From: [redacted]
To: SizewellC
Subject: Fw: FOI202102068 - Licencing conditions for Sizewell C - Response - 9 April 2021
Date: 12 April 2021 17:41:59
Attachments: FOI202102068 - Response - 9 April 2021.pdf
Attachment 1.pdf
Attachment 2.pdf
Attachment 3.pdf
Attachment 4.pdf

Dear Case team and attention of Wendy McKay,
I made reference at the preliminary meeting to an outstanding FOI on the Office of Nuclear regulation regarding the need for more data on Sizewell C which you may wish to have sight of . (Attachment FOI refers)
I would wish to draw to your attention that the developer has apparently not yet finalised construction details nor supplied to ONR an Ordnance Survey grid referenced drawing of the SZC site despite the map (Attachment 1) being based on the OS mapping system.
Regards Mike Taylor 20025871

Sent from Outlook

From: Contact ONR <Contact@onr.gov.uk>
Sent: 09 April 2021 12:05
To: Mike Taylor [redacted]
Cc: Contact ONR <Contact@onr.gov.uk>
Subject: FOI202102068 - Licencing conditions for Sizewell C - Response - 9 April 2021

Dear Mr Taylor

Thank you for your information request. Please find attached our response and 4 supporting documents.

If you have any queries please contact us, via contact@onr.gov.uk quoting the reference number: FOI202102068.

Yours sincerely

Louise Freeman

ONR Office for Nuclear Regulation

Policy & Communications Directorate

E: Contact@onr.gov.uk
Redgrave Court, Merton Road, Bootle, L20 7HS

100% effective and this is no guarantee of safety or validity.

Office for Nuclear Regulation

9 April 2021

Redgrave Court
Merton Road
Bootle
Merseyside
L20 7HS

[redacted]

Contact@onr.gov.uk

Unique ref: 2021/28994

Dear Mr Taylor

Freedom of Information Request Reference No: FOI202102068

Thank you for your request for information received by us on 18 February 2021 and for your subsequent clarification received on 11 March 2021 following your telephone call with Shane Turner and Ian Hanley. Your enquiry is being dealt with under the terms of the Freedom of Information Act 2000 (FOIA).

You requested:

1. Demographics information, for example that used to determine the offsite emergency arrangements.

2. Map of the SZC site with grid references including the location of buildings. Map of site and grid references should include the Green and Blue Planning lines for the Eastern (North Sea) boundary if these are available (Historic and part of Sizewell B Planning consent). Original consent indicating green line https://community.magnoxsocioeconomic.com/wp-content/uploads/2014/10/EDF-Energy-SSG-Actions-Nov-2014-Attachment-No.-2-2014.pdf.

3. Information that explains how the site will be constructed, for example approximately what depth will be excavated, over what area, how will it be built back up before the nuclear structures are constructed and approximate foundation depth. This information may wish to include the existing flood defence features consented for Sizewell B which may be disturbed during construction of SZC.

4. A cross section(s) illustrating the geology on site under the key buildings or at key points on site.

5. Information on the cut-off wall.

6. Information on how the edge of the site will be constructed given it appears to be built up above the natural land, for example reinforcement around the edge of the site. Proposed Western boundary and northern site access currently obstructs or corrupts the main water course Leiston river. How this will be engineered in association with the reinforcement and avoid increased flood risk to Leiston town/sewage works and main site access road.

Background to concerns 3 and 6 relate to comments made at Hinkley C where the Site Manager is reported to have said he was only responsible for flood protection of HPC not the surrounding area. If EDF do not build SZC themselves this situation could arise at Sizewell.

Our response:

I can confirm that under Section 1[1] of the FOIA we do hold some of the information requested. Please find a response to each of your questions in turn below.

1. **Demographics information, for example that used to determine the offsite emergency arrangements.**

The information you requested is available on the March 2018 update to the Residential Layer on the National Population Database[2].

Details of how to access the database can be found on the Health and Safety Executive Science and Research Centre[3]. This data is still suitable for use in the subsequent Sizewell C (SZC) assessment.

2. **Map of the SZC site with grid references including the location of buildings. Map of site and grid references should include the Green and Blue Planning lines for the Eastern (North Sea) boundary if these are available (Historic and part of Sizewell B Planning consent)**

We do not currently hold a map of the SZC site with grid references and planning lines. However, we do hold a map of the proposed site with building locations that was provided as part of the Nuclear Site Licence application. Please see attachment 1 which is a drawing from section 6.3 of the licence application dossier.

3. **Information that explains how the site will be constructed, for example approximately what depth will be excavated, over what area, how will it be built back up before the nuclear structures are constructed and approximate foundation depth. This information may wish to include the existing flood defence features consented for Sizewell B which may be disturbed during construction of SZC.**

[1] https://www.legislation.gov.uk/ukpga/2000/36/section/1
[2] https://npdportal-hslab.hub.arcgis.com/
[3] https://www.hsl.gov.uk/what-we-do/data-analytics/national-population-database

Information that explains how the site will be constructed

Firstly, it is important to note that the detailed design of SZC, including its civil engineering design, will continue past the point of any potential nuclear site licence grant. Therefore, some of the information that we currently hold is preliminary and will change. Post any potential nuclear site licence grant, there will be a number of regulatory “hold points” that prevent the licensee from starting certain construction activities without our agreement. This allows us to assess aspects of the detailed design when it is mature whilst still allowing work to continue in other areas.

At the current time, the focus of our ongoing civil engineering assessment for informing our nuclear site licensing decision is to ascertain whether the licensee sufficiently understands the geotechnical conditions of the site and presents a viable solution for the long term support of structures, systems and components, including a viable outline construction method to achieve this. This also includes consideration of the site size.

Site excavation depth and area

Our current understanding is that a cut-off wall will be constructed near the perimeter of the proposed nuclear licenced site boundary in reinforced concrete, with the function of forming a watertight box around the main construction area as well as performing an earth retaining function. The area within this cut off wall will be excavated to varying levels depending on the structures. Figure 1 shows the current theoretical bottom of the excavation area.

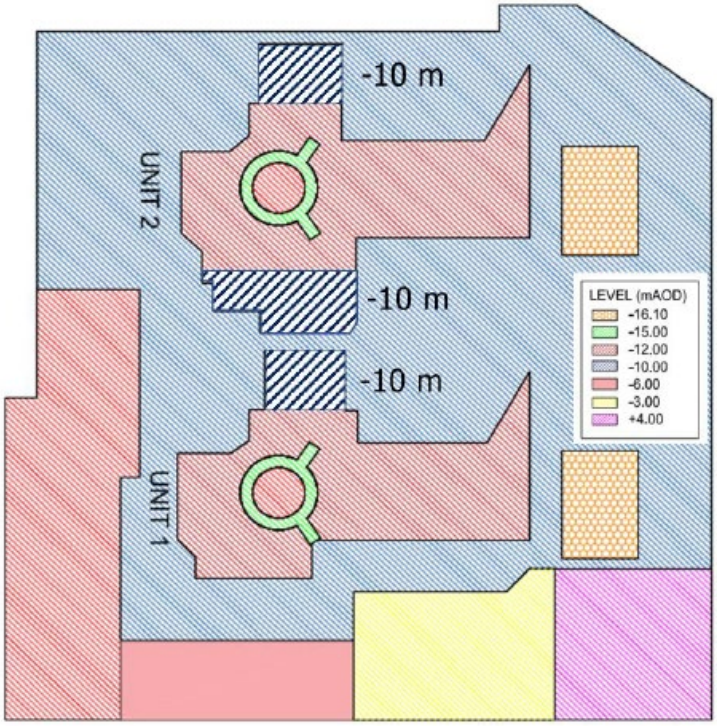


Figure 1. Theoretical bottom of excavation area (February 2021)

For most of the site, the excavation depth is -10mAOD[4]. The areas under the reactor buildings is -12mAOD (with some localised deeper excavation), pumping station -16.10m AOD, and areas of shallower depth excavation on the south side of the site. The aim of this excavation is to reach the more competent crag deposits beneath the site.

How will it be built back up and approximate foundation depth

The prospective licensee's current intention is to build up engineered fill from these levels to improve bearing capacity under structures (a proportion of which will be reclaimed excavated material) to foundation levels. Backfill material from foundation level to platform level (7.3mAOD) is expected to mostly be made up of excavated material. Final foundation depths for the structures have not yet been finalised and vary structure to structure. Figure 2 shows a simplified schematic of the backfill strategy, the excavation levels and how the site will be constructed. R1, R2 and R3 relate to the different type of engineered fill specified for construction.

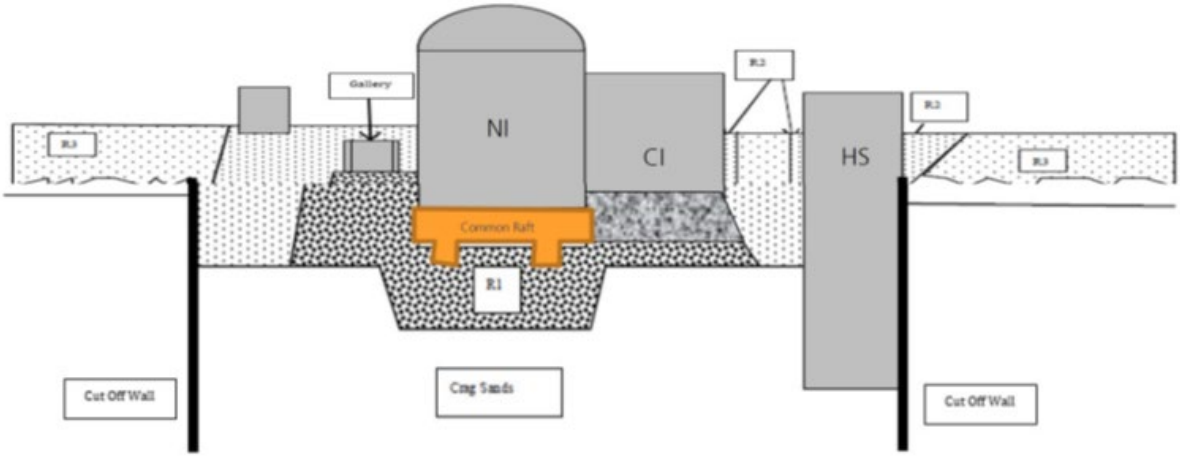


Figure 2. Schematic of the backfill strategy (May 2020)

Flood defence features for Sizewell B (SZB)

We do not hold any information regarding any potential impact on the Sizewell B (SZB) flood defences. As part of nuclear site licensing, NNB GenCo SZC's claim is that operations (including construction) on the SZC site will not adversely affect the ability to maintain an adequate safety case for the adjoining nuclear licensed site SZB. We are considering this claim as part of the nuclear site licensing assessment. Detailed construction information is not yet available for the SZC site. Prior to start of construction, we expect NNB GenCo (SZC) to consider the potential impact of construction on SZB, including, if relevant, on the existing SZB flood defence features.

[4] AOD relates to Above Ordnance Datum where Ordnance Datum relates to the mean sea-level height taken from a reference point (Newlyn, Cornwall for Great Britain) as a basis for national altitude heights by the ordnance survey.

4. **A cross section illustrating the geology on site under the key buildings or at key points on site.**

Please find attached three geotechnical cross sections (as the site currently exists) that illustrate the geology on site.

- Attachment 2 - SZC Cross-section C1. This is an east-west cross section passing through the proposed location of the Unit 1 nuclear island, conventional island and heat sink.
- Attachment 3 - SZC Cross-section C2 is an east-west cross section passing through the proposed location of the Unit 2 reactor building, conventional island and heat sink.
- Attachment 4 - SZC Cross section C4 is a north-south cross section passing through the proposed location of the Unit 1 and Unit 2 nuclear island buildings.

5. **Information on the cut-off wall.**

The cut-off wall design continues to be developed; the information we hold is relevant as of February 2021 and is subject to change. The detailed design of the cut off wall is not part of the nuclear site licensing assessment.

Our current understanding is that the cut-off wall will be constructed 1.5m thick in reinforced concrete. The plans indicate a depth of -48mAOD for the piles (minimum 3m into the Thames group layer – see geotechnical cross sections). This will allow dewatering of the site to -32mAOD. Figure 3 presents a position previously shared with us on the location of the cut off wall; however, it has been indicated that this work is ongoing, and the positioning may change. Our current understanding is that the cut off wall will remain in place after the plant is constructed.

6. **Information on how the edge of the site will be constructed given it appears to be built up above the natural land, for example reinforcement around the edge of the site. Proposed Western boundary and northern site access currently obstructs or corrupts the main water course Leiston river. How this will be engineered in association with the reinforcement and avoid increased flood risk to Leiston town/sewage works and main site access road?**

The information we hold indicates that the sloped edges of the site will be strengthened using a sheet pile wall prior to the downhill slope to natural ground level. We do not hold any information on potential impacts on Leiston river/drain.

This information is not necessary for nuclear site licensing, but may be considered in future assessments if foundations of any nearby structures rely upon the strengthening measure to provide stability.

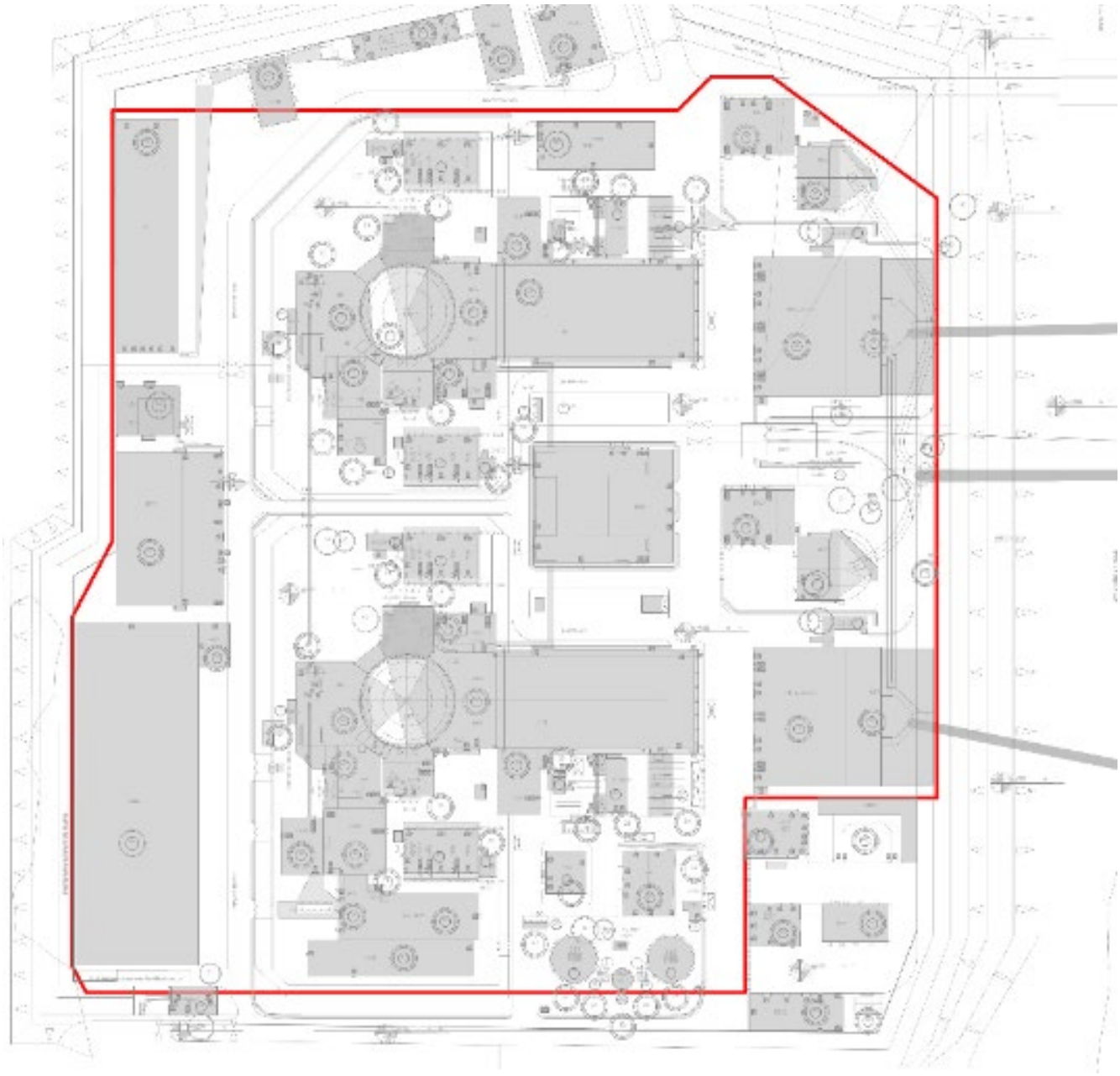


Figure 3. Location of the cut-off wall (May 2020)

Further Information:

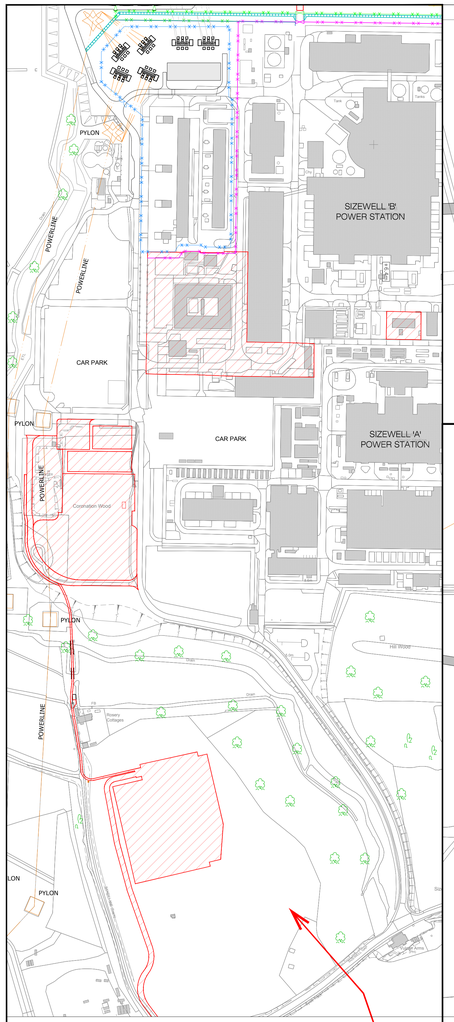
We hope you find this information helpful however should you not be content with the above response you have the right to ask for an internal review to be conducted. This is done in writing and within two calendar months of this dated letter quoting the above reference.

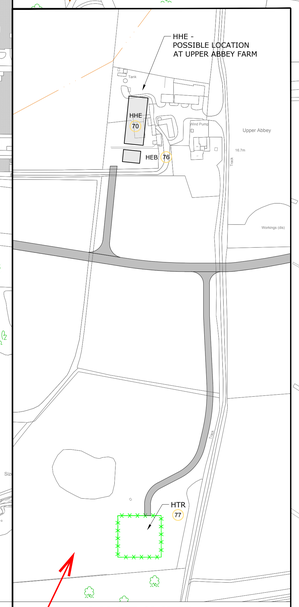
If you are then not content with the outcome of the internal review, you have the right to apply directly to the Information Commissioner for a decision. The Information Commissioner can be contacted at:

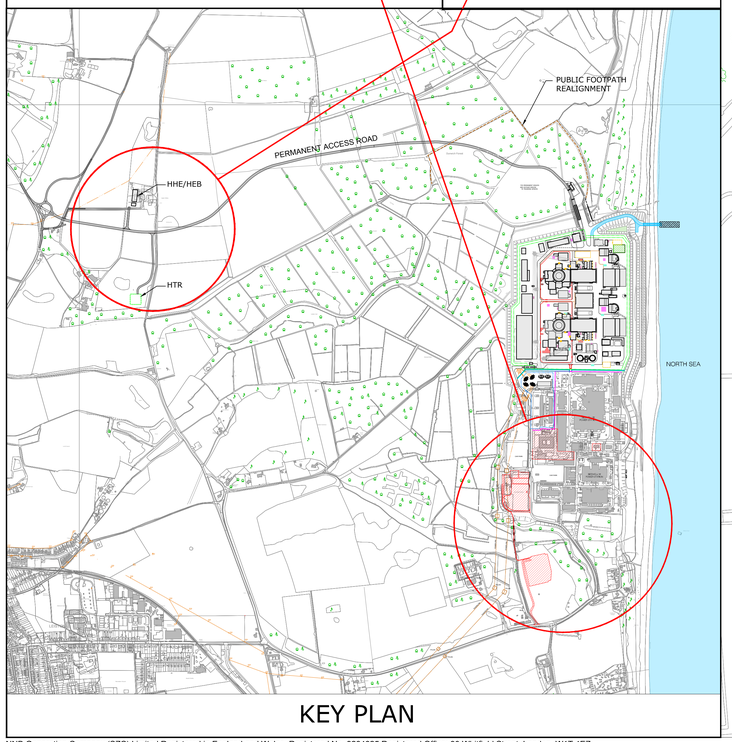
Website: https://ico.org.uk/global/contact-us/

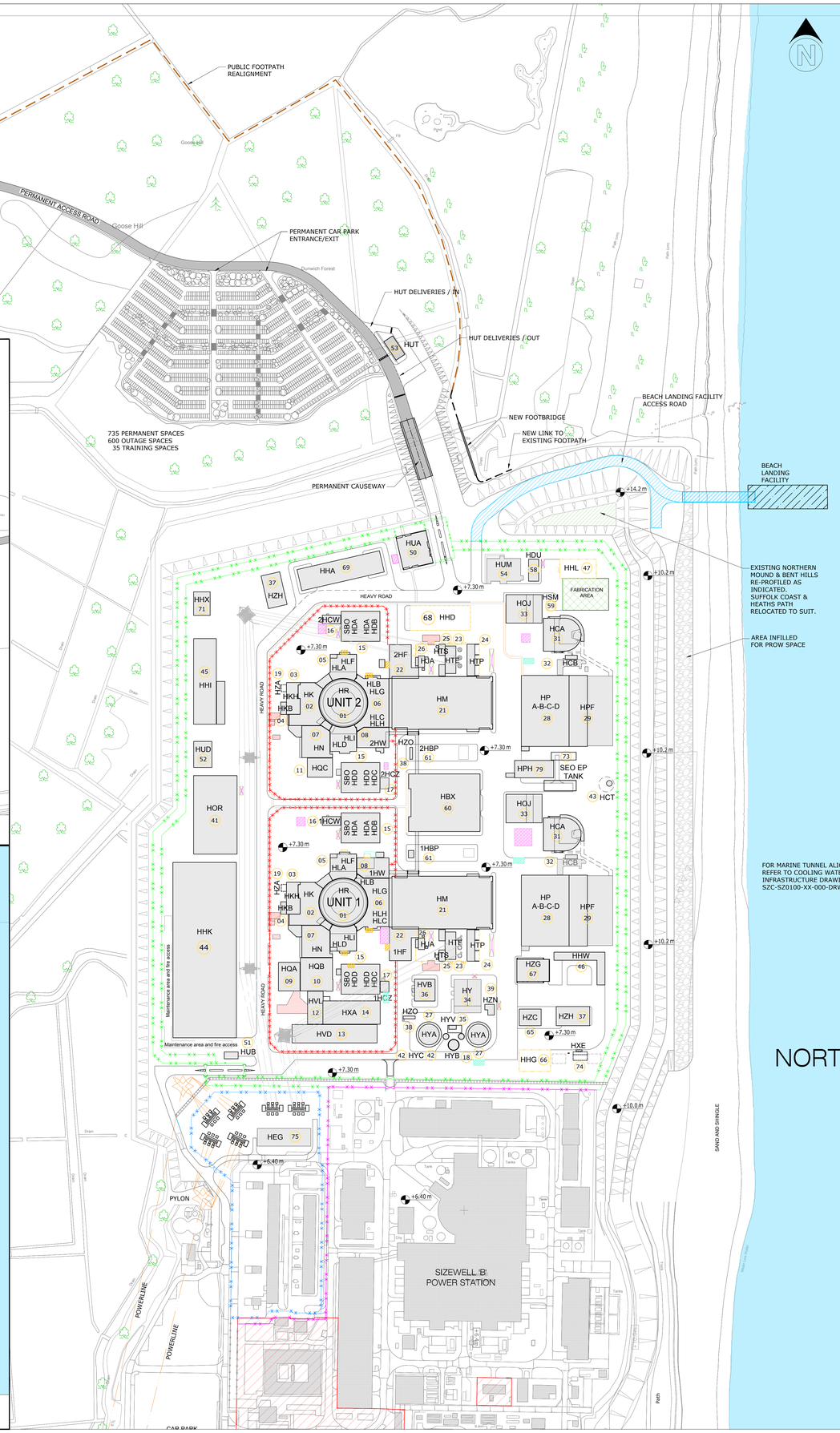
Yours sincerely

Louise Freeman
Policy and Communications Directorate





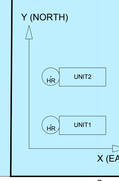




FOR MARINE TUNNEL ALIGNMENTS REFER TO COOLING WATER INFRASTRUCTURE DRAWING No. SZC-SZ0100-XX-000-DRW-100032

NORTH SEA

REACTOR CENTRELINE COORDINATES



	UNIT 1	UNIT 2
LOCAL SITE COORDS	X(m) =3000.000 Y(m)=1000.000	X(m) =3000.000 Y(m) =1230.000
NATIONAL COORDS (OSGB 36)	X(m) = 647220.000 Y(m) = 263978.564	X(m) = 647220.000 Y(m) = 264208.643

UK PROTECT		
EPR BUILDINGS		
NUCLEAR ISLAND (NI)		
HR	01	REACTOR BUILDING
HK	02	FUEL BUILDING
HKH	03	FUEL BUILDING HALL
HKB	04	BORON STORAGE BUILDING
HL A-B-C-D	05	SAFEGUARD ELEC. BUILDINGS
HL F-G-H-I	06	SAFEGUARD MECH. BUILDINGS
HN	07	NUCLEAR AUXILIARY BUILDING
HW	08	ACCESS TOWER
HQA	09	RADIOACTIVE WASTE STORAGE BUILDING
HQB	10	RADIOACTIVE WASTE PROCESS BUILDING
HQC	11	RADIOACTIVE WASTE TREATMENT BUILDING (UNIT 2 - HN EXTN)
HVL	12	HOT LAUNDRY BUILDING
HVD	13	HOT WORKSHOP, HOT WAREHOUSE, FACILITIES FOR DECONTAMINATION
HXA	14	EFFLUENT TANKS (KER, TER, SEK) & REFUELLING WATER STORAGE TANKS (PTR)
HD A-B-C-D/S80	15	EMERGENCY DIESEL GENERATOR BUILDING
HCW	16	COOLING WATER DISCHARGE WEIR BUILDING - DIVISION 1
HCZ	17	COOLING WATER DISCHARGE WEIR BUILDING - DIVISION 2
HYB	18	NUCLEAR ISLAND DEMINERALISED WATER TANK
HZA	19	ISFS ARGON & HELIUM STORE - SPACE RESERVATION
CONVENTIONAL ISLAND (CI)		
HM	21	TURBINE HALL
HF	22	CONVENTIONAL ISLAND ELECTRICAL BUILDING
HTE	23	GAS INSULATED SWITCH GEAR BUILDING
HTP	24	MAIN TRANSFORMER PLATFORM
HTS	25	UNIT TRANSFORMER PLATFORM
HJA	26	AUXILIARY TRANSFORMER PLATFORM
HYA	27	CONVENTIONAL ISLAND DEMINERALISED WATER TANK
BALANCE OF PLANT (BOP)		
HP A-B-C-D	28	COOLING WATER PUMP HOUSE
HPF	29	FOREBAY
HCA	31	OUTFALL POND BUILDING
HCB	32	FILTERING DEBRIS RECOVERY PIT
HOJ	33	FIRE-FIGHTING WATER DISTRIBUTION BUILDING
HY	34	DEMINERALISATION STATION
HYV	35	VALVE ROOM FOR THE DEMINERALISATION STATION
HVB	36	AUXILIARY BOILERS
HZH	37	HYDROGEN & NITROGEN STORAGE
HZO	38	OXYGEN STORAGE
HZN	39	HYDRAZINE STORAGE
HOR	41	RAW & POTABLE WATER STORAGE/SUPPLY
HYC	42	DEGASSED WATER STORAGE TANK (REA BUFFER TANK)
HCT	43	COOLING WATER DISCHARGE SHAFT
HPH	79	CHLORINATION PLANT
BUILDINGS RELATED TO FUEL OR WASTE MANAGEMENT		
HHK	44	INTERIM SPENT FUEL STORE - SPACE RESERVATION
HHI	45	INTERMEDIATE LEVEL WASTE STORE
HHW	46	CONVENTIONAL WASTE STORE
HHL	47	TRANSIT AREA FOR VERY LOW AND LOW LEVEL WASTE
ANCILLARY BUILDINGS		
HUA	50	MAIN ACCESS CONTROL BUILDING
HUB	51	SECONDARY ACCESS CONTROL BUILDING
HUD	52	AUXILIARY ADMINISTRATION BUILDING
HUM	54	EMERGENCY RESPONSE CENTRE
HDU	58	EMERGENCY RESPONSE ENERGY CENTRE
HSM	59	METEOROLOGICAL STATION
OFFICE BUILDINGS		
HBX	60	OPERATIONAL SERVICE CENTRE
HBP	61	SKY BRIDGE
STORAGE BUILDINGS / GARAGE		
HZC	65	CHEMICAL PRODUCTS STORAGE
HHG	66	GARAGE FOR HANDLING FACILITIES
HZG	67	OIL AND GREASE STORAGE
HHD	68	CONTAMINATED TOOLS STORE
HHA	69	WAREHOUSE
HHX	71	ISFS EQUIPMENT STORAGE BUILDING - SPACE RESERVATION
OTHER BUILDINGS		
SEO-EP Tank	73	BY-PASS SEPARATOR
HXE	74	SEWAGE TREATMENT PLANT
HEG	75	NATIONAL GRID SUBSTATION BUILDING
OTHER BUILDINGS (OUT OF SITE FENCES)		
HUT	53	OFF SITE DELIVERY CHECKPOINT
HHE	70	EMERGENCY EQUIPMENT STORE
HEB	76	BACK-UP GENERATOR
HTR	77	ANCILLARY SUBSTATION COMPOUND

UK PROTECTIVE MARKING:
UK PROTECT

DRAWING GRID / COORDINATE SYSTEM:

SITE LOCAL GRID ☐ NATIONAL GRID OSGB36 ☒

OTHER GRID ☐ (To be defined in the contract project plan)

CONTRACT PROJECT PLAN DOC. REF. No:

NOTES:

KEY :

- OPERATIONAL SITE PERIMETER FENCE
- HIGH SECURITY AREA FENCE
- NATIONAL GRID SUBSTATION FENCE
- SZB PERIMETER FENCE
- FENCED COMPOUND
- PUBLIC FOOTPATH REALIGNMENT
- PROPOSED NORTHERN MOUND APPROX TO 11.00m

NOTES :

- PLATFORM LEVEL : +7.30M O.D
- THIS DRAWING SHOWS THE ASSUMED SITE LAYOUT FOR THE DEVELOPMENT CONSENT ORDER (DCO).
- FOR DETAILS OF ASSUMPTIONS, OPEN POINTS & FLEXIBILITY REQUIRED IN THE DCO, SEE REFERENCE DOCUMENTS.

REFERENCE DOCUMENTS

TITLE	NUMBER
OPERATIONAL SITE LAYOUT UPDATES	SZC-SZ0100-XX-000-REP-100020
SZC LIST OF BUILDINGS	SZC-SZ0100-XX-000-REP-100039

REV.	DATE	PREPARED BY	CHECKED BY	STATUS	REASONS FOR REVISION	APPROVED BY
05	11/03/20	SB	DY	S2	UPDATED TO SUIT LATEST RD PLOT PLAN, CAR PARK, NG AREA & SITE ENTRANCE DETAILS.	BM
04	29/03/19	SB	CY	S2	BUILDINGS LAYOUT, PERMANENT CAR PARK & SZB AREAS UPDATED. REFER TO DOCUMENT NUMBER: SZC-SZ0100-XX-000-REP-100020	DY
03	23/08/18	SB	CY	S2	EMBANKMENTS TO SSSI CROSSING & NORTHERN MOUND UPDATED.	DY
02	29/06/18	SB	CY	S2	ACCESS ROADS TO HHE & HTR UPDATED.	DY
01	08/03/18	SB	CY	S2	FOR INFORMATION ONLY	NT

NNB GenCo (SZC) LTD.

1st partner: NNB

2nd partner: EDF

CONTRACTOR COMPANY TRADE NAME : N/A

CONTRACTOR REF. No. N/A

CONTRACT NUMBER : N/A

CONTRACTOR WBS CODE : N/A

QRA RELATED Yes ☐ No ☒

APPLICABILITY:
1: Document related to Unit 1
2: Document related to Unit 2
9: Document that applies to buildings/systems common to Unit 1 & 2
0: Documents that relate exclusively to buildings or systems that are common to the whole site (e.g. parking, ancillary buildings...)

NUCL/REP/EPR/UKX			
SZC (doc: SZ)			
0	1	2	9
X			

BUILDING

SYSTEM

SCALE 1:2000@A0

SIZE A0

PAGE 1/1

DESCRIPTION

SIZEWELL C
OPERATIONAL SITE LAYOUT ASSUMPTIONS FOR DCO

DOCUMENT REFERENCE No.

SZC	SZ0100	XX	000	DRW	100004
Project	Contract No. / Orig. Co	Asset / Zone	System / Building	Doc. type	Chrono No.

DOCUMENT SUB -TYPE: PLOT PLAN

EDF CLASSIFICATION CODE

SUBCONTRACTOR COMPANY TRADE NAME

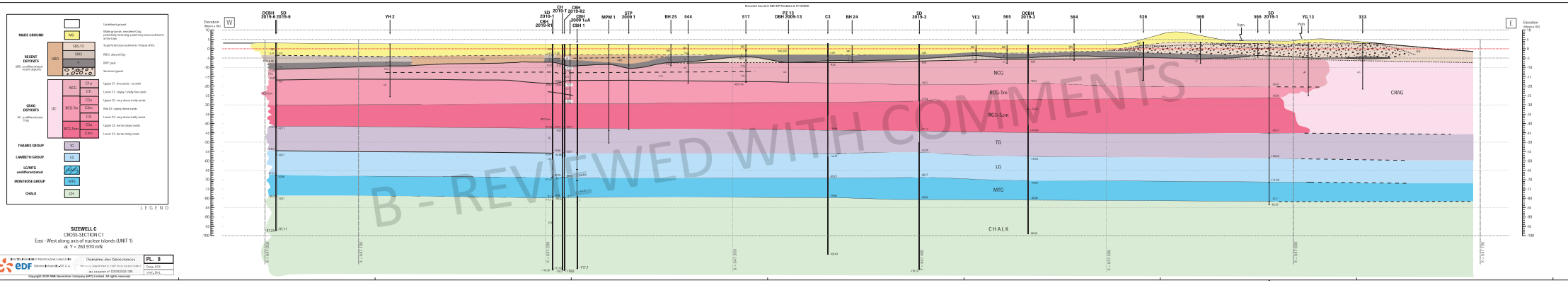
SUBCONTRACTOR DOCUMENT REF. No

This pattern must be entirely readable
For A0 and A1 : ABERPFTHLIJOOCGQUVWMNSZXKY
zsaeocnuvmwxirfkhbdpqgyjlt 71423855690

0 1 2 3 4 5 6 7 8 9 10

INTELLECTUAL PROPERTY OWNERSHIP:	NNB:	EDF:	CONTRACTOR:

UK PROTECTIVE MARKING:
UK PROTECT


LEGEND
MADE GROUND
MG
Undefined ground
Made ground: reworked Clay, mixed locally including Quaternary fluvio-sediments at the base
RECENT DEPOSITS
URD undifferentiated recent deposits
SDS / O
Superficial fluvio-sediments / Glacial drifts
SDCl
RDC: alluvial Clay
P
RDP: peat
S
Sand and gravel
CRAG DEPOSITS
UC undifferentiated Crag
NCG
CHu
Upper C1: fine sands - no shell
CH
Lower C1: clayey / shelly fine sands
RCG-Tm
C2u
Upper C2: very dense shelly sands
C2m
Mid C2: clayey dense sands
RCG-Sam
C2l
Lower C2: very dense shelly sands
C3u
Upper C3: dense clayey sands
C3m
Lower C3: dense shelly sands
THAMES GROUP
TG
LAMBETH GROUP
LG
LG/MTG undifferentiated
MONTROSE GROUP
MTG
CHALK
CH
SIZEWELL C
CROSS-SECTION C1
East - West along axis of nuclear islands (UNIT 1)
at Y = 263 970 mN
PL. 8
Dess. DSA
Vérif. DVL
Domaine des Géosciences
Elevation (Meters in NGF)
W
E
DCBH 2019-6
SD 2019-6
YH 2
SD 2019-1
CBH 2019-01
CH 1
CBH 2015-17
CBH 2019-02
CBH 1
CBH 1-A
MPM 1
STP 2009-1
BH 25
S44
S17
PZ 13
DBH 2009-13
C3
BH 24
SD 2019-3
YE3
S65
DCBH 2019-3
S64
S36
S68
S66
SD 2019-1
YG 13
S33
Port
NCG
RCG-Tm
RCG-Sam
TG
LG
MTG
CHALK
CRAG
B - REVIEWED WITH COMMENTS
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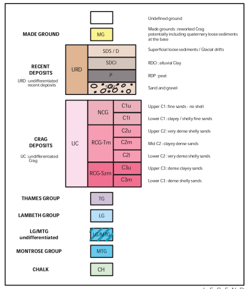
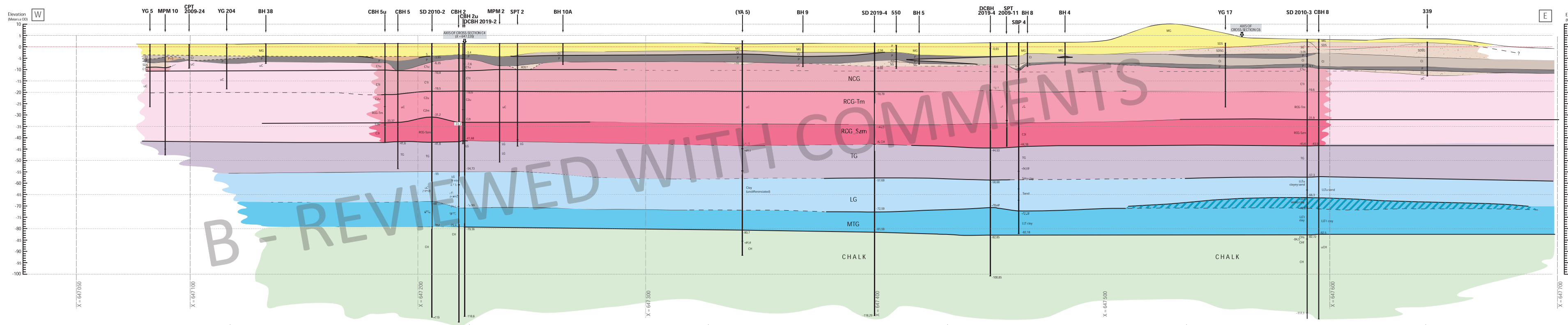


L E G E N D



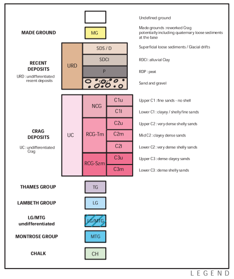
SIZEWELL C

CROSS-SECTION C2

East - West along axis of nuclear island (UNIT 2)

at Y = 264 200 mN

DIRECTION INGENIERIE ET PROJETS NOUVEAU NUCLEAIRE EDF Direction Industrielle - T. E. G. G.	Domaine des Géosciences 905, Av. du Camp de Menthe 13097 Aix en Provence Cedex 2 au rapport n° D309520001335	PL. 6 Dess. SDA Vérif. BAL

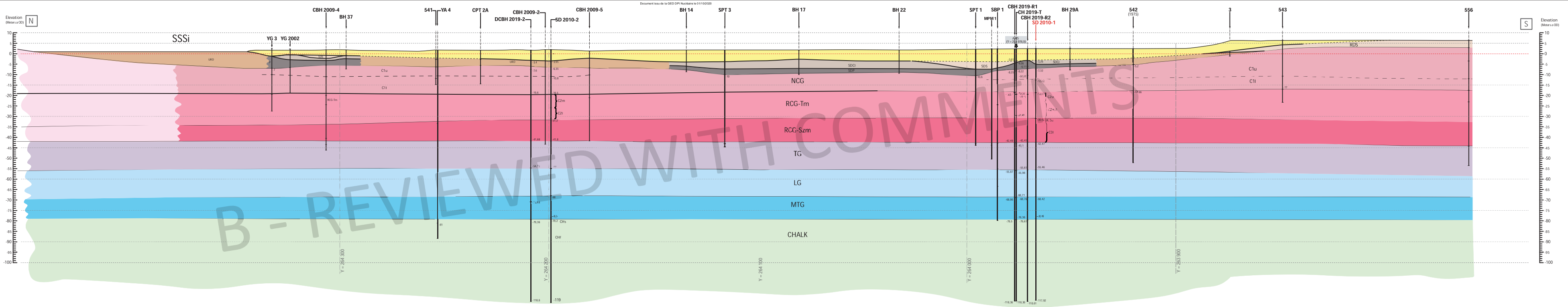


SIZEWELL C

CROSS-SECTION C4

North - South along axis of nuclear islands (UNIT 1-2)

at X = 647 220 mE



DIRECTION INGENIERIE ET PROJETS NOUVEAU NUCLEAIRE

EDF Direction Industrielle - T.E.G.G.

Domaine des Géosciences

905, Av. du Camp de Menthe 13097 Aix en Provence Cedex 2

au rapport n° D309520001335

PL. 9	
Dess. SDA	
Vérif. BAL	