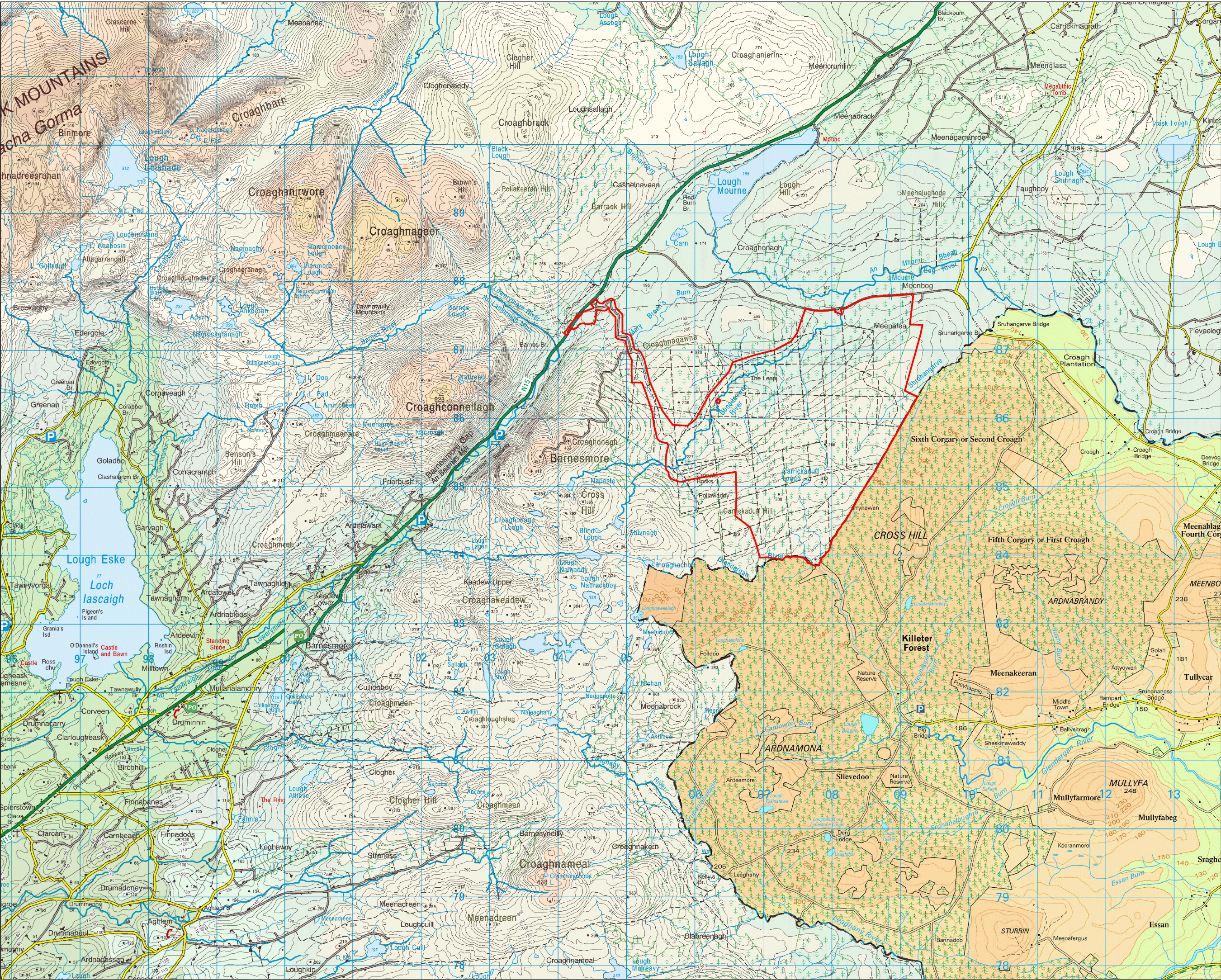


Drawing Schedule

Drawing No.	Drawing Title	Scale
0502 – 01	Location Context Map	1: 50,000 @ A3
0502 – 02	Site Location Map	1: 50,000 @ A3
0502 – 03	Site Layout (1: 5,000) Key Plan	1: 20,000 @ A1
0502 – 04	Site Layout Plan Sheet 1 of 3	1: 5,000 @ A1
0502 – 05	Site Layout Plan Sheet 2 of 3	1: 5,000 @ A1
0502 – 06	Site Layout Plan Sheet 3 of 3	1: 5,000 @ A1
0502 – 07	Site Layout (1: 2,500) Key Plan	1: 20,000 @ A1
0502 – 08	Site Layout Plan Sheet 1 of 7	1: 2,500 @ A1
0502 – 09	Site Layout Plan Sheet 2 of 7	1: 2,500 @ A1
0502 – 10	Site Layout Plan Sheet 3 of 7	1: 2,500 @ A1
0502 – 11	Site Layout Plan Sheet 4 of 7	1: 2,500 @ A1
0502 – 12	Site Layout Plan Sheet 5 of 7	1: 2,500 @ A1
0502 – 13	Site Layout Plan Sheet 6 of 7	1: 2,500 @ A1
0502 – 14	Site Layout Plan Sheet 7 of 7	1: 2,500 @ A1
0502 – 15 (P1249-2_D101)	Drainage Layout Sheet 1 of 6	1:2,500 @ A1
0502 – 16 (P1249-2_D102)	Drainage Layout Sheet 2 of 6	1:2,500 @ A1
0502 – 17 (P1249-2_D103)	Drainage Layout Sheet 3 of 6	1:2,500 @ A1
0502 – 18 (P1249-2_D104)	Drainage Layout Sheet 4 of 6	1:2,500 @ A1
0502 – 19 (P1249-2_D105)	Drainage Layout Sheet 5 of 6	1:2,500 @ A1
0502 – 20 (P1249-2_D106)	Drainage Layout Sheet 6 of 6	1:2,500 @ A1
0502 – 21	Temporary Construction Compound 1	1: 500 @ A3
0502 – 22	Temporary Construction Compound 2	1: 500 @ A3
0502 – 23	Site Substation Layout	1: 500 @ A3
0502 – 24	Site Substation North Elevation	As Shown @ A3
0502 – 25	Site Substation South Elevation	As Shown @ A3
0502 – 26	Site Substation East Elevation	As Shown @ A3
0502 – 27	Site Substation West Elevation	As Shown @ A3
0502 – 28	Site Substation Section A-A	As Shown @ A3
0502 – 29	Site Substation Section B-B	As Shown @ A3
0502 – 30	Site Substation Control Building 1 - Elevations & Section	1: 100 @ A3
0502 – 31	Site Substation Control Building 2 - Elevations & Section	1: 100 @ A3
0502 – 32	Borrow Pit 1 Layout & Section	As Shown @ A3
0502 – 33	Borrow Pit 2 Layout & Section	As Shown @ A3
0502 – 34	Borrow Pit 3 Layout & Section	As Shown @ A3
0502 – 35	Met Mast – Free Standing Mast	1: 300 @ A3
0502 – 36	Wind Turbine Elevation & Plan	1: 500 @ A3
0502 – 37	Typical Turbine Hardstand Layout Detail	1: 500 @ A3
0502 – 38	Road Type A - Upgrade of Existing Excavated Access Road	1:50 @ A3
0502 – 39	Road Type B - Upgrade of Existing Floated Access Road	1:50 @ A3

Drawing Schedule

Drawing No.	Drawing Title	Scale
0502 – 40	Road Type C - New Excavated & Replace Access Road	1:50 @ A3
0502 – 41	Road Type D - New Floated Access Road	1:50 @ A3
0502 – 42	Proposed Turbine Delivery Access Junction Layout	1: 1,500 @ A3
0502 – 43	Proposed Wind Farm Maintenance Access Junction Layout	1: 1,000 @ A3
0502 – 44	Proposed Amenity Access Junction Layout	1: 1,000 @ A3
0502 – 45	Site Entrance Signage	1: 20 @ A3
0502 – 46	Turbine Delivery Route Quarry Face Sections	As Shown @ A3
0502 – 47	Typical Clear Span Bridge	As Shown @ A3
0502 – 48	Joint Bay Detail Sheet 1 of 3	1: 25 @ A3
0502 – 49	Joint Bay Detail Sheet 2 of 3	1: 25 @ A3
0502 – 50	Joint Bay Detail Sheet 3 of 3	1: 25 @ A3
0502 – 51	C2 Comms Chamber Detail	1: 20 @ A3
0502 – 52	Roadside Cable Trench Cross Section	1: 10 @ A3
0502 – 53	Cable Trench Over Culvert	1: 30 @ A3
0502 – 54	Cable Trench Under Piped Culvert	1: 25 @ A3
0502 – 55	Cable Trench Flatbed Formation Over Culvert	As Shown @ A3
0502 – 56	Cable Trench Flatbed at Road Surface Level	As Shown @ A3
0502 – 57	Directional Drilling	1: 200 @ A3
0502 – 58	Horizontal Auger Drilling	1: 150 @ A3
0502 – 59	Typical Storm Water Service Crossing	1: 25 @ A3
0502 – 60	Typical Unidentified Service Duct Crossing	1: 25 @ A3
0502 – 61	Amenity Facilities Key Plan	1: 1,000 @ A3
0502 – 62	Amenity Facilities Plan - Entrance	1: 500 @ A3
0502 – 63	Amenity Facilities Plan - Car Parking Facility	1: 500 @ A3
0502 – 64	Amenity Facilities Plan - Amenity Area	1: 500 @ A3
0502 – 65	Picnic Area Plan & Elevations	1: 50 @ A3
0502 – 66	Timber Footbridge Plan & Elevations	1: 50 @ A3
0502 – 67	Amenity Area Signage	1: 20 @ A3
P1249-2_D501	Drainage Details 1	As Shown @ A1
P1249-2_D502	Drainage Details 2	As Shown @ A1
P1249-2_D503	Drainage Details 3	As Shown @ A1
P1249-2_D504	Drainage Details 4	As Shown @ A1

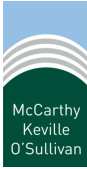


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 8. Final levels may vary depending on local ground conditions.

Drawing Legend

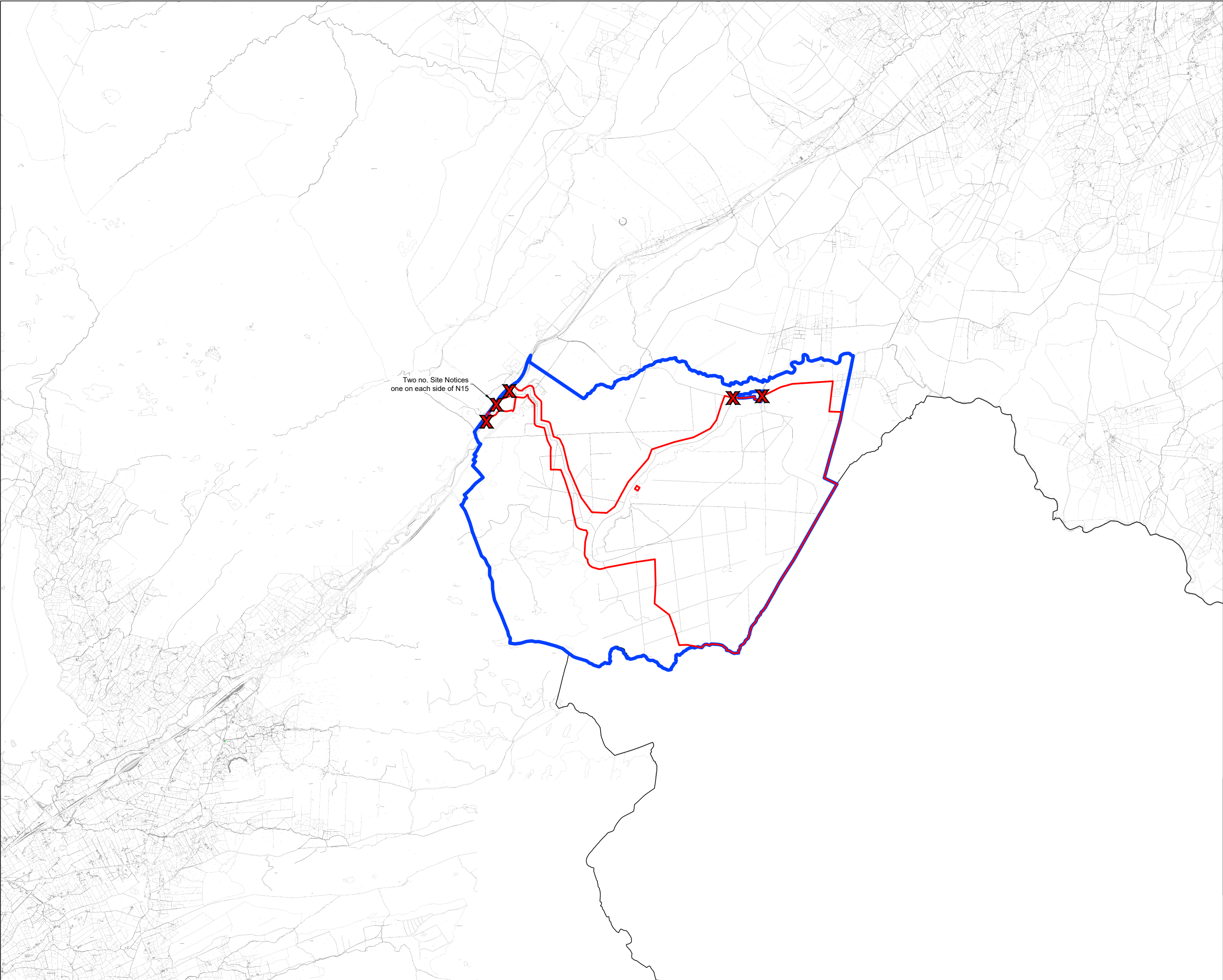
Planning Application Site Boundary

DRAWING TITLE: Location Context Map	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 01
SCALE: 1:50,000 @ A3	DATE: 13.12.2017
OS SHEET No.: OS1836, OS1838, OS2036, OS2038, N119-B	



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Two no. Site Notices
one on each side of N15

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Drawing Legend

- Planning Application Site Boundary
- Landowners Boundary
- Site Notice



Site Location Map

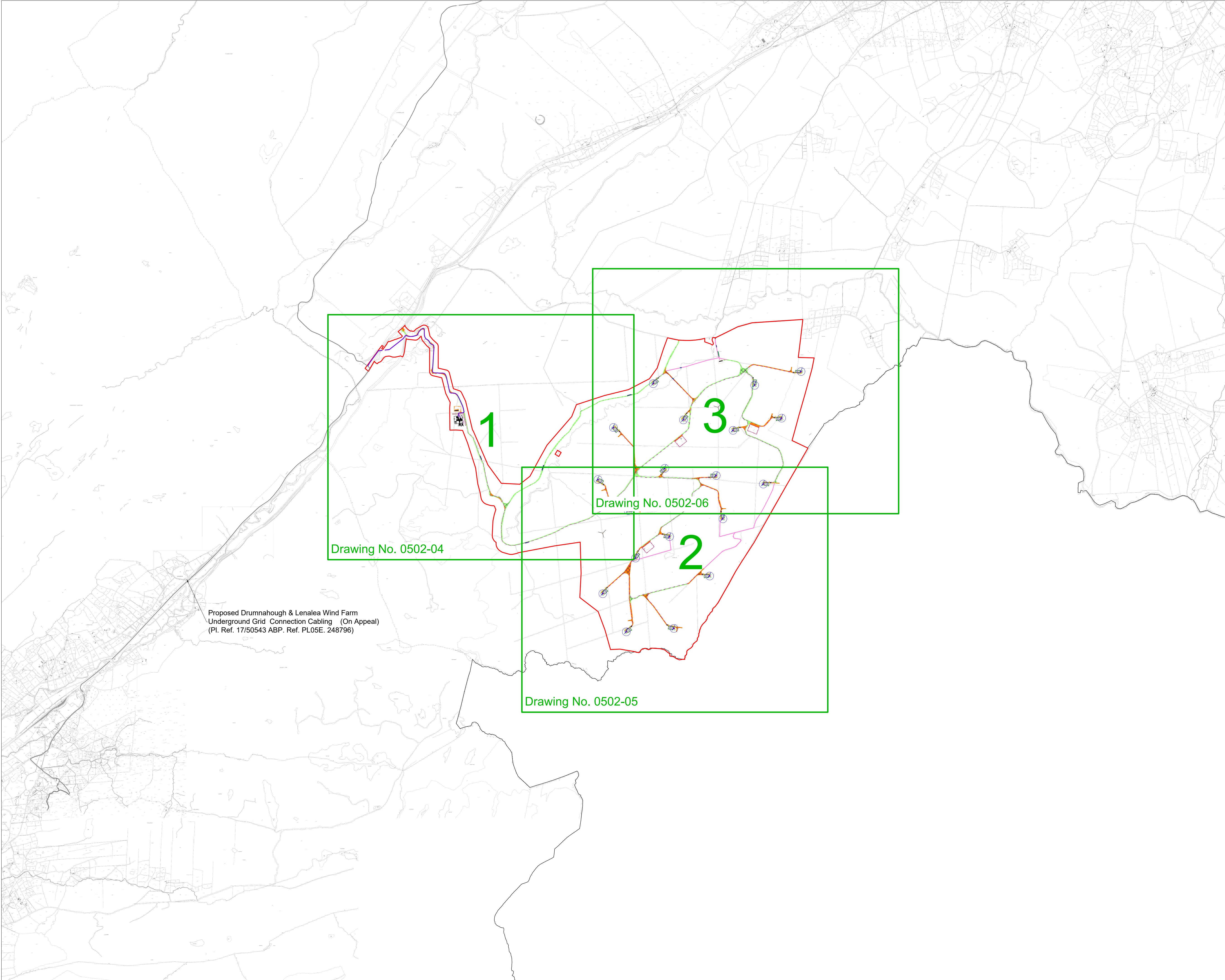
PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 02
SCALE: 1:50,000 @ A3	DATE: 13.12.2017

OS SHEET No.: 0397,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451, 0452, 0453, 0454, 0476, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536



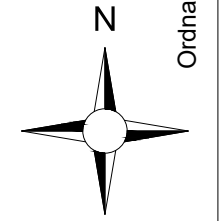
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Drawing Legend

- Planning Application Site Boundary
- Existing Road to be Upgraded
- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- Proposed Underground Grid Connection Cabling Route
- Directionally Drilled Cabling Route Section Under N15
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Proposed Amenity Track
- Passing Bay



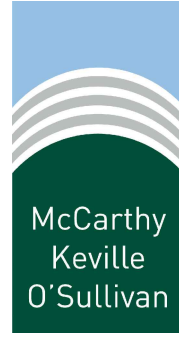
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DRAWING TITLE:
Site Layout (1:5,000)
Key Plan

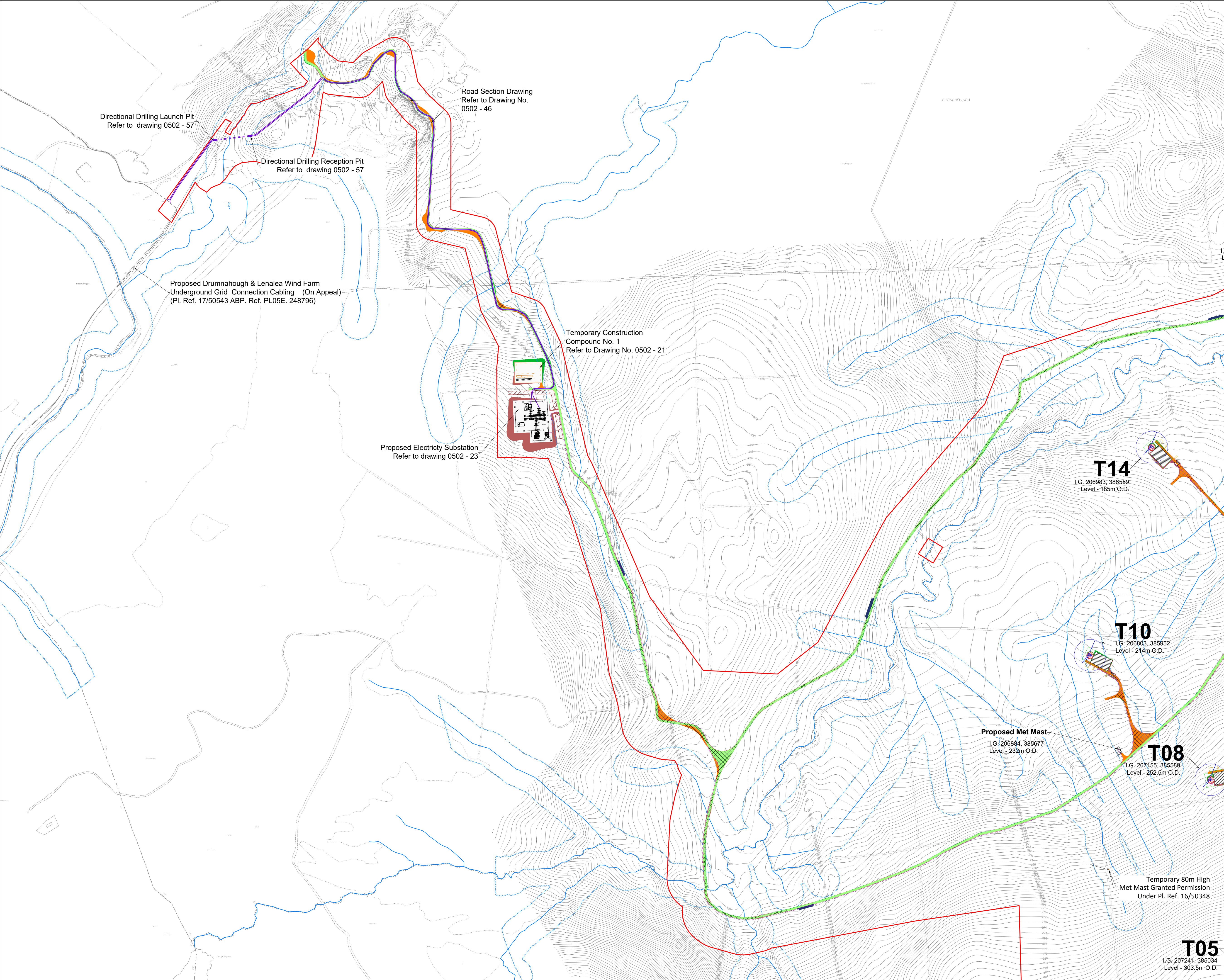
PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 03
SCALE: 1:20,000 @ A1	DATE: 14.12.2017

OS SHEET No.: 0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0476, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536



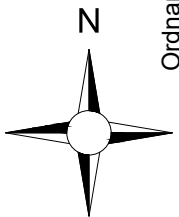
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Drawing Legend

- Planning Application Site Boundary
- Existing Road to be Upgraded
- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- Proposed Underground Grid Connection Cabling Route
- Directionally Drilled Cabling Route Section Under N15
- River/Stream
- River/Stream 50m Buffer
- Lakes
- Lakes 50m Buffer
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Cut
- Fill
- Passing Bay
- Berm



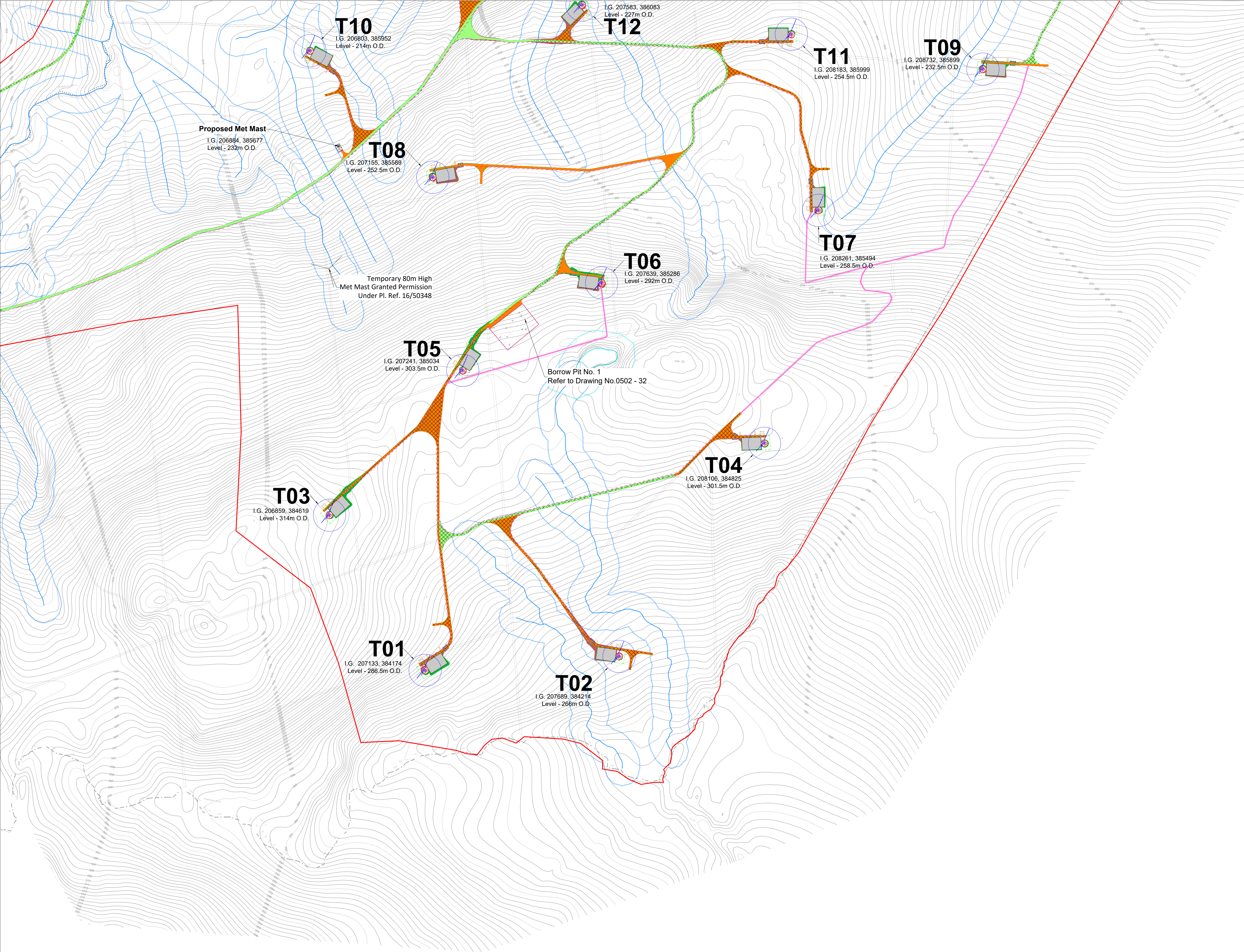
Site Layout Plan
Sheet 1 of 3

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 04
SCALE: 1:5,000 @ A1	DATE: 14.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

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Drawing Legend

- Planning Application Site Boundary
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- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- River/Stream
- River/Stream 50m Buffer
- Lakes
- Lakes 50m Buffer
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Cut
- Fill
- Proposed Amenity Track

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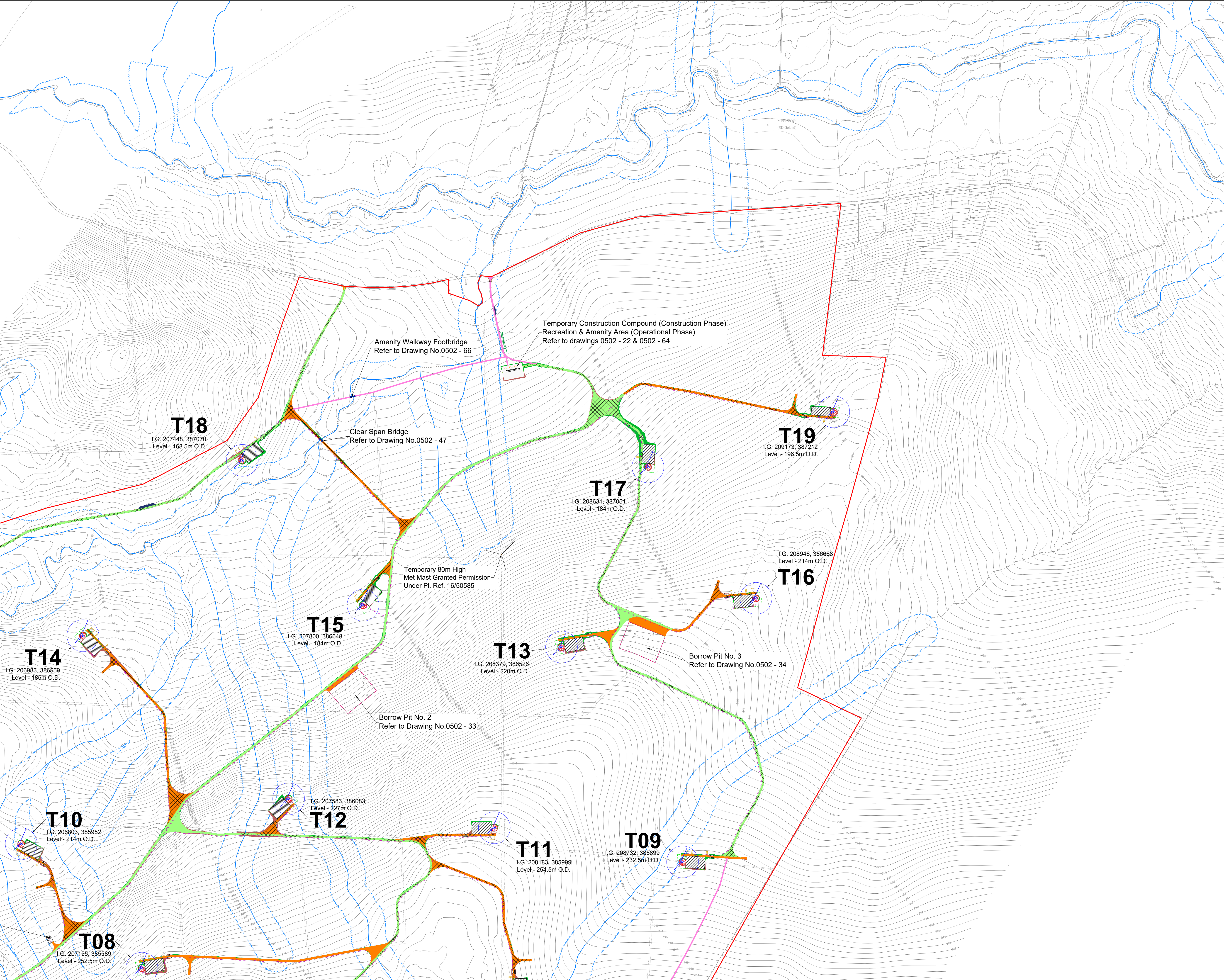
Site Layout Plan
Sheet 2 of 3

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 05
SCALE: 1:5,000 @ A1	DATE: 13.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

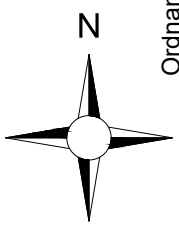
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Drawing Legend

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- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- River/Stream
- River/Stream 50m Buffer
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Cut
- Fill
- Proposed Amenity Track
- Passing Bay



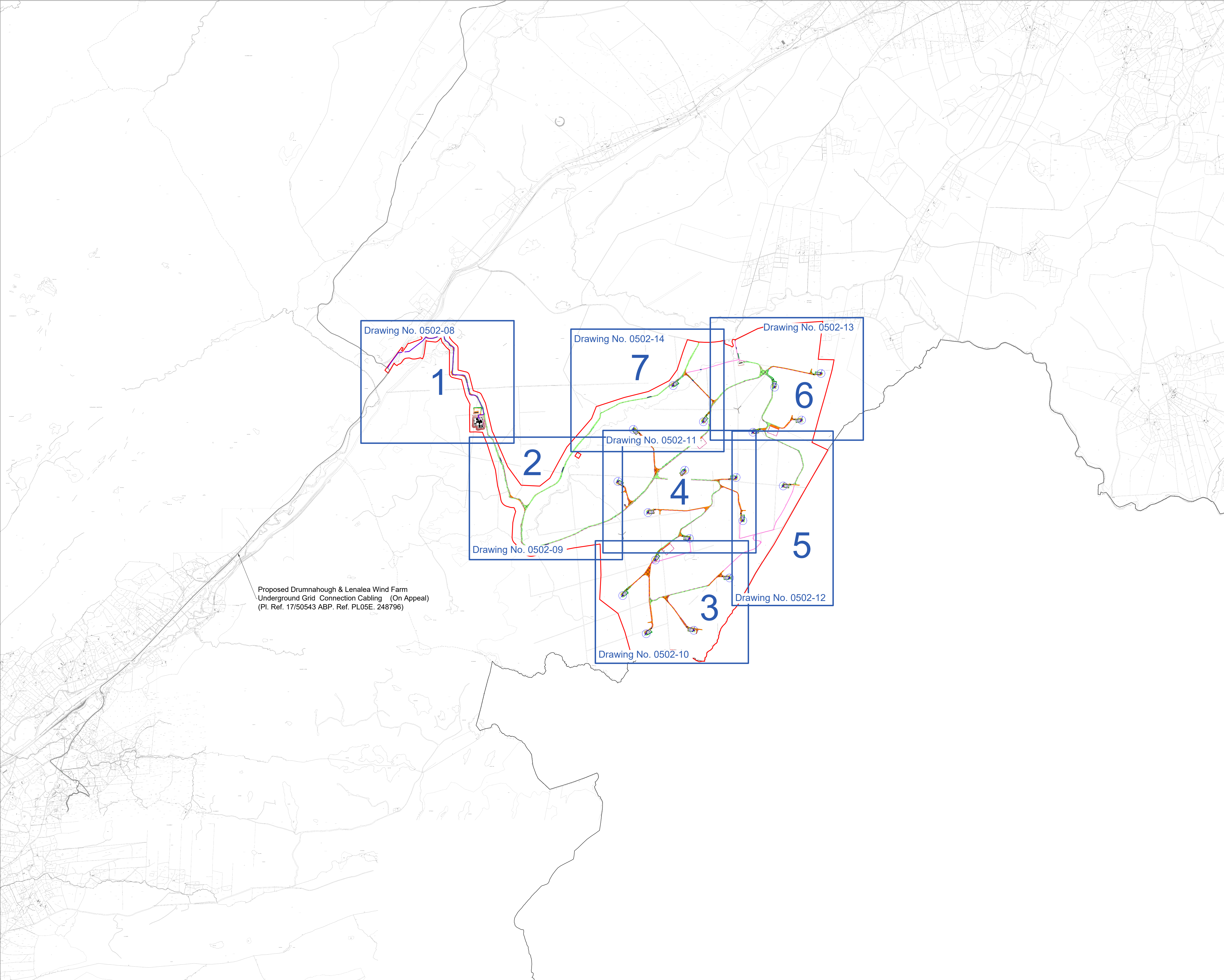
DRAWING TITLE:
**Site Layout Plan
Sheet 3 of 3**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 06
SCALE: 1:5,000 @ A1	DATE: 13.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

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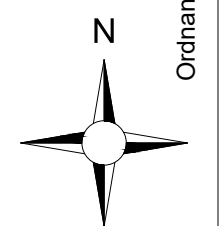


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Drawing Legend

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- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Proposed Underground Grid Connection Cabling Route
- Directionally Drilled Cabling Route Section Under N15
- Internal Electrical Cable Trench
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Proposed Amenity Track
- Passing Bay



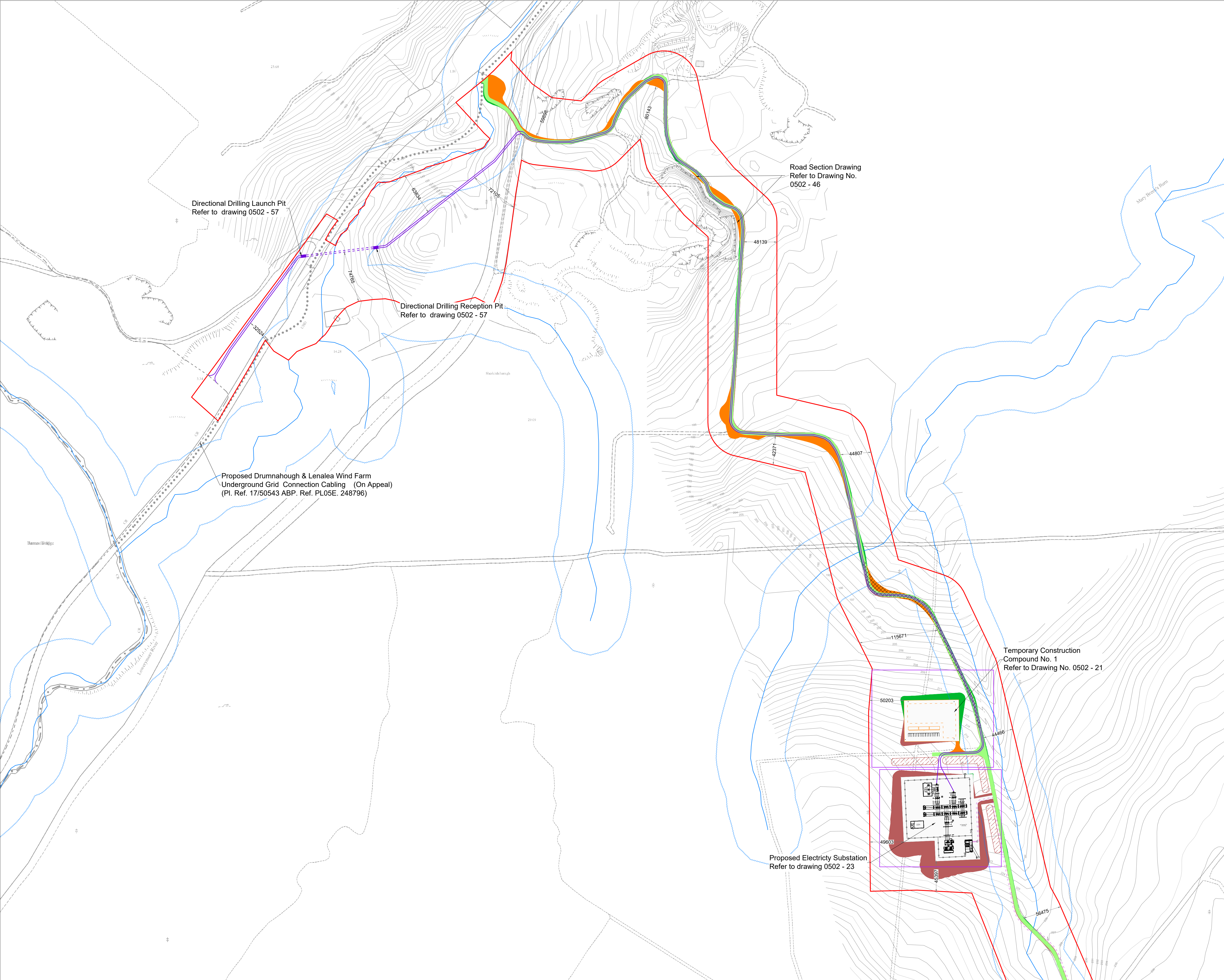
DRAWING TITLE:
**Site Layout (1:2,500)
Key Plan**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 07
SCALE: 1:20,000 @ A1	DATE: 14.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

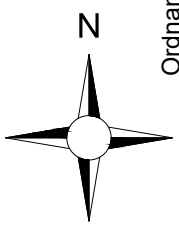
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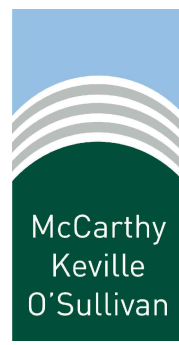
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Drawing Legend

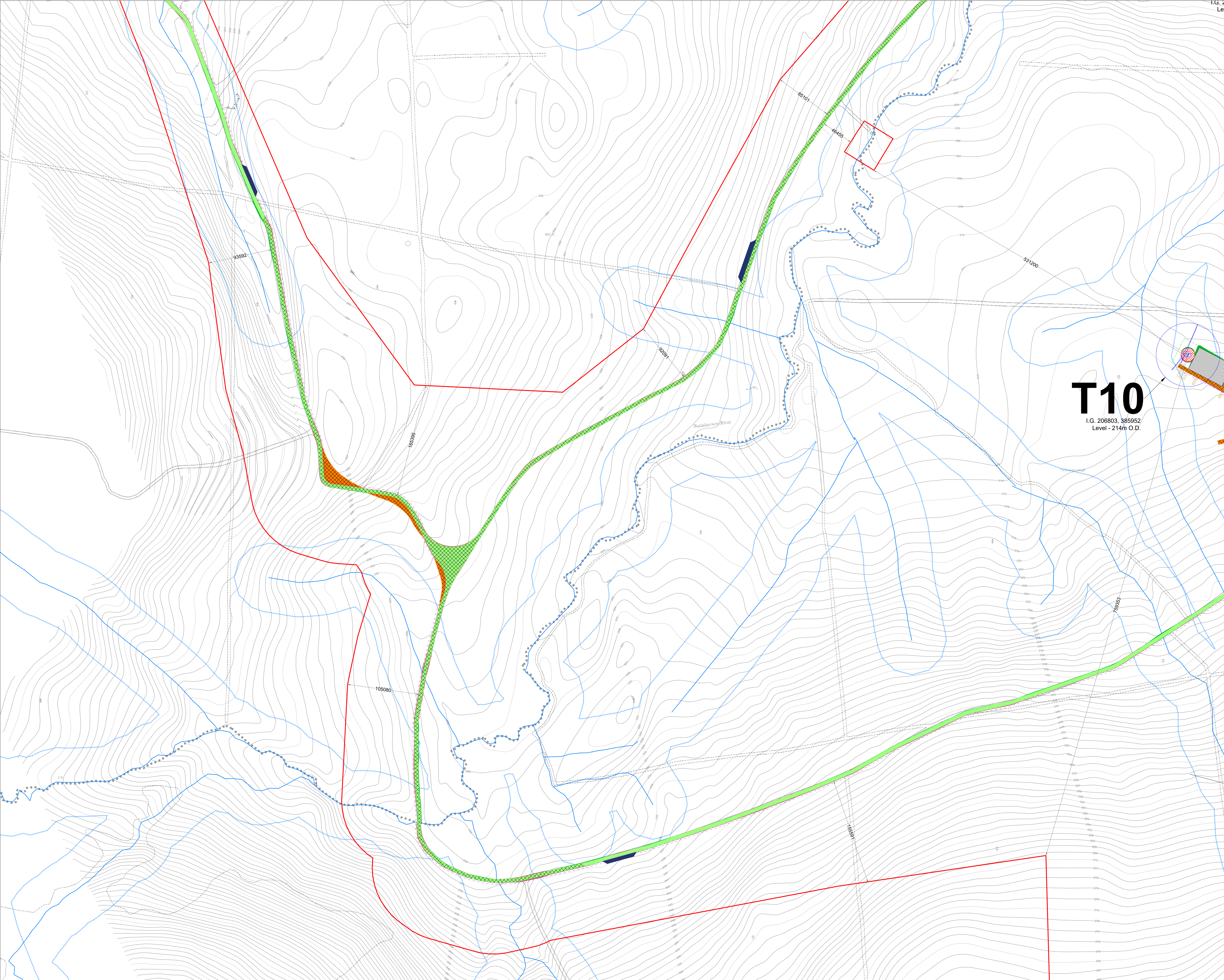
- Planning Application Site Boundary
- Existing Road to be Upgraded
- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- Proposed Underground Grid Connection Cabling Route
- Directionally Drilled Cabling Route Section Under N15
- River/Stream
- River/Stream 50m Buffer
- Cut
- Fill



DRAWING TITLE: Site Layout Plan Sheet 1 of 7	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 08
SCALE: 1:2,500 @ A1	DATE: 14.12.2017
OS SHEET No.: 0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536	



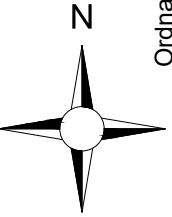
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Fax: +353 91 771279



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 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions
 9. Internal electrical cable trench may be installed on either side of site roads.

Drawing Legend

- Planning Application Site Boundary
- Existing Road to be Upgraded
- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- River/Stream
- River/Stream 50m Buffer
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Cut
- Fill
- Passing Bay



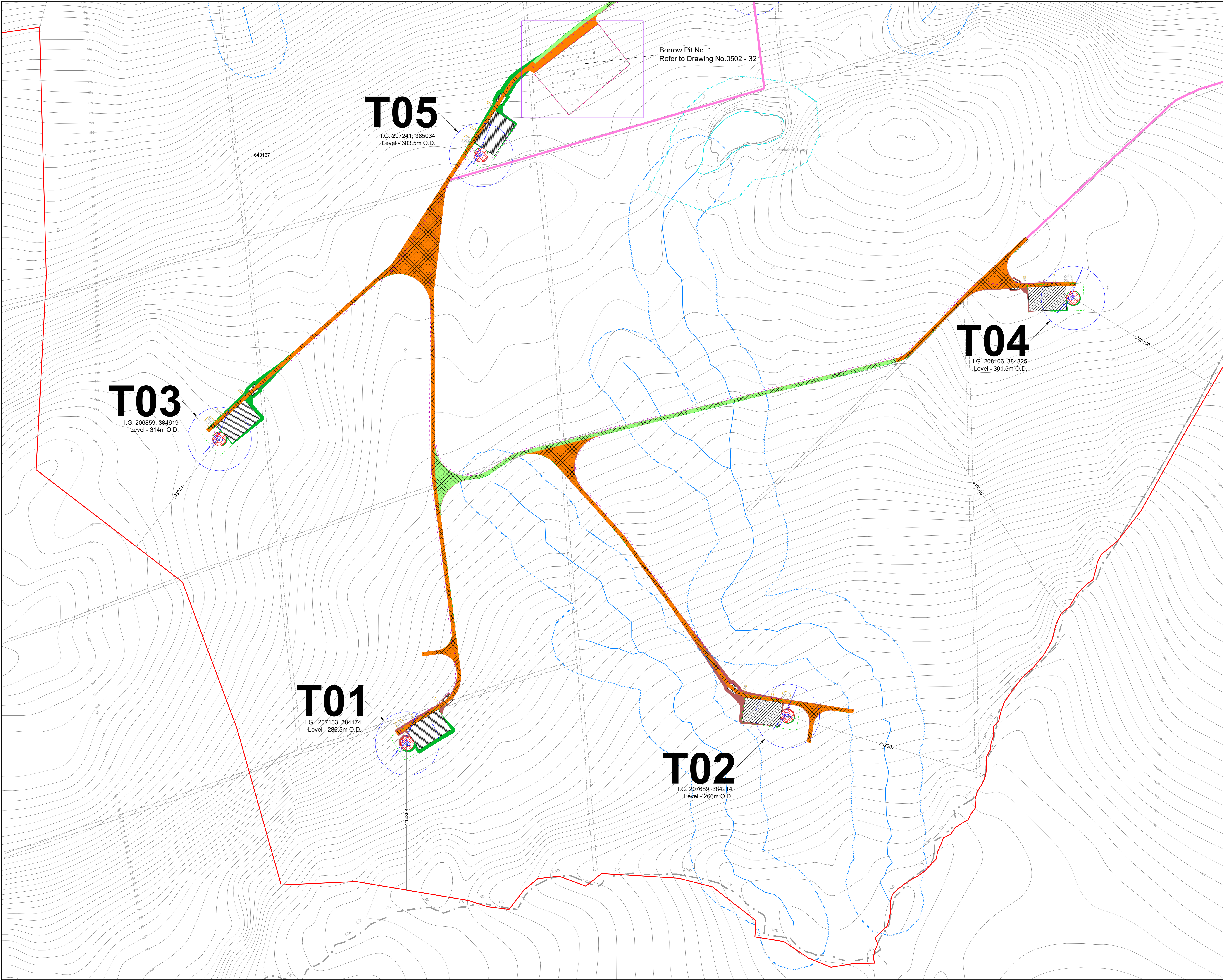
Site Layout Plan
Sheet 2 of 7

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 09
SCALE: 1:2,500 @ A1	DATE: 13.12.2017

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7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions
9. Internal electrical cable trench may be installed on either side of site roads.

Drawing Legend

- Planning Application Site Boundary
- Existing Road to be Upgraded
- Proposed Road
- Internal Electrical Cable Trench
- River/Stream
- River/Stream 50m Buffer
- Lakes
- Lakes 50m Buffer
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Cut
- Fill
- Proposed Amenity Track

DRAWING TITLE:
**Site Layout Plan
Sheet 3 of 7**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 10
SCALE: 1:2,500 @ A1	DATE: 13.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

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T14
I.G. 206983, 386559
Level - 185m O.D.

T13
I.G. 208379, 386526
Level - 220m O.D.

Borrow Pit No. 2
Refer to Drawing No.0502 - 33

T12
I.G. 207583, 386083
Level - 227m O.D.

T11
I.G. 208183, 385999
Level - 254.5m O.D.

T10
I.G. 206903, 385952
Level - 214m O.D.

Proposed Met Mast
I.G. 206884, 385677
Level - 232m O.D.

T08
I.G. 207155, 385589
Level - 252.5m O.D.

Temporary 80m High
Met Mast Granted Permission
Under Pl. Ref. 16/50348

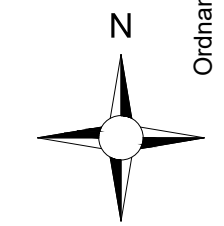
T06
I.G. 207639, 385286
Level - 292m O.D.

Borrow Pit No. 1
Refer to Drawing No.0502 - 32

T07
I.G. 208261, 385494
Level - 258.5m O.D.

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 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions
 9. Internal electrical cable trench may be installed on either side of site roads.

- Drawing Legend**
- Planning Application Site Boundary
 - Existing Road to be Upgraded
 - Existing Floating Road to be Upgraded
 - Proposed Road
 - Proposed Floating Road
 - Internal Electrical Cable Trench
 - River/Stream
 - River/Stream 50m Buffer
 - Works Area
 - Soft Levelled Area
 - Crane Pad Hardstanding Area
 - Turbine Foundation
 - Turbine Sweep Area
 - Borrow Pit
 - Cut
 - Fill
 - Proposed Amenity Track



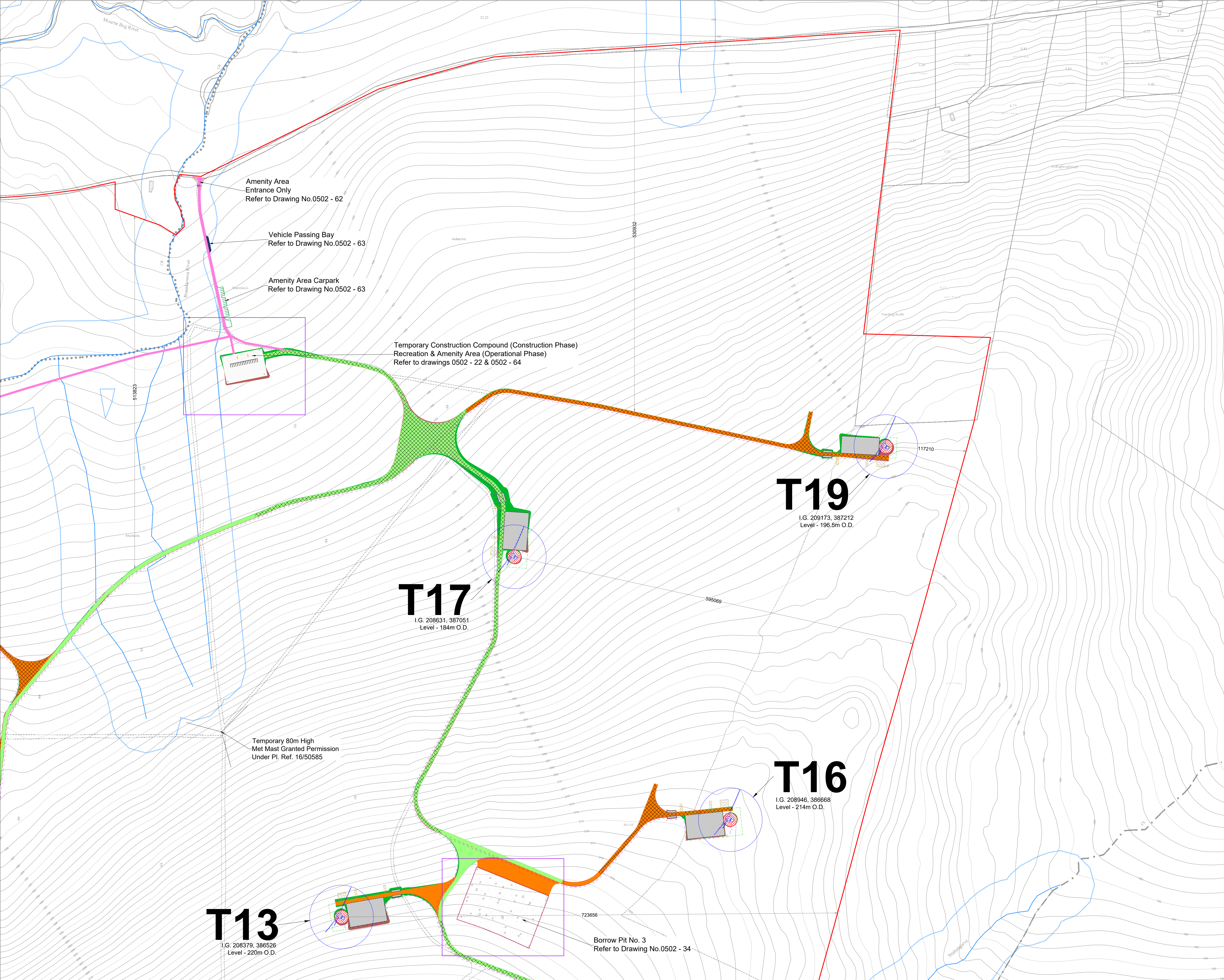
DRAWING TITLE:
**Site Layout Plan
Sheet 4 of 7**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 11
SCALE: 1:2,500 @ A1	DATE: 13.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

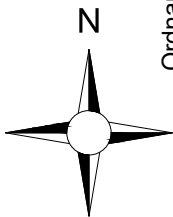
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Drawing Legend

- Planning Application Site Boundary
- Existing Road to be Upgraded
- Existing Floating Road to be Upgraded
- Proposed Road
- Proposed Floating Road
- Internal Electrical Cable Trench
- River/Stream
- River/Stream 50m Buffer
- Works Area
- Soft Levelled Area
- Crane Pad Hardstanding Area
- Turbine Foundation
- Turbine Sweep Area
- Borrow Pit
- Cut
- Fill
- Proposed Amenity Track
- Passing Bay



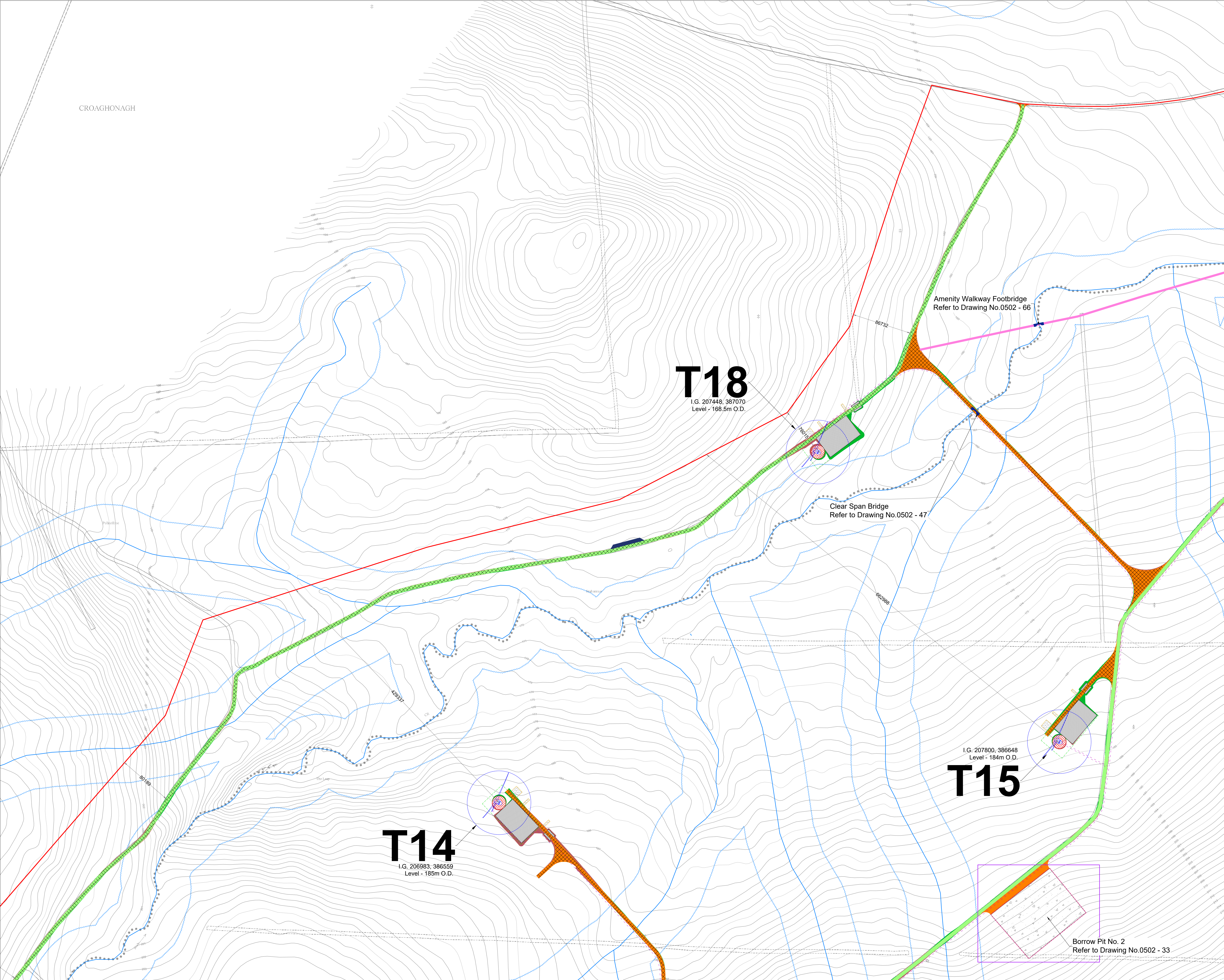
DRAWING TITLE:
**Site Layout Plan
Sheet 6 of 7**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 13
SCALE: 1:2,500 @ A1	DATE: 13.12.2017

OS SHEET No.:
0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

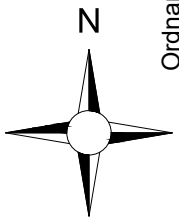
McCarthy Keville O'Sullivan Ltd.
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Drawing Legend

- Planning Application Site Boundary
- Existing Road to be Upgraded
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- Proposed Floating Road
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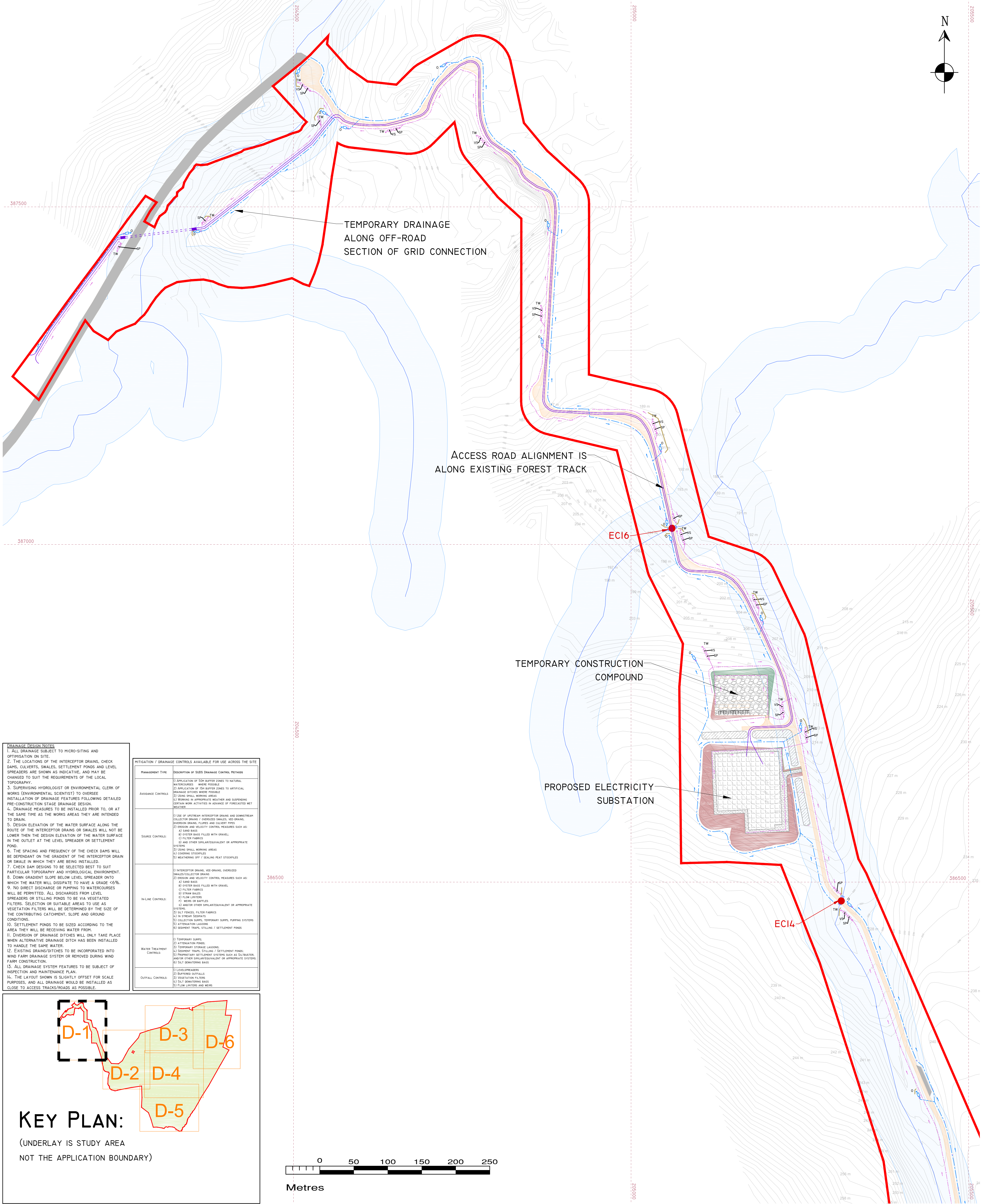
DRAWING TITLE:
**Site Layout Plan
Sheet 7 of 7**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 14
SCALE: 1:2,500 @ A1	DATE: 13.12.2017

OS SHEET No.:
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DRAINAGE DESIGN NOTES

1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.

2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, SETTLEMENT PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.

3. SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTISTS) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED PRE-CONSTRUCTION STAGE DRAINAGE DESIGN.

4. DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS AREAS THEY ARE INTENDED TO DRAIN.

5. DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THEN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR SETTLEMENT POND.

6. THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.

7. CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.

8. DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISSIPATE TO HAVE A GRADE <6%.

9. NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILLING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OF SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.

10. SETTLEMENT PONDS TO BE SIZED ACCORDING TO THE AREA THEY WILL BE RECEIVING WATER FROM.

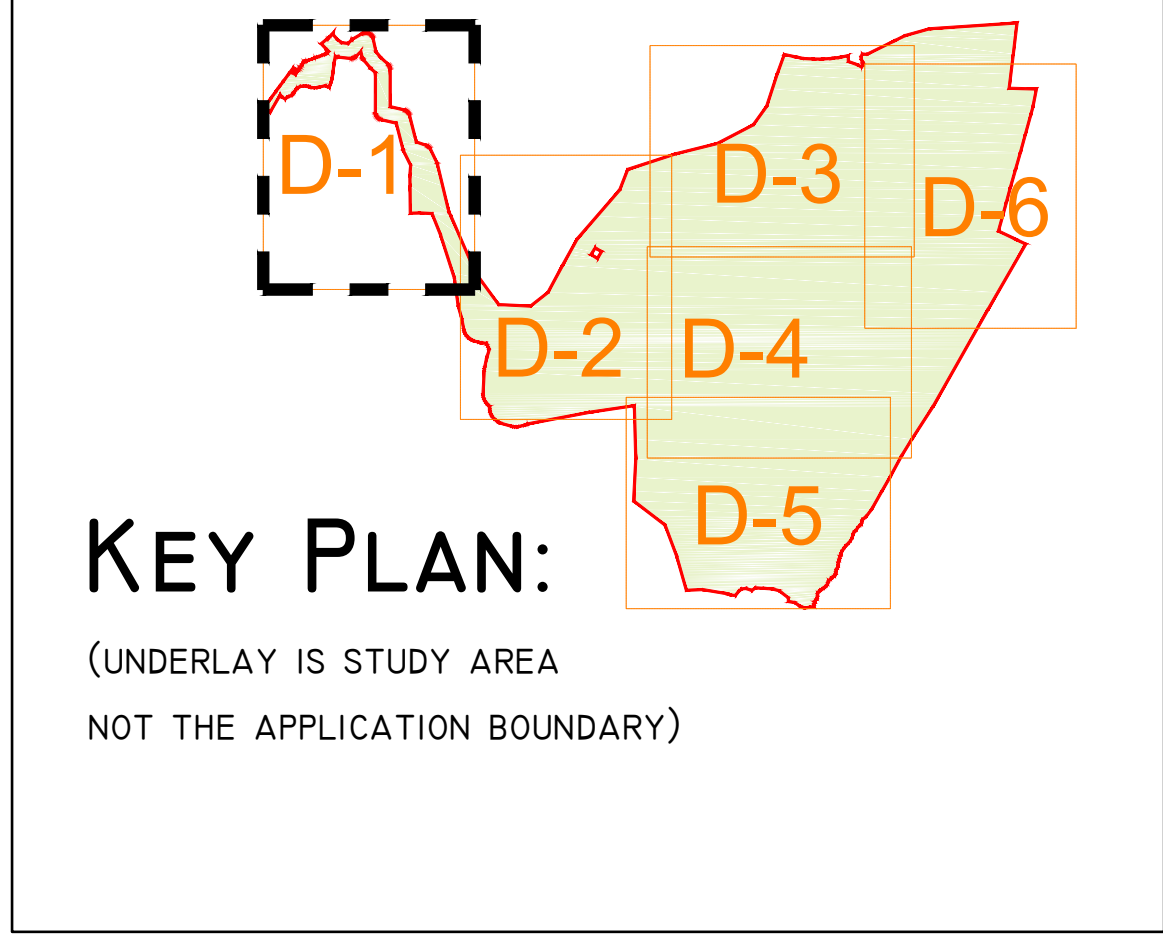
11. DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.

12. EXISTING DRAINS/DITCHES TO BE INCORPORATED INTO WIND FARM DRAINAGE SYSTEM OR REMOVED DURING WIND FARM CONSTRUCTION.

13. ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.

14. THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES, AND ALL DRAINAGE WOULD BE INSTALLED AS CLOSE TO ACCESS TRACKS/ROADS AS POSSIBLE.

MANAGEMENT TYPE	DESCRIPTION OF SLEDS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE. 2) APPLICATION OF 50M BUFFER ZONES TO ARTIFICIAL DRAINAGE DITCHES WHERE POSSIBLE. 3) WORKING IN APPROPRIATE WEATHER AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER.
SOURCE CONTROLS	1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAIN / OVERSIZED SWALES, VEE-DRAINS, DIVERSION DRAINS, TUNNELS AND CULVERT PIPES. 2) DESIGN AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) FILTER FABRICS C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) USING SMALL WORKING AREAS 4) COVERING STOCKPOLES 5) WEATHERING OFF / SEALING PEAT STOCKPOLES
IN-LINE CONTROLS	1) INTERCEPTOR DRAIN, VEE-DRAIN, OVERSIZED SWALES/COLLECTOR DRAINS 2) DESIGN AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) FILTER FABRICS C) FILTER FABRICS D) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. E) FLOW LIFTERS F) WEED OR BARFLES G) AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS. 3) SALT FENCES, FILTER FABRICS 4) IN STREAM SEDIMENTS 5) COLLECTION PONDS, TEMPORARY PONDS, PUMPING SYSTEMS 6) ATTENUATION LAGOONS 7) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS	1) TEMPORARY PONDS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE LAGOONS 4) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 5) PRIMARY SETTLEMENT SYSTEMS SUCH AS SALT FLATS, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 6) SALT DRAINING BASINS
OUTFALL CONTROLS	1) LEVEL SPREADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SALT DRAINING BASINS 5) FLOW LIFTERS AND WEIRS



DRAWING LEGEND :

EXISTING RIVER \ STREAM \ LAKE

RIVER \ STREAM BUFFER 50M

LAKES

LAKES 50M BUFFER

EXISTING CULTURTS / BRIDGES

UPSTREAM INTERCEPTOR DRAIN

SWALES / DOWNSTREAM COLLECTOR DRAIN

DIRECTION OF FLOW

SILT FENCES

DOUBLE / TRIPLE SILT FENCES

SETTLEMENT POND - VEGETATION FILTER

LEVEL SPREADER

SETTLEMENT POND - LEVEL SPREADER

EXISTING DRAINAGE

PROPOSED DRAINAGE

CHECK DAM 'TYPE B'

PROPOSED CULTURTS / BRIDGES

INTERCEPTOR DITCH CULTURT

COLLECTOR DITCH CULTURT

OVERLAND FLOW DISCHARGE

TREATED WATER DISCHARGE

SETTLEMENT POND

SEMI-NATURAL VEGETATION

SWALE / FILTER BED / SECONDARY SP

PUMPING SUMP

BERM

ON SITE GRID CONNECTION

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13.12.17	Planning	MG	MG
Date	Description	Chkd	Signed
Revisions			

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email: info@hydroenvironmental.ie
web: www.hydroenvironmental.ie

Client:
MCCARTHY KEVILLE AND O'SULLIVAN

Job:
MEENBAG WIND FARM, Co. DONEGAL

Title:
DRAINAGE LAYOUT SHEET 1 OF 6

Figure No:
D101 (0502-15)

Drawing No: P1249-2-1217-A1-D101(0502-15)-00A

Sheet Size: A1
Scale: 1:2,500 (A1)

Project No.: P1249-2
Drawn By: MG/GD
Checked By: MG

KEY PLAN:

(UNDERLAY IS STUDY AREA
NOT THE APPLICATION BOUNDARY)

DRAINAGE DESIGN NOTES
1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.
2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, SETTLEMENT PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.
3. SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTIST) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED PRE-CONSTRUCTION STAGE DRAINAGE DESIGN.
4. DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS AREAS THEY ARE INTENDED TO DRAIN.
5. DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THEN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR SETTLEMENT POND.
6. THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.
7. CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.
8. DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISAPATE TO HAVE A GRADE <0.5%
9. NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILLING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OR SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.
10. SETTLEMENT PONDS TO BE SIZED ACCORDING TO THE AREA THEY WILL BE RECEIVING WATER FROM.
11. DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.
12. EXISTING DRAINS/DITCHES TO BE INCORPORATED INTO WIND FARM DRAINAGE SYSTEM OR REMOVED DURING WIND FARM CONSTRUCTION.
13. ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.
14. THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES, AND ALL DRAINAGE WOULD BE INSTALLED AS CLOSE TO ACCESS TRACKS/ROADS AS POSSIBLE.

MANAGEMENT TYPE	DESCRIPTION OF SLUICE DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE 2) APPLICATION OF 50M BUFFER ZONES TO ARTIFICIAL DRAINAGE DITCHES WHERE POSSIBLE 3) WORKING IN APPROPRIATE WEATHER AND SCHEDULING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER
SOURCE CONTROLS	1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE DRAINS, INTERCEPTOR DRAINS, FLUMES AND CULVERT PIPES 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) SAND AND OTHER SPILLAGE/EQUIVALENT OR APPROPRIATE SYSTEMS 3) LONG GRASS PLANTING AREAS 4) COVERING STOCKPILES 5) WEATHERING OFF / STALLING PEAT STOCKPILES
IN-LINE CONTROLS	1) INTERCEPTOR DRAINS, VEE DRAINS, OVERSIZED DRAINAGE/COLLECTOR DRAINS 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: A) SAND BAGS B) OSTER BAGS FILLED WITH GRAVEL C) FILTER FABRICS D) STRAW BALES E) FLOW LIMITERS F) WEIRS OR BAYLETS G) AND/OR OTHER SPILLAGE/EQUIVALENT OR APPROPRIATE SYSTEMS 3) SILT PONDS, FILTER FABRICS 4) IN STREAM SEDIMENT 5) COLLECTION BAYS, TEMPORARY SUPPS, PUMPING SYSTEMS 6) ATTENUATION LAGOONS 7) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS	1) TEMPORARY SUPPS 2) ATTENUATION LAGOONS 3) TEMPORARY STORAGE LAGOONS 4) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILT TRAP, AND/OR OTHER SPILLAGE/EQUIVALENT OR APPROPRIATE SYSTEMS 6) SILT DRAINAGE BAGS
OUTFALL CONTROLS	1) LEVEL SPREADERS 2) VEGETATION FILTERS 3) SILT DRAINAGE BAGS 4) FLOW LIMITERS AND WEIRS

ACCESS ROAD ALIGNMENT IS
ALONG EXISTING FOREST TRACK

T10

PROPOSED
MET MAST

0 50 100 150 200 250
Metres

DRAWING LEGEND :

- APPLICATION BOUNDARY
- EXISTING ROADS
- EXISTING TRACKS/FOREST ROADS
- WORKS AREA
- CRANE PAD
- HARDSTANDING AREA
- BORROW PIT
- TURBINE FOUNDATION
- TURBINE AND SWEEP AREA
- SITE LAYOUT IS UNDERLAY BY 1M INTERVAL CONTOURS TO MOD MALIN HEAD
- SLOPE / DRAINAGE DIRECTION

- EXISTING RIVER \ STREAM \ LAKE
- RIVER \ STREAM BUFFER 50M
- LAKES
- LAKES 50M BUFFER
- EXISTING CULVERTS / BRIDGES
- UPSTREAM INTERCEPTOR DRAIN
- SWALES / DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE / TRIPLE SILT FENCES
- SETTLEMENT POND - VEGETATION FILTER
- LEVEL SPREADER
- SETTLEMENT POND - LEVEL SPREADER

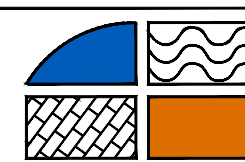
- EXISTING DRAINAGE
- PROPOSED DRAINAGE
- CHECK DAM 'TYPE B'
- PROPOSED CULVERTS / BRIDGES
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEMI-NATURAL VEGETATION
- SWALE / FILTER BED / SECONDARY SP
- PUMPING SUMP
- BERM
- ON SITE GRID CONNECTION

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Client:
McCARTHY KEVILLE AND O'SULLIVAN

Job:
MEENBAG WIND FARM, Co. DONEGAL

Title:
DRAINAGE LAYOUT
SHEET 2 OF 6

Figure No.:
D102 (0502-16)

Drawing No.: P1249-2-1217-A1-D102(0502-16)-00A

Sheet Size: A1

Scale: 1:2,500 (A1)

Date: 13/12/2017

Project No.: P1249-2

Drawn By: MG/GD

Checked By: MG

MITIGATION / DRAINAGE CONTROL MEASURES AVAILABLE FOR USE ACROSS THE SITE

MANAGEMENT TYPE	DESCRIPTION OF SUEE DRAINAGE CONTROL MEASURES
AVOIDANCE CONTROLS	1. APPLICATION OF 50% BUFFER ZONES TO NATURAL OBSTACLES - WHERE POSSIBLE 2. APPLICATION OF 50% BUFFER ZONES TO ARTIFICIAL DRAINAGE DITCHES WHERE POSSIBLE 3. SUEE SMALL WORKING AREAS 4. WORKING IN APPROPRIATE WEATHER AND SCHEDULING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WEATHER
SOURCE CONTROLS	1. USE OF UPSTREAM INTERCEPTOR DRAIN AND DOWNSTREAM COLLECTOR DRAIN / OVERFLOW SWALE / DRAIN 2. INTERCEPTOR DRAIN, SWALE AND COLLECTOR DRAIN MEASURES SUCH AS: a) SAND BAGS b) FILTER FABRICS c) INTERCEPTOR BAGS FILLED WITH GRAVEL d) AND OTHER SIMILAR EQUIVALENT OR APPROPRIATE SYSTEMS 3. SUEE SMALL WORKING AREAS 4. COVERING STOCKPOLES 5. WEATHERING OFF / SEALING PEAT STOCKPOLES
IN-LINE CONTROLS	1. INTERCEPTOR DRAIN, VEE-DRAIN, OVERFLOW SWALE / COLLECTOR DRAIN 2. PROPOSED AND EXISTING CONTROL MEASURES SUCH AS: a) SAND BAGS b) INTERCEPTOR BAGS FILLED WITH GRAVEL c) FILTER FABRICS d) STREAM BARRIERS e) FLOW LIMITERS f) WEIRS OR BARRIERS g) AND/OR OTHER SIMILAR EQUIVALENT OR APPROPRIATE SYSTEMS 3. SUEE SMALL WORKING AREAS 4. COVERING STOCKPOLES 5. WEATHERING OFF / SEALING PEAT STOCKPOLES
WATER TREATMENT CONTROLS	1. TEMPORARY SUMP 2. ATTENUATION POND 3. TEMPORARY STORAGE LAGOON 4. SEDIMENT TRAP, STILLING / SETTLEMENT POND 5. PROPOSED SETTLEMENT SYSTEMS SUCH AS SUEE TRAP, AND/OR OTHER SIMILAR EQUIVALENT OR APPROPRIATE SYSTEMS 6. SUEE SEDIMENTING BASIN
OUTFALL CONTROLS	1. LEVEL SPREADER 2. BUFFERED OUTFALL 3. VEGETATION FILTERING 4. SUEE SEDIMENTING BASIN 5. FLOW LIMITER AND WEIR

KEY PLAN:
(UNDERLAY IS STUDY AREA
NOT THE APPLICATION BOUNDARY)

DRAWING LEGEND :

- APPLICATION BOUNDARY
- EXISTING ROADS
- EXISTING TRACKS/FOREST ROADS
- WORKS AREA
- CRANE PAD
- HARDSTANDING AREA
- BORROW PIT
- TURBINE FOUNDATION
- TURBINE AND SWEEP AREA
- SITE LAYOUT IS UNDERLAIN BY 1M INTERVAL CONTOURS TO MOD MALIN HEAD
- SLOPE / DRAINAGE DIRECTION
- EXISTING RIVER \ STREAM \ LAKE
- RIVER \ STREAM BUFFER 50M
- LAKES
- LAKES 50M BUFFER
- EXISTING CULVERTS / BRIDGES
- UPSTREAM INTERCEPTOR DRAIN
- SWALES / DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE / TRIPLE SILT FENCES
- SETTLEMENT POND - VEGETATION FILTER - LEVEL SPREADER
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM 'TYPE A'
- CHECK DAM 'TYPE B'
- PROPOSED CULVERTS / BRIDGES
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEMI-NATURAL VEGETATION SWALE / FILTER BED / SECONDARY SP
- PUMPING SUMP
- BERM
- ON SITE GRID CONNECTION

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13.12.17	Planning	MG	MG

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Client: MCCARTHY KEVILLE AND O'SULLIVAN

Job: MEENBOG WIND FARM, CO. DONEGAL

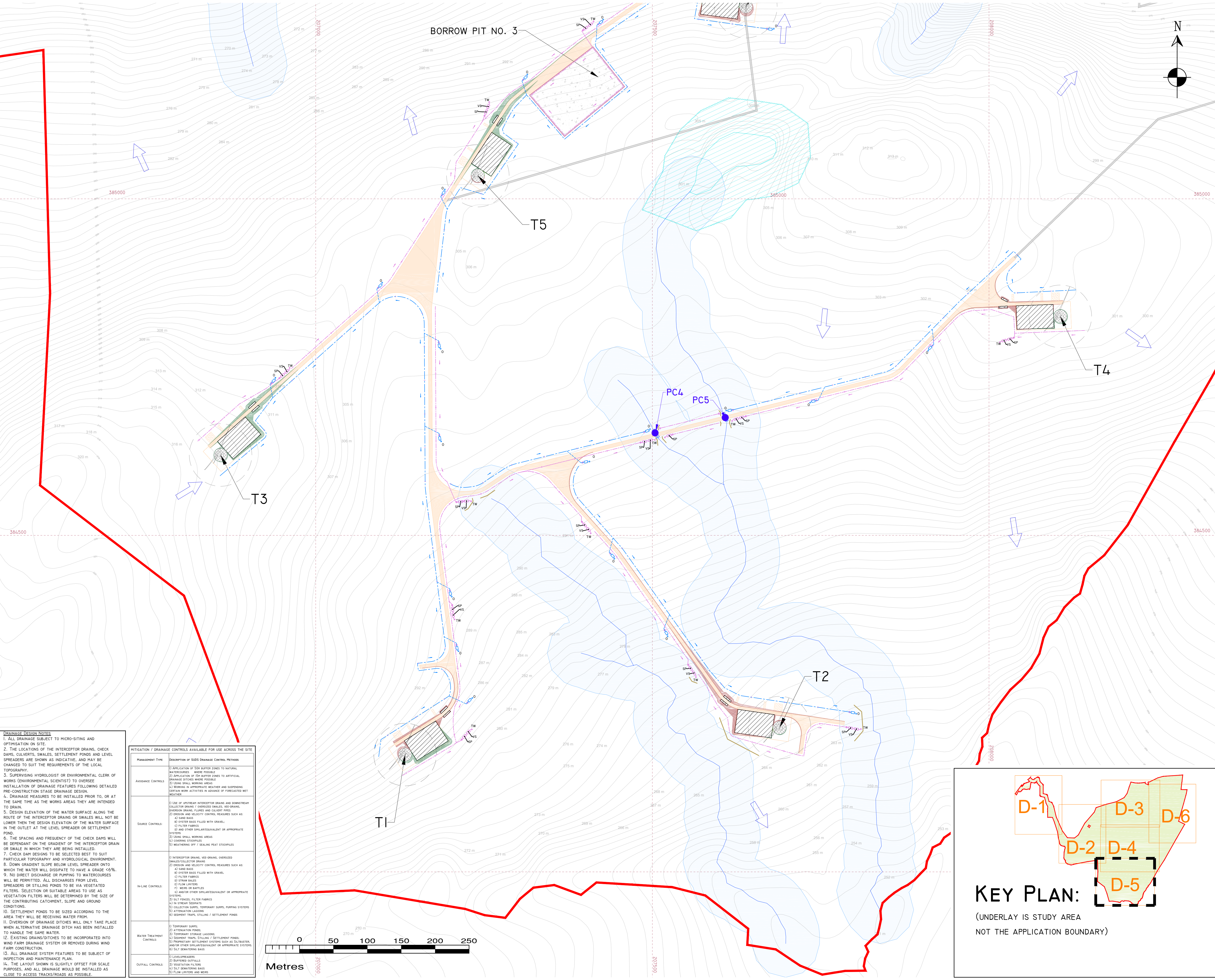
Title: DRAINAGE LAYOUT
SHEET 3 OF 6

Figure No: DI03 (0502-17)

Drawing No: P1249-2-1217-A1-DI03(0502-17)-00A

Sheet Size: A1	Project No.: P1249-2
Scale: 1:2,500 (A1)	Drawn By: MG/GD
Date: 13/12/2017	Checked By: MG





DRAWING LEGEND :

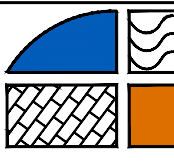
- APPLICATION BOUNDARY
- EXISTING ROADS
- EXISTING TRACKS/FOREST ROADS
- WORKS AREA
- CRANE PAD
- HARDSTANDING AREA
- BORROW PIT
- TURBINE FOUNDATION
- TURBINE AND SWEEP AREA
- SITE LAYOUT IS UNDERLAIN BY 1M INTERVAL CONTOURS TO MOD MALIN HEAD
- SLOPE / DRAINAGE DIRECTION
- EXISTING RIVER \ STREAM \ LAKE
- RIVER \ STREAM BUFFER 50M
- LAKES 50M BUFFER
- EXISTING CULVERTS / BRIDGES
- UPSTREAM INTERCEPTOR DRAIN
- SWALES / DOWNSTREAM COLLECTOR DRAIN
- DIRECTION OF FLOW
- SILT FENCES
- DOUBLE / TRIPLE SILT FENCES
- SETTLEMENT POND - VEGETATION FILTER - LEVEL SPREADER
- SETTLEMENT POND - LEVEL SPREADER
- CHECK DAM 'TYPE A'
- CHECK DAM 'TYPE B'
- PROPOSED CULVERTS / BRIDGES
- INTERCEPTOR DITCH CULVERT
- COLLECTOR DITCH CULVERT
- OVERLAND FLOW DISCHARGE
- TREATED WATER DISCHARGE
- SETTLEMENT POND
- SEMI-NATURAL VEGETATION SWALE / FILTER BED / SECONDARY SP
- PUMPING SUMP
- BERM
- ON SITE GRID CONNECTION

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Date	Description	Chkd	Signed

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Client: **MCCARTHY KEVILLE AND O'SULLIVAN**

Job: **MEENBOG WIND FARM, Co. DONEGAL**

Title: **DRAINAGE LAYOUT SHEET 5 OF 6**

Figure No: **D105 (0502-19)**

Drawing No: **P1249-2-1217-A1-D105(0502-19)-00A**

Sheet Size: **A1** Project No.: **P1249-2**

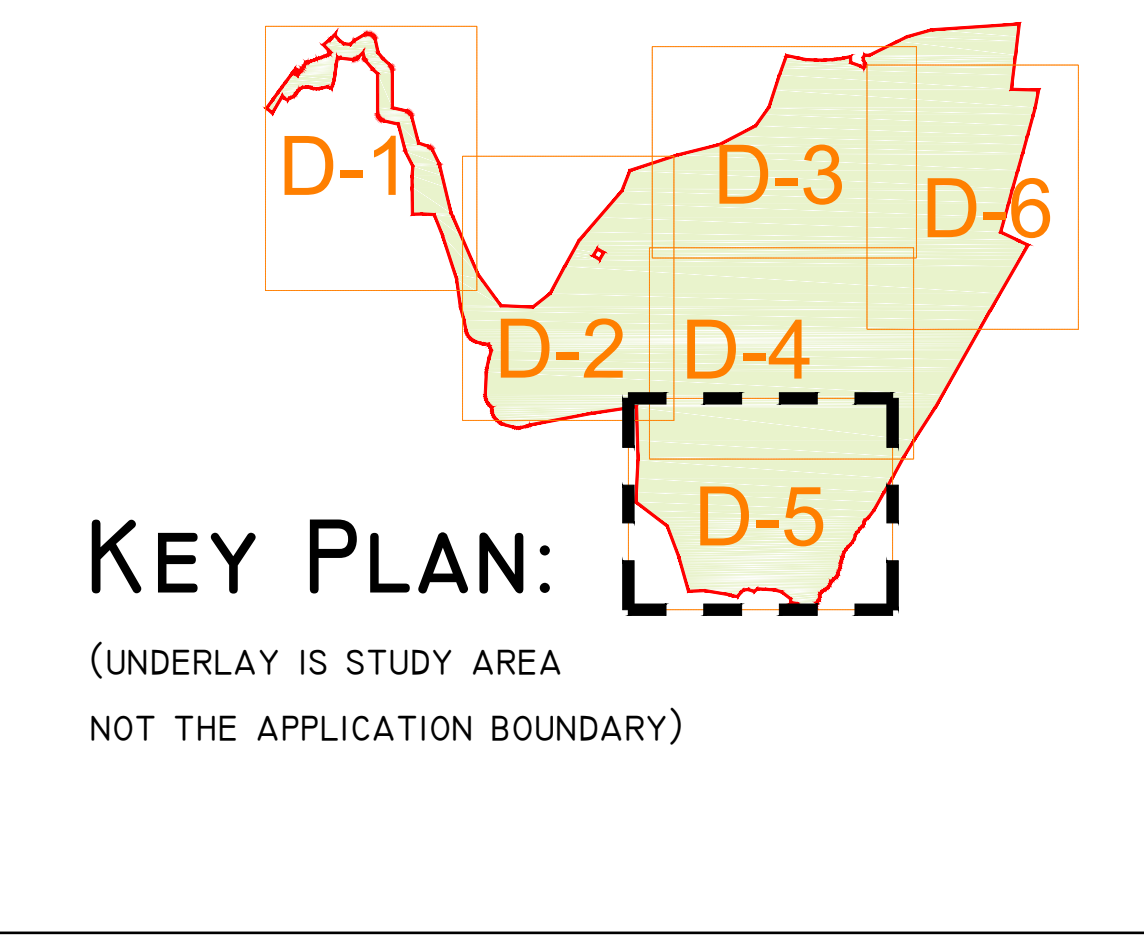
Scale: **1:2,500 (A1)** Drawn By: **MG/GD**

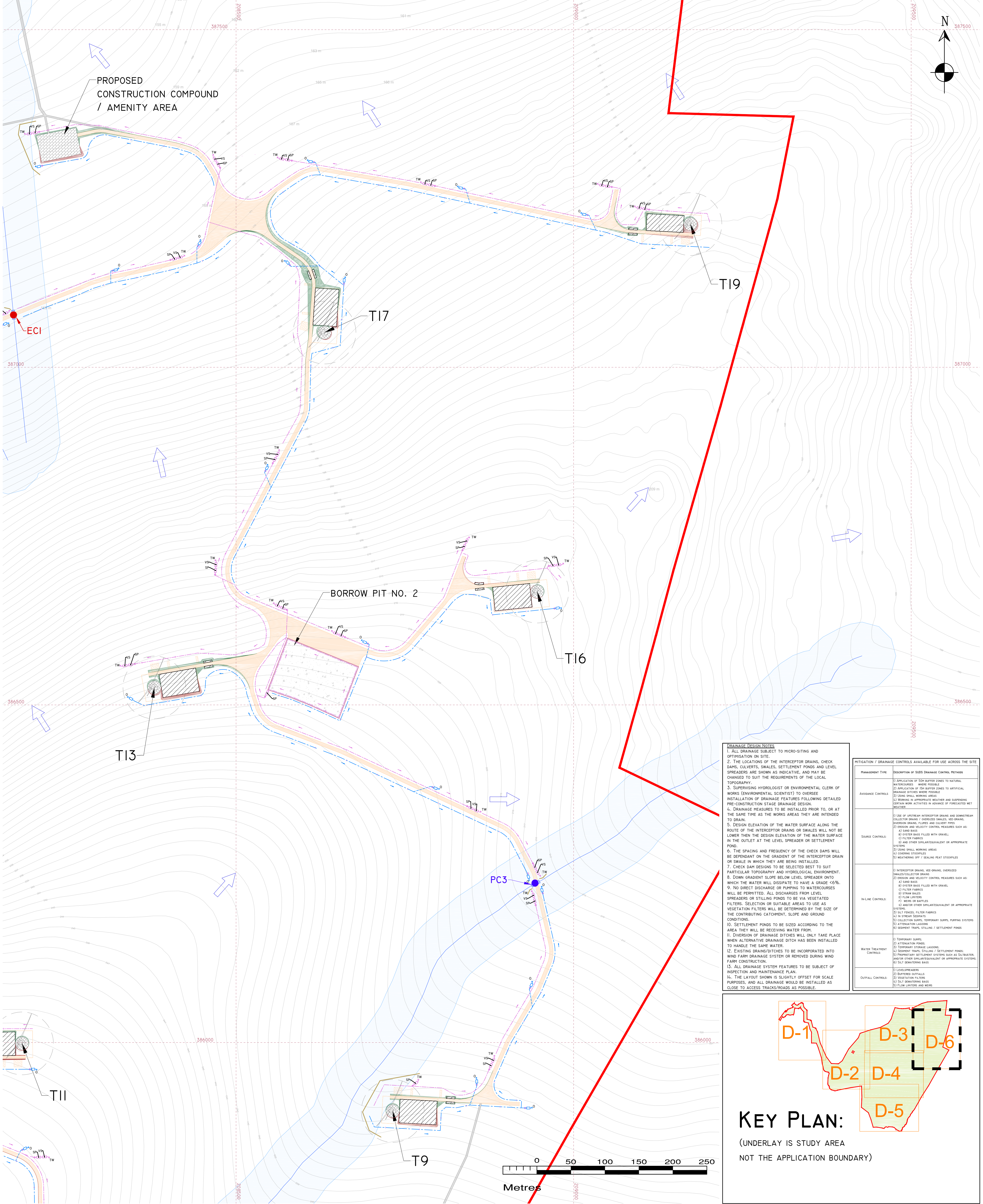
Date: **13/12/2017** Checked By: **MG**

DRAINAGE DESIGN NOTES

- ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.
- THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, SETTLEMENT PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.
- SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTIST) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED PRE-CONSTRUCTION STAGE DRAINAGE DESIGN.
- DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS AREAS THEY ARE INTENDED TO DRAIN.
- DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THEN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR SETTLEMENT POND.
- THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.
- CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.
- DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISAPATE TO HAVE A GRADE <6%.
- NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILLING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OF SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.
- SETTLEMENT PONDS TO BE SIZED ACCORDING TO THE AREA THEY WILL BE RECEIVING WATER FROM.
- DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.
- EXISTING DRAINS/DITCHES TO BE INCORPORATED INTO WIND FARM DRAINAGE SYSTEM OR REMOVED DURING WIND FARM CONSTRUCTION.
- ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.
- THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES. AND ALL DRAINAGE WOULD BE INSTALLED AS CLOSE TO ACCESS TRACKS/ROADS AS POSSIBLE.

MANAGEMENT TYPE	DESCRIPTION OF SUGS DRAINAGE CONTROL METHODS
AVOIDANCE CONTROLS	1) APPLICATION OF 50m BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE 2) APPLICATION OF 50m BUFFER ZONES TO ARTIFICIAL DRAINAGE DITCHES WHERE POSSIBLE 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER
SOURCE CONTROLS	1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEE DRAIN, OVERSIZED DRAIN, FLUMES AND CULVERT PIPES 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: a) SAND BAGS b) OYSTER BAGS FILLED WITH GRAVEL c) FILTER FABRICS d) AND OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) COVERING STOCKPOLES 5) WEATHERING OFF / SEALING PEAT STOCKPOLES
IN-LINE CONTROLS	1) INTERCEPTOR DRAIN, VEE DRAIN, OVERSIZED SWALES/COLLECTOR DRAIN 2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS: a) SAND BAGS b) OYSTER BAGS FILLED WITH GRAVEL c) FILTER FABRICS d) STRAW BALES e) FLOW LITTERS f) WEBS OR BATTLES 3) AND/OR OTHER EQUIVALENT OR APPROPRIATE SYSTEMS 4) IN-STREAM SEDIMENTS 5) COLLECTION SUMPS, TEMPORARY SUMPS, PUMPING SYSTEMS 6) ATTENUATION LAGOONS 7) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROLS	1) TEMPORARY SUMPS 2) TEMPORARY STORAGE LAGOONS 3) SEDIMENT TRAPS, STILLING / SETTLEMENT PONDS 4) TEMPORARY SETTLEMENT SYSTEMS SUCH AS SUBSTRATE, SAND, GRAVEL, OR OTHER EQUIVALENT OR APPROPRIATE SYSTEMS 5) SILT DEWATERING BAGS
OUTFALL CONTROLS	1) LEVEL SPREADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT DEWATERING BAGS 5) FLOW LITTERS AND WEBS





DRAINAGE DESIGN NOTES

1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMISATION ON SITE.

2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, SETTLEMENT PONDS AND LEVEL SPREADERS ARE SHOWN AS INDICATIVE, AND MAY BE CHANGED TO SUIT THE REQUIREMENTS OF THE LOCAL TOPOGRAPHY.

3. SUPERVISING HYDROLOGIST OR ENVIRONMENTAL CLERK OF WORKS (ENVIRONMENTAL SCIENTIST) TO OVERSEE INSTALLATION OF DRAINAGE FEATURES FOLLOWING DETAILED PRE-CONSTRUCTION STAGE DRAINAGE DESIGN.

4. DRAINAGE MEASURES TO BE INSTALLED PRIOR TO, OR AT THE SAME TIME AS THE WORKS AREAS THEY ARE INTENDED TO DRAIN.

5. DESIGN ELEVATION OF THE WATER SURFACE ALONG THE ROUTE OF THE INTERCEPTOR DRAINS OR SWALES WILL NOT BE LOWER THEN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR SETTLEMENT POND.

6. THE SPACING AND FREQUENCY OF THE CHECK DAMS WILL BE DEPENDANT ON THE GRADIENT OF THE INTERCEPTOR DRAIN OR SWALE IN WHICH THEY ARE BEING INSTALLED.

7. CHECK DAM DESIGNS TO BE SELECTED BEST TO SUIT PARTICULAR TOPOGRAPHY AND HYDROLOGICAL ENVIRONMENT.

8. DOWN GRADIENT SLOPE BELOW LEVEL SPREADER ONTO WHICH THE WATER WILL DISSIPATE TO HAVE A GRADE <6%.

9. NO DIRECT DISCHARGE OR PUMPING TO WATERCOURSES WILL BE PERMITTED. ALL DISCHARGES FROM LEVEL SPREADERS OR STILLING PONDS TO BE VIA VEGETATED FILTERS. SELECTION OF SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.

10. SETTLEMENT PONDS TO BE SIZED ACCORDING TO THE AREA THEY WILL BE RECEIVING WATER FROM.

11. DIVERSION OF DRAINAGE DITCHES WILL ONLY TAKE PLACE WHEN ALTERNATIVE DRAINAGE DITCH HAS BEEN INSTALLED TO HANDLE THE SAME WATER.

12. EXISTING DRAINS/DITCHES TO BE INCORPORATED INTO WIND FARM DRAINAGE SYSTEM OR REMOVED DURING WIND FARM CONSTRUCTION.

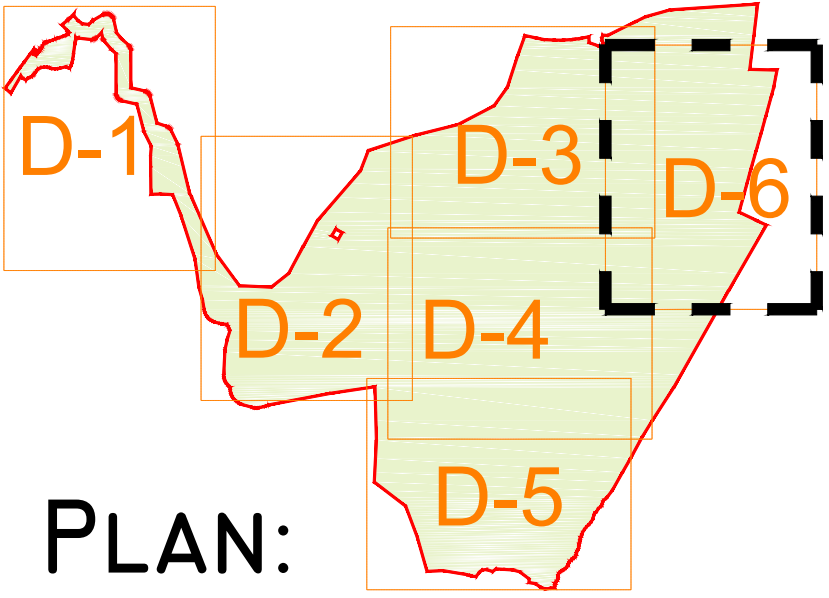
13. ALL DRAINAGE SYSTEM FEATURES TO BE SUBJECT OF INSPECTION AND MAINTENANCE PLAN.

14. THE LAYOUT SHOWN IS SLIGHTLY OFFSET FOR SCALE PURPOSES, AND ALL DRAINAGE WOULD BE INSTALLED AS CLOSE TO ACCESS TRACKS/ROADS AS POSSIBLE.

MANAGEMENT TYPE	DESCRIPTION OF SLODS DRAINAGE CONTROL METHOD
AVOIDANCE CONTROLS	1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE
	2) APPLICATION OF 10M BUFFER ZONES TO ARTIFICIAL DRAINAGE DITCHES WHERE POSSIBLE
	3) LONG SMALL WORKING AREAS
	4) WORKING IN APPROPRIATE WEATHER AND SUSPENDING SOFT WORK ACTIVITIES IN ADVANCE OF FORECASTED WET WEATHER
SOURCE CONTROLS	1) USE OF UPSTREAM INTERCEPTOR DRAINING AND DOWNSTREAM COLLECTOR DRAIN / OVERLIED SWALES, VEE-DRAINS, DIVERSION DRAIN, FLUMES AND CULVERT PIPES
	2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS:
	A) SAND BAGS
	B) FILTER FABRICS
IN-LINE CONTROLS	1) INTERCEPTOR DRAINS, VEE-DRAINS, OVERLIED SWALES/COLLECTOR DRAINS
	2) EROSION AND VELOCITY CONTROL MEASURES SUCH AS:
	A) SAND BAGS
	B) FILTER FABRICS
WATER TREATMENT CONTROLS	1) TEMPORARY SUMPS
	2) ATTENUATION PONDS
	3) TEMPORARY STORAGE LAGOONS
	4) SEGMENT TRAPS, STILLING / SETTLEMENT PONDS
OUTFALL CONTROLS	1) LEVEL SPREADERS
	2) BUFFERED OUTFALLS
	3) VEGETATION FILTERS
	4) SILT DRAINING BASINS

KEY PLAN:

(UNDERLAY IS STUDY AREA
NOT THE APPLICATION BOUNDARY)



DRAWING LEGEND :

- EXISTING DRAINAGE

EXISTING RIVER \ STREAM \ LAKE

RIVER \ STREAM BUFFER 50M

LAKES

LAKES 50M BUFFER

EXISTING CULVERTS / BRIDGES

UPSTREAM INTERCEPTOR DRAIN

SWALES / DOWNSTREAM COLLECTOR DRAIN

DIRECTION OF FLOW

SILT FENCES

DOUBLE / TRIPLE SILT FENCES

SETTLEMENT POND - VEGETATION FILTER

LEVEL SPREADER

SETTLEMENT POND - LEVEL SPREADER
- PROPOSED DRAINAGE

CHECK DAM 'TYPE B'

PROPOSED CULVERTS / BRIDGES

INTERCEPTOR DITCH CULVERT

COLLECTOR DITCH CULVERT

OVERLAND FLOW DISCHARGE

TREATED WATER DISCHARGE

SETTLEMENT POND

SEMI-NATURAL VEGETATION SWALE / FILTER BED / SECONDARY SP

PUMPING SUMP

BERM

ON SITE GRID CONNECTION

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Date	Description	Chkd	Signed

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MCCARTHY KEVILLE AND O'SULLIVAN

Job:
MEENBAG WIND FARM, Co. DONEGAL

Title:
**DRAINAGE LAYOUT
SHEET 6 OF 6**

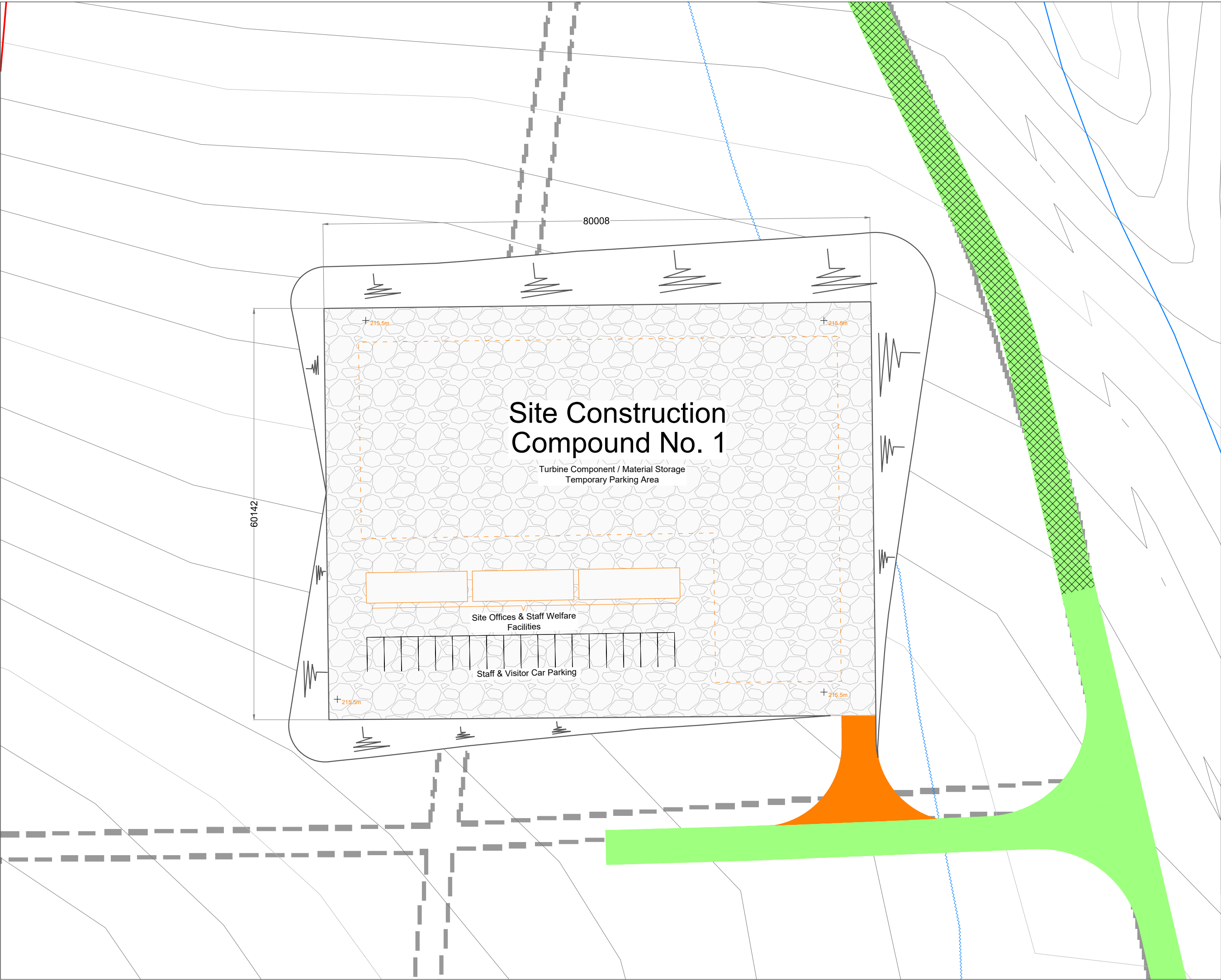
Figure No:
D106 (0502-20)

Drawing No: P1249-2-1217-A1-D106(0502-20)-00A

Sheet Size: A1 Project No.: P1249-2

Scale: 1:2,500 (A1) Drawn By: MG/GD

Date: 13/12/2017 Checked By: MG

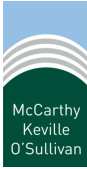


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 6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing.
 7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
 8. Final levels may vary depending on local ground conditions.
 9. Internal electrical cable trench may be installed on either side of site roads.

- Drawing Legend**
- Planning Application Site Boundary
 - Existing Road to be Upgraded
 - Existing Floating Road to be Upgraded
 - Proposed Road
 - River/Stream
 - River/Stream 50m Buffer



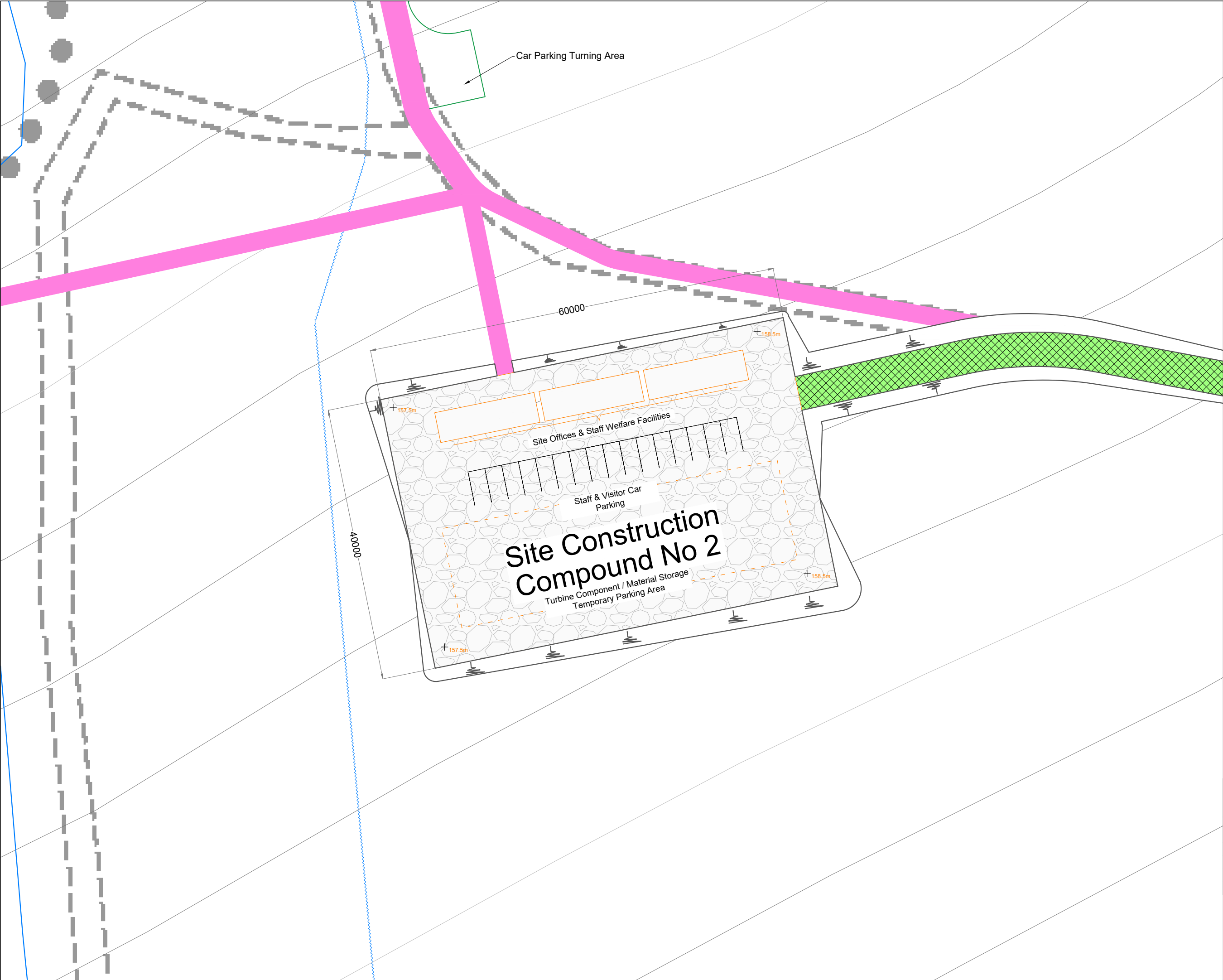
DRAWING TITLE: Temporary Construction Compound 1	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 21
SCALE: 1:500 @ A3	DATE: 13.12.2017



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OS SHEET No.:
0397,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536

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6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawing.
7. Layout plans show typical Turbine rotor diameter as per turbine drawing.
8. Final levels may vary depending on local ground conditions.

- Drawing Legend**
-  Existing Floating Road to be Upgraded
 -  River/Stream
 -  River/Stream 50m Buffer
 -  Proposed Amenity Track



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DRAWING TITLE:
Temporary Construction Compound 2

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 22
SCALE: 1:500 @ A3	DATE: 13.12.2017

OS SHEET No.: 0397, 0398, 0399, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536



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 4. Do not scale off this drawing. Figured metric dimensions only should be taken off this drawing.
 5. All contractors, weather main or sub-contractors, must visit the site and are responsible for taking and checking any and all dimensions and levels that relate to the works.
 6. The use of or reliance upon this drawing shall be deemed to be acceptance of these conditions of use unless otherwise agreed in writing, such written agreement to be sought from and issued by the copyright holder to the use or reliance upon this drawings.
 7. Exact location of cable/joint bay in the road curtilage to be subject to ESB specifications and agreement with Donegal County Council.
 8. Layout and arrangements of substation buildings and electrical equipment is shown indicatively and for illustration purposes only as final specifications of buildings and electrical equipment is to be dictated by Eirgrid/ESB networks requirements
 9. Internal electrical cable trench may be installed on either side of site roads.

- Drawing Legend**
- Existing Road to be Upgraded
 - Internal Electrical Cable Trench
 - Proposed Underground Grid Connection Cabling Route
 - Berm

Site Substation Layout

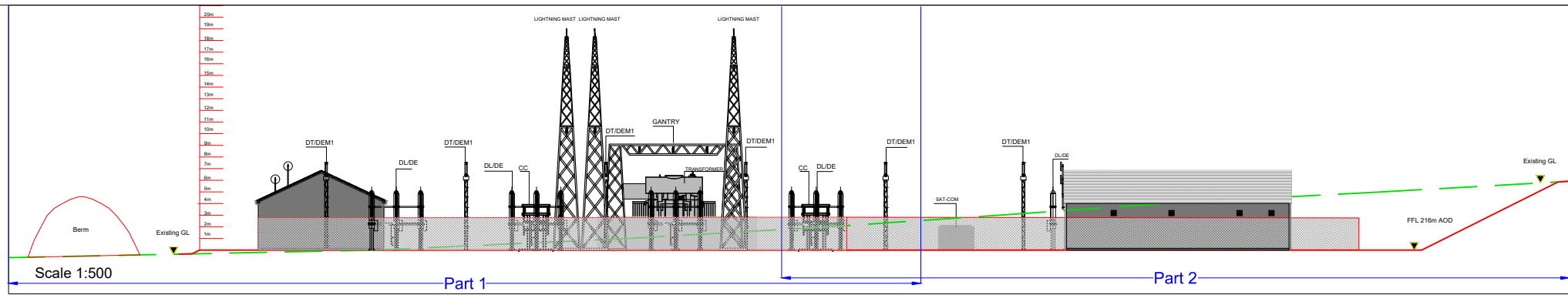
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DRAWING BY: Joseph O'Brien
PROJECT No.: 160502
SCALE: 1:500 @A3

CHECKED BY: Michael Watson
DRAWING No.: 0502 - 23
DATE: 13.12.2017

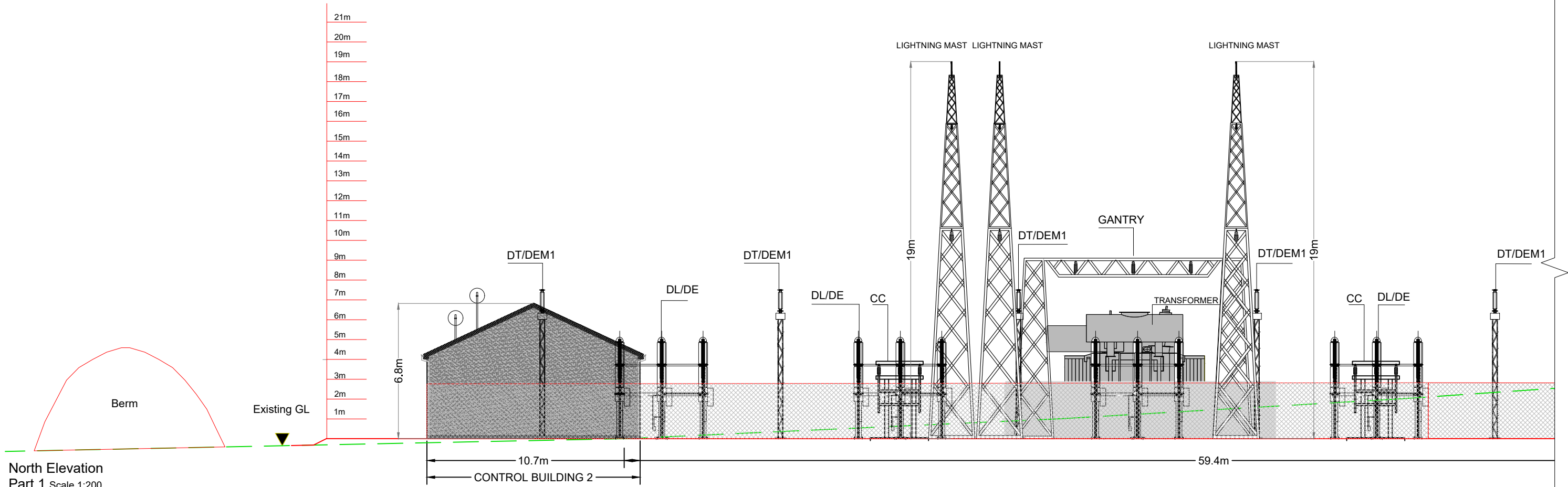
OS SHEET No.: 0387, 0388, 0389, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0530, 0538

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Galway, Ireland.
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Tel: +353 91 735611
Fax: +353 91 771279

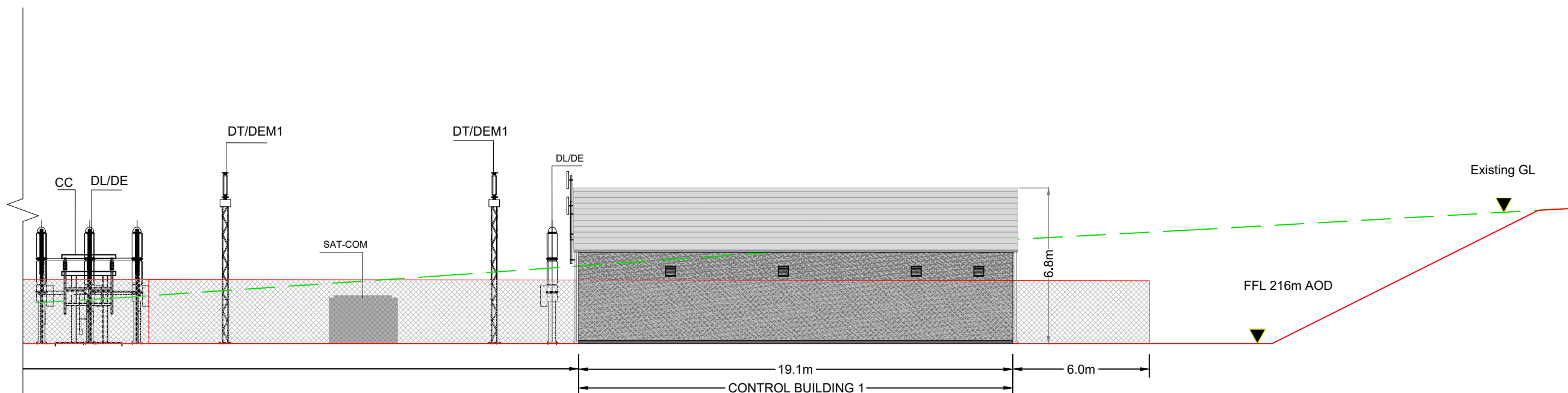


Drawing Notes

1. Layout and arrangements of substation buildings and electrical equipment is shown indicatively and for illustration purposes only as final specifications of buildings and electrical equipment is to be dictated by Eirgrid/ESB networks requirements.



North Elevation
Part 1 Scale 1:200



North Elevation
Part 2 Scale 1:200

**Site Substation
North Elevation**

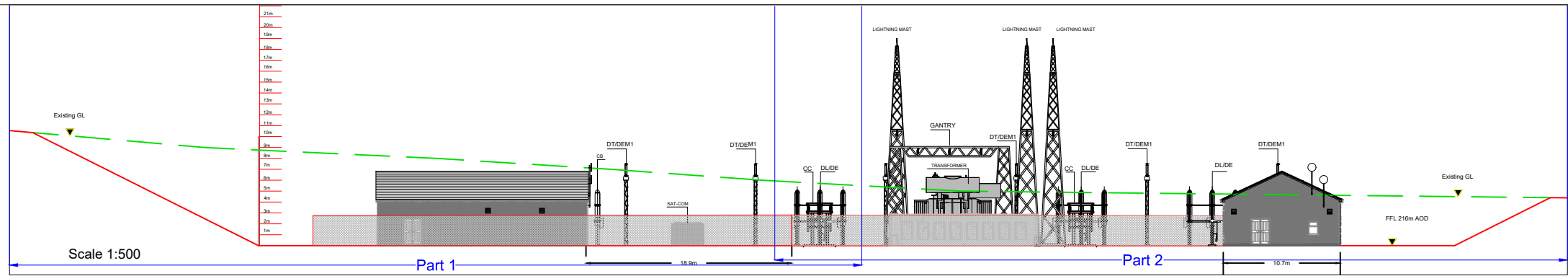
PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**

PROJECT No.: **160502** DRAWING No.: **0502 - 24**

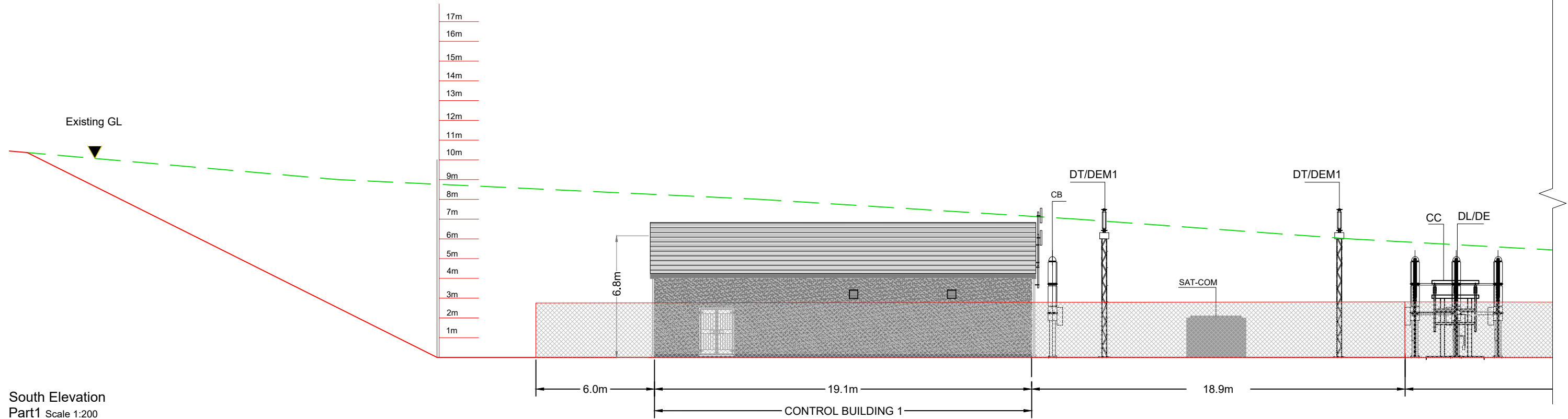
SCALE: **As Shown @ A3** DATE: **13.12.2017**

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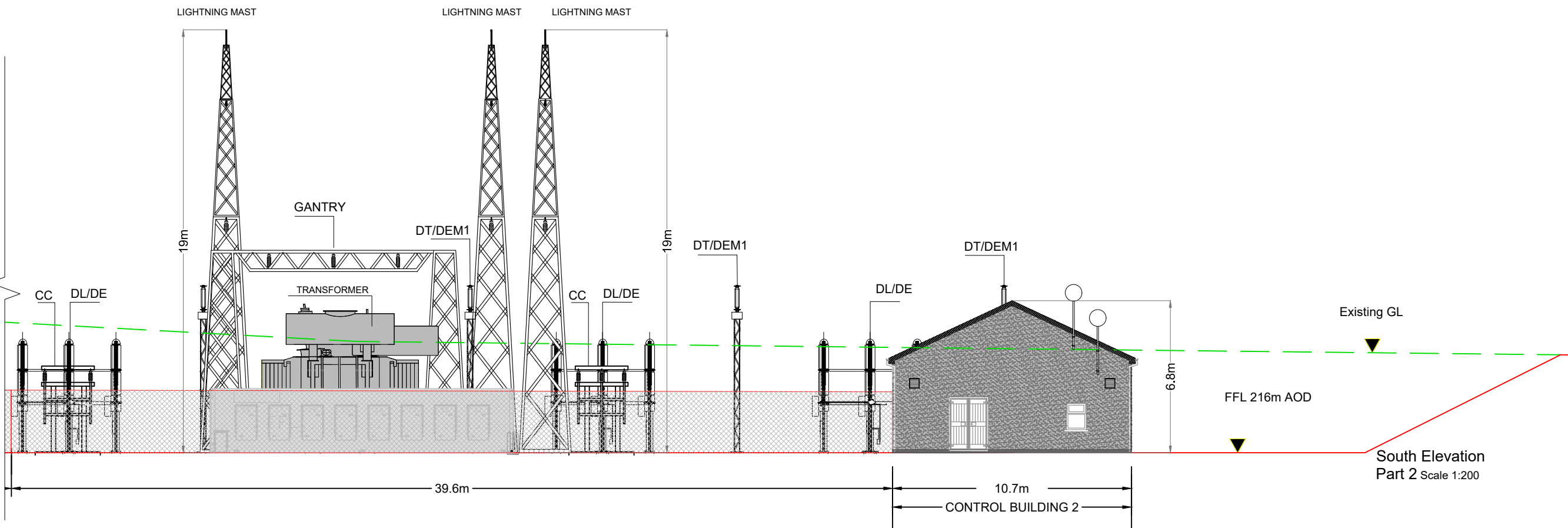


Drawing Notes

1. Layout and arrangements of substation buildings and electrical equipment is shown indicatively and for illustration purposes only as final specifications of buildings and electrical equipment is to be dictated by Eirgrid/ESB networks requirements.



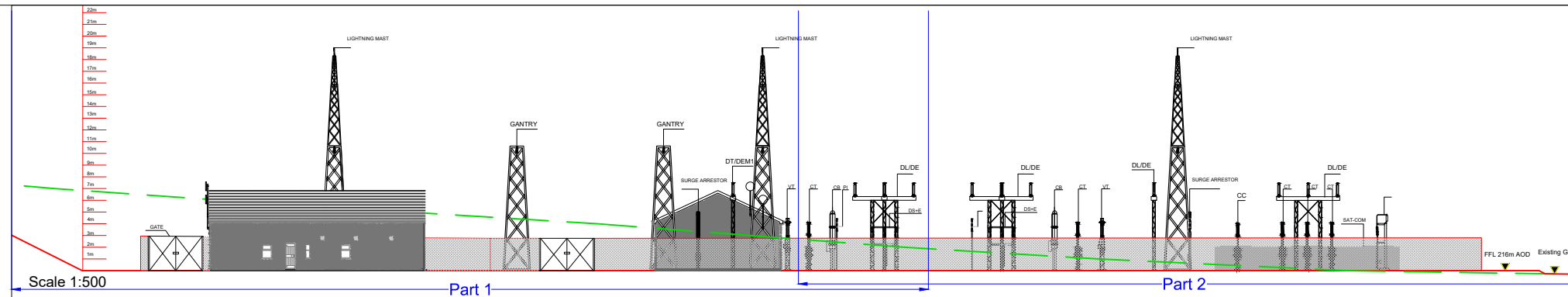
South Elevation
Part1 Scale 1:200



South Elevation
Part 2 Scale 1:200

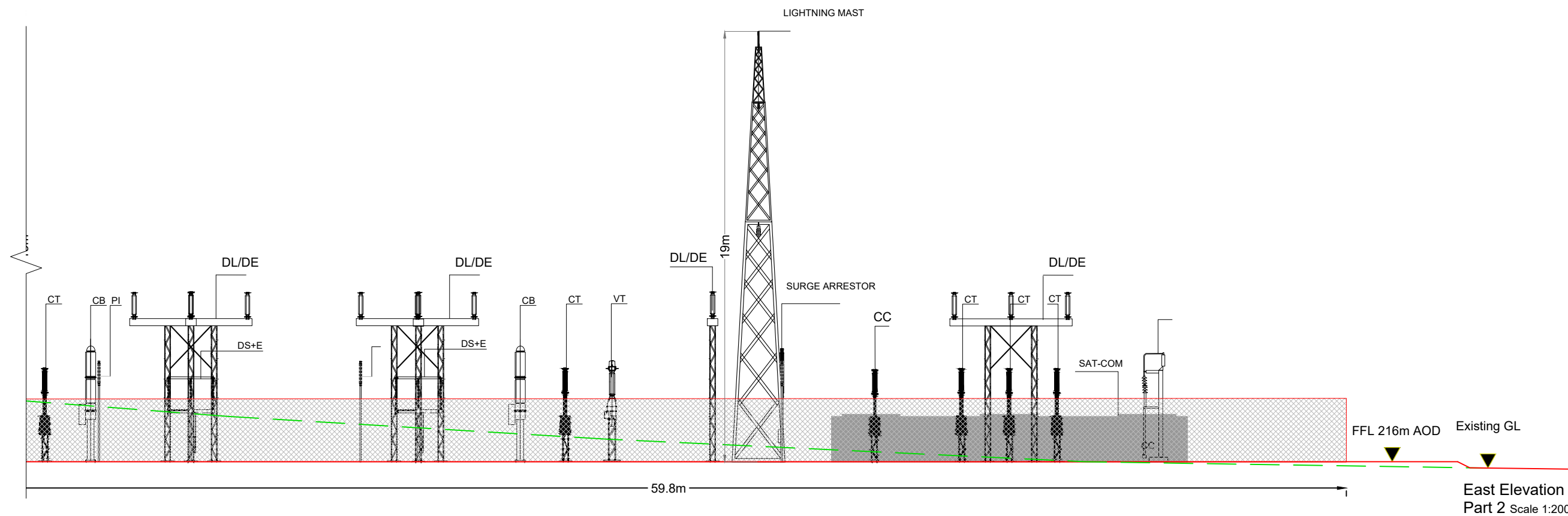
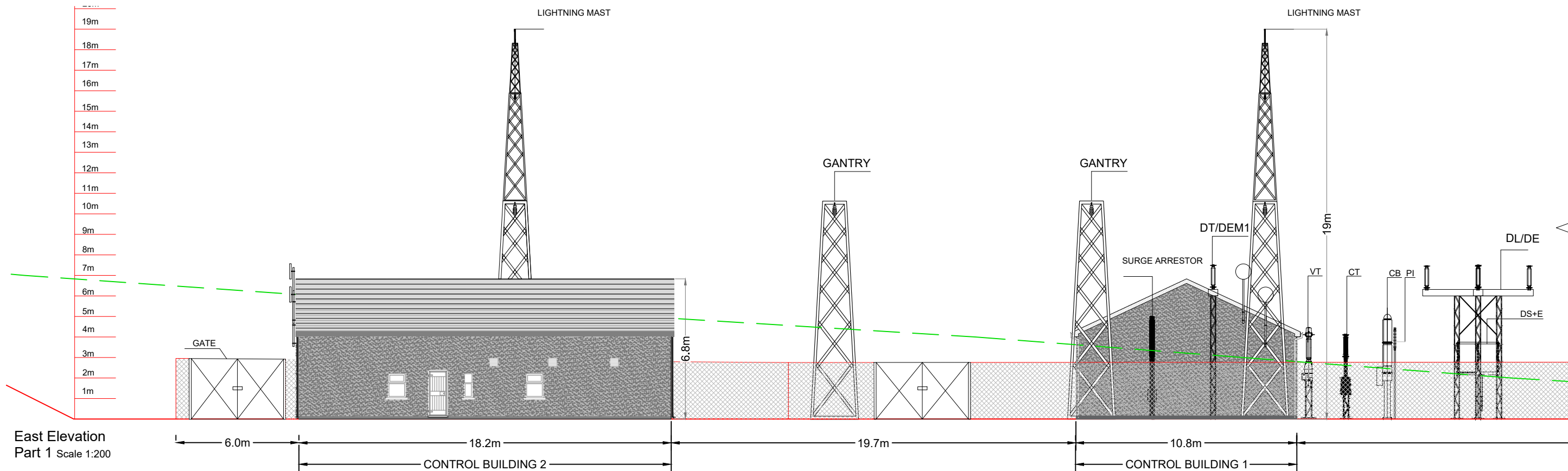
DRAWING TITLE: Site Substation South Elevation	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 25
SCALE: As Shown @A3	DATE: 13.12.2017

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Drawing Notes

1. Layout and arrangements of substation buildings and electrical equipment is shown indicatively and for illustration purposes only as final specifications of buildings and electrical equipment is to be dictated by Eirgrid/ESB networks requirements.



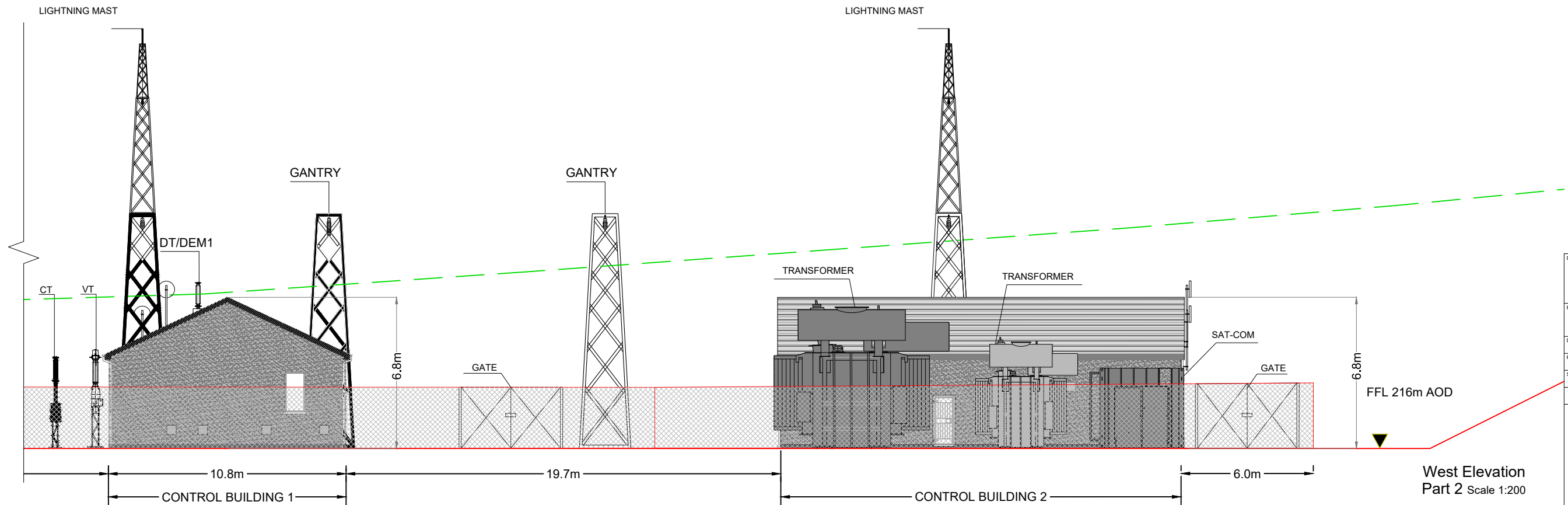
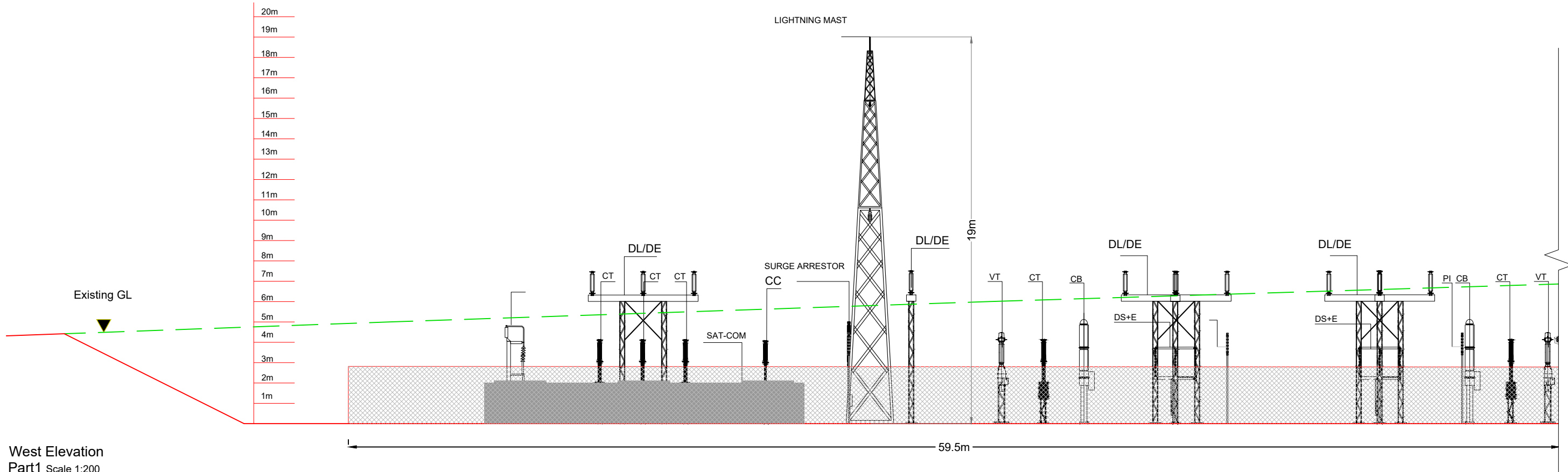
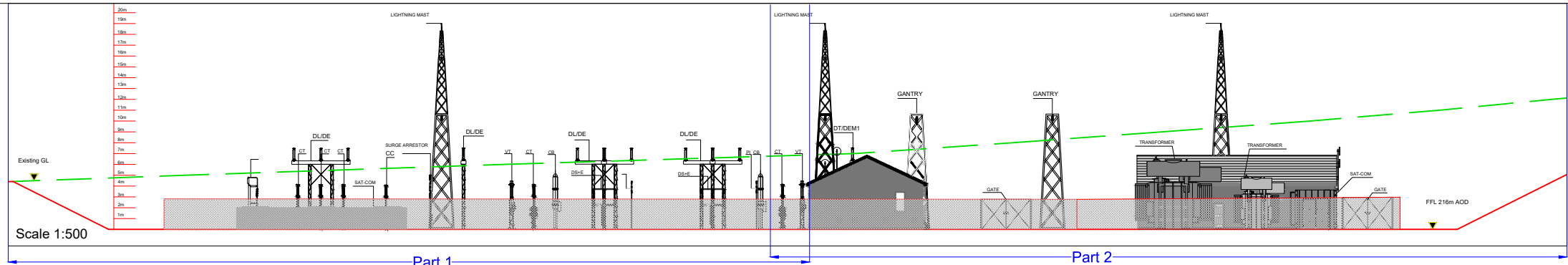
Drawing Title: Site Substation East Elevation	
Project Title: Meenbog Wind Farm, Co. Donegal	
Drawing By: Joseph O'Brien	Checked By: Michael Watson
Project No.: 160502	Drawing No.: 0502 - 26
Scale: As Shown @ A3	Date: 13.12.2017



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Fax: +353 91 771279

Drawing Notes

1. Layout and arrangements of substation buildings and electrical equipment is shown indicatively and for illustration purposes only as final specifications of buildings and electrical equipment is to be dictated by Eirgrid/ESB networks requirements.

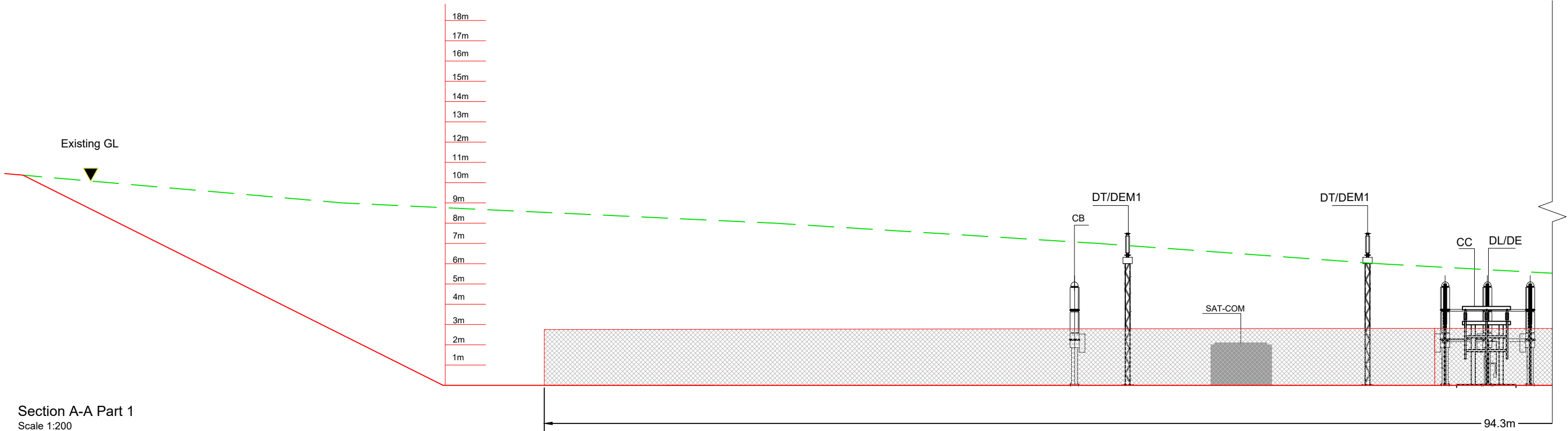
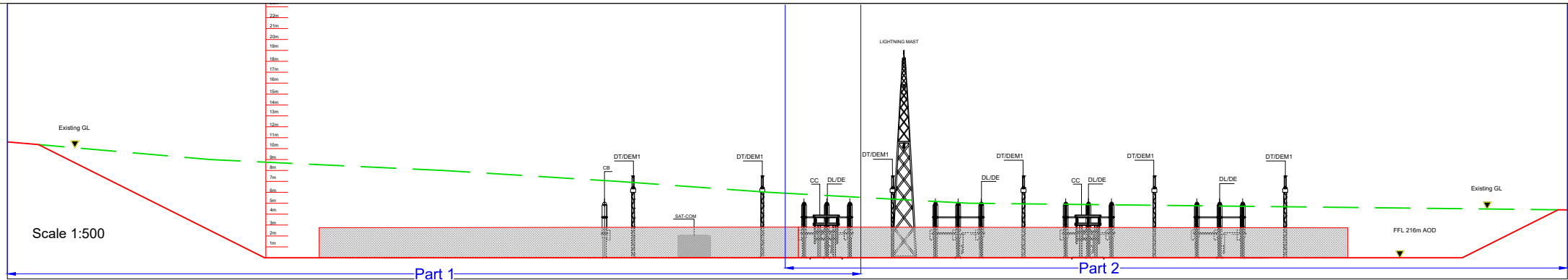


DRAWING TITLE: Site Substation West Elevation	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 27
SCALE: As Shown @ A3	DATE: 13.12.2017

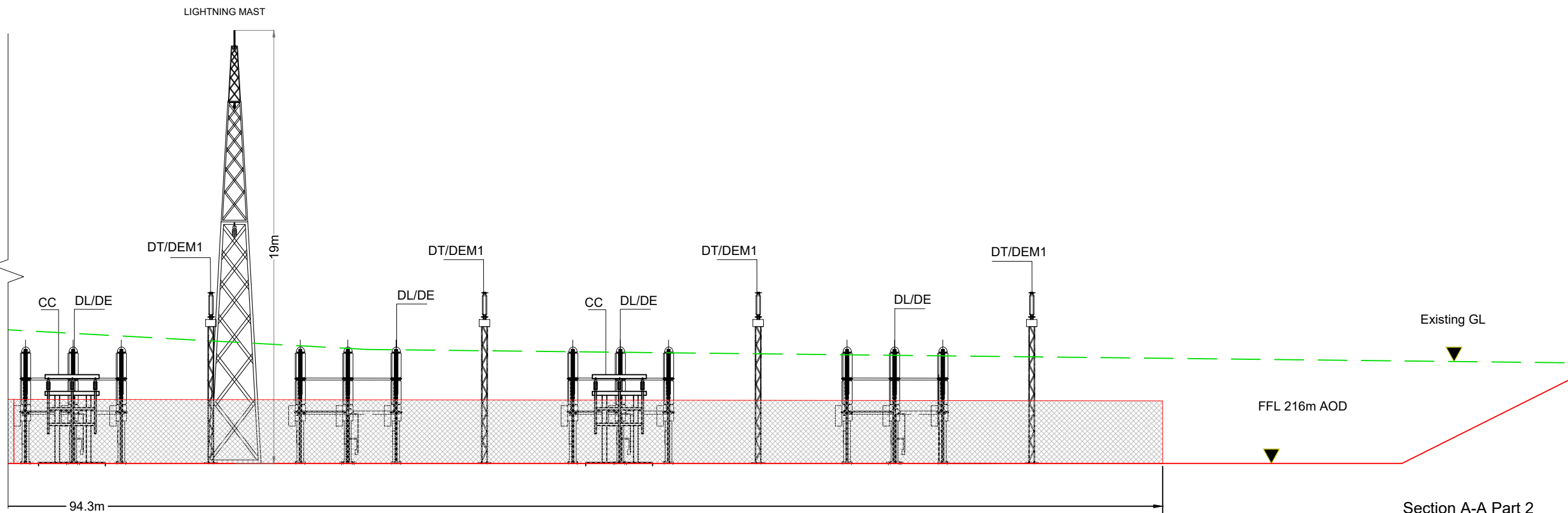
	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants
	Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland.
	email: info@mccarthykos.ie website: www.mccarthykos.ie
	Tel: +353 91 735611 Fax: +353 91 771279

Drawing Notes

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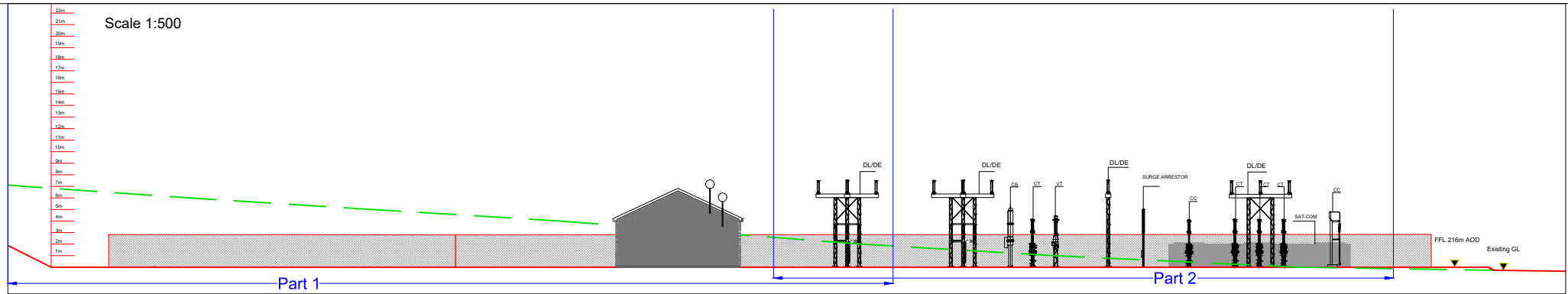
Section A-A Part 1
Scale 1:200



Section A-A Part 2
Scale 1:200

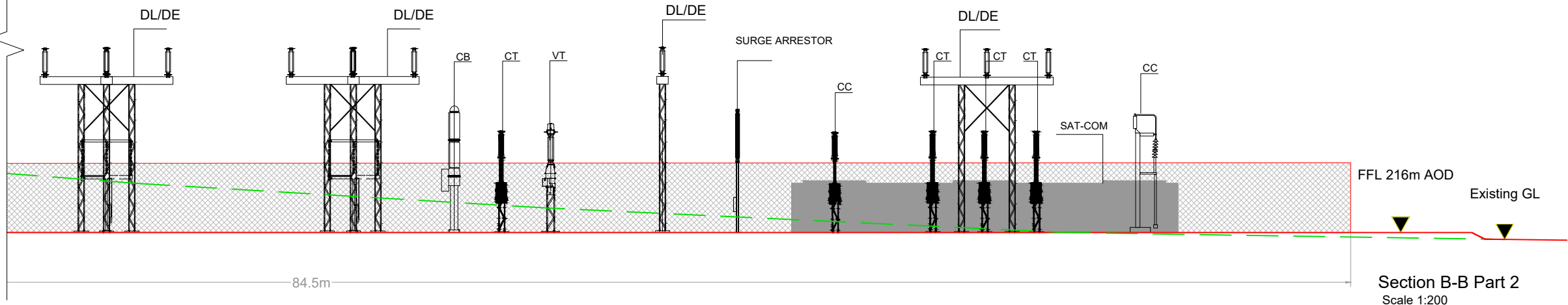
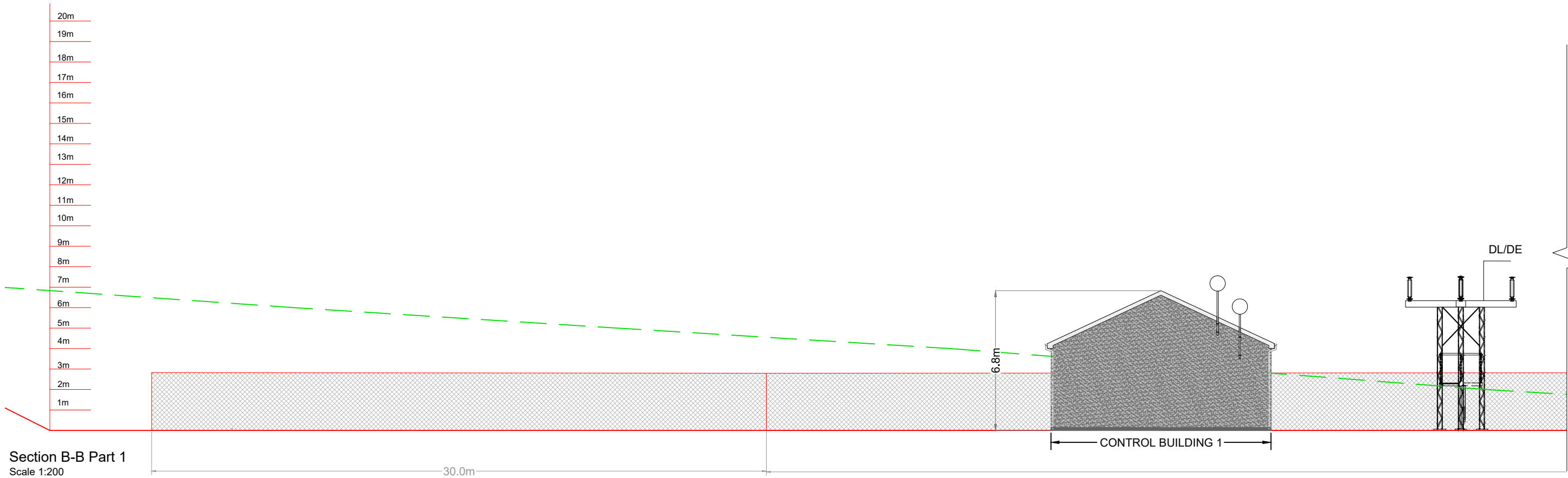
DRAWING TITLE: Site Substation Section A-A	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 28
SCALE: As Shown @ A3	DATE: 13.12.2017

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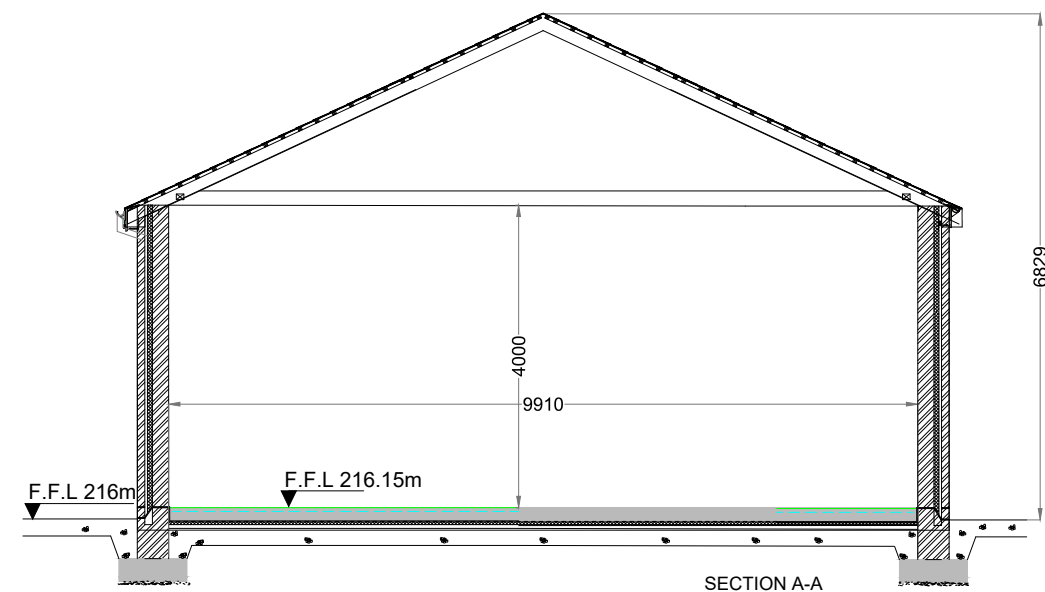
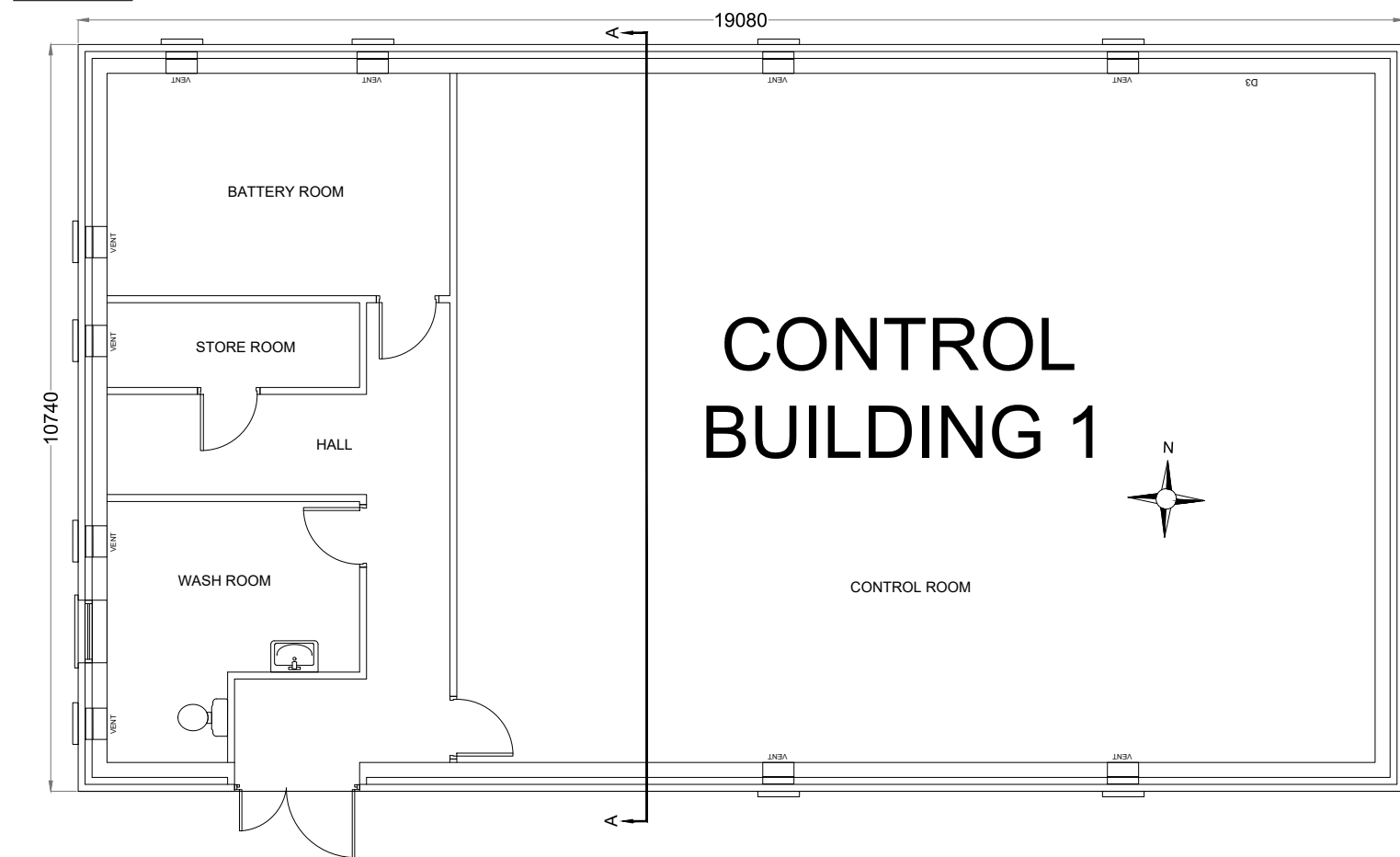
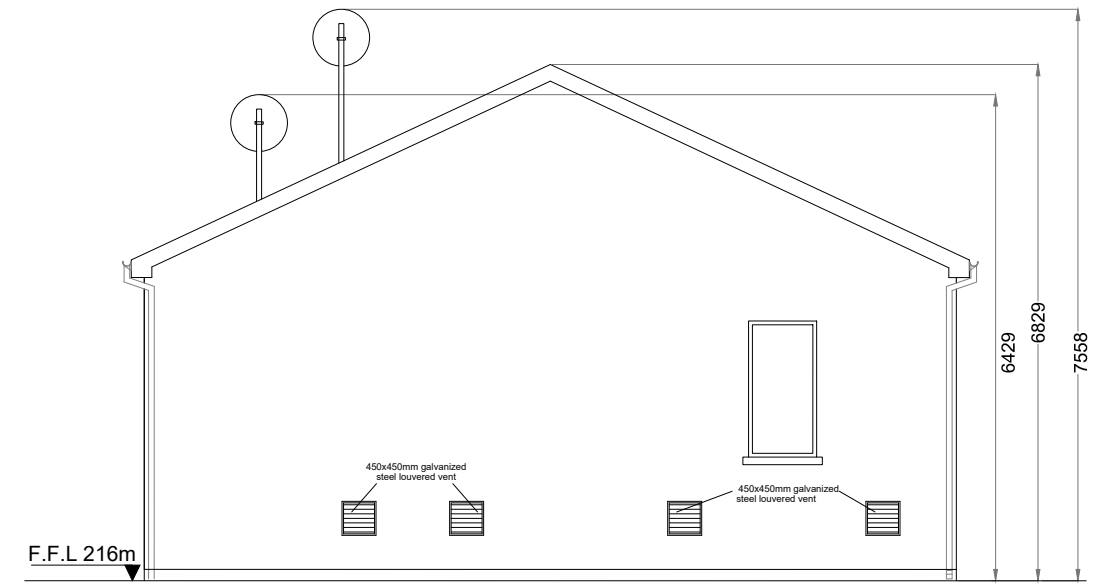
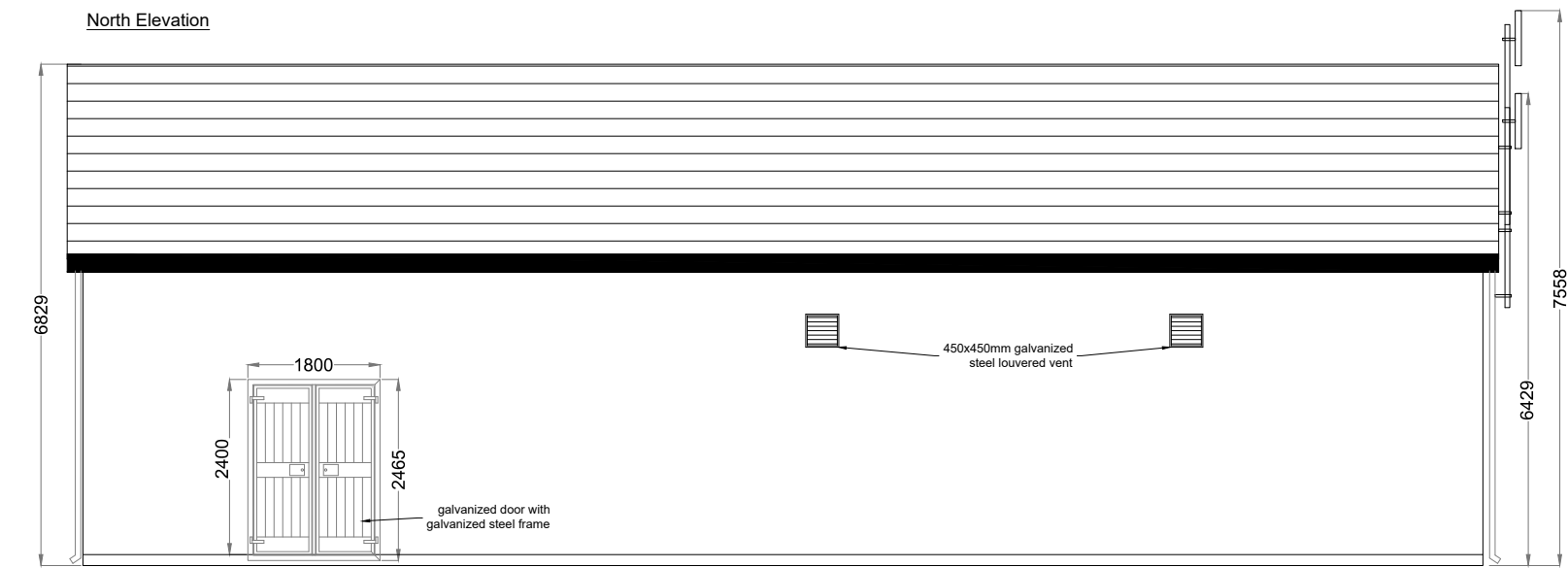
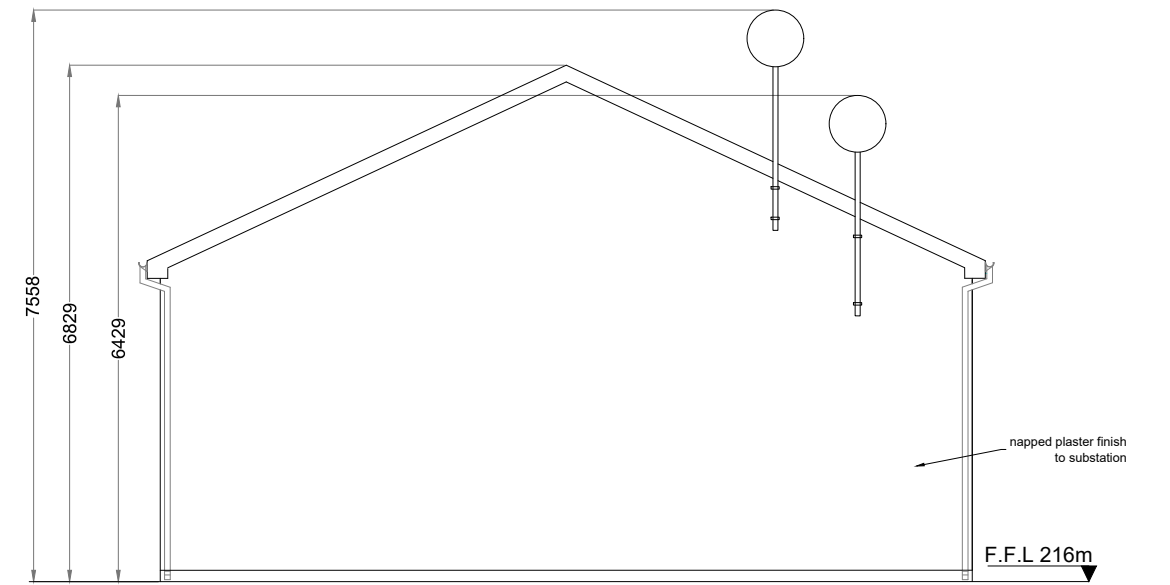
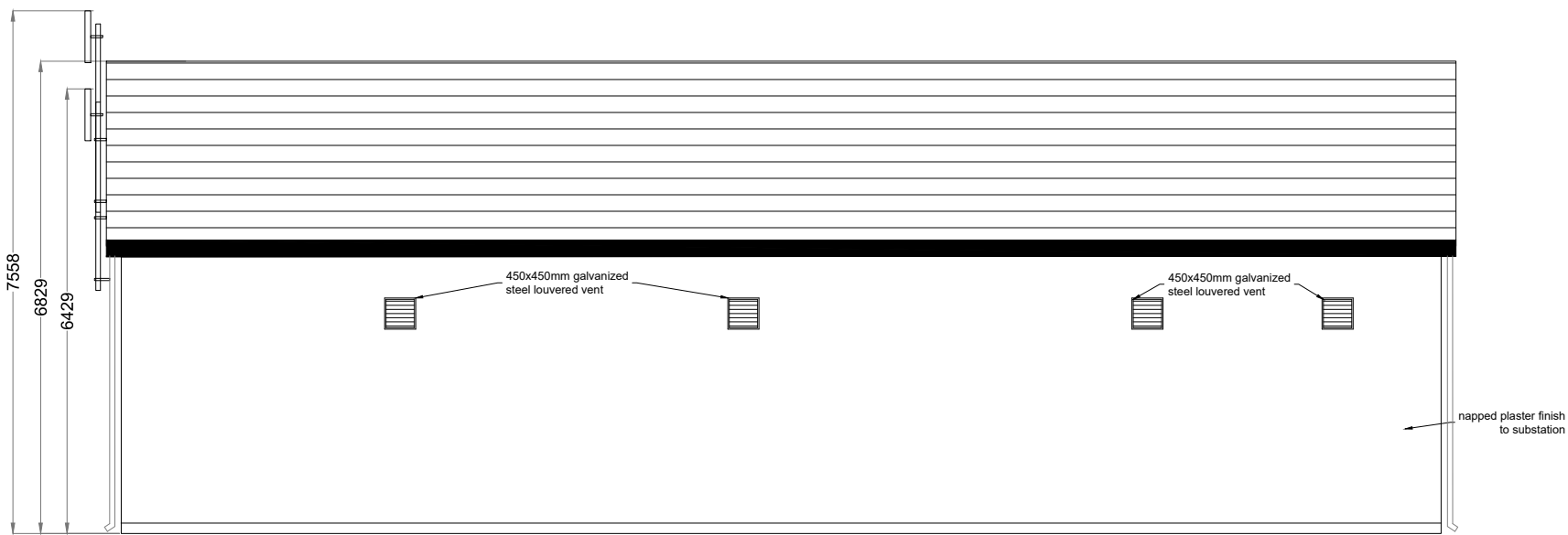
Drawing Notes

1. Layout and arrangements of substation buildings and electrical equipment is shown indicatively and for illustration purposes only as final specifications of buildings and electrical equipment is to be dictated by Eirgrid/ESB networks requirements.



DRAWING TITLE: Site Substation Section B-B	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 29
SCALE: As Shown @ A3	DATE: 13.12.2017

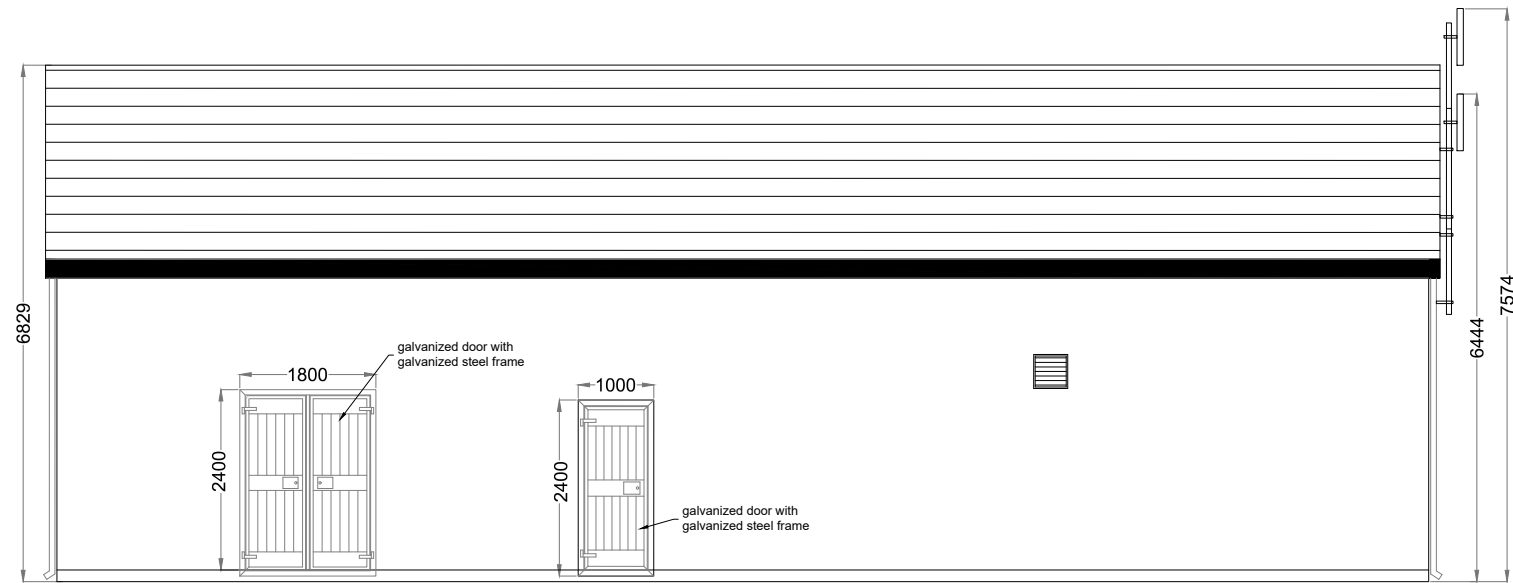
 McCarthy Keville O'Sullivan	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland. email: info@mccarthykos.ie website: www.mccarthykos.ie Tel: +353 91 735611 Fax: +353 91 771279
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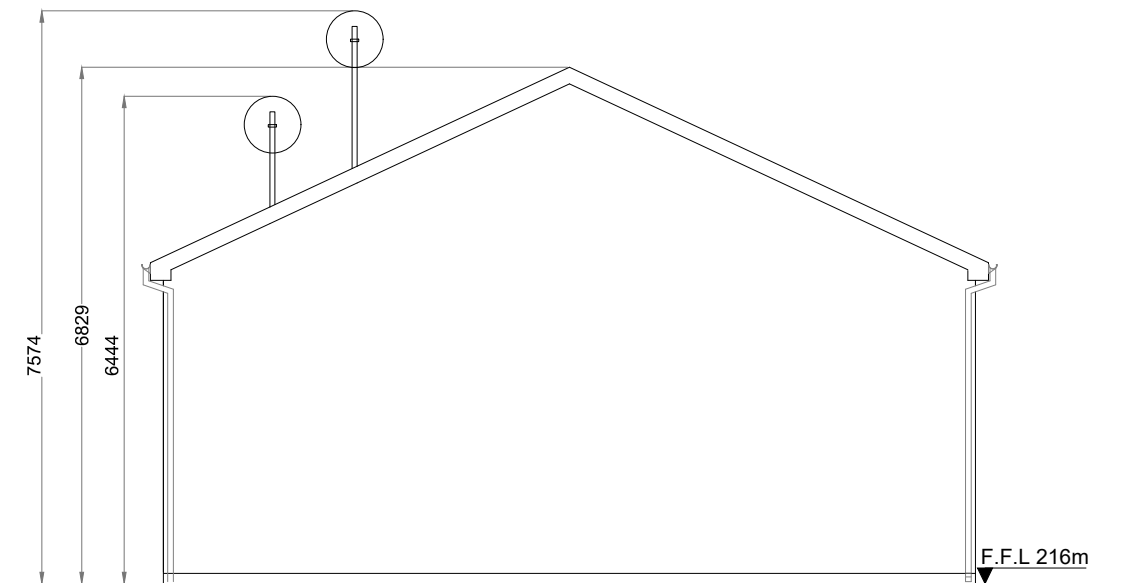
DRAWING TITLE: Site Substation Control Building 1 Elevations & Section	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 30
SCALE: 1: 100 @ A3	DATE: 13.12.2017



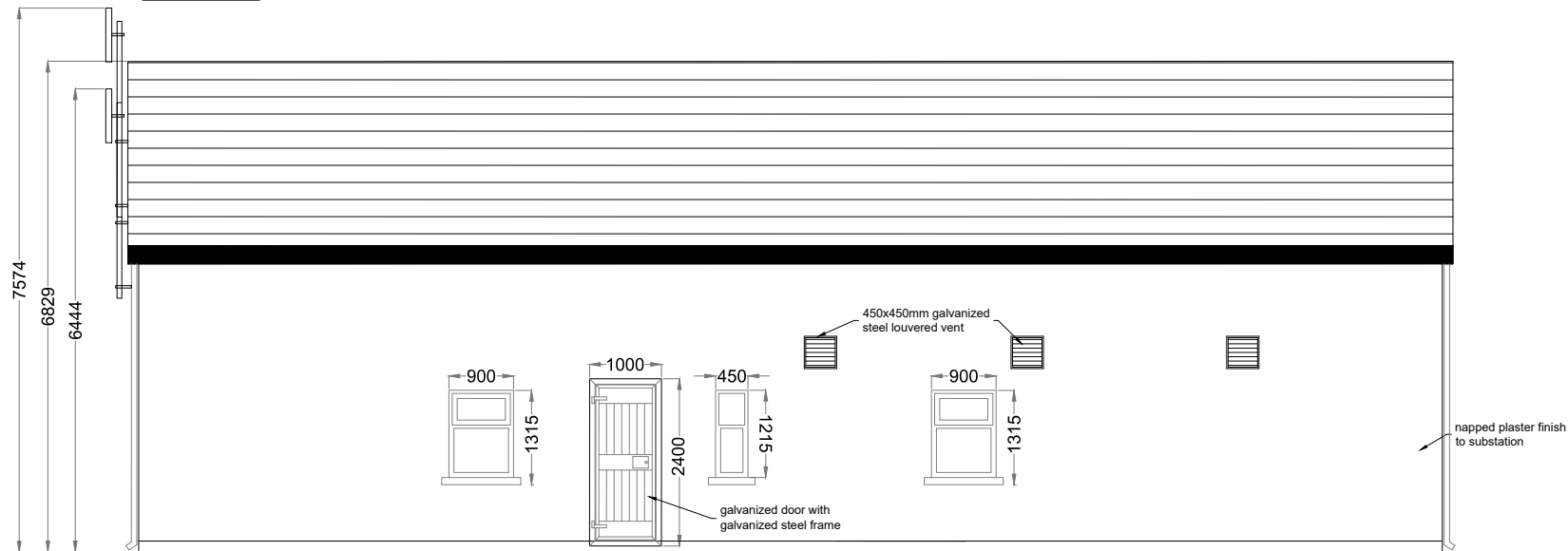
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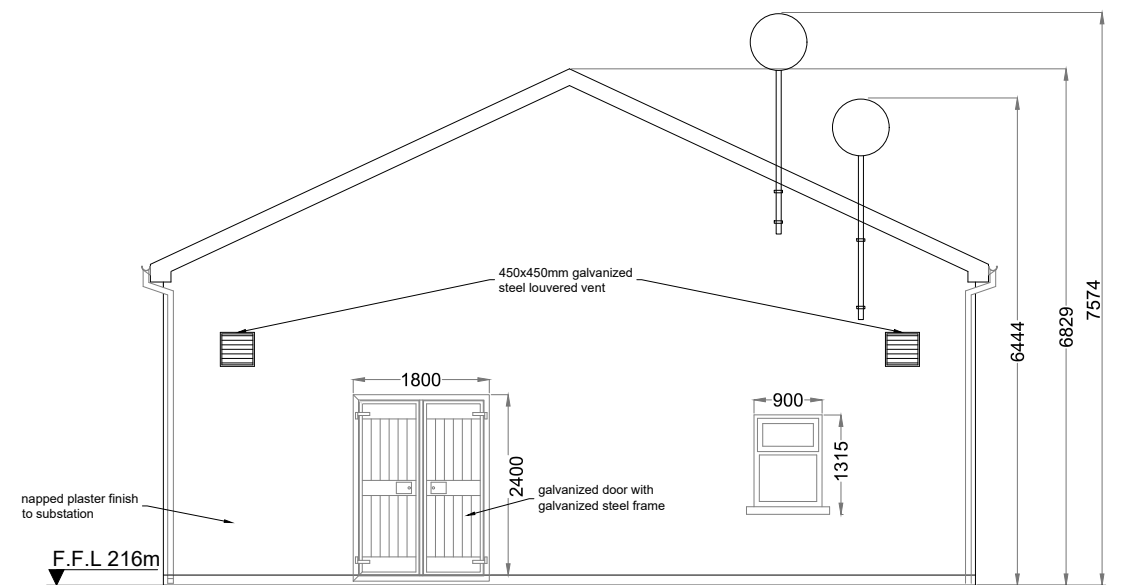
West Elevation



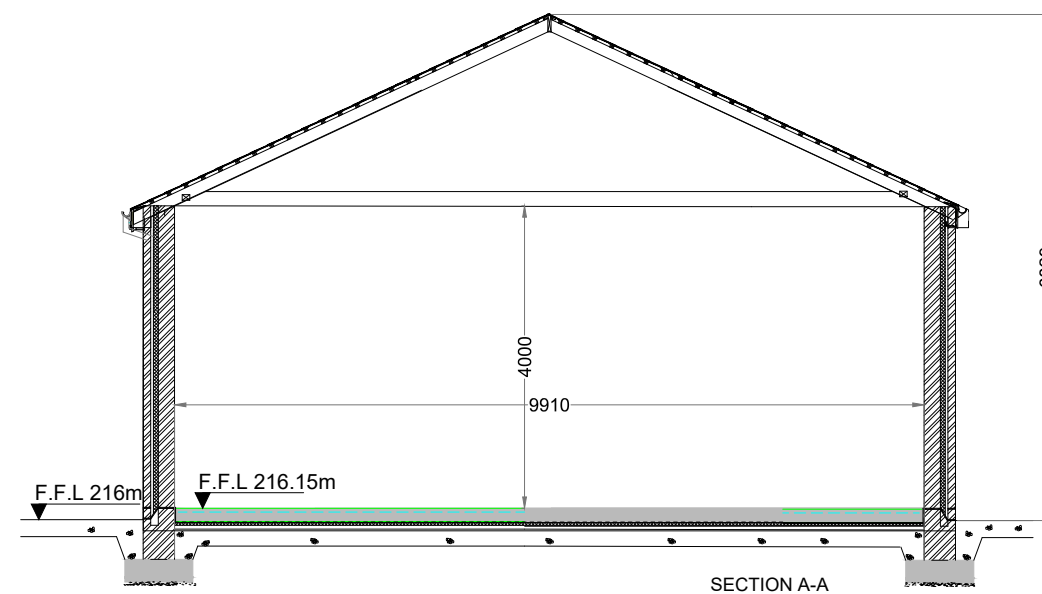
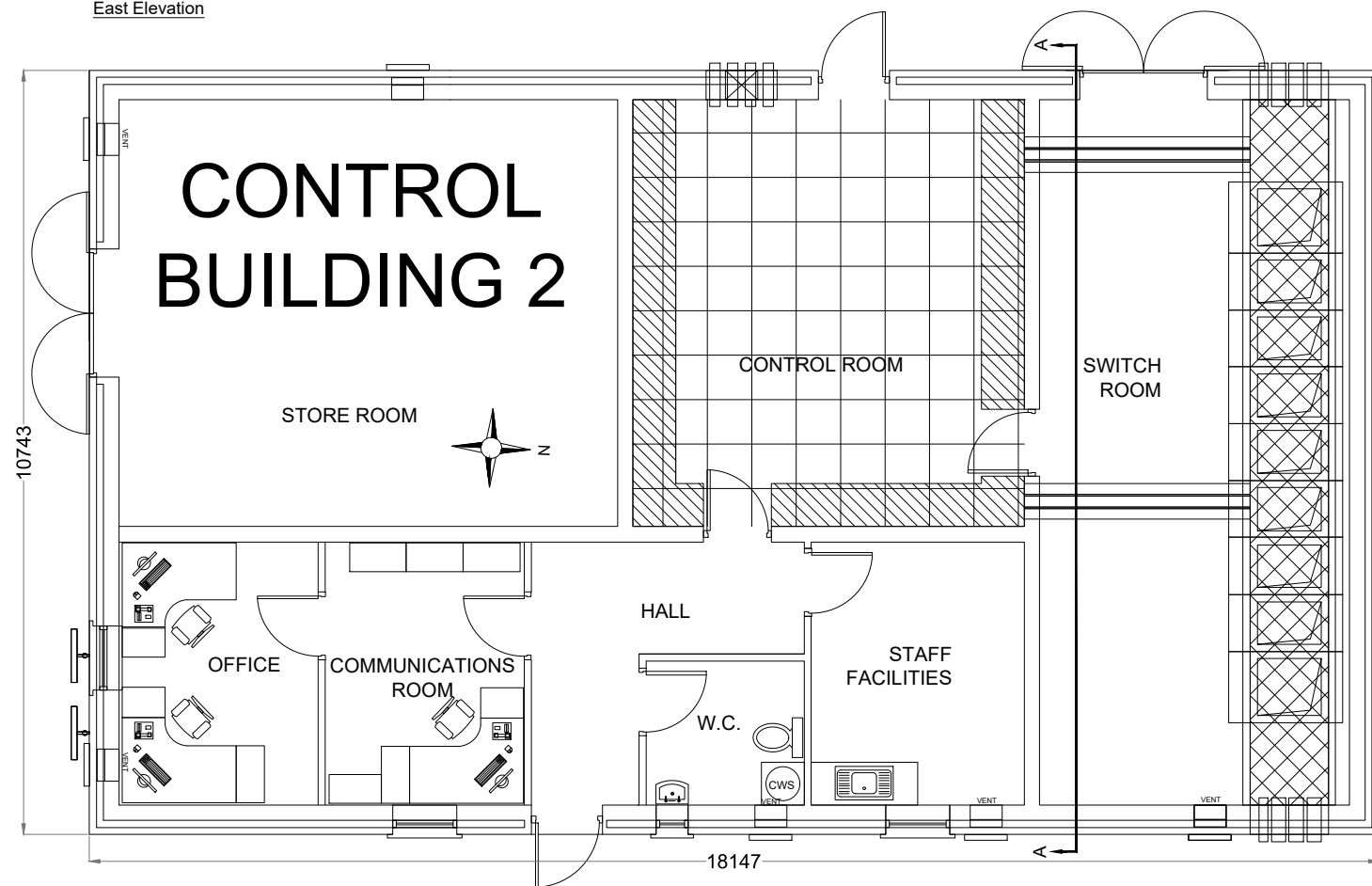
North Elevation



East Elevation



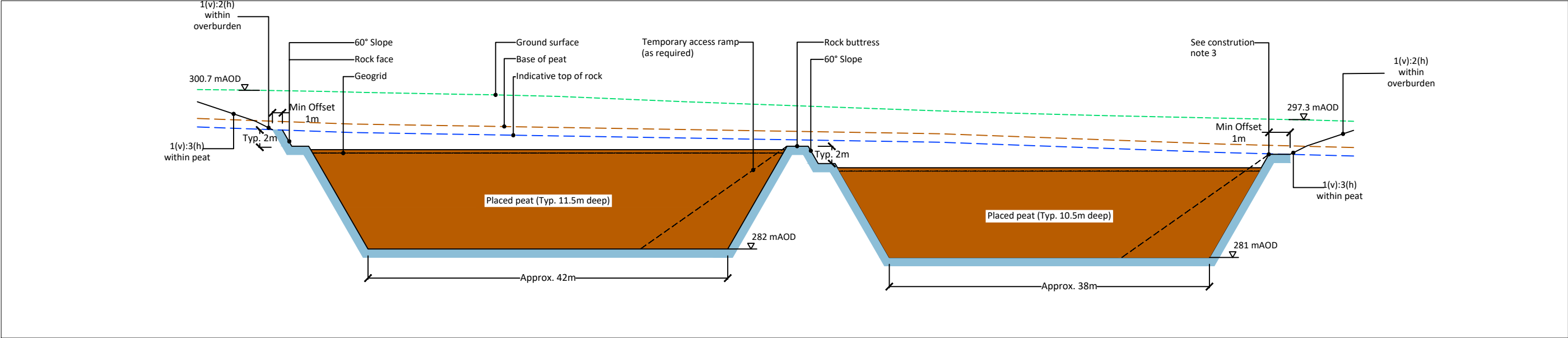
South Elevation



SECTION A-A

DRAWING TITLE: Site Substation Control Building 2 Elevations & Section	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 31
SCALE: 1: 100 @ A3	DATE: 13.12.2017

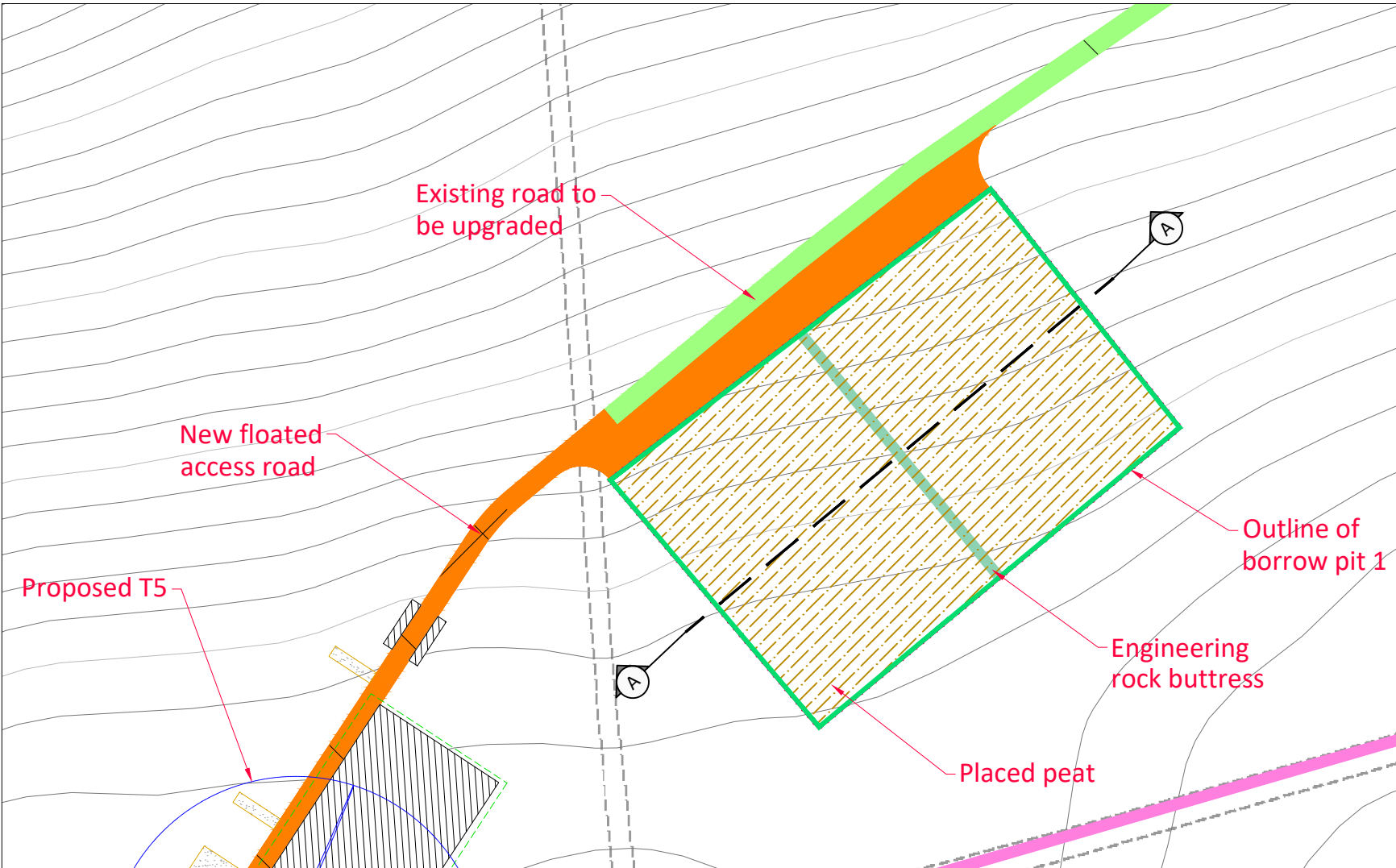
McCarthy Keville O'Sullivan Ltd.
Planning & Environmental Consultants
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website: www.mccarthykos.ie
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Fax: +353 91 771279



Section A-A, Scale 1:500

FOR INFORMATION

- Construction Notes:**
- (1) Exposed rock slopes formed at shallower inclinations (typically 60°) with face left irregular with declivities to promote re-vegetation and provide a naturalistic appearance.
 - (2) Rock buttress between cells of placed peat.
 - (3) Footprint of quarry should be optimised to avoid areas of deeper peat.
 - (4) In-situ rock slope formed at stable inclinations to suit local rock conditions.
 - (5) Geogrid placed to strengthen surface of placed peat, as required.
 - (6) Localised deepening of quarry floor to suit extraction operations, as required.
 - (7) The location of the rock buttresses shown for the borrow areas are indicative only and may change subject to local conditions encountered on site during construction.
 - (8) The method of excavation of the rock and depth to top of rock within each of the borrow areas will need to be determined from a ground investigation. The ground investigation shall comprise rotary core drilling with associated engineering logging including rock quality designation and strength testing, as required.
 - (9) Further guidelines on the construction of the borrow areas is included within Section 7.4 of the Peat Management Plan.



Scale 1:1,500

Borrow Pit 1 Layout & Section

PROJECT TITLE: Meenbog Wind Farm, Co. Donegal

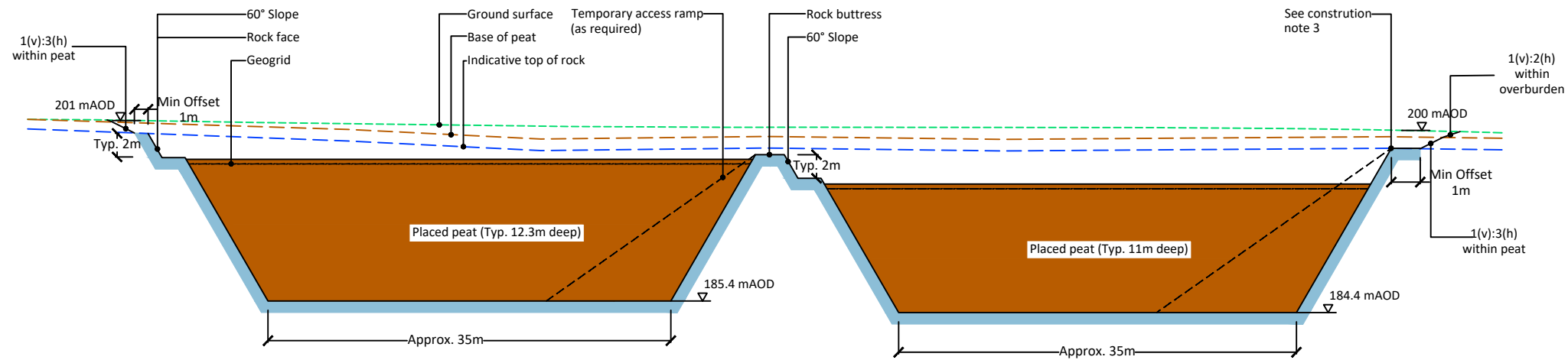
DRAWING BY: Paul O' Reilly
PROJECT No.: 1461

CHECKED BY: Gerry Kane
DRAWING No.: 0502 - 32

SCALE: As Shown @ A3
DATE: 13.12.2017

OS SHEET No.: 0387, 0398, 0399, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0505, 0507, 0508, 0509, 0535, 0536

agec
geotechnical
engineering consultants

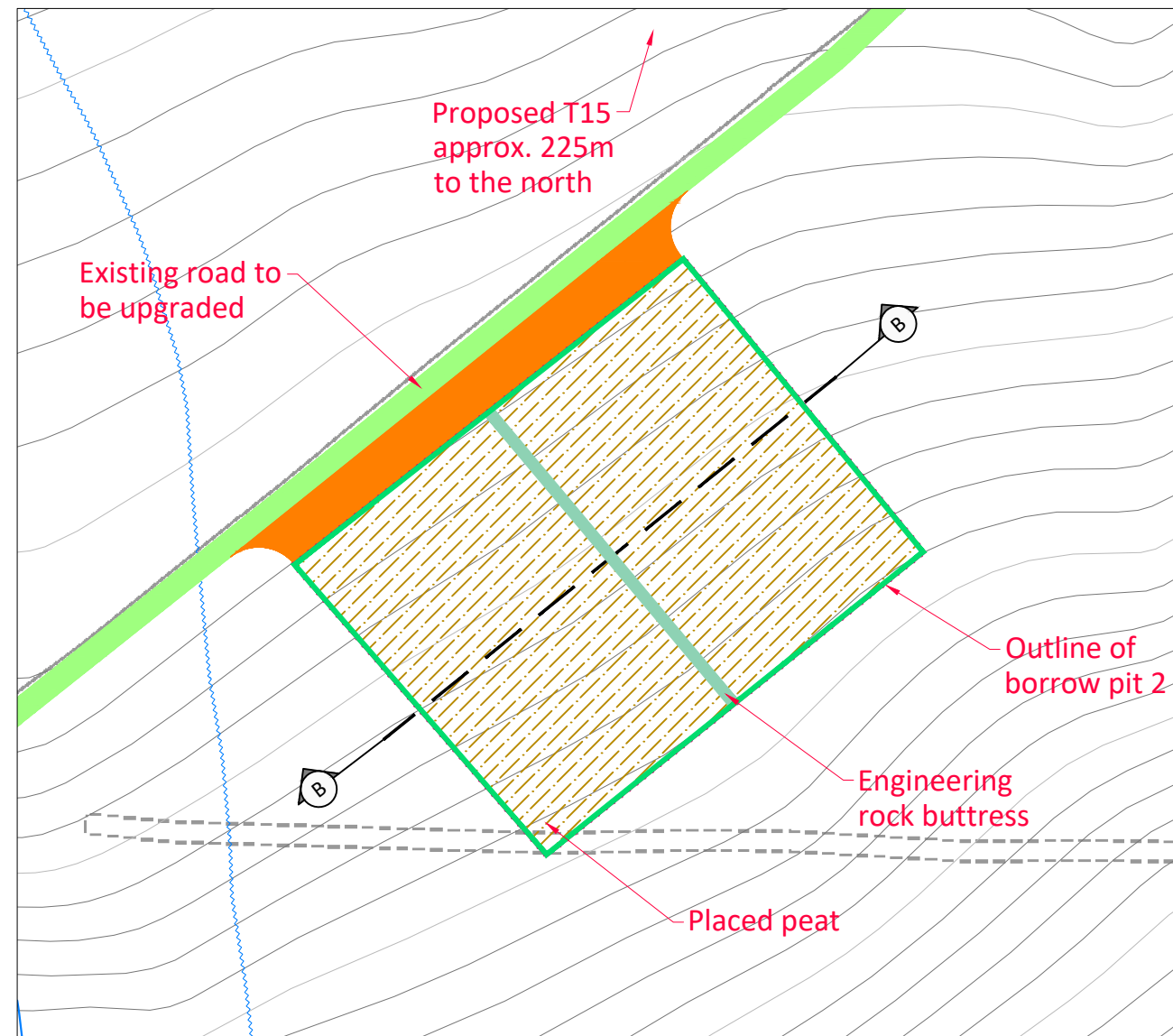


Section B-B, Scale 1:500

FOR INFORMATION

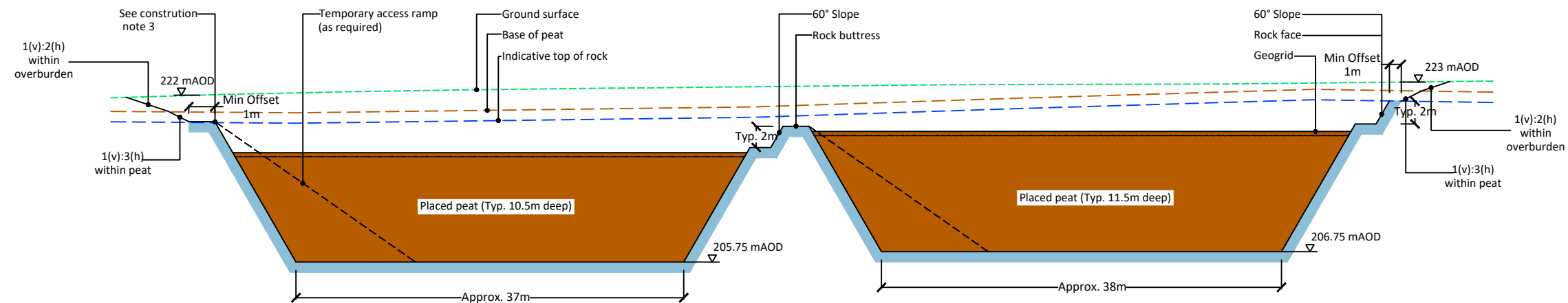
Construction Notes:

- (1) Exposed rock slopes formed at shallower inclinations (typically 60°) with face left irregular with declivities to promote re-vegetation and provide a naturalistic appearance.
- (2) Rock buttress between cells of placed peat.
- (3) Footprint of quarry should be optimised to avoid areas of deeper peat.
- (4) In-situ rock slope formed at stable inclinations to suit local rock conditions.
- (5) Geogrid placed to strengthen surface of placed peat, as required.
- (6) Localised deepening of quarry floor to suit extraction operations, as required.
- (7) The location of the rock buttresses shown for the borrow areas are indicative only and may change subject to local conditions encountered on site during construction.
- (8) The method of excavation of the rock and depth to top of rock within each of the borrow areas will need to be determined from a ground investigation. The ground investigation shall comprise rotary core drilling with associated engineering logging including rock quality designation and strength testing, as required.
- (9) Further guidelines on the construction of the borrow areas is included within Section 7.4 of the Peat Management Plan.



Scale 1:1,500

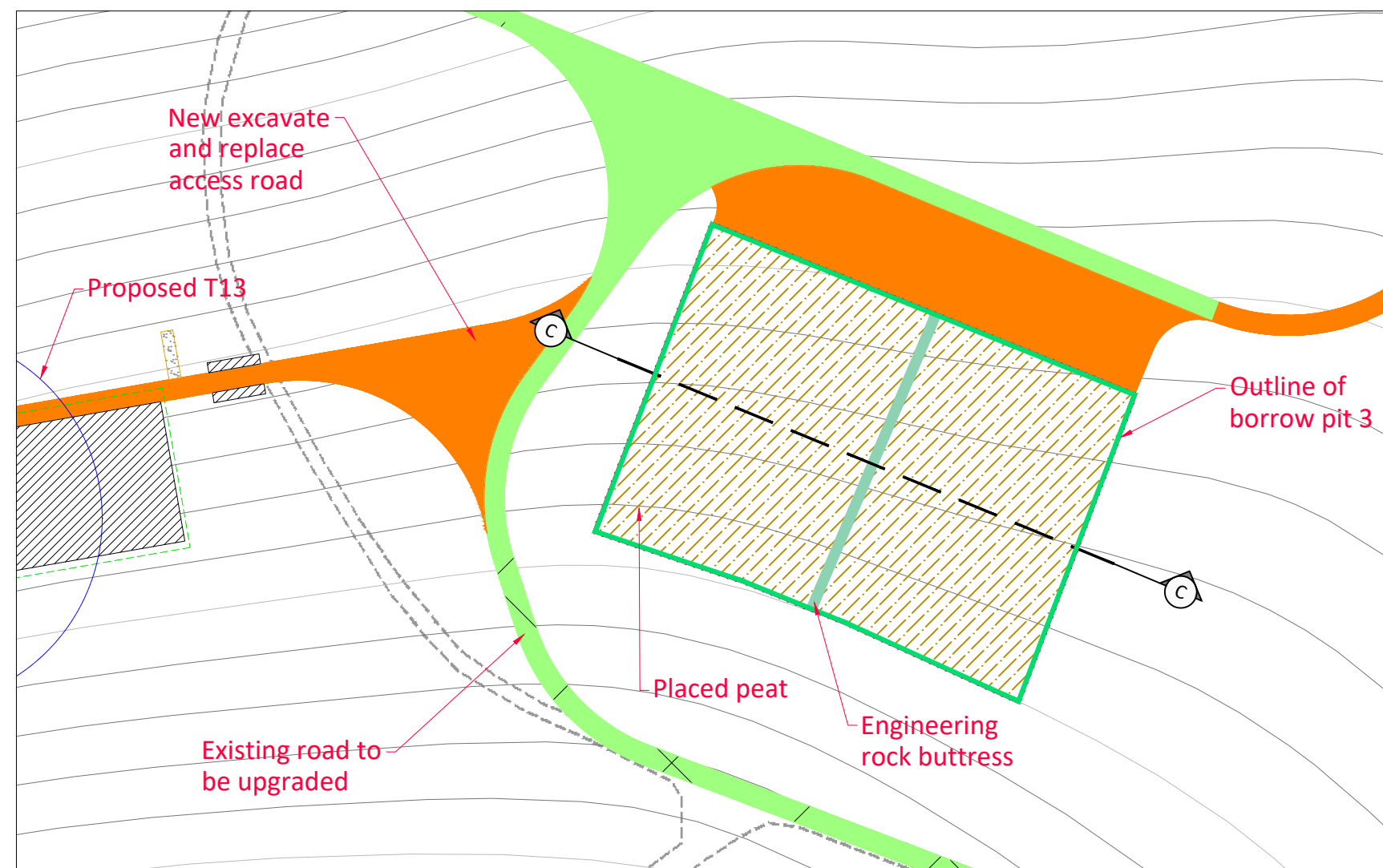
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PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Paul O' Reilly	CHECKED BY: Gerry Kane
PROJECT No.: 1461	DRAWING No.: 0502 - 33
SCALE: As Shown @ A3	DATE: 13.12.2017
OS SHEET No.: 0387,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451,0452,0453,0454,0476,0479, 0480,0481,0482,0506,0507,0508,0509,0535,0536	



FOR INFORMATION

Construction Notes:

- (1) Exposed rock slopes formed at shallower inclinations (typically 60°) with face left irregular with declivities to promote re-vegetation and provide a naturalistic appearance.
- (2) Rock buttress between cells of placed peat.
- (3) Footprint of quarry should be optimised to avoid areas of deeper peat.
- (4) In-situ rock slope formed at stable inclinations to suit local rock conditions.
- (5) Geogrid placed to strengthen surface of placed peat, as required.
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- (7) The location of the rock buttresses shown for the borrow areas are indicative only and may change subject to local conditions encountered on site during construction.
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- (9) Further guidelines on the construction of the borrow areas is included within Section 7.4 of the Peat Management Plan.

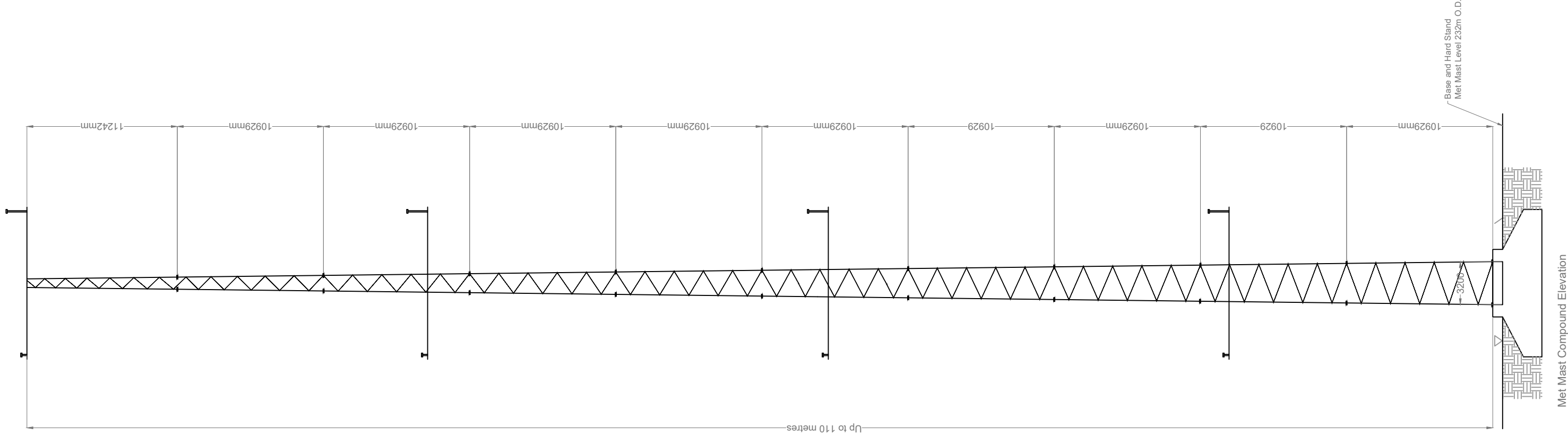


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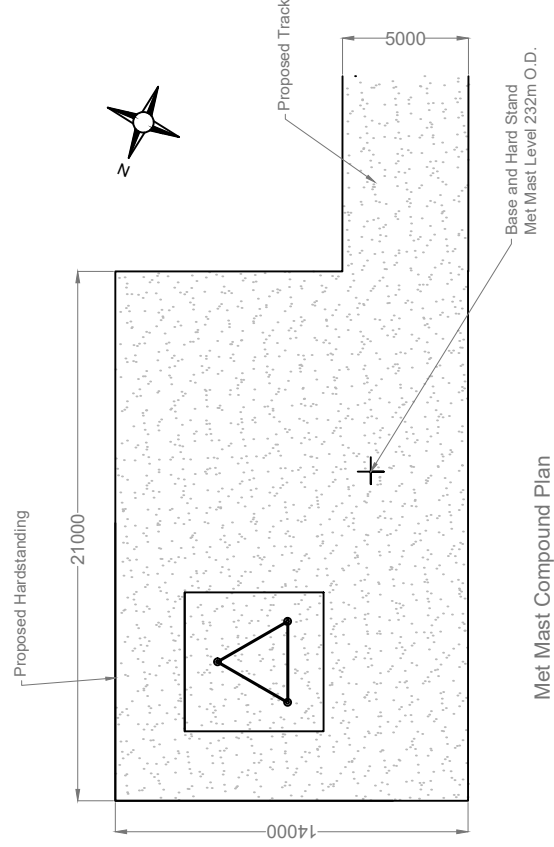
DRAWING TITLE: Borrow Pit 3 Layout & Section	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Paul O'Reilly	CHECKED BY: Gerry Kane
PROJECT No.: 1461	DRAWING No.: 0502 - 34
SCALE: As Shown @ A3	DATE: 13.12.2017
OS SHEET No.: 0387,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451,0452,0453,0454,0476,0479, 0480,0481,0482,0505,0507,0508,0509,0535,0536	

Drawing Notes

Drawing Notes

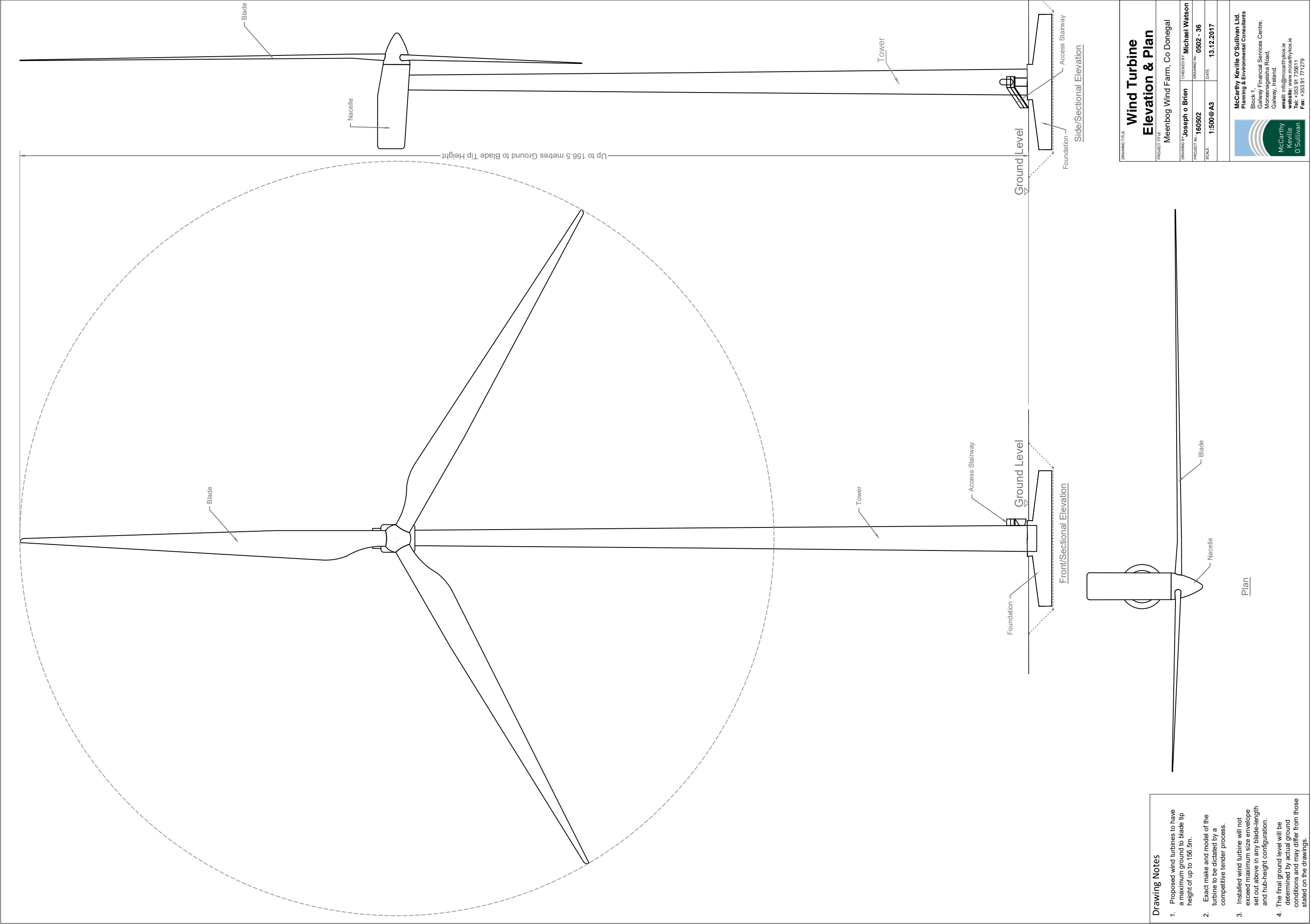


Met Mast Compound Elevation

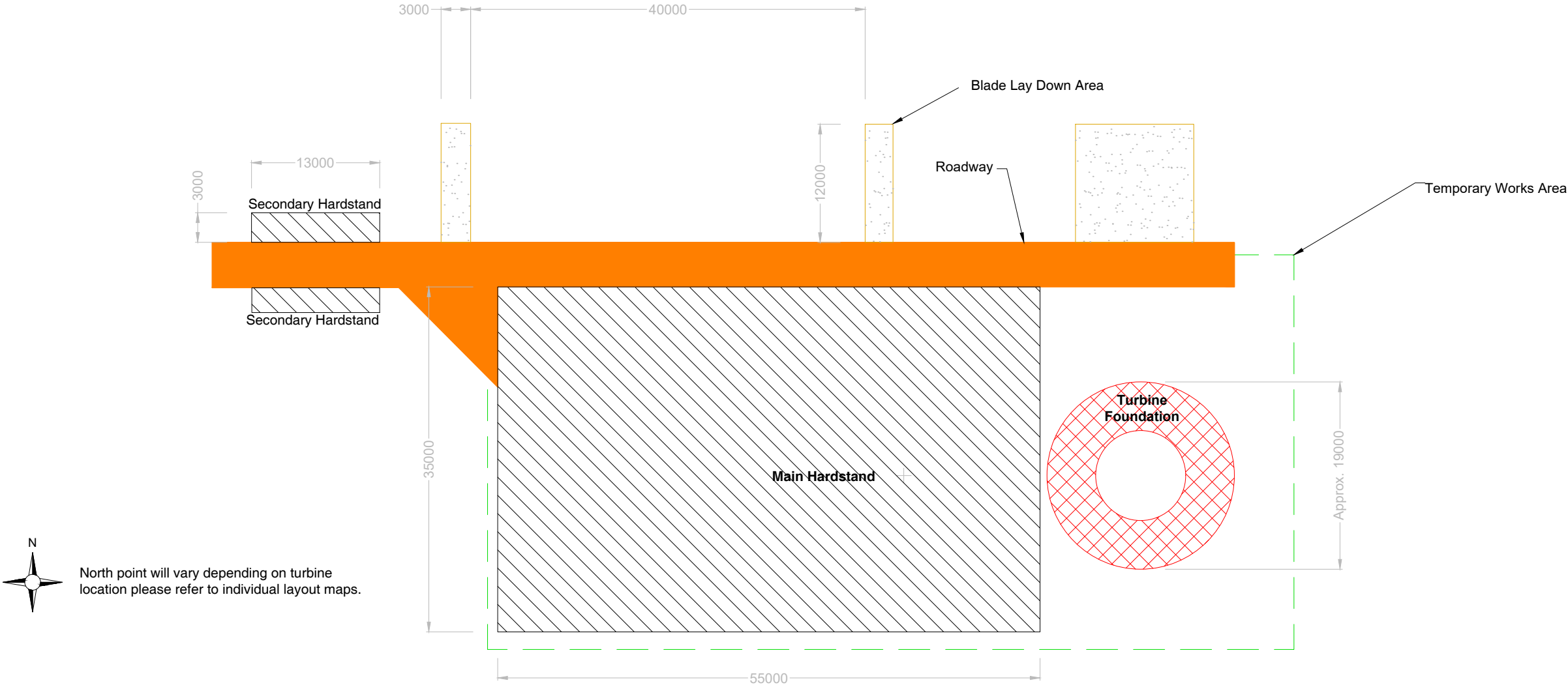


Met Mast Compound Plan

DRAWING TITLE	Met Mast - Free Standing Mast		PROJECT TITLE:		
	Meenbog Wind Farm, Co. Donegal		PROJECT TITLE:		
DRAWING BY:	Joseph O'Brien	CHECKED BY:	Michael Watson		
PROJECT NO.:	160502	DRAWING NO.:	0502 - 35		
SCALE:	1:300 @ A3	DATE:	13.12.2017		
			McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Monneragasha Road, Galway, Ireland. email: info@mcCarthyKevilleO'Sullivan.ie website: www.mcCarthyKevilleO'Sullivan.ie Tel: +353 91 771278 Fax: +353 91 771279		



Drawing Notes
1. Typical Layout.
The dimensions shown are typical dimensions of a turbine hardstand and foundation. The actual dimensions of the hardstand and foundations will be as per the turbine manufacturer's requirements.

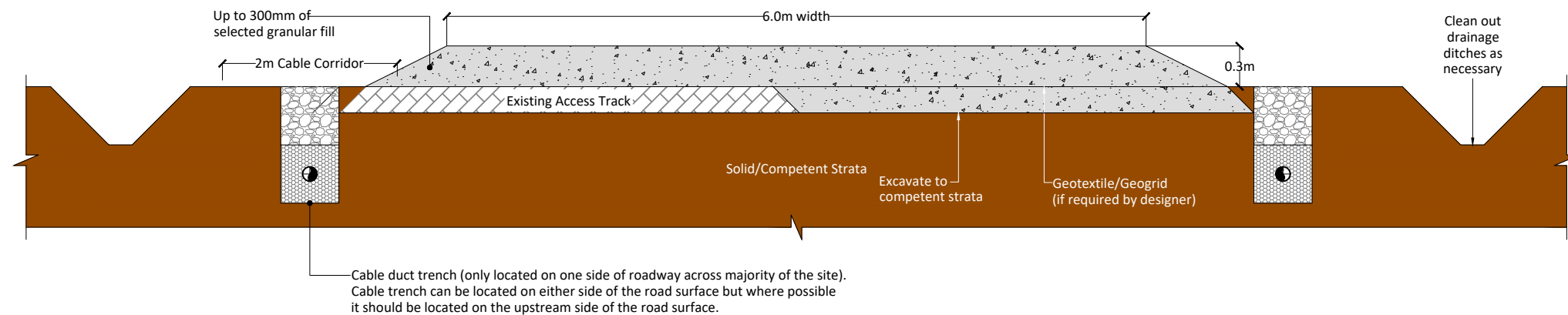


North point will vary depending on turbine location please refer to individual layout maps.

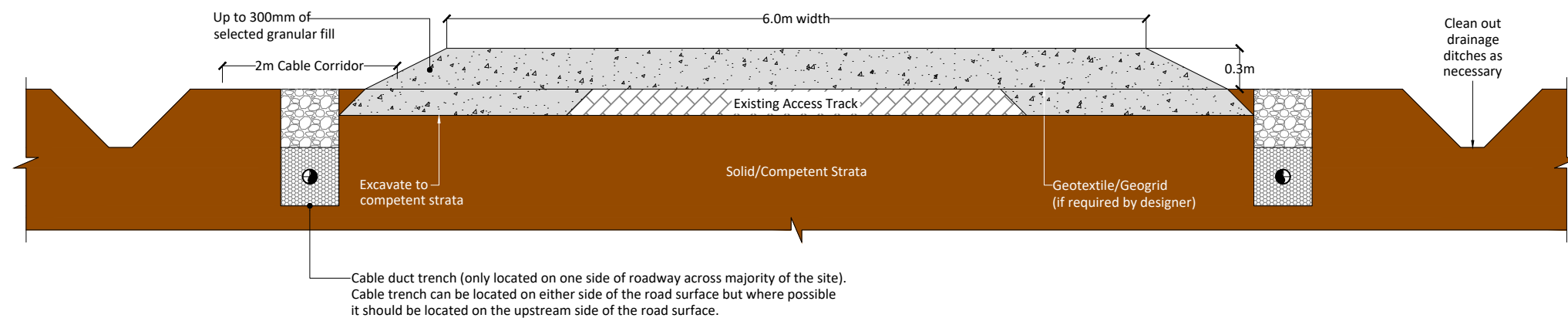
DRAWING TITLE: Typical Turbine Hardstand Layout Standard Detail	
PROJECT TITLE: Meenbog Wind Farm, Co Donegal	
DRAWING BY: Joseph o Brien	CHECKED BY: Michael Watson
PROJECT No: 160502	DRAWING No: 0502 - 37
SCALE: 1:500@A3	DATE: 13.12.2017



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Tel: +353 91 735611
Fax: +353 91 771279

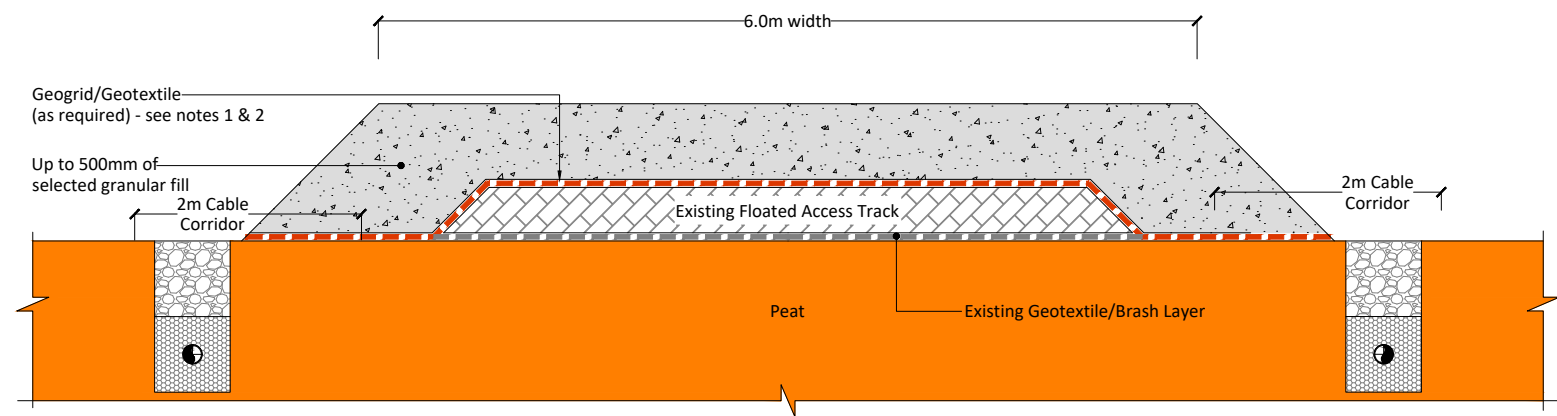


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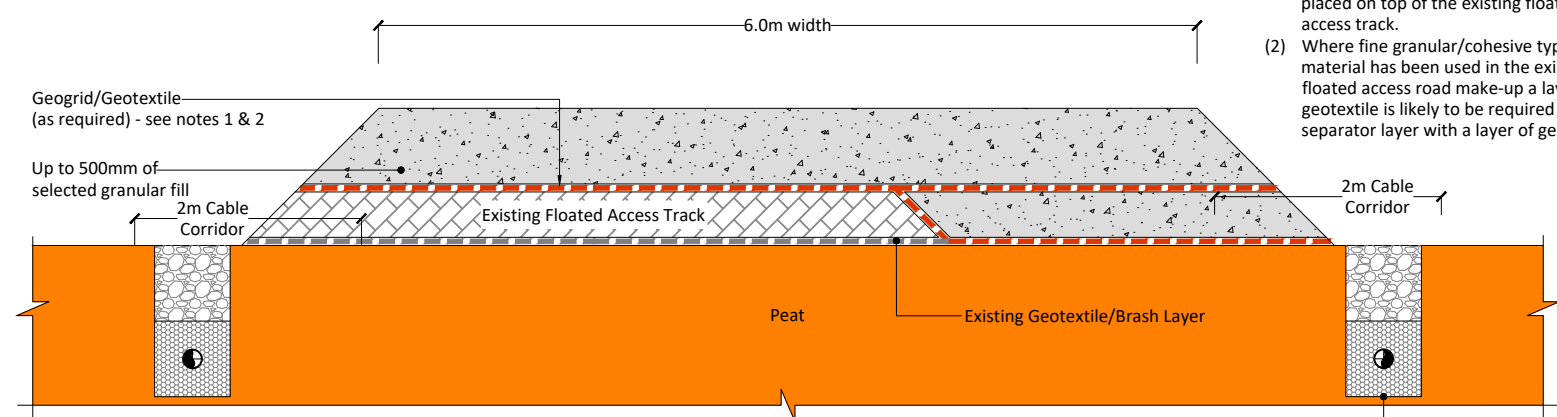


Widen on both sides

DRAWING TITLE:		Typical Sections Road Type A - Upgrade of Existing Excavated Access Road	
PROJECT TITLE:		Meenbog Wind Farm, Co. Donegal	
DRAWING BY:	Gerry Kane	CHECKED BY:	Paul Jennings
PROJECT No.:	1461	DRAWING No.:	0502 - 38
SCALE:	1:50 @ A3	DATE:	13.12.2017
OS SHEET No.:			



Widen on both sides

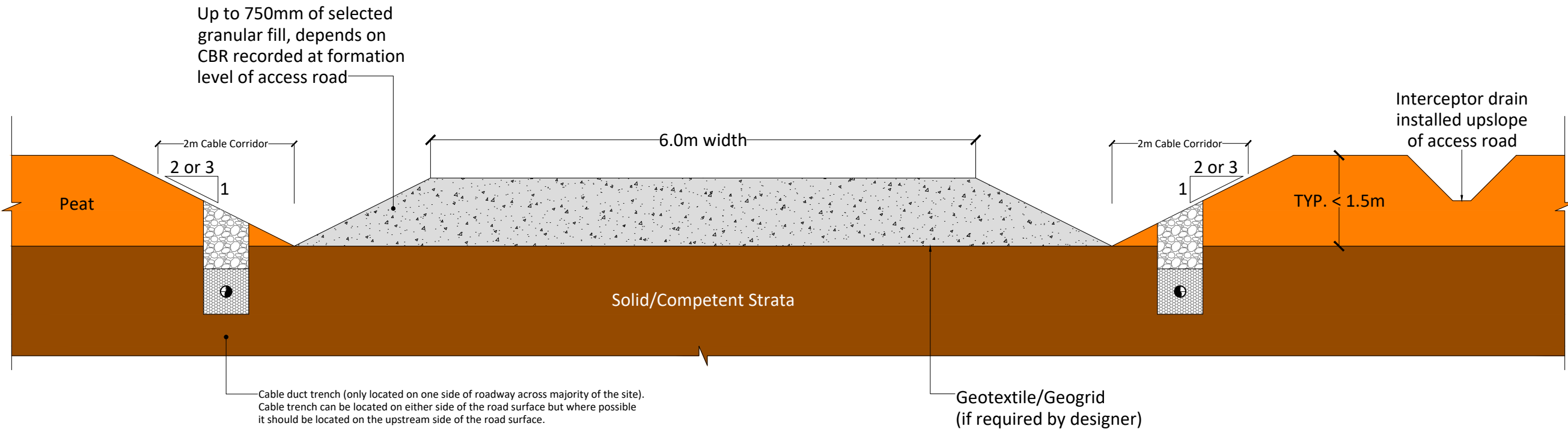


Widen to one side

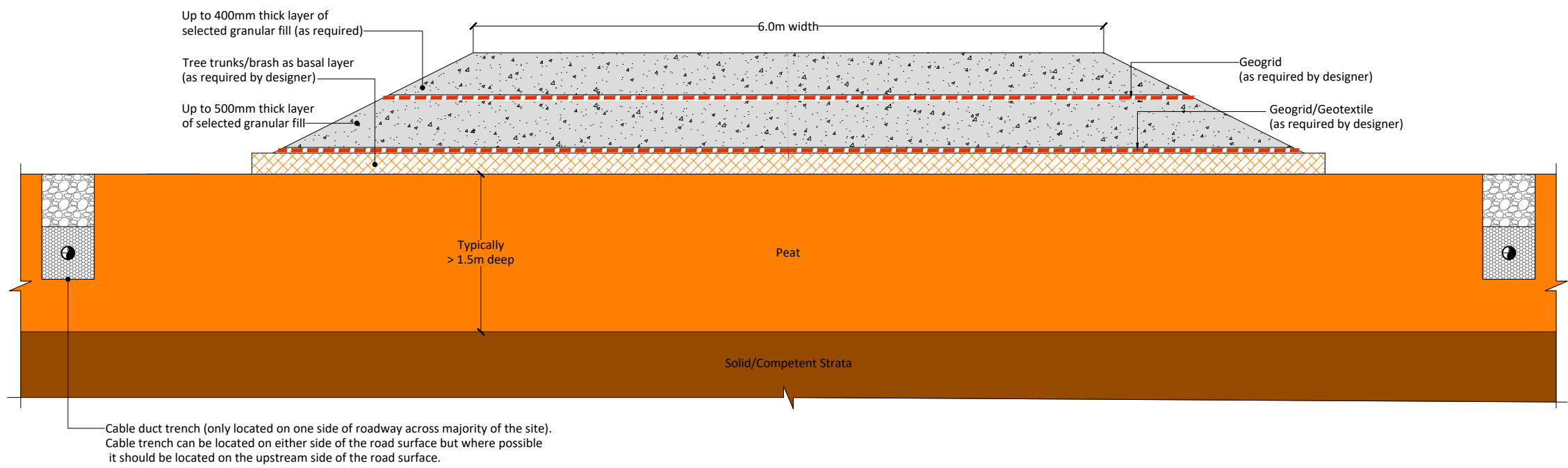
Cable duct trench (only located on one side of roadway across majority of the site). Cable trench can be located on either side of the road surface but where possible it should be located on the upstream side of the road surface.

- (1) Where coarse granular fill has been used in the existing floated access road make-up, a layer of geogrid should be placed on top of the existing floated access track.
- (2) Where fine granular/cohesive type material has been used in the existing floated access road make-up a layer of geotextile is likely to be required as a separator layer with a layer of geogrid.

DRAWING TITLE:		Typical Sections Road Type B - Upgrade of Existing Floated Access Road	
PROJECT TITLE:		Meenbog Wind Farm, Co. Donegal	
DRAWING BY:	Gerry Kane	CHECKED BY:	Paul Jennings
PROJECT No.:	1461	DRAWING No.:	0502 - 39
SCALE:	1:50@A3	DATE:	13.12.2017
OS SHEET No.:			



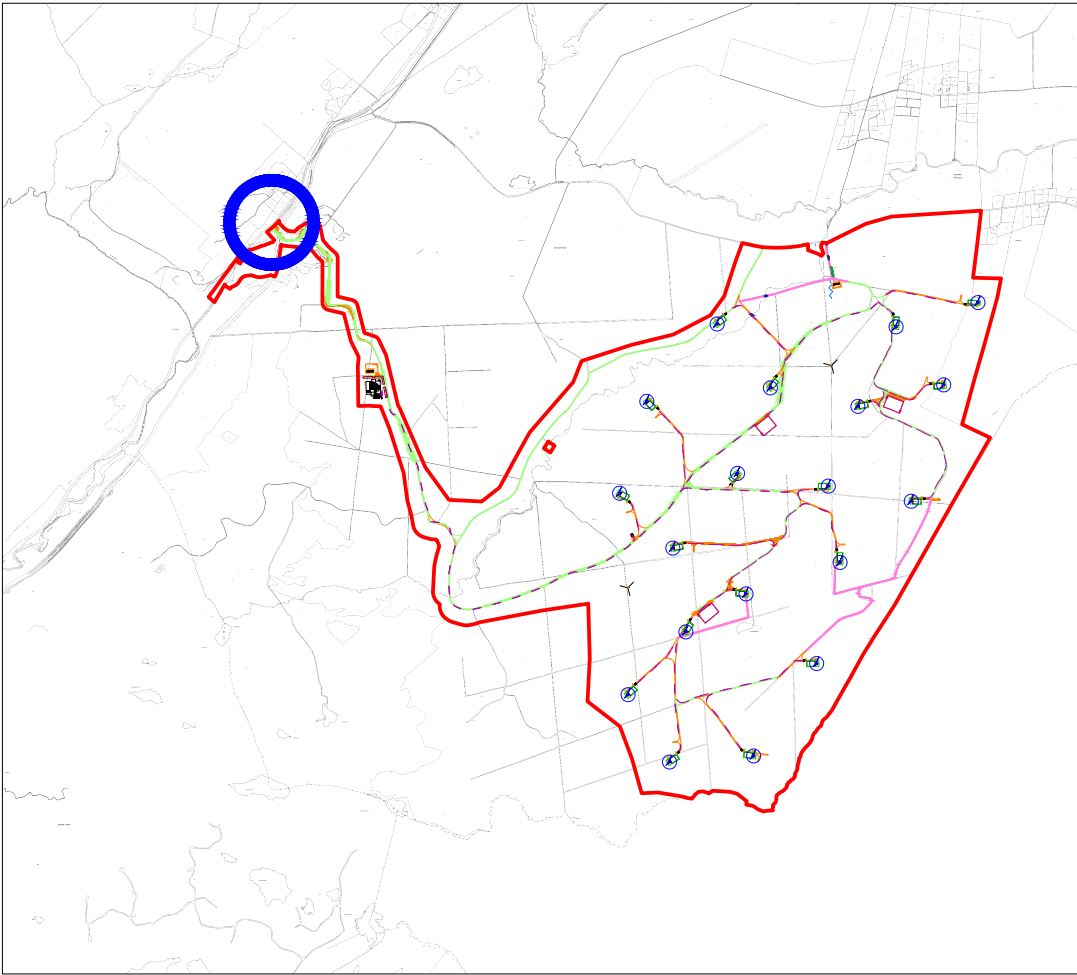
DRAWING TITLE: Typical Section Road Type C - New Excavate & Replace Access Road	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Gerry Kane	CHECKED BY: Paul Jennings
PROJECT No.: 1461	DRAWING No.: 0502 - 40
SCALE: 1:50@A3	DATE: 13.12.2017
OS SHEET No.:	



DRAWING TITLE: Typical Section Road Type D - New Floated Access Road	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Gerry Kane	CHECKED BY: Paul Jennings
PROJECT No.: 1461	DRAWING No.: 0502 - 41
SCALE: 1:50@A3	DATE: 13.12.2017
OS SHEET No.:	

Drawing Legend

- Existing Road Edge
- Existing Road
- Existing Road to be Upgraded
- Proposed Road
- Sight Line
- Transport Vehicle Runover Area



1:50,000 Location on Context Map 

- Refer to layout drawing P1249-2_D101 detailing drainage at this junction.



DRAWING TITLE:
**Proposed Turbine Delivery
Access Junction Layout**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien **CHECKED BY:** Michael Watson

PROJECT No.: 160502 **DRAWING No.:** 0502 - 42

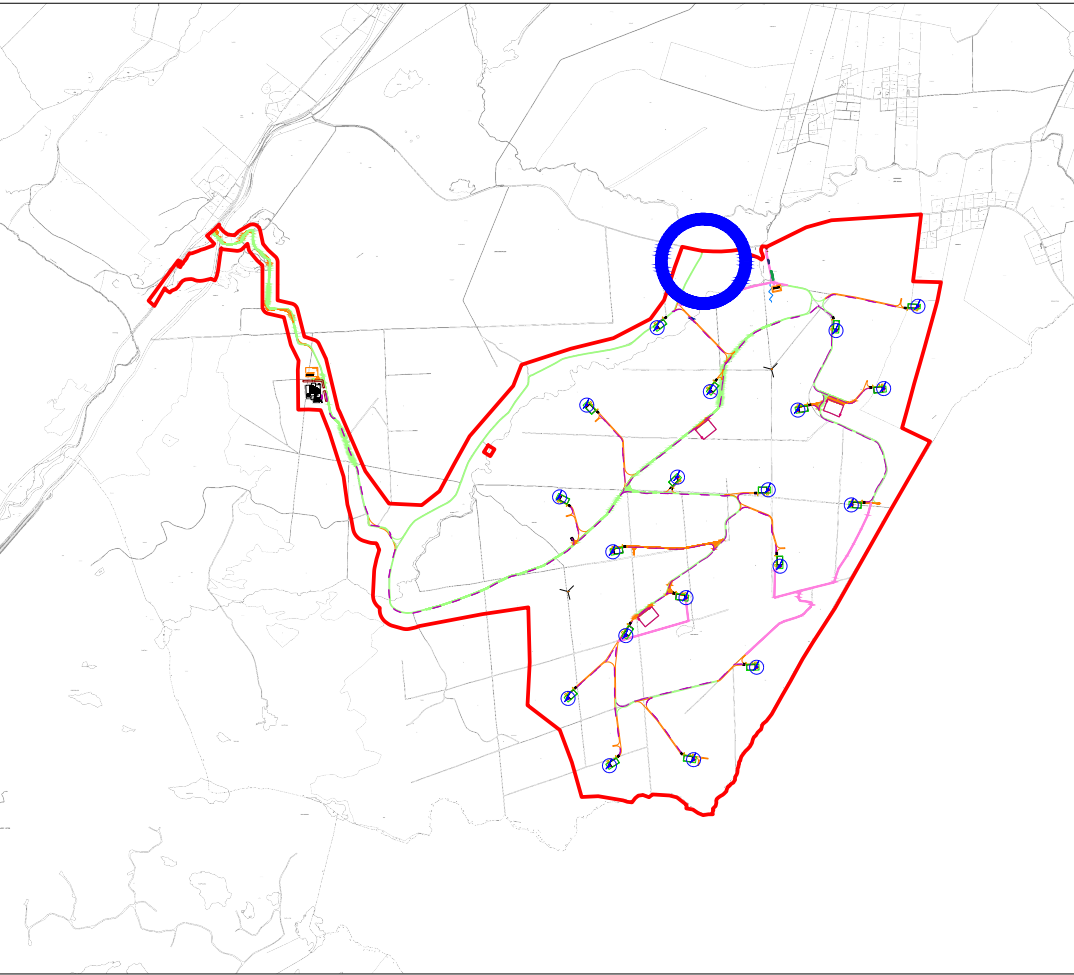
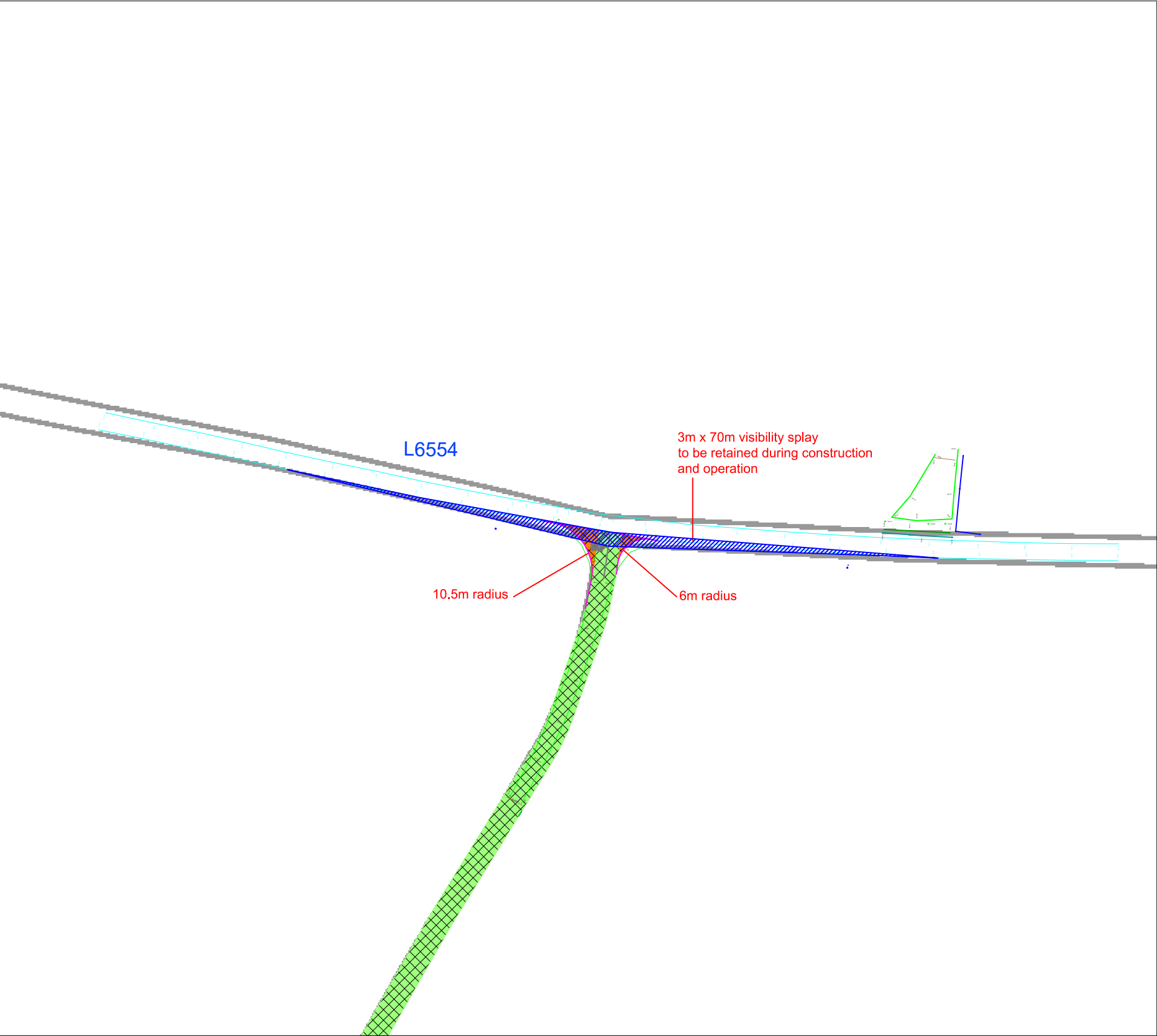
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0452,0453,0454,0478,0479,0480,0481,0482,0506,0507,0508,0509,
0535, 0536

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Drawing Legend

- Existing Road Edge
- Sight Line
- Existing Floating Road to be Upgraded
- Proposed Floating Road



1:50,000 Location on Context Map 

- Refer to layout drawing P1249-2_D103 detailing drainage at this junction.



DRAWING TITLE:
Proposed Wind Farm Maintenance Access Junction Layout

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 43
SCALE: 1:1,000@A3	DATE: 13.12.2017

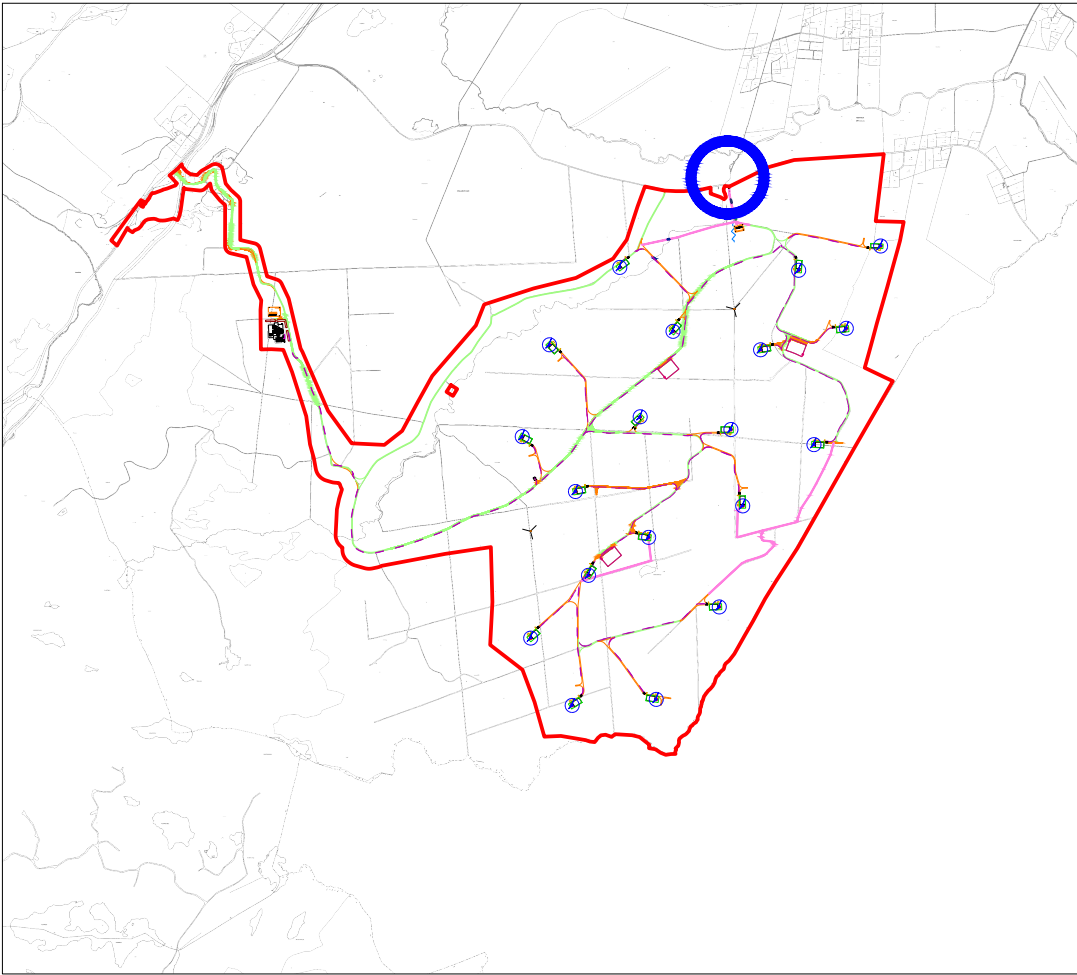
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Drawing Legend

- Existing Road Edge
- Visibility Splay
- Wooden Fence
- Proposed Amenity Track
- Passing Bay

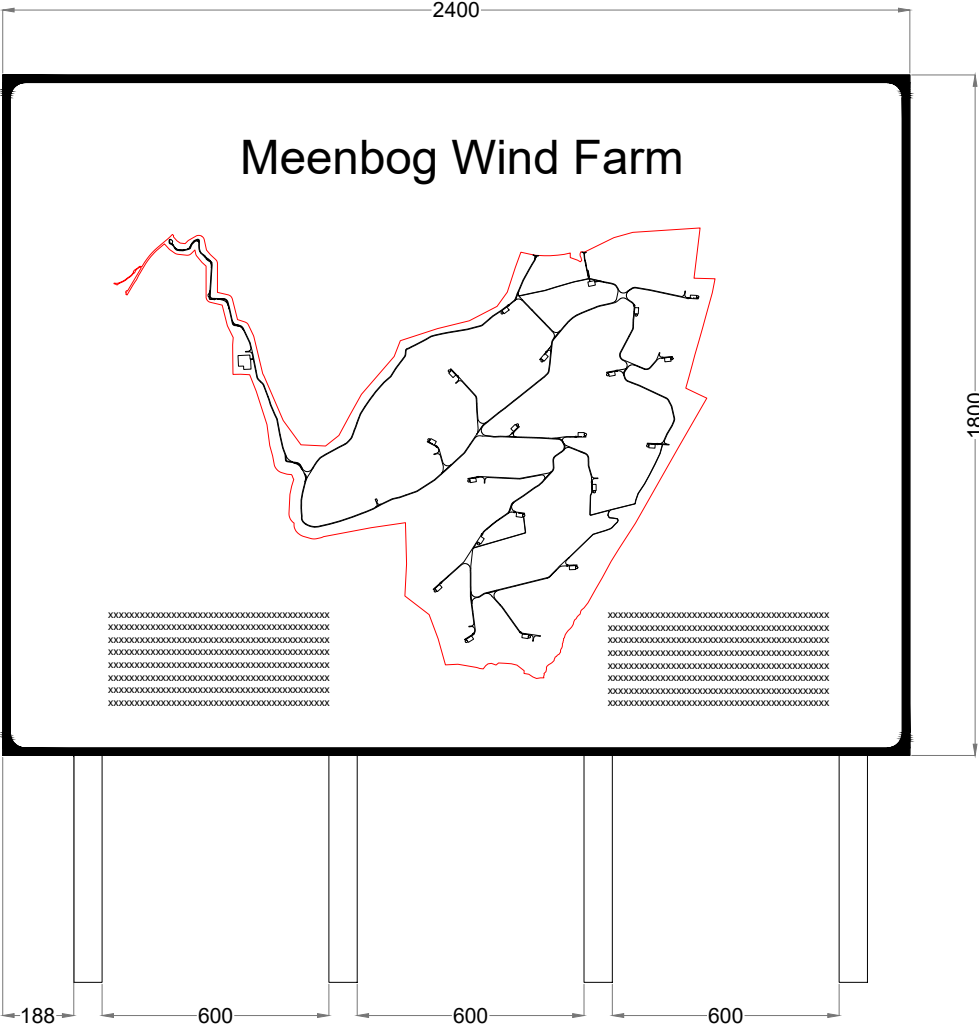


1:50,000 Location on Context Map

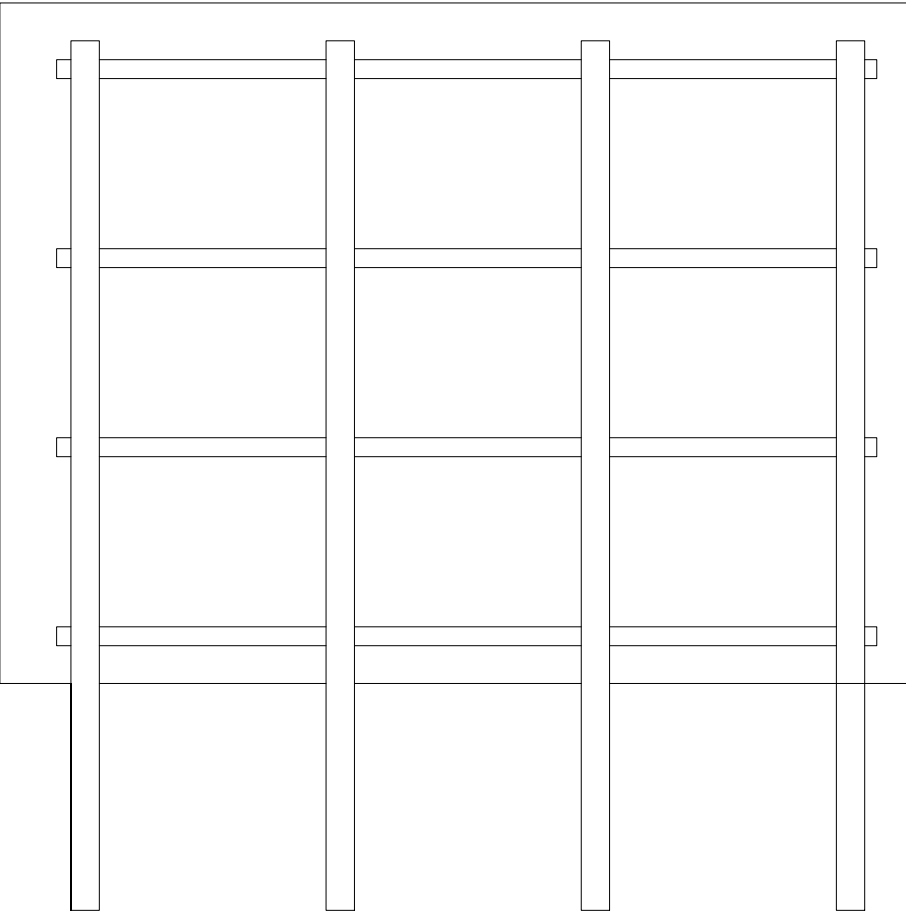


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DRAWING TITLE: Proposed Amenity Access Junction Layout	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 44
SCALE: 1:1,000@A3	DATE: 13.12.2017
OS SHEET No.: 0397,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451,0452,0453,0454,0478,0479,0480,0481,0482,0506,0507,0508,0509,0535, 0536	
 McCarthy Keville O'Sullivan	McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland. email: info@mccarthykos.ie website: www.mccarthykos.ie Tel: +353 91 735611 Fax: +353 91 771279



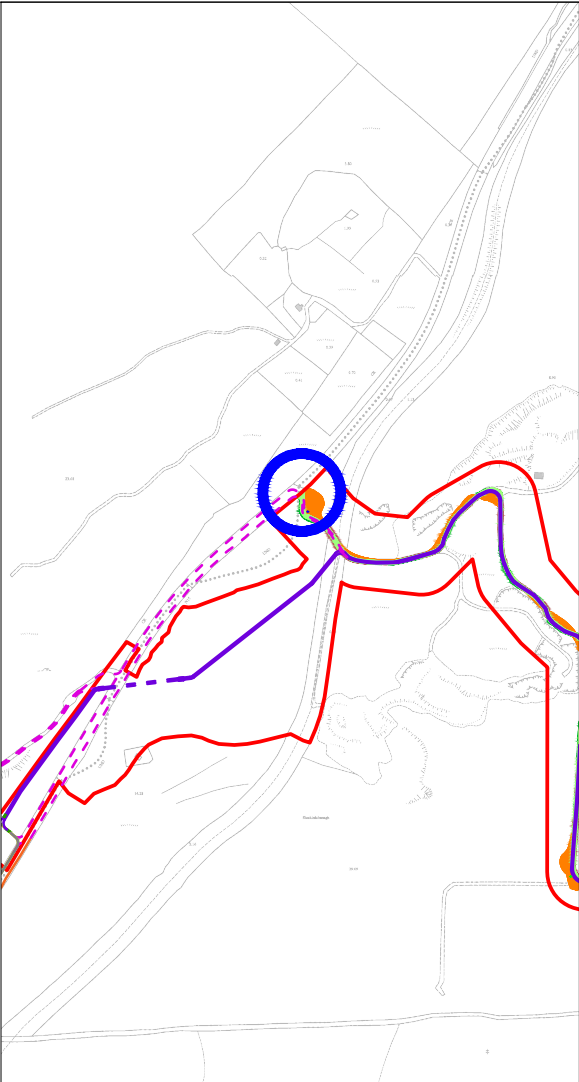
Meenbog Entrance Sign
Front Elevation



Meenbog Entrance Sign
Rear Elevation



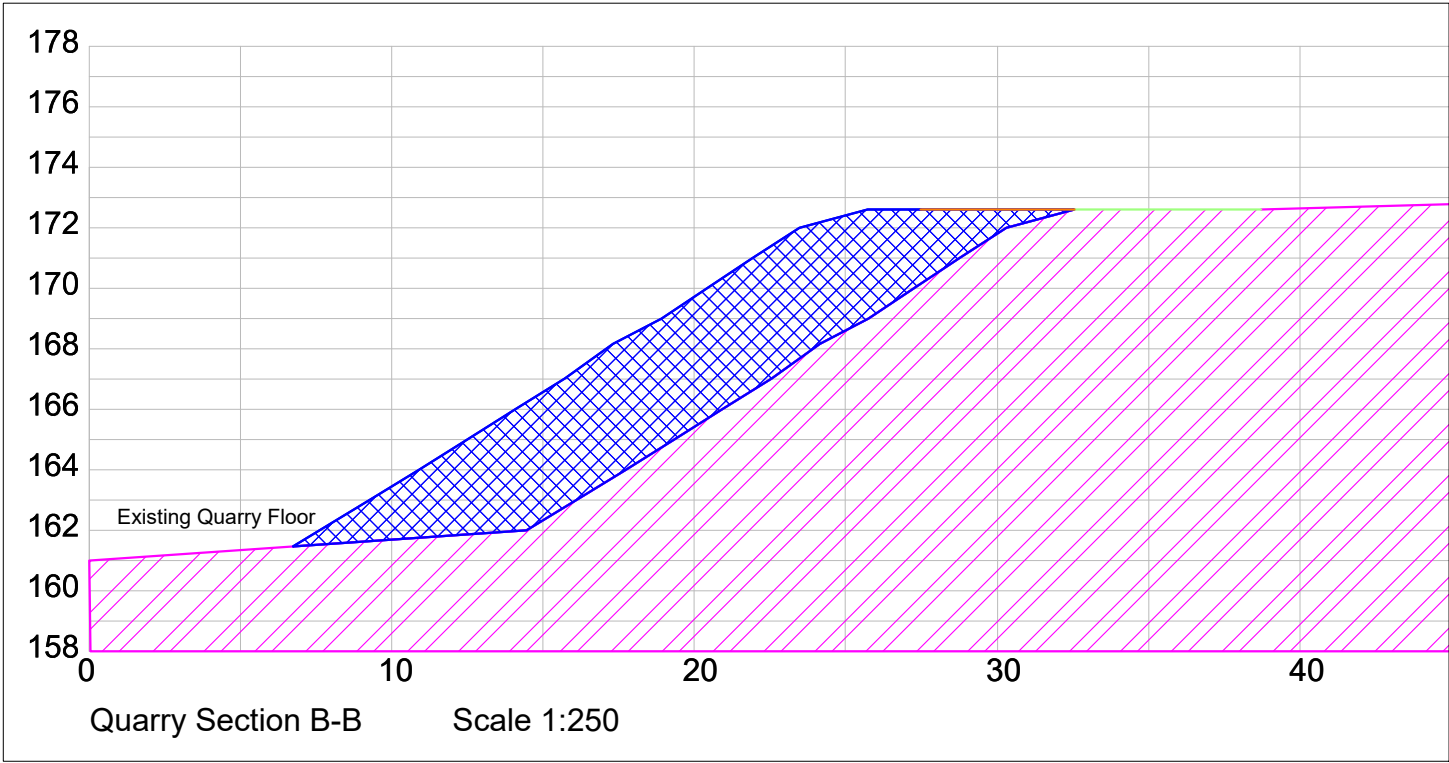
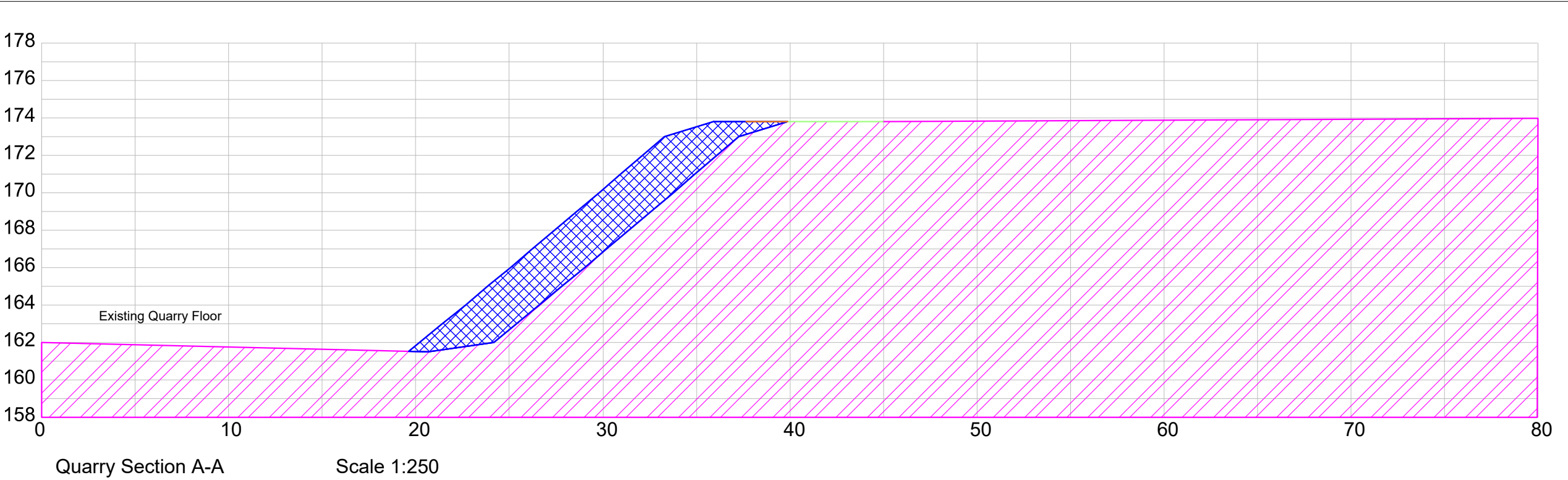
Meenbog Entrance Sign
Side Elevation



1:10,000 Location on Context Map

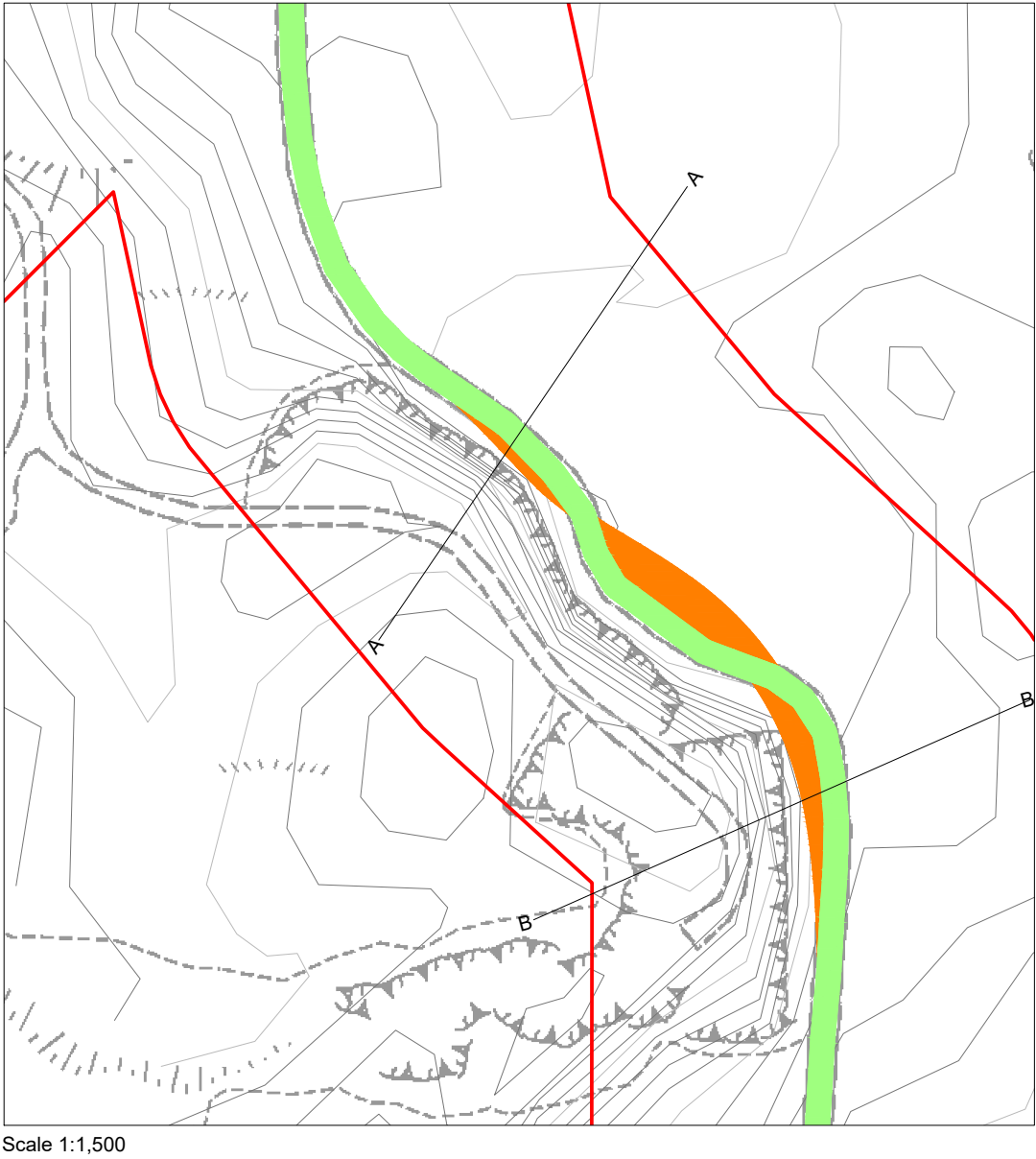
Note
For illustrative purposes only
exact details to be confirmed

DRAWING TITLE: Sight Entrance Signage	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 45
SCALE: 1: 20 @ A3	DATE: 13.12.2017
 McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland. email: info@mccarthykos.ie website: www.mccarthykos.ie Tel: +353 91 735611 Fax: +353 91 771279	



Drawing Legend

- Existing Road to be Upgraded
- Proposed New Road
- Existing Ground Level
- Proposed Embankment



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**Turbine Delivery Route
Quarry Face Sections**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

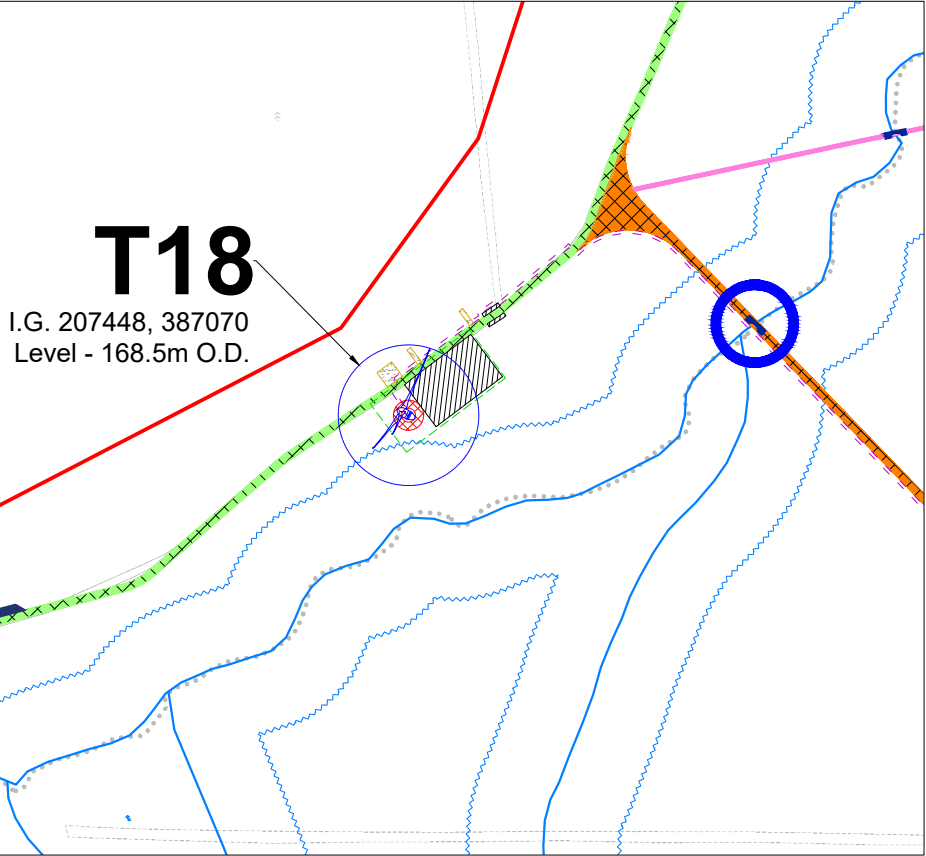
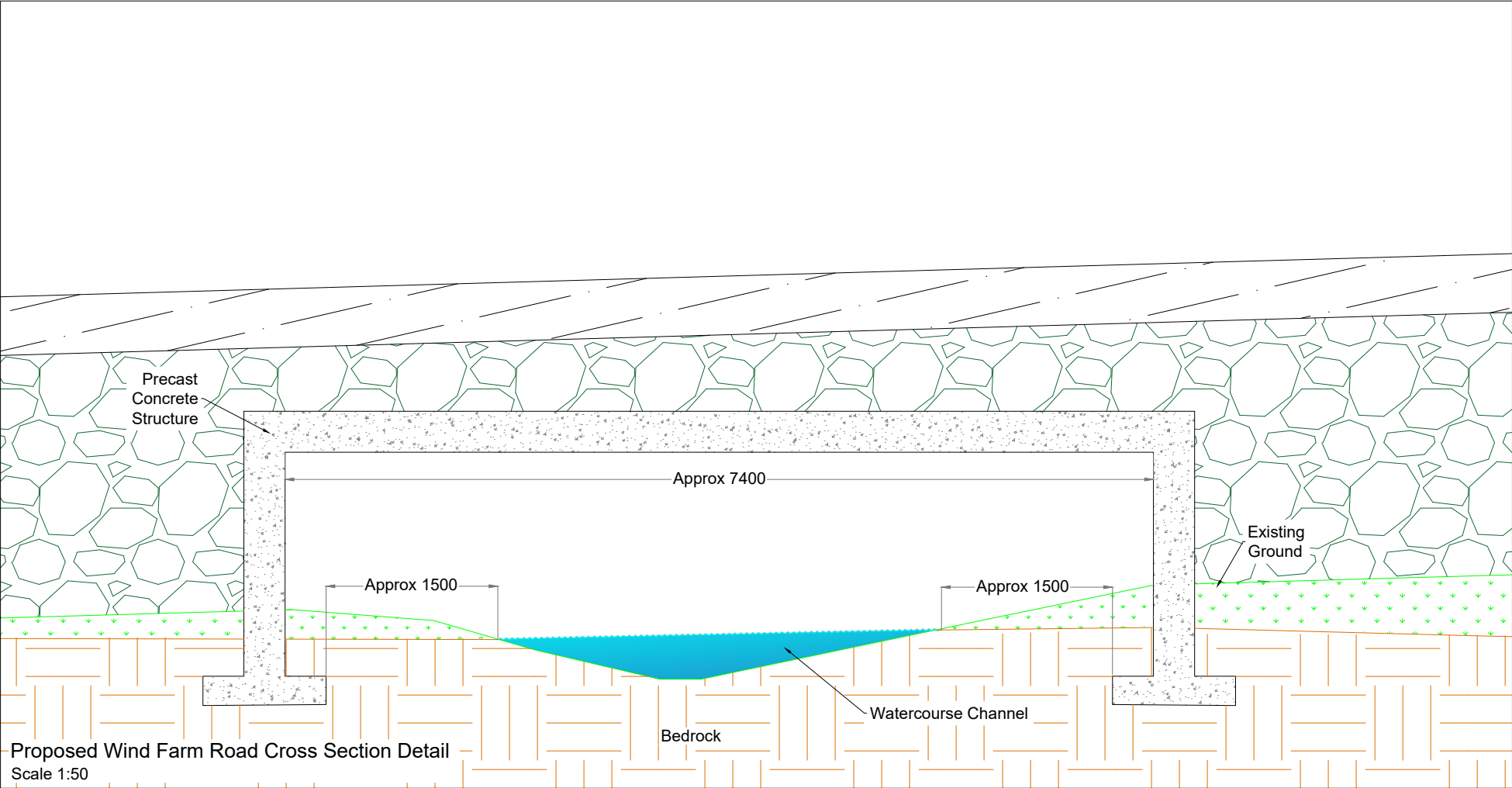
DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**

PROJECT No.: **160502** DRAWING No.: **0502 - 46**

SCALE: **As Shown@A3** DATE: **13.12.2017**

OS SHEET No.:
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0452,0453,0454,0478,0479,0480,0481,0482,0506,0507,0508,0509,
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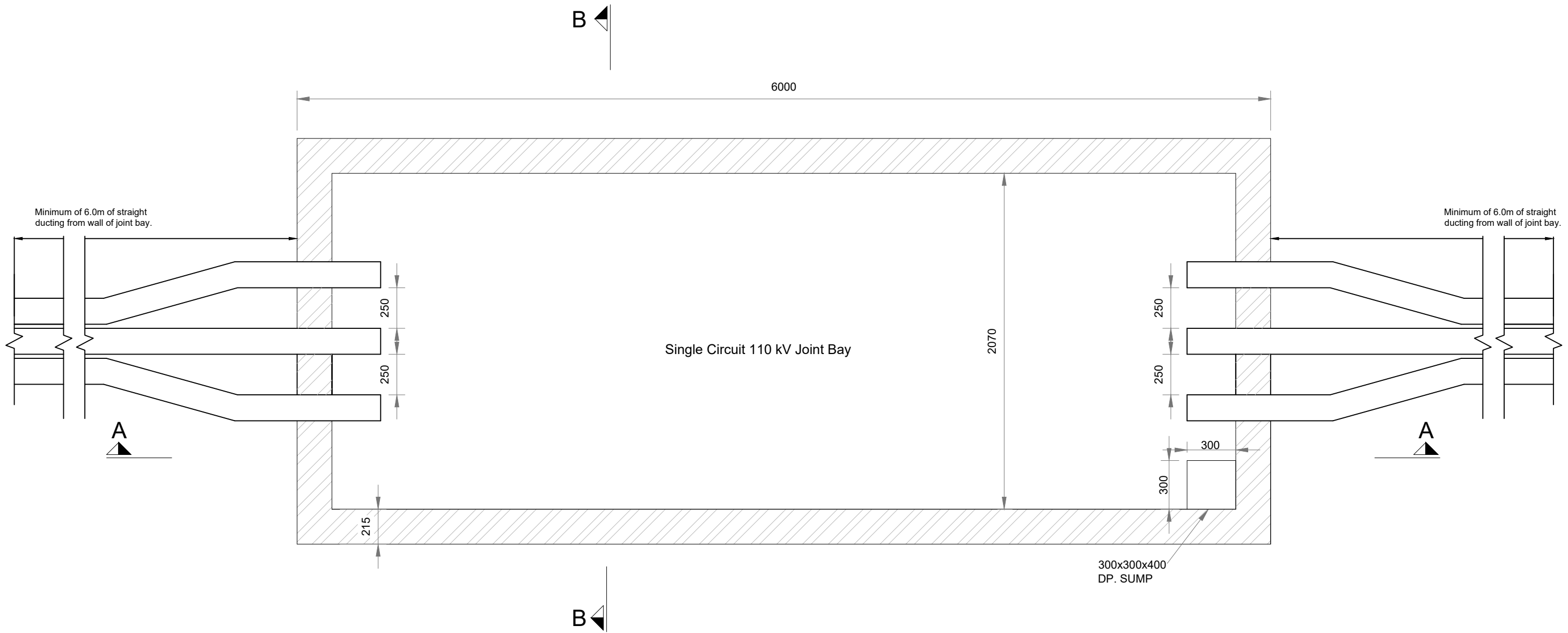
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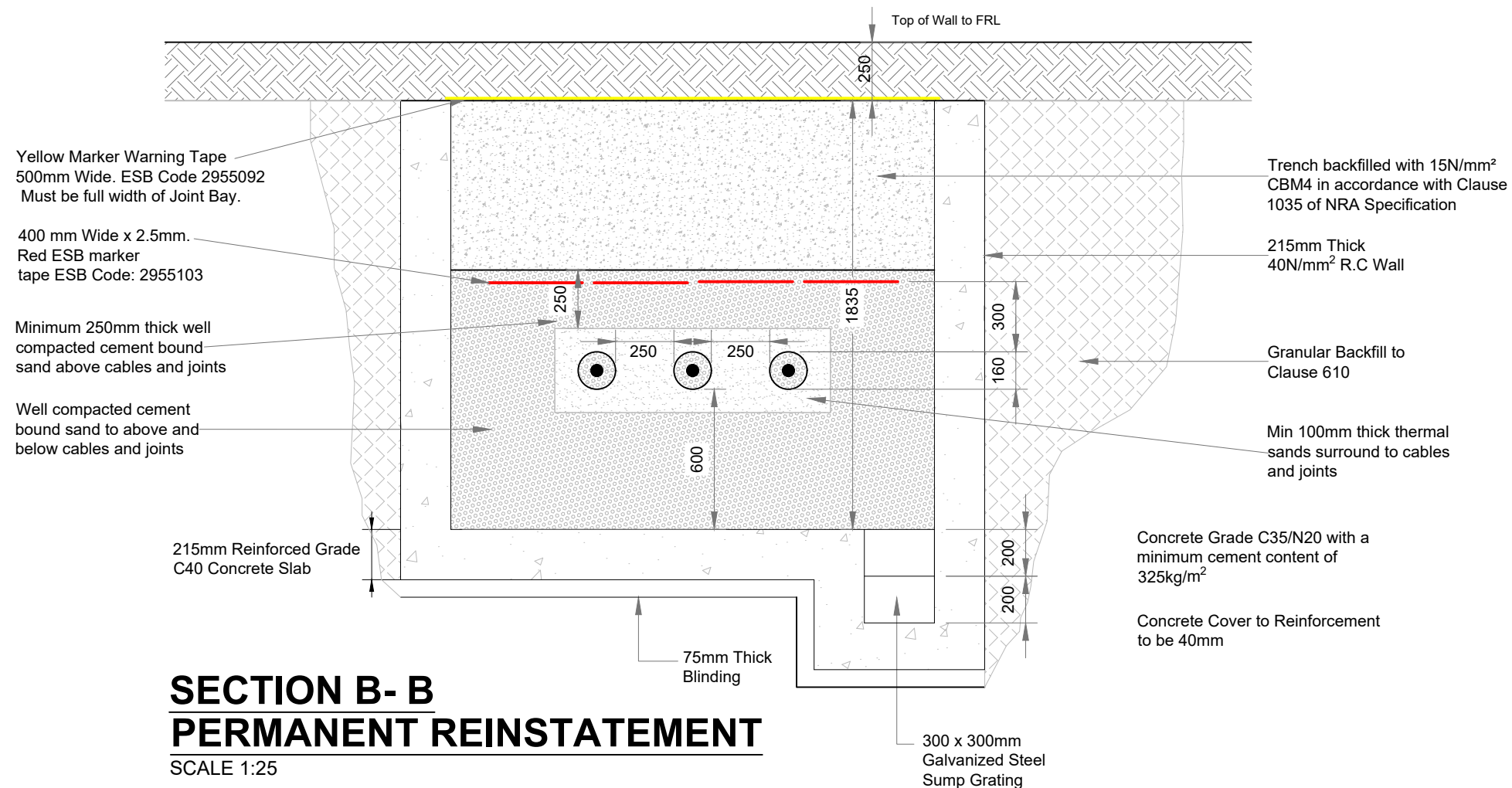
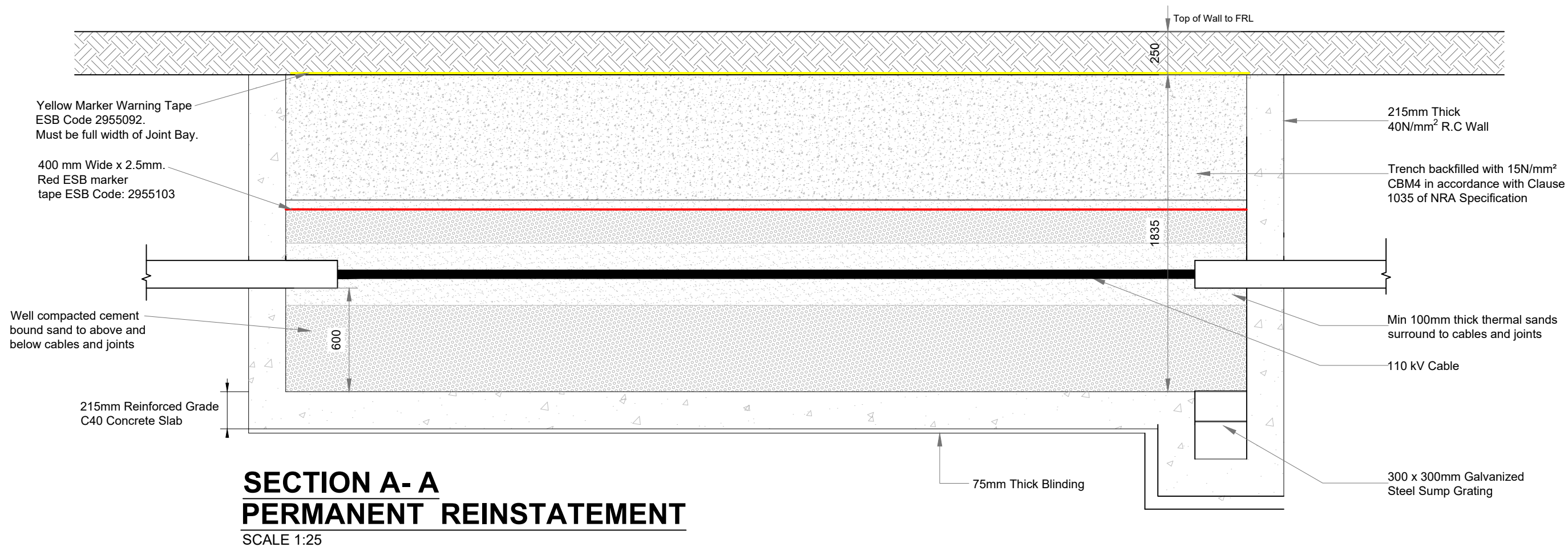
1:5,000 Location on Context Map



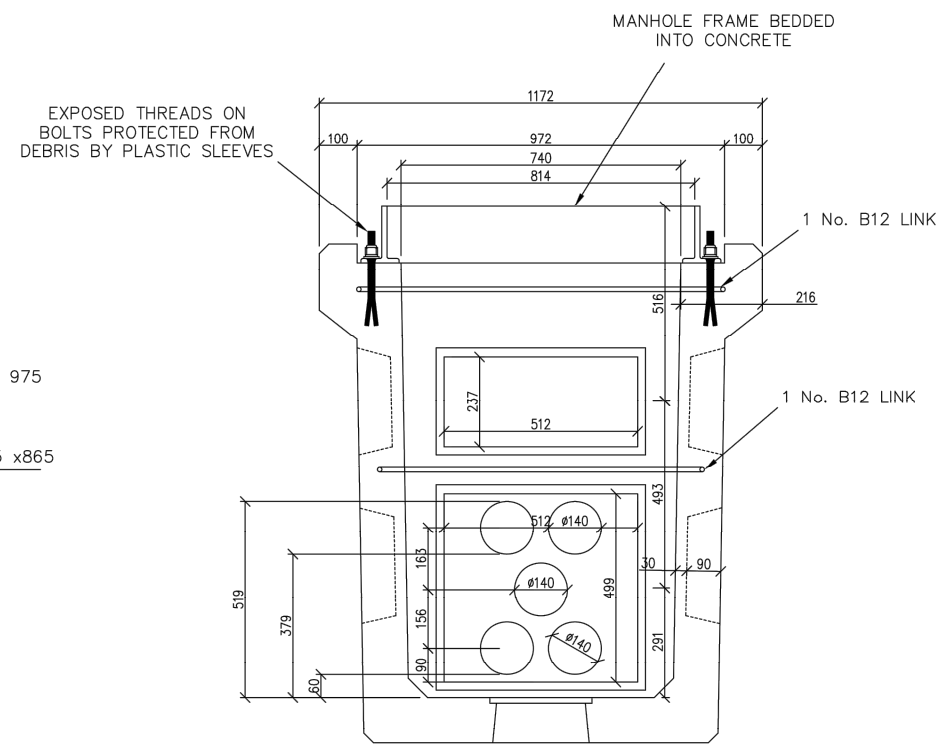
DRAWING TITLE:	
Typical Clear Span Bridge	
Meenbog Wind Farm, Co. Donegal	
DRAWING BY:	CHECKED BY:
Joseph O'Brien	Michael Watson
PROJECT No:	DRAWING No:
160502	0502 - 47
SCALE:	DATE:
As Shown @ A3	13.12.2017
OS SHEET No.: 0397,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451,0452,0453,0454,0476,0477,0480,0481,0482,0506,0507,0508,0509,0535,0536	
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DRAWING TITLE: 110kV Joint Bay Details - Sheet 1 of 3	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 48
SCALE: 1: 25 @ A3	DATE: 13.12.2017
 McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland. email: info@mccarthykos.ie website: www.mccarthykos.ie Tel: +353 91 735611 Fax: +353 91 771279	



DRAWING TITLE: 110kV Joint Bay Details - Sheet 3 of 3	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 50
SCALE: 1: 25 @ A3	DATE: 13.12.2017
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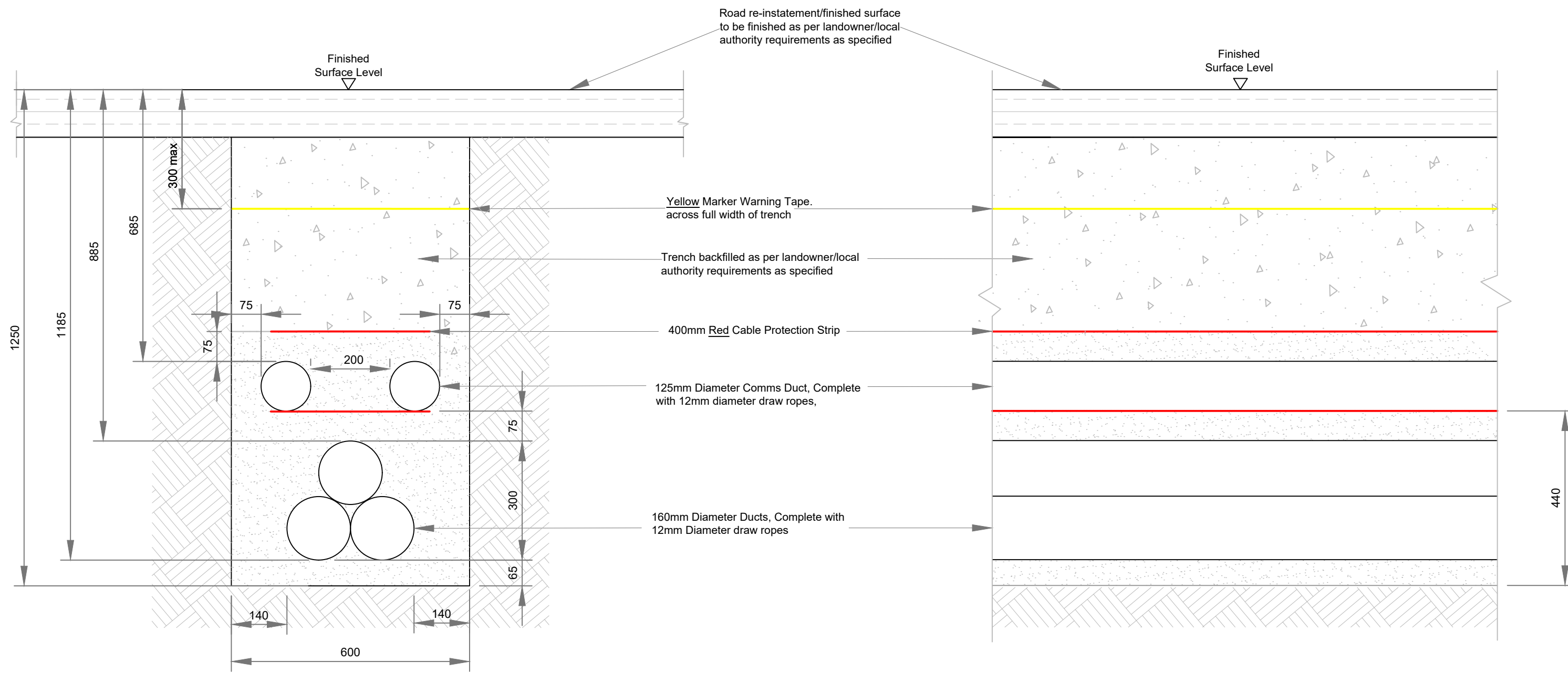
SECTION B-B



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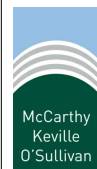
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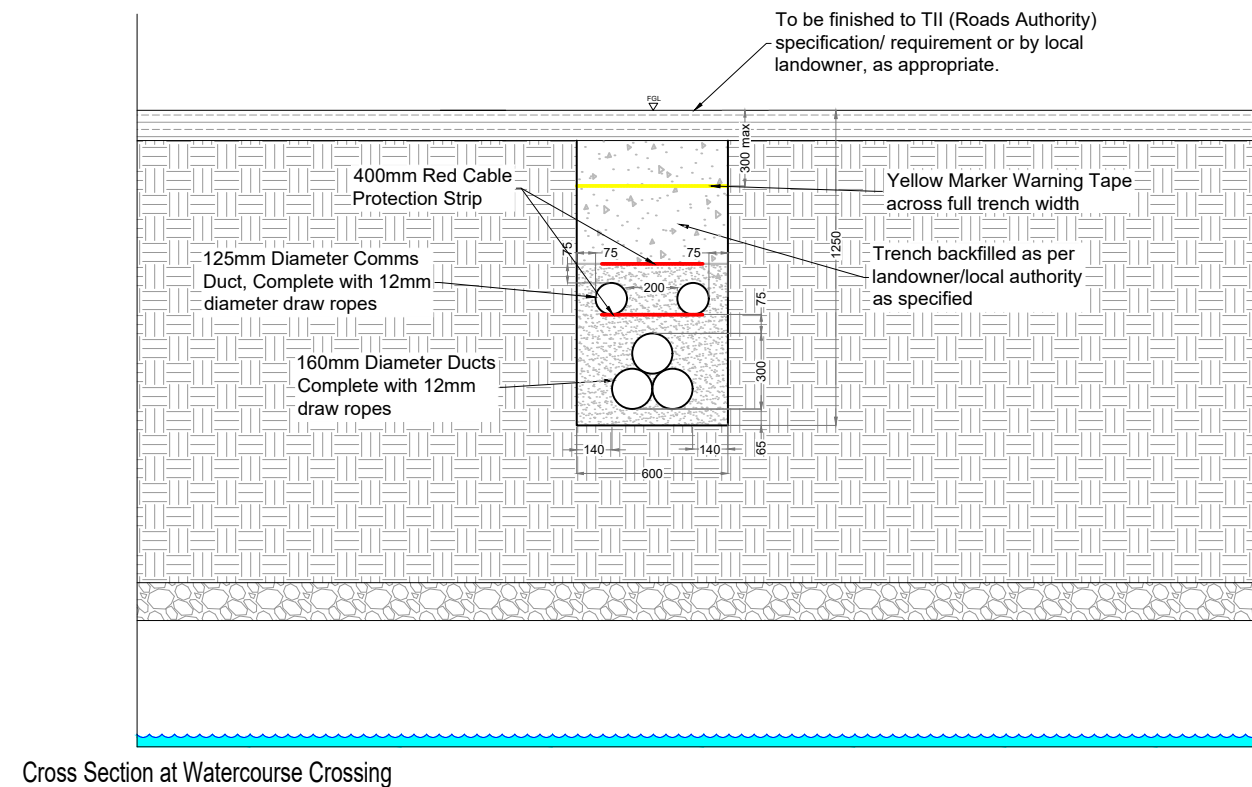
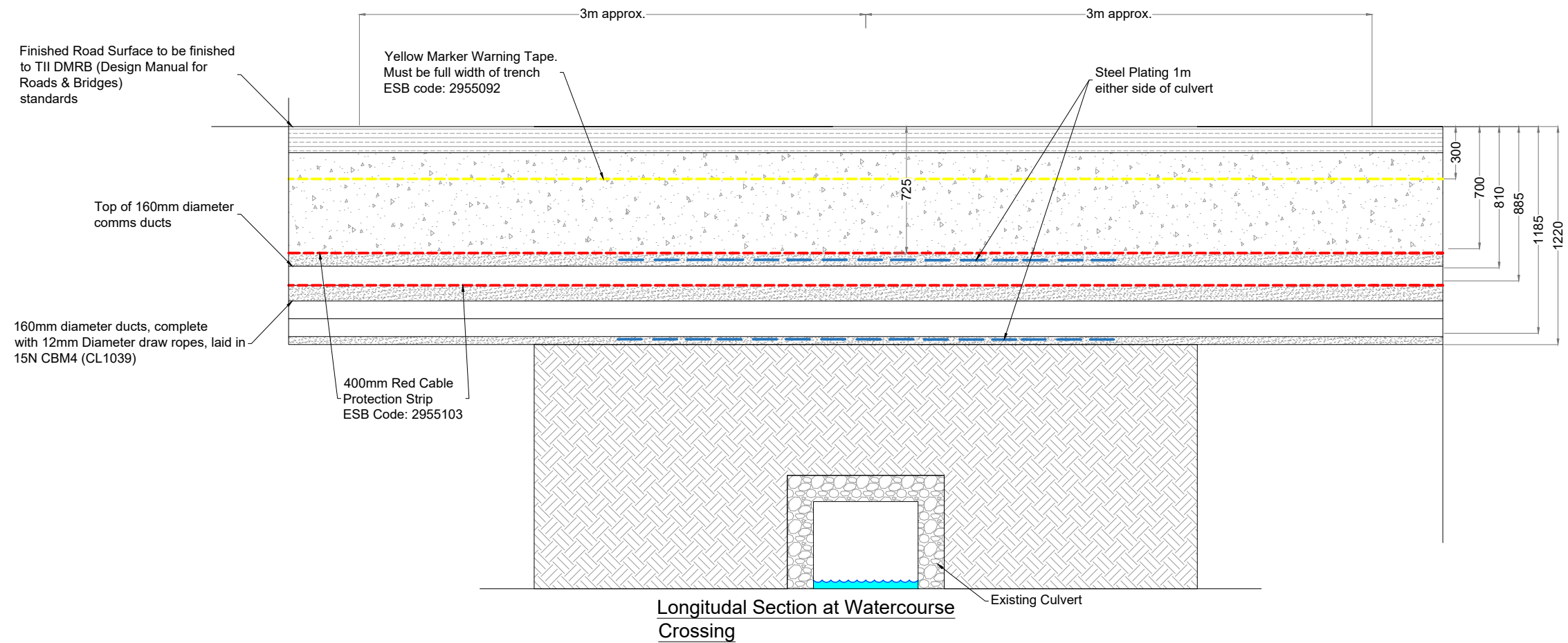


TYPICAL SECTION THROUGH TRENCH SCALE 1:10

TYPICAL ELEVATION THROUGH TRENCH SCALE 1:10

DRAWING TITLE: Roadside Cable Trench Cross Section	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 52
SCALE: 1:10 @ A3	DATE: 13.12.2017

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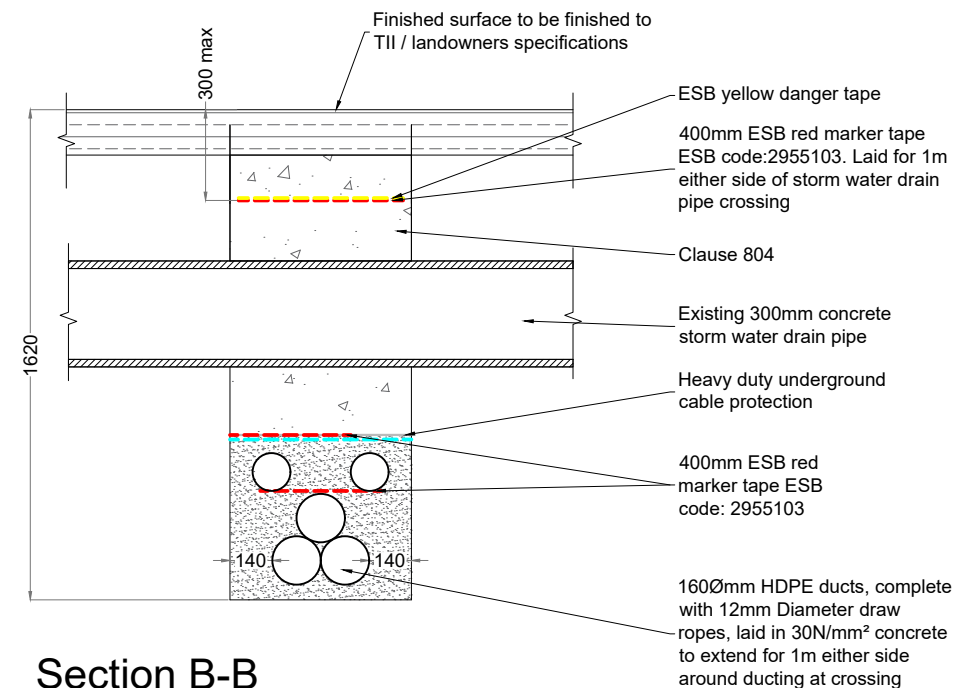
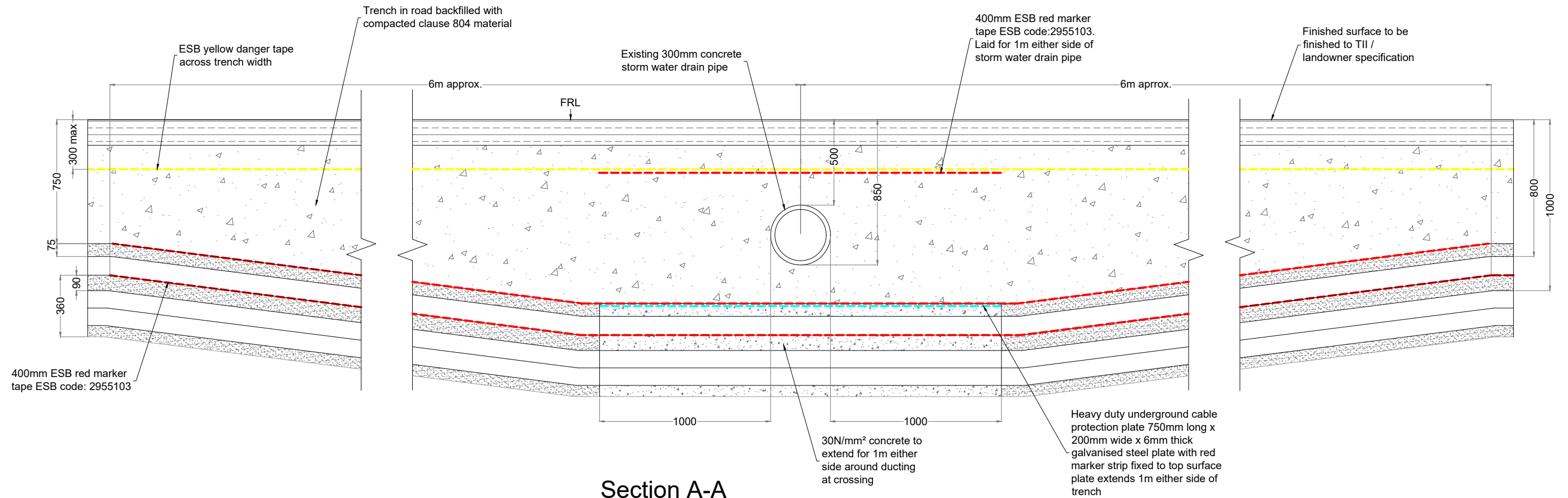


DRAWING TITLE: Cable Trench Over Culvert	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 53
SCALE: 1:30 @ A3	DATE: 13.12.2017

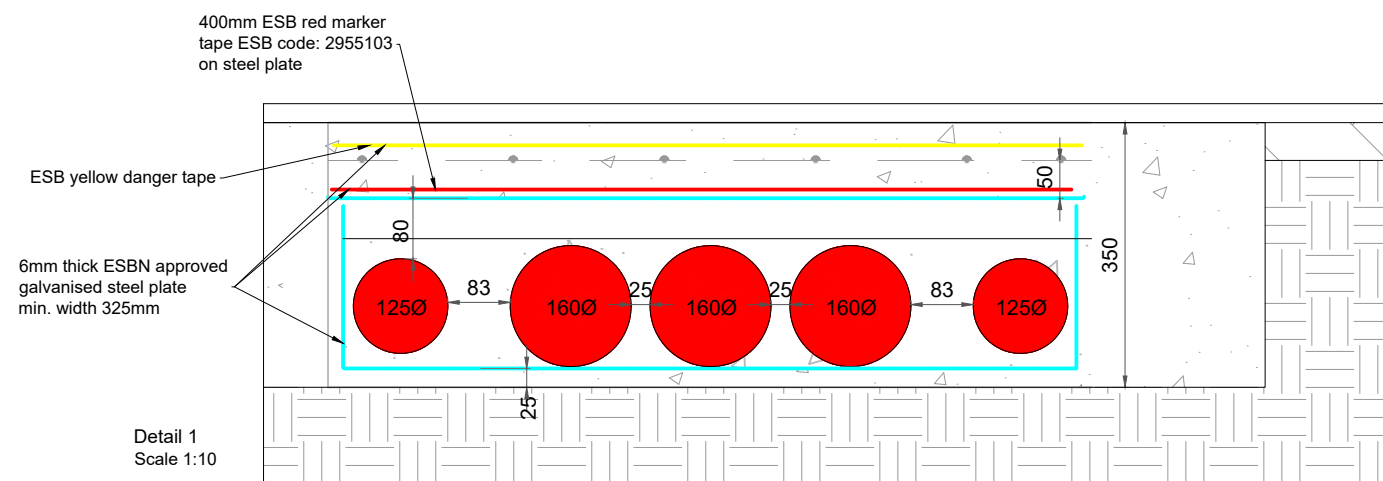
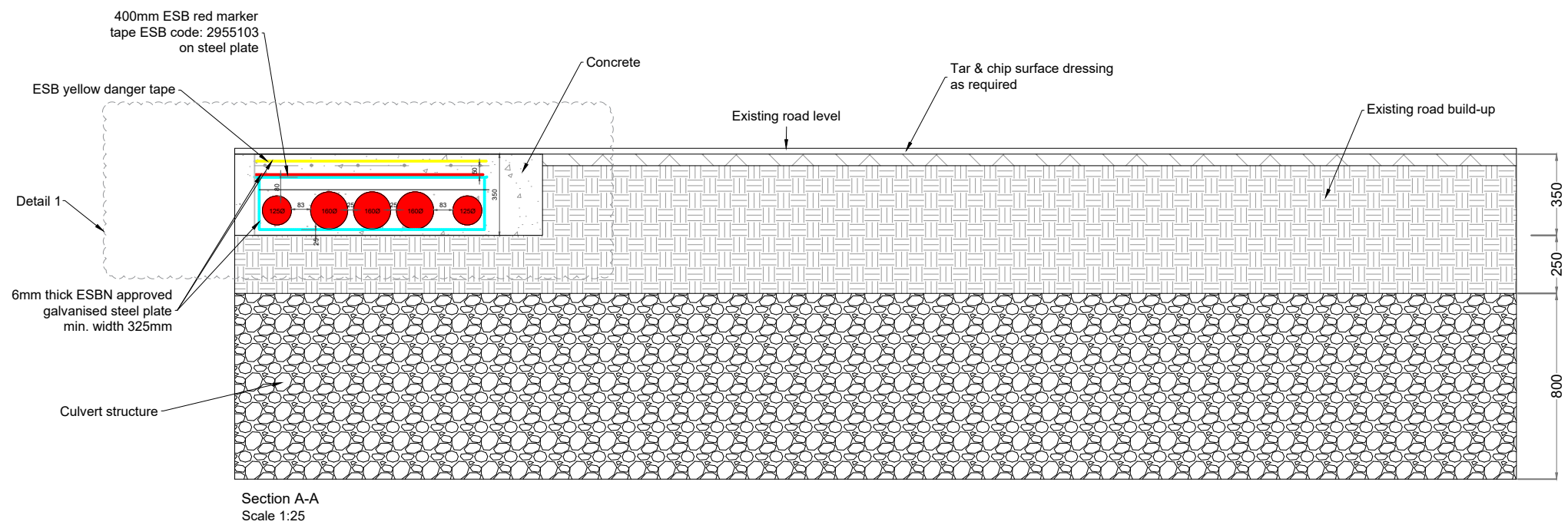
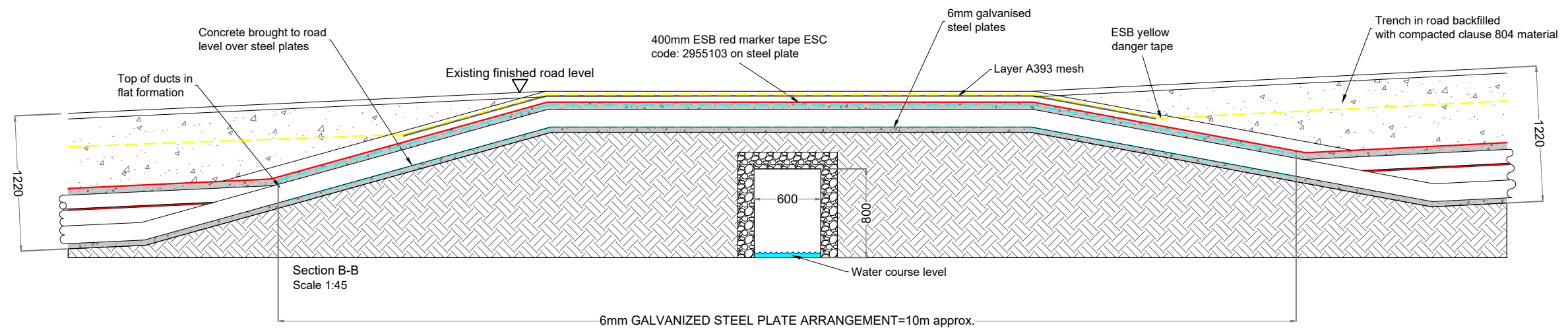
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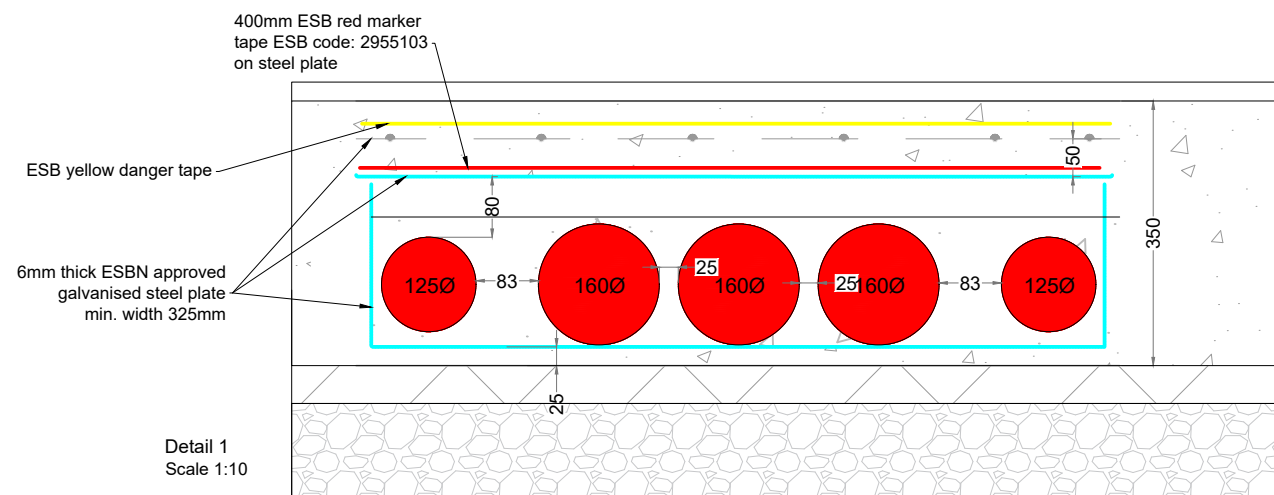
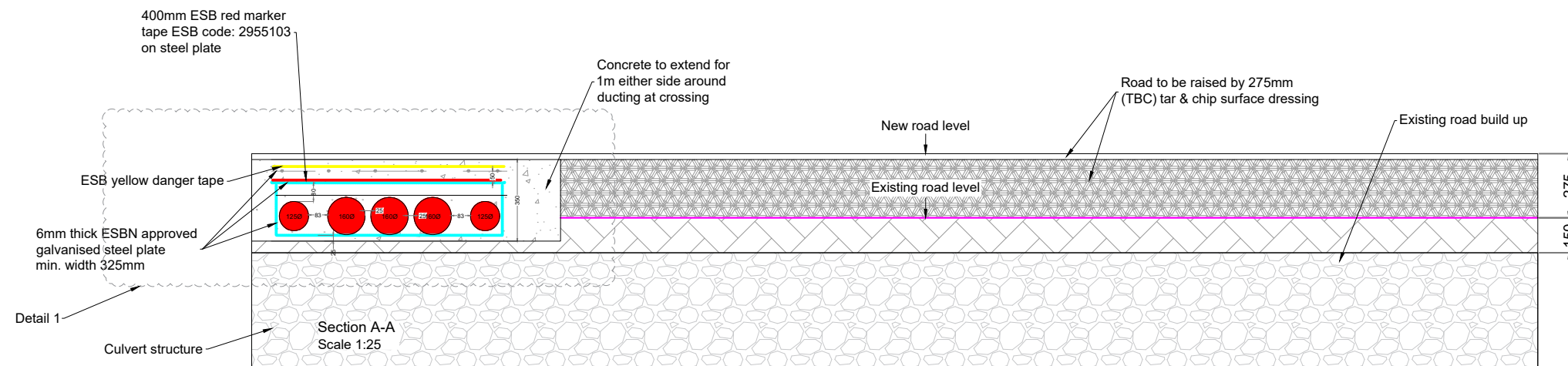
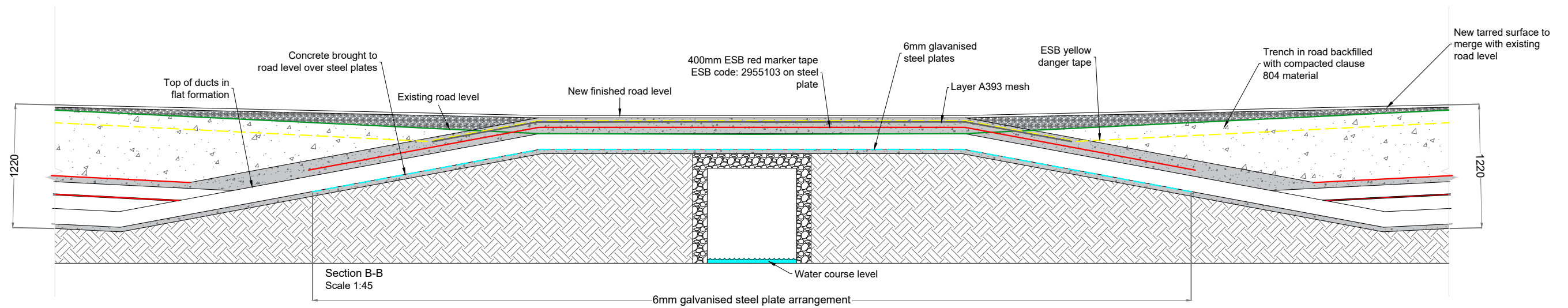


DRAWING TITLE: Cable Trench Under Piped Culvert	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 54
SCALE: 1:25 @ A3	DATE: 13.12.2017

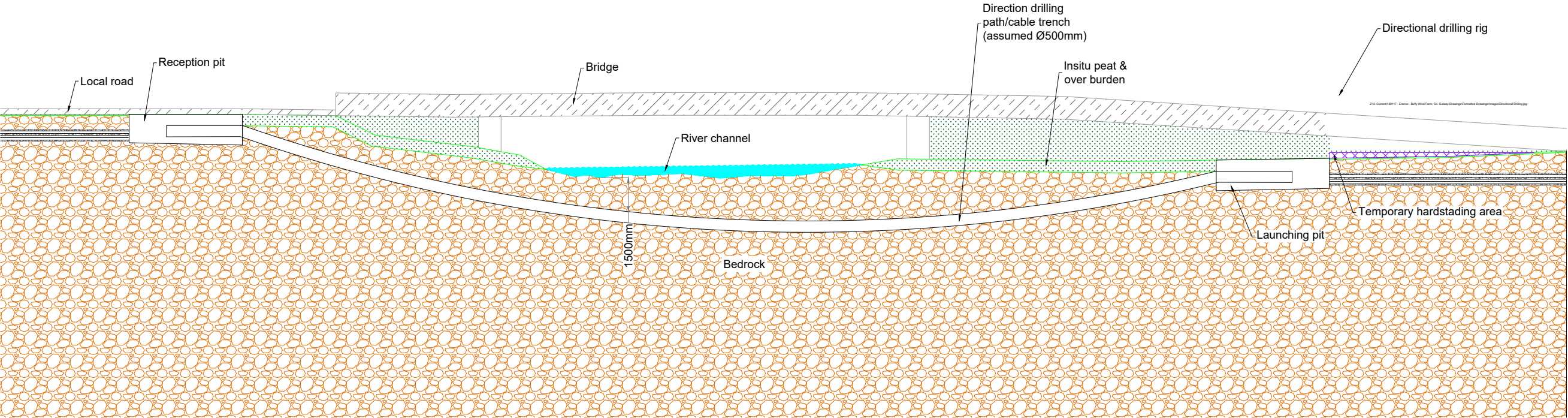


DRAWING TITLE: Cable Trench Flatbed Formation Over Culvert	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 55
SCALE: As Shown @ A3	DATE: 13.12.2017


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 Fax: +353 91 771279



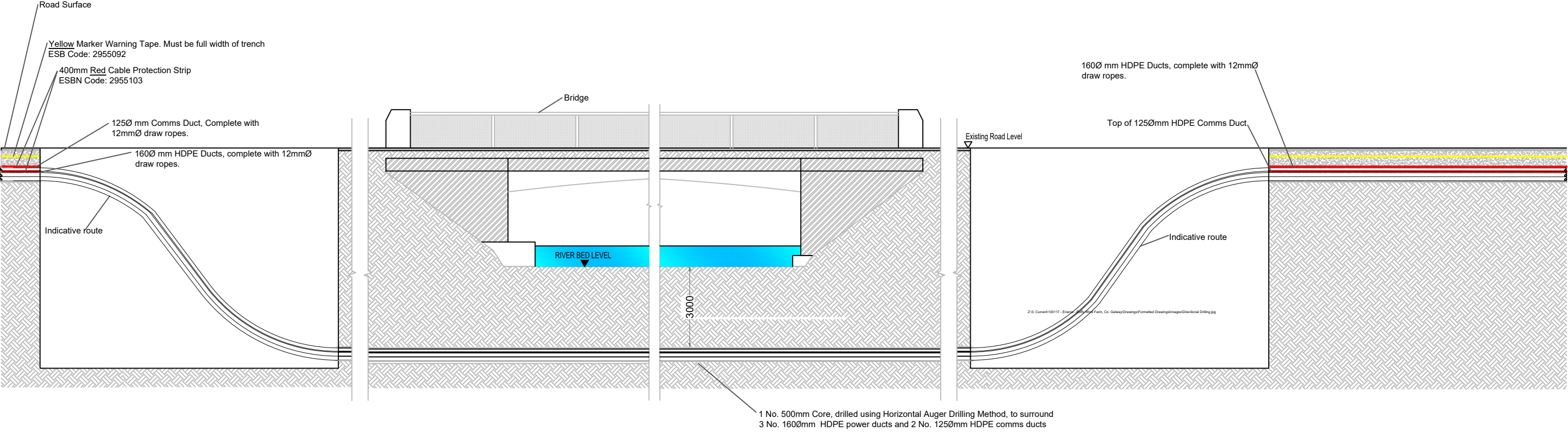
DRAWING TITLE: Cable Trench Flatbed at Road Surface Level	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 56
SCALE: As Shown @ A3	DATE: 13.12.2017



DRAWING TITLE: Directional Drilling	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 57
SCALE: 1:200 @ A3	DATE: 13.12.2017



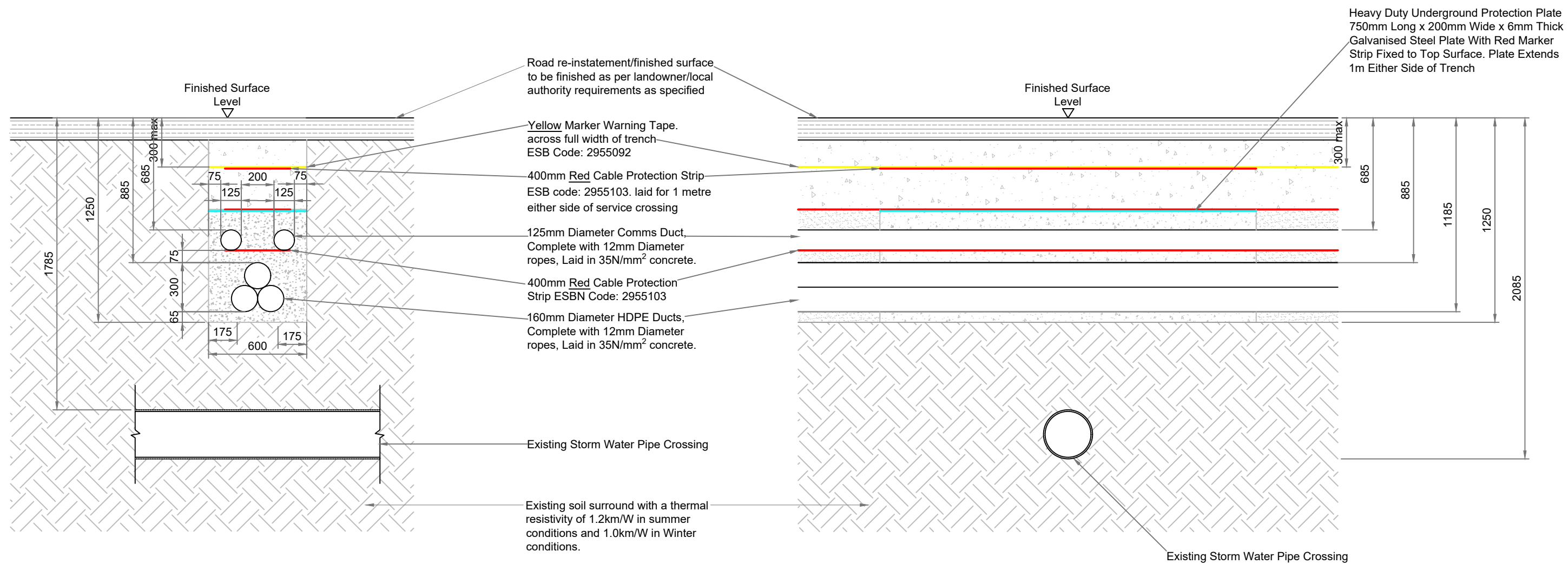
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DRAWING TITLE: Horizontal Auger Drilling			
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal			
DRAWING BY: Joseph O'Brien		CHECKED BY: Michael Watson	
PROJECT No.: 160502		DRAWING No.: 0502 - 58	
SCALE: 1: 150 @ A3		DATE: 13.12.2017	



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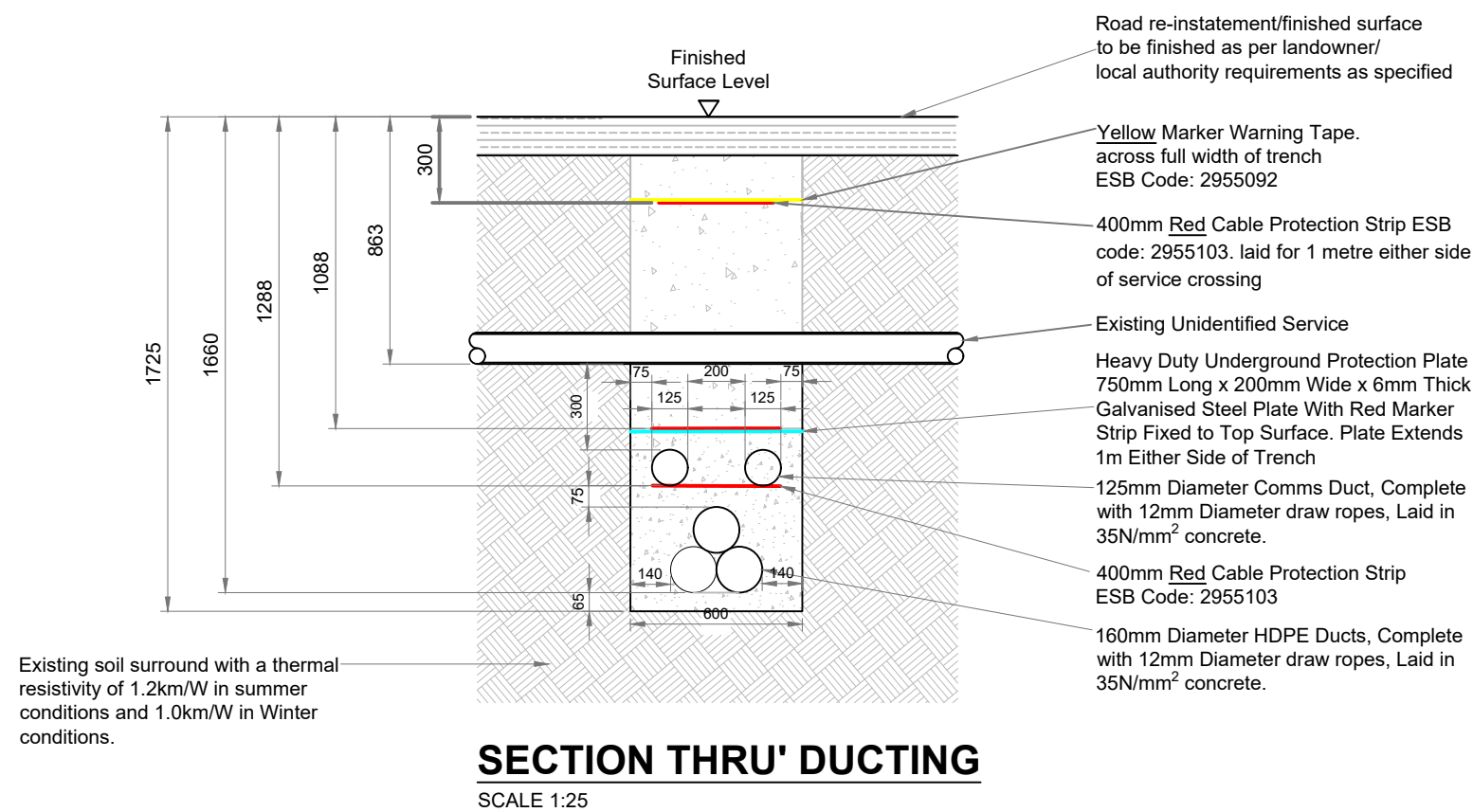
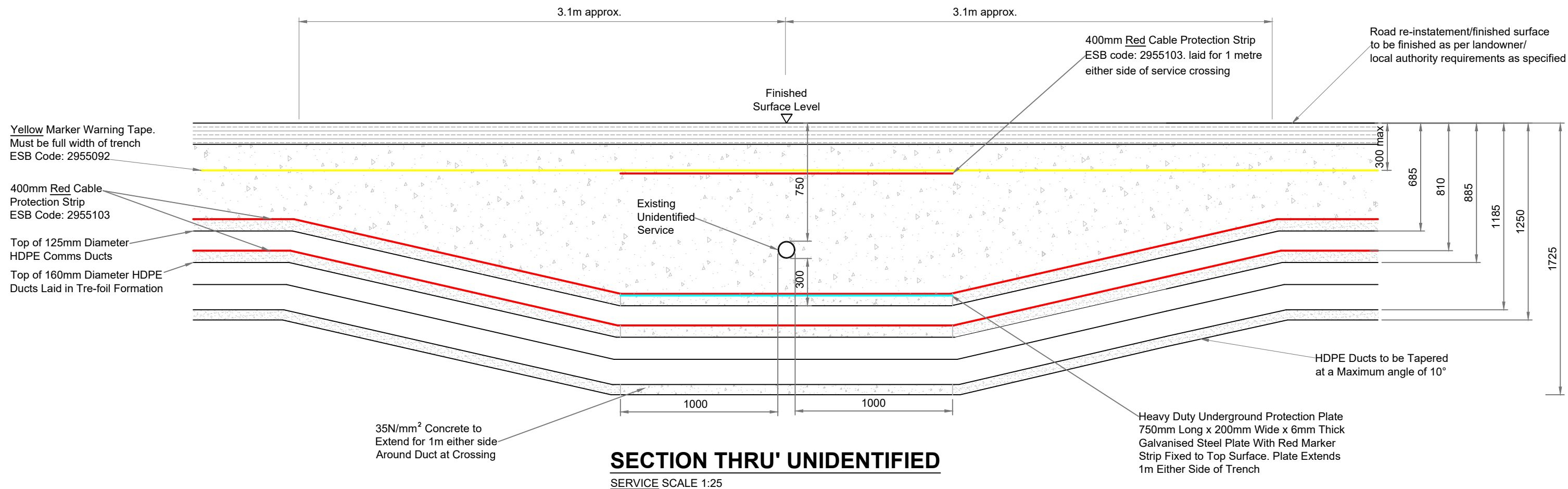
SECTION THRU' DUCTING

SCALE 1:25

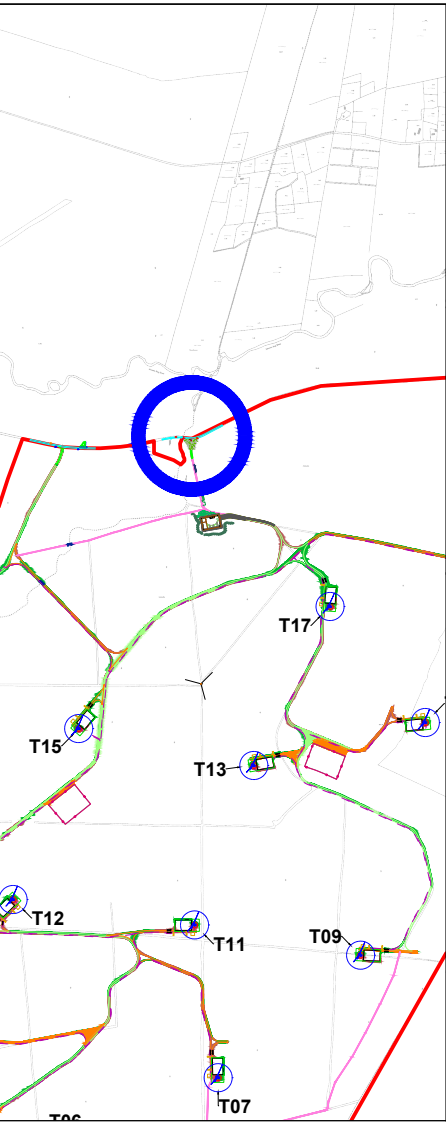
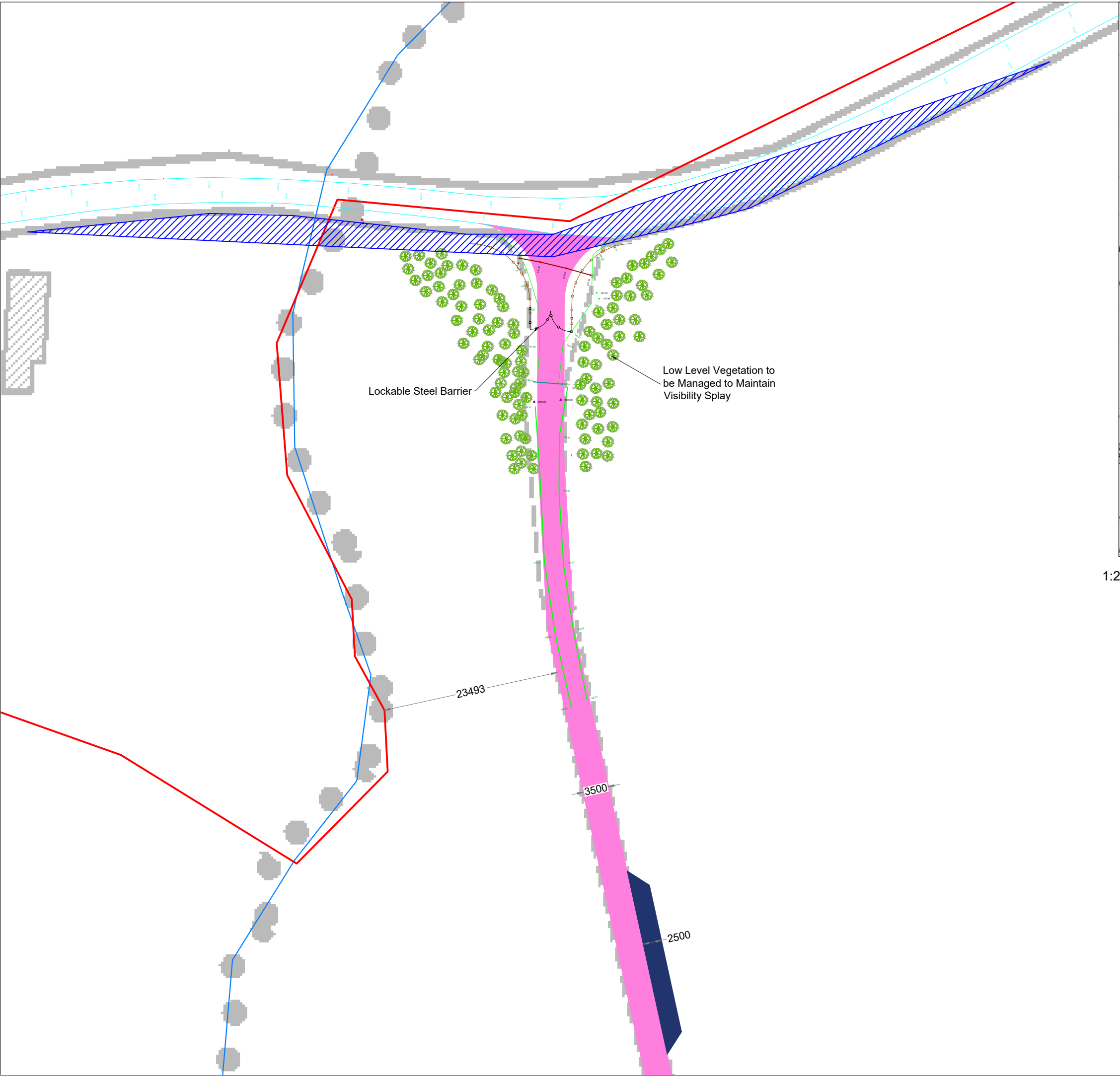
SECTION THRU' STORM WATER PIPE

SCALE 1:25

DRAWING TITLE: Typical Storm Water Service Crossing	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 59
SCALE: 1: 25 @ A3	DATE: 13.12.2017
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DRAWING TITLE: Typical Unidentified Service Duct Crossing	
PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No: 160502	DRAWING No: 0502 - 60
SCALE: 1: 25 @ A3	DATE: 13.12.2017
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1:25,000 Location Context Map

Drawing Legend

- Planning Application Boundary
- Proposed Amenity Walkway
- Passing Bay
- River/Stream
- Wooden Fence
- Trees
- Visibility Splay



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DRAWING TITLE:
Amenity Area Plan - Entrance

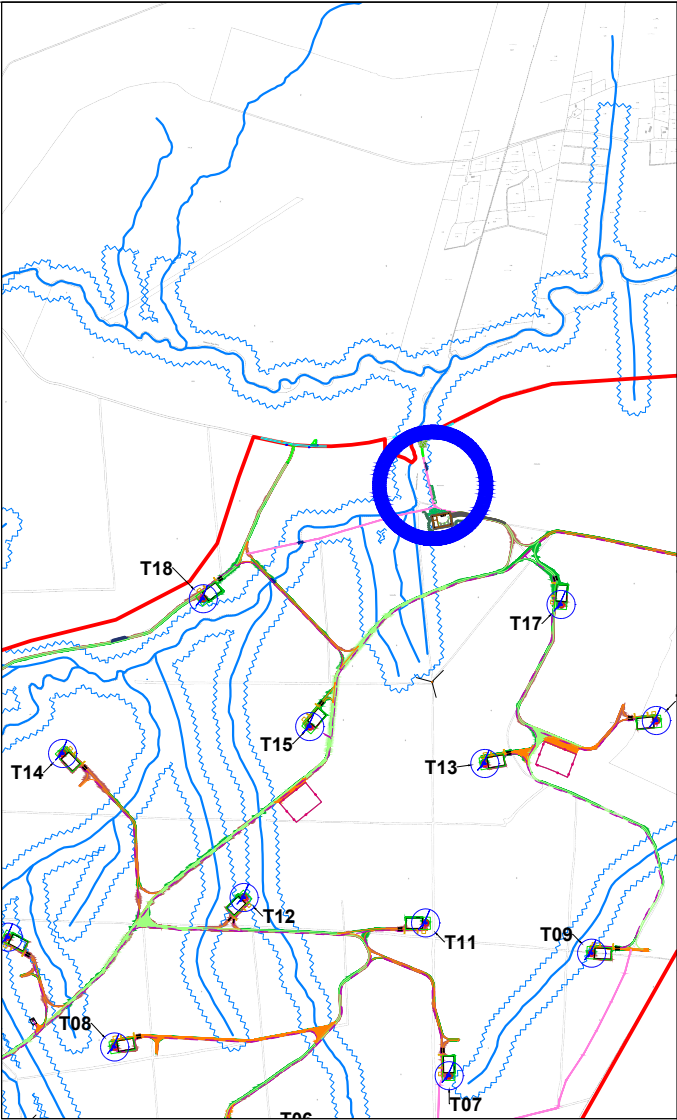
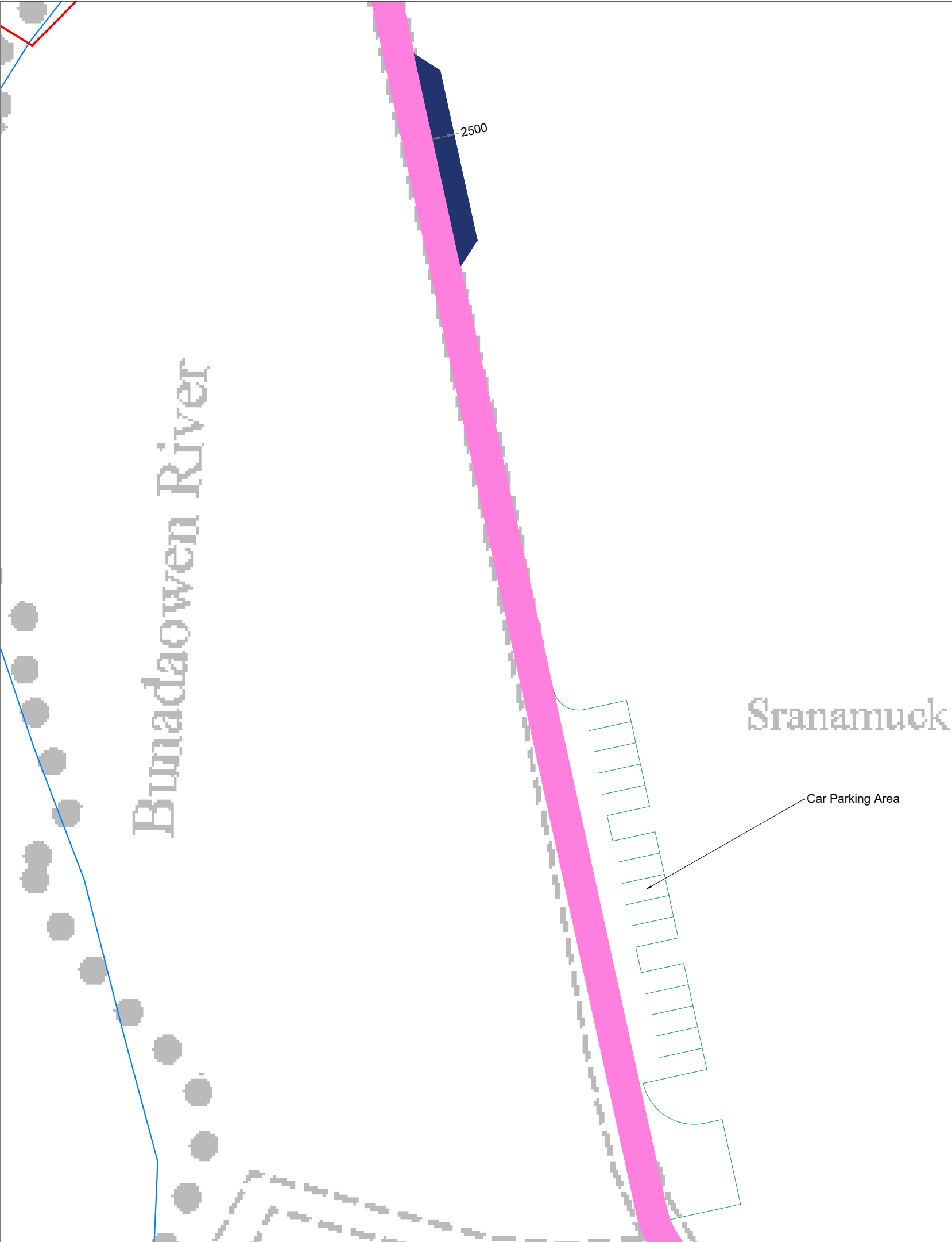
PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 62
SCALE: 1:500 @ A3	DATE: 13.12.2017

OS SHEET No.:
0387, 0398, 0399, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0478, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536



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Tel: +353 91 735611
Fax: +353 91 771279



1:25,000 Location Context Map



Drawing Legend

- Planning Application Boundary
- Proposed Amenity Walkway
- Passing Bay
- River/Stream



**Amenity Area Plan -
Car Parking Facility**

PROJECT TITLE:
Meenbog Wind Farm, Co. Donegal

DRAWING BY: **Joseph O'Brien** CHECKED BY: **Michael Watson**

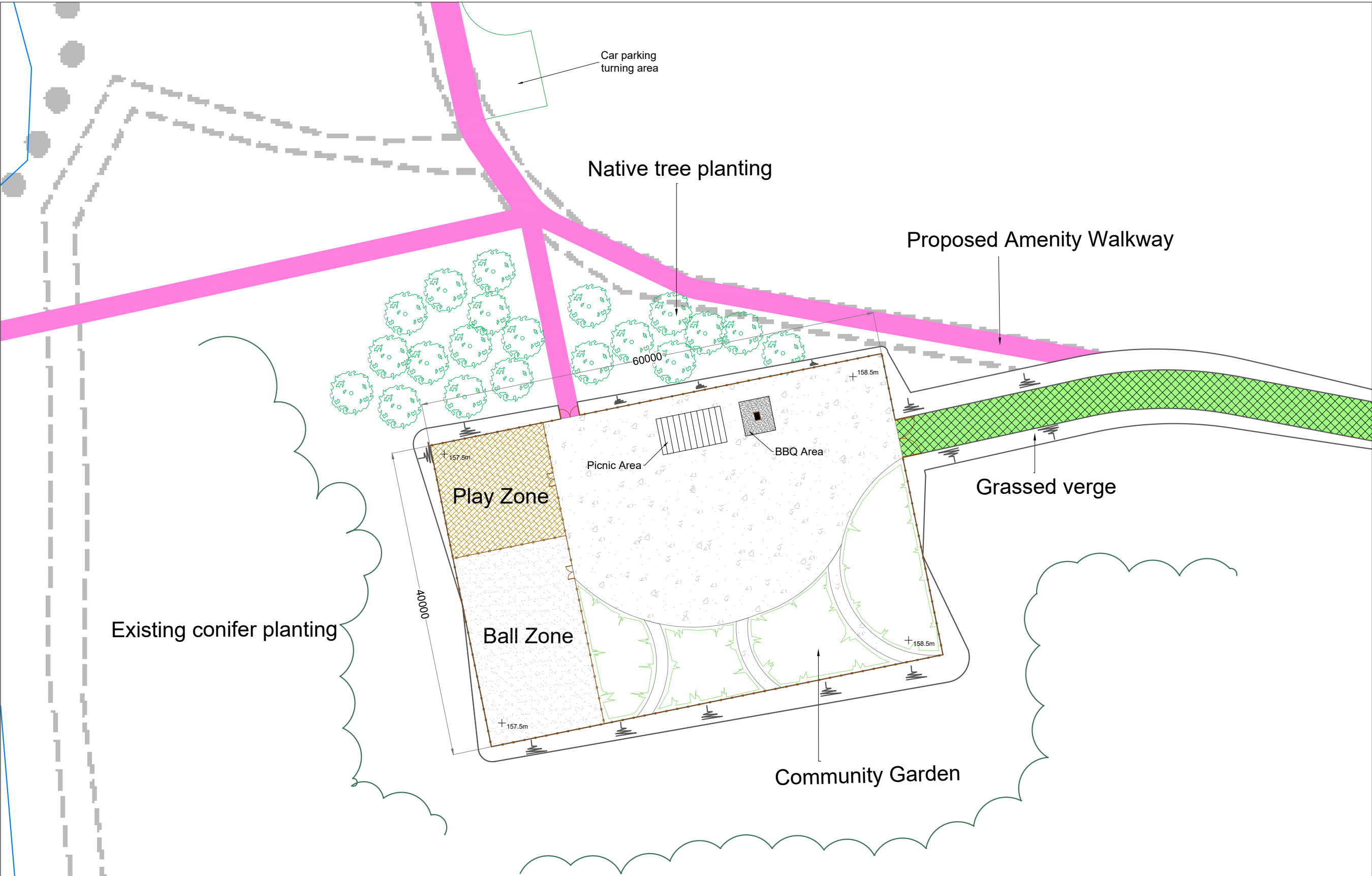
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SCALE: **1:500 @ A3** DATE: **13.12.2017**

OS SHEET No.: 0367, 0368, 0369, 0400, 0401, 0423, 0424, 0425, 0426, 0427, 0450, 0451, 0452, 0453, 0454, 0476, 0479, 0480, 0481, 0482, 0506, 0507, 0508, 0509, 0535, 0536



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Drawing Legend

- Existing Floating Road to be Upgraded
- Proposed Amenity Walkway
- River/Stream
- Wooden Fence
- Compacted Gravel
- Bark Chipping
- Tarmacadam

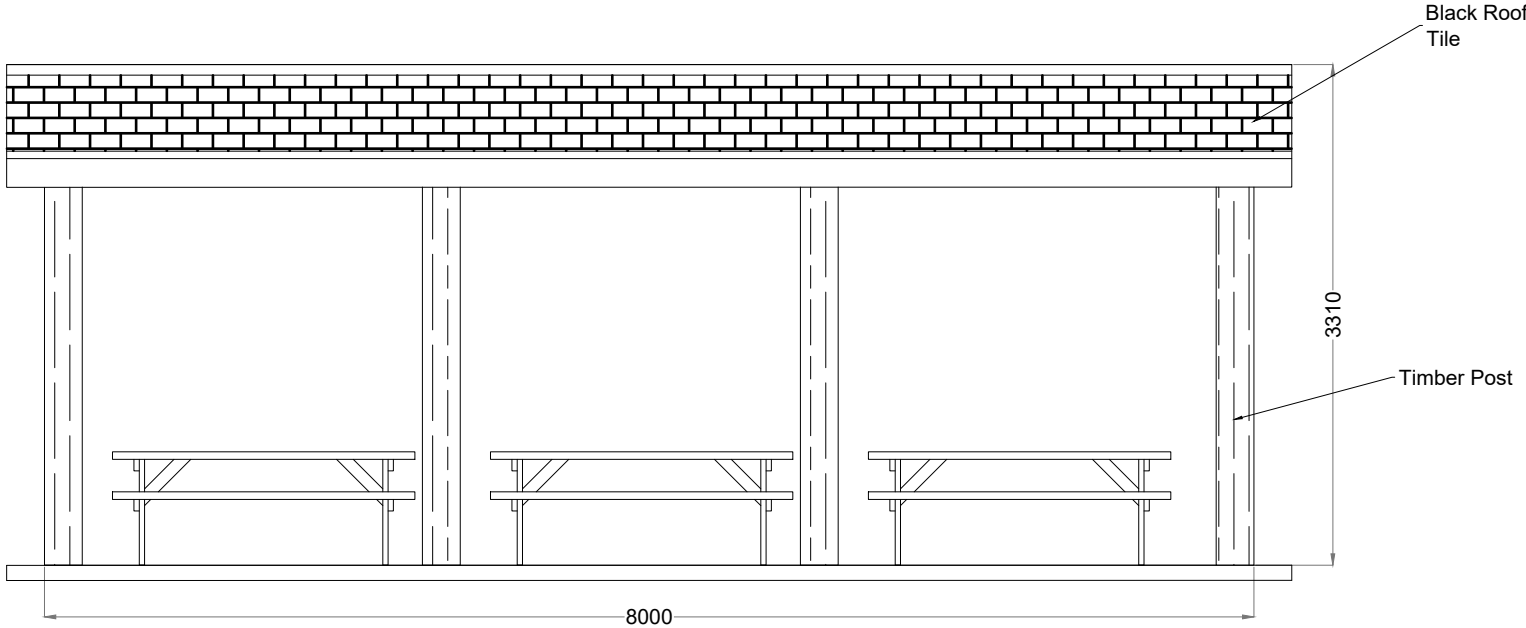


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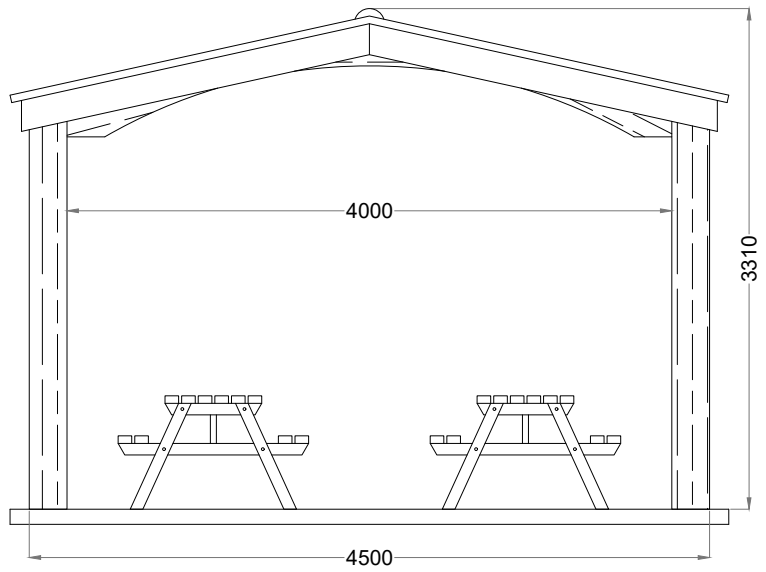
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PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 64
SCALE: 1:500 @ A3	DATE: 13.12.2017

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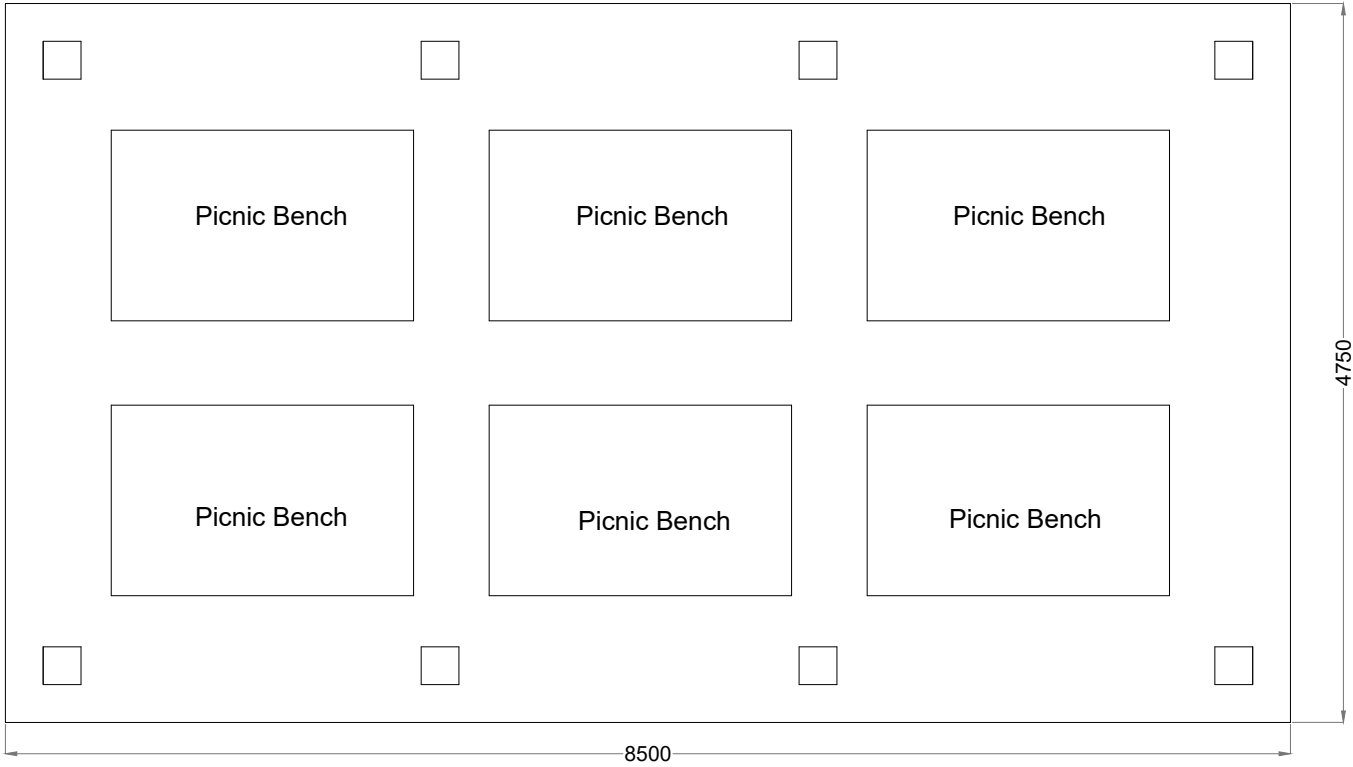
Note
For illustrative purposes only
exact details to be confirmed



North/South Elevation



East/West Elevation

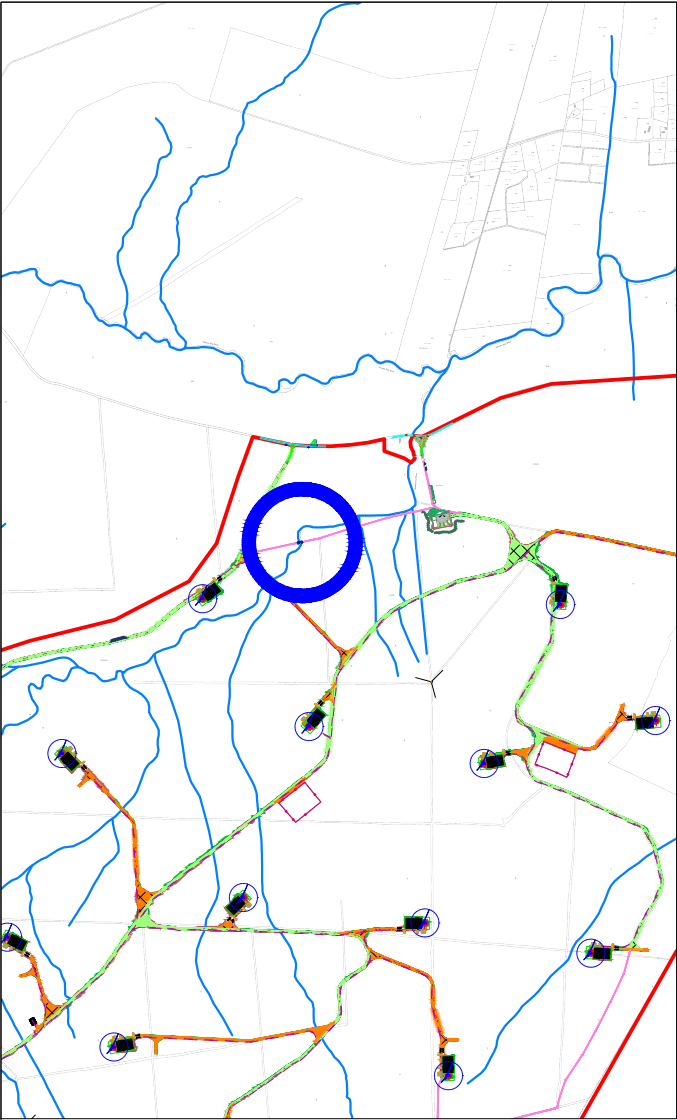


Floor Plan View



Typical Image

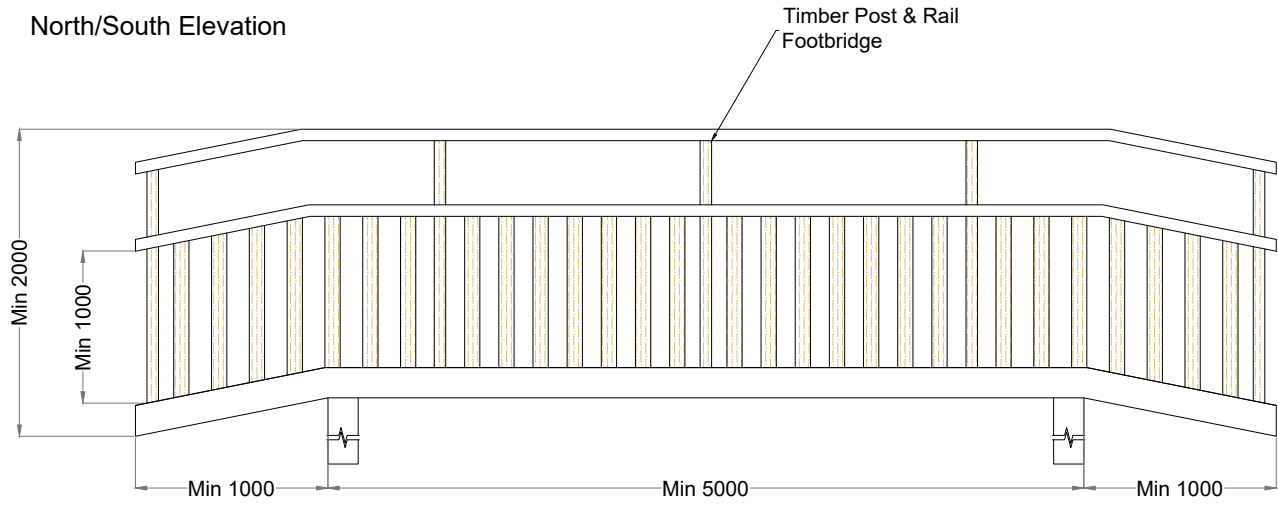
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PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 -65
SCALE: 1: 50 @ A3	DATE: 13.12.2017
 McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland. email: info@mccarthykos.ie website: www.mccarthykos.ie Tel: +353 91 735611 Fax: +353 91 771279	



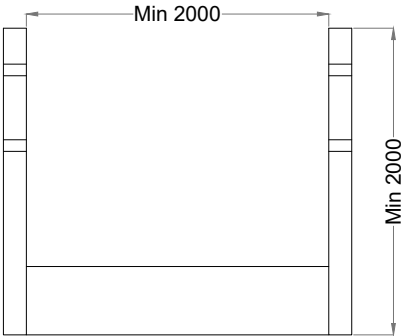
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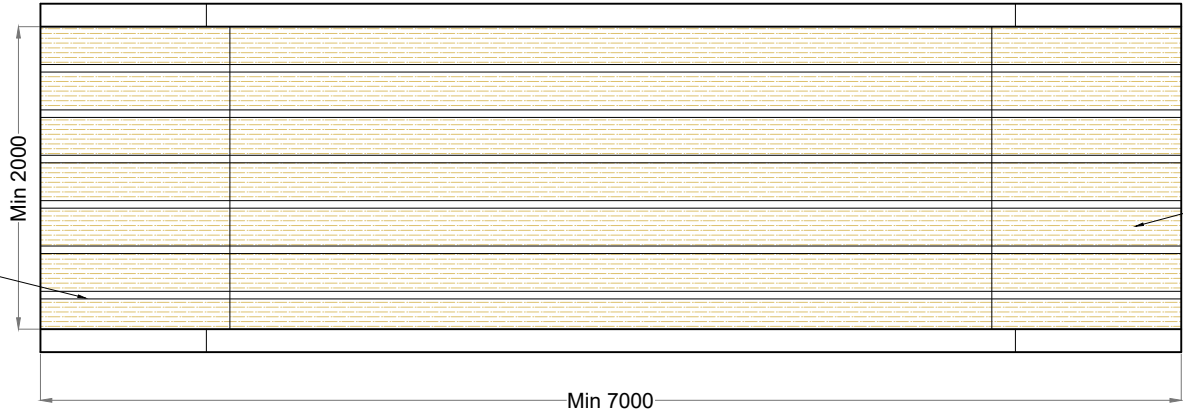
North/South Elevation



East/West Elevation



Ramp



Plan View

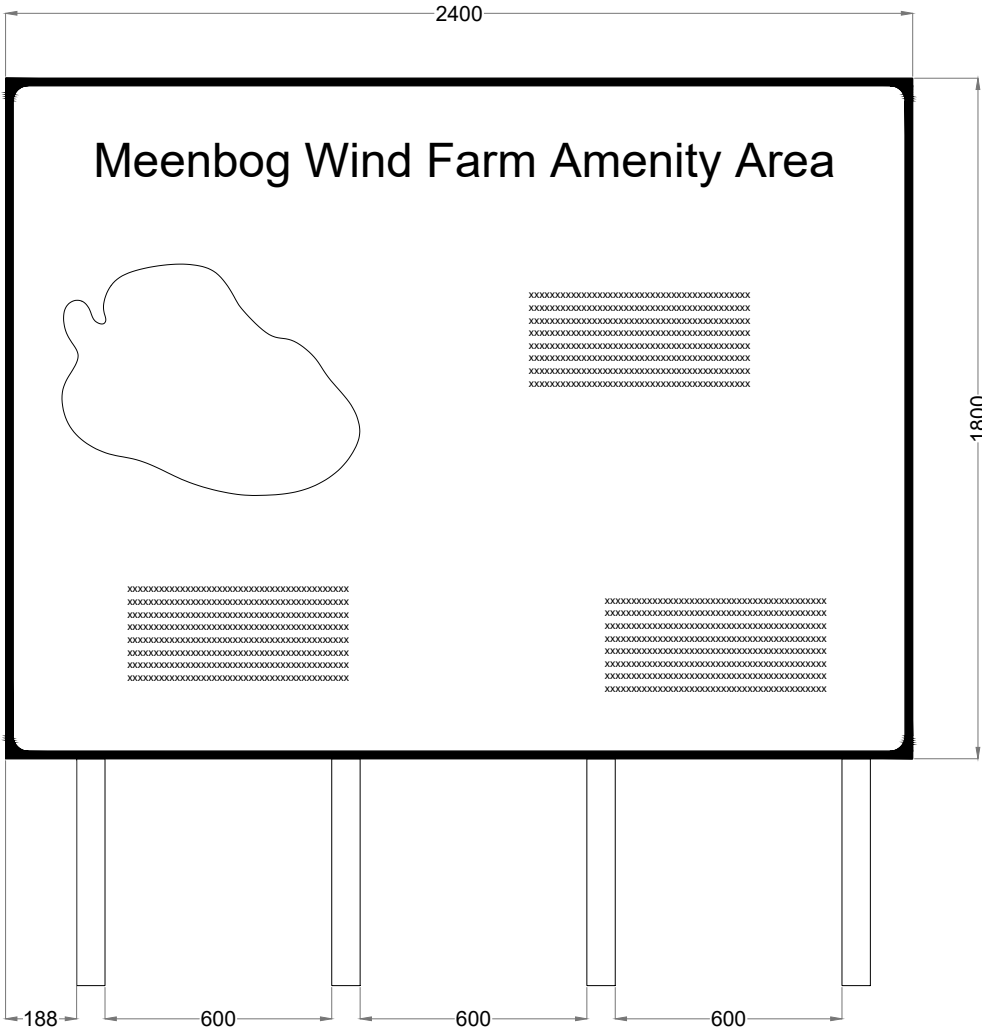
Note
For illustrative purposes only
exact details to be confirmed

DRAWING TITLE:			
Timber Footbridge Details			
PROJECT TITLE:			
Meenbog Wind Farm, Co. Donegal			
DRAWING BY:		CHECKED BY:	
Joseph O'Brien		Michael Watson	
PROJECT No:		DRAWING No:	
160502		0502 - 66	
SCALE:		DATE:	
1: 50 @ A3		13.12.2017	
SHEET No.: 0397,0398,0399,0400,0401,0423,0424,0425,0426,0427,0450,0451,0452,0453,0454,0473,0474,0480,0481,0482,0506,0507,0508,0509,0535,0536			

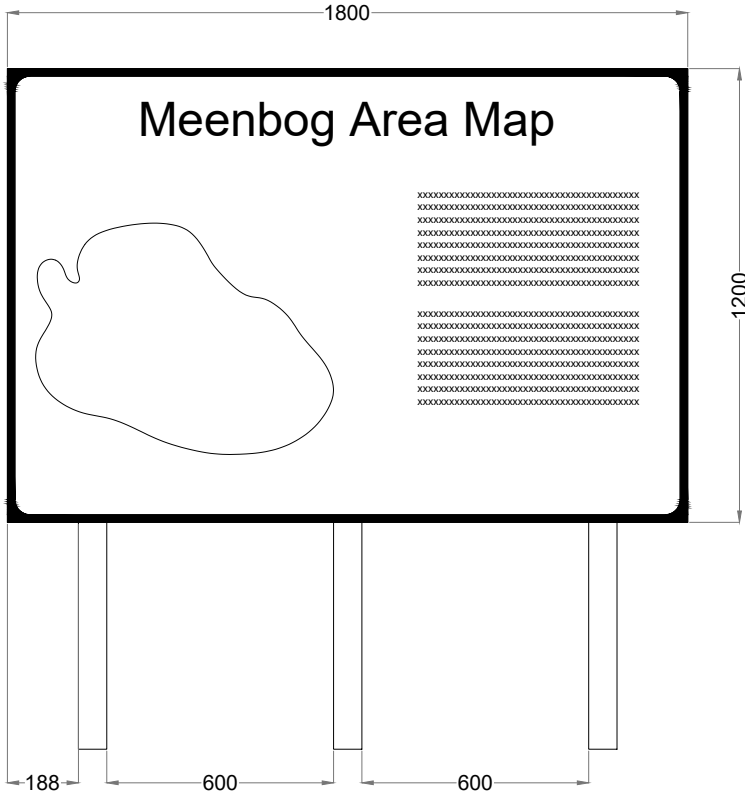


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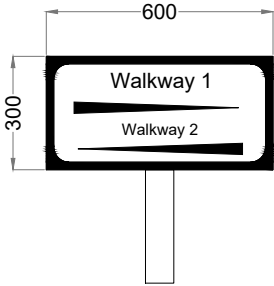
Note
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exact details to be confirmed



Signage Type A - Waypoint Map Signage

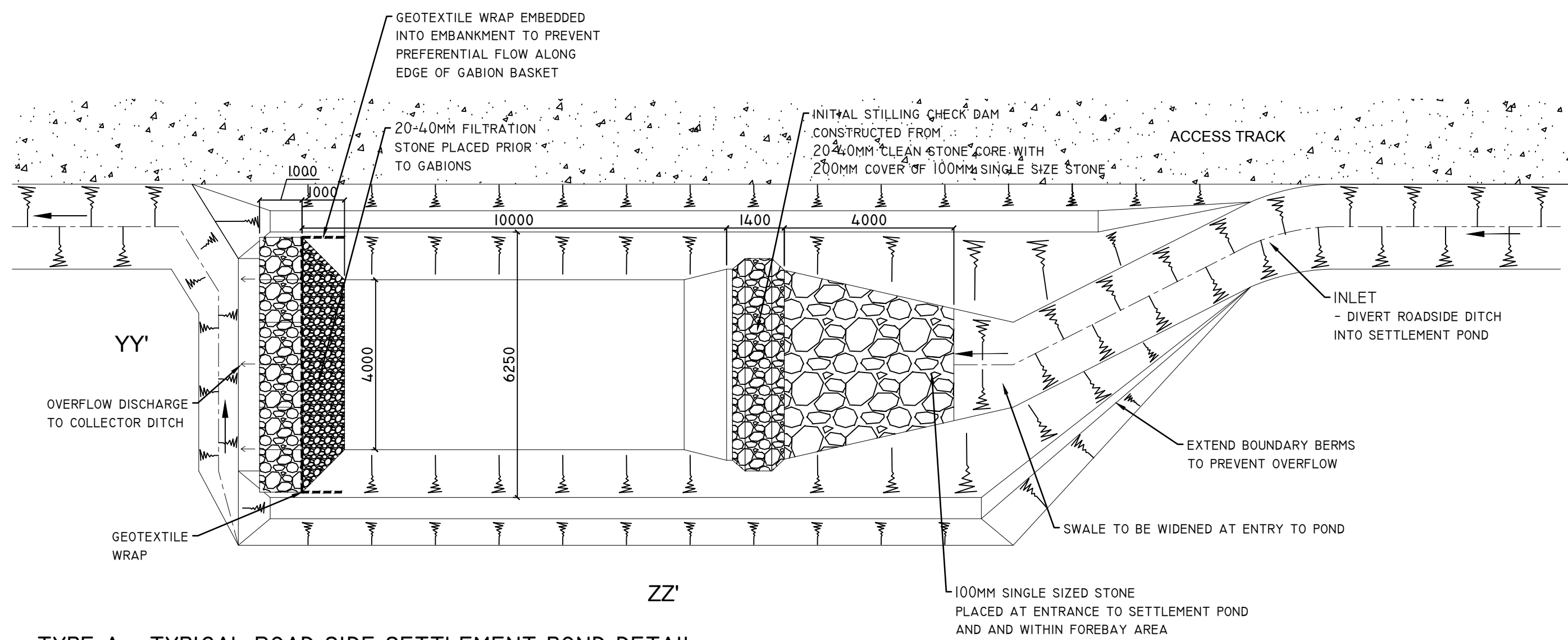


Signage Type B - Entry Point Signage

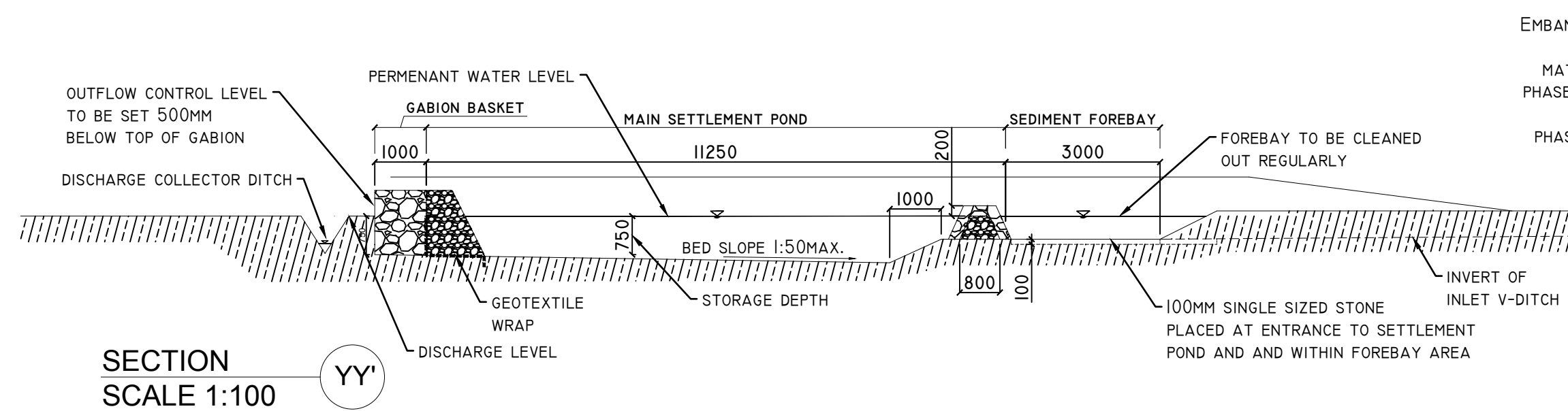


Signage Type C - Way Point Direction Signage

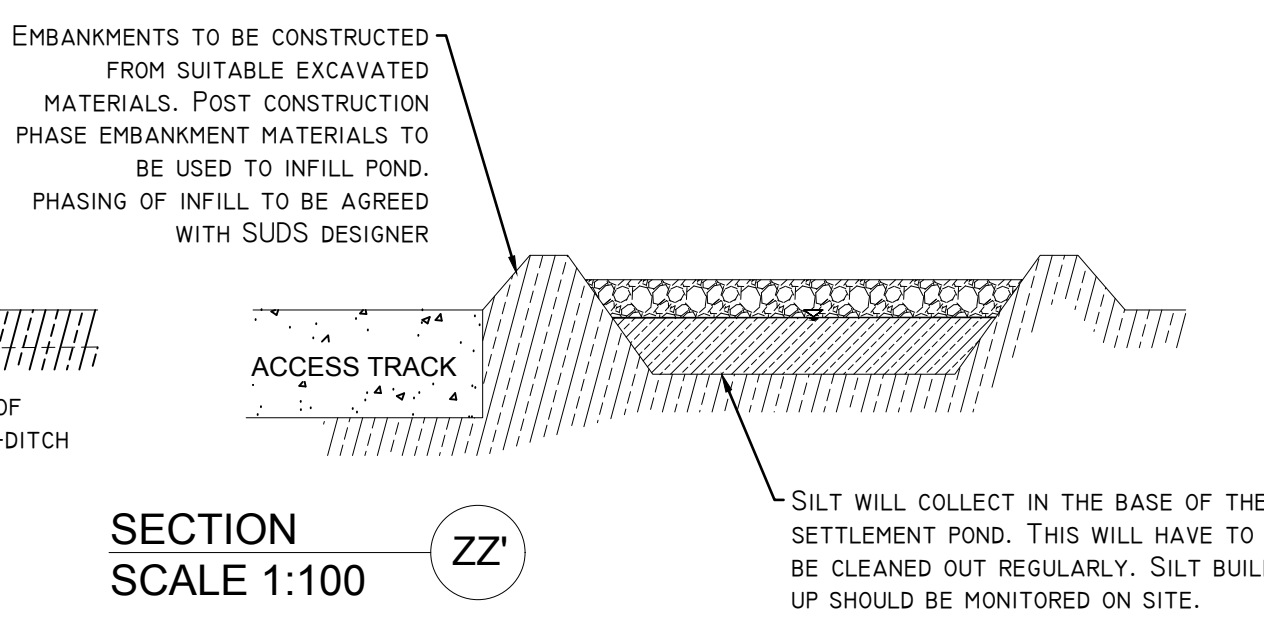
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PROJECT TITLE: Meenbog Wind Farm, Co. Donegal	
DRAWING BY: Joseph O'Brien	CHECKED BY: Michael Watson
PROJECT No.: 160502	DRAWING No.: 0502 - 67
SCALE: 1: 20 @ A3	DATE: 13.12.2017
 McCarthy Keville O'Sullivan Ltd. Planning & Environmental Consultants Block 1, Galway Financial Services Centre, Moneenageisha Road, Galway, Ireland. email: info@mccarthykos.ie website: www.mccarthykos.ie Tel: +353 91 735611 Fax: +353 91 771279	



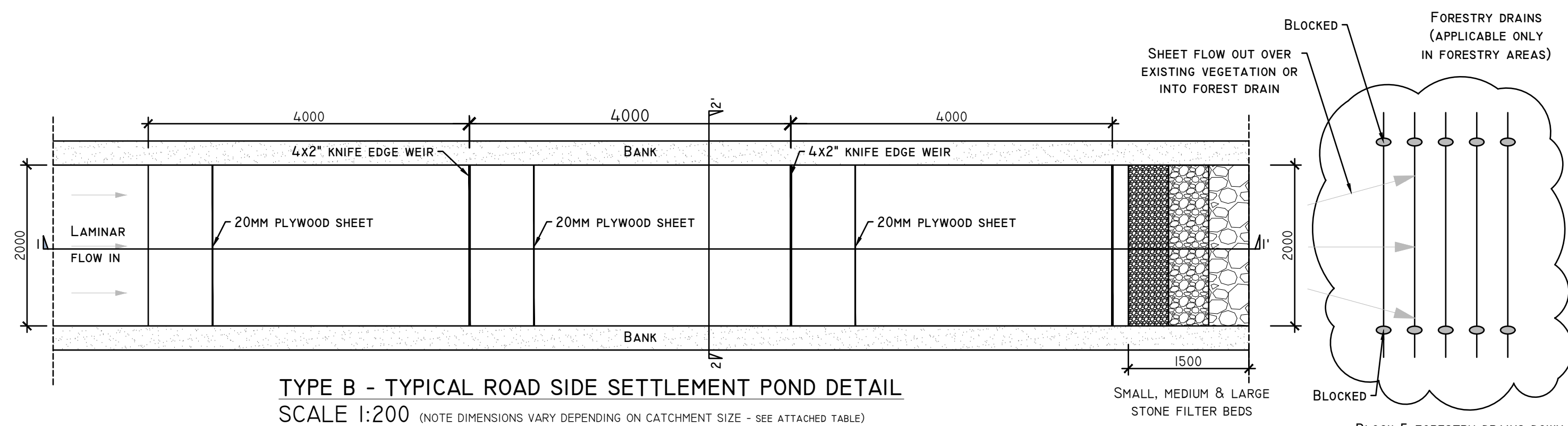
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SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE - SEE ATTACHED TABLE)



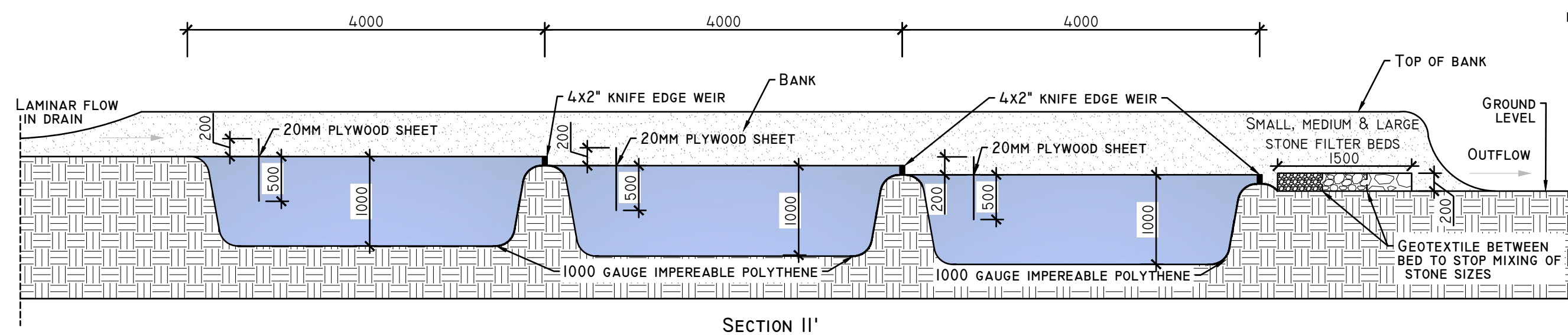
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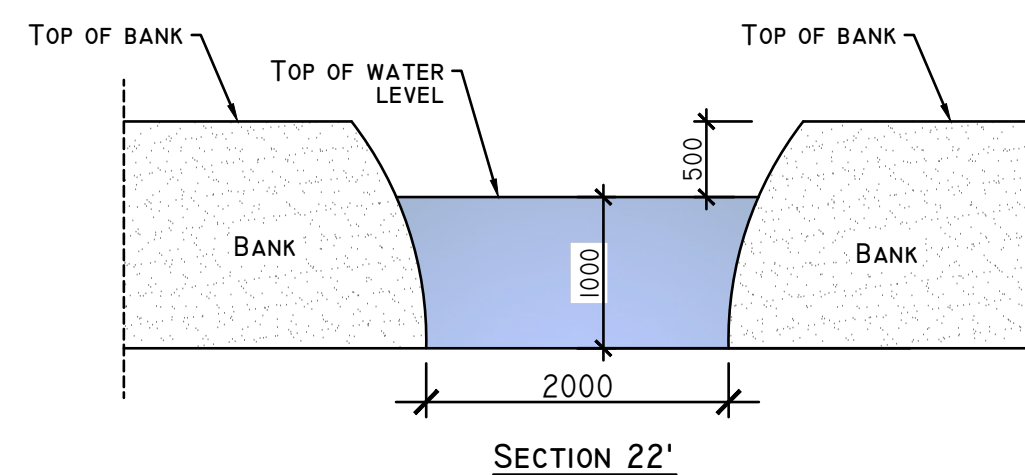
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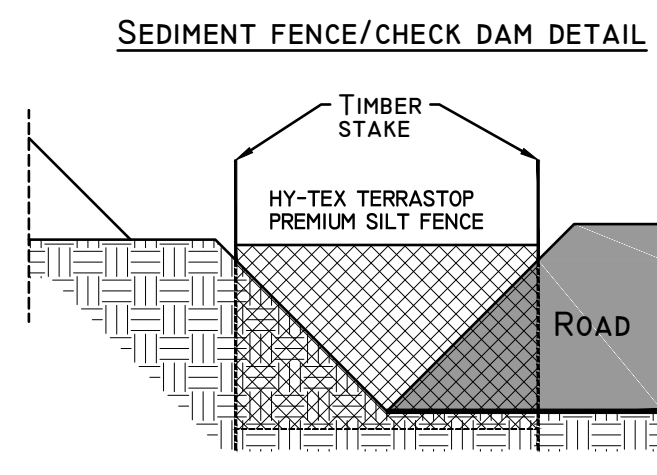
TYPE B - TYPICAL ROAD SIDE SETTLEMENT POND DETAIL
SCALE 1:200 (NOTE DIMENSIONS VARY DEPENDING ON CATCHMENT SIZE - SEE ATTACHED TABLE)



SECTION II'



SECTION 22'



SEDIMENT FENCE/CHECK DAM DETAIL

DETAIL A2

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12.12.17	Planning	MG	MG
Date	Description	Chkd	Signed
Revisions			

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Client: **MCCARTHY KEVILLE O'SULLIVAN**

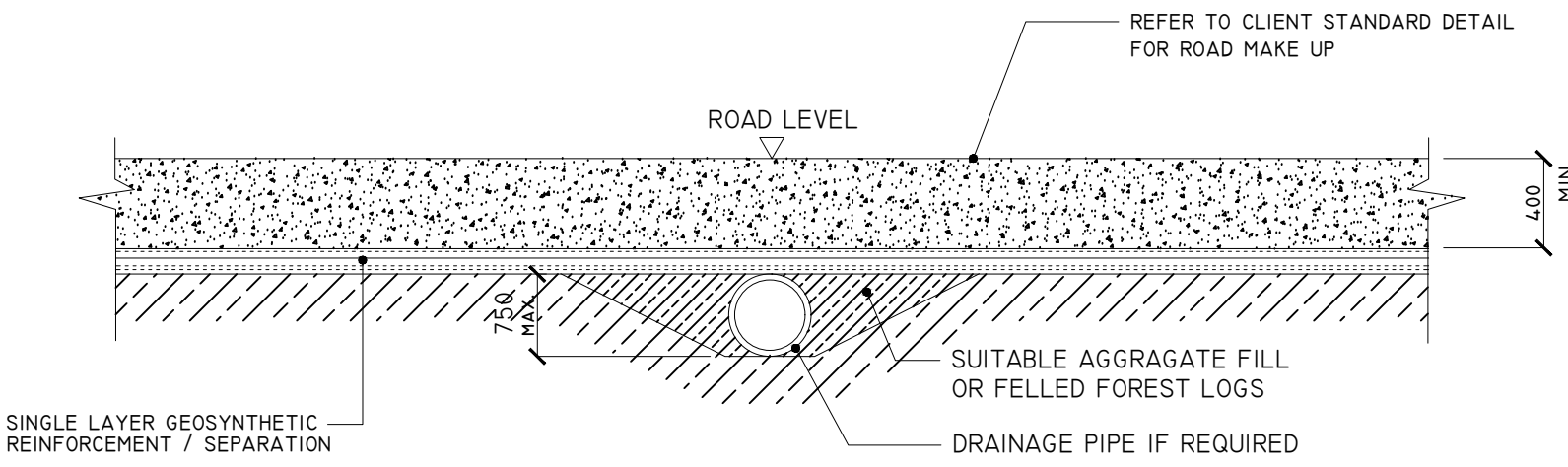
Job: **MEENBOG WIND FARM, Co. DONEGAL**

Title: **DRAINAGE DETAILS I**

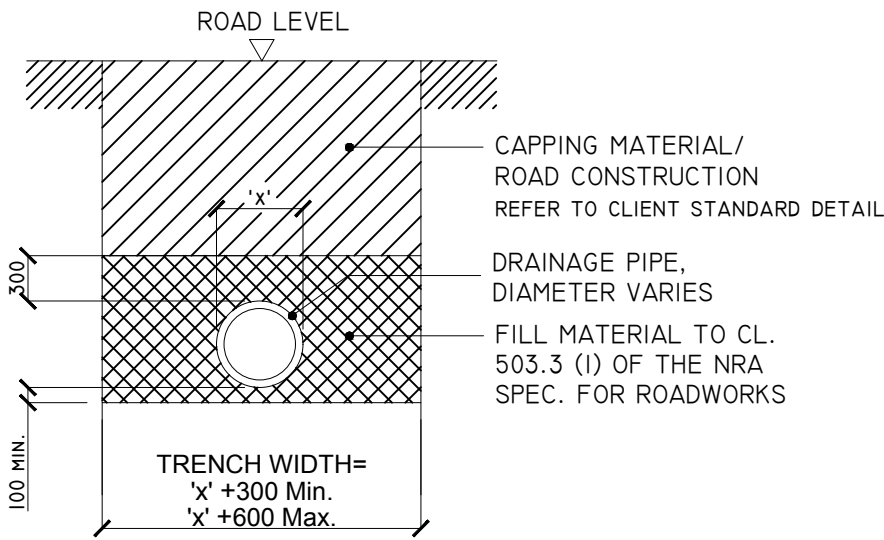
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Scale: as shown (A1)	Drawn By: MG/GD
Date: 12/12/2017	Checked By: M.G.

DETAIL B

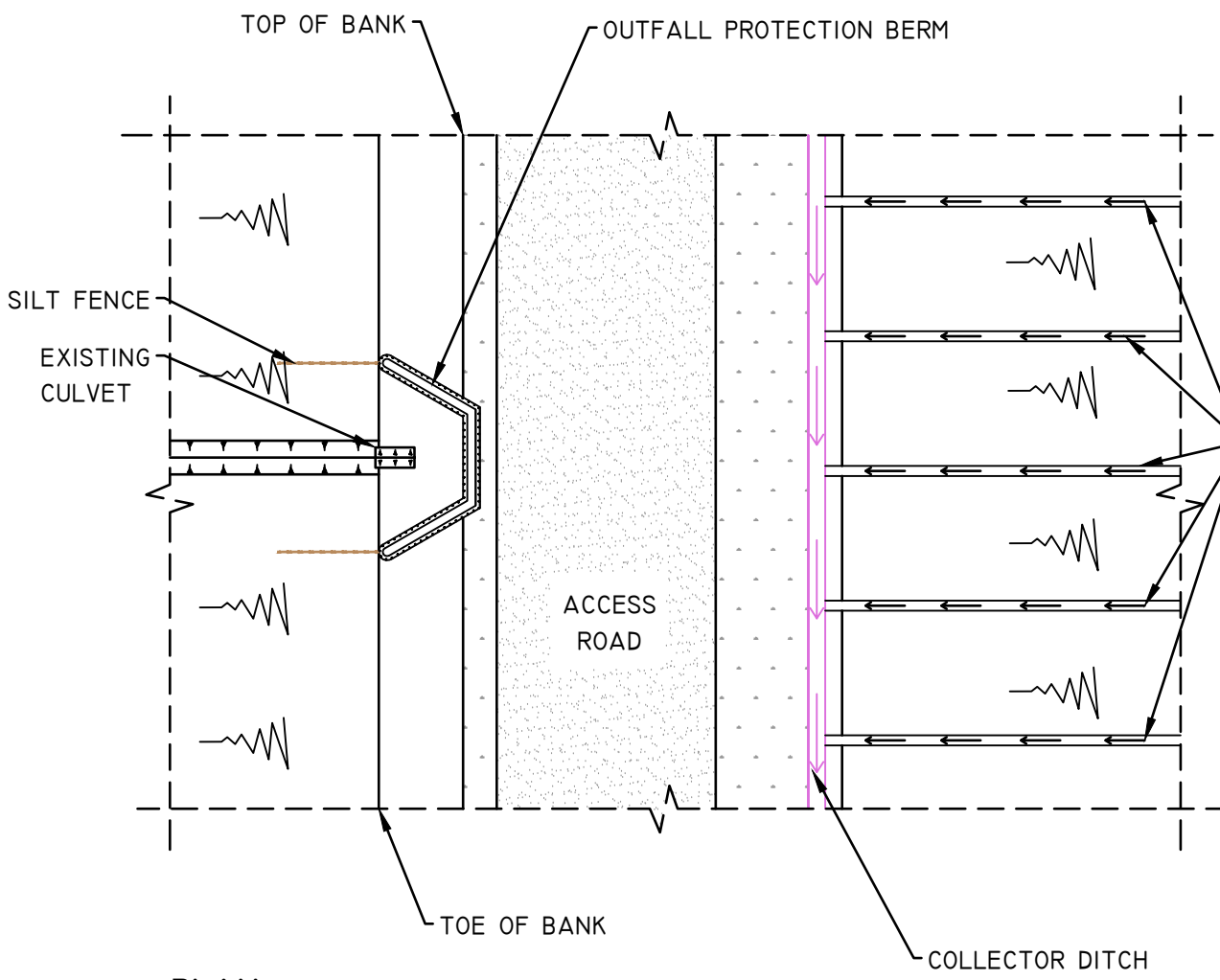


'TYPE A' CULVERT - DRAINAGE CROSSING BENEATH FLOATING ROAD
SCALE 1:100



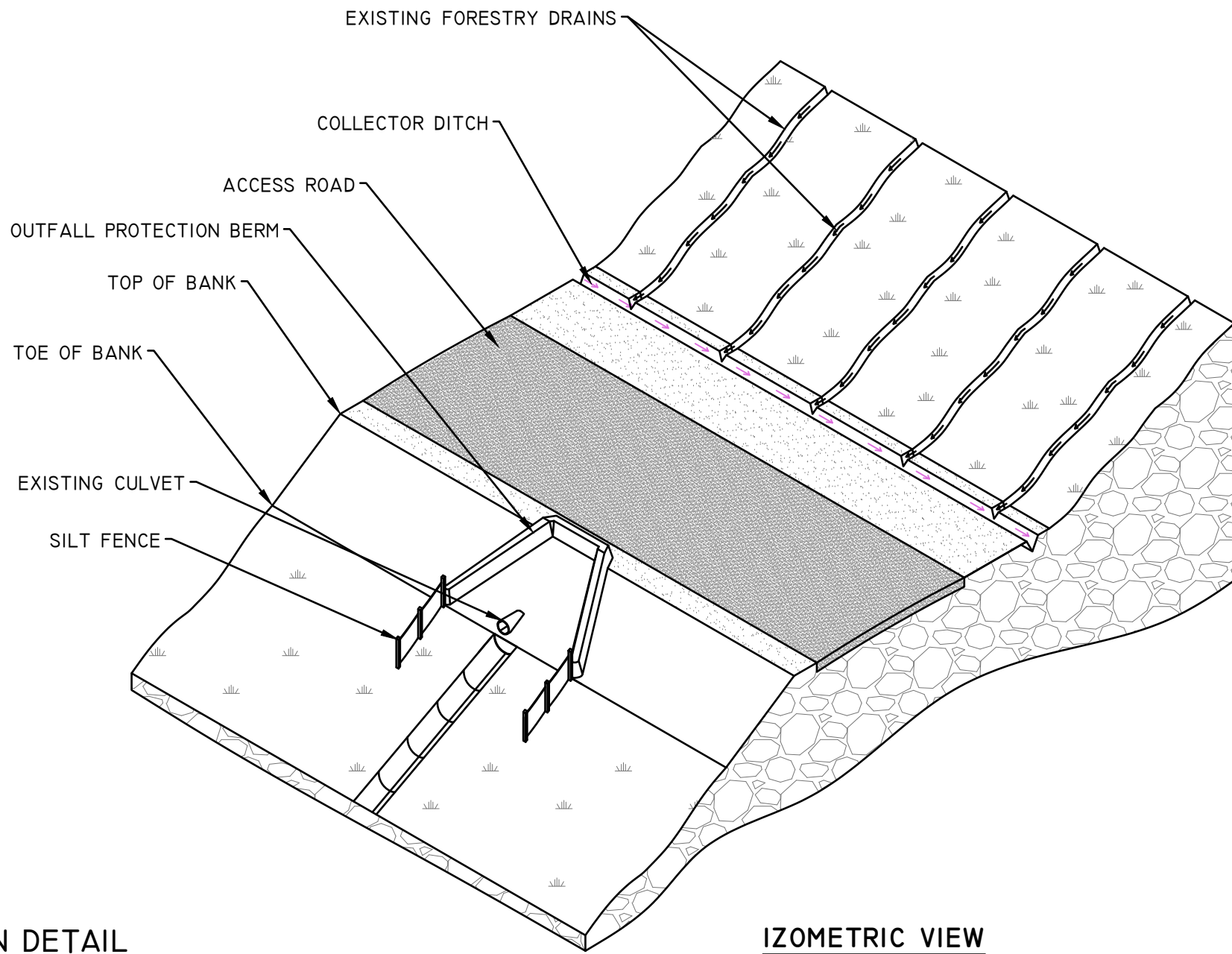
'TYPE B' CULVERT - DRAINAGE CROSSING BENEATH EXCAVATED ROAD
SCALE 1:50

DETAIL BI



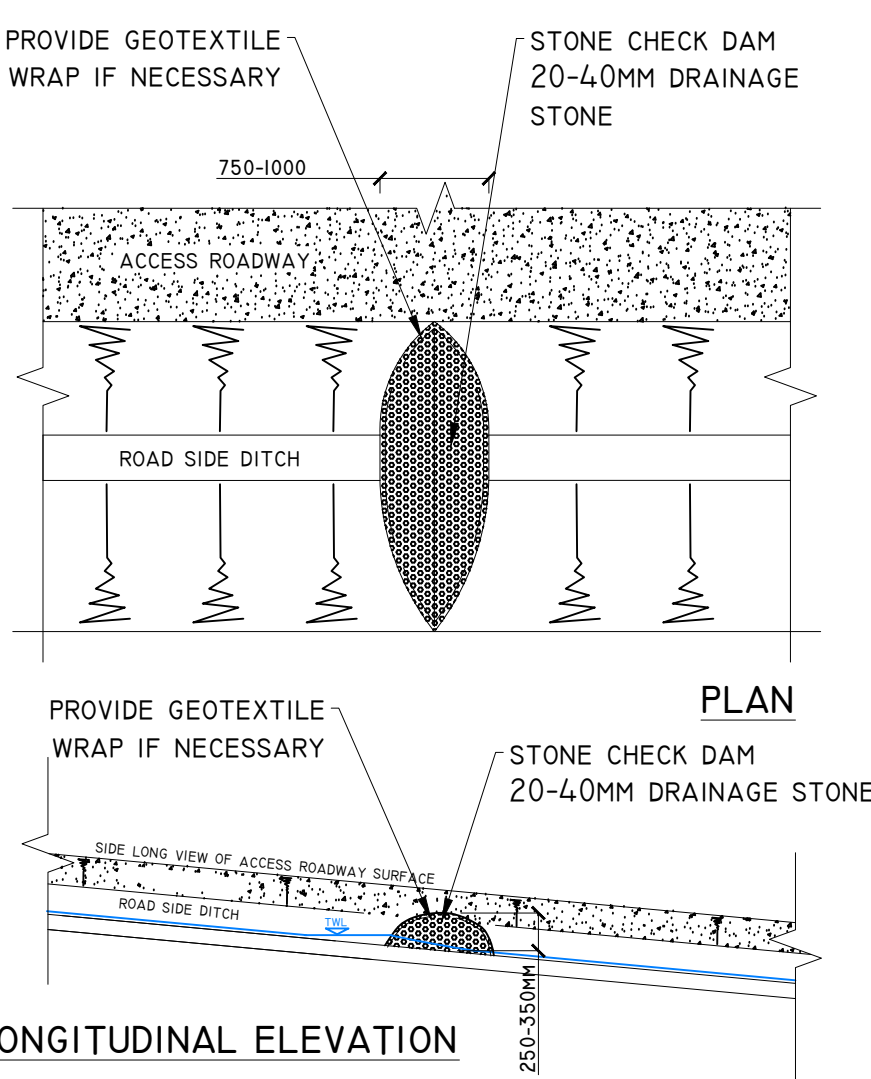
PLAN

CULVET - OUTFALL PROTECTION DETAIL
SCHEMATIC - NOT TO SCALE



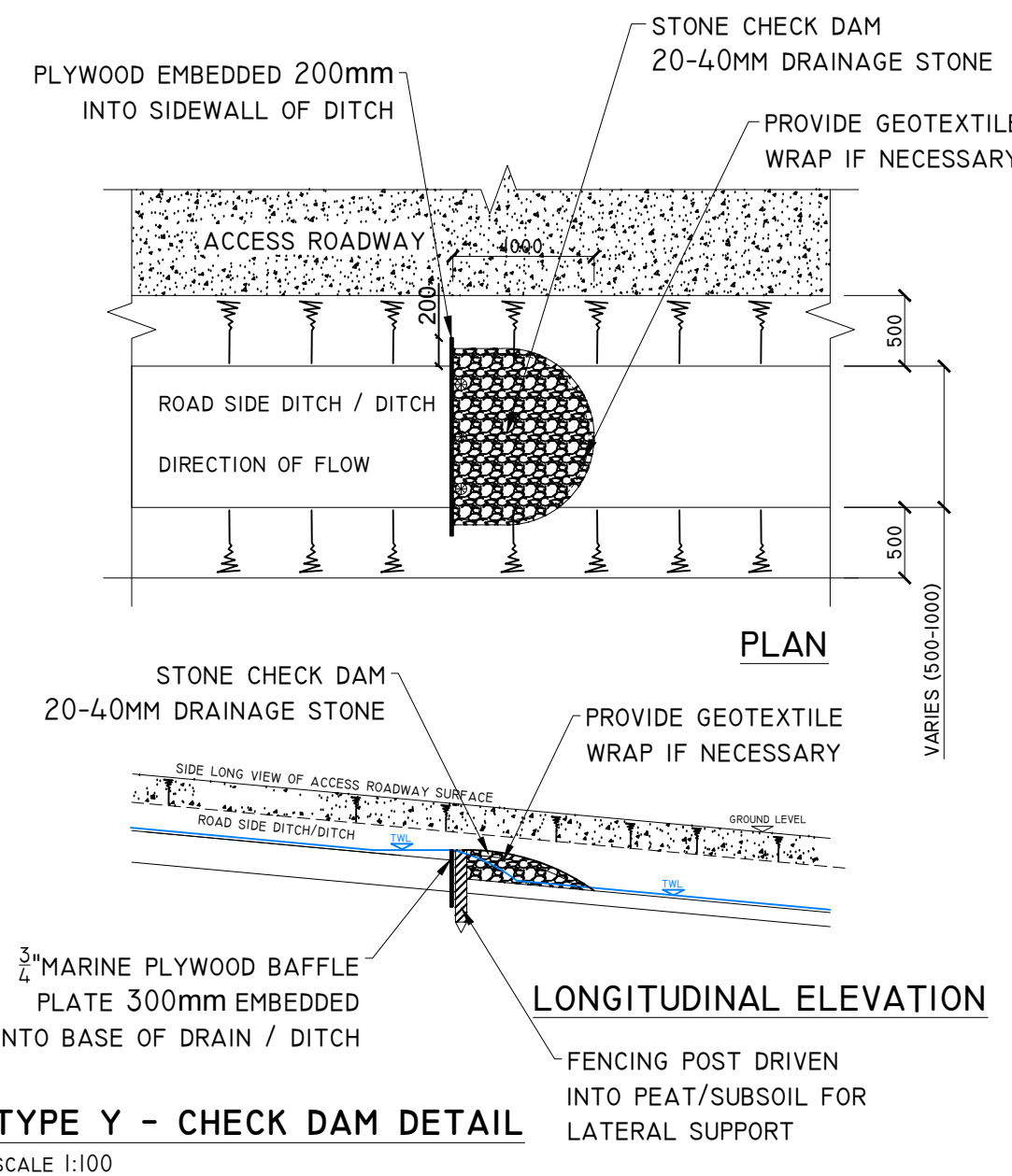
IZOMETRIC VIEW

DETAIL C

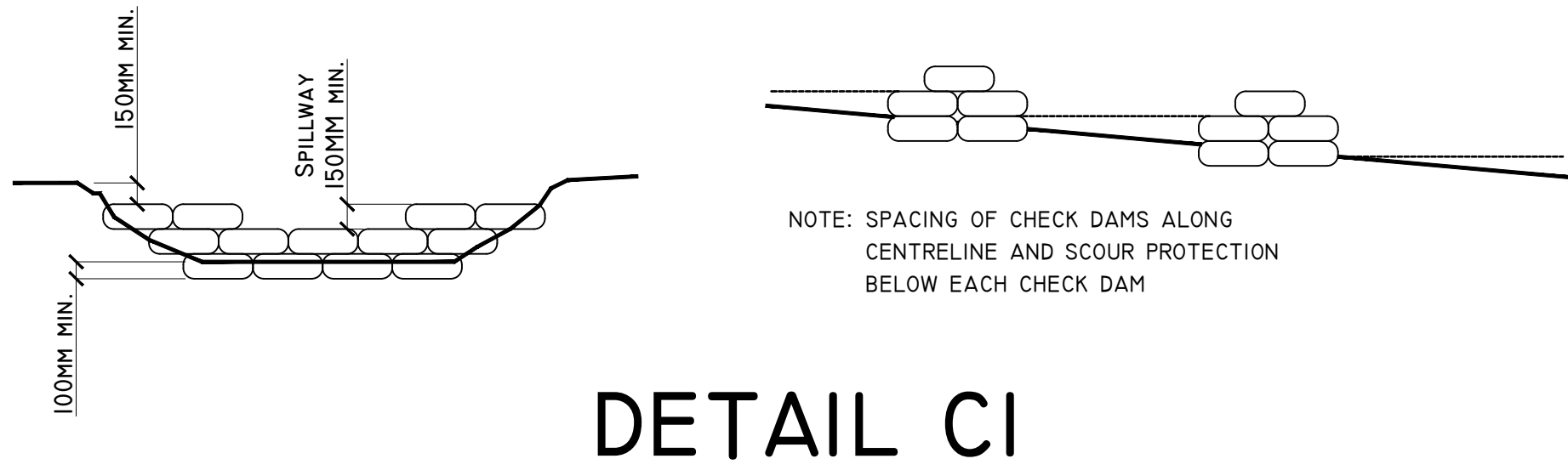


TYPE X - CHECK DAM DETAIL
SCALE 1:50

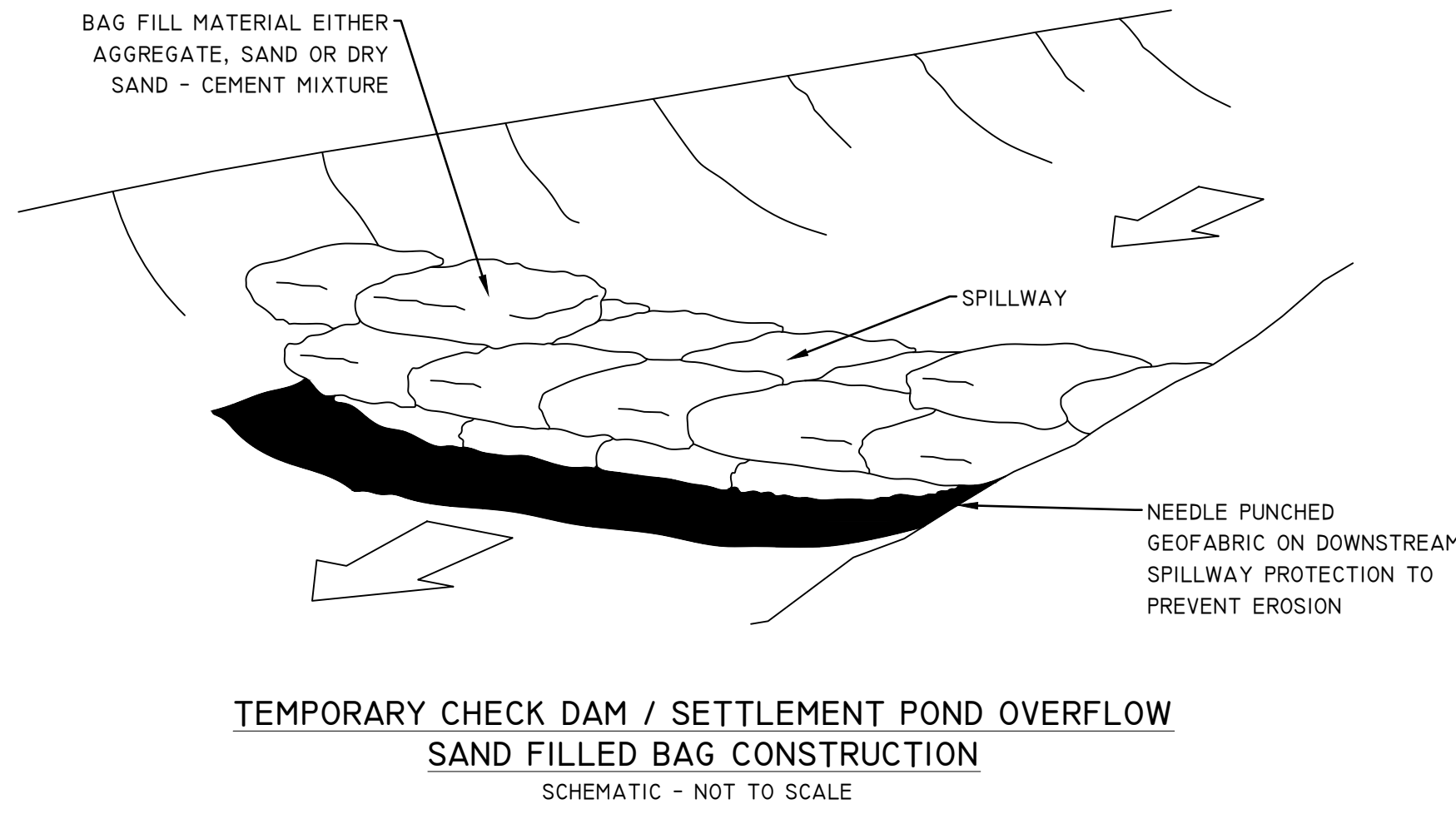
DETAIL D



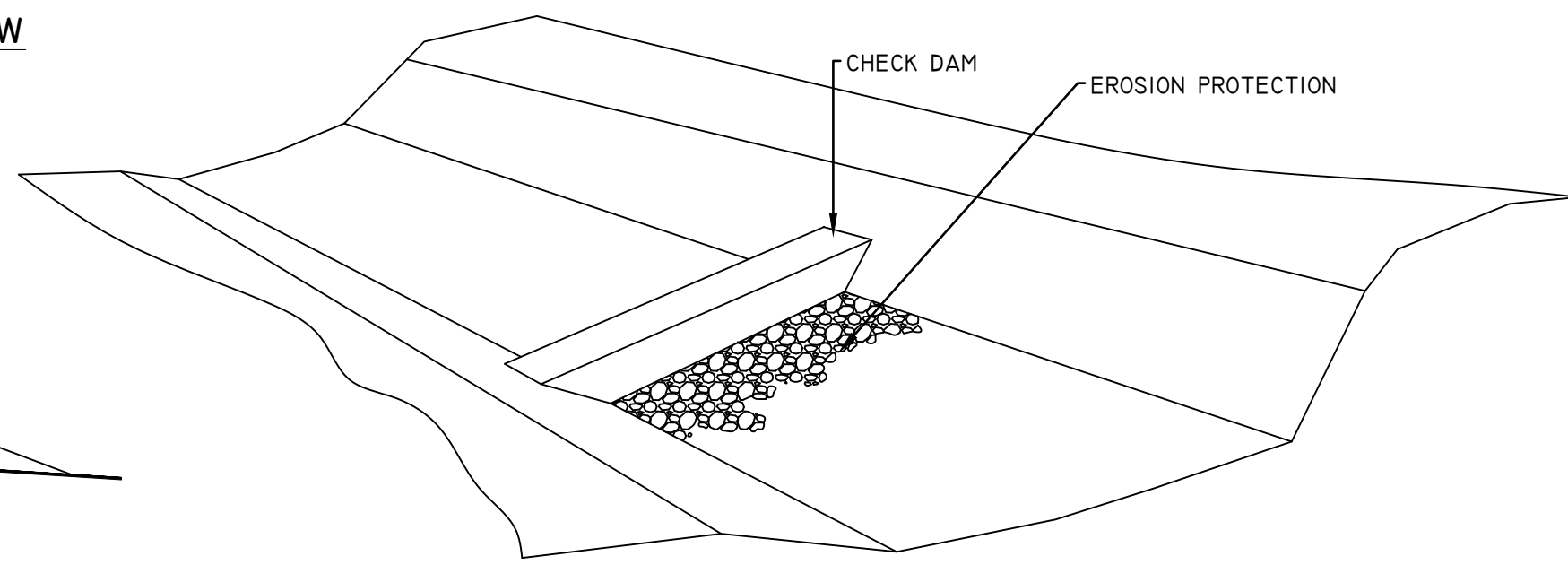
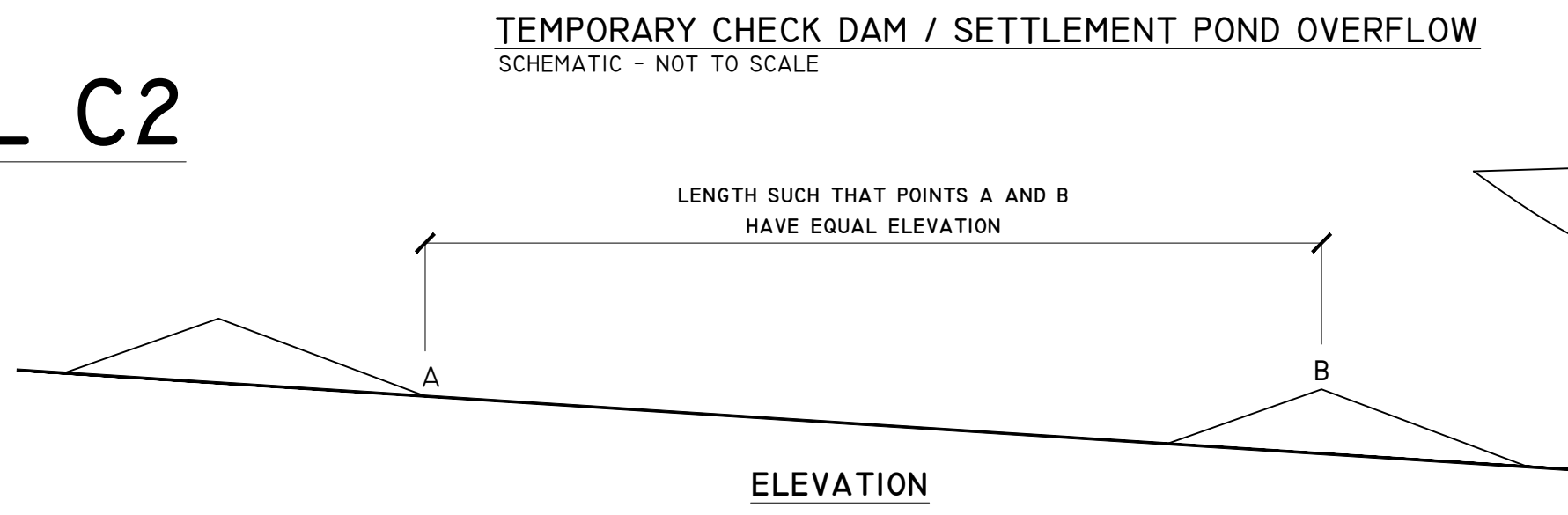
TYPE Y - CHECK DAM DETAIL
SCALE 1:100



DETAIL CI

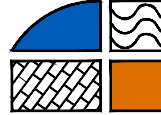


DETAIL C2



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12.12.17	Planning	MG	MG
Date	Description	Chkd	Signed
Revisions			

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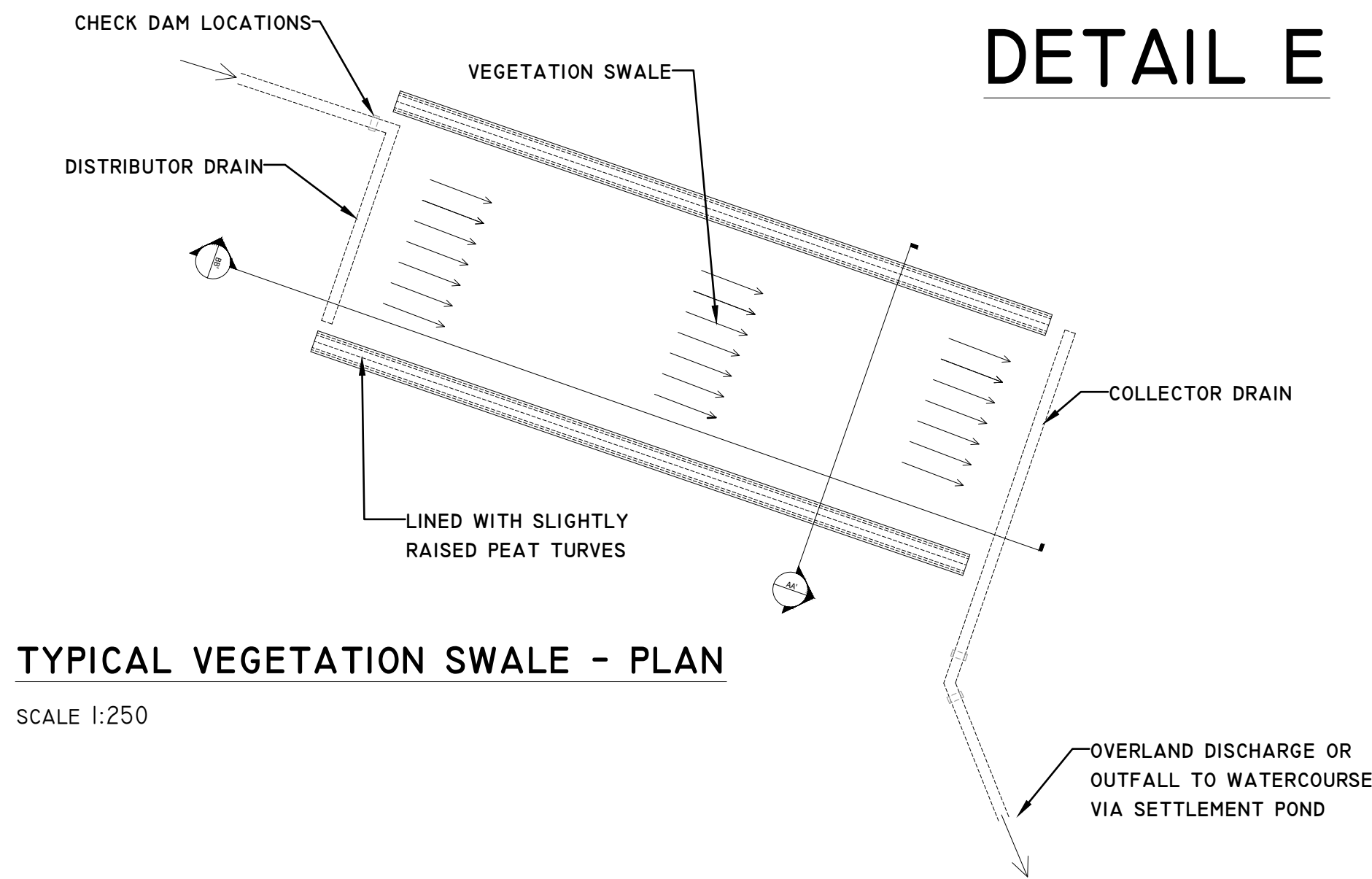
Client:
MCARTHY KEVILLE O'SULLIVAN

Job:
MEENBOG WIND FARM, Co. DONEGAL

Title:
DRAINAGE DETAILS 2

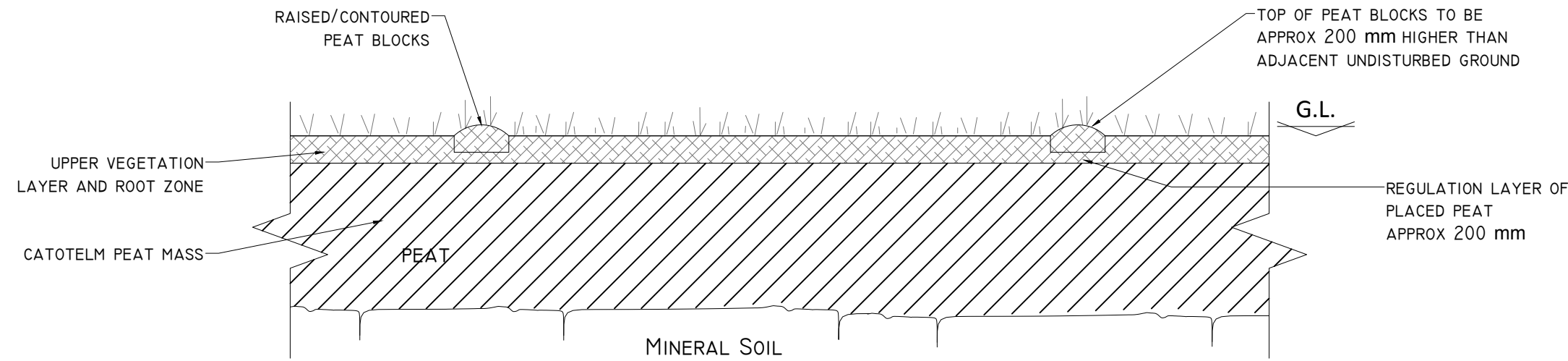
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Date: 12/12/2017	Checked By: M.G.

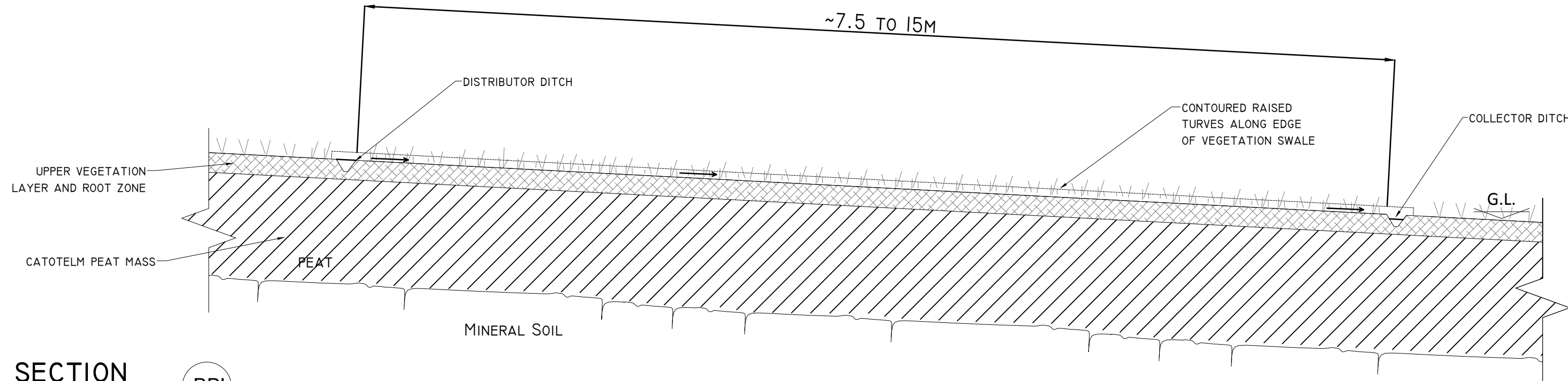


TYPICAL VEGETATION SWALE - PLAN

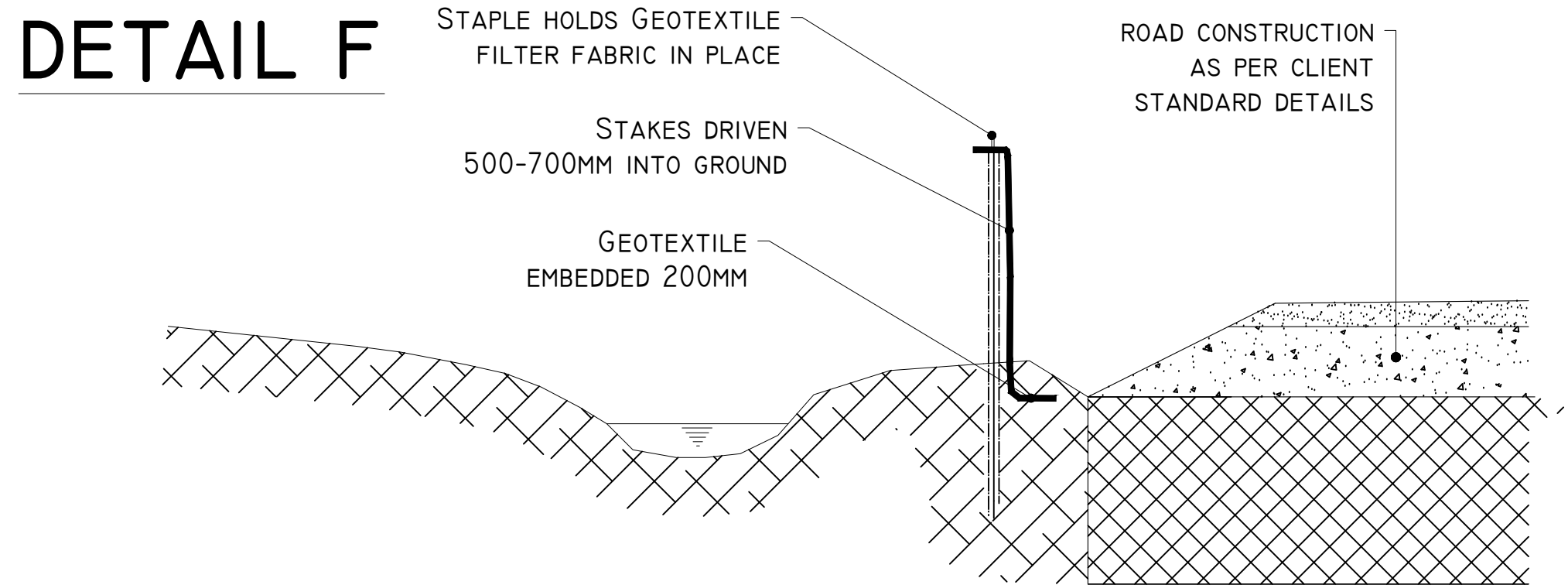
SCALE 1:250



SECTION AA'
SCALE 1:200

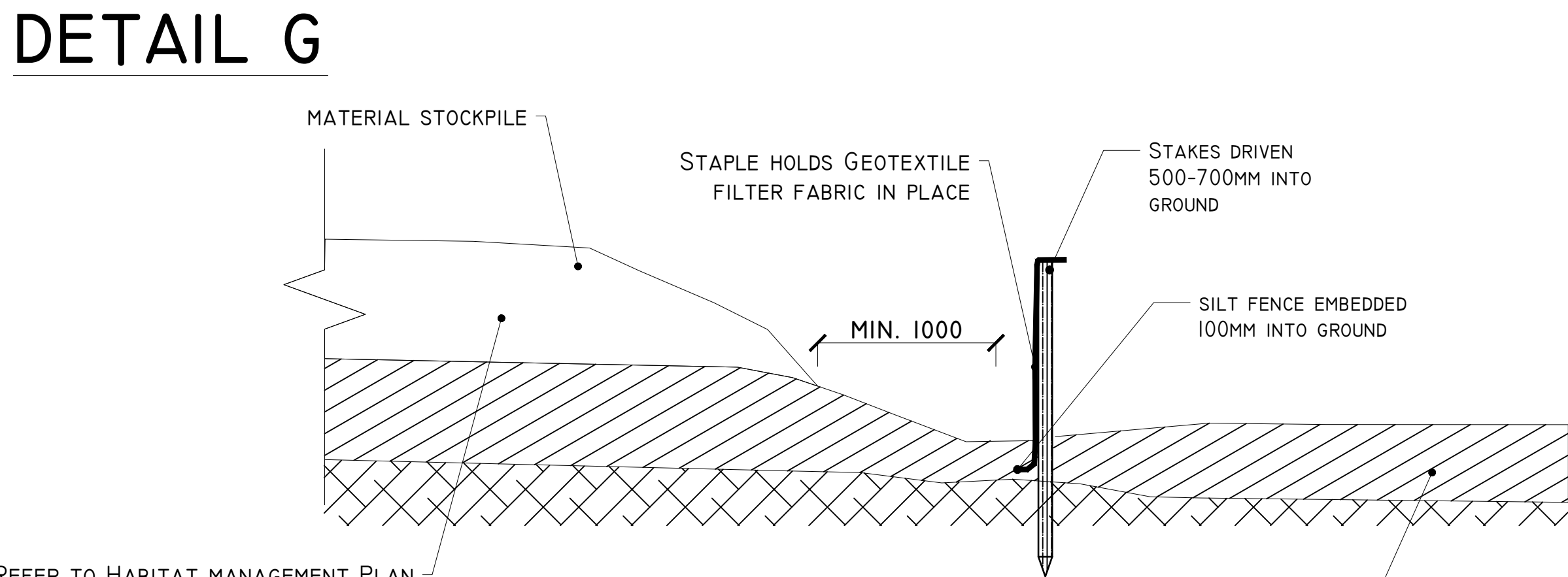


SECTION BB'
SCALE 1:100



SILT FENCE FOR WATERCOURSE PROTECTION

SCALE 1:25



REFER TO HABITAT MANAGEMENT PLAN
AND PEAT MANAGEMENT PLAN
FOR STOCKPILE MANAGEMENT NOTES

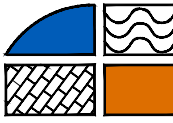
SILT FENCE

SCALE 1:25

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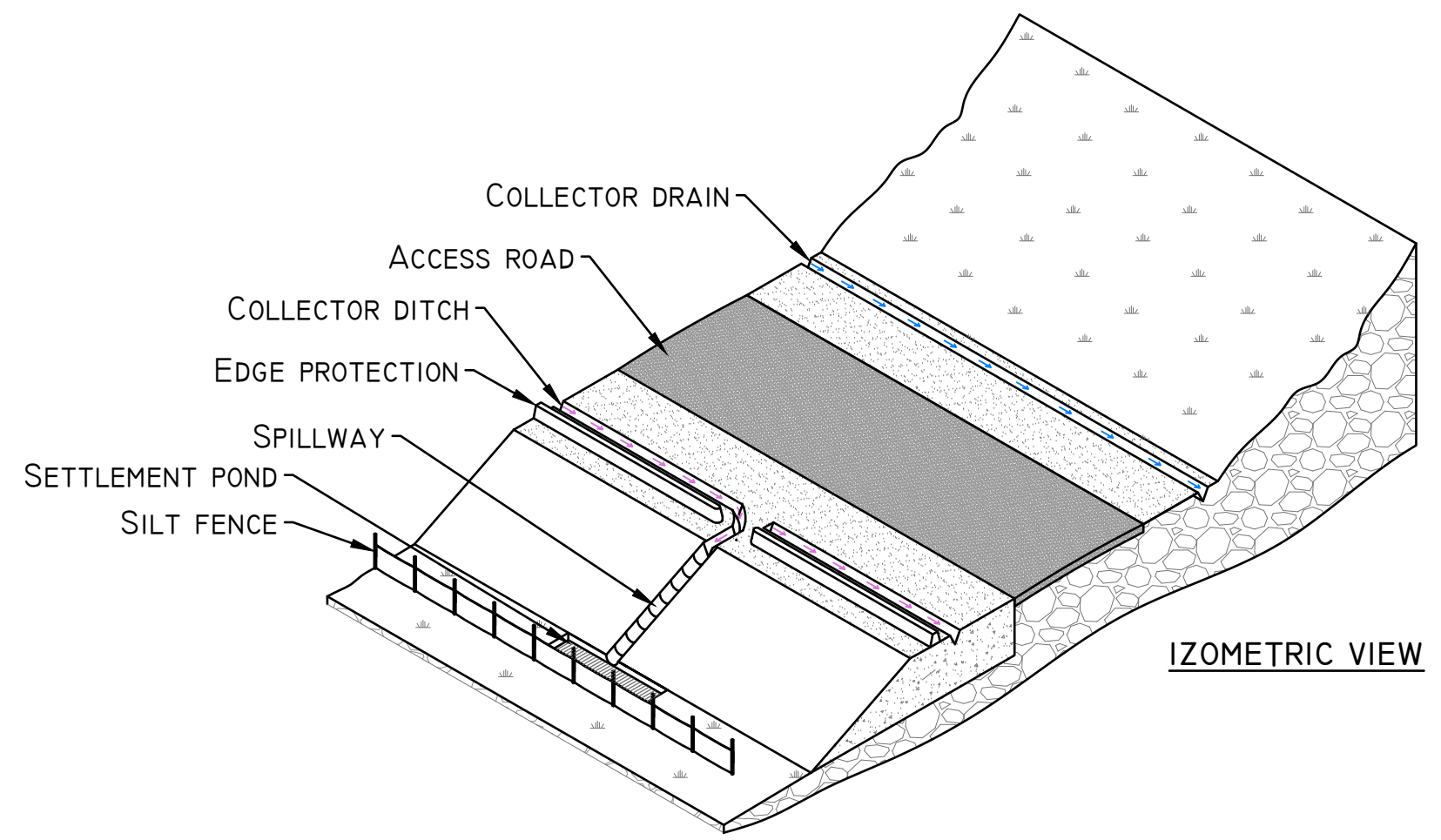
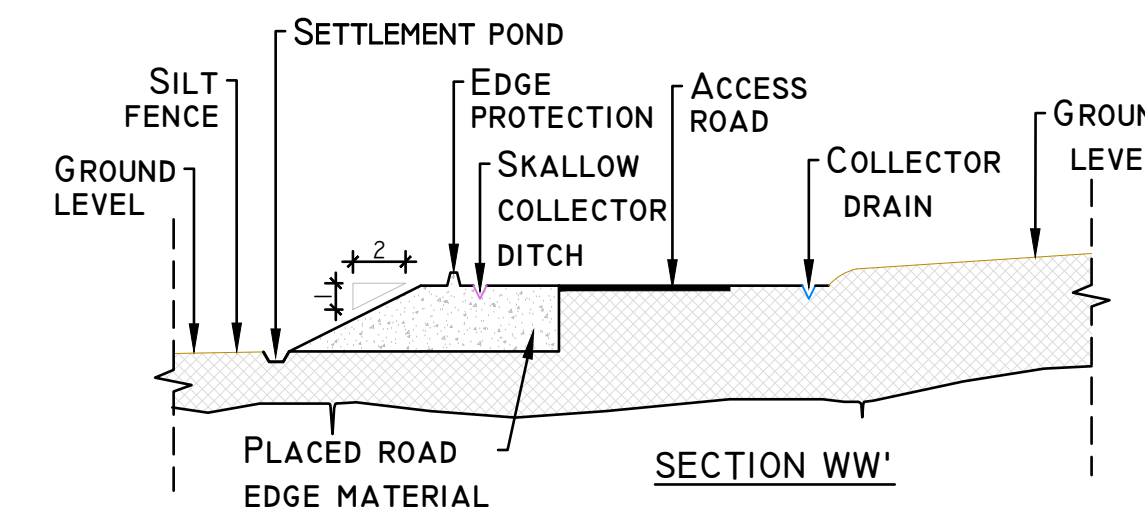
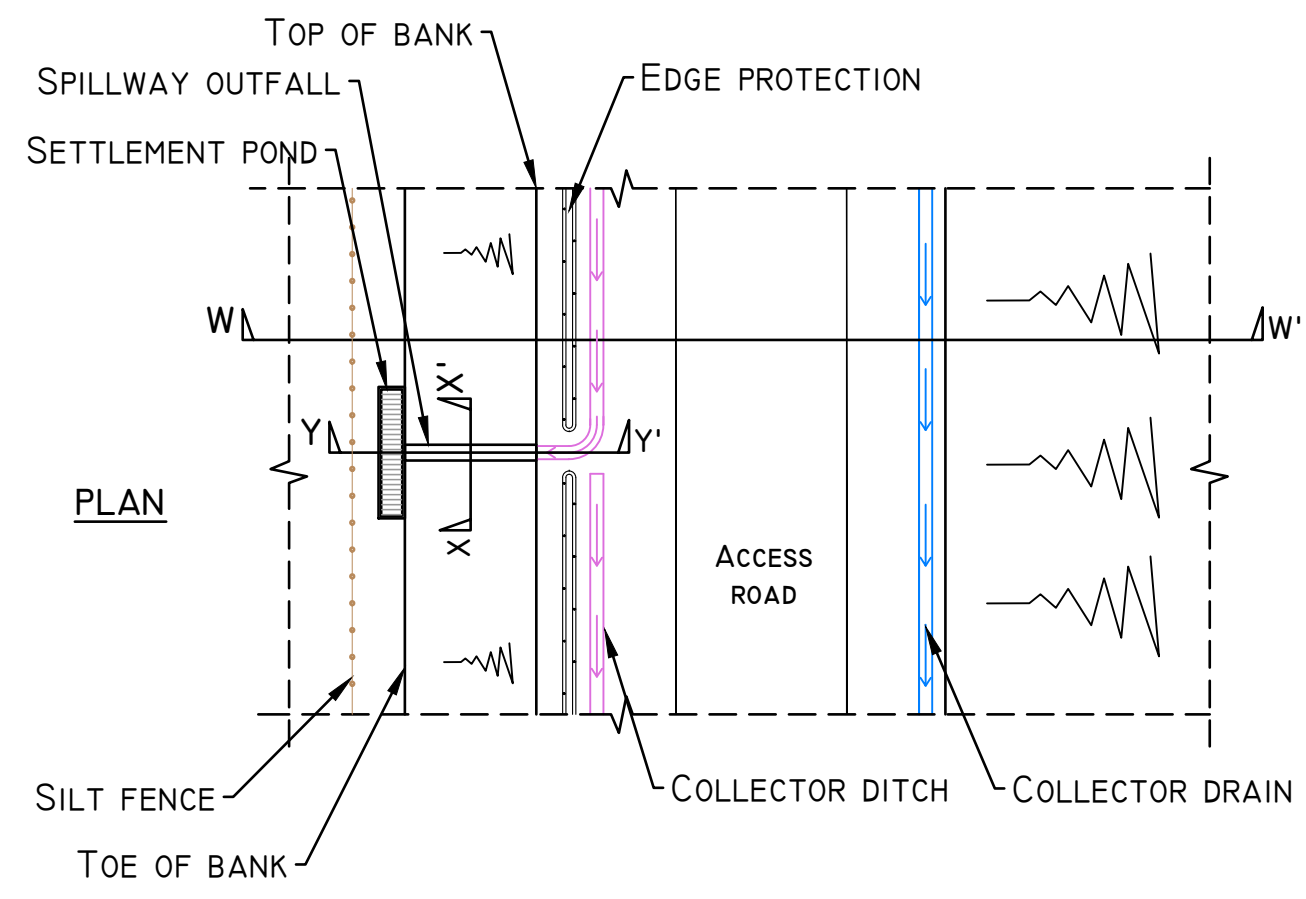
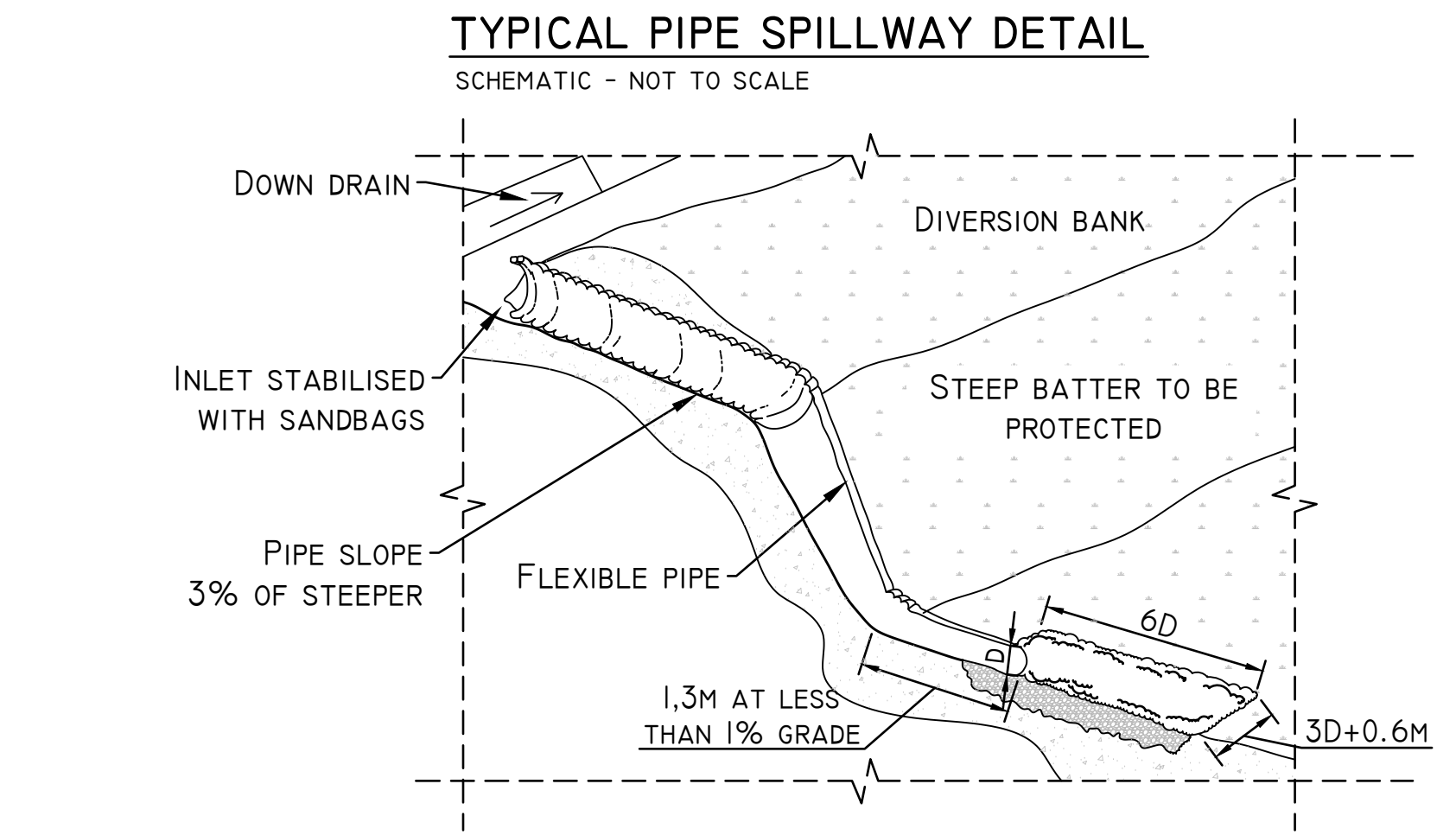
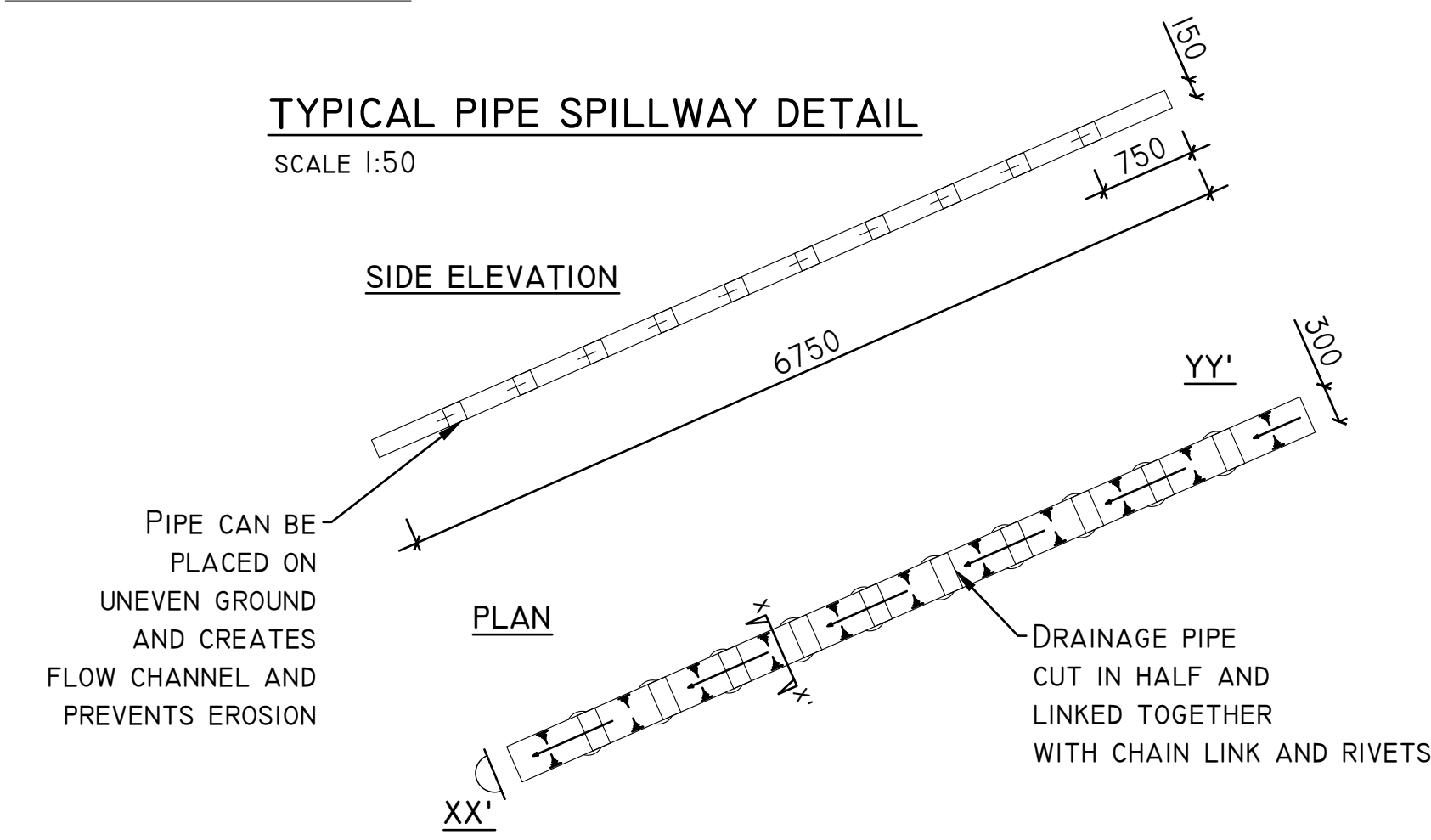
Date	Description	Chkd	Signed
12.12.17	Planning	MG	MG

Revisions

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Client:	MCCARTHY KEVILLE O'SULLIVAN
Job:	MEENBOG WIND FARM, Co. DONEGAL
Title:	DRAINAGE DETAILS 3
Figure No:	D503 (0502-70)
Drawing No:	P1249-2-1217-A1-D503(0502-70)-00A
Sheet Size:	A1
Project No.:	P1249-2
Scale:	as shown (A1)
Drawn By:	MG/GD
Date:	12/12/2017
Checked By:	M.G.

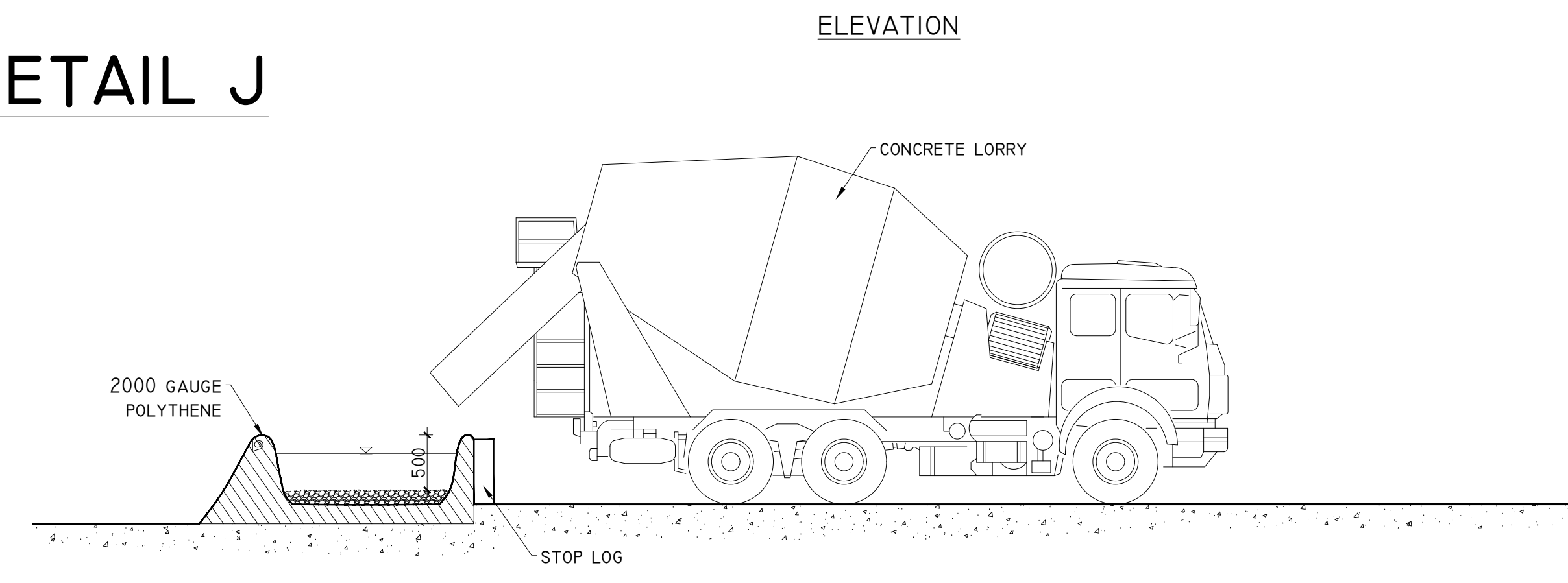
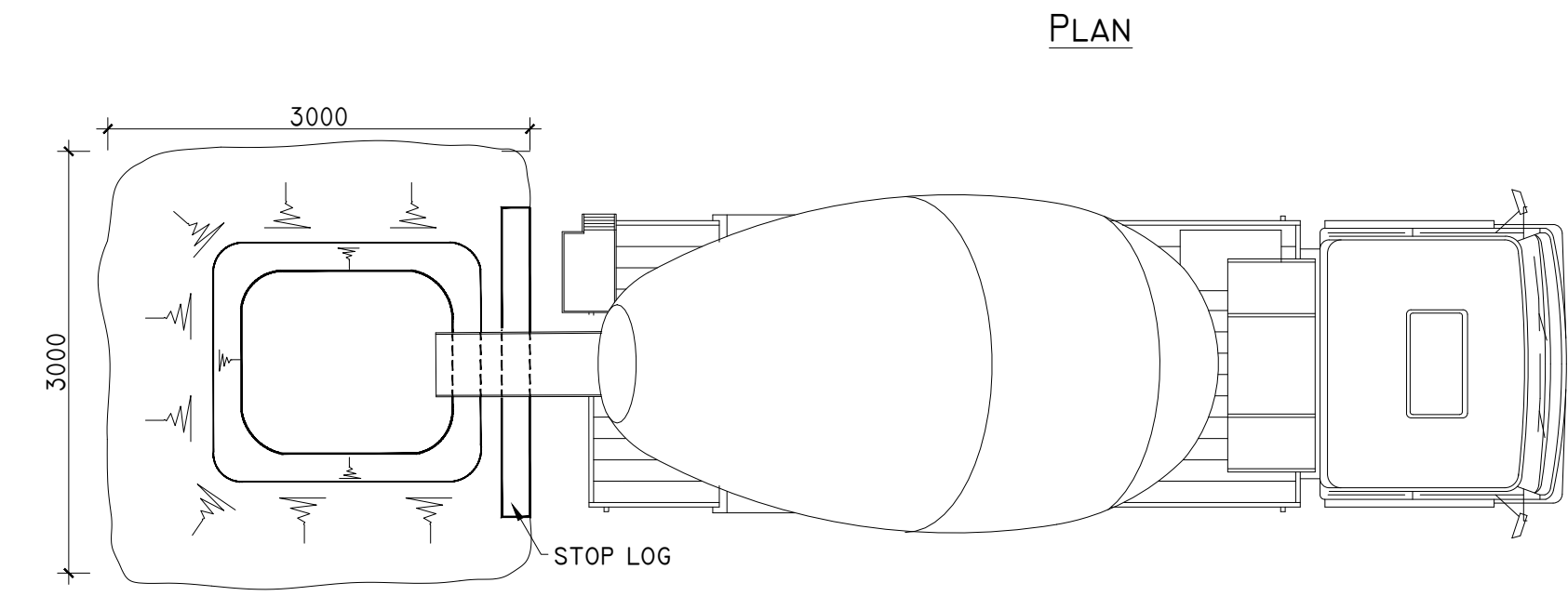
DETAIL H



SPILLWAY OUTFALL PLAN
SCHEMATIC - NOT TO SCALE

DETAIL I

TEMPORARY CONCRETE WASH OUT PIT
SCALE 1:50



DETAIL J

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Client: **MCCARTHY KEVILLE O'SULLIVAN**

Job: **MEENBOG WIND FARM, Co. DONEGAL**

Title: **DRAINAGE DETAILS 4**

Figure No: **D504 (0502-71)**

Drawing No: **P1249-2-1217-A1-D504(0502-71)-00A**

Sheet Size: A1	Project No.: P1249-2
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Date: 12/12/2017	Checked By: M.G.