BUNDED CONTAINMENT STRUCTURES.
 - SILT BAGS WILL BE USED ON SITE AT FIELD DRAIN DISCHARGE LOCATIONS, AS NECESSARY.



- DRAWING LEGEND:**
- RIVERS/STREAMS
 - DRAINS
 - RIVERS/STREAMS 50M BUFFER
 - STREAM FLOW DIRECTION
 - EXISTING DRAINAGE
 - PROPOSED DRAINAGE
 - UPSTREAM INTERCEPTOR DRAIN
 - SWALES/DOWNSTREAM COLLECTOR DRAIN
 - DIRECTION OF FLOW
 - SILT FENCES
 - OUTFALL
 - CHECK DAM "TYPE A"
 - PROPOSED WC CROSSING
 - INTERCEPTOR DITCH CULVERT
 - HDD CROSSING
 - OVERLAND FLOW DISCHARGE
 - TREATED WATER DISCHARGE
 - SETTLEMENT POND
 - SEM-NATURAL VEGETATION SWALE / FILTER BED / SECONDARY SP
 - EIAR SITE BOUNDARY
 - EXISTING GROUND SURFACE INTERMEDIATE CONTOUR (5 M INTERVAL)
 - EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
 - PROPOSED NEW ROADS
 - EXISTING ROADS PROPOSED TO BE UPGRADED
 - SUBSTATION
 - CONSTRUCTION COMPOUND
 - PROPOSED CABLE ROUTE
 - RED LINE BOUNDARY
 - CUT AREA
 - FILL AREA

KEY PLAN



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Client: **MKO**

Job: **BORRISBEG RENEWABLE ENERGY DEVELOPMENT**

Title: **PROPOSED DRAINAGE LAYOUT - PROPOSED GRID CONNECTION INFRASTRUCTURE**

Figure No: **D102 - GC**

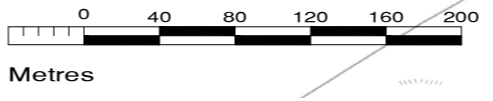
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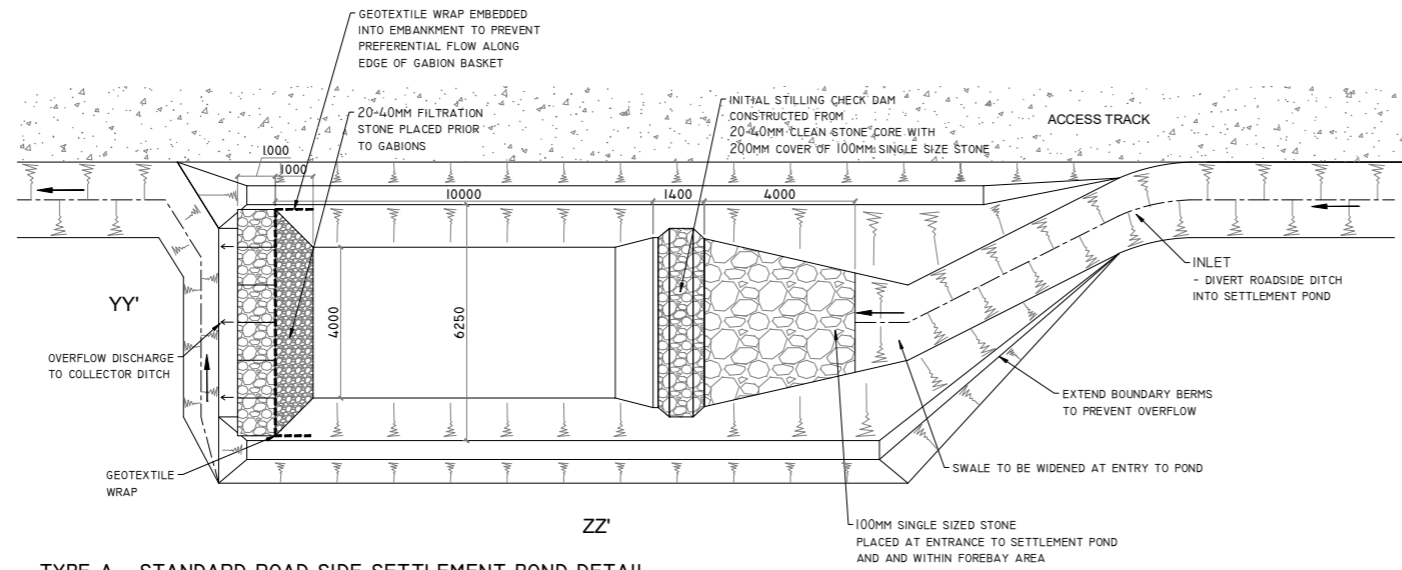
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Date: 29/11/2023

Project No.: P1619-0
Drawn By: GD
Checked By: MG

MITIGATION / DRAINAGE CONTROLS AVAILABLE FOR USE ACROSS THE SITE

MANAGEMENT TYPE	DESCRIPTION OF SUDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	<ol style="list-style-type: none"> APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE USING SMALL WORKING AREAS WORKING IN APPROPRIATE WEATHER, AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER
SOURCE CONTROLS	<ol style="list-style-type: none"> USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE-DRAINS, DIVERSION DRAINS, FLUMES AND CULVERT PIPES EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OYSTER BAGS FILLED WITH GRAVEL FILTER FABRICS AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS USING SMALL WORKING AREAS SURROUNDING STOCKPILES WITH SILT FENCING WEATHERING OFF / SEALING PEAT STOCKPILES
IN-LINE CONTROLS	<ol style="list-style-type: none"> INTERCEPTOR DRAINS, VEE-DRAINS, OVERSIZED SWALES/COLLECTOR DRAINS EROSION AND VELOCITY CONTROL MEASURES SUCH AS: <ol style="list-style-type: none"> SAND BAGS OYSTER BAGS FILLED WITH GRAVEL FILTER FABRICS STRAW BALES FLOW LIMITERS WEIRS OR BAFFLES AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT FENCES, FILTER FABRICS IN STREAM SEDIMENTS COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS ATTENUATION LAGOONS SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS	<ol style="list-style-type: none"> TEMPORARY SUMPS ATTENUATION PONDS TEMPORARY STORAGE LAGOONS SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTTRUSTER, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS SILT DEWATERING BAGS
OUTFALL CONTROLS	<ol style="list-style-type: none"> LEVELSPREADERS BUFFERED OUTFALLS VEGETATION FILTERS SILT DEWATERING BAGS FLOW LIMITERS AND WEIRS

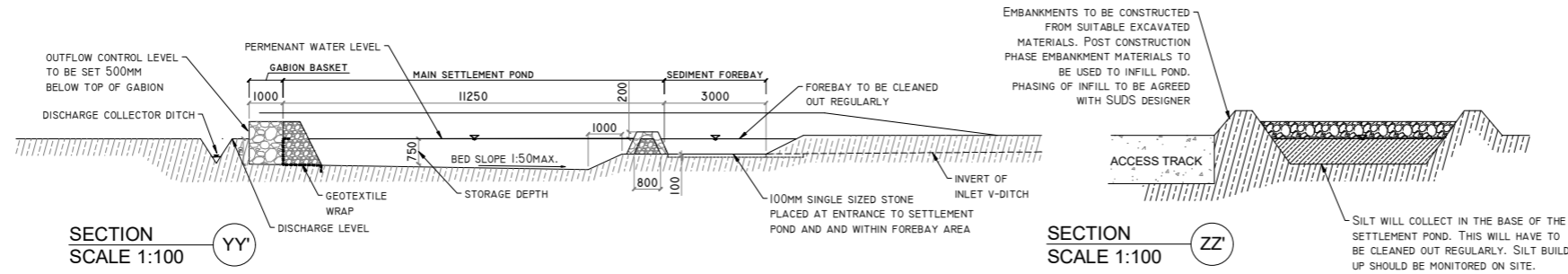




DETAIL A1

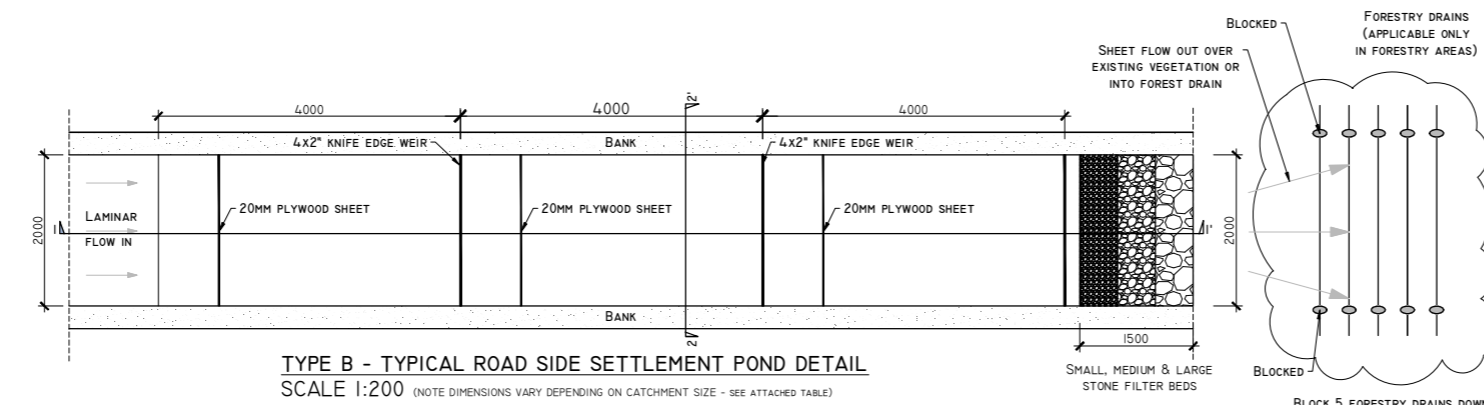
TYPE A - STANDARD ROAD SIDE SETTLEMENT POND DETAIL
SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE - SEE ATTACHED TABLE)

RETURN PERIOD	50 YRS	STORM DURATION	CATCHMENT SIZE (M ²)		
			500	1000	2000
6HR RETENTION FOR COARSE SILT	6 HRS		2.8 x 9 x 1 M	4 x 13 x 1 M	5.7 x 18 x 1 M
11HR RETENTION FOR MEDIUM SILT	12 HRS		3.2 x 10 x 1 M	4.5 x 14 x 1 M	6.4 x 20 x 1 M
24HR RETENTION FOR FINE SILT	24 HRS		3.5 x 11 x 1 M	5 x 16 x 1 M	7 x 22 x 1 M

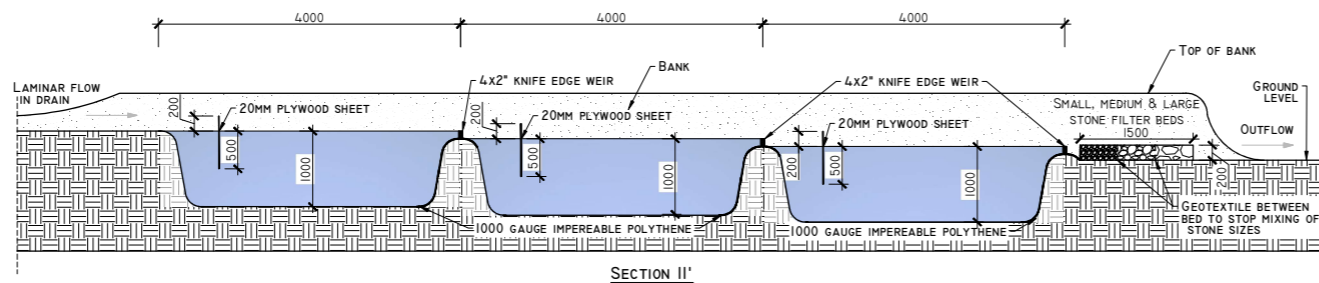


SECTION YY'
SCALE 1:100

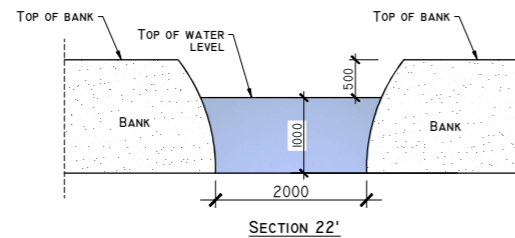
SECTION ZZ'
SCALE 1:100



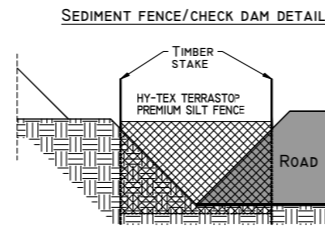
TYPE B - TYPICAL ROAD SIDE SETTLEMENT POND DETAIL
SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE - SEE ATTACHED TABLE)



SECTION II'



SECTION 22'



SEDIMENT FENCE/CHECK DAM DETAIL

DETAIL A2

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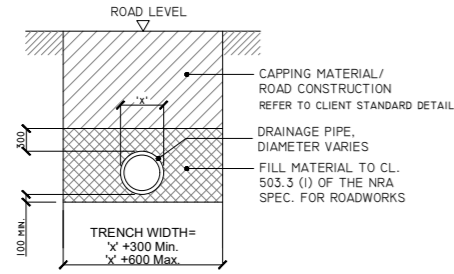
Job: BORRISBEG RENEWABLE ENERGY DEVELOPMENT

Title: DRAINAGE DETAILS I

Figure No: D501

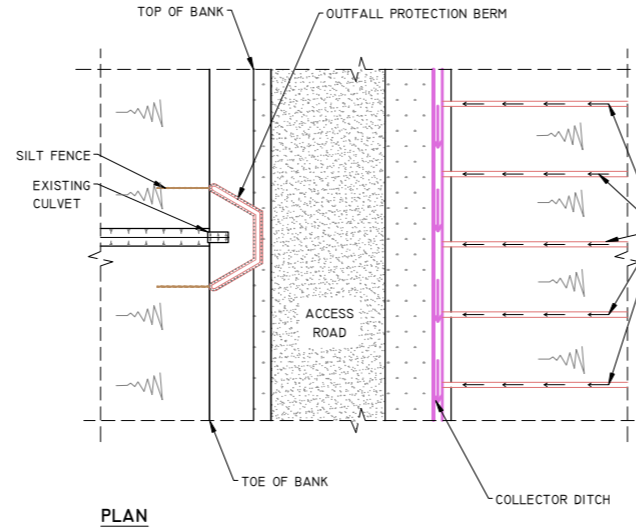
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Scale: as shown (A1) Drawn By: MG/GD
Date: 24/11/2023 Checked By: M.G.

DETAIL B



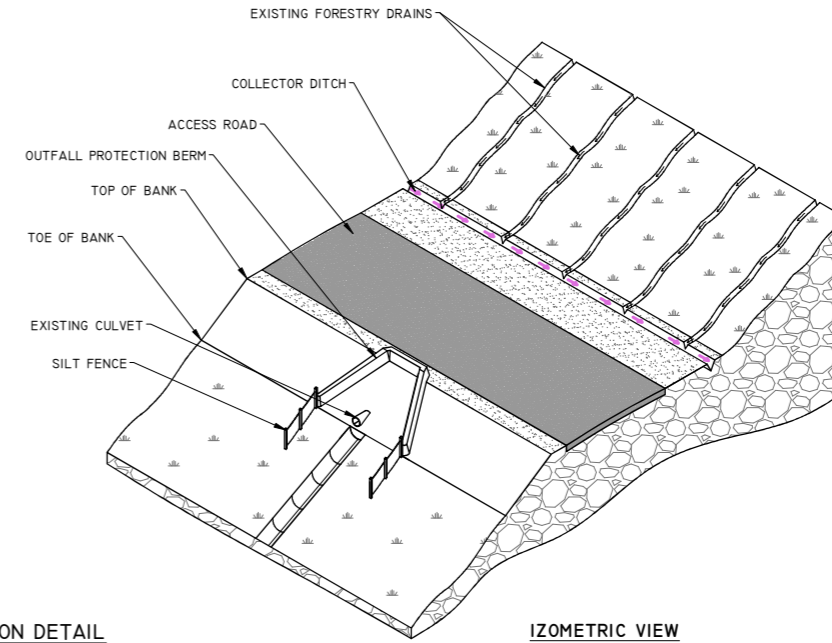
'TYPE B' CULVERT - DRAINAGE CROSSING BENEATH EXCAVATED ROAD
SCALE 1:50

DETAIL BI



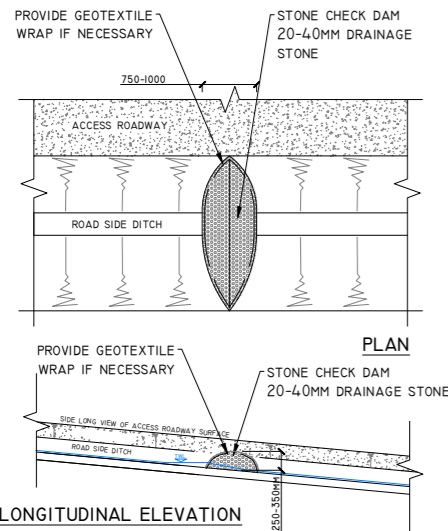
PLAN

CULVERT - OUTFALL PROTECTION DETAIL
SCHEMATIC - NOT TO SCALE



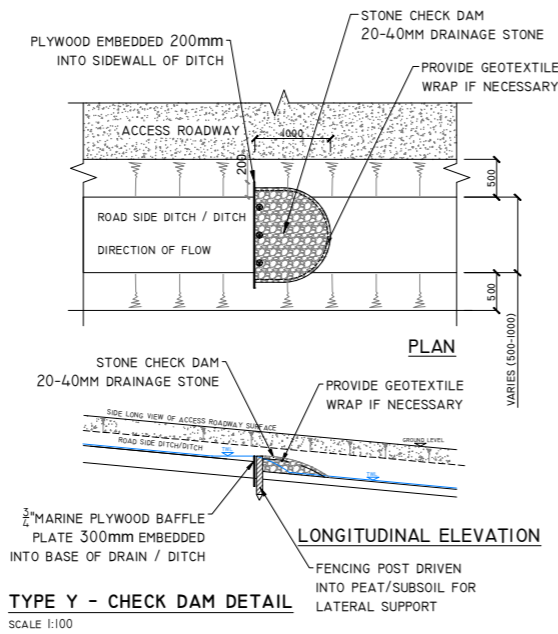
IZOMETRIC VIEW

DETAIL C

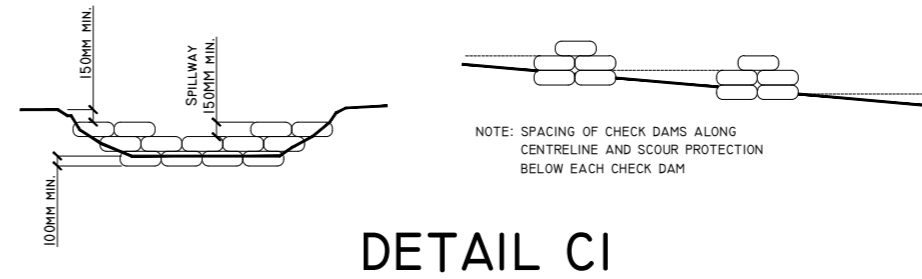


TYPE X - CHECK DAM DETAIL
SCALE 1:50

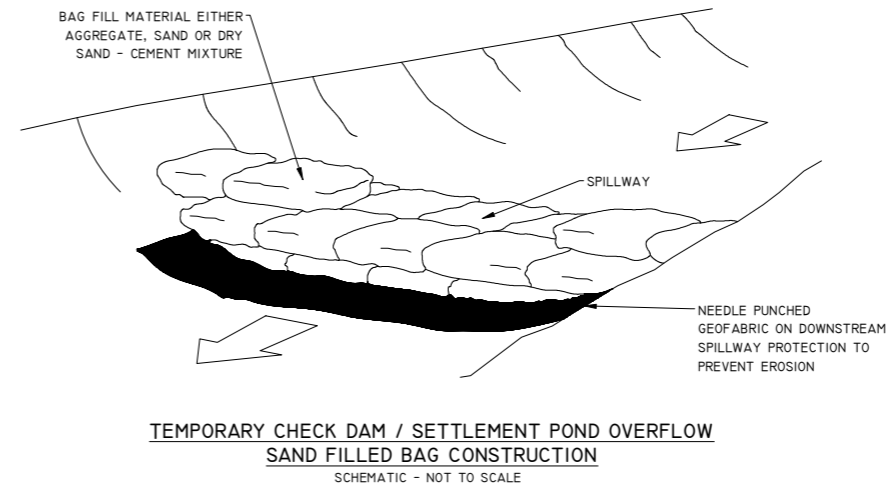
DETAIL D



TYPE Y - CHECK DAM DETAIL
SCALE 1:100

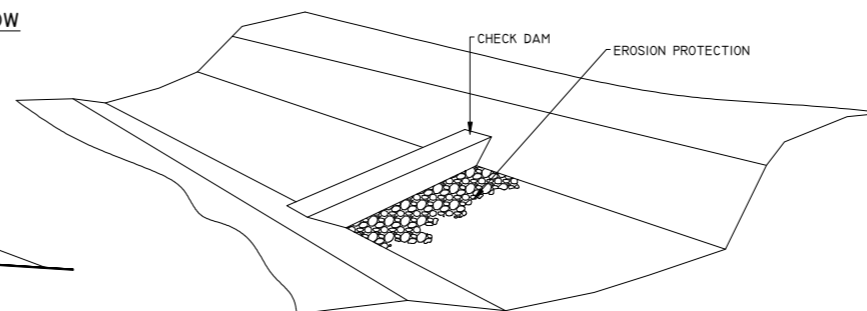
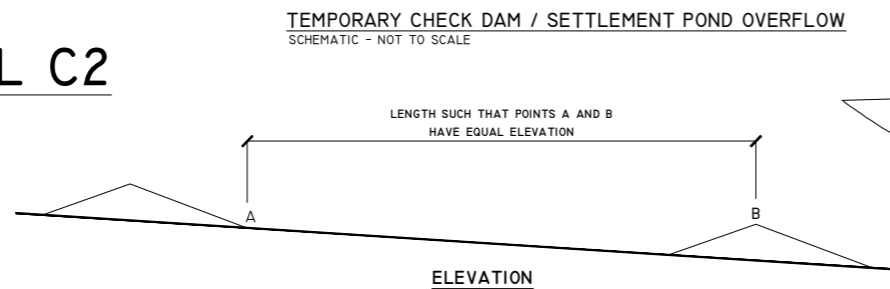


DETAIL CI



TEMPORARY CHECK DAM / SETTLEMENT POND OVERFLOW
SAND FILLED BAG CONSTRUCTION
SCHEMATIC - NOT TO SCALE

DETAIL C2



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Job: BORRISBEG RENEWABLE ENERGY DEVELOPMENT

Title: DRAINAGE DETAILS 2

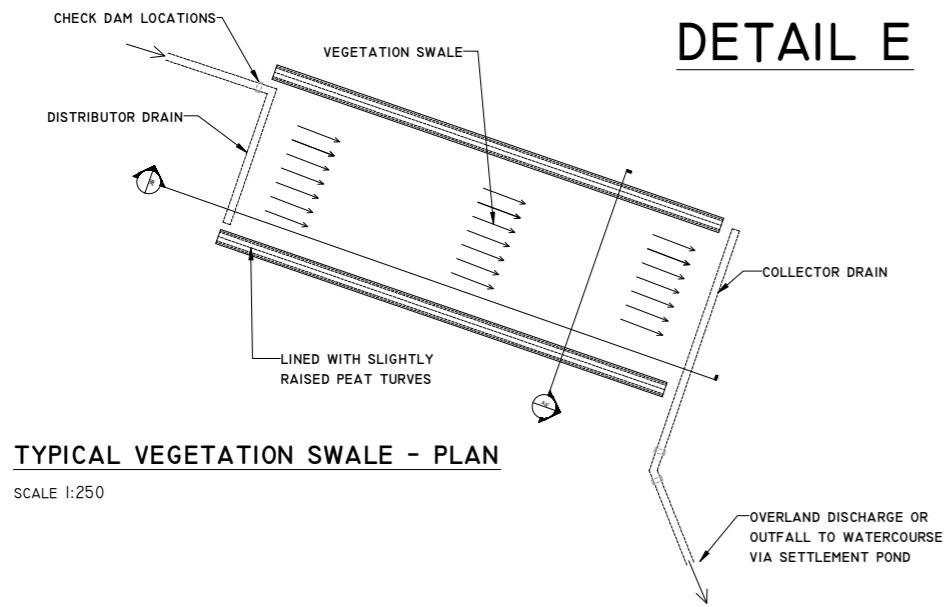
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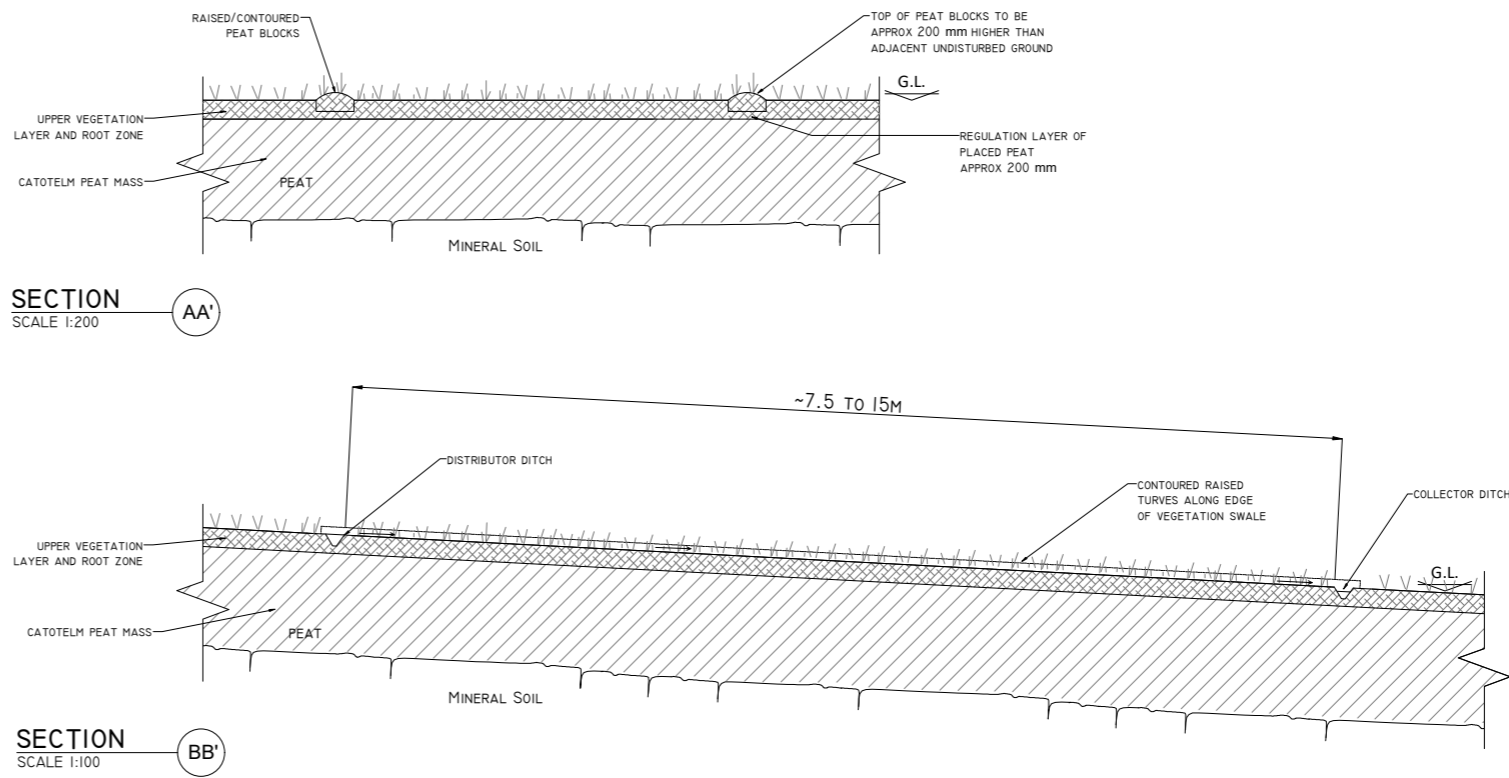
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Date: 24/11/2023 Checked By: M.G.

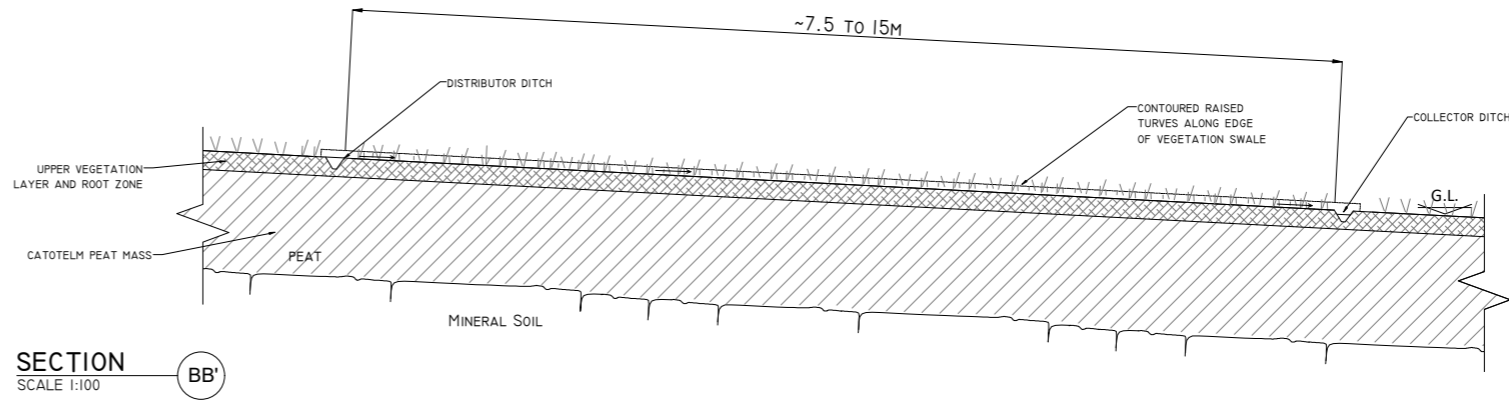


TYPICAL VEGETATION SWALE - PLAN

SCALE 1:250

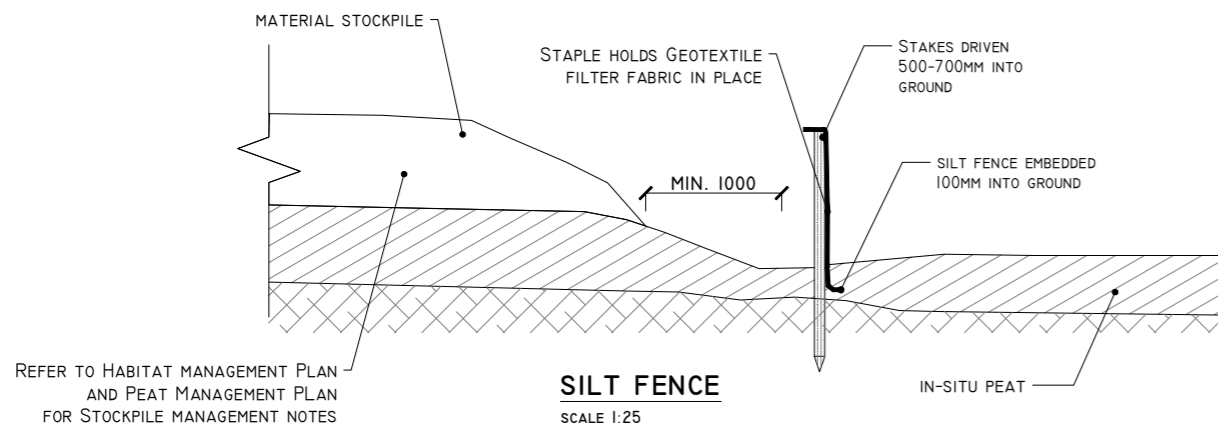


SECTION AA'
SCALE 1:200



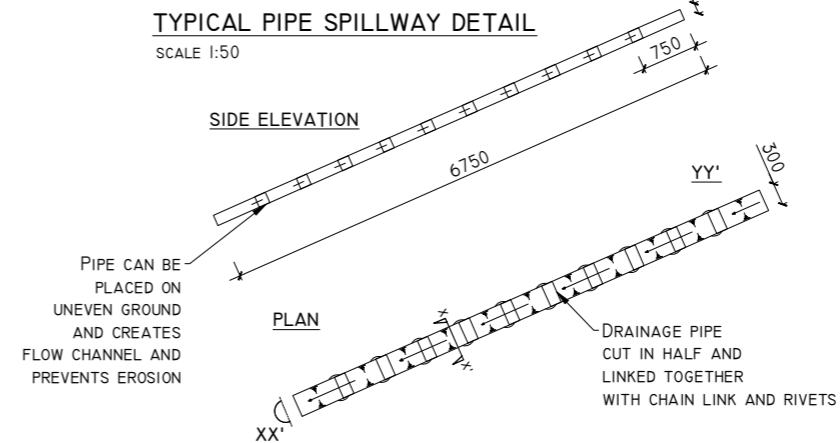
SECTION BB'
SCALE 1:100

DETAIL F-I



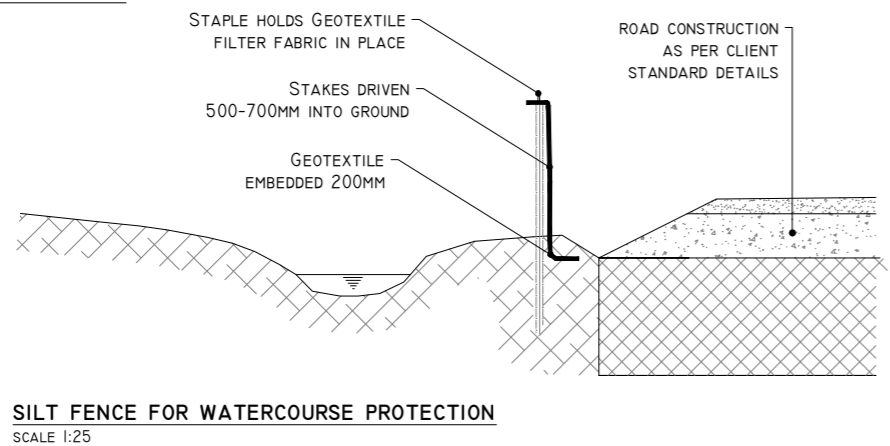
SILT FENCE
SCALE 1:25

DETAIL G

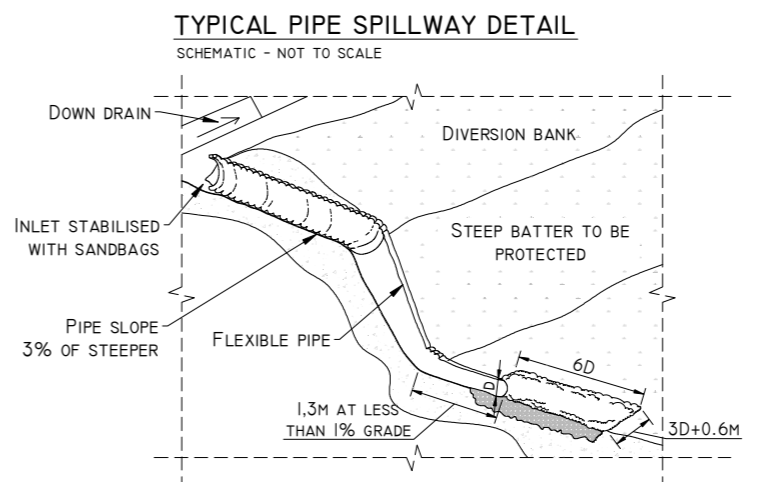


TYPICAL PIPE SPILLWAY DETAIL
SCALE 1:50

DETAIL F-II



SILT FENCE FOR WATERCOURSE PROTECTION
SCALE 1:25



TYPICAL PIPE SPILLWAY DETAIL
SCHEMATIC - NOT TO SCALE

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Job: BORRISBEG RENEWABLE ENERGY DEVELOPMENT

Title: DRAINAGE DETAILS 3

Figure No: D503

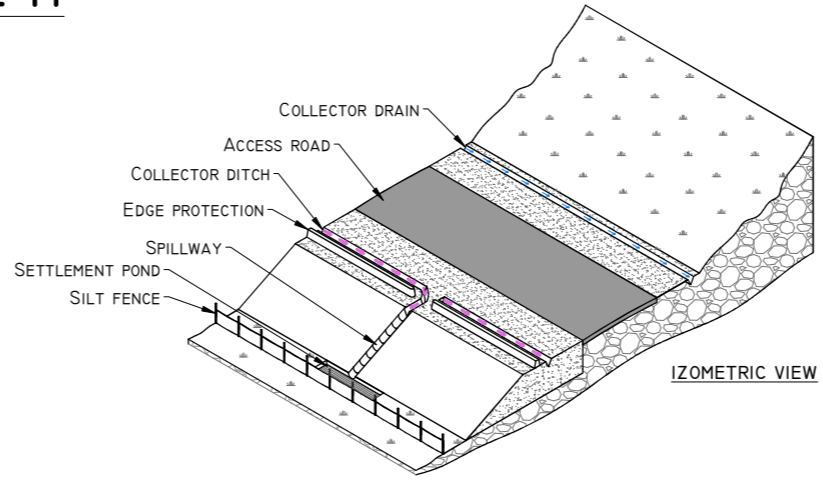
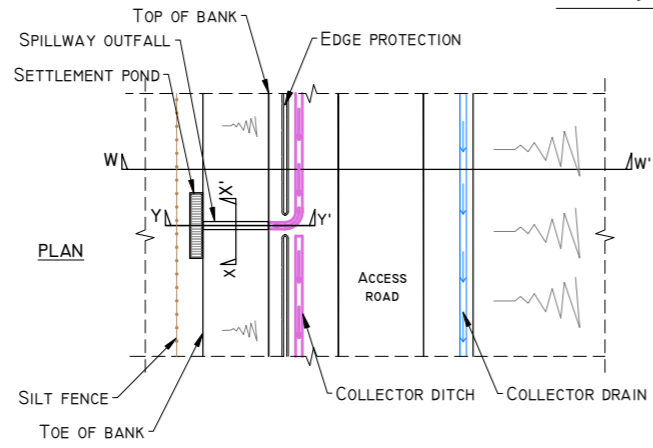
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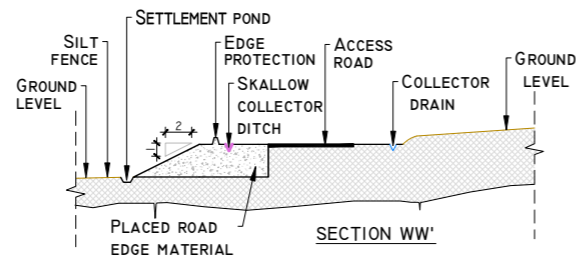
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Date: 24/11/2023 Checked By: M.G.

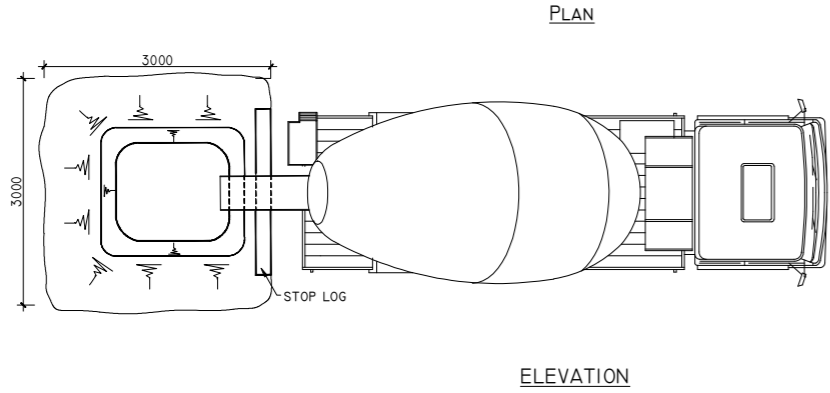
DETAIL H



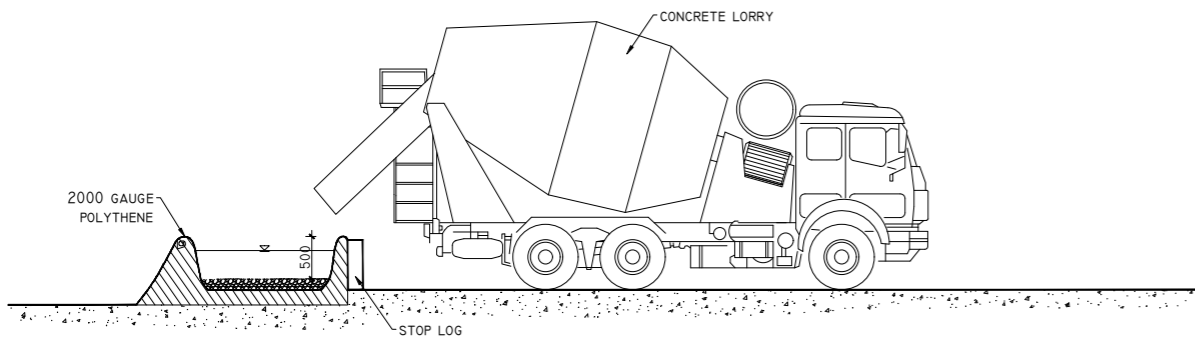
SPILLWAY OUTFALL PLAN
SCHEMATIC - NOT TO SCALE



TEMPORARY CONCRETE WASH OUT PIT
SCALE 1:50

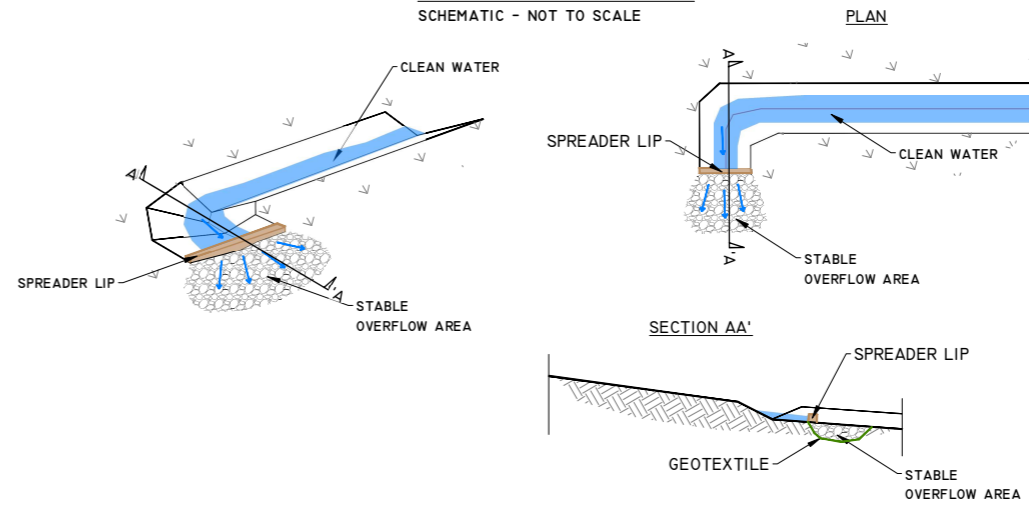


DETAIL I



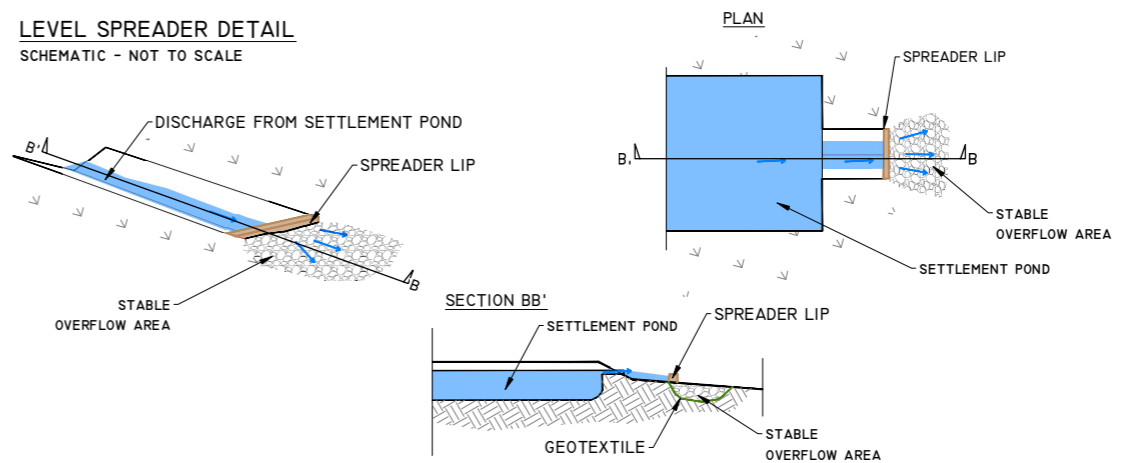
DETAIL J-1

LEVEL SPREADER DETAIL
SCHEMATIC - NOT TO SCALE



DETAIL J-2

LEVEL SPREADER DETAIL
SCHEMATIC - NOT TO SCALE



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Date	Description	Chkd	Signed

Revisions

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Title: DRAINAGE DETAILS 4

Figure No: D504

Drawing No: P1619-0-1123-A1-D504-00A

Sheet Size: A1 Project No.: P1619-0

Scale: as shown (A1) Drawn By: MG/GD

Date: 24/11/2023 Checked By: M.G.