

Clarence Correctional Centre 132kV Transmission Line Variation to Activity Described in Review of Environmental Factors

This report has been prepared for consideration by INSW in relation to a request by Transgrid for an extension to the approved working hours during the construction phase of the project.

The purpose of the report is to:

- outline the background to the project;
- describe the nature of and need for the proposed variation;
- identify and assess the potential environmental impacts associated with the proposed variation; and
- identify any additional safeguards and management measures which are required to be implemented to minimise impacts.

It is anticipated that this report and any subsequent approval granted by INSW would form an Addendum to the Review of Environmental Factors (REF) prepared by MG Planning¹.

1 Background

On 11 April 2019 the INSW Chief Executive approved the proposal to construct, operate and maintain a new 12.5km long 132kV electricity transmission line to service the Clarence Correctional Centre (CCC) subject to:

- 1. Compliance with (including implementation of) the following conditions of approval, required to prevent, minimise and / or offset adverse environmental impacts:
 - (a) Safeguards and Mitigation Measures detailed in section 8.2 of Review of Environmental Factors - Clarence Correctional Centre 132kV Transmission Line dated 08.04.2019, Revision 04; and
 - (b) All relevant statutory requirements, including approvals, licences, notifications, permits and authorisations.

<u>Note</u>: Any aspect of the proposal which does not comply with the specified mitigation measures are in breach of this determination.

2 **Proposed Variation**

Transgrid has submitted a request to INSW in its capacity as the determining authority, for approval to extend the working hours during the construction phase in order to complete the works by early October 2019. The REF (as approved) currently provides that:

"Noise generating works would be limited to the recommended standard hours for construction work being:

¹ Review of Environmental Factors Clarence Correctional Centre 132kV Transmission Line, Rev. 04 dated 8.04.2019, prepared by MG Planning Pty Ltd.



Monday to Friday 7:00 am to 6:00 pm Saturday 8:00 am to 1:00 pm No works on Sundays or Public Holidays. "

TransGrid seeks approval to extend the construction hours to enable works to occur on Saturday afternoons and Sunday and seeks an amendment to the approved hours to:

Monday to Sunday 7:00 am to 6:00 pm

TransGrid has advised that it intends to undertake a range of transmission line construction activities during these periods including:

- vegetation clearing
- access track construction
- hole boring
- excavation for foundations
- pile driving
- steel fixing
- concrete delivery and placement
- Pole deliveries
- pole dressing
- pole standing
- delivery of conductor drums and winches
- establishment of winching sites
- conductor winching
- conductor stringing activities
- clipping in of conductors
- site restoration

It is noted that Transgrid has advised that the piling rig and hole boring operations will <u>not</u> be undertaken near sensitive receivers on Sundays.

3 Environmental Assessment

The following table sets out the potential environmental impacts (as identified in Section 6 of the REF) and provides a brief commentary as to whether the proposed extension of construction hours will result in any additional impact. Where there is a potential for additional impact, this is discussed in further detail at the end of the table.

Environmental Attribute	Likelihood of Additional Impact
Land Use	
Soils	The extended construction hours are limited to the construction
Water Quality	phase. However, they will not alter the physical extent
Flooding	(footprint) and intensity of the Activity.
Biodiversity	As such no further safeguards or mitigation measures, beyond
Aboriginal Cultural Heritage	those specified in the REF (and approved by INSW on 11 April 2019), are deemed necessary.
Non-Aboriginal Heritage	,



Environmental Attribute	Likelihood of Additional Impact
Noise and Vibration	Extended construction hours can reasonably be expected to have an impact on the amenity of sensitive (residential) receivers in the vicinity. Refer discussion at Section 3.1 below.
Traffic and Access	The extended hours of construction will not increase the number of vehicles or the volume of traffic associated with the construction. It is noted that no change is proposed to the hours Monday to Friday (7.00am – 6.00pm) and as a consequence there will be no additional traffic impact during peak periods. However, it is anticipated that there will be an additional impact associated with the extended hours in that vehicles would require access to /from the work sites 7 days per week until 6.00pm. Refer discussion at Section 3.2 below.
Bushfire	
Air Quality	
Visual Impact	As described above, the extended construction hours will not alter the physical extent (footprint) and intensity of the Activity.
Electric and Magnetic Fields	
Climate Change	No further safeguards or mitigation measures are deemed necessary.
Waste	
Cumulative Impacts	

3.1 Noise and Vibration

Existing Environment (as described in Section 6.8.1 of the REF)

The background noise levels along the investigation area are generally low, as is typical of rural and rural residential areas, with low population density and little background noise from traffic or other noise sources. The exception to this is the Pacific Highway which would experience elevated noise levels from passing light and heavy vehicles.

The noise pattern would generally be diurnal in nature with higher background levels during the day and evening periods, decreasing at night.

Four locations along proposed transmission line have residential receivers within 250m of the easement, access tracks and laydown areas. These are presented in Table 8. Locations of access track upgrades and construction would be determined during detailed design; however, it is likely that these tracks would be in close proximity to residential receivers around the proposed transmission line.

No other sensitive receivers, such as schools, hospitals, childcare facilities, aged care facilities or places of worship were identified within 250m of the proposed activity.



Impact Assessment

The potential for impact associated with the extended hours of operation is limited to the construction phase of the project and only for the additional hours, namely Saturday afternoons and Sundays. This translates to an additional 16 hours per week.

Transgrid has provided an analysis of the potential noise impact (refer **Attachment 1**), which includes a graphic representation of 10 dwellings within the line of sight of various sections of the transmission line. The most affected receivers, identified as House Nos. 5, 6 and 7, are located between approximately 200 and 500 metres from specific transmission line structures. These dwellings are highlighted in yellow on the distances to houses sheet of the Excel spreadsheet included at **Attachment 1**.

Transgrid has utilised the RMS Noise Calculator to identify the likely noise impacts (the results of which are also included at **Attachment 1**). A rural land use scenario was adopted for the purposes of the Calculator, with the noisiest plant selected as a bored piling machine (114dB). The results indicate that at a distance of approximately 190 metres, the noise contribution of the piling rig is within the background noise level for both standard working hours and out-of-hours daytime working hours.

House No. 5 is located 210 metres from the nearest transmission line structure (G4). Based on the information presented in the RMS Noise Calculator, the noise impact to this property is within the background noise level and as such, the noise impact associated with the extended hours is expected to be within reasonable limits.

Furthermore, the duration of the construction at each structure is finite, although it will vary depending on the ground conditions at each site.

Notwithstanding the above, Transgrid has indicated that piling equipment and hole boring will be restricted to Mondays – Saturdays (i.e. will not occur on Sundays) unless it is located well away from any sensitive receivers.

Safeguards and Mitigation Measures

- Transgrid shall employ best endeavours to program noisy works to be carried out during normal working hours.
- Piling works and hole boring shall generally be restricted to Mondays Saturdays, unless it is scheduled to occur more than 190 metres from the nearest residential receiver.

3.2 Traffic and Access

Existing Environment (as described in Section 6.9.1 of the REF)

The main roads surrounding the investigation area are:

Pacific Highway to the west Eight Mile Lane to the south Centenary Drive to the west Avenue Road to the east.

Local roads within the investigation area are:

Washpool Road Tancreds Lane



Four Mile Lane Swan Lane Duncans Road Timbs Lane Six Mile Lane.

The Activity also intersects numerous private access tracks.

Impact Assessment

A Traffic Impact Assessment was undertaken by Arup which informed the REF for the Activity.

The Assessment concluded that the volume of traffic associated with the construction would be distributed on different roads and is considered a minor volume in the context of existing traffic conditions. All access roads proposed to be used for the construction of the transmission line have the capacity to accommodate these vehicle movements. The additional vehicles passing through key intersections in the investigation area are considered to have a negligible impact on the performance of the road network.

The proposed extended hours of construction will not increase the number of vehicles or the volume of traffic associated with the construction. It is noted that no change is proposed to the hours Monday to Friday (7.00am – 6.00pm) and as a consequence there will be no additional traffic impact during peak periods.

However, it is anticipated that there will be an additional impact associated with the extended hours in that vehicles would require access to /from the work sites 7 days per week until 6.00pm.

The original REF included an assessment of the volume of traffic as being minor in the context of existing traffic conditions and furthermore, all access roads proposed to be used during the construction phase were determined to have the capacity to accommodate the construction traffic.

The additional vehicles passing through key intersections in the investigation area are considered to have a negligible impact on the performance of the road network.

However, traffic movements on access tracks on Saturday afternoons and Sundays may have some impact on sensitive residential receivers in the vicinity.

Having regard to the above, the potential additional impact is considered to be negligible, however it is recommended that the following additional safeguard / mitigation measure be imposed in order to protect the amenity of sensitive residential receivers:

Safeguards and Mitigation Measures

• Passage of trucks and equipment will not occur before 7.00am or after 6.00pm on Sundays.

4 Conclusion

In considering the proposal to extend the construction hours, this report and the supporting documentation provided by Transgrid has examined and taken into account to the fullest extent possible, the potential effect on the environment by reason of those extended hours as they relate to the approved Activity. This assessment is considered to be in accordance with the factors required to be considered under clause 228 of the Environmental Planning and Assessment Regulation 2000.



It is concluded that whilst the extended construction hours will result in some minor impacts in terms of amenity of certain residential properties in the visual curtilage of the transmission line, it is unlikely that any significant or long-term adverse impact would eventuate.

The extended construction hours will not alter the assessed impact of the Activity in terms of its effect on the environment or threatened species, populations, ecological communities or their habitats, nor is there expected to be any significant impacts on matters of national environmental significance or any impacts on Commonwealth land.

Having regard to the above, it is considered that the variation to the construction hours is acceptable, provided the additional safeguards and mitigation measures identified in this report are implemented.

5 Recommendation

It is recommended that the proposal to extend the construction hours associated with the approved Activity (for the construction, operation and maintenance of a new 132kV electricity line to service the new Clarence Correctional Centre as described in the REF) be approved, subject to:

- (i) the implementation of all safeguards and mitigation measures identified in Section 8.2 of the REF;
- (ii) compliance with all relevant statutory approvals, licences, permits and authorisations; and
- (iii) implementation of the following additional safeguards and mitigation measures:
 - Transgrid shall employ best endeavours to program noisy works to be carried out during normal working hours;
 - Piling works and hole boring shall generally be restricted to Mondays Saturdays, unless it is scheduled to occur more than 190 metres from the nearest residential receiver; and
 - Passage of trucks and equipment will not occur before 7.00am or after 6.00pm on Sundays.

Accordingly the proposal is referred to the Chief Executive for determination.

Recommended by:

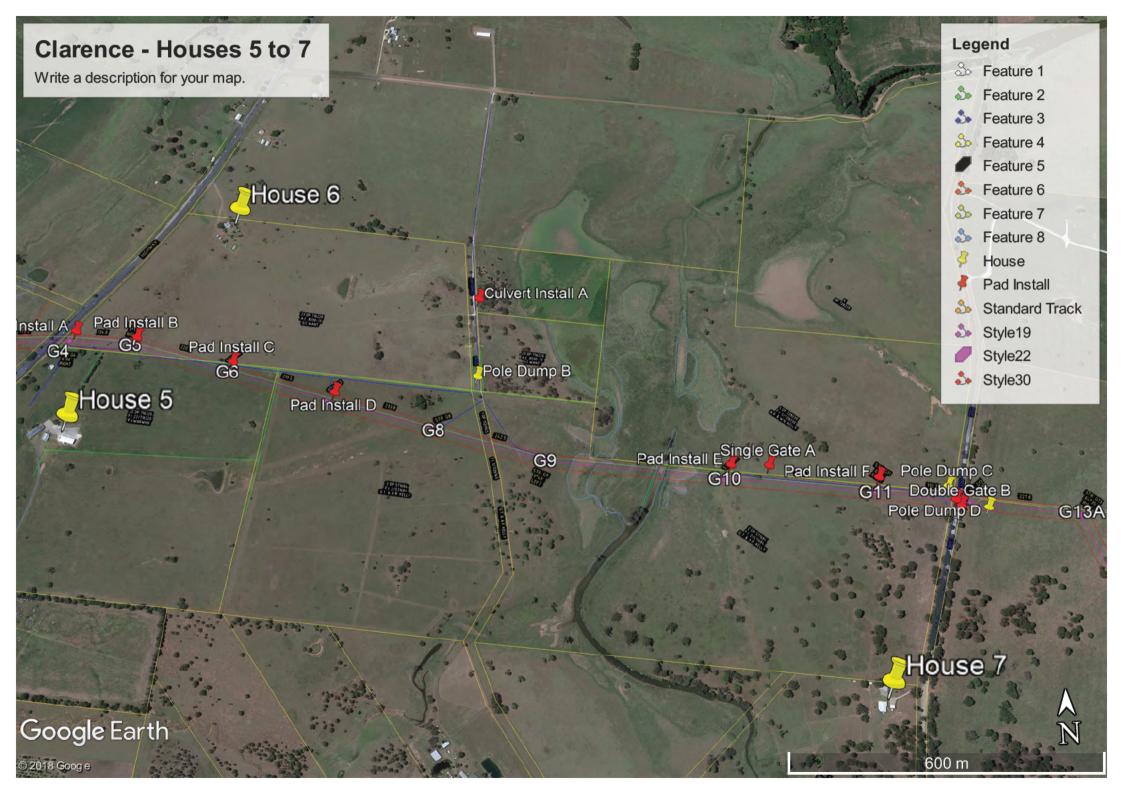
Helen Mulcahy Director Helen Mulcahy Urban Planning Pty Ltd Date: 21 May 2019

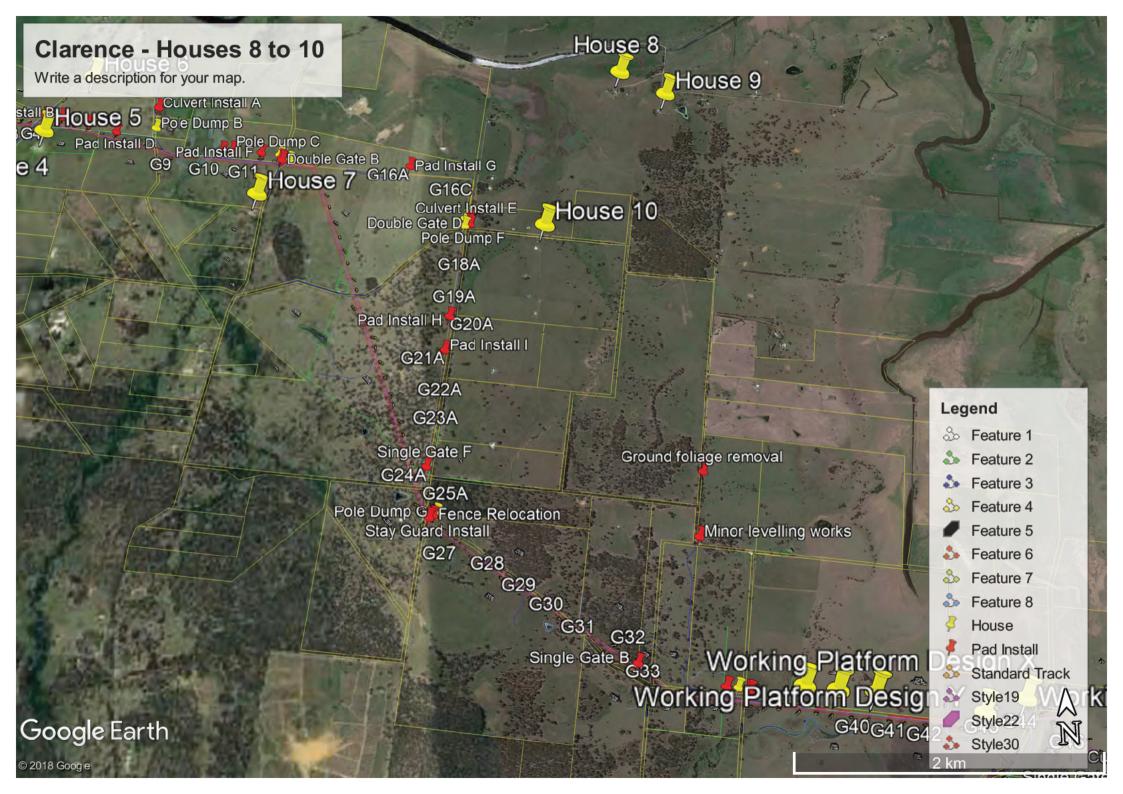


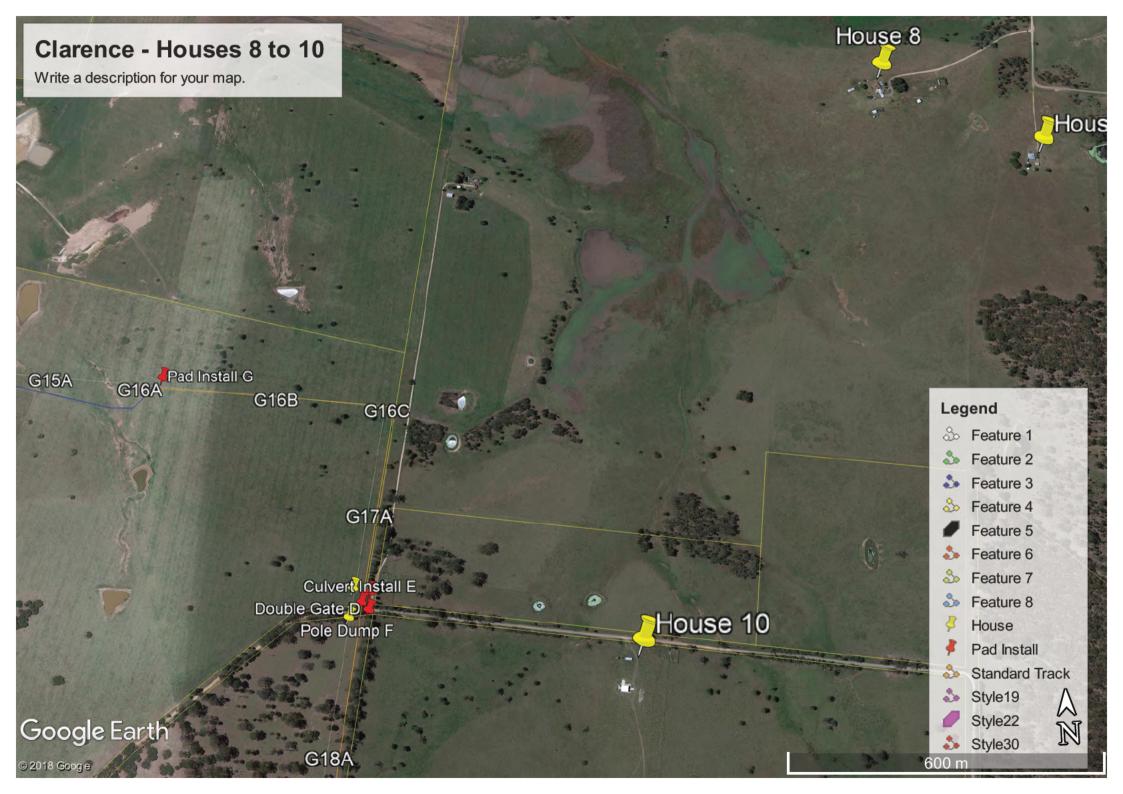
Attachment 1

Noise Impact Assessment Transgrid











is all plant at the same representative distance to the receiver? Y/N
Representative distance /m)

Please input informat on into vellow cells	1		
Please pick from drop-down ist in orange ce is			
Project name		Example	
Scenario name		Sha low excava io	n
Receiver address			
Se ect area ground type		Undeveloped green fields (ru al a eas v	with isolated dw Ilings)
Select type of background noise lev	/el input	Representa ive Noise En	ironment
		Representative Noise Environment	User Input
Noise area category		Representative Noise Environment R2	User Input
Noise area category	Day		User Input
Noise area category RBL or Las Background level (dB(A))	Day Evening	R2	User Input
		R2 45	User Input
	Evening Night Day	R2 45 40 35 55	User Input
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ype/ model plant (See Sources Sheet)	SWL LAe (dB(A))	SPL @7m (dB(A))	Quantity	Individual distance to receiver m)	Is there line of sight to receiver? Y/N	Quantity correction (dBA)	Shielding correction (dBA)	Distance used in calcula ion (m)	Contribut or SPL dB(A))
BG2 Bored iling ig (RW01,0)	11	89	1	190	Yes	0	0	190	5
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
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					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888
					Yes	0	0		-888

Total SPL L Aeg(15minute) (dB(A)) 54

		Non-residential receivers							
		Residential receiver	Classroom at schools and other educational institutions	Hosp tal wards and operating theatres	Place of worship	Active recreation	Passive recreation	Industrial premise	Offices, retail outlets
	Standard hours	55	55	65	55	65	60	75	70
Noise Management Level (dB(A))	Day (OOHW)	50	55	65	55	65	60	75	70
Noise Management Level (dB(A))	OOHW Period 1	45		65	55	65	60	75	70
	OOHW Period 2	40		65	55			75	70
	Standard hours	9							
Level above background (dB(A))	Day (OOHW)	9							
	OOHW Period 1	14							
	OOHW Period 2	19							
	Standard hours	- A							
Level above NML (dB(A))	Day (OOHW)	4							
Lever above NML (dB(A))	OOHW Period 1	9							
	OOHW Period 2	14							
	Standard Hours	-							
Additional mitigation measures	Day (OOHW)	-							
Additional mitigation measures	OOHW Period 1	N, R1, DR							

Abbreviation	Measure			
N	Not f cat on			
SN	Spec f c not f cat ons			
PC	Phone c IIs			
IB	Ind v dual b ef ngs			
RO	Resp te offe			
R1	Resp te pe od 1			
R2	Resp te pe od 2			
DR	Du at on esp te			
AA	Alte nat ve accommodat on			
V	Ve fcat on			

And the second s	Distance of Based Assessment (Noisiest Plant) Image: Im						
Kondentia Receiver	\$ to 10 dB(A)	10 to 20 dB(A)	Live to to 20 click level above background (Live 20 to 20 click)	and i	> 20 db (A)	Litery Station (75 dB(A) or greater (Highly affected)	Sleep disztriance Lines 65 dB(A)
Affected distance (m)	Noticable Within Measures distance	Clearly audible	Moderatelyintrusk	re Hi	ighly intrusive	White distance Wite star In-	
interplanet Day	Measures distance (cD(A))	Measures Within Mitigation distance(m) (dB)A	A) Noasures distance	in Miligation level Measures (m) (dB(A)) Measures (C N, PC, RO	Within distance Mitigation level (m) (dB(A))	Measures (n) (d2(A)) N, PC, RO 25 75	Affected distance (m)
en fields, rural Day[ODHW] 220 amas with Evenine 22	ŧ	N.R1.DR 175 55 N.R1.DR 250 50	N, RI, DR 75	65 N.R1, DR, PC, SN 60 N.R1, DR, PC, SN	25 75	N,PC,R0 25 75 N,PC,R0 25 75	
anas with Evening X3 isolated Night 525 dwellings HighlyAffected 23	N 525 40	N.R1.DR 250 50 N.R2.DR 365 45	N, PC, SN, R2, DR 175	S AA, N, PC, SN, R2, DR	75 65	N,PC,R0 25 75 N,PC,R0 25 75	125
Developed Day 200 Developed Day (DOHW) 200	1	N.RLDR 200 55	N 45 N.RI.DR 45	65 N.PC.RO 66 N.R1.DR.PC.2N	20 75 20 75	N,PC,R0 30 75	
urban and Evening 400 Nght 000	N 690 40	N, R1, DR 200 55 N, R1, DR 205 50 N, R2, DR 460 45	N, RI, DR 85 N, RI, DR 135 N, PC, SN, R2, DR 200	65 N, R1, DR, PC, SN 60 N, R1, DR, PC, SN 55 AA, N, PC, SN, R2, DR	50 70 85 65	N, PC, RO 30 75 N, PC, RO 30 75 N, PC, RO 30 75	200
Day 25	1		N 95	65 N.PC, RO	2 2	N,PC,R0 30 75 N,PC,R0 35 75	
Propagation Day(DDHW) 405 ross a valley! Evening ED0 over water Nabt 200		N,R1,DR 255 55 N,R1,DR 405 50	N, RI, DR 95 N, RI, DR 160	65 N,R1,DR,PC, 2N 60 N,R1,DR,PC, 2N	25 75 60 70	N, PC, RD 25 75 N, PC, RD 25 75	
Verwähr Night 900 HighlyAffected 35	N 900 40	N, KK, DR 630 45	N, PC, SN, R2, DR 255	25 AA, N, PC, 2N, R2, DR	2 6	N,PC,R0 35 75 N,PC,R0 35 75	265
Non-mailtantial services							
Non-realisential receiver Undeveloped green fields, rural areas with isolated dwellings	Standard hours	<10 cD (A)	ngilinium) ndite level above NML 90 to 20 dB(A)	LAeq(15minute) 75 d	B(A) or greater (Highlyaffected)		
	Period NML Affected	<10 cD(A) Kito cD(A) Measure Within Mitigation (40/4	10 to 20 cB(A) n level Measure distance	in Mitigation level Measure	Within distance Witigation level		
Case on at schools and other educational institutions Hospital wands and operating theorem Place of wombin	Day 55 175 Day 65 75 Day 55 175	1	N 25	65 N,PC,R0 N,PC,R0 65 N,PC,R0	25 B 25 B		
Place of workhip Active recreation	Day 55 175 Day 65 75 Day 60 120	-	N 25	65 N,PC,RO N,PC,RO	3 B 3 B		
Passave recreation Industrial previoe Offices, retail outjets	Day 75 25	-	N 43	70 N.PC.RO N.PC.RO N.PC.RO	a 5 8 8		
Othory, retail addets	Day 70 6			N,PC,RO	a a		
	OOHW	< 5 dB(A)	Sto 15 dBjAj D III VIII W III II	Langitorius (milite level above NML	5 to 25 dB(A)	> 25 dB(A)	-
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Place of wanthip	Evening 55 175 Night 55 175	N 125 55	N, R1, DR 130 N, R2, NR 130	60 N,R1, DR 60 N,PC, SN, R2, DR	45 79 45 79	N, R1, DR, PC, SN 54 80 M, N, PC, SN, R2, DR 54 80	
Alber recreation Pacing recreation	Evening 65 75 Evening 60 120	-	N, R1, DR 25 N, R1, DR 25 N, R1, DR 24	65 N.RI.DR	14 10 25 75	N, R1, DR, PC, SN 4 90 N, R1, DR, PC, SN 8 85	
Industrial premise	Evening 75 25 Night 75 25	N 25 75	N, R1, DR 54 N, R2, NR 54	80 N, R1, DR 80 N, PC, SN, R2, DR	4 90	N, R1, DR, PC, SN 1 100 AA, N, PC, SN, R2, DR 1 100	
Offices, retail outlets	Evening 70 45 Night 70 45	N 65 70	N, R2, NR 25	75 N, R1, DR 75 N, PC, SN, R2, DR	1 15	N, R1, DR, PC, 2N 3 95 AM, N, PC, 2N, R2, DR 3 95	3
Non-residential receiver Developed settlements (urban and suburban)							
Developed settlements (urban and suburban)	Standard hours	< 10 cB (A)			B(A) or greater (Highlyaffected)		
	Period NML Affected distance (m)	Measure Within Miligation distance (m) (dD)/	n level Measure Within All distance	in Misigation level Measure (m) (dB(A))	Within distance Witigation level		
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Place of windop Active recreation Paolive recreation		-	N 15	10 N.PC.RO N.PC.RO	8 h 8 h		
Industrial previce	Day 60 135 Day 75 20 Day 75 20	4		N, PC, RO	20 H		
		(549)A					
	COHW		\$10 15 cB/A	Lingitume mits level above NML	5 to 25 dB(A)	> 23 d5/A	
	Period NML Affected	< 5 dB(A) Within Mitigation distance (m) (4B)	AD Measure datance	in Mitigation level Measure	S to 25 clB(A) W 2hin Clatance W2igation level (clB K)	> 25 dB(A) Measure Within distance Witigation law M D1 D2 D2 D2 D4 M D1 D2 D2 D4	ref
Hospital wants and operating theoree	Period NML Affected distance (m) Evening 65 85 Night 65 85	Namuro Within Mitigation Antorected (40)/4	N Revel Massure Within N, R1, DR 50 N, R2, NR 50 N, R2, NR 50	Ŷ	5 to 25 dB(A) Within clistance Miligation level 100 (2017) 80 17 80 10 10 10 10	> 23 dB/A Weamure Within distance Witigetise law ont of the distance Witigetise law ont within the distance Witigetise law within the	
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Math and boxMath and boxM							total L SWL	Activity total L _{A1} SWL
NameNote of the sector of the sec	Mobilisation & Site	Installing construction boundary boardings/ fences and traffic					1	15 116
	Establishment	barriers	Scissor Lift	98	73	hour .	1	
martialmathemmartial <t< td=""><td></td><td></td><td>Excavator (tracked) 35t</td><td>110</td><td>85</td><td>4 per</td><td>1 1</td><td>116 116</td></t<>			Excavator (tracked) 35t	110	85	4 per	1 1	116 116
mathem Mathem <td></td> <td></td> <td>Franna crane 20t</td> <td>98</td> <td>73</td> <td>nour .</td> <td>1</td> <td></td>			Franna crane 20t	98	73	nour .	1	
Note:		services	Concrete saw	118	93		1	
Partial statusPartial statusParti			Power generator	103	78			
image:image		General land clearing, tree and	Excavator (tracked) 35t	110	85		1	
DiamPart and part and p	Corridor	stump removal, topsoil stripping, loading	Tub grinder/ mulcher 40-50hp	116	91	4 per		
NatureNatur	Clearing		Excavator (tracked) 35t	110	85	hour .		22
Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Notati Not		House/ building demolition	Front end loader 23t	112	87			Not recommended as OOHW
IntermImage: state of the state					03	hour	1 1	18
normno	Rock crushing	waste/ rock material for re-use on	Bulldozer D9	116	91		1	Not recommended as
beswelling 10		site	Dump truck	110	85	4 per hour		
Partial sectorPartial sectorParti			Scraper 651	110	85		1	23
Bate and manual proves tank provide starts of a second start		Excavation of soil and rock.	As above + hydraulic hammer	122	97		1	
 Normation of particular set of the set of	Bulk earthworks	hammering/rock breaking, drilling, loading, haulage, compaction of fill			05	8 per		
Note of the second of second		areas, grading	Compactor	106	81	nour	1	
Partial problem 20 90 90 90 Description 20 000000000000000000000000000000000000			Water cart	107	82			15 116
 Diange of isomethal weak is and is a second of isomethal weak isomet		Excavation of trenches and nite	Franna crane 20t	98	73		1	.10
Nate of the set o		Delivery and placement of precast pipes and pits: filling and				hour	1	
Mail and Mail (1) Mail (2) Mail (2) <td></td> <td>compacting.</td> <td>Vibratory roller</td> <td>109</td> <td>84</td> <td>4 per</td> <td></td> <td></td>		compacting.	Vibratory roller	109	84	4 per		
Binding many local parts (see)Prove parts (see)<			Franna crane 20t	98	73	hour	1 1	20 124
Bachard of private dependence Concession Part of the second of the seco		Continue con ante ante	Piling rig - bored	112	87			
Denotion.Concession <t< td=""><td>Bridge works</td><td>Placement of pre-cast elements; Plling (mainly bored); and</td><td>Concrete pump</td><td>102</td><td>77</td><td></td><td></td><td>recommended as</td></t<>	Bridge works	Placement of pre-cast elements; Plling (mainly bored); and	Concrete pump	102	77			recommended as
NormanNorma		Demolition.	Compressor	109	84	hour	1	OOHW)
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Normal sectorNormal			Welding equipment Excavator (tracked) 35t	105 112	80 87		1	as OOHW)
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			Excavator Dumping Rubbles					