Annex A

Drainage Management - General Arrangement

M01616-23_SWMP_01	M01616-23 Drainage GA Sheet 1
M01616-23_ SWMP _02	M01616-23 Drainage GA Sheet 2
M01616-23_ SWMP _03	M01616-23 Drainage GA Sheet 3
M01616-23_ SWMP _04	M01616-23 Drainage GA Sheet 4
M01616-23_ SWMP _05	M01616-23 Drainage GA Sheet 5
M01616-23_ SWMP _06	M01616-23 Drainage GA Sheet 6
M01616-23_ SWMP _07	M01616-23 Drainage GA Sheet 7
M01616-23_ SWMP_08	M01616-23 Drainage GA Sheet 8
M01616-23_ SWMP_09	M01616-23 Drainage GA Sheet 9
M01616-23_ SWMP_10	M01616-23 Drainage GA Sheet 10
M01616-23_ SWMP_11	M01616-23 Drainage GA Sheet 11
M01616-23_ SWMP_12	M01616-23 Drainage GA Sheet 12
M01616-23_ SWMP_13	M01616-23 Drainage GA Sheet 13
M01616-23_ SWMP_14	M01616-23 Drainage GA Sheet 14
M01616-23_ SWMP_15	M01616-23 Drainage GA Sheet 15
M01616-23_ SWMP_16	M01616-23 Drainage GA Sheet 16
M01616-23_ SWMP_17	M01616-23 Drainage GA Sheet 17
M01616-23_ SWMP_18	M01616-23 Drainage GA Sheet 18

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
28	Discharge to Watercourse via offsite outfall	4281	4.3	104	22 x 8 x 0.6
30	Discharge overland	1284	1.3	31	10 x 5 x 0.6

NOTES

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POLLUTION PREVENTION

6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
7. DRAINAGE / SILT MANAGEMENT FEATURES INCLUDING SETTLEMENT FEATURES AND DRAINAGE CROSSINGS TO BE INSTALLED PRIOR TO OR IN PARALLEL WITH ROAD CONSTRUCTION.
8. INTERIM MEASURES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS ROAD IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL IMPACTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
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10. OIL FUEL SHOULD BE STORED WITHIN CONTAINMENT AND CEMENT SHOULD BE MIXED WITHIN COMPOUND / CONTAINMENT, TOOLS WASHED IN THE SAME AREA AND WATER RECYCLED (IN THE CEMENT MIX).

TRACK / INFRASTRUCTURE DRAINAGE

11. TEMPORARY UPSLOPE CUTOFF / DIVERSION DRAINAGE TO BE INSTALLED IN ADVANCE OF MAIN EARTHWORKS IN AREAS INDICATED IN ORDER TO MINIMISE SURFACE WATER INGRESS TO EXCAVATIONS.
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WATERCOURSE & TRACK DRAINAGE CROSSINGS

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18. ALL HDPE PIPES SHALL BE TWINWALL TYPE, BBA HAPAS APPROVED.
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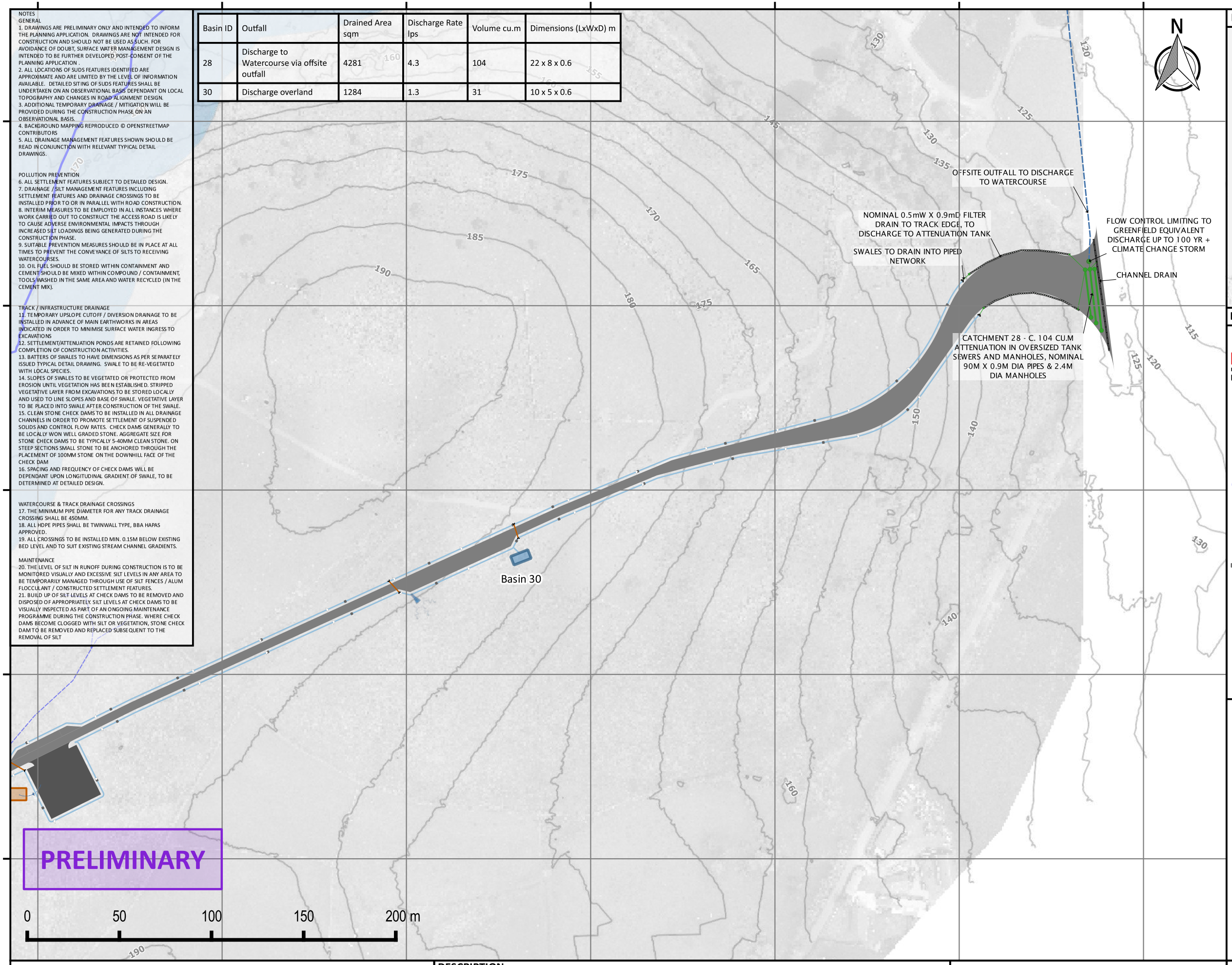
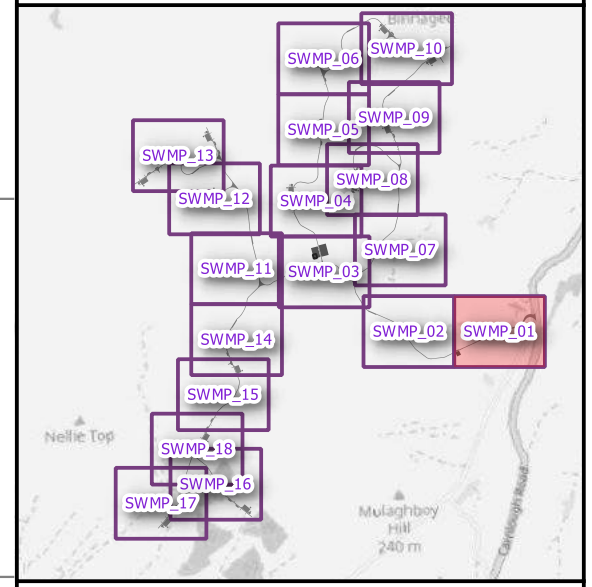


KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain
- Clean Drainage Pipe
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- Temporary Silt Fence
- Watercourse Crossings

POLLUTION PREVENTION GUIDANCE NOTES:

1. Suitable SUDS prevention measures should be in place at all times to prevent the conveyance of silts to receiving watercourses.

2. Temporary or permanent SuDS features should be installed BEFORE or adjacent to construction of new access road and hardstanding.

3. Clean water cutoff ditch and crossing should be planned and installed BEFORE construction. Clean water management must consider spoil deposition on the site.

4. Direct discharge of road drainage to watercourses shall not be permitted.

5. Buffer zones are to be maintained around all relevant watercourses as indicated on this drawing. No excavated material is to be stored within the buffer zone.

6. DO NOT pump water direct to watercourses.

7. DO NOT strip vegetation from existing ditches unless absolutely necessary.

8. If water pollution is identified the following steps should be adhered to:

STOP - Work in the immediate area should be stopped and the source of the pollution identified

CONTAIN - The source of the pollution should be bunded using a suitable method. Natural watercourses should be temporarily diverted around the source of pollution.

NOTIFY - The relevant authorities (Site Manager / NIEA) and Client/Developer should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 1

PROJECT / FIGURE NO.
M01616-23_SWMP_01

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
29	Discharge to Drain / Watercourse	5795	5.8	141	29 x 8 x 0.6

REF	DESCRIPTION
WX01	NEW MIN 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT), SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX02	NEW MIN 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT), SUBJECT TO DESIGN POST PLANNING APPROVAL.

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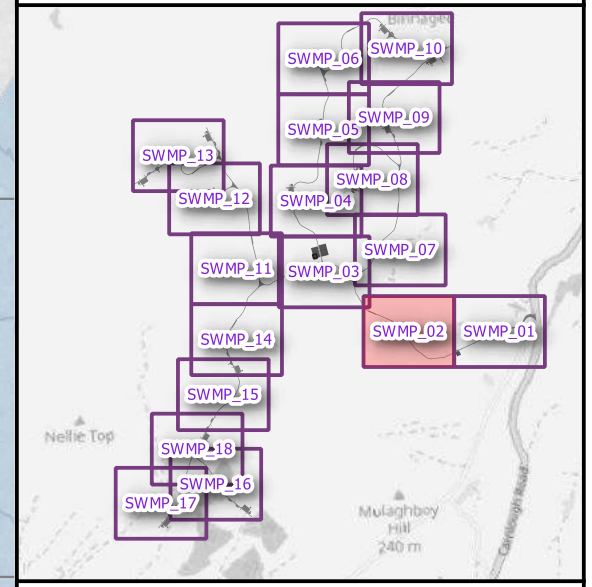
326100 326200 326300 326400 326500 326600
414500 414400 414300 414200 414100

Basin 29
WX02
WX01
Nellie Top
Mulaghboy Hill 240 m

PRELIMINARY

0 50 100 150 200 m

KEY PLAN



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Lower Ground (West),
Carnmoney Road North,
Newtownabbey BT36 5QA
T: 028 9084 8694
E: info@mccloyconsulting.com
w: www.mccloyconsulting.com

DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 2

PROJECT / FIGURE NO.
M01616-23_SWMP_02

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

res

325500 325600 325700 325800 325900 326000

414900 414800 414700 414600 414500

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
20	Discharge to Drain / Watercourse	13755	13.8	335	42 x 10 x 0.8
21	Discharge to Drain / Watercourse	1154	1.2	28	9 x 5 x 0.6
23	Discharge to Drain / Watercourse	1167	1.2	28	9 x 5 x 0.6
24	Discharge to Drain / Watercourse	873	0.9	21	7 x 5 x 0.6
25	Discharge to Drain / Watercourse	829	0.8	20	7 x 5 x 0.6
26	Discharge to Drain / Watercourse	583	0.6	14	5 x 5 x 0.6

REF	DESCRIPTION
WX03	NEW 1.1M (H) X 3M (SPAN) BOTTOMLESS CULVERT OR SPRUNG ARCH EQUIVALENT. SOFFIT LEVEL MIN 195m OD.
WX03.1	NEW 1.3M (H) X 3M (SPAN) BOTTOMLESS CULVERT OR SPRUNG ARCH EQUIVALENT. SOFFIT LEVEL MIN 196.3m OD.
WX09	NEW 1.8M (H) X 3M (SPAN) BOTTOMLESS CULVERT OR SPRUNG ARCH EQUIVALENT. SOFFIT MIN. 203.4 m OD.

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PRELIMINARY

0 50 100 150 200 m

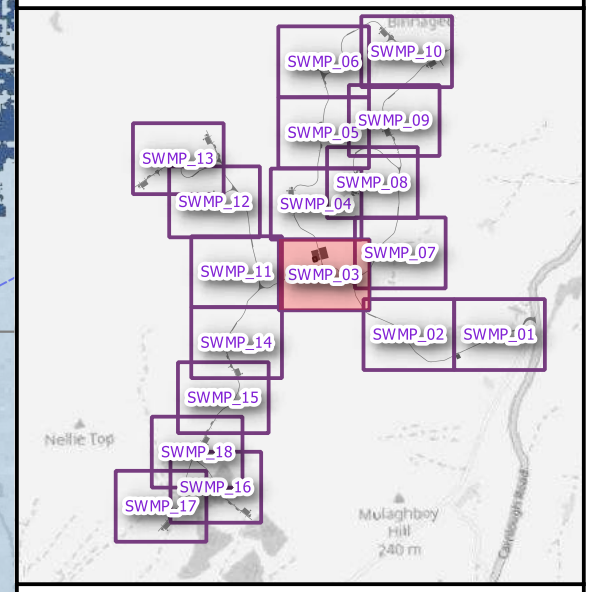
MAIN WATERCOURSE CROSSING PLUS 2 NO. 0.75M DIA FLOODPLAIN CONVEYANCE CULVERTS

MAIN WATERCOURSE CROSSING PLUS 2 NO. 0.9M DIA FLOODPLAIN CONVEYANCE CULVERTS

WX03.1 WX03 WX09

Basin 20 Basin 21 Basin 23 Basin 24 Basin 25 Basin 26

KEY PLAN



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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 3

PROJECT / FIGURE NO.
M01616-23_SWMP_03

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

res

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
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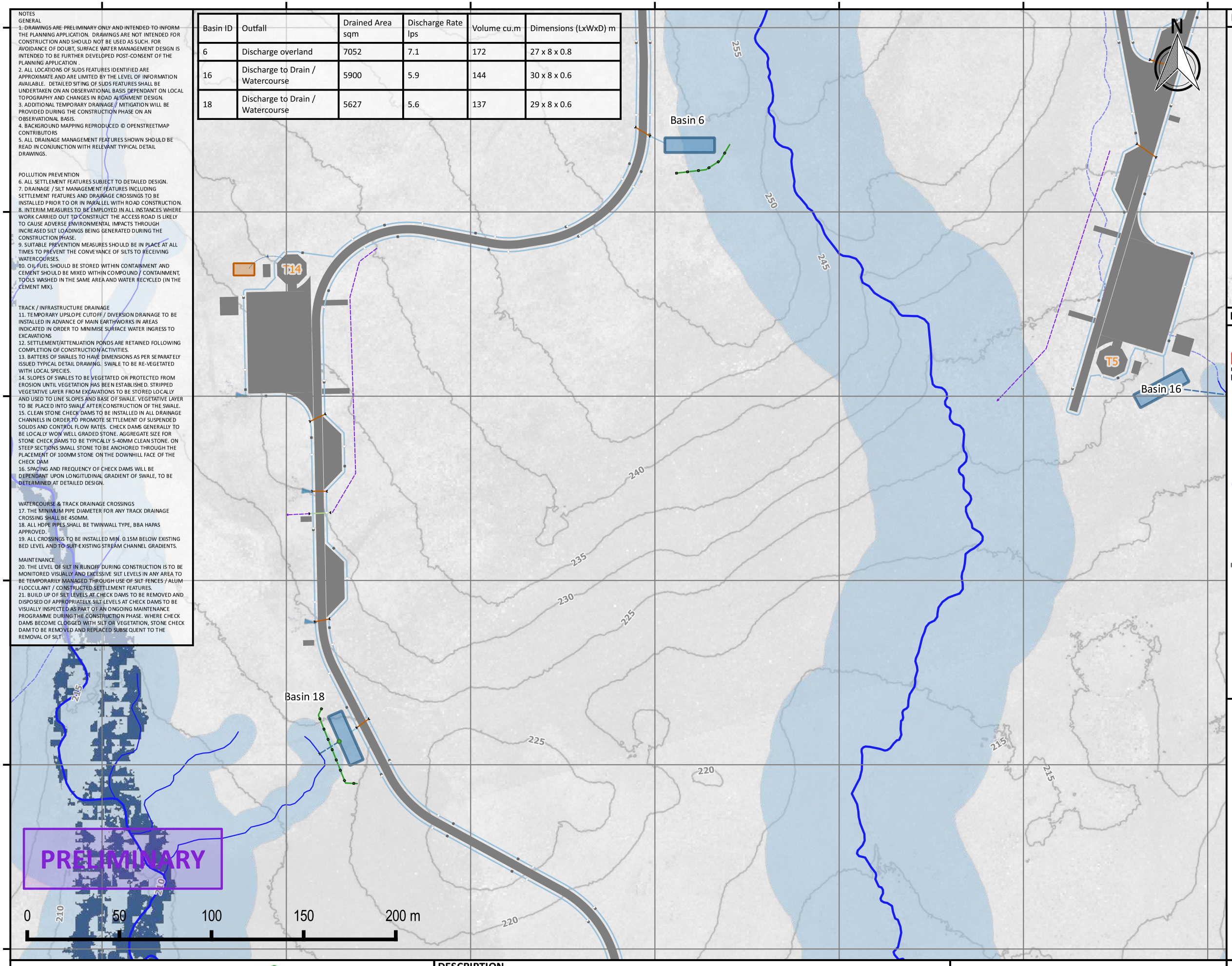
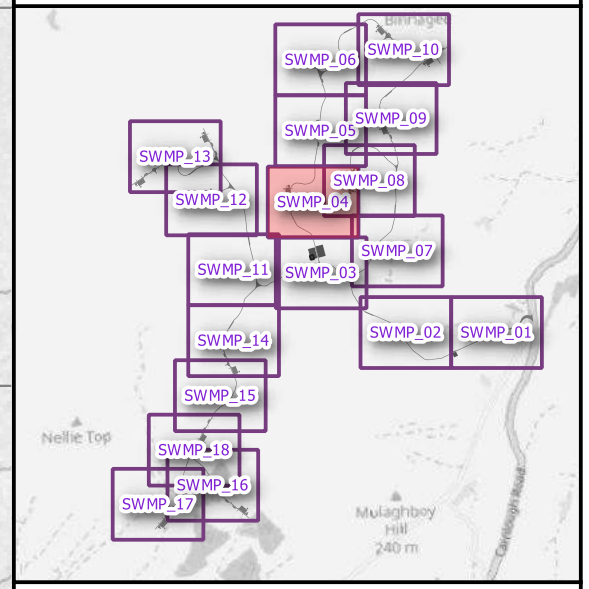


KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
- Attenuation Basin
- Settlement Basin
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w: www.mccloyconsulting.com

DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 4

PROJECT / FIGURE NO.
M01616-23_SWMP_04

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

NOTES

GENERAL

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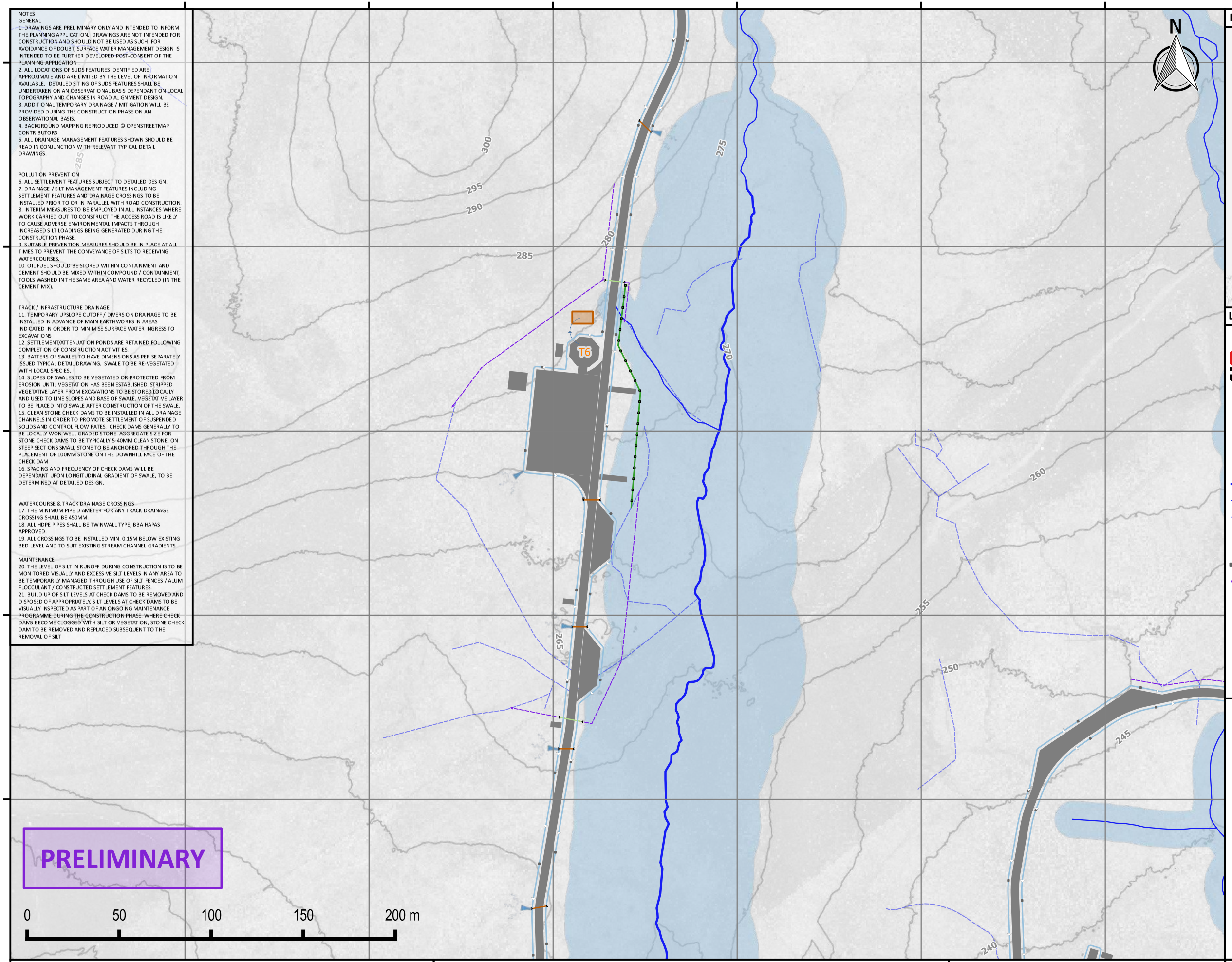
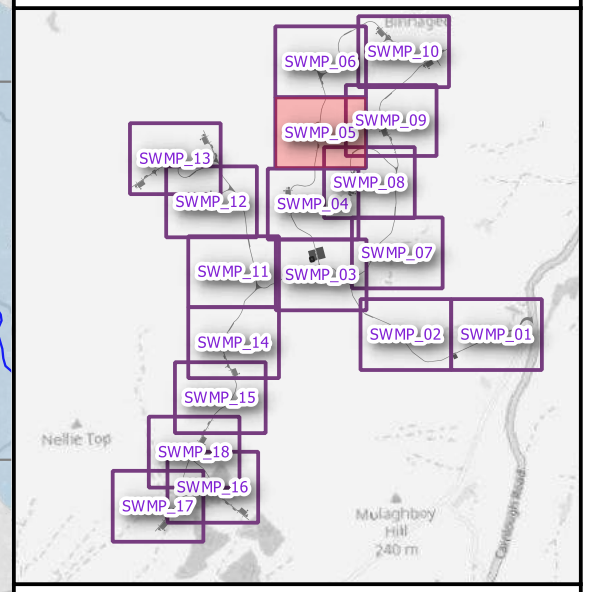


KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
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DESCRIPTION			
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 5			
PROJECT / FIGURE NO.			
M01616-23_SWMP_05			
DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

325500 325600 325700 325800 325900 326000

416500 416400 416300 416200 416100

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
2	Discharge to Drain / Watercourse	2969	3.0	72	24 x 5 x 0.6
4	Discharge to Drain / Watercourse	4545	4.5	111	23 x 8 x 0.6

REF	DESCRIPTION
WX08	NEW MIN. 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.

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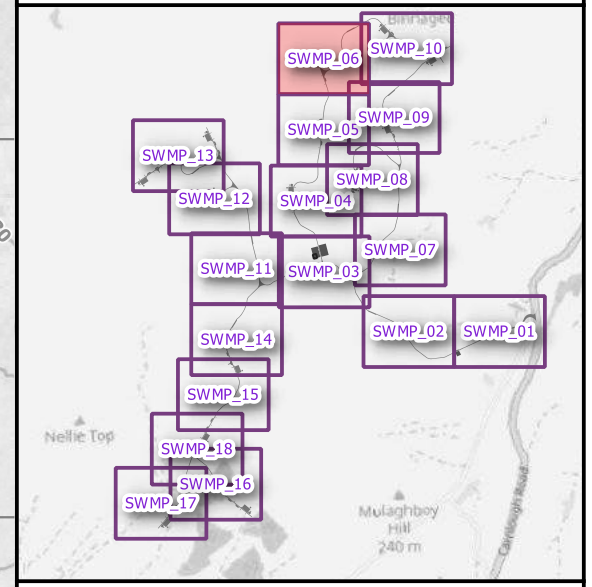
T4
WX08
Basin 2
Basin 4

PRELIMINARY

0 50 100 150 200 m

KEY PLAN



LEGEND

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 6

PROJECT / FIGURE NO.
M01616-23_SWMP_06

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

NOTES
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Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
19	Discharge to Drain / Watercourse	2002	2.0	49	16 x 5 x 0.6
20	Discharge to Drain / Watercourse	13755	13.8	335	42 x 10 x 0.8
21	Discharge to Drain / Watercourse	1154	1.2	28	9 x 5 x 0.6
24	Discharge to Drain / Watercourse	873	0.9	21	7 x 5 x 0.6

REF	DESCRIPTION
WX03.1	NEW 1.3M (H) X 3M (SPAN) BOTTOMLESS CULVERT OR SPRUNG ARCH EQUIVALENT. SOFFIT LEVEL MIN 196.3m OD.

326000 326100 326200 326300 326400 326500 326600
415100 415000 414900 414800 414700

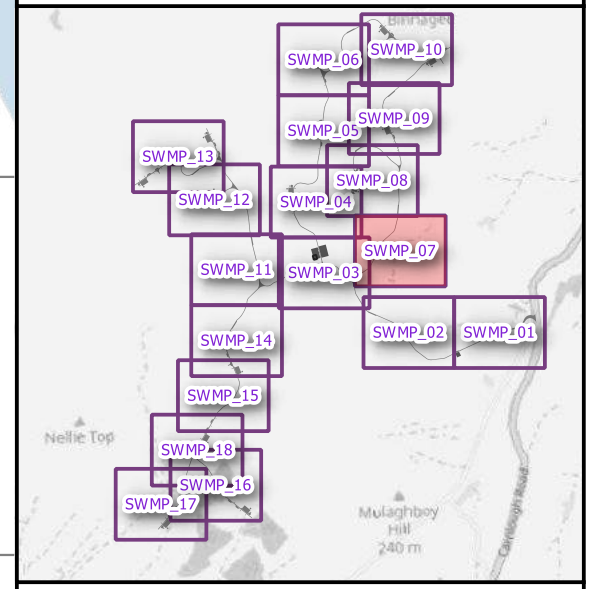
Basin 19
Basin 20
Basin 21
Basin 24
WX03.1
MAIN WATERCOURSE CROSSING PLUS 2 NO. 0.75M DIA FLOODPLAIN CONVEYANCE CULVERTS

PRELIMINARY

0 50 100 150 200 m

N

KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain
- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
- Attenuation Basin
- Settlement Basin
- Indicative pumped dewatering
- Temporary Silt Fence
- Watercourse Crossings

POLLUTION PREVENTION GUIDANCE NOTES:

1. Suitable SUDS prevention measures should be in place at all times to prevent the conveyance of silts to receiving watercourses.

2. Temporary or permanent SuDS features should be installed BEFORE or adjacent to construction of new access road and hardstanding.

3. Clean water cutoff ditch and crossing should be planned and installed BEFORE construction. Clean water management must consider spoil deposition on the site.

4. Direct discharge of road drainage to watercourses shall not be permitted.

5. Buffer zones are to be maintained around all relevant watercourses as indicated on this drawing. No excavated material is to be stored within the buffer zone.

6. DO NOT pump water direct to watercourses.

7. DO NOT strip vegetation from existing ditches unless absolutely necessary.

8. If water pollution is identified the following steps should be adhered to:

STOP - Work in the immediate area should be stopped and the source of the pollution identified

CONTAIN - The source of the pollution should be bunded using a suitable method. Natural watercourses should be temporarily diverted around the source of pollution.

NOTIFY - The relevant authorities (Site Manager / NIEA) and Client/Developer should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 7

PROJECT / FIGURE NO.
M01616-23_SWMP_07

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

325800 325900 326000 326100 326200 326300 326400

415600 415500 415400 415300 415200

NOTES
GENERAL
1. DRAWINGS ARE PRELIMINARY ONLY AND INTENDED TO INFORM THE PLANNING APPLICATION. DRAWINGS ARE NOT INTENDED FOR CONSTRUCTION AND SHOULD NOT BE USED AS SUCH. FOR AVOIDANCE OF DOUBT, SURFACE WATER MANAGEMENT DESIGN IS INTENDED TO BE FURTHER DEVELOPED POST-CONSENT OF THE PLANNING APPLICATION .
2. ALL LOCATIONS OF SUDS FEATURES IDENTIFIED ARE APPROXIMATE AND ARE LIMITED BY THE LEVEL OF INFORMATION AVAILABLE. DETAILED SITING OF SUDS FEATURES SHALL BE UNDERTAKEN ON AN OBSERVATIONAL BASIS DEPENDANT ON LOCAL TOPOGRAPHY AND CHANGES IN ROAD ALIGNMENT DESIGN.
3. ADDITIONAL TEMPORARY DRAINAGE / MITIGATION WILL BE PROVIDED DURING THE CONSTRUCTION PHASE ON AN OBSERVATIONAL BASIS.
4. BACKGROUND MAPPING REPRODUCED © OPENSTREETMAP CONTRIBUTORS
5. ALL DRAINAGE MANAGEMENT FEATURES SHOWN SHOULD BE READ IN CONJUNCTION WITH RELEVANT TYPICAL DETAIL DRAWINGS.

POLLUTION PREVENTION
6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
7. DRAINAGE / SILT MANAGEMENT FEATURES INCLUDING SETTLEMENT FEATURES AND DRAINAGE CROSSINGS TO BE INSTALLED PRIOR TO OR IN PARALLEL WITH ROAD CONSTRUCTION.
8. INTERIM MEASURES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS ROAD IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL IMPACTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
9. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SILTS TO RECEIVING WATERCOURSES.
10. OIL FUEL SHOULD BE STORED WITHIN CONTAINMENT AND CEMENT SHOULD BE MIXED WITHIN COMPOUND / CONTAINMENT, TOOLS WASHED IN THE SAME AREA AND WATER RECYCLED (IN THE CEMENT MIX).

TRACK / INFRASTRUCTURE DRAINAGE
11. TEMPORARY UPSLOPE CUTOFF / DIVERSION DRAINAGE TO BE INSTALLED IN ADVANCE OF MAIN EARTHWORKS IN AREAS INDICATED IN ORDER TO MINIMISE SURFACE WATER INGRESS TO EXCAVATIONS.
12. SETTLEMENT/ATTENUATION PONDS ARE RETAINED FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.
13. BATTERS OF SWALES TO HAVE DIMENSIONS AS PER SEPARATELY ISSUED TYPICAL DETAIL DRAWING. SWALE TO BE RE-VEGETATED WITH LOCAL SPECIES.
14. SLOPES OF SWALES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALE. VEGETATIVE LAYER TO BE PLACED INTO SWALE AFTER CONSTRUCTION OF THE SWALE.
15. CLEAN STONE CHECK DAMS TO BE INSTALLED IN ALL DRAINAGE CHANNELS IN ORDER TO PROMOTE SETTLEMENT OF SUSPENDED SOLIDS AND CONTROL FLOW RATES. CHECK DAMS GENERALLY TO BE LOCALLY WON WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 5-40MM CLEAN STONE. ON STEEP SECTIONS SMALL STONE TO BE ANCHORED THROUGH THE PLACEMENT OF 100MM STONE ON THE DOWNHILL FACE OF THE CHECK DAM
16. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDANT UPON LONGITUDINAL GRADIENT OF SWALE, TO BE DETERMINED AT DETAILED DESIGN.

WATERCOURSE & TRACK DRAINAGE CROSSINGS
17. THE MINIMUM PIPE DIAMETER FOR ANY TRACK DRAINAGE CROSSING SHALL BE 450MM.
18. ALL HDPE PIPES SHALL BE TWINWALL TYPE, BBA HAPAS APPROVED.
19. ALL CROSSINGS TO BE INSTALLED MIN. 0.15M BELOW EXISTING BED LEVEL AND TO SUIT EXISTING STREAM CHANNEL GRADIENTS.

MAINTENANCE
20. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED THROUGH USE OF SILT FENCES / ALUM FLOCCULANT / CONSTRUCTED SETTLEMENT FEATURES.
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Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
7	Discharge to Drain / Watercourse	6448	6.4	157	25 x 8 x 0.8
9	Discharge to Drain / Watercourse	541	0.5	13	4 x 5 x 0.6
10	Discharge to Drain / Watercourse	563	0.6	14	5 x 5 x 0.6
13	Discharge overland	1672	1.7	41	14 x 5 x 0.6
16	Discharge to Drain / Watercourse	5900	5.9	144	30 x 8 x 0.6

REF	DESCRIPTION
WX04	NEW MIN 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT), SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX05	NEW MIN. 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.

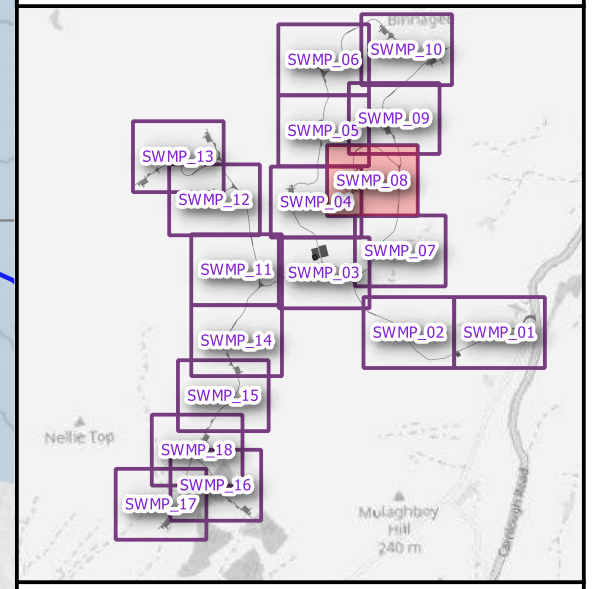
Basin 9
Basin 10
Basin 7
WX05
T5
Basin 16
Basin 13
260 255 250 245 240 235 230 225 220 215 210

PRELIMINARY

0 50 100 150 200 m

N

KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain
- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
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- Indicative pumped dewatering
- Temporary Silt Fence
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POLLUTION PREVENTION GUIDANCE NOTES:

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4. Direct discharge of road drainage to watercourses shall not be permitted.

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w: www.mccloyconsulting.com

DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 8

PROJECT / FIGURE NO.
M01616-23_SWMP_08

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

res

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
5	Discharge to Drain / Watercourse	630	0.6	15	5 x 5 x 0.6
7	Discharge to Drain / Watercourse	6448	6.4	157	25 x 8 x 0.8
9	Discharge to Drain / Watercourse	541	0.5	13	4 x 5 x 0.6
10	Discharge to Drain / Watercourse	563	0.6	14	5 x 5 x 0.6

REF	DESCRIPTION
WX04	NEW MIN 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT), SUBJECT TO DESIGN POST PLANNING APPROVAL.

NOTES
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POLLUTION PREVENTION
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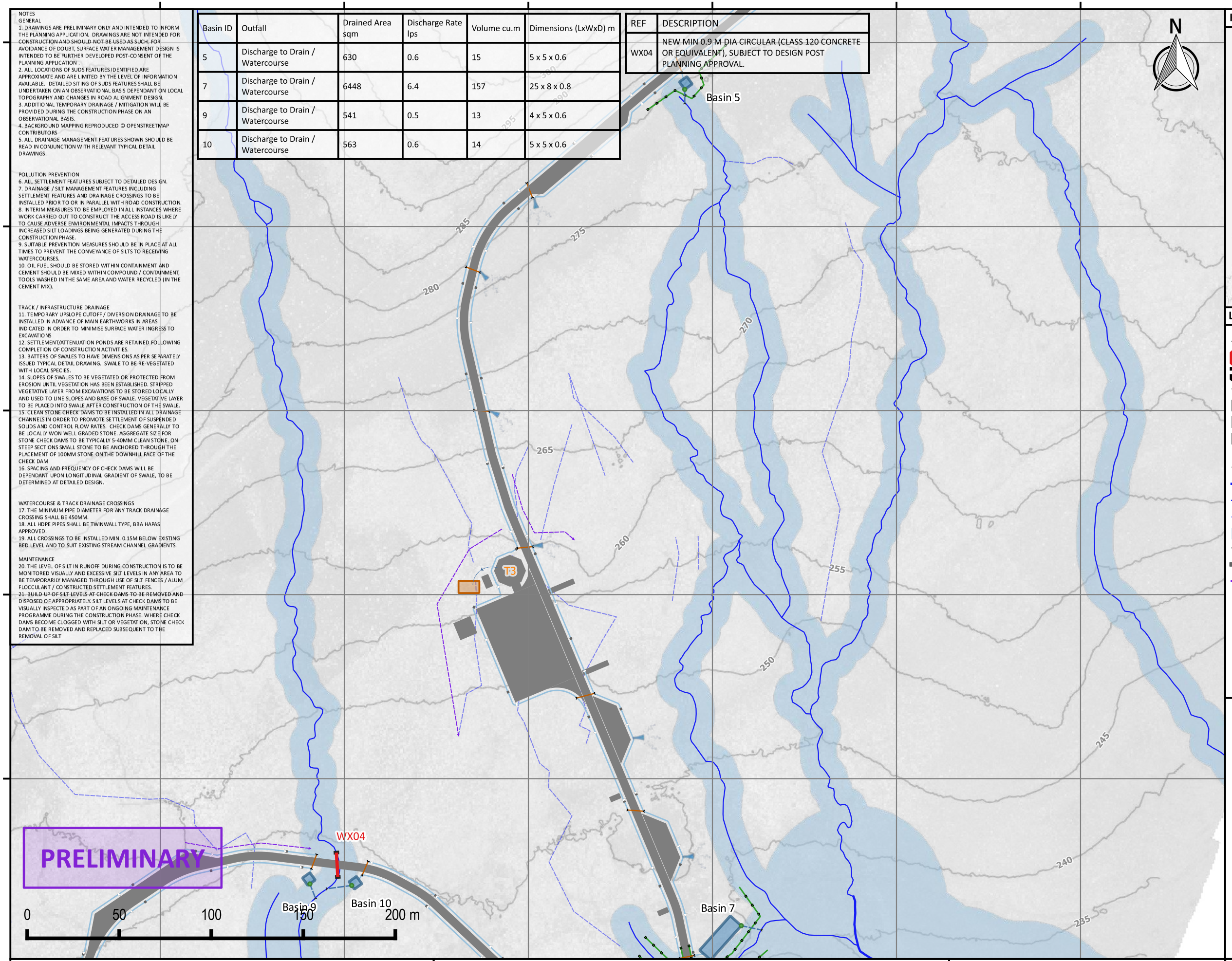
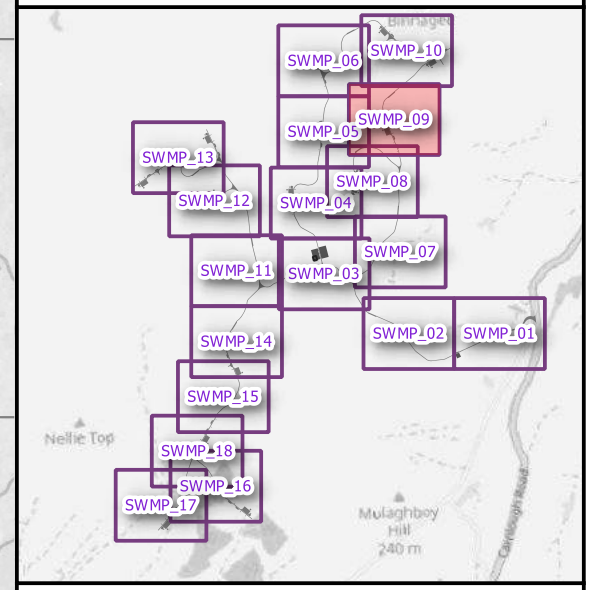


KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
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- Hydrological buffers (10m/50m)

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- Outfall, Flow Control
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- Settlement Basin
- Indicative pumped dewatering
- Temporary Silt Fence
- Watercourse Crossings

POLLUTION PREVENTION GUIDANCE NOTES:

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 9

PROJECT / FIGURE NO.
M01616-23_SWMP_09

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

NOTES
GENERAL
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4. BACKGROUND MAPPING REPRODUCED © OPENSTREETMAP CONTRIBUTORS
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POLLUTION PREVENTION
6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
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TRACK / INFRASTRUCTURE DRAINAGE
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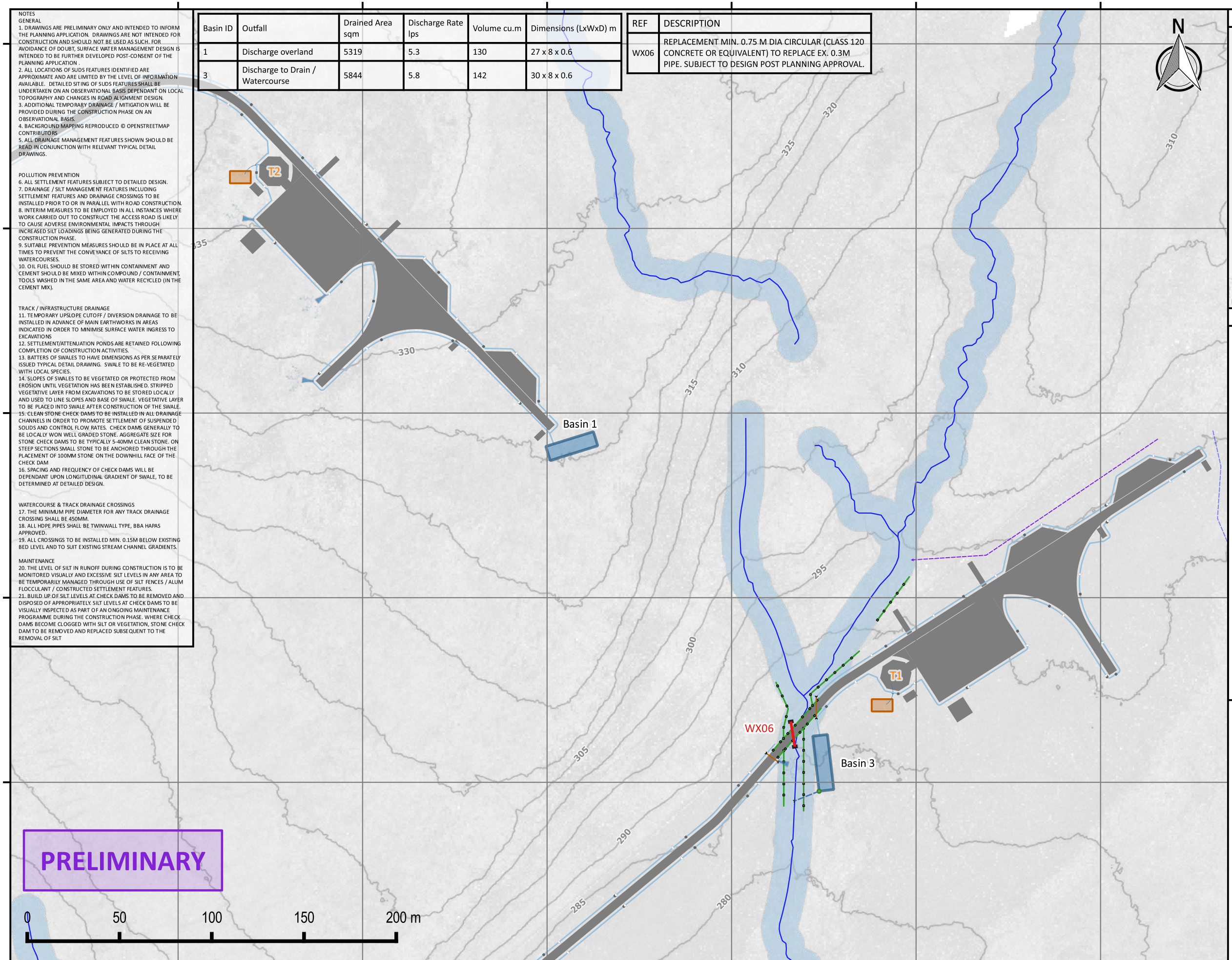
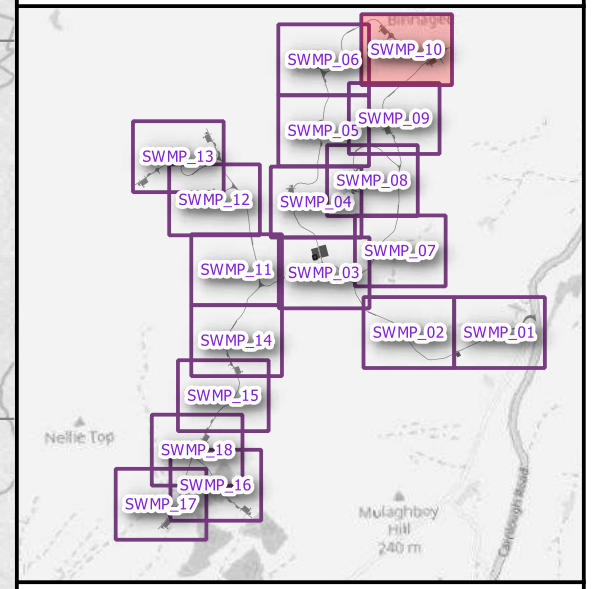
Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
1	Discharge overland	5319	5.3	130	27 x 8 x 0.6
3	Discharge to Drain / Watercourse	5844	5.8	142	30 x 8 x 0.6

REF	DESCRIPTION
WX06	REPLACEMENT MIN. 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) TO REPLACE EX. 0.3M PIPE. SUBJECT TO DESIGN POST PLANNING APPROVAL.



PRELIMINARY

KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
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NOTIFY - The relevant authorities (Site Manager / NIEA) and Client/Developer should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 10

PROJECT / FIGURE NO.
M01616-23_SWMP_10

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
22	Discharge to Drain / Watercourse	3343	3.3	81	27 x 5 x 0.6

NOTES
GENERAL
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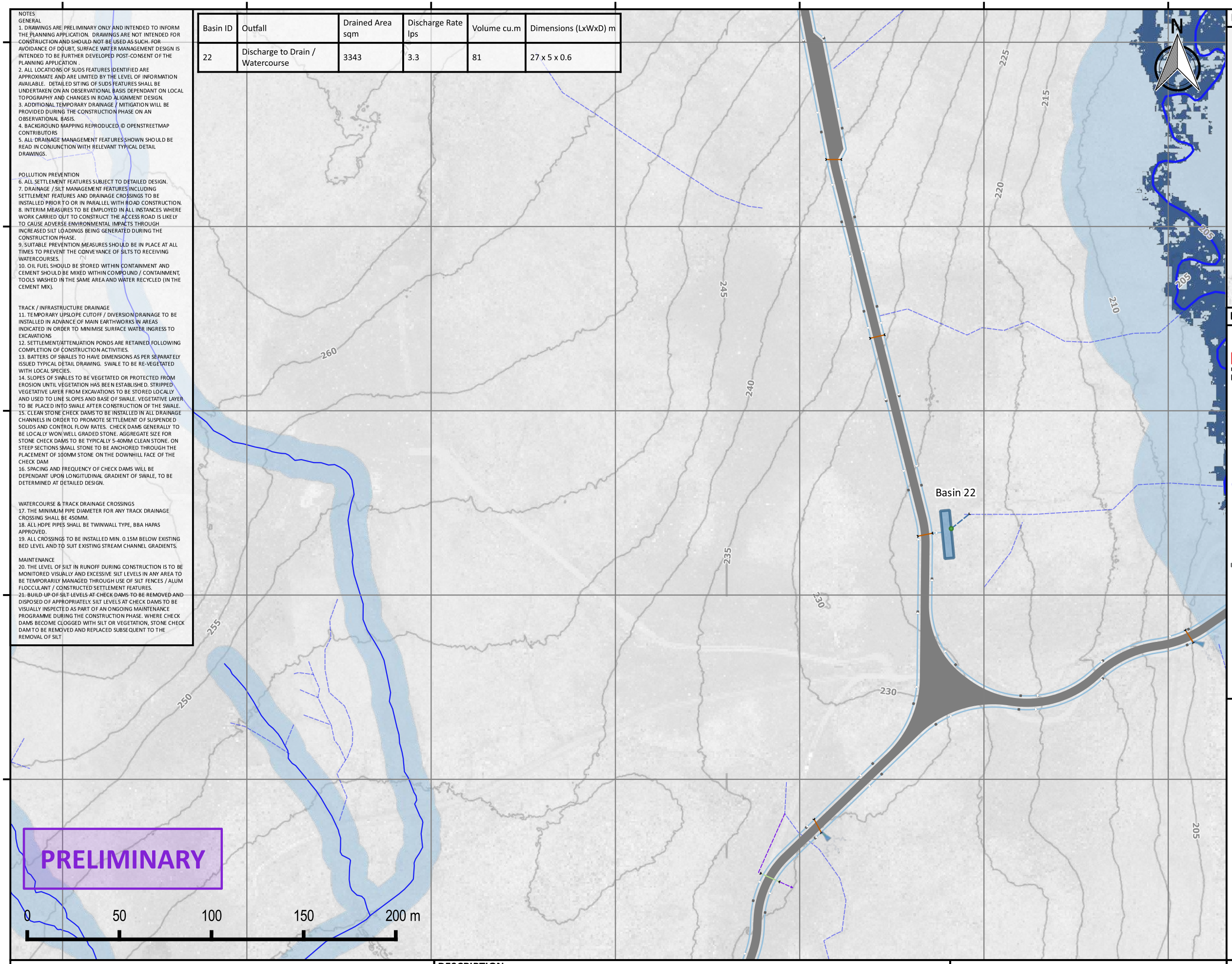
2. ALL LOCATIONS OF SUDS FEATURES IDENTIFIED ARE APPROXIMATE AND ARE LIMITED BY THE LEVEL OF INFORMATION AVAILABLE. DETAILED SITING OF SUDS FEATURES SHALL BE UNDERTAKEN ON AN OBSERVATIONAL BASIS DEPENDANT ON LOCAL TOPOGRAPHY AND CHANGES IN ROAD ALIGNMENT DESIGN.
3. ADDITIONAL TEMPORARY DRAINAGE / MITIGATION WILL BE PROVIDED DURING THE CONSTRUCTION PHASE ON AN OBSERVATIONAL BASIS.
4. BACKGROUND MAPPING REPRODUCED © OPENSTREETMAP CONTRIBUTORS
5. ALL DRAINAGE MANAGEMENT FEATURES SHOWN SHOULD BE READ IN CONJUNCTION WITH RELEVANT TYPICAL DETAIL DRAWINGS.

POLLUTION PREVENTION
6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
7. DRAINAGE / SILT MANAGEMENT FEATURES INCLUDING SETTLEMENT FEATURES AND DRAINAGE CROSSINGS TO BE INSTALLED PRIOR TO OR IN PARALLEL WITH ROAD CONSTRUCTION.
8. INTERIM MEASURES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS ROAD IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL IMPACTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
9. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SILTS TO RECEIVING WATERCOURSES.
10. OIL FUEL SHOULD BE STORED WITHIN CONTAINMENT AND CEMENT SHOULD BE MIXED WITHIN COMPOUND / CONTAINMENT, TOOLS WASHED IN THE SAME AREA AND WATER RECYCLED (IN THE CEMENT MIX).

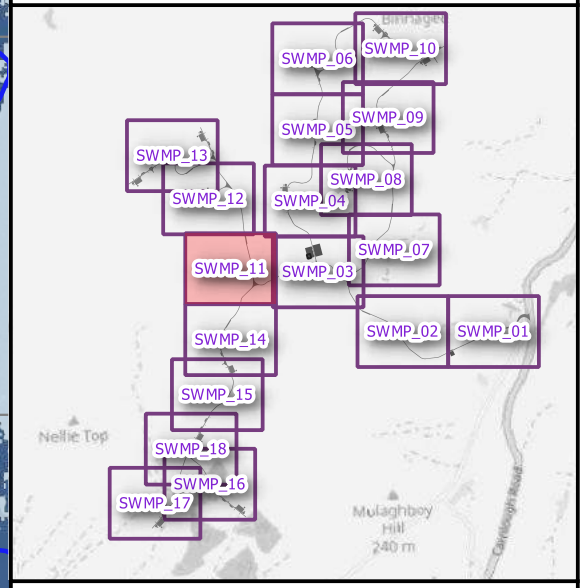
TRACK / INFRASTRUCTURE DRAINAGE
11. TEMPORARY UPSLOPE CUTOFF / DIVERSION DRAINAGE TO BE INSTALLED IN ADVANCE OF MAIN EARTHWORKS IN AREAS INDICATED IN ORDER TO MINIMISE SURFACE WATER INGRESS TO EXCAVATIONS.
12. SETTLEMENT/ATTENUATION PONDS ARE RETAINED FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.
13. BATTERS OF SWALES TO HAVE DIMENSIONS AS PER SEPARATELY ISSUED TYPICAL DETAIL DRAWING. SWALE TO BE RE-VEGETATED WITH LOCAL SPECIES.
14. SLOPES OF SWALES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALE. VEGETATIVE LAYER TO BE PLACED INTO SWALE AFTER CONSTRUCTION OF THE SWALE.
15. CLEAN STONE CHECK DAMS TO BE INSTALLED IN ALL DRAINAGE CHANNELS IN ORDER TO PROMOTE SETTLEMENT OF SUSPENDED SOLIDS AND CONTROL FLOW RATES. CHECK DAMS GENERALLY TO BE LOCALLY WON WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 5-40MM CLEAN STONE. ON STEEP SECTIONS SMALL STONE TO BE ANCHORED THROUGH THE PLACEMENT OF 100MM STONE ON THE DOWNHILL FACE OF THE CHECK DAM
16. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDANT UPON LONGITUDINAL GRADIENT OF SWALE, TO BE DETERMINED AT DETAILED DESIGN.

WATERCOURSE & TRACK DRAINAGE CROSSINGS
17. THE MINIMUM PIPE DIAMETER FOR ANY TRACK DRAINAGE CROSSING SHALL BE 450MM.
18. ALL HDPE PIPES SHALL BE TWINWALL TYPE, BBA HAPAS APPROVED.
19. ALL CROSSINGS TO BE INSTALLED MIN. 0.15M BELOW EXISTING BED LEVEL AND TO SUIT EXISTING STREAM CHANNEL GRADIENTS.

MAINTENANCE
20. THE LEVEL OF SILT IN RUNOFF DURING CONSTRUCTION IS TO BE MONITORED VISUALLY AND EXCESSIVE SILT LEVELS IN ANY AREA TO BE TEMPORARILY MANAGED THROUGH USE OF SILT FENCES / ALUM FLOCCULANT / CONSTRUCTED SETTLEMENT FEATURES.
21. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT



KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain
- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
- Attenuation Basin
- Settlement Basin
- Indicative pumped dewatering
- Temporary Silt Fence
- Watercourse Crossings

POLLUTION PREVENTION GUIDANCE NOTES:

1. Suitable SUDS prevention measures should be in place at all times to prevent the conveyance of silts to receiving watercourses.

2. Temporary or permanent SuDS features should be installed BEFORE or adjacent to construction of new access road and hardstanding.

3. Clean water cutoff ditch and crossing should be planned and installed BEFORE construction. Clean water management must consider spoil deposition on the site.

4. Direct discharge of road drainage to watercourses shall not be permitted.

5. Buffer zones are to be maintained around all relevant watercourses as indicated on this drawing. No excavated material is to be stored within the buffer zone.

6. DO NOT pump water direct to watercourses.

7. DO NOT strip vegetation from existing ditches unless absolutely necessary.

8. If water pollution is identified the following steps should be adhered to:

STOP - Work in the immediate area should be stopped and the source of the pollution identified

CONTAIN - The source of the pollution should be bunded using a suitable method. Natural watercourses should be temporarily diverted around the source of pollution.

NOTIFY - The relevant authorities (Site Manager / NIEA) and Client/Developer should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 11

PROJECT / FIGURE NO.
M01616-23_SWMP_11

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

res

NOTES
GENERAL
1. DRAWINGS ARE PRELIMINARY ONLY AND INTENDED TO INFORM THE PLANNING APPLICATION. DRAWINGS ARE NOT INTENDED FOR CONSTRUCTION AND SHOULD NOT BE USED AS SUCH. FOR AVOIDANCE OF DOUBT, SURFACE WATER MANAGEMENT DESIGN IS INTENDED TO BE FURTHER DEVELOPED POST-CONSENT OF THE PLANNING APPLICATION .
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4. BACKGROUND MAPPING REPRODUCED © OPENSTREETMAP CONTRIBUTORS
5. ALL DRAINAGE MANAGEMENT FEATURES SHOWN SHOULD BE READ IN CONJUNCTION WITH RELEVANT TYPICAL DETAIL DRAWINGS.

POLLUTION PREVENTION
6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
7. DRAINAGE / SILT MANAGEMENT FEATURES INCLUDING SETTLEMENT FEATURES AND DRAINAGE CROSSINGS TO BE INSTALLED PRIOR TO OR IN PARALLEL WITH ROAD CONSTRUCTION.
8. INTERIM MEASURES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS ROAD IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL IMPACTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
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10. OIL FUEL SHOULD BE STORED WITHIN CONTAINMENT AND CEMENT SHOULD BE MIXED WITHIN COMPOUND / CONTAINMENT, TOOLS WASHED IN THE SAME AREA AND WATER RECYCLED (IN THE CEMENT MIX).

TRACK / INFRASTRUCTURE DRAINAGE
11. TEMPORARY UPSLOPE CUTOFF / DIVERSION DRAINAGE TO BE INSTALLED IN ADVANCE OF MAIN EARTHWORKS IN AREAS INDICATED IN ORDER TO MINIMISE SURFACE WATER INGRESS TO EXCAVATIONS.
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MAINTENANCE
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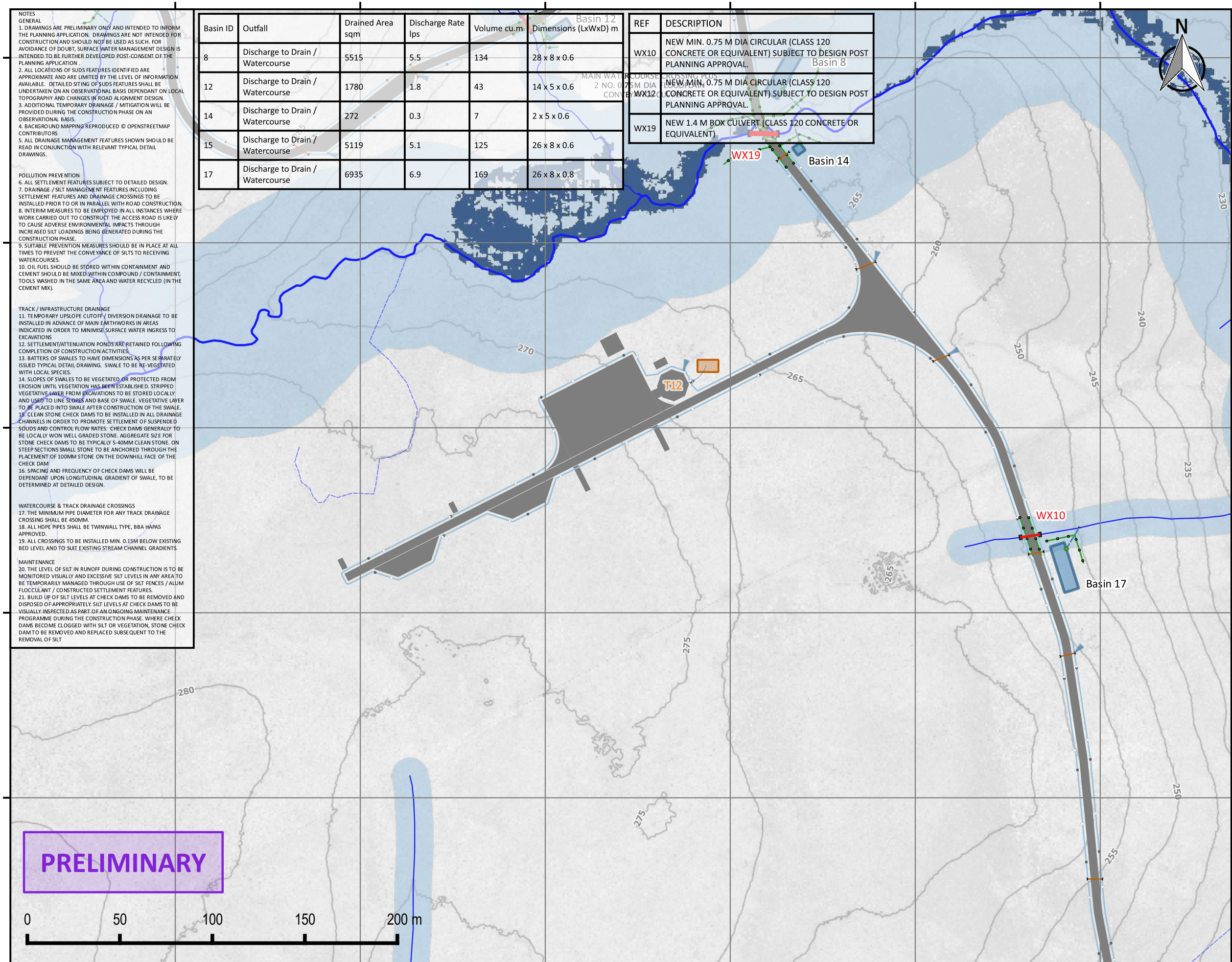
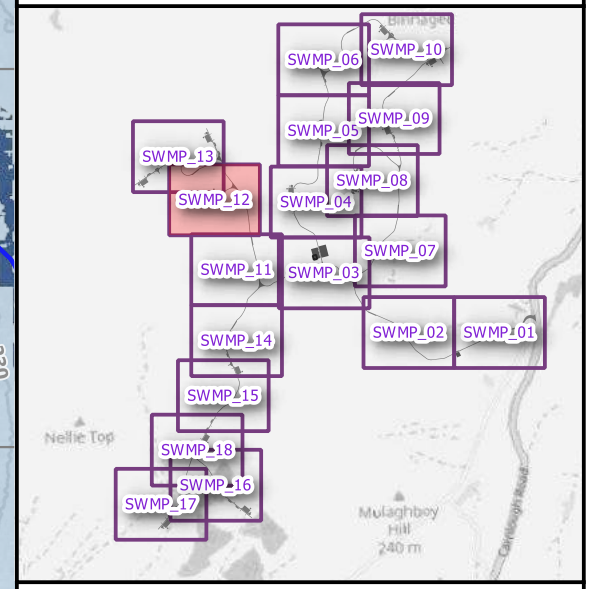
Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
8	Discharge to Drain / Watercourse	5515	5.5	134	28 x 8 x 0.6
12	Discharge to Drain / Watercourse	1780	1.8	43	14 x 5 x 0.6
14	Discharge to Drain / Watercourse	272	0.3	7	2 x 5 x 0.6
15	Discharge to Drain / Watercourse	5119	5.1	125	26 x 8 x 0.6
17	Discharge to Drain / Watercourse	6935	6.9	169	26 x 8 x 0.8

REF	DESCRIPTION
WX10	NEW MIN. 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX12	NEW MIN. 0.75 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX19	NEW 1.4 M BOX CULVERT (CLASS 120 CONCRETE OR EQUIVALENT)



KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
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Track Drainage Features
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- Clean Drainage Pipe
- Dirty Track Drainage Pipe
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- Temporary Silt Fence
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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 12

PROJECT / FIGURE NO.
M01616-23_SWMP_12

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

NOTES
GENERAL
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POLLUTION PREVENTION
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TRACK / INFRASTRUCTURE DRAINAGE
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Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
12	Discharge to Drain / Watercourse	1780	1.8	43	14 x 5 x 0.6
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REF	DESCRIPTION
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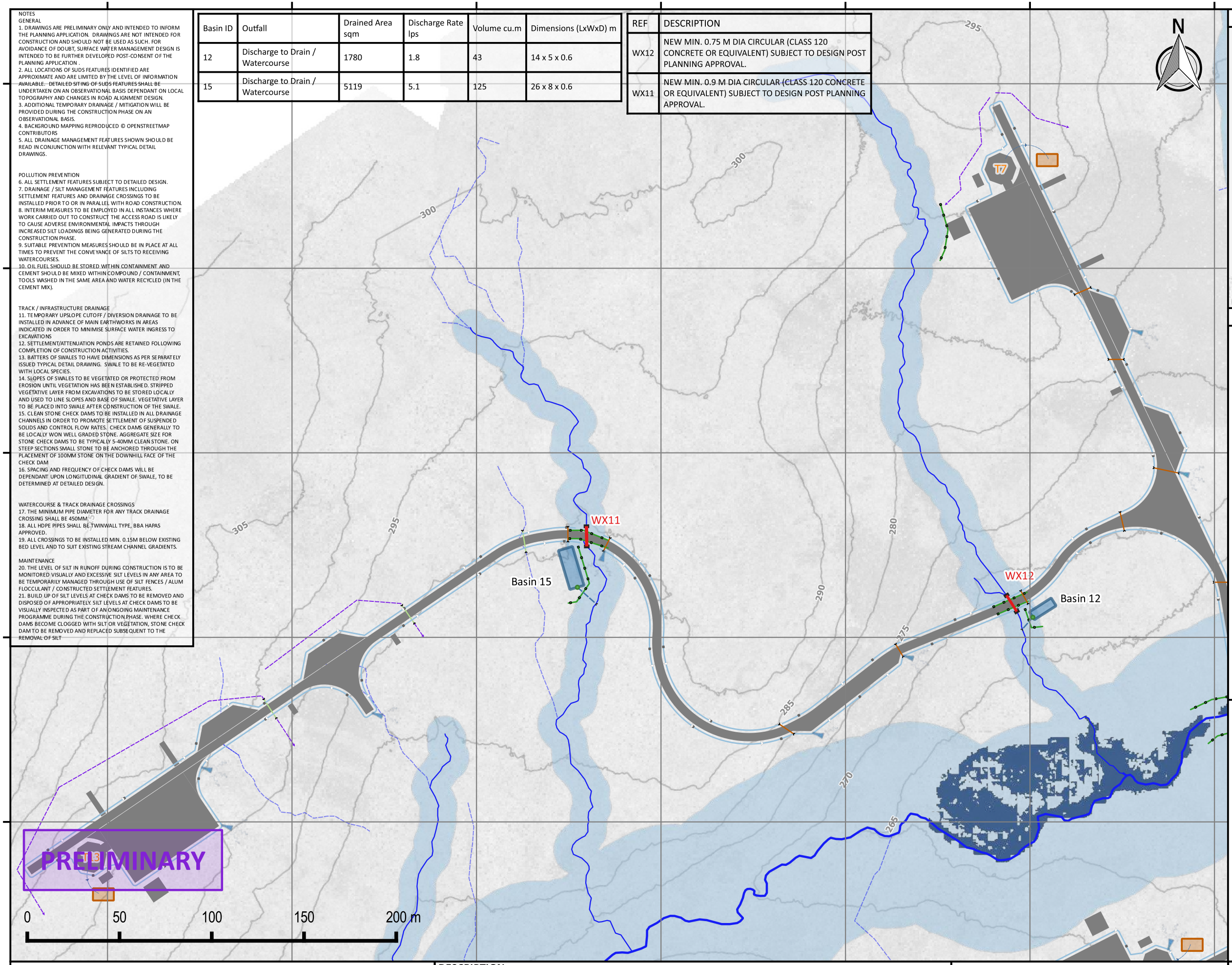
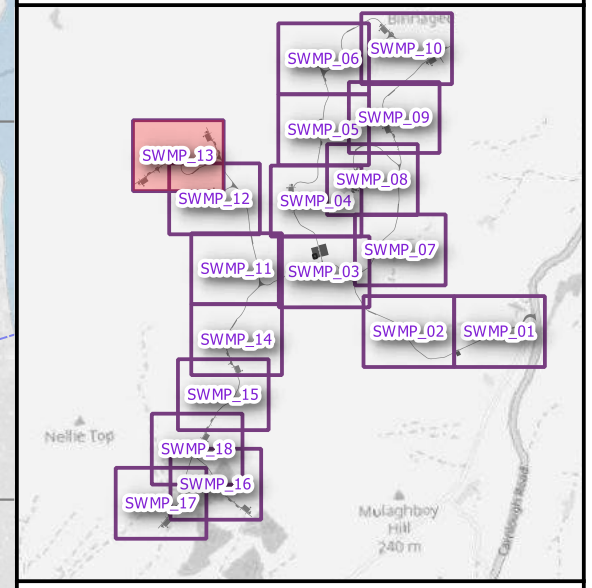
WX11	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.



KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
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- Dirty Track Drainage Pipe
- Outfall, Flow Control
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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 13

PROJECT / FIGURE NO.
M01616-23_SWMP_13

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

res

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
27	Discharge to Drain / Watercourse	2601	2.6	63	21 x 5 x 0.6

REF	DESCRIPTION
WX13	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.

NOTES

GENERAL

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POLLUTION PREVENTION

6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
7. DRAINAGE / SILT MANAGEMENT FEATURES INCLUDING SETTLEMENT FEATURES AND DRAINAGE CROSSINGS TO BE INSTALLED PRIOR TO OR IN PARALLEL WITH ROAD CONSTRUCTION.
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9. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SILTS TO RECEIVING WATERCOURSES.
10. OIL FUEL SHOULD BE STORED WITHIN CONTAINMENT AND CEMENT SHOULD BE MIXED WITHIN COMPOUND / CONTAINMENT, TOOLS WASHED IN THE SAME AREA AND WATER RECYCLED (IN THE CEMENT MIX).

TRACK / INFRASTRUCTURE DRAINAGE

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WATERCOURSE & TRACK DRAINAGE CROSSINGS

17. THE MINIMUM PIPE DIAMETER FOR ANY TRACK DRAINAGE CROSSING SHALL BE 450MM.
18. ALL HDPE PIPES SHALL BE TWINWALL TYPE, BBA HAPAS APPROVED.
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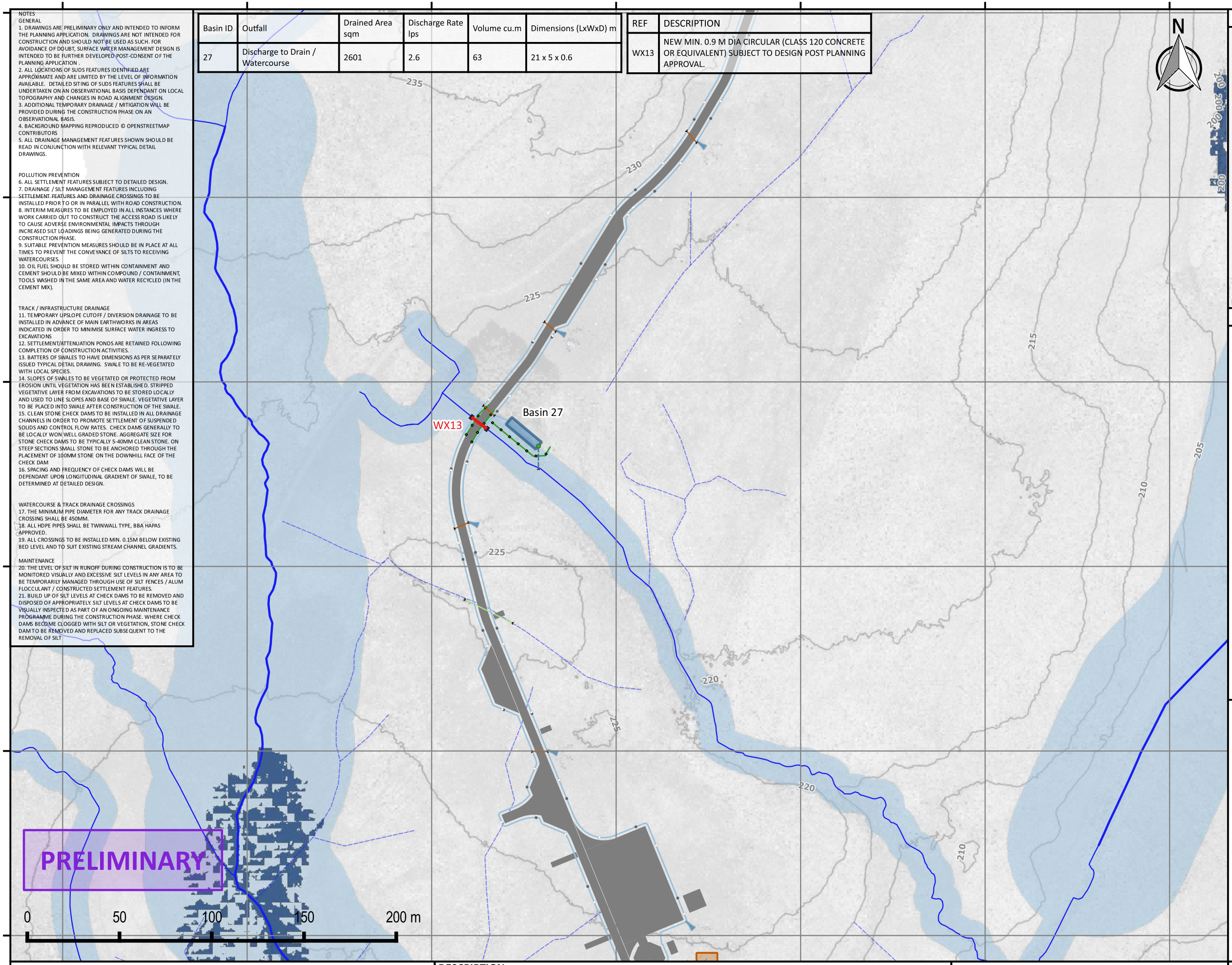
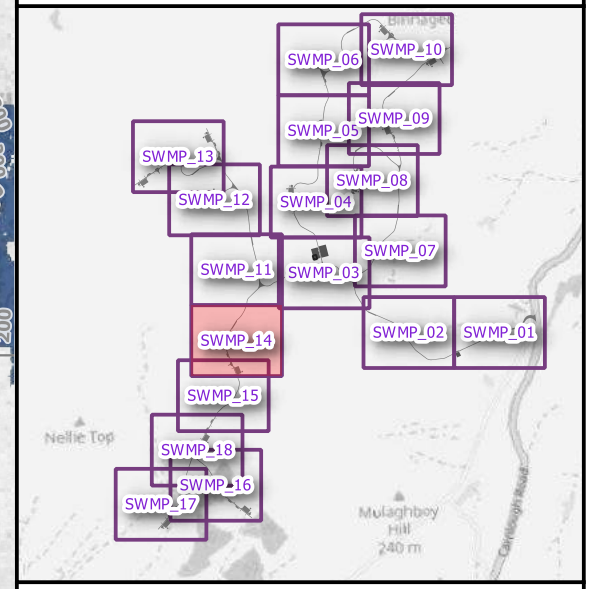


KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain
- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
- Attenuation Basin
- Settlement Basin
- Indicative pumped dewatering
- Temporary Silt Fence
- Watercourse Crossings

POLLUTION PREVENTION GUIDANCE NOTES:

1. Suitable SUDS prevention measures should be in place at all times to prevent the conveyance of silts to receiving watercourses.

2. Temporary or permanent SuDS features should be installed BEFORE or adjacent to construction of new access road and hardstanding.

3. Clean water cutoff ditch and crossing should be planned and installed BEFORE construction. Clean water management must consider spoil deposition on the site.

4. Direct discharge of road drainage to watercourses shall not be permitted.

5. Buffer zones are to be maintained around all relevant watercourses as indicated on this drawing. No excavated material is to be stored within the buffer zone.

6. DO NOT pump water direct to watercourses.

7. DO NOT strip vegetation from existing ditches unless absolutely necessary.

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NOTIFY - The relevant authorities (Site Manager / NIEA) and Client/Developer should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 14

PROJECT / FIGURE NO.
M01616-23_SWMP_14

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

res

Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
31	Discharge to Drain / Watercourse	5361	5.4	131	27 x 8 x 0.6
32	Discharge to Drain / Watercourse	1770	1.8	43	14 x 5 x 0.6

REF	DESCRIPTION
WX14	NEW 1.2M (H) X 2.5 (SPAN) BOTTOMLESS CULVERT OR SPRUNG ARCH EQUIVALENT SOFFIT MIN. 210.4 m OD.

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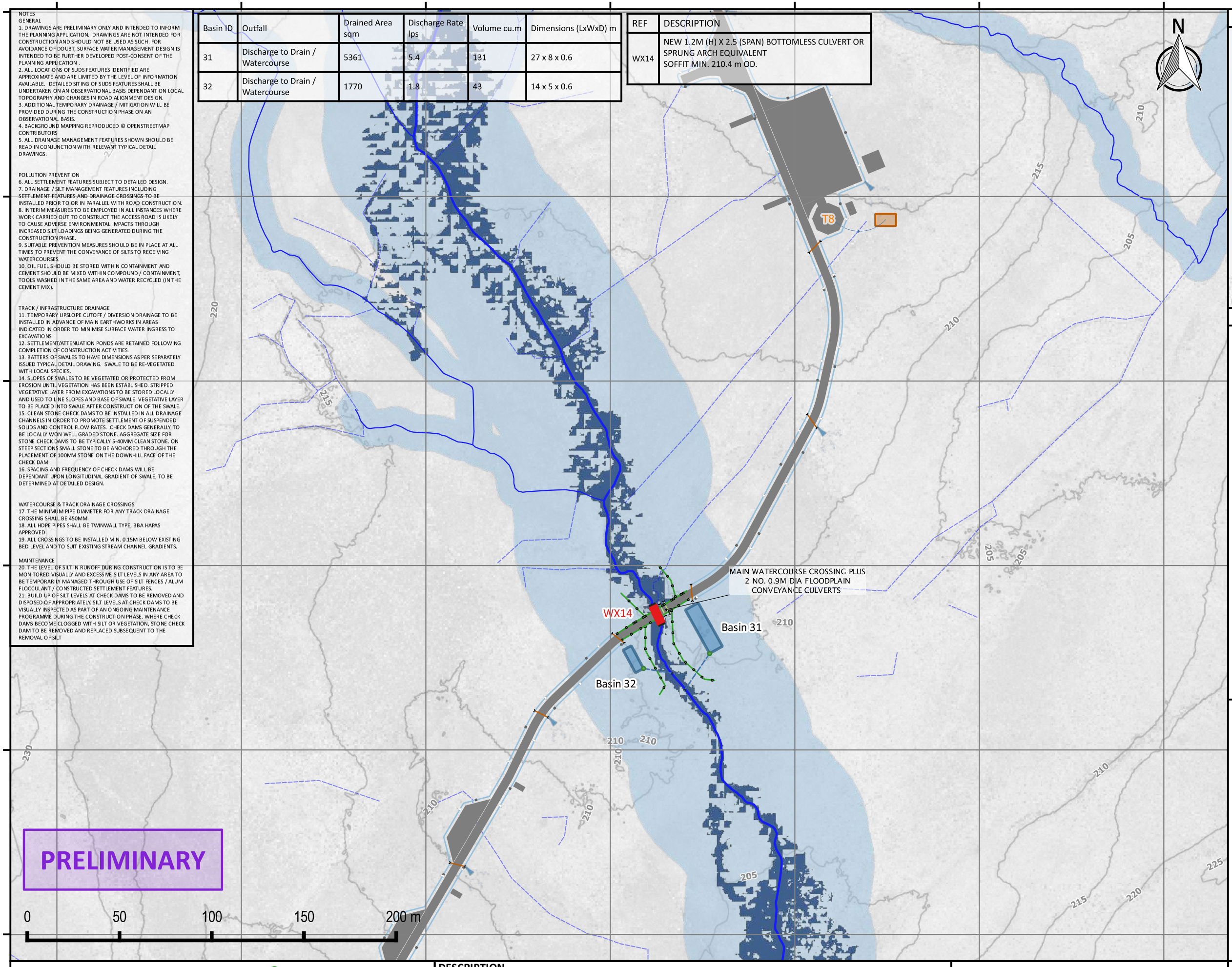
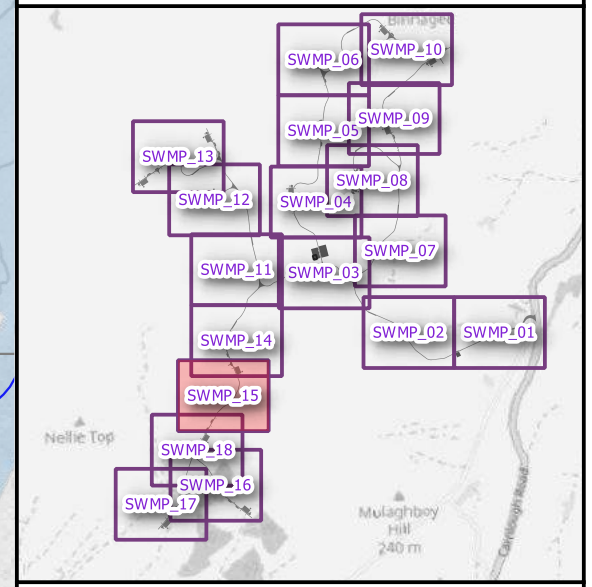


PRELIMINARY

KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)
- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
- Attenuation Basin
- Settlement Basin
- Indicative pumped dewatering
- Temporary Silt Fence
- Watercourse Crossings

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain

POLLUTION PREVENTION GUIDANCE NOTES:

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 15

PROJECT / FIGURE NO.
M01616-23_SWMP_15

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

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NOTES
GENERAL
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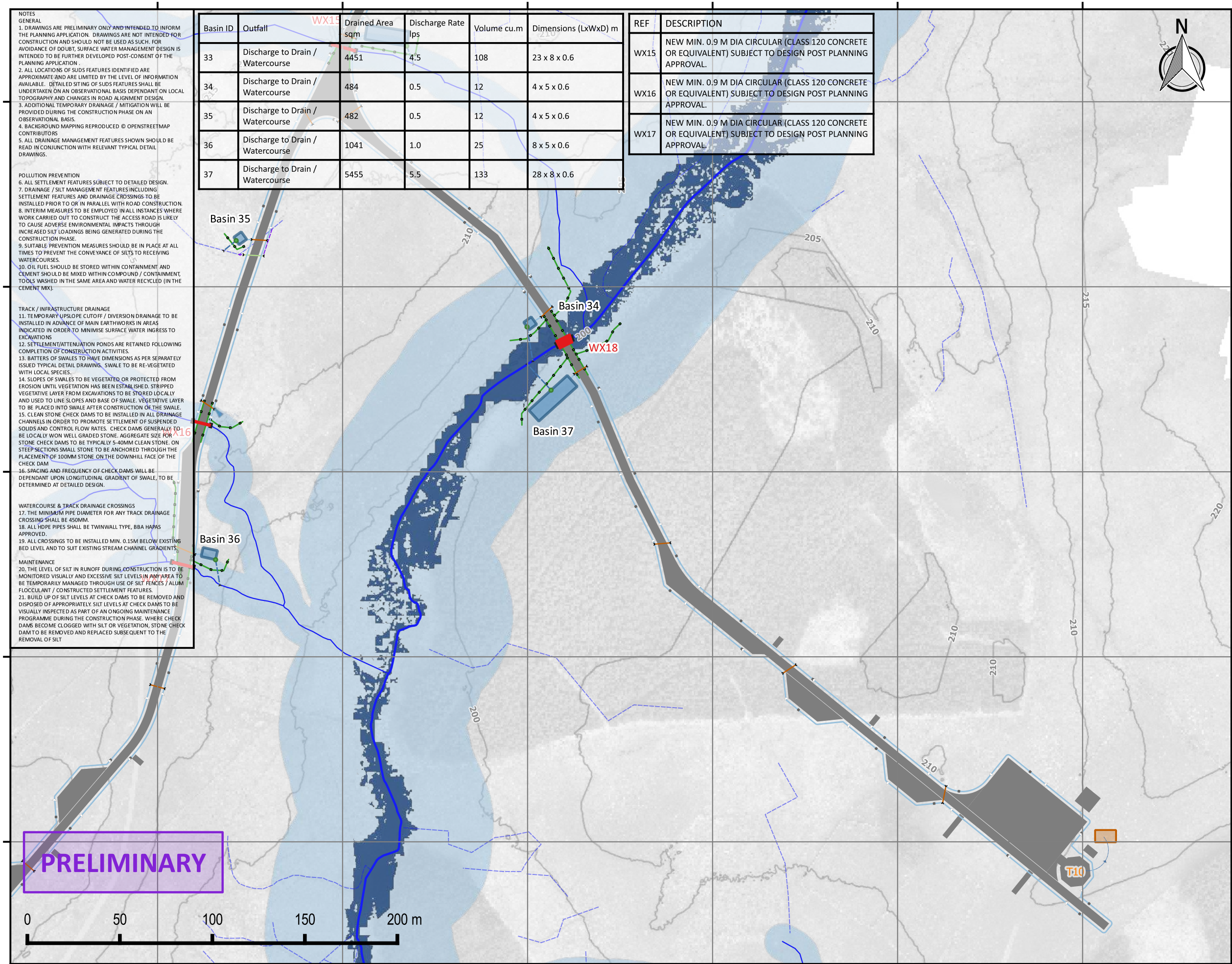
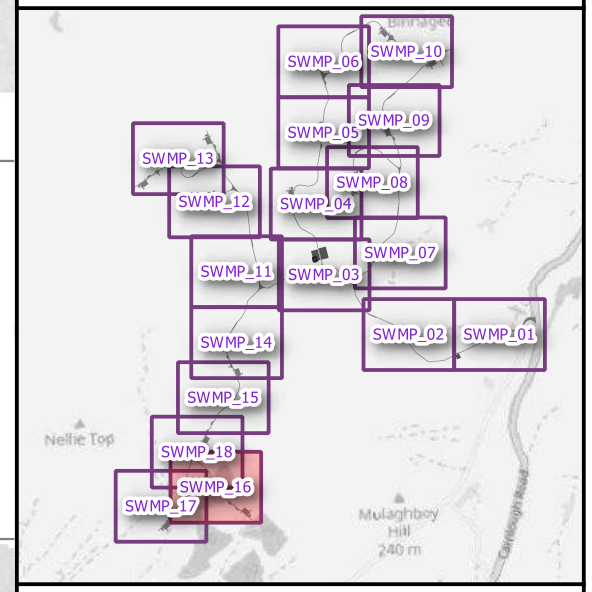
Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
33	Discharge to Drain / Watercourse	4451	4.5	108	23 x 8 x 0.6
34	Discharge to Drain / Watercourse	484	0.5	12	4 x 5 x 0.6
35	Discharge to Drain / Watercourse	482	0.5	12	4 x 5 x 0.6
36	Discharge to Drain / Watercourse	1041	1.0	25	8 x 5 x 0.6
37	Discharge to Drain / Watercourse	5455	5.5	133	28 x 8 x 0.6

REF	DESCRIPTION
WX15	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX16	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX17	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.



KEY PLAN



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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 16

PROJECT / FIGURE NO.
M01616-23_SWMP_16

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

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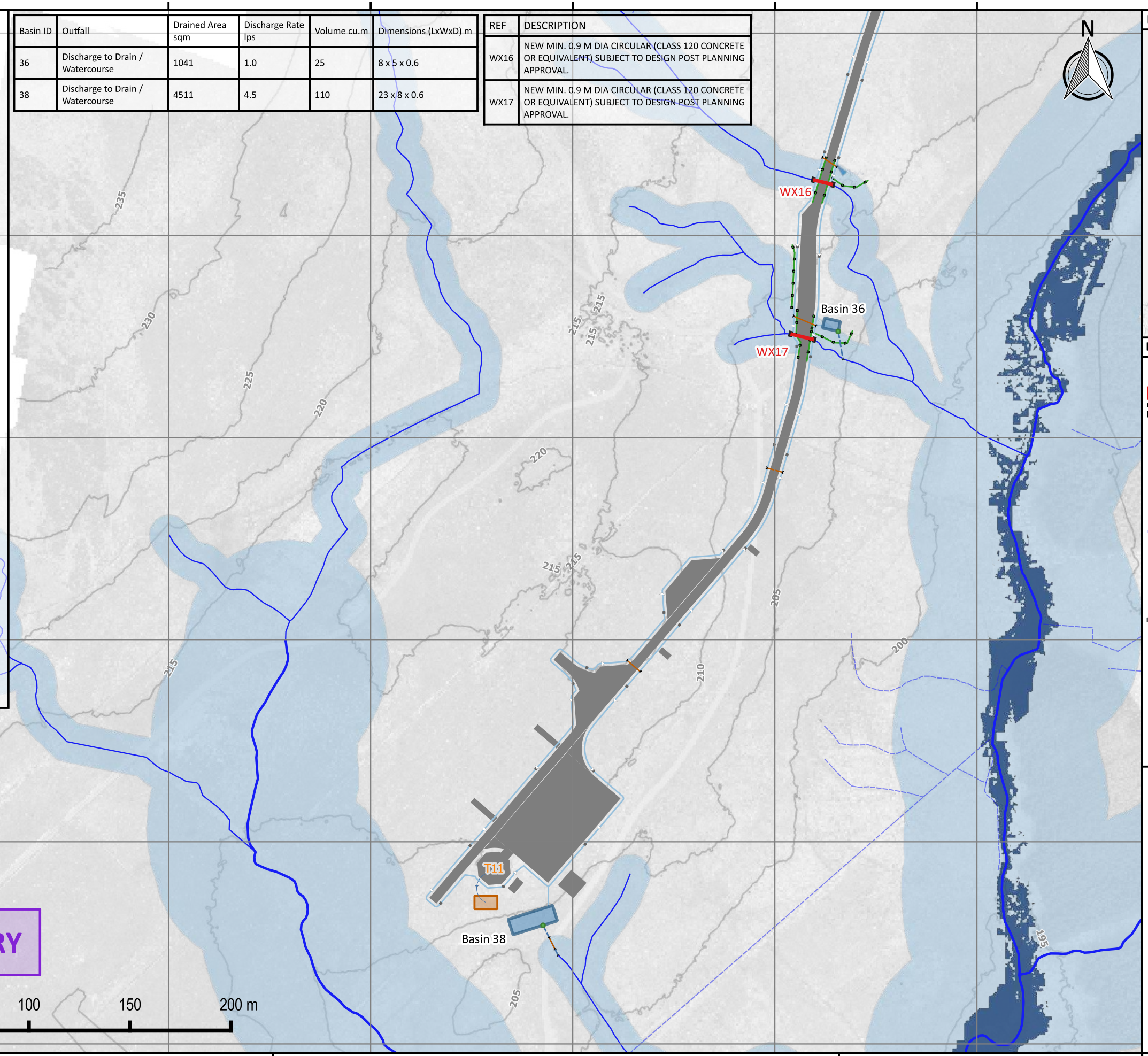
21. BUILD UP OF SILT LEVELS AT CHECK DAMS TO BE REMOVED AND DISPOSED OF APPROPRIATELY. SILT LEVELS AT CHECK DAMS TO BE VISUALLY INSPECTED AS PART OF AN ONGOING MAINTENANCE PROGRAMME DURING THE CONSTRUCTION PHASE. WHERE CHECK DAMS BECOME CLOGGED WITH SILT OR VEGETATION, STONE CHECK DAM TO BE REMOVED AND REPLACED SUBSEQUENT TO THE REMOVAL OF SILT

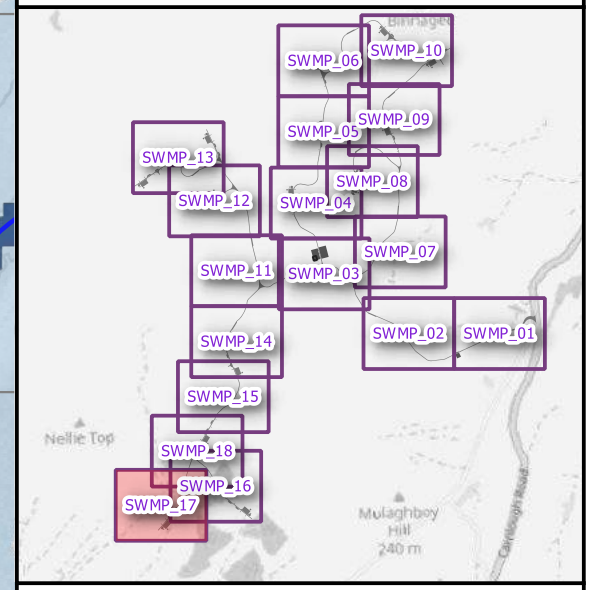
Basin ID	Outfall	Drained Area sqm	Discharge Rate lps	Volume cu.m	Dimensions (LxWxD) m
36	Discharge to Drain / Watercourse	1041	1.0	25	8 x 5 x 0.6
38	Discharge to Drain / Watercourse	4511	4.5	110	23 x 8 x 0.6

REF	DESCRIPTION
WX16	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX17	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.



PRELIMINARY

KEY PLAN



LEGEND

The Development
- Planning Application Boundary
- Land Under Applicants Control

Wind Farm Infrastructure
- COMPOUND, SUBSTATION
- TRACKS, CRANEPADS
- SUBSTATION

Existing Hydrology

Water Features
- Significant Watercourse
- Minor Watercourse
- Other Ephemeral / Minor drainage
- Hydrological buffers (10m/50m)

Track Drainage Features
- Trackside Drain & Checkdam
- Clean Cutoff Drain
- Clean Drainage Pipe
- Dirty Track Drainage Pipe
- Outfall, Flow Control
- Track Drainage Breakout
- Attenuation Basin
- Settlement Basin
- Indicative pumped dewatering
- Temporary Silt Fence
- Watercourse Crossings

POLLUTION PREVENTION GUIDANCE NOTES:

1. Suitable SUDS prevention measures should be in place at all times to prevent the conveyance of silts to receiving watercourses.

2. Temporary or permanent SuDS features should be installed BEFORE or adjacent to construction of new access road and hardstanding.

3. Clean water cutoff ditch and crossing should be planned and installed BEFORE construction. Clean water management must consider spoil deposition on the site.

4. Direct discharge of road drainage to watercourses shall not be permitted.

5. Buffer zones are to be maintained around all relevant watercourses as indicated on this drawing. No excavated material is to be stored within the buffer zone.

6. DO NOT pump water direct to watercourses.

7. DO NOT strip vegetation from existing ditches unless absolutely necessary.

8. If water pollution is identified the following steps should be adhered to:

STOP - Work in the immediate area should be stopped and the source of the pollution identified

CONTAIN - The source of the pollution should be bunded using a suitable method. Natural watercourses should be temporarily diverted around the source of pollution.

NOTIFY - The relevant authorities (Site Manager / NIEA) and Client/Developer should be notified immediately to ensure that measures can be implemented downstream to protect fisheries and other sensitive areas.

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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 17

PROJECT / FIGURE NO.
M01616-23_SWMP_17

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021

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NOTES
GENERAL
1. DRAWINGS ARE PRELIMINARY ONLY AND INTENDED TO INFORM THE PLANNING APPLICATION. DRAWINGS ARE NOT INTENDED FOR CONSTRUCTION AND SHOULD NOT BE USED AS SUCH. FOR AVOIDANCE OF DOUBT, SURFACE WATER MANAGEMENT DESIGN IS INTENDED TO BE FURTHER DEVELOPED POST-CONSENT OF THE PLANNING APPLICATION .
2. ALL LOCATIONS OF SUDS FEATURES IDENTIFIED ARE APPROXIMATE AND ARE LIMITED BY THE LEVEL OF INFORMATION AVAILABLE. DETAILED SITING OF SUDS FEATURES SHALL BE UNDERTAKEN ON AN OBSERVATIONAL BASIS DEPENDANT ON LOCAL TOPOGRAPHY AND CHANGES IN ROAD ALIGNMENT DESIGN.
3. ADDITIONAL TEMPORARY DRAINAGE / MITIGATION WILL BE PROVIDED DURING THE CONSTRUCTION PHASE ON AN OBSERVATIONAL BASIS.
4. BACKGROUND MAPPING REPRODUCED © OPENSTREETMAP CONTRIBUTORS
5. ALL DRAINAGE MANAGEMENT FEATURES SHOWN SHOULD BE READ IN CONJUNCTION WITH RELEVANT TYPICAL DETAIL DRAWINGS.

POLLUTION PREVENTION
6. ALL SETTLEMENT FEATURES SUBJECT TO DETAILED DESIGN.
7. DRAINAGE / SILT MANAGEMENT FEATURES INCLUDING SETTLEMENT FEATURES AND DRAINAGE CROSSINGS TO BE INSTALLED PRIOR TO OR IN PARALLEL WITH ROAD CONSTRUCTION.
8. INTERIM MEASURES TO BE EMPLOYED IN ALL INSTANCES WHERE WORK CARRIED OUT TO CONSTRUCT THE ACCESS ROAD IS LIKELY TO CAUSE ADVERSE ENVIRONMENTAL IMPACTS THROUGH INCREASED SILT LOADINGS BEING GENERATED DURING THE CONSTRUCTION PHASE.
9. SUITABLE PREVENTION MEASURES SHOULD BE IN PLACE AT ALL TIMES TO PREVENT THE CONVEYANCE OF SILTS TO RECEIVING WATERCOURSES.
10. OIL FUEL SHOULD BE STORED WITHIN CONTAINMENT AND CEMENT SHOULD BE MIXED WITHIN COMPOUND / CONTAINMENT, TOOLS WASHED IN THE SAME AREA AND WATER RECYCLED (IN THE CEMENT MIX).

TRACK / INFRASTRUCTURE DRAINAGE
11. TEMPORARY UPSLOPE CUTOFF / DIVERSION DRAINAGE TO BE INSTALLED IN ADVANCE OF MAIN EARTHWORKS IN AREAS INDICATED IN ORDER TO MINIMISE SURFACE WATER INGRESS TO EXCAVATIONS.
12. SETTLEMENT/ATTENUATION PONDS ARE RETAINED FOLLOWING COMPLETION OF CONSTRUCTION ACTIVITIES.
13. BATTERS OF SWALES TO HAVE DIMENSIONS AS PER SEPARATELY ISSUED TYPICAL DETAIL DRAWING. SWALE TO BE RE-VEGETATED WITH LOCAL SPECIES.
14. SLOPES OF SWALES TO BE VEGETATED OR PROTECTED FROM EROSION UNTIL VEGETATION HAS BEEN ESTABLISHED. STRIPPED VEGETATIVE LAYER FROM EXCAVATIONS TO BE STORED LOCALLY AND USED TO LINE SLOPES AND BASE OF SWALE. VEGETATIVE LAYER TO BE PLACED INTO SWALE AFTER CONSTRUCTION OF THE SWALE.
15. CLEAN STONE CHECK DAMS TO BE INSTALLED IN ALL DRAINAGE CHANNELS IN ORDER TO PROMOTE SETTLEMENT OF SUSPENDED SOLIDS AND CONTROL FLOW RATES. CHECK DAMS GENERALLY TO BE LOCALLY WON WELL GRADED STONE. AGGREGATE SIZE FOR STONE CHECK DAMS TO BE TYPICALLY 5-40MM CLEAN STONE. ON STEEP SECTIONS SMALL STONE TO BE ANCHORED THROUGH THE PLACEMENT OF 100MM STONE ON THE DOWNHILL FACE OF THE CHECK DAM
16. SPACING AND FREQUENCY OF CHECK DAMS WILL BE DEPENDANT UPON LONGITUDINAL GRADIENT OF SWALE, TO BE DETERMINED AT DETAILED DESIGN.

WATERCOURSE & TRACK DRAINAGE CROSSINGS
17. THE MINIMUM PIPE DIAMETER FOR ANY TRACK DRAINAGE CROSSING SHALL BE 450MM.
18. ALL HDPE PIPES SHALL BE TWINWALL TYPE, BBA HAPAS APPROVED.
19. ALL CROSSINGS TO BE INSTALLED MIN. 0.15M BELOW EXISTING BED LEVEL AND TO SUIT EXISTING STREAM CHANNEL GRADIENTS.

MAINTENANCE
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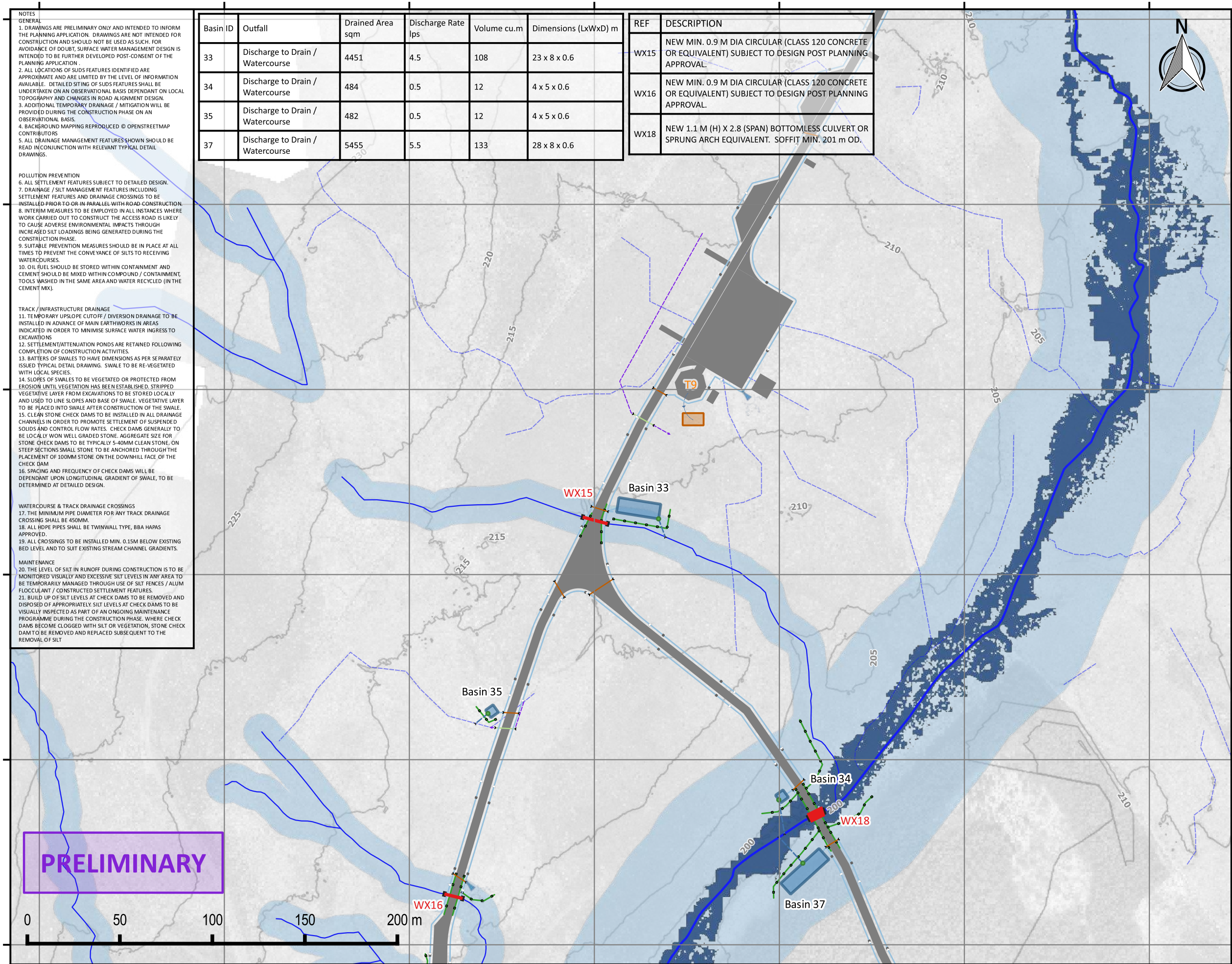
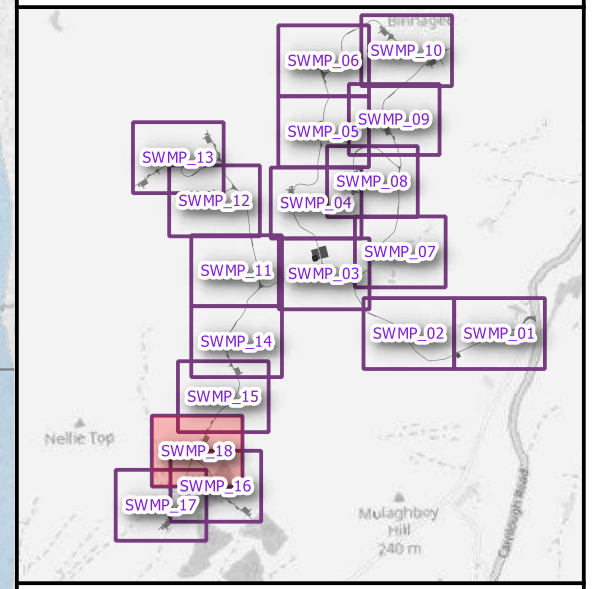
33	Discharge to Drain / Watercourse	4451	4.5	108	23 x 8 x 0.6
34	Discharge to Drain / Watercourse	484	0.5	12	4 x 5 x 0.6
35	Discharge to Drain / Watercourse	482	0.5	12	4 x 5 x 0.6
37	Discharge to Drain / Watercourse	5455	5.5	133	28 x 8 x 0.6

REF	DESCRIPTION
WX15	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX16	NEW MIN. 0.9 M DIA CIRCULAR (CLASS 120 CONCRETE OR EQUIVALENT) SUBJECT TO DESIGN POST PLANNING APPROVAL.
WX18	NEW 1.1 M (H) X 2.8 (SPAN) BOTTOMLESS CULVERT OR SPRUNG ARCH EQUIVALENT. SOFFIT MIN. 201 m OD.



KEY PLAN



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DESCRIPTION
UNSHINAGH WIND FARM - DRAINAGE LAYOUT SHEET 18

PROJECT / FIGURE NO.
M01616-23_SWMP_18

DRAWN BY	SCALE	REVISION	DATE
DKS	1:2000	0	30/11/2021