



Cielos de Tarapacá

Chapter 7

Mitigation plans

EIA CIELOS DE TARAPACÁ

November 2014

Chapter 7

Mitigation measures PLAN

EIA Photovoltaic Park Cielos de Tarapacá

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1 Cultural Heritage

The following describes the measures designed for the impact of Evaluated from Component Cultural Heritage, Incorporating objectives and activities to be carried out. The measures associated with cultural heritage apply for the associated effects of both the historical and archaeological heritage identified in the area of direct influence of the project.

En the Following Table is incorporates a summary of the impacts, as well as The Environmental management plan, Associated with the Cultural Heritage component:

Associated Impact	Stage	Type of measurement	Measure Name
PC-PHI-CON-01	Construction	Compensation	PM-PHI-01: Exhaustive record of the elements for their conservation in the historical context.
			PM-PHI-02: Collection of superficial sites and isolated historical findings. Generation of historical restriction area.
PC-PAR-CON-01	Construction	Compensation	PC-PAR-01: Collection of superficial sites and findings.

Source: Self-elaboration.

2 Historical heritage

2.1 [Measure PM-PHI-01: Registration Comprehensive of the elements to Their conservation in the context Historical](#)

The impact **PC-PHI-CON-01** Corresponds To The eventual damages on real estate sites of historical character, by effects of the activities of removal of soil of the area where this type of patrimonial elements are located. Indeed, during the ETAPA Construction Works (Soil preparation, ground movements, underground canalization), along with construction waste management activities, excavation surpluses, waste collection and civil works (installation of the perimeter fence of the Pfv Construction of slaughter facilities, electrical

substations, warehouses, mounting of supporting structures and solar panels, construction of aerial laying, servitude and LAT, as well as the improvement of accesses and internal roads) will imply the direct intervention of the ground Where the historical heritage elements are located.

Because these sites correspond to linear traits (historical Uellas, railway lines) and narrow structures, which cannot be recovered in a material way, it is necessary to rescue all the information associated with them. This information retrieval translates into the exhaustive recording of the historical location, architectural, materiality and contextual characteristics of each element.

a) Objectives

- To record in detail the external characteristics of each patrimonial element, through a registration form *Ad hoc* That allows to document the site, architectural features and materiality of the same.
- Perform a topographic survey of each element.
- Make a photographic record and Video graphic of each element.
- To make a historical review that allows each element to be contextualized within the Nitrate Development Framework of the region.

b) Description of the measures

The exhaustive registration will be carried out prior to the beginning of the construction stage, through a team of archaeologists and surveyors, that realization the lifting and retrieval of documentary information.

This activity is applied to each of the elements presented in the Following Table.

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Table 2: Isolated findings and historical linear traits That require implementing the measure "PM-PHI-01: Exhaustive registration Of the elements for your conser In the historical context. "

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	North M	East M		AID	Aii
HA04	Historical	19	7,707,966	440,127	Photovoltaic plant	X	
HA10	Historical	19	7,707,433	443,387	Photovoltaic plant	X	
RL01	Historical	19	7,711,256	443,717	Photovoltaic plant	X	
RL02	Historical	19	7,711,240	443,567	Photovoltaic plant	X	
RL03	Historical	19	7,708,287	443,579	Photovoltaic plant	X	
RL04	Historical	19	7,710,724	442,905	Photovoltaic plant	X	
RL05	Historical	19	7,701,037	443,245	Photovoltaic plant	X	
RL06	Historical	19	7,701,018	443,375	Photovoltaic plant	X	
RL07A	Historical	19	7,707,615	443,520	Photovoltaic plant	X	
RL07B	Historical	19	7,708,264	443,754	Photovoltaic plant	X	
RL08	Historical	19	7,710,125	442,575	Photovoltaic plant	X	
RL09	Historical	19	7,706,618	441,229	Photovoltaic plant	X	
RL10	Historical	19	7,709,291	442,927	Photovoltaic plant	X	
RL11	Historical	19	7,709,226	442,551	Photovoltaic plant	X	
RL12	Historical	19	7,707,330	442,701	Photovoltaic plant	X	
RL13	Historical	19	7,707,783	442,152	Photovoltaic plant	X	
RL14	Historical	19	7,707,843	442,101	Photovoltaic plant	X	
RL15	Historical	19	7,707,235	442,178	Photovoltaic plant	X	
RL16	Historical	19	7,706,635	442,778	Photovoltaic plant	X	
RL17	Historical	19	7,711,042	442,228	Photovoltaic plant	X	
RL18	Historical	19	7,709,396	442,176	Photovoltaic plant	X	
RL19	Historical	19	7,706,728	442,994	Photovoltaic plant	X	
RL20	Historical	19	7,707,929	442,728	Photovoltaic plant	X	
RL21	Historical	19	7,710,138	442,127	Photovoltaic plant	X	

Table 2: Isolated findings and historical linear traits That require implementing the measure "PM-PHI-01: Exhaustive registration Of the elements for your conser In the historical context. "

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	North M	East M		AID	Aii
RL22	Historical	19	7,708,274	442,078	Photovoltaic plant	X	
RL23	Historical	19	7,708,118	441,682	Photovoltaic plant	X	
RL24	Historical	19	7,708,144	441,615	Photovoltaic plant	X	
RL25	Historical	19	7,708,276	441,632	Photovoltaic plant	X	
RL26	Historical	19	7,708,380	441,639	Photovoltaic plant	X	
RL27	Historical	19	7,708,638	441,603	Photovoltaic plant	X	
RL28	Historical	19	7,701,018	441,438	Photovoltaic plant	X	
RL29	Historical	19	7,709,294	441,074	Photovoltaic plant	X	
RL29B	Historical	19	7,706,830	441,376	Photovoltaic plant	X	
RL30	Historical	19	7,706,506	440,966	Photovoltaic plant	X	
RL31	Historical	19	7,706,429	440,678	Photovoltaic plant	X	
RL32	Historical	19	7,706,047	440,824	Photovoltaic plant	X	
RL33	Historical	19	7,708,934	442,096	Photovoltaic plant	X	
RL34	Historical	19	7,707,606	441,527	Photovoltaic plant	X	
RL35	Historical	19	7,707,755	441,576	Photovoltaic plant	X	
RL36	Historical	19	7,707,904	440,991	Photovoltaic plant	X	
RL37	Historical	19	7,706,434	441,626	Photovoltaic plant	X	
RL38	Historical	19	7,706,333	441,621	Photovoltaic plant	X	
RL39	Historical	19	7,706,460	441,199	Photovoltaic plant	X	
RL40	Historical	19	7,706,662	440,975	Photovoltaic plant	X	
RL41	Historical	19	7,705,663	440,696	Photovoltaic plant	X	
RL42	Historical	19	7,707,273	440,527	Photovoltaic plant	X	
RL43	Historical	19	7,710,175	441,622	Photovoltaic plant	X	
RL44	Historical	19	7,710,023	441,631	Photovoltaic plant	X	

Table 2: Isolated findings and historical linear traits That require implementing the measure "PM-PHI-01: Exhaustive registration Of the elements for your conser In the historical context. "

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	North M	East M		AID	Aii
RL45	Historical	19	7,706,497	440,579	Photovoltaic plant	X	
RL46	Historical	19	7,706,478	440,521	Photovoltaic plant	X	
RL47	Historical	19	7,706,434	440,535	Photovoltaic plant	X	
RL48	Historical	19	7,706,334	440,574	Photovoltaic plant	X	
RL49	Historical	19	7,705,894	440,545	Photovoltaic plant	X	
RL50	Historical	19	7,705,868	440,530	Photovoltaic plant	X	
RL51	Historical	19	7,709,262	440,949	Photovoltaic plant	X	
RL52	Historical	19	7,707,772	442,740	Photovoltaic plant	X	
SA01/LAT	Pre-Hispanic history	19	7,703,320	429,921	Lat	X	
SA02/LAT	Pre-Hispanic history	19	7,702,655	429,594	Lat	X	
SA03/LAT	Pre-Hispanic history	19	7,702,523	429,547	Lat	X	
SA05/LAT	Pre-Hispanic history	19	7,702,263	429,393	Lat	X	
SH04/LAT	Historical	19	7,701,740	429,123	Lat		X
HA02/LAT	Historical	19	7,706,514	435,868	Lat	X	
RL001/LAT	Historical	19	7,707,747	438,930	Lat	X	
RL002/LAT	Historical	19	7,707,838	439,124	Lat	X	
RL003/LAT	Historical	19	7,707,942	439,160	Lat	X	
RL004/LAT	Historical	19	7,705,984	433,369	Lat	X	
RL005/LAT	Historical	19	7,698,610	427,438	Lat	X	

Source: Self-elaboration.

c) Compliance indicators

Compliance will correspond to the corroboration that the registration was made. A complete report will be given to account for the registration, with annexes that present the tabs of each element and associated plans.

2.2 Measure PM-PHI-02: Superficial collection of sites and historical findings. Generation of historical restriction area.

The impact **PC-PHI-CON-01** Possible damage to isolated findings and historical sites due to the effects of LA removal of the soil, the passage of machinery associated with the tasks, the passage of personnel and transport that will generate effects such as: breaking of the pieces that compose each site, or eventual displacements of the parts and consequently the loss of the same ones.

Because these sites and findings correspond to dispersions of historical materials on surface (glass, earthenware, metal and isolated remains) and therefore are movable patrimonial property, it is proposed as a measure its registration and collection, in order to recover the Remains and preserve its integrity for studies of historical character, preserving its geographical point of origin.

a) Objectives

- Register the topographic point of each site and find isolated through an uprising with high-resolution equipment.
- Collect each element according to archaeological logging and conservation protocols.
- To carry out specialized analyses that allow to complete the historical information associated to the project area.
- Fence and install protection signage for the site SH04/LAT located in the area of indirect influence of the project, in order to avoid its accidental affectation.

b) Description of the measures

The collection must be carried out prior to the beginning of the construction stage and requires the sectoral permit of the Council of National Monuments. It will apply the methodology of the archaeological discipline in terms of the recovery of this type of elements. The Recovered materials will be subjected to

specialized analyses and conservation measures to be sent to a museum defined in conjunction with the Council of National Monuments. The fencing on its part, does not require the permission of the CMN to be implemented.

This activity will apply to each of the elements presented in following table.

Table 3: Sites and Historical isolated findings That require implementing the measure "PM-PHI-02: Superficial collection of sites and historical findings. Generation of historical restriction area ".

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
HA02	Historical	19	7,706,496	440,617	Photovoltaic plant	X	
HA03	Historical	19	7,706,401	440,691	Photovoltaic plant	X	
HA05	Historical	19	7,706,434	441,626	Photovoltaic plant	X	
HA06	Historical	19	7,708,123	441,217	Photovoltaic plant	X	
HA07	Historical	19	7,710,541	441,631	Photovoltaic plant	X	
HA09	Historical	19	7,707,405	443,315	Photovoltaic plant	X	
SH01/LAT	Historical	19	7,702,969	429,737	Lat	X	
SH02/LAT	Historical	19	7,702,790	429,693	Lat	X	
SH03/LAT	Historical	19	7,702,091	429,325	Lat	X	
SH04/LAT	Historical	19	7,701,740	429,123	Lat		X
SH05/LAT	Historical	19	7,701,597	429,070	Lat	X	
HA01/LAT	Historical	19	7,708,255	439,761	Lat	X	

c) Compliance indicators

Compliance will correspond more than to indicators, to the corroboration that the materials constituting the findings and historical sites were recorded, collected, retained, packaged and shipped to the institution designated by the CMN, in accordance with the defined in this plan.

Regarding the site SH04/LAT compliance indicators consist of the installation of the protection fence and the preventive signage.

3 Archaeological ATRIMONIO

3.1 Measure PM-PAR-01: Superficial collection of sites and archaeological finds

The impact **PC-PAR-CON-01** It corresponds to the possible damages on isolated finds and archaeological sites by effects of the removal of the soil, the passage of machinery associated to the tasks, the passage of personnel and of transport that will generate effects like: Breaking of the pieces that compose Each site, or eventual displacements of the pieces and in consequential the loss of the same.

Because these sites and findings correspond to the dispersion of archaeological materials on the surface (lithic-sized events and isolated remains), and therefore they are movable patrimonial property, it is proposed as a measure its registration and collection, in order to recover the remains and to preserve its integrity for studies of archaeological character, preserving its geographical point of origin.

a) Objectives

- Register the topographic point of each site and find isolated through an uprising with high-resolution equipment.
- Collect each element according to protocols of Registry and Archaeological conservation.
- To carry out specialized analyses that allow to complete the archaeological information associated to the project area.

b) Description of the measures

Collection should be done Prior At the beginning of the construction stage and requires the sectoral permit of the Council of National Monuments. It will apply the methodology of the archaeological discipline in terms of the recovery of this type of elements. The materials recovered will be subject to specialized analysis and

Conservation measures to be sent to a museum, the definition in conjunction with the Council of National Monuments.

This activity is applied to a Each of the elements presented in the following table.

Table 4: Archaeological sites and isolated findings that require the implementation of the measure "PM-PAR-01: Superficial collection of sites and archaeological finds. Generation of archaeological restriction areas".

Name	Adscription Cultural	UTM coordinates (Datum WGS 84)			Associated work	Area of Influence	
		Spindle	N (M)	E (M)		AID	Aii
SA01	Prehispanic	19	7,709,346	441,132	Photovoltaic plant	X	
SA02	Prehispanic	19	7,709,559	441,300	Photovoltaic plant	X	
SA03	Prehispanic	19	7,710,964	442,381	Photovoltaic plant	X	
SA04	Prehispanic	19	7,709,926	442,247	Photovoltaic plant	X	
HA01	Prehispanic	19	7,705,557	440,436	Photovoltaic plant		X
HA08	Prehispanic	19	7,710,196	442,288	Photovoltaic plant		X
SA01/LAT	Prehispanic Historical	19	7,703,320	429,921	Lat	X	
SA02/LAT	Prehispanic Historical	19	7,702,655	429,594	Lat	X	
SA03/LAT	Prehispanic Historical	19	7,702,523	429,547	Lat	X	
SA04/LAT	Prehispanic	19	7,702,448	429,451	Lat		X
SA05/LAT	Prehispanic Historical	19	7,702,263	429,393	Lat	X	

Source: Self-elaboration.

c) Compliance indicators

Compliance will correspond to the corroboration that the findings and sites were registered, collected, retained, packaged and sent to the institution designated by the CMN, in accordance with the definition of this plan.

On the HA01 and SA04/LAT Compliance indicators consist of the installation of LYou Fences Protection and preventive signage.