The Engineering Land Reclamation Mode and Utilization Planning of aboveground Cave Dwelling in Shaanxi

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Abstract

The study about utilization planning of hollow village land reclamation from the aboveground cave dwelling reclamation technology in Chengcheng of Shaanxi, which provided the scientific reference improve the land utilization of idle homestead in our country. Through these engineering patterns of excavating the aboveground cave dwelling, land leveling, road construction, farmland water conservancy, forest net protection in project area, which were used as utilization planning of aboveground cave dwelling engineering reclamation mode. This unique formation of aboveground cave dwelling remediation technology is significance for increasing the area of cultivated land, improving the ecological environment, and promoting the construction of new countryside.

Keywords

Hollow village; Aboveground cave dwelling; Land reclamation; Utilization planning.

1. Introduction

With the acceleration of social development, the rural population went out to work, the population was "hollowized", the old villages were abandoned and not demolished, and the homestead was "hollowized". A large number of rural areas in China gradually evolved into "hollow villages" or "abandoned villages"[1-5]. Therefore, studying the "hollow village" remediation technology is of great significance in effectively solving the problem of idle housing sites in rural areas, alleviating the pressure on land demand in China, improving land utilization and promoting new rural construction. This paper takes the renovation of the above-ground kiln project in Yihe Village, Anli Township, Chengcheng County as an example to illustrate its remediation technology and planning and utilization issues.

2. Hollow village remediation target

With the rapid improvement of the level of urbanization and industrialization, the rural economy has continued to grow, and the number of farmers building houses has increased. Many peasants abandoned the old houses in the village and built new houses on the side of the village or on the roadside. They often built new houses on the periphery of the village. The old houses in the village were idle and ruined, forming a so-called "hollow village"[6], which caused serious Land waste also

affects the living environment of farmers and the development of rural economic and social development. In line with planning and guidance, clear direction, local conditions, classified guidance, intensive land, optimized utilization, people-oriented, perfect protection of the four principles, the consideration of "hollow village" remediation elements to improve land use efficiency, improve living environment and residents Safety, development of rural civilization, regulation of rural management, construction of rural infrastructure, and protection of assets.

3. Project implementation and design

3.1 Project site selection and characteristics of aboveground kiln

The project area is located in Yihe Village, Anli Township, Chengcheng County. The abandoned homesteads in this area are mainly above-ground kiln. The caves of the aboveground kiln are basically connected. The caves formed form a form of “back to back, shoulder to shoulder”. There are relatively few cave dwellings, and the two caves are jointly supported by the kiln legs in between. Therefore, special care should be taken when dismantling. When one of them is to be dismantled, the cave that exists in the form of back-to-back with it will be unstable due to the influence of force. So, if one of the caves is removed and another cave is to be unaffected, support and other measures must be taken to ensure that the next cave dwelling does not collapse. Figure 1 is a typical ground kiln real map.

Fig. 1 Aboveground kiln landscape map

3.2 Land leveling project

Before the land leveling, according to the different topographical terrains, the fields with different elevations are designed. In the small and undulating area, the surface elevation design is determined according to the earthwork excavation volume, and the field elevation design in the large and undulating area is adapted to local conditions. Minimize the amount of earthwork and excavation and keep the basic balance of the amount of excavation and filling work. Each field is calculated separately for the amount of excavation and filling work, and indicates the moving direction of the earthwork. In the process of remediation and leveling of abandoned homesteads, a large number of abandoned kiln needs to be demolished, resulting in a large amount of construction waste. Except for the available parts, other construction wastes need to be landfilled, so that construction waste that needs to be landfill can be used. Ship to the settlement where you need to fill it.

During the process of dismantling and cleaning up the abandoned Zhuangji, the bulldozers were used to pile up the old manure base, the old wall and the kiln back organic manure soil, and then use the bulldozer and loader to dismantle the old Zhuangji in the project area and clean up the old The wastes such as bricks in the building are combined and utilized in combination with the land.

Land leveling should meet the requirements of gravity irrigation and self-flow drainage in the project area. The project area belongs to the original area of the loess in northern Hebei. Therefore, the land leveling plan should be partially leveled. In each leveling field, the balance of the excavation and filling of the earthwork is maintained, and it is not necessary to take a large amount of soil from outside the area, or transport the soil in large quantities to reduce the engineering investment.

3.3 Field road engineering

The project area is adjacent to the residential area, and the dry and support roads have basically formed. Therefore, the road planning should be tailored to local conditions, and the principle of saving investment is adopted. The road is divided into two levels, the field road and the production road. The road subgrade is borrowed from the land where the land is cut.

Field Road: It is the traffic road between the village and the field, mainly for the transportation of goods, the transfer of working machinery to the field and the service operation process for adding fuel, adding water and adding seeds. The maximum longitudinal slope should be 8% (except in special cases), and the minimum longitudinal slope is to meet the rain and snow water removal requirements, which is 0.4% (except in special cases).

Production road: The production road serves artificial field operations and harvests agricultural products, which can meet the passage of small agricultural machinery. The road is dominated by straight lines, and the shortest position is met on the premise of meeting the requirements. The slope setting is the same as that of the field road.

Fig. 2 Road map of the abandoned homestead in Yihe Village

3.4 Farmland water conservancy project

The field water conservancy project is divided into two parts: channel irrigation and well irrigation. In accordance with the "Land Development and Finishing Standards", combined with the actual situation of the northern Hebei Plateau project area, in order to reduce water loss and improve water utilization, it is easy to adopt irrigation methods of channel water delivery.

3.5 Forest belt engineering

In order to improve the agro-ecosystem, Fangtianlin will be networked. In the process of renovating the kiln house site on the abandoned land, according to the local climate and soil conditions in the project area, the trees on both sides of the field road are planted in a single row, the production road is not planted, and the tree species are selected according to local conditions. The principles of sorting are as follows: First, we must cherish, protect, and rationally use every inch of land; second, we must adhere to the comprehensive improvement of water, land, roads, and forests, and we will be able to combine and unify the three sides; The protection of the environment is equally important; the fourth is to adhere to local conditions, scientific argumentation, economic rationality, and technical feasibility; and five coordination with relevant national, provincial, and municipal plans and projects.

Chengcheng County Yihe Village Abandoned Homestead Reclamation Area Classification Project Statistics Table See Table 1 Classification Engineering Statistics Table. 1

Table 1 Statistical Table of Classification Engineering Quantity of Yihe Village Reclamation Project Area in Anli Township, Chengcheng County

Project	Unit	Quantity
Loader earthwork	m3	44135
Field road	m	239

Production road	m	122
40U channel	m	324
Combining road planting trees	Tree	82

4. Engineering planning and utilization

After the rectification of the kiln house site on the abandoned ground, a modern agricultural pattern of Tianchengfang, Lucheng, Shuchenglin and irrigation can be formed, which effectively increases the area of cultivated land and improves the utilization rate of land. The above-ground kiln reclamation project itself is an important measure to change the living environment conditions and ensure the safety of humans and animals. Through the reclamation of idle hollow village kiln, increase the area of cultivated land, improve the water conservancy facilities of farmland, build field roads, production roads, planted road protection forests, and create high standard basic farmland, effectively improving local ecology and survival. , production, living environment conditions. After the implementation of the project, the land will be leveled, the water will flow in the canal, there will be trees along the road, the air will be fresh, the roads will be neat, and the agriculture will flourish.

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