




Gobierno del  
Principado de Asturias



Unión Europea

*Una manera de hacer Europa*



# BUENAS PRÁCTICAS

## Operaciones Cofinanciadas

Comprehensive Sanitation Plan of Eo's estuary

Junta de Saneamiento

# Programa Operativo del Principado de Asturias

Fondo Europeo de Desarrollo Regional

**Año 2017**



GOBIERNO  
DE ESPAÑA

MINISTERIO  
DE HACIENDA  
Y FUNCIÓN PÚBLICA

SECRETARÍA DE ESTADO DE  
PRESUPUESTOS Y GASTOS

DIRECCIÓN GENERAL  
DE FONDOS EUROPEOS



Presented as good practice the **Comprehensive Sanitation Plan of Eo's estuary**. This estuary is located in the borderline between Galicia and Asturias and it is born in Eo's river mouth. Counts with about 10 km length and 14 square meters geographical extension. The proceeding consists in the comprehensive sanitation of the Asturian bank of Eo's estuary, which conforms the west border of the Asturian coastal strip.



*Eo River Estuary Views*

As a consequence of the proceeding's importance and complexity, with a 12 million euros investment, this was executed in phases. The first one regards the **Waste Water Sanitation Station** and following to this one the sanitation systems corresponding to the **Collectors' Network** which allows the collect and transport to the treatment plant, those were developed in two parts, due to their extensive nature. In the first one, the systems of urban core of Castropol are carried out and in the second one the ones of Figueras and Vegadeo.

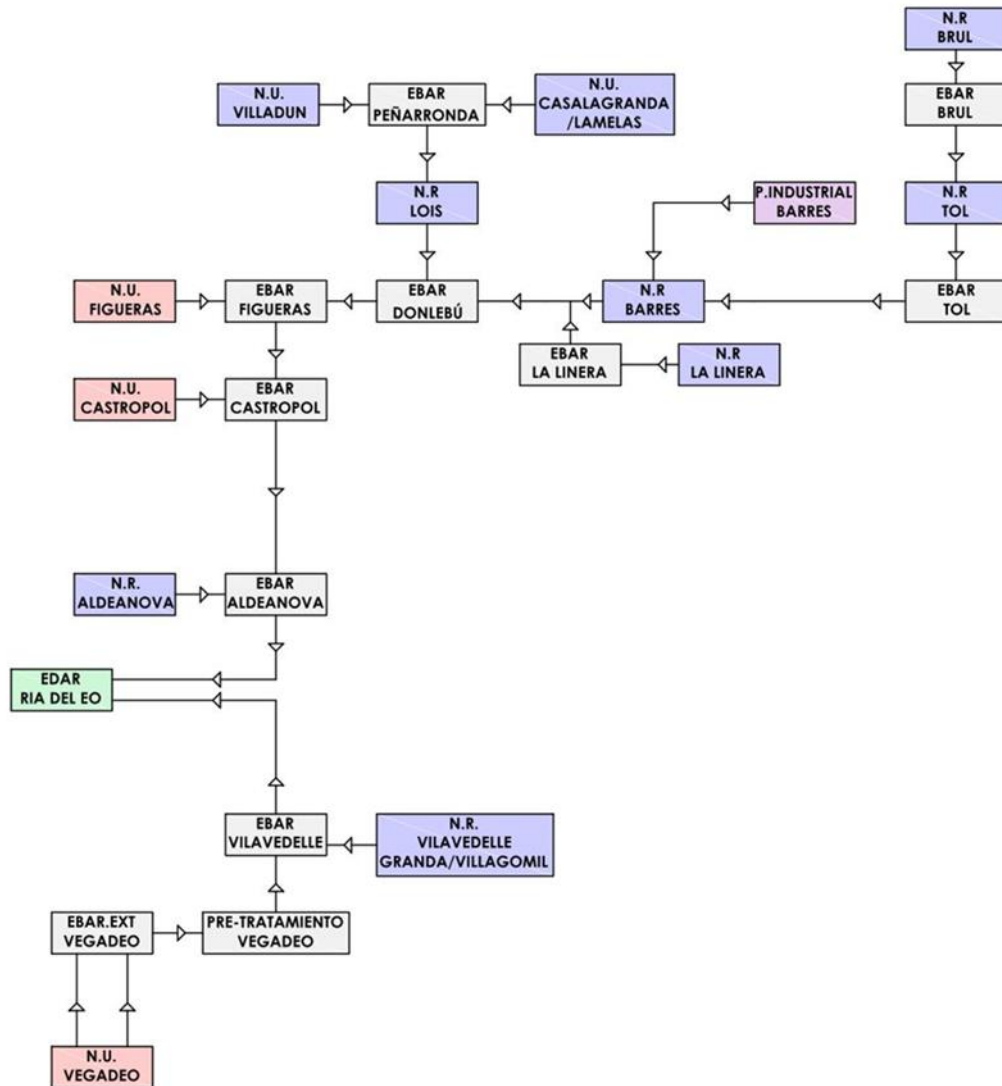
The corresponding proceeding of the project development and the **Waste Waters Sanitation Station (WWSS)** of Eo's estuary (Castropol and Vegadeo councils) construction works' execution was awarded with a budget of 4.48 million euros.

The corresponding proceedings to Phases I and II regard the collectors' network of the sanitation system, awarded in 4.40 and 3.60 million euros respectively. All above mentioned 80% financed by the European Fund of Regional Development within the framework of the Operative Program FEDER Asturias 2014-2020.

This proceeding has been designed to assist a 18,000 equivalent inhabitants' population

The new sanitation system of Eo's estuary is composed by ten control elements and one sewage treatment plant. The fundamental structure of the system and the links among its different elements allow to collect, drive and treat the residual effluents coming from Vegadeo, Castropol and Figueras,

besides the rural cores of Brul, Tol, Barres, La Linera, Lois, Villadún, Vilavedelle, Granda, and Villagomil.



Fundamental Structure of the sanitation plan of Eo's estuary

### Waste Water Sanitation Station

These facilities are located at the right bank of Eo's estuary, between Vegadeo and Castropol villages, and were intended to reach a purified high-quality effluent, with a reduced content of fecal coliforms and fecal streptococci.



*Sanitation Facilities' Aerial view*

In general, the treatment lines that compose the waste water sanitation station of Eo's estuary are the following:

- Works of arrival, raw water upwards and pre-treatment. This line is composed of one storm tank, one pump and lift unit and two compact pre-treatment units. It is designed as to elevate, screen, degritter and degrease the residual urban effluents collected by the sanitation system up to a maximum flow of 120.00 l/s within the current scenario and of 240.00 l/s in the future scenario.
- Biological treatment line. This line is composed by two active sludge biological reactor in prolonged aeration, configuring a system type Bardenpho in three stages, also called A2O and a secondary decantation configured by two circular secondary decanters with a diameter of 17.00 m. Both treatment lines have been built, equipping electromechanically only one of them as to reach a treatment population of 10,700 equivalent inhabitants and a maximum flow of 48,00 l/s. For a future scenario of 21.520 equivalent inhabitants a maximum flow of 96,00 l/s. It will only be necessary to equip electromechanically the second line of treatment.
- Tertiary treatment line. This line is composed of a tertiary filtering of 10 micros and a disinfection of the effluent by ultraviolet rays, both stages with a flow design of 48,00 l/s
- Sludge treatment line. This line is composed of one sludge dynamic thickener and one centrifuge for sludge dehydration, both of them designed for the future scenario of the facilities.



*Aerial View of the two treatment lines*

### **Sanitation System**

Due to the WWSS's facilities' situation, the system is configured in two large sectors, North sector, composed by pumping facilities called Brul, Tol, La Linera, Donlebún, Figueras, Castropol and Adeanova and South Zone sector, including pre-treatment and pumping facilities of Vegadeo, besides the pumping station of Vilavedelle.

In the North sector, except Linera's EBAR, the scheme of the sanitation system is in a cascaded configuration, so each pumping station receives what is pushed from the preceding one plus the collects coming from the rural cores and the villages located between both facilities. The most important pumping stations of this sector are the two last ones, Castropol and Aldeanova, being this last one the one in charge of push up towards the WWSS the effluents collected in the North sector.

The pumping station of Castropol is configured in two lines, the first one of them destined to the lifting and roughing of the urban effluents of Castropol core and the second one destined to push up towards Aldeanova Station, the already mentioned effluents of Castropol plus the ones sent by Figueras' facilities.



*Castropol Pumping Facilities Outside View*

This last line presents a pumping scheme 2+1, with capacity for lifting up from 84.00 l/s to 61.00 m.w.c (meter water column) with one only pumping unit and 119.00 l/s to 67.65 m.w.c with two pumping units. The electric power installed in this station goes up to 310.00 Kw.



*Main Pumping Units' View*

Aldeanova's pumping station is configured in two lines, the first one destined to control throughout a regulation valve of the effluents collected by the collectors of Valín and Moldes, and de second line destined to push up to the sanitation station the said regulated effluents plus the ones sent to Castropol's facilities.



*Aldeanova's pumping facilities outside view*

The sector is composed of two only facilities, called pre-treatment Vegadeo's Station and pumping Vilavedelle's Station, being this last one in charge of pushing up to the treatment plant the effluents sent from the pre-treatment Vegadeo's station plus the ones collected in the rural cores of Vilavedelle, Granda and Villagomil.



*Vilavedelle's pumping facilities outside view*

Vilavedelle's pumping station is configured in two lines, the first one destined to control throughout a regulation valve (vortex type) of the effluents collected by the collectors of Vilavedelle and Granda, and de second line destined to push up to the sanitation station the said regulated effluents plus the ones sent to Vegadeo's facilities.



**This proceeding is considered good practice because fulfills the following:**

- **High broadcast between beneficiaries and general public**

At this point, a series of communication proceedings which have permitted the commitment of the objectives set in the broadcast of the Finance Program of the European Union, through FEDER.

According to this there is an information sheet on the website describing the project management.

**"PROYECTOS FINANCIADOS POR LA UNIÓN EUROPEA A TRAVÉS DEL FONDO EUROPEO DE DESARROLLO REGIONAL EN EL MARCO DEL PROGRAMA OPERATIVO FEDER DE ASTURIAS 2014-2020"**

En cumplimiento del Reglamento (UE) nº 1303/2013 del Parlamento Europeo y del Consejo de 17 de diciembre de 2013, se hacen públicas cinco obras, ejecutadas por la Junta de Saneamiento, por encomienda de la Consejería de Fomento, Ordenación del Territorio y Medio Ambiente, que se encuentran cofinanciadas por el Fondo Europeo de Desarrollo Regional (FEDER) y han sido incluidas en el Programa Operativo FEDER de Asturias 2014-2020:

SANEAMIENTO DE LA RÍA DEL EO. FASE I. CASTROPOL JS-08/2014



Importe de licitación (IVA incluido):

7.500.000,00 €

Importe de adjudicación (IVA incluido):

4.346.199,00 €

Empresa adjudicataria: CONTRATAS ABAMIA, S.A

**BREVE DESCRIPCIÓN DEL PROYECTO DE MANERA PROPORCIONADA AL NIVEL DE APOYO PRESTADO:**

El proyecto de "Saneamiento de la Ría del Eo. Fase I. Castropol" define las actuaciones a ejecutar en la primera fase del sistema general de saneamiento que partiendo de las instalaciones de la futura EDAR, conectan los vertidos de los distintos núcleos de los concejos de Castropol y Vegadeo con aguas vertientes a la ría.

En esta fase se realizarán los colectores interceptores denominados Interceptor de la EDAR, Interceptor centro-norte e Interceptor centro-sur. Se realizarán también los colectores de Valin-Vilarrasa, de Grandia, de Vilavedelle y diversos ramales de saneamiento que recogerán los actuales vertidos, además de la reposición completa de la red de saneamiento de Vilavedelle. En total están proyectados 9.079 m de tubería de PVC de diámetros 315 y 400 mm, 1.460 m de tubería de hormigón de diámetros 500, 600 y 800 mm y 4.753 m de tubería de PEAD de 315 mm en impulsiones.

Se realizarán 3 infraestructuras hidráulicas de bombeo/aliviadero: Castropol, Aldeanova y Vilavedelle, instalándose en cada una de ellas 2+1 bombas.

**OBJETIVOS**

En el ámbito de actuación de los concejos de Castropol y Vegadeo, el objetivo es la eliminación de los vertidos de aguas residuales a la Ría del Eo y a los tramos finales las cuencas fluviales que en ella desembocan, ejecutando la primera fase de la red de colectores, conducciones en impulsión e infraestructuras hidráulicas necesarias para conducir dichos vertidos a la EDAR actualmente en construcción, en donde serán tratadas las aguas para a su vertido final a la ría una vez depuradas.

**RESULTADOS**

Mejora de la calidad de las aguas, tanto superficiales como subterráneas, que vierten a la Ría del Eo, además de las correspondientes a la propia ría.

Porcentaje de Cofinanciación FONDO EUROPEO DE DESARROLLO REGIONAL ( FEDER): 80 %.



It has conducted insertion of execution adverts press releases in the media such as La Nueva España and El Comercio newspapers.

**GOBIERNO DEL PRINCIPADO DE ASTURIAS**

**UNIÓN EUROPEA**  
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## SANEAMIENTO INTEGRAL DE LA RÍA DEL EO

Se trata de una actuación que se ejecutó por partes, una primera se refiere a la Estación Depuradora de Aguas Residuales y a continuación los sistemas de saneamiento correspondientes a la red de colectores, desarrollados en dos fases. En la primera se llevan a cabo los sistemas de Castropol y en la segunda los de Vegadeo y Figueras. Las obras realizadas han contribuido a dar cumplimiento de la Directiva Marco del Agua y se encuentran cofinanciadas por el Programa Operativo FEDER de Asturias 2014-2020.

Furthermore, there have been adds in digital press, specifically in La Nueva España.

**SANEAMIENTO INTEGRAL DE LA RÍA DEL EO**

Financiado por el Programa Operativo FEDER de Asturias 2014-2020

+ info pincha aquí

All news regarding the execution of these works were also broadcasted to the different local mass media either press releases as television.



### *Local Television Report ORT*

In all cases informing at all moment of the co-financed mode through the European Fund of Regional Development (FEDER).

- **The proceeding includes innovative elements:**

It is important to note as an innovative element the implementation of the biological treatment type Bardenpho® in three stages or A2O, in a facility not reaching 15,000 inhabitants because, so far, this configuration was only used in higher large-scale facilities. This system can be distinguished for its efficiency of eliminating the carbonated matters, nitrogen and phosphorus via biologic.

These facilities were intended to reach a purified high-quality effluent, with a reduced content of fecal coliforms and fecal streptococci.

- **Adjustment of the obtained results to the preset objectives:**

With the commissioning of these co-financed by European Funds proceedings, the zone benefits from environmental improvements, which contributes to reach the goal set by the European Union. The objective is to preserve estuary's environmental values, to protect the quality of the water, the shellfishing areas and their touristic value.



Oyster Farming of Eo's estuary

- **Contribution to the problem resolution or regional weakness:**

The works of purification and sanitation will allow to avoid the discharge of sewage into the estuary and into the coastal strip of Castropol village. The resident population of the municipalities as well as in the surrounding municipalities will benefit from the proceeding in a direct way. It is reached, also, to benefit from the tourists that come all year round to enjoy this natural environment. It also pushes up the environmental values of the estuary which accommodates 3,000 aquatic birds during the winter season.



- **High Grade Coverage to the targeted population**

The treatment plant and the sanitation system treat the discharges in an area with three important population cores: Vegadeo, Castropol and Figueras y numerous minor population cores. It also has

sufficient capacity as to treat the important seasoning population changes, produced mainly in the summer season.



*Vegadeo View*

This proceeding has been designed to assist a 18,000 equivalent inhabitants' population.

- **Consideration of the horizontal criteria of equal opportunities and environmental sustainability:**

Either the sanitation station as the two phases in which the works of sanitation were done in Eo's estuary, have pursued the object of collecting and treating the waste waters, framed with a deep impact in the principle of sustainable development, which leads all the procedures. Therefore, the protection and preservation of the environment is at all moment palpable, being one of the fundamental objectives to pursue.

The principle of equal opportunities is guaranteed since in the selection of the hiring company there has to be taken into account technical criteria without any existence of gender discrimination.



*Castropol View*

The treatment plant as well as the collectors net permit to increase substantially the quality of the water of the biggest estuaries in the region, declared Partial Nature Reserve, since it provides definitive solution to the urban waste water treatment coming from several parishes of the councils of Castropol and Vegadeo, which discharged their waters into the estuary, significant because of its avifauna and vegetation, with a long seafaring tradition and it is also an important transit point of migrating birds.

- **Synergies with other policies or public intervention system:**

The works performed have contributed to fulfill the Water Framework Directive.

The intervention joins other major sanitation and purification waste water works developed within the occidental zone of the region, such as Navia's estuary and municipality of El Franco.

The works will allow the discharges to arrive clean to the sea improving significantly the quality of the water of one of the best preserved Asturian Coastal strips, from an environmental point of view.



*Figueras View*