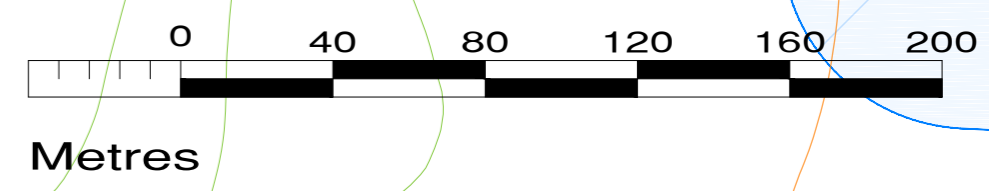
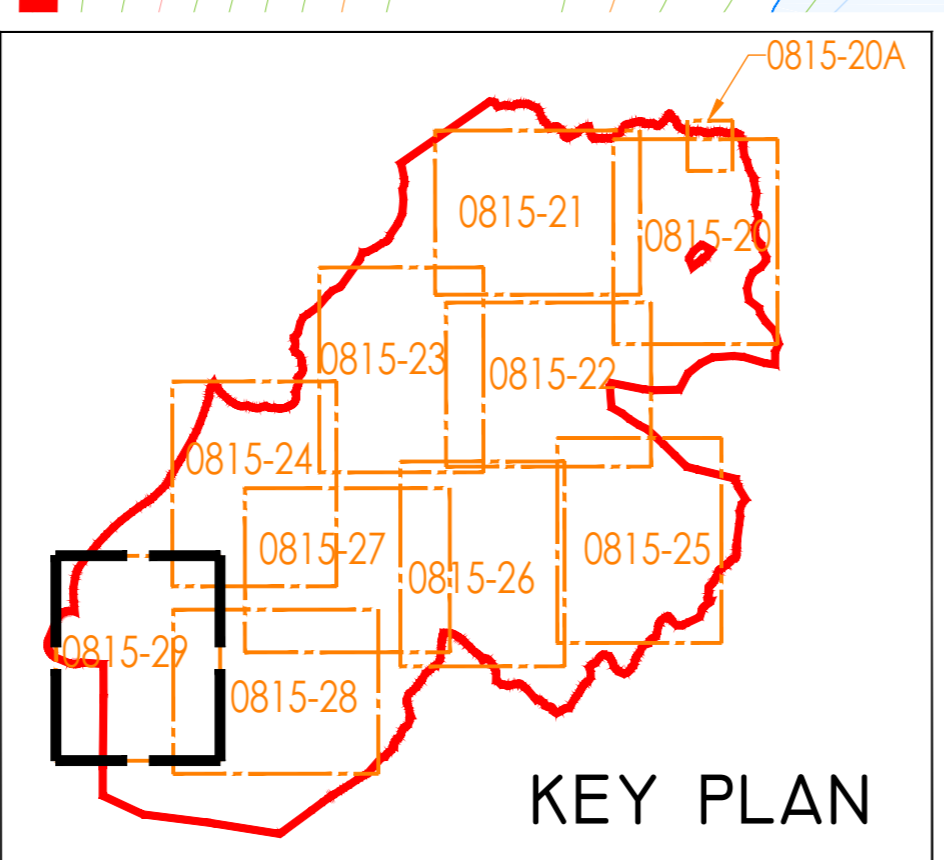


**DRAINAGE DESIGN NOTES**

1. ALL DRAINAGE SUBJECT TO MICRO-SITING AND OPTIMIZATION ON SITE.
2. THE LOCATIONS OF THE INTERCEPTOR DRAINS, CHECK DAMS, CULVERTS, SWALES, STILLING 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 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 THAN THE DESIGN ELEVATION OF THE WATER SURFACE IN THE OUTLET AT THE LEVEL SPREADER OR STILLING 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 LESS THAN THE 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 OR SUITABLE AREAS TO USE AS VEGETATION FILTERS WILL BE DETERMINED BY THE SIZE OF THE CONTRIBUTING CATCHMENT, SLOPE AND GROUND CONDITIONS.
10. STILLING 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 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 SHOULD BE INSTALLED AS CLOSE TO THE ROAD AS POSSIBLE.
15. DRAINAGE ASSIGNED TO FLOATING ROAD SECTIONS OF THE LAYOUT WILL BE SUBJECT TO FURTHER OPTIMISATION IN PARALLEL WITH DETAILED GEOTECHNICAL DESIGN.

Management Type	Description of SUDS Drainage Control Methods
AVANCE CONTROL	1) APPLICATION OF 50M BUFFER ZONES TO NATURAL WATERCOURSES WHERE POSSIBLE 2) APPLICATION OF 25M BUFFER ZONES TO ARTIFICIAL DRAINAGE SYSTEMS WHERE POSSIBLE 3) USING SMALL WORKING AREAS 4) WORKING IN APPROPRIATE WEATHER AND SUSPENDING CERTAIN WORK ACTIVITIES IN ADVANCE OF FORECASTED MET WEATHER
SOURCE CONTROL	1) USE OF UPSTREAM INTERCEPTOR DRAINS AND DOWNSTREAM COLLECTOR DRAINS / OVERSIZED SWALES, VEGETATED OVERLAND FLOWERS AND GULLY PIPES 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 LAYERS f) WEEDS OR RAFFLES g) LAND OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) USING SMALL WORKING AREAS 4) WEATHERING OFF / SEALING PEAT STOOPILES
IN-LINE CONTROL	1) INTERCEPTOR DRAINS, VEGETATED, OVERSIZED SWALES/COLLECTOR DRAINS 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 LAYERS f) WEEDS OR RAFFLES g) LAND OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 3) IN-STREAM SEDIMENTS 4) COLLECTION PUMPS, TEMPORARY SUPPLS, PUMPING SYSTEMS 5) ATTENUATION LAGOONS 6) SEGMENTED PANS, STILLING / SETTLEMENT PONDS
WATER TREATMENT CONTROL	1) TEMPORARY SUPPLS 2) ATTENUATION PONDS 3) TEMPORARY STORAGE LAGOONS 4) SEGMENTED PANS, STILLING / SETTLEMENT PONDS 5) PROPRIETARY SETTLEMENT SYSTEMS SUCH AS SILTTRAP, AND/OR OTHER SIMILAR/EQUIVALENT OR APPROPRIATE SYSTEMS 6) SILT DEWATERING BASIS
OUTFALL CONTROL	1) LEVEL SPREADERS 2) BUFFERED OUTFALLS 3) VEGETATION FILTERS 4) SILT DEWATERING BASIS 5) FLOW LAYERS AND WEEDS



DRAWING LEGEND :	
	RIVERS/STREAMS
	LAKES
	RIVERS/STREAMS 50M BUFFER
	LAKES 50M BUFFER
	EXISTING CULVERTS/BRIDGES
	UPSTREAM INTERCEPTOR DRAIN
	SWALES/DOWNSTREAM COLLECTOR DRAIN
	DIRECTION OF FLOW
	SILT FENCES
	DOUBLE/TRIPLE SILT FENCES
	SETTLEMENT POND - LEVEL SPREADER
	SETTLEMENT POND - VEGETATION FILTER - 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
	SITE BOUNDARY
	EXISTING GROUND SURFACE MAJOR CONTOUR (10 M INTERVAL)
	EXISTING GROUND SURFACE INTERMEDIATE CONTOUR (5 M INTERVAL)
	EXISTING GROUND SURFACE MINOR CONTOUR (1 M INTERVAL)
	TURBINE AND SWEEP AREA
	TURBINE FOUNDATION
	EXISTING ROAD
	EXISTING ROAD TO BE UPGRADED
	PROPOSED ROAD
	FLOATING ROAD
	CRANE PLATFORM
	BORROW PIT
	PROPOSED CUT AREA
	PROPOSED FILL AREA

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7.	LAYOUT PLANS SHOW TYPICAL TURBINE ROTOR DIAMETER AS PER TURBINE DRAWING.

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Date Description Chkd Signed

Revisions

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Client:	MCCARTHY KEVILLE O'SULLIVAN
Job:	ARDDERROO WF, Co. GALWAY
Title:	Drainage Layout Sheet 10 of 10
Figure No:	0815-29
Drawing No:	P1227-8-1118-A1-0815-29-00A
Sheet Size:	A1
Scale:	1:2,000 (A1)
Date:	21/11/2018
Project No.:	P1227-8
Drawn By:	GD
Checked By:	MG