



# DIGBY WELLS

## ENVIRONMENTAL

The significance rating process follows the established impact/risk assessment formula:

$$\text{Significance} = \text{Consequence} \times \text{Probability} \times \text{Nature}$$

Where

$$\text{Consequence} = \text{Intensity} + \text{Extent} + \text{Duration}$$

And

$$\text{Probability} = \text{Likelihood of an impact occurring}$$

And

$$\text{Nature} = \text{Positive (+1) or negative (-1) impact}$$

Note: In the formula for calculating consequence, the type of impact is multiplied by +1 for positive impacts and -1 for negative impacts

The matrix calculates the rating out of 147, whereby Intensity, Extent, Duration and Probability are each rated out of seven as indicated in Table 7-1. The weight assigned to the various parameters is then multiplied by +1 for positive and -1 for negative impacts.

Impacts are rated prior to mitigation and again after consideration of the mitigation measure proposed in this EIA/EMP Report. The significance of an impact is then determined and categorised into one of eight categories, as indicated in Table 7-2, which is extracted from Table 7-1. The description of the significance ratings is discussed in Table 7-3.

It is important to note that the pre-mitigation rating takes into consideration the activity as proposed, i.e. there may already be certain types of mitigation measures included in the design (for example due to legal requirements). If the potential impact is still considered too high, additional mitigation measures are proposed.

**Table 7-1: Impact assessment parameter ratings**

Rating	Severity/Irreplaceability		Spatial scale	Duration/Irreversibility	Probability
	Environmental	Social, cultural and heritage			
7	<p>Very significant impact on the environment. Irreparable damage to highly valued species, habitat or eco system. Persistent severe damage.</p> <p>The positive impact will result in a significant improvement to the initial/post disturbance environmental status and will benefit ecological and natural resources.</p>	<p>Irreparable damage to highly valued items of great cultural significance or complete breakdown of social order.</p> <p>The positive impact will be of high significance which will result the improvement of the socio-economic status of a greater area beyond the boundary of the directly affected of the community and/or promote archaeological and heritage awareness and contribute towards research and documentation of sites and artefacts through phase two assessments.</p>	<p>International</p> <p>The effect will occur across international borders</p>	<p>Permanent: No Mitigation</p> <p>No mitigation measures of natural process will reduce the impact after implementation.</p>	<p>Certain/ Definite.</p> <p>The impact will occur regardless of the implementation of any preventative or corrective actions.</p>
6	<p>Significant impact on highly valued species, habitat or ecosystem.</p> <p>The positive impact is of high significance which will result in a vast improvement to the environment such as ecological diversification and/or rehabilitation of endangered species</p>	<p>Irreparable damage to highly valued items of cultural significance or breakdown of social order.</p> <p>The positive impact will be of high significance and will result in the upliftment of the surrounding community and/or contribute towards research and documentation of sites</p>	<p>National</p> <p>Will affect the entire country</p>	<p>Permanent:</p> <p>Mitigation measures of natural process will reduce the impact.</p>	<p>Almost certain/Highly probable</p> <p>It is most likely that the impact will occur.</p>

Rating	Severity/Irreplaceability		Spatial scale	Duration/Irreversibility	Probability
	Environmental	Social, cultural and heritage			
		and artefacts through phase two assessments			
5	<p>Very serious, long-term environmental impairment of ecosystem function that may take several years to rehabilitate</p> <p>The positive impact will be moderately high and will have a long term beneficial effect on the natural environment</p>	<p>Very serious widespread social impacts. Irreparable damage to highly valued items</p> <p>The positive impact will be moderately high and will result in visible improvements on the socio-economic environment of the local and regional community, and/or promote archaeological and heritage awareness through mitigation</p>	<p>Cercle/ Region</p> <p>Will affect the entire Cercle or region</p>	<p>Project Life</p> <p>The impact will cease after the operational life span of the project.</p>	<p>Likely</p> <p>The impact may occur.</p>
4	<p>Serious medium term environmental effects. Environmental damage can be reversed in less than a year</p> <p>The positive impact on the</p>	<p>On-going serious social issues. Significant damage to structures / items of cultural significance</p> <p>The positive impact on the socio-economic environment will be of a</p>	<p>Commune Area</p> <p>Will affect the whole municipal area</p>	<p>Long term</p> <p>6-15 years</p>	<p>Probable</p> <p>Has occurred here or elsewhere and could therefore occur.</p>

Rating	Severity/Irreplaceability		Spatial scale	Duration/Irreversibility	Probability
	Environmental	Social, cultural and heritage			
	environment will be moderate with visible improvement to the natural resources and regional biodiversity	moderate extent and benefits should be experience across the local extent and/or potential benefits for archaeological and heritage conservation			
3	<p>Moderate, short-term effects but not affecting ecosystem function. Rehabilitation requires intervention of external specialists and can be done in less than a month.</p> <p>The positive impact will be moderately beneficial to the natural environment, but will be short lived.</p>	<p>Ongoing social issues. Damage to items of cultural significance.</p> <p>The positive impact will be moderately beneficial for some community members and/or employees, but will be short lived and/or there will be a moderate possibility for archaeological and heritage conservation</p>	<p>Local</p> <p>Local extending only as far as the development site area</p>	<p>Medium term</p> <p>1-5 years</p>	<p>Unlikely</p> <p>Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur.</p>
2	<p>Minor effects on biological or physical environment. Environmental damage can be rehabilitated internally with/ without help of external consultants.</p> <p>The positive impacts will be minor and slight environmental improvement will be visible.</p>	<p>Minor medium-term social impacts on local population. Mostly repairable. Cultural functions and processes not affected.</p> <p>Minor positive impacts on the social/cultural and/ or economic environment</p>	<p>Limited</p> <p>Limited to the site and its immediate surroundings</p>	<p>Short term</p> <p>Less than 1 year</p>	<p>Rare/ improbable</p> <p>Conceivable, but only in extreme circumstances and/ or has not happened during lifetime of the project but has happened elsewhere. The</p>

Rating	Severity/Irreplaceability		Spatial scale	Duration/Irreversibility	Probability
	Environmental	Social, cultural and heritage			
					possibility of the impact materialising is very low as a result of design, historic experience or implementation of adequate mitigation measures
1	<p>Limited damage to minimal area of low significance, (e.g. ad hoc spills within plant area). Will have no impact on the environment.</p> <p>The positive impact on the environment will be insignificant and will not result in visible improvements</p>	<p>Low-level repairable damage to commonplace structures.</p> <p>The positive impact on social and cultural aspects will be insignificant</p>	<p>Very limited</p> <p>Limited to specific isolated parts of the site.</p>	<p>Immediate</p> <p>Less than 1 month</p>	<p>Highly unlikely/None</p> <p>Expected never to happen.</p>

**Table 7-2: Probability/Consequence Matrix**

		Significance																																					
		-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
Probability	7	-147	-140	-133	-126	-119	-112	-105	-98	-91	-84	-77	-70	-63	-56	-49	-42	-35	-28	-21	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147
	6	-126	-120	-114	-108	-102	-96	-90	-84	-78	-72	-66	-60	-54	-48	-42	-36	-30	-24	-18	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126
	5	-105	-100	-95	-90	-85	-80	-75	-70	-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105
	4	-84	-80	-76	-72	-68	-64	-60	-56	-52	-48	-44	-40	-36	-32	-28	-24	-20	-16	-12	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84
	3	-63	-60	-57	-54	-51	-48	-45	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-9	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63
	2	-42	-40	-38	-36	-34	-32	-30	-28	-26	-24	-22	-20	-18	-16	-14	-12	-10	-8	-6	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
	1	-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
		Consequence																																					

**Table 7-3: Significance Rating Description**

Score	Description	Rating
109 to 147	A very beneficial impact that may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change	Major (positive)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the (natural and / or social) environment	Moderate (positive)
36 to 72	An important positive impact. The impact is insufficient by itself to justify the implementation of the project. These impacts will usually result in positive medium to long-term effect on the natural and / or social environment	Minor (positive)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the natural and / or social environment	Negligible (positive)
-3 to -35	An acceptable negative impact for which mitigation is desirable but not essential. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the natural and / or social environment	Negligible (negative)
-36 to -72	An important negative impact which requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the natural and / or social environment	Minor (negative)
-73 to -108	A serious negative impact which may prevent the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term change to the (natural and / or social) environment and result in severe effects	Moderate (negative)
-109 to -147	A very serious negative impact which may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects	Major (negative)