

Para la realización de este estudio se han consultado el Planeamiento General de Ordenación Urbana de Municipio de Tarifa, Cádiz (actualmente en redacción), para considerar los futuros crecimientos urbanos.

En los planos nº6, nº7, nº8, nº9, nº10 y nº11, se define la llanura de inundación para la avenida de 10, 50, 100 y 500 años. Puede observarse a lo largo de estos arroyos estudiados las zonas de peligrosidad de desbordamiento para el ámbito de actuación de la Modificación Puntual del PGOU de Tarifa del Sector SUS-TU-01 Albacerrado. Las cuales una vez analizadas resultan ser un nivel bajo de peligrosidad, a excepción del paso bajo la C/Batalla del Salado, que tras ejecutarse las urbanizaciones que plantea el PGOU se desbordará al ser insuficiente para absorber el caudal.

Arroyo Innominado Nº1.

Recoge las aguas procedentes de la cuenca A en la situación Actual y Futura y parte de la cuenca B en la situación Futura con Trasvase. Al principio el cauce está bastante difuminado, aunque claramente suficiente, al ser un terreno con bastante pendiente se produce una moderada llanura de inundación en todos los escenarios estudiados.

ESTADO ACTUAL

Los calados son pequeños, siendo en la mayor parte de su recorrido en torno a 0,5 m, con velocidades en torno a 3 m/s, a medida que se acerca a la zona entubada aumenta el calado a valores próximos al metro, hasta llegar a valores de casi 2 metros junto a la Obra de Fábrica. Las velocidades también varían, produciéndose en las inmediaciones del paso una deceleración de las aguas, obteniendo valores entre 1 y 2 m/s.

En su parte final el terreno se allana, además aun siendo suficiente el paso bajo la C/Batalla del Salado, aumenta la cota de la lámina de agua, afectando a las edificaciones colindantes en esta zona, inundando sus garajes y sótanos. Por ello está señalado como Punto de Riesgo en el Plan de prevención de Avenidas e Inundaciones de los Cauces Urbanos Andaluces, con un **Nivel de Riesgo C**, produciendo ocasionalmente inundaciones en zonas aledañas, con escasa incidencia.

Estas afecciones podrían evitarse si el cauce se mantuviera adecuadamente, actualmente cerca del paso existe una frondosa vegetación, destacando un denso cañaveral que resta capacidad hidráulica al cauce y amplía considerablemente sus planicies de inundación

Por tanto existe riesgo de inundaciones, con un nivel bajo de peligrosidad

Las zonas inundables, así como el Dominio Público Hidráulico y sus zonas de servidumbre (5 metros en cada orilla), **serán clasificadas como Suelo No Urbanizable de Especial Protección.**

aprobado
 el Ayuntamiento de Tarifa en su
 sesión celebrada el día 27 SET. 2016 (Artículo 120.3
 del Reglamento Urbanístico),
 SECRETARIO DEL AYUNTAMIENTO

ESTADO FUTURO

Los calados son pequeños, siendo en la mayor parte de su recorrido en torno a 0,6 m, con velocidades en torno a 3 m/s, a medida que se acerca a la zona entubada aumenta el calado a valores próximos al metro y medio, hasta llegar a valores de casi 3,0 metros junto a la Obra de Fábrica. Las velocidades también varían, produciéndose en las inmediaciones del paso una deceleración de las aguas, obteniendo valores entre 1 y 2 m/s.



En su parte final el terreno se allana, haciendo insuficiente el paso bajo la C/Batalla del Salado, aumentando considerablemente la cota de la lámina de agua, afectando a las edificaciones colindantes en esta zona, inundando sus garajes y sótanos, y sobrepasando la cota de la C/batalla del Salado inundando los caminos, inutilizando la vía e impidiendo su uso, con el consiguiente peligro para vehículos y peatones.

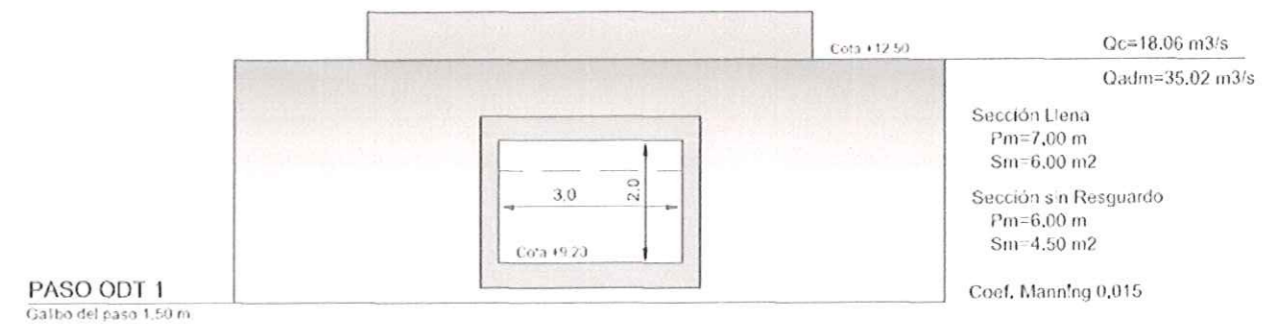
Esto agravaría el Punto de Riesgo que ya señala el Plan de prevención de Avenidas e Inundaciones de los Cauces Urbanos Andaluces, con un **Nivel de Riesgo C**, produciendo mayores inundaciones en las zonas aledañas, con moderada incidencia.

Por tanto existe riesgo de inundaciones, con un nivel medio de peligrosidad

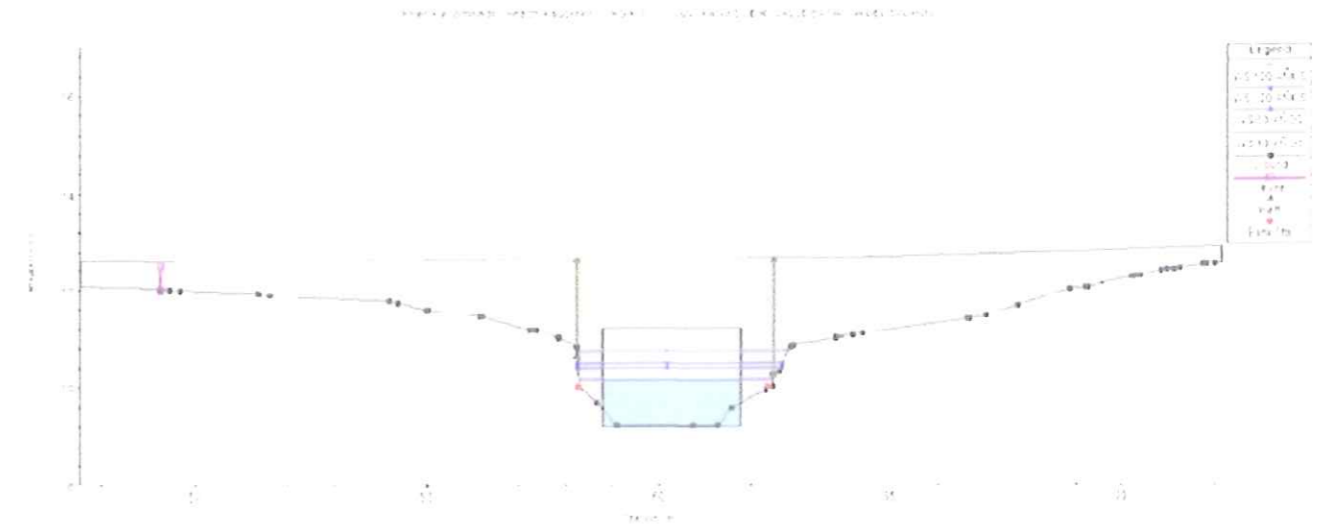
Conocido el efecto que provoca la avenida en la situación futura (sin tener en cuenta ningún tipo de actuación), se han estudiado posibles medidas correctoras y recomendaciones a adoptar para evitar las inundaciones, y que habrán de ser desarrolladas con mayor detalle a nivel de proyecto constructivo. También en apartados posteriores se ha procedido a valorar el coste estimativo de estas medidas de carácter correctivo.

Para el caso del cauce del Arroyo Innominado N°1 y como solución frente al insuficiente paso existente, se propone la construcción de un marco de anchura 3 m y altura 2 m, dejando un resguardo de 0,50 m. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (18,06 m3/s) y deje un resguardo de 0,50 m.

Estas medidas correctoras se pueden contemplar gráficamente en el plano nº 15, y analíticamente en las tablas de resultados adjuntas en el Anejo nº2.



Nuevo Paso ODT-1 propuesto para el Estado Futuro.



Nuevo Paso ODT-1 propuesto para el Estado Futuro. Programa HEC-RAS

Las zonas inundables, así como el Dominio Público Hidráulico y sus zonas de servidumbre (5 metros en cada orilla), **serán clasificadas como Suelo No Urbanizable de Especial Protección.**

aprobado
 Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.3 del Reglamento de Ordenación Urbanística).
 EL SECRETARIO DEL AYUNTAMIENTO

ESTADO FUTURO CON TRASVASE

Los calados son pequeños, siendo en la mayor parte de su recorrido en torno a 0,6 m, con velocidades en torno a 3 m/s, a medida que se acerca a la zona entubada aumenta el calado a valores próximos a dos metros, hasta llegar a valores de casi 3,5 metros junto a la Obra de Fábrica. Las velocidades

también varían, produciéndose en las inmediaciones del paso una deceleración de las aguas, obteniendo valores entre 1 y 2 m/s.

En su parte final el terreno se allana, haciendo insuficiente el paso bajo la C/Batalla del Salado, aumentando considerablemente la cota de la lámina de agua, afectando a las edificaciones colindantes en esta zona, inundando sus garajes y sótanos, y sobrepasando la cota de la C/batalla del Salado inundando los caminos, inutilizando la vía e impidiendo su uso, con el consiguiente peligro para vehículos y peatones.

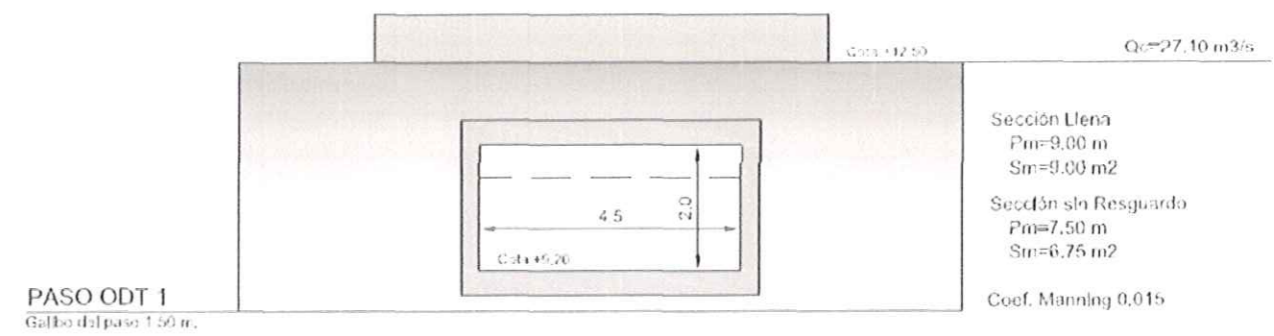
Esto agravaría el Punto de Riesgo que ya señala el Plan de prevención de Avenidas e Inundaciones de los Cauces Urbanos Andaluces, con un **Nivel de Riesgo C**, produciendo mayores inundaciones en las zonas aledañas, con moderada incidencia.

Por tanto existe riesgo de inundaciones, con un nivel medio de peligrosidad

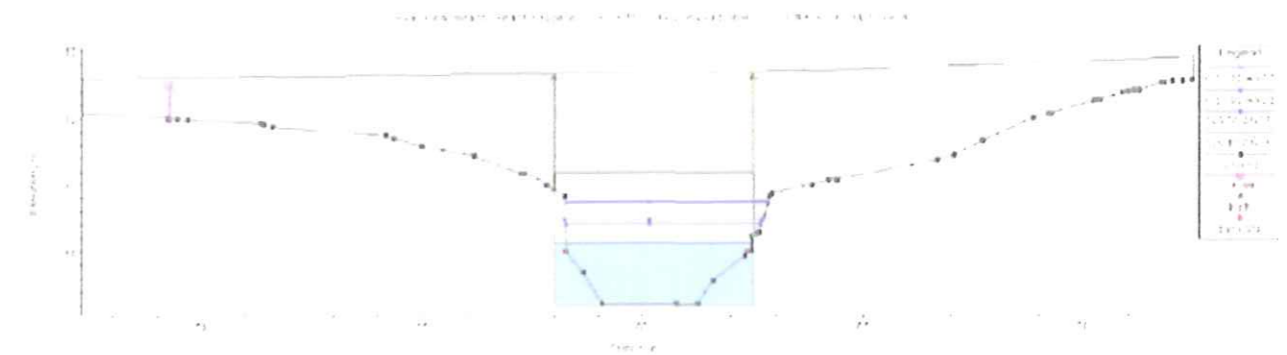
Conocido el efecto que provoca la avenida en la situación futura con trasvase (sin tener en cuenta ningún tipo de actuación), se han estudiado posibles medidas correctoras y recomendaciones a adoptar para evitar las inundaciones, y que habrán de ser desarrolladas con mayor detalle a nivel de proyecto constructivo. También en apartados posteriores se ha procedido a valorar el coste estimativo de estas medidas de carácter correctivo.

Para el caso del cauce del Arroyo Innominado Nº1 y como solución frente al insuficiente paso existente, se propone la construcción de un marco de anchura 4,5 m y altura 2 m, dejando un resguardo de 0,50 m. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (27,10 m³/s) y deje un resguardo de 0,50 m.

Estas medidas correctoras se pueden contemplar gráficamente en el plano nº 16, y analíticamente en las tablas de resultados adjuntas en el Anejo nº2.



Nuevo Paso ODT-1 propuesto para el Estado Futuro con Traslase.



Nuevo Paso ODT-1 propuesto para el Estado Futuro con Traslase. Programa HEC-RAS

Las zonas inundables, así como el Dominio Público Hidráulico y sus zonas de servidumbre (5 metros en cada orilla), **serán clasificadas como Suelo No Urbanizable de Especial Protección.**

RESOLUCIÓN
 Aprobada por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día **27 SEI. 2016** (Artículo 10 del Reglamento de Planeamiento Urbanístico).
 EL SECRETARIO DEL AYUNTAMIENTO

Definimos los siguientes puntos a tener en cuenta para todos los escenarios:

- ❖ En el caso de introducir arbolado, este no deberá ser abundante y con desarrollo de copas por encima del nivel de crecidas.
- ❖ Limpieza y desbroce de los arroyos, con un mantenimiento periódico para evitar la acumulación de sedimentos y material arrastrado en anteriores avenidas, que restarían calado al cauce.

- ❖ La recogida y evacuación de las aguas pluviales de los terrenos de estudio se deberá tratar en el desarrollo del mismo y en el posterior Proyecto de Urbanización con las determinaciones que se estimen necesarias.

Entubamiento Arroyo Innominado N°1.

El arroyo Innominado N°1 al encontrarse con el casco urbano se entuba por debajo del mismo hasta su punto de vertido en la Playa de Los Lances. Para el estudio de dicho entubamiento se han tomado cuatro puntos de control, desde el punto P1 hasta el punto P4, todos ellos están definidos y descritos en el plano n°17 de este documento.

Como ya se ha analizado y mostrado en las tablas de resultados (punto n°8 de esta memoria), **en ninguno de los escenarios la capacidad del entubamiento es capaz de absorber los caudales**, sólo en los tramos de mayor pendiente donde aumenta la capacidad del Tubo Marco, es suficiente la instalación de drenaje para aguas de escorrentía existente.

Conocido la insuficiencia del entubamiento y el efecto que provoca en la avenida en las situaciones futura con y sin trasvase, se han estudiado posibles medidas correctoras y recomendaciones a adoptar, y que habrán de ser desarrolladas con mayor detalle a nivel de proyecto constructivo. También en apartados posteriores se ha procedido a valorar el coste estimativo de estas medidas de carácter correctivo.

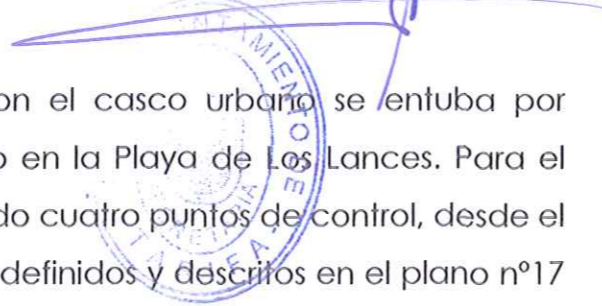
Se han propuesto dos soluciones, una para los caudales del escenario de Situación Futura, y una segunda para la Situación Futura con Traspase

ESTADO FUTURO

Para evitar la afección que provocaría la insuficiencia del entubamiento existente, se proponen las siguientes actuaciones:

- ↓ **Tramo desde R1 a R2 - Pk 0+000 al Pk 0+015.** Construcción de un nuevo paso bajo la C/Batalla del Salado, mediante un marco de anchura 3 m y altura 2 m, pendiente del 2,0%, dejando un resguardo de 0,50 m. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (18,06 m³/s) y deje un resguardo de 0,50 m.
- ↓ **Punto R2 - Pk 0+015 al Pk 0+020.** Ejecución de Arqueta de conexión del nuevo paso con la canalización Tubo Marco existente.
- ↓ **Tramo desde R2 a P2 - Pk 0+020 al Pk 0+116.** Se mantiene el entubamiento existente, a base de un tubo marco de acero corrugado con una pendiente del 0,82%.
- ↓ **Tramo desde P2 a P3 - Pk 0+116 al Pk 0+138.** Demolición de 5 Tuberías existentes de diámetro 1.000 mm. Construcción de un nuevo entubamiento, mediante un marco de anchura 3 m y altura 1,5 m, pendiente del 2,5%. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (31,76 m³/s).
- ↓ **Puntos P2 y P3.** Adaptación de arquetas existentes a la ejecución del nuevo Marco de H.A.
- ↓ **Tramo desde P3 a R3 - Pk 0+138 al Pk 0+245.** Se mantiene el entubamiento existente, a base de un tubo marco de acero corrugado con una pendiente del 3,2%.

PRESENCIA
 inicialmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día **27 SEI. 2016** (Artículo 128,9 del Reglamento de Planeamiento Urbanístico).
 EL SECRETARIO DEL AYUNTAMIENTO



↓ **Punto R3 - Pk 0+245 al Pk 0+250.** Ejecución de Nueva arqueta Arqueta Aliviadero. Se diseñará para que permita el paso de los siguientes caudales en la avenida 500 años:

- Nuevo Marco H.A.: 17,76 m3/s
- Tubo Marco Existente: 14,00 m3/s

↓ **Tramo desde R3 a P4 - Pk 0+250 al Pk 0+414.** Se mantiene el entubamiento existente, a base de un tubo marco de acero corrugado con una pendiente del 0,57%.

↓ **Tramo desde R3 a R4 - Pk 0+000 al Pk 0+214,16.** Construcción de un nuevo entubamiento, mediante un marco de anchura 3 m y altura 1,5 m, pendiente del 0,65%. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años tras el paso por el aliviadero (17,76 m3/s).

Estas medidas correctoras se pueden contemplar gráficamente en el plano nº 18, y analíticamente en las tablas siguientes:

TRAMO	SECCIÓN	S _M	P _M	R _H	R _H ^{2/3}	n	i	i ^{1/2}	v	Q Sección Llena
R1 a R2	Pk 0+000 al Pk 0+016,00 Nueva Obra de Paso sobre C/Batalla del Salado. Marco H.A. ancho 3,0 m h=2,00 m	Calculado mediante el Programa HEC-RAS. Ver Anejos								
R2 a P2	Pk 0+020,00 al Pk 0+116 Tubo Marco. Ancho 3,40 m h=2,40 m	6.4835	9.3626	0.6925	0.7827	0.0250	0.0082	0.0906	2.8351	18.3817
P2 a P3	Pk 0+116 al Pk 0+138 Demolición de 5 Tuberías Diámetro 1.000 mm									
	Pk 0+116 al Pk 0+138 Nuevo Entubamiento Bajo Marco de H.A. Ancho 3,0 m h=1,50 m	4.5000	6.0000	0.7500	0.8255	0.0150	0.0255	0.1597	8.7879	39.5457
P3 a R3	Pk 0+138 al Pk 0+245 Tubo Marco. Ancho 3,40 m h=2,40 m	6.4835	9.3626	0.6925	0.7827	0.0250	0.0320	0.1789	5.6007	36.3123
R3 A R4	Pk 0+000 al Pk 0+214,16 Nuevo Entubamiento Bajo Marco de H.A. Ancho 3,0 m h=1,50 m	4.5000	6.0000	0.7500	0.8255	0.0150	0.0065	0.0806	4.4368	19.9657
R3 a P4	Pk 0+250 al Pk 0+414 Tubo Marco. Ancho 3,40 m h=2,40 m	6.4835	9.3626	0.6925	0.7827	0.0250	0.0057	0.0755	2.3638	15.3255

EL CONCELEGADO DE AGENCIAS.- aprobado
 inicialmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128,5 del Reglamento de Planeamiento Urbanístico).
 EL SECRETARIO DEL AYUNTAMIENTO



TRAMO	SECCIÓN	Q Sección Llena	Estado Futuro	
			Q Cálculo Estado Futuro	Estado Tramo
R1 a R2	Pk 0+000 al Pk 0+015,00 Nueva Obra de Paso sobre C/Batalla del Salado. Marco H.A. ancho 3,0 m h=2,00 m	Cálculo con HEC RAS	Qcuenca A= 18,06 m ³ /s	Suficiente
R2 a P2	Pk 0+020,00 al Pk 0+116 Tubo Marco. Ancho 3,40 m h=2,40 m	18.3817	Qcuenca A= 18,06 m ³ /s	Suficiente
P2 a P3	Pk 0+116 al Pk 0+138 Demolición de 5 Tuberías Diámetro 1.000 mm		Qcuenca A= 18,06 m ³ /s Qcuenca B= 13,67 m ³ /s Qtotal= 31,76 m ³ /s	Suficiente
	Pk 0+116 al Pk 0+138 Nuevo Entubamiento Bajo Marco de H.A. Ancho 3,0 m h=1,50 m	39.5457		
P3 a R3	Pk 0+138 al Pk 0+245 Tubo Marco. Ancho 3,40 m h=2,40 m	36.3123	Qcuenca A= 18,06 m ³ /s Qcuenca B= 13,67 m ³ /s Qtotal= 31,76 m ³ /s	Suficiente
R3 A R4	Pk 0+000 al Pk 0+214,16 Nuevo Entubamiento Bajo Marco de H.A. Ancho 3,0 m h=1,50 m	19.9657	Qcuenca A+B= 31,76 m ³ /s , se le restará un caudal de 14,00 m ³ /s que el aliviadero dirigirá hacia el Tubo Marco. Qtotal = 17,76 m ³ /s	Suficiente
R3 a P4	Pk 0+250 al Pk 0+414 Tubo Marco. Ancho 3,40 m h=2,40 m	15.3255	Qcuenca A+B= 31,76 m ³ /s , el aliviadero proyectado permitirá como máximo un trasvase a la Tubo Marco de Qtotal = 14,00 m ³ /s	Suficiente

Esta propuesta por su trazado en planta tendría poca afección a otras instalaciones existentes, solucionando el drenaje de las cuencas A y B.

SELECCIÓN
inicialmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016. (Artículo 128,5 del Reglamento de Planeamiento Urbanístico).
EL SECRETARIO DEL AYUNTAMIENTO



ESTADO FUTURO CON TRASVASE

Para evitar la afección que provocaría la insuficiencia del entubamiento existente, se proponen las siguientes actuaciones:

- ↓ **Tramo desde R1 a R2 - Pk 0+000 al Pk 0+016.** Construcción de un nuevo paso bajo la C/Batalla del Salado, mediante un marco de anchura 4,5 m y altura 2 m, pendiente del 2,0%, dejando un resguardo de 0,50 m. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (27,10 m³/s) y deje un resguardo de 0,50 m.
- ↓ **Punto R2 - Pk 0+016 al Pk 0+021.** Ejecución de Nueva arqueta Aliviadero. Se diseñará para que permita el paso de los siguientes caudales en la avenida 500 años:
 - Nuevo Marco H.A.: 18,70 m³/s
 - Tubo Marco Existente: 8,40 m³/s
- ↓ **Tramo desde R2 a R3 - Pk 0+021 al Pk 0+252.** Construcción de un nuevo entubamiento, mediante un marco de anchura 2,0 m y altura 1,5 m, pendiente del 2,53%. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (18,70 m³/s).
- ↓ **Tramo desde R3 a R4 - Pk 0+021 al Pk 0+252.** Construcción de un nuevo entubamiento, mediante un marco de anchura 3,0 m y altura 1,5 m, pendiente del 0,65%. Podrá ejecutarse cualquier otra solución que permita el paso de la avenida de 500 años (18,70 m³/s).
- ↓ **Tramo desde R2 a P4 - Pk 0+021 al Pk 0+414.** Se mantiene el entubamiento existente, inicialmente y para la avenida de 500 años

sólo discurrirá por el un caudal de 8,40 m³/s (arqueta aliviadero). Posteriormente en el punto P2 se le sumará las aguas de escorrentía provenientes de la cuenca B-2, que según el "Estudio hidrológico e hidráulico de las cuencas de Albacerrado y propuesta de soluciones atendiendo a sus futuros desarrollos urbanísticos, Tarifa, Cádiz", sería un caudal de 6,92 m³/s. Haciendo un total de 15,32 m³/s, el tramo más desfavorable del entubamiento existente es el que va desde el punto P3 a P4 (Pk 0+262 hasta Pk 0+414) con una **capacidad del Tubo Marco de 15,33 m³/s, por lo tanto sería suficiente.**

Estas medidas correctoras se pueden contemplar gráficamente en el plano nº 19, y analíticamente en las tablas siguientes:

TRAMO	SECCIÓN	S _M	P _M	R _H	R _H ^{2/3}	n	i	i ^{1/2}	v	Q Sección Llena
R1 a R2	Pk 0+000 al Pk 0+016,77 Nueva Obra de Paso sobre C/Batalla del Salado. Marco H.A. ancho 4,5 m h=2,00 m	Calculado mediante el Programa HEC-RAS. Ver Anejos								
R2 a R3	Pk 0+021,77 al Pk 0+252,82 Nuevo Entubamiento Bajo Marco de H.A. Ancho 2,0 m h=1,50 m	3.0000	5.0000	0.6000	0.7114	0.0150	0.0253	0.1591	7.5434	22.6303
R3 A R4	Pk 0+252,82 al Pk 0+445,239 Nuevo Entubamiento Bajo Marco de H.A. Ancho 3,0 m h=1,50 m	4.5000	6.0000	0.7500	0.8255	0.0150	0.0065	0.0806	4.4368	19.9657

TRAMO	SECCIÓN	Q Sección Llena	Estado Futuro con Traslase	
			Q Cálculo Estado Futuro con Traslase	Estado Tramo
R1 a R2	Pk 0+000 al Pk 0+016,77 Nueva Obra de Paso sobre C/Batalla del Salado. Marco H.A. ancho 4,5 m h=2,00 m	Cálculo HEC RAS	Qcuenca A= 27,10 m ³ /s	Suficiente
R2 a R3	Pk 0+021,77 al Pk 0+252,82 Nuevo Entubamiento Bajo Marco de H.A. Ancho 2,0 m h=1,50 m	22.6303	Qcuenca A= 27,10 m ³ /s , se le restará un caudal de 8,40 m ³ /s que el aliviadero dirigirá hacia el Tubo Marco. Qtotal = 18,70 m ³ /s	Suficiente
R3 A R4	Pk 0+252,82 al Pk 0+445,239 Nuevo Entubamiento Bajo Marco de H.A. Ancho 3,0 m h=1,50 m	19.9657	Qcuenca A= 27,10 m ³ /s , se le restará un caudal de 8,40 m ³ /s que el aliviadero dirigirá hacia el Tubo Marco. Qtotal = 18,70 m ³ /s	Suficiente

La incidencia en otras redes de la solución propuesta sería alta, pues la apertura de la calle Mar del Norte por donde discurre el primer tramo del nuevo entubamiento haría necesario demoler la red de saneamiento existente por dicha vía, debiendo ejecutar durante las obras una instalación provisional de saneamiento.

Sevilla, Febrero de 2016



Fdo.: Fernando Peraila Lechosa

Ingeniero de Caminos, Canales y Puertos. Colegiado Nº 5.707

APROBADO
 parcialmente por el Pleno Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016. (Artículo 128,3 del Reglamento de Planeamiento Urbanístico).
 EL SECRETARIO DEL AYUNTAMIENTO

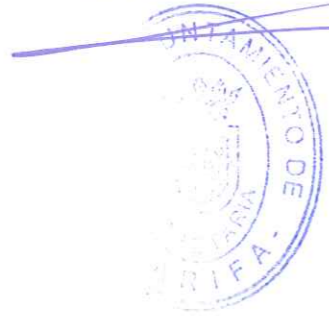


RESOLUCIÓN:

aprobado

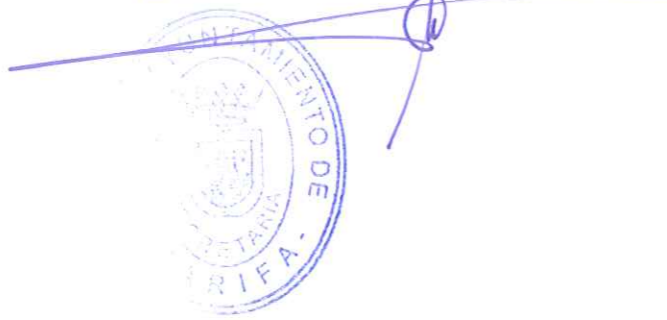
totalmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día **27 SET. 2016** (Artículo 128.9 del Reglamento de Planeamiento Urbanístico).

EL SECRETARIO DEL AYUNTAMIENTO



2. ANEJOS

RESOLUCIÓN: aprobado
dictaminado por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.3 del Reglamento de Planeamiento Urbanístico).
EL SECRETARIO DEL AYUNTAMIENTO



El programa HEC-RAS 3.1.3 es un modelo matemático hidrológico que simula las anteriores variables descritas en esta memoria y lleva a cabo los cálculos pertinentes en incrementos de tiempo diseñados por el usuario.

Este modelo fue creado en la década de los ochenta por el Cuerpo de Ingenieros Militares de los Estados Unidos y que no se describe por ser una herramienta universal.

La información completa del anejo nº1 está contenida en la documentación del CD que acompaña a este estudio.

PRESENCIA. aprobado
inicialmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128,5 del Reglamento de Planeamiento Urbanístico).
EL SECRETARIO DEL AYUNTAMIENTO



Sevilla, Febrero de 2.016

Fdo.: Fernando Peraita Lechosa

Ingeniero de Caminos, Canales y Puertos. Colegiado Nº 5.707

PRESENCIA - aprobado
Inicialmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.3 del Reglamento de Planeamiento Urbanístico).

EL SECRETARIO DEL AYUNTAMIENTO



SALIDA DE INFORME DE CÁLCULO DEL PROGRAMA HEC-RAS 3.1.3

MAXIMA CRECIDA ORDINARIA - DPH

HEC-RAS Version 3.1.3 May 2005
 U.S. Army Corp of Engineers
 Hydrologic Engineering Center
 609 Second Street
 Davis, California

tarifa

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X X XXXXXX XXXX XXXX XX XXXX
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PROJECT DATA
 Project Title: tarifa
 Project File: tarifa.prj
 Run Date and Time: 25/02/2016 14:18:50
 Project in SI units

PLAN DATA
 Plan Title: Plan 01
 Plan File: C:\TARIFA2\tarifa.p04
 Geometry Title: tarifco
 Geometry File: C:\TARIFA2\tarifa.g02
 Flow Title: tarifco
 Flow File: C:\TARIFA2\tarifa.f04

Plan Summary Information:
 Number of: Gross Sections = 33 Multiple Openings = 0
 Culverts = 1 Inline Structures = 0
 Bridges = 0 Lateral Structures = 0

Computational Information
 water surface calculation tolerance = 0.003
 critical depth calculation tolerance = 0.003
 Maximum number of iterations = 20
 Maximum difference tolerance = 0.1
 Flow tolerance factor = 0.001

Computation options
 critical depth computed only where necessary
 conveyance Calculation Method: At breaks in n values only
 Friction Slope Method: Average Conveyance
 Computational Flow Regime: Mixed Flow

FLOW DATA
 Flow Title: tarifco
 Flow File: C:\TARIFA2\tarifa.f04

Flow Data (n3/s)
 River Reach RS CAUDAL MCO
 Inoninado superior 732.439 3.034

Boundary Conditions
 River Reach Profile Upstream Downstream
 Inoninado superior CAUDAL MCO critical Normal S = 0.02

GEOMETRY DATA
 Geometry Title: tarifco
 Geometry File: C:\TARIFA2\tarifa.g02

CROSS SECTION
 RIVER: Inoninado RS: 732.439
 REACH: superior

INPUT Description: Station Elevation Data num= 109

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev		
0	38.76	36	38.69	2.26	38.37	4.38	38	5.76	37.8
6.48	37.74	7.34	37.64	8.01	37.57	8.02	37.57	8.58	37.51
9.09	37.48	10.52	37.37	10.97	37.33	12.02	37.24	12.68	37.19
13.46	37.12	13.8	37.09	14.52	37.03	14.78	37.01	14.88	37
15.15	36.98	15.48	36.96	15.79	36.94	16.1	36.91	16.25	36.9
16.53	36.89	16.74	36.87	16.88	36.86	17.32	36.84	17.48	36.83
17.55	36.82	18.09	36.78	19.57	36.67	20.61	36.62	20.78	36.6
20.82	36.6	20.98	36.59	21.58	36.55	21.7	36.54	21.85	36.53
21.99	36.52	22.15	36.51	22.28	36.5	22.43	36.49	22.57	36.48
22.71	36.47	22.72	36.47	22.87	36.46	23.11	36.44	23.26	36.44
23.49	36.42	23.64	36.41	23.85	36.4	23.9	36.39	24.09	36.38
24.24	36.37	24.43	36.36	25.12	36.32	25.3	36.31	25.49	36.29
25.82	36.28	25.95	36.27	26.17	36.26	26.41	36.24	26.64	36.23
26.89	36.21	26.98	36.2	28.63	36.08	28.79	36.08	29.66	36
29.72	35.99	31.73	35.81	32.56	35.72	33.55	35.63	33.89	35.6
34.2	35.57	34.48	35.55	34.69	35.53	34.83	35.52	34.95	35.51
35.08	35.5	35.19	35.49	35.31	35.48	35.33	35.47	35.44	35.47
36.5	35.35	37.8	35.12	38.72	35.12	38.95	35.12	39.7	35.12
40.86	35.34	41.43	35.41	42.2	35.49	46.16	35.94	46.41	35.97
46.65	36	51.56	36.63	53.74	37	53.8	37.02	57.25	38
59.76	38.49	62.11	39	65.8	39.71	67.34	40	69.19	40.59
70.58	41	71.67	41.24	74.96	42	76.5	42.39		

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 36.5 .035 40.86 .045

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
 36.5 40.86 33.55 35.02 35.8 .1 .3

CROSS SECTION
 RIVER: Inoninado RS: 697.415
 REACH: superior

INPUT Description: Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev		
0	36.72	14	36.7	3.43	36	6.1	35.75	6.18	35.75
14.56	35	15.18	34.94	15.48	34.92	15.55	34.91	15.88	34.88
16.76	34.81	16.98	34.79	17.78	34.72	18.11	34.7	18.82	34.64
19.25	34.61	20.36	34.52	20.59	34.5	20.85	34.48	21.49	34.43
25.25	34.12	25.69	34.08	25.71	34.08	25.74	34.08	25.75	34.08

EXPOSICION - aprobado
 Instalmiento por el Excmo. Ayuntamiento de Tarifa en se-
 cion celebrada el dia 27 SET. 2016 (Articulos 128,9
 del Reglamento de Planeamiento Urbanistico).
 EL SECRETARIO DEL AYUNTAMIENTO



Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev		
25.79	34.07	25.83	34.07	25.86	34.07	25.9	34.06	25.93	34.06
26.09	34.05	26	34	27.74	33.79	27.9	33.76	28.04	33.73
28.17	33.71	28.3	33.69	28.48	33.66	28.72	33.62	28.93	33.58
29.11	33.55	30.09	33.4	30.77	33.37	30.78	33.37	32.75	33.11
33.12	33.12	34.78	33.25	36.24	33.36	37.59	33.45	38.66	33.55
43.69	34	43.71	34	47.99	34.52	60.13	34.77	61.99	35
55.54	35.47	58.26	35.85	58.96	35.94	59.31	36	61.7	36.34
66.08	37	66.84	37.12	69.17	37.49	72.31	38	74.99	38.49
76.33	38.73								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 30.77 .035 34.78 .045

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
 30.77 34.78 43.5 41.33 39.58 .1 .3

CROSS SECTION
 RIVER: Inoninado RS: 656.082
 REACH: superior

INPUT Description: Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	34.42	.21	34.39	.33	34.37	.43	34.36	.75	34.31
.84	34.3	1.19	34.25	1.26	34.24	1.33	34.23	1.71	34.18
1.76	34.17	2.04	34.13	2.08	34.13	2.1	34.12	2.12	34.12
2.14	34.12	2.95	34	4.15	33.83	4.31	33.8	4.47	33.78
4.62	33.75	4.84	33.72	5	33.7	5.02	33.7	5.1	33.69
5.18	33.67	5.25	33.65	5.33	33.65	5.4	33.64	5.62	33.61
6.15	33.54	7.17	33.41	7.33	33.39	7.97	33.29	8.27	33.25
8.52	33.22	8.81	33.17	9.14	33.12	9.51	33.06	9.52	33.06
9.91	33	9.93	33	9.98	32.99	10.14	32.97	10.29	32.95
10.43	32.93	10.57	32.92	10.71	32.9	10.84	32.88	10.96	32.87
10.98	32.87	11.1	32.85	11.23	32.84	11.34	32.82	11.39	32.82
11.48	32.81	11.58	32.8	11.66	32.79	11.95	32.78	12.04	32.76
12.13	32.76	12.27	32.74	12.47	32.73	13	32.67	13.05	32.67
13.19	32.66	13.35	32.64	13.66	32.62	13.92	32.59	14.73	32.51
15.1	32.47	15.68	32.42	15.88	32.41	17.15	32.29	17.3	32.28
17.44	32.27	17.57	32.26	19.24	32.11	19.46	32.09	19.99	32.04
20.42	32	20.57	31.99	21.15	31.94	21.63	31.9	25.86	31.5
27.62	31.33	28.79	31.22	28.87	31.21	28.98	31.2	29.08	31.19
29.12	31.19	29.24	31.18	29.35	31.17	29.37	31.17	29.43	31.16
29.49	31.16	29.54	31.15	29.59	31.15	29.64	31.15	29.76	31.14
29.9	31.12	30.02	31.12	30.15	31.11	31.05	31	31.09	30.95
33.42	30.82	33.72	30.83	34.7	30.86	35.83	30.9	36.44	30.93
37.87	31	40.63	31.28	44.8	31.76	46.5	31.95	46.91	32
47.15	32.04	53.62	33	59.64	33.88	60.49	34	61.72	34.17
67.75	35	70.39	35.47	73.28	36	78.06	36.9	78.51	37
78.99	37.14	80.93	37.7						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 31.69 .035 35.83 .045

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
 31.69 35.83 38.65 39.41 39.77 .1 .3

CROSS SECTION
 RIVER: Inoninado RS: 616.672
 REACH: superior

INPUT Description: Station Elevation Data num= 126

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.87	.75	31.85	.77	31.85	.51	31.83	.74	31.81
.76	31.81	.98	31.79	1.19	31.77	1.23	31.77	1.25	31.77
1.29	31.77	1.51	31.75	1.55	31.74	1.59	31.74	1.81	31.72
1.85	31.72	2.06	31.7	2.11	31.7	2.16	31.69	2.36	31.67
2.37	31.67	2.46	31.67	2.65	31.65	2.74	31.64	2.81	31.64
2.89	31.63	2.98	31.62	3.05	31.61	3.15	31.61	3.22	31.6
3.3	31.59	3.4	31.59	3.47	31.58	3.54	31.57	3.64	31.57
3.71	31.56	3.78	31.55	3.85	31.55	3.92	31.55	3.99	31.54
4.18	31.52	4.26	31.51	4.34	31.5	4.42	31.5	4.5	31.5
4.57	31.49	4.64	31.49	4.7	31.48	4.77	31.47	4.85	31.47
4.96	31.46	5.09	31.45	5.23	31.43	5.62	31.39	5.76	31.37
6.28	31.32	7.03	31.24	7.16	31.22	7.18	31.22	8.56	31.04
8.61	31.04	8.9	31	10.35	30.79	10.43	30.78	11.6	30.62
11.7	30.6	11.82	30.58	12.13	30.54	12.9	30.43	13.49	30.35
13.87	30.3	14.29	30.24	14.92	30.16	15.69	30.06	15.73	30.05
16.16	30	16.44	29.99	16.99	29.95	17.51	29.93	17.6	29.93
18.13	29.9	18.37	29.89	18.93	29.87	19.02	29.86	19.09	29.86
19.19	29.85	21.88	29.74	22.04	29.73	22.08	29.73	22.23	29.73
22.39	29.72	22.55	29.71	24.38	29.62	27.7	29.42	31.27	29.26
35.24	29	36.67	28.95	40.57	28.94	41.3	28.93	42.22	28.92
42.81	28.92	43.22	28.93	43.33	28.93	43.83	28.94	44.51	28.95
45.36	28.96	45.96	28.98	47.03	29	48.38	29.15	49.96	29.39
51.79	29.64	52.71	29.78	53.94	30	56.2	30.42	59.43	31
63.11	31.7	64.69	32	65.36	32.15	69.41	33	71.52	33.5
73.59	34	76.1	34.56	77.64	35	79.61	35.49	81.67	36
82.22	36.15								

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 40.57 .035 43.83 .045

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
 40.57 43.83 39.17 40.42 41.41 .1 .3

CROSS SECTION
 RIVER: Inoninado RS: 576.256
 REACH: superior

INPUT Description: Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.81	1.49	31.54	4.47	31	9.49	30.09	9.97	30
12.08	29.62	15.06	29.08	15.47	29	28.88	28.05	29.58	28
29.61	28	30.39	27.94	30.85	27.9	31.26	27.87	31.64	27.84
31.73	27.83	31.97	27.82	32.2	27.8	32.42	27.8	32.6	27.77
32.75	27.76	32.9	27.75	33.04	27.74	33.18	27.73	33.31	27.72
33.44	27.71	33.85	27.69	34.22	27.66				

Station	Elevation	Data	num=	85	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.61	1.54	31.35	2.73	31.13	2.98	31.09	3.5	31			
6.76	30.45	6.93	30.42	7.11	30.38	7.33	30.34	8.36	30.16			
8.66	30.11	9.29	30.1	10.78	10.95	11.95	12.96	13.96	14.96			
12.3	29.49	12.6	29.43	13.27	29.37	13.31	29.31	13.4	29.29			
13.5	29.28	13.61	29.26	13.72	29.24	14.21	29.15	14.52	29.09			
15.08	29	15.1	29	15.93	28.89	16.12	28.87	16.85	28.77			
17.04	28.75	17.24	28.72	18.09	28.62	18.32	28.58	18.42	28.57			
18.95	28.5	19.01	28.49	19.59	28.42	20	28.37	20.32	28.33			
20.55	28.3	20.8	28.27	21	28.24	21.28	28.21	22.78	28.03			
22.82	28.03	22.86	28.02	23.09	28	23.12	28	23.78	27.94			
24.77	27.86	24.93	27.84	24.99	27.84	25.74	27.77	26.75	27.67			
27.54	27.6	28.24	27.53	29	27.46	29.9	27.38	34.08	27			
34.16	26.99	35.27	26.91	36.39	26.81	38.39	26.63	40.39	26.71			
44.79	26.86	45.47	26.89	46.24	26.92	46.65	26.93	48.65	27			
50.59	27.09	51.61	27.14	53.16	27.25	54.26	27.34	56.85	27.5			
62	28	64.26	28.4	68.04	29	72.31	29.73	74.05	30			
75.85	30.38	78.68	31	80.05	31.22	84.19	32	84.24	32.22			

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val
0	.045	36.39	.035	40.39	.045	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
36.39	40.39	19.68	18.75	17.72	.1	.3

CROSS SECTION
RIVER: Innoninado
REACH: superior
RS: 535.806

Station	Elevation	Data	num=	119	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	30.09	.63	30	3.75	29.59	4.13	29.55	5.27	29.41			
5.38	29.39	5.6	29.36	5.84	29.33	6.11	29.29	6.41	29.25			
6.74	29.2	6.87	29.18	7.16	29.14	7.47	29.1	7.82	29.05			
8.17	29	8.2	28.99	8.56	28.93	8.88	28.88	9.03	28.85			
9.29	28.81	9.53	28.77	9.75	28.73	9.95	28.7	10.13	28.67			
10.3	28.64	10.42	28.62	10.61	28.59	10.79	28.56	10.95	28.53			
13.87	28.59	13.8	28.57	14.13	28.54	14.47	28.51	14.82	28.48			
17.69	27.62	18.54	27.55	18.95	27.51	19.62	27.46	20.09	27.42			
20.62	27.37	21.45	27.3	21.54	27.3	22.14	27.25	22.43	27.22			
22.52	27.22	22.58	27.21	22.8	27.19	22.89	27.19	24.72	27.05			
24.8	27.05	25.57	27.05	25.79	26.99	25.79	26.99	25.84	27.02			
28.79	26.81	29.95	26.71	30.73	26.65	31.33	26.61	31.85	26.57			
32.31	26.53	32.92	26.48	33.19	26.46	33.2	26.45	33.77	26.41			
34.1	26.38	34.76	26.33	34.81	26.32	35.58	26.26	37.49	26.07			
38.14	26	38.51	26	38.41	26	38.4	26	38.45	26			
38.46	26	38.51	26	38.55	26	38.98	25.94	39.42	25.87			
40.31	25.99	40.39	26	40.44	26	40.49	26	40.6	26			
41.39	26.04	43.19	26.14	47.9	26.35	47.92	26.35	47.93	26.35			
47.94	26.35	48.87	26.35	47.96	26.35	50.94	26.51	53.7	26.64			
54.46	26.67	54.63	26.67	54.79	26.68	54.95	26.69	55.1	26.69			
59.62	26.95	59.65	26.95	59.67	26.95	59.71	26.95	59.74	26.95			
59.88	26.96	59.94	26.96	60.63	27	61.43	27	61.43	27			
65.43	28.07	70.66	29	73.23	29.48	75.72	30	75.72	30			
80.23	31	81.09	31.17	82.56	31.47	83.05	31.57	83.05	31.57			

Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val
0	.045	37.49	.035	41.39	.045	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
37.49	41.39	22.16	21.49	20.54	.1	.3

CROSS SECTION
RIVER: Innoninado
REACH: superior
RS: 514.322

Station	Elevation	Data	num=	186	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	27	.39	27	6.86	27	5.09	27	5.45	27			
5.49	27	5.69	27	6.85	27	7.05	27	8.45	27			
8.73	27	8.86	27	9.16	27	10.51	27	11.16	27			
11.32	27	11.36	27	11.39	27	11.55	27	11.58	27			
11.62	27	11.66	27	11.83	27	11.86	27	11.86	27			
11.99	27	12.12	27	12.25	27	12.37	27	13.24	27			
16.84	27	16.97	27	17.12	27	17.28	27	17.46	27			
18.89	27	18.9	27	18.91	27	18.95	27	18.95	27			
18.99	27	19	27	19.04	27	19.05	27	20.4	27.7			
20.42	27.7	20.46	27.7	20.5	27.7	20.54	27.7	20.57	27.7			
20.6	27.7	20.63	27.7	20.66	27.7	20.7	27.7	20.72	27.7			
20.76	27.7	21.15	27.73	21.19	27.73	21.24	27.74	21.28	27.74			
21.33	27.74	21.77	27.75	21.81	27.75	21.82	27.76	21.86	27.76			
21.89	27.76	21.92	27.76	22.37	27.77	22.4	27.78	22.43	27.78			
22.46	27.78	22.49	27.78	22.51	27.78	22.83	27.75	22.86	27.75			
22.89	27.74	22.94	27.73	22.99	27.72	23.01	27.71	23.05	27.7			
23.14	27.69	23.2	27.67	23.22	27.67	23.28	27.66	23.3	27.65			
23.31	27.65	23.33	27.65	23.4	27.63	23.41	27.63	23.43	27.62			
23.44	27.62	23.49	27.61	23.51	27.61	23.52	27.6	23.54	27.6			
23.55	27.59	23.82	27.54	23.84	27.54	23.87	27.53	23.89	27.53			
23.92	27.53	23.94	27.52	23.97	27.52	24.13	27.5	24.63	27.38			
24.75	27.36	24.87	27.35	24.9	27.34	25.07	27.31	25.33	27.28			
25.49	27.24	25.66	27.2	25.67	27.2	25.69	27.2	25.75	27.18			
25.78	27.18	25.84	27.17	25.91	27.16	25.94	27.15	26	27.14			
26.06	27.13	26.09	27.12	26.14	27.11	26.22	27.1	26.3	27.08			
26.32	27.08	26.4	27.06	26.42	27.06	26.54	27.04	26.67	27.02			
26.77	27	26.8	27	26.85	26.99	27.35	26.94	27.39	26.94			
27.49	26.93	27.6	26.91	27.8	26.88	27.92	26.87	28.03	26.85			
28.14	26.84	28.25	26.83	28.36	26.81	28.41	26.81	28.47	26.8			
28.54	26.79	28.61	26.78	28.67	26.77	28.69	26.76	28.75	26.75			
28.81	26.74	28.83	26.74	28.84	26.74	28.91	26.72	28.92	26.72			
28.98	26.72	29.06	26.69	29.45	26.6	29.46	26.6	29.53	26.57			
30.7	26	34.68	25.39	34.74	25.39	37.78	25	39.29	24.94			
39.62	24.92	41.4	24.85	41.98	24.89	43.09	25	43.32	25.02			
46.59	25.34	47.06	25.39	53.93	25.59	54.06	26	55.31	26.13			
63.58	27	63.76	27.06	64.89	28	68.39	28	70.26	29			
72.81	29.75	73.71	30	74.68	30.26	77.29	31	79.95	31.62			
80.26	31.69											

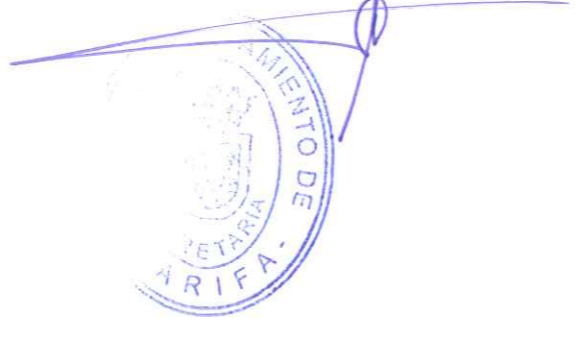
Manning's n Values	Sta	n Val	Sta	n Val	Sta	n Val
0	.045	39.29	.035	43.32	.045	

Bank Sta: Left	Right	Lengths: Left	Channel	Right	Coeff Contr.	Expan.
39.29	43.32	16.62	17.27	17.85	.1	.3

CROSS SECTION
RIVER: Innoninado
REACH: superior
RS: 497.047

Station	Elevation	Data	num=	101	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	26.58	.04	26.58	.09	26.58	.13	26.58	.24	26.57			
.42	26.59	.53	26.58	.55	26.58	.56	26.58	.59	26.58			
.61	26.58	.63	26.58	.65	26.59	.67	26.59	.79	26.6			
1	26.62	1.64	26.54	1.89	26.56	2.01	26.57	2.72	26.48			
8.17	26	8.36	26	8.4	26	12.22	26	13.06	26			

PRESENCIA...
Aprobado
Aprobado por el Excmo Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.5 del Reglamento de Planeamiento Urbanístico).
EL SECRETARIO DEL AYUNTAMIENTO



Station	Elevation	Data	num=	3	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
13.08	26	13.1	26	13.58	26	13.83	26	13.84	26			
14.5	26	14.97	26	15.52	26	19.73	25.46	20.05	25.41			
20.09	25.41	20.47	25.36	20.35	25.35	20.57	25.34	20.63	25.33			
22.54	25.1	23.19	25	23.55	25	23.61	25	23.86	25			
24.26	25	24.29	25	24.35	25	24.73	25	24.8	25			
24.82	25	24.83	25	25.83	25	25.85	25	25.85	25			
25.88	25	25.9	25	25.92	25	25.94	25	25.95	25			
32.73	24.46	32.76	24.46	32.78	24.46	32.81	24.46	32.94	24.46			
34.04												

Sta n Val Sta n Val Sta n Val
0 .045 39.55 .035 43.43 .045

Bank Sta: Left Right Lengths: Left channel Right
39.55 43.43 16.92 17.43 17.97

CROSS SECTION

RIVER: Innominado REACH: superior RS: 417.714

INPUT

Table with 10 columns: Station, Elevation, Data, num=58, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 72.14.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .045 37.89 .035 41.72 .045

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
37.89 41.72 22.31 22.68 22.96 .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 395.035

INPUT

Table with 10 columns: Station, Elevation, Data, num=60, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 65.67.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .045 36.44 .035 40.55 .045

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
36.44 40.55 20.09 20.38 20.67 .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 374.659

INPUT

Table with 10 columns: Station, Elevation, Data, num=88, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 76.57.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .05 38.7 .4 42.89 .05

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
38.7 42.89 20.2 20.28 20.33 .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 354.377

INPUT

Table with 10 columns: Station, Elevation, Data, num=104, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 78.

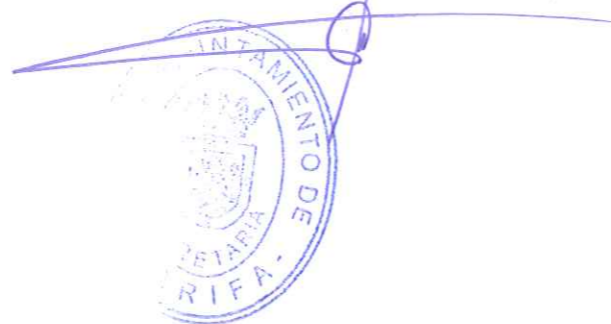
Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .05 40.53 .4 44.32 .05

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
40.53 44.32 19.41 19.64 19.79 .1 .3

CROSS SECTION

tarifa

RESOLUCION... Aprobado... 27 SET. 2016... del Reglamento de Planeamiento Urbanistico... EL SECRETARIO DEL AYUNTAMIENTO



tarifa

CROSS SECTION

RIVER: Innominado REACH: superior RS: 334.743

INPUT

Table with 10 columns: Station, Elevation, Data, num=45, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 75.04.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .05 39.71 .4 44.25 .05

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
39.71 44.25 19.59 19.5 18.97 .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 315.248

INPUT

Table with 10 columns: Station, Elevation, Data, num=90, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 69.23.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .05 33.72 .4 37.82 .05

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
33.72 37.82 19.95 19.67 19.29 .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 295.581

INPUT

Table with 10 columns: Station, Elevation, Data, num=114, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 72.61.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .05 32.13 .4 36.13 .05

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
32.13 36.13 22.27 20.94 19.08 .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 274.643

INPUT

Table with 10 columns: Station, Elevation, Data, num=73, Sta, Elev, Sta, Elev, Sta, Elev. Contains elevation data for station 0 to 72.83.

Manning's n Values num=3 Sta n Val Sta n Val Sta n Val
0 .05 33.55 .4 37.67 .05

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.
33.55 37.67 21.17 20.16 19.06 .1 .3

CROSS SECTION

106.66	16.91	106.69	16.91	106.7	16.91	106.71	16.91	107.29	17	tarifa
107.44	17	107.5	17	107.53	17	107.56	17	107.6	17	17
107.63	17	107.66	17	107.69	17	107.7	17	107.79	17.01	17.01
107.88	17.02	107.97	17.03	108.03	17.04	108.04	17.05	108.11	17.06	17.06
108.12	17.06	108.2	17.07	108.27	17.08	108.31	17.08	108.36	17.09	17.09
108.38	17.09	108.46	17.1	108.48	17.11	108.51	17.11	108.54	17.11	17.11
108.57	17.12	108.78	17.15	108.81	17.16	108.85	17.16	108.86	17.16	17.16
108.9	17.17	108.95	17.17	109	17.18	109.2	17.22	109.26	17.23	17.23
109.91	17.34									

Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	51	.05	54.05	.05				

Bank Sta:	Left	Right	Lengths:	Left	channel	Right	coeff	Contr.	Expan.
	51	54.05		20.4	20.32	20.28	.1	.3	.3

CROSS SECTION
RIVER: Innominado
REACH: superior RS: 114.780

INPUT Description: Station Elevation Data num= 110

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	17.56	9.71	17.35	9.91	17.31	10.15	17.4	10.23	17.28
10.88	17.56	17.29	17.38	18.95	16.8	46.03	13	46.22	14.62
46.83	14.44	47.7	14	48.76	13.22	49.02	13	49.24	12.65
49.73	12	50.21	11.97	51.48	11.88	53.42	11.75	55.11	11.91
55.28	11.9	56.2	12	56.24	12	58.62	12.46	59.01	12
59.36	12	59.66	12	59.66	12.42	62.46	12.46	67.44	12.63
60.13	12.65	60.19	12.65	60.54	12.66	66.11	13	67.23	13.14
68.59	13.31	69.69	14	69.72	14	69.75	14	69.77	14
68.81	15.6	69.65	14	69.69	14	69.93	14	69.96	14
94.85	14.3	95.14	14.34	95.17	14.34	95.66	14.35	95.34	14.37
95.43	14.38	95.51	14.39	95.59	14.4	95.66	14.41	95.96	14.46
99.02	15	99.12	15	99.14	15	99.16	15	99.18	15
99.7	15	99.22	15	99.23	15	99.25	15	99.27	15
100.48	15.2	100.54	15.21	100.61	15.22	100.68	15.23	100.76	15.24
100.86	15.25	101.33	15.31	101.38	15.32	101.53	15.34	101.7	15.36
101.89	15.39	102.17	15.42	102.53	15.47	102.99	15.53	103.25	15.57
103.82	15.6	105.62	15.89	105.91	15.93	106.23	15.97	106.46	16
106.6	16.03	106.63	16.04	107.08	16.14	107.45	16.22	107.65	16.27
107.98	16.35	108.25	16.41	108.62	16.5	108.98	16.58	109.5	16.7
110.32	16.9	110.45	16.93	110.74	17	111.33	17.13	111.46	17.16
112.22	17.3	112.52	17.4	113.05	17.51	113.52	17.62	113.85	17.69
114.46	17.84	114.56	17.86	115.16	18	115.61	18.1	117.44	18.49

Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	51.48	.05	55.28	.05				

Bank Sta:	Left	Right	Lengths:	Left	channel	Right	coeff	Contr.	Expan.
	51.48	55.28		20.37	20	19.67	.1	.3	.3

CROSS SECTION
RIVER: Innominado
REACH: superior RS: 94.778

INPUT Description: Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	15.75	5.7	15.7	2.84	15.48	3.28	15.53	3.63	15.45
9.82	15.53	13.28	15.47	26.29	15.42	42.04	15	43.81	15
47.31	15	47.6	14.76	48.39	14	48.7	13.81	50.05	13
50.32	12.82	51.34	12	51.77	11.5	52.93	11.73	54.61	11.49
56.9	11.6	57.42	11.62	58.19	11.63	58.28	11.63	59.11	11.64
61.91	11.71	69.56	12	69.75	12	69.96	12	70.83	12
71.51	12	71.99	12	72.24	12	76.84	12	77.05	12
77.16	12	77.62	12	77.19	12	79.19	12	79.19	12
85.88	12	85.99	12.01	86	12.01	86.02	12.01	89.18	12.28
89.58	12.32	90.45	12.4	90.56	12.4	90.67	12.41	90.78	12.42
90.88	12.43	90.99	12.44	91.08	12.45	91.12	12.45	91.34	12.47
91.55	12.49	92.15	12.54	92.34	12.56	92.52	12.57	92.54	12.58
93.17	12.63	97.04	13	97.13	13.01	97.22	13.03	100.67	13.54
103.74	14	104.08	14.05	104.1	14.06	104.16	14.07	104.25	14.09
104.8	14.19	106.66	14.53	108.28	14.87	108.29	14.87	108.5	14.91
108.92	15	111.62	15.6	113.36	16	114.85	16.34	117.05	16.82
117.87	17	118.21	17.07	120.37	17.55	121.9	17.89	122.11	17.94
122.38	18	122.98	18.13	123.86	18.32				

Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.06	52.99	.045	56.9	.06				

Bank Sta:	Left	Right	Lengths:	Left	channel	Right	coeff	Contr.	Expan.
	52.99	56.9		20.77	20.26	19.78	.1	.3	.3

CROSS SECTION
RIVER: Innominado
REACH: superior RS: 74.522

INPUT Description: Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.7	2.81	13.8	8.76	13.88	12.44	13.84	12.83	13.82
14.7	13.74	22.22	14	30.67	14	30.82	13.72	31.27	13.15
31.28	12.5	32	12	35	11.25	36.63	11.25	36.77	11.25
37	11.24	37.32	11.24	37.42	11.25	37.52	11.24	37.71	11.24
38.09	11.2	40	11.13	42.13	11.1	42.23	11.1	44.63	11.1
44.67	11.1	44.7	11.1	44.74	11.1	44.77	11.1	44.81	11.1
44.84	11.1	44.88	11.1	44.91	11.1	46.67	11	47.01	10.98
49.14	10.96	49.78	10.94	50.54	10.92	51.04	10.9	51.58	10.89
52.02	10.88	52.33	10.87	52.68	10.87	53.26	10.9	53.67	10.94
54.17	11	54.78	11.11	55.63	11.27	57.61	11.55	58.32	11.64
58.83	11.73	61.72	12	62.39	12.03	63	12.05	63.16	12.07
66.09	12.18	66	12.19	66.11	12.19	66.12	12.19	66.14	12.19
67.99	12.26	68.01	12.26	68.02	12.26	68.49	12.27	68.6	12.26
68.72	12.26	69.24	12.27	69.36	12.27	69.47	12.26	71.15	12.27
71.7	12.26	72.4	12.26	72.1	12.25	72.2	12.24	72.32	12.24
75.51	12.23	72.64	12.22	73.15	12.25	73.29	12.24	73.89	12.26
74.49	12.26	75.11	12.25	75.54	12.24	75.69	12.24	76.13	12.23
76.28	12.22	76.38	12.22	76.52	12.21	76.54	12.21	76.65	12.21
76.71	12.21	76.81	12.21	76.94	12.21	77.37	12.19	79.6	12.19
79.66	12.19	79.72	12.19	79.79	12.19	79.85	12.19	79.91	12.19
79.97	12.19	80	12.19	80.04	12.19	80.07	12.19	80.11	12.19
80.14	12.19	82.37	12.19	82.41	12.19	82.45	12.19	82.48	12.19
82.5	12.19	82.52	12.19	82.56	12.19	82.59	12.18	82.62	12.18
82.95	12.19	82.98	12.19	83.01	12.18	83.04	12.18	83.2	12.18
83.36	12.17	84.09	12.18	85.45	12.21	85.88	12.2	87.35	12.22
87.37	12.22	87.4	12.22	87.42	12.22	87.45	12.22	87.47	12.22
87.5	12.22	87.52	12.22	87.63	12.22	87.81	12.22	89.25	12.23
89.45	12.23	89.54	12.23	89.57	12.23	90.07	12.24	90.1	12.24
91.21	12.26	91.32	12.26	91.44	12.27	91.55	12.27	91.67	12.27
91.73	12.27	91.85	12.27	91.97	12.27	92.06	12.28	92.18	12.28
92.3	12.28	92.38	12.28	92.41	12.28	92.8	12.32	92.87	12.6
99.74	12.76	100.81	12.86	100.86	12.86	102.42	13	105.34	13.56
107.68	14	108.24	14.12	112.73	15	113.1	15.07	113.5	15.14
116.93	15.78	117.95	15.97	118.1	16	122.82	16.93	123.14	16.99

Manning's n Values									
Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
0	.05	51.48	.05	55.28	.05				

0	.06	49.78	.045	53.67	.06					tarifa
Bank Sta:	Left	Right	Lengths:	Left	channel	Right	coeff	Contr.	Expan.	
	49.78	53.67		18.75	20.34	21.33	.1	.3	.3	

CROSS SECTION
RIVER: Innominado
REACH: superior RS: 54.184

INPUT Description: Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1	6.23	13.04	6.39	13.03	8.38	13.06	15.05	13.06
17.2	13.13	21.96	13	26.36	13	31.09	13	39.52	12.91
39.66	12.52	39.82	12	40.28	11.04	40.3	11	40.31	11
40.32	11	40.33	11	40.33	11	40.33	11	40.33	11
45.21	10.22	45.36	10.21	45.41	10.23	44.37	10.23	45.03	10.22
46.19	10.17	46.29	10.17	46.74	10.16	46.79	10.16	46.89	10.16
48.15	10.15	49.72	10.13	49.79	10.12	49.85	10.12	50.36	10.08
50.87	10.06	51.11	10.05	51.21	10.04	51.91	10	51.93	10
52.7	9.95	53.66	9.84	56.12	9.58	56.73	9.68	56.84	9.7
57.02	9.73	57.36	9.79	57.59	9.82	57.79	9.85	58.21	10
60.53	10.54	60.83	10.63	61.25	10.75	61.31	10.77	62.22	11
62.41	11.07	63.91	11.84	64.19	11.98	64.22	12	64.42	12.06
64.48	12.08	64.54	12.1	64.72	12.17	65.54	12.44	67.19	13
67.21	13	67.27	13	67.34	13	67.38	13	67.44	13
67.46	13	67.51	13	67.52	13				

Station Elevation Data num= 185

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.21	3.73	12.17	5.33	12.13	5.39	12.12	6.05	12.08
7.42	12	8.34	12.03	9.95	12.05	13.54	12	19.96	12
24.98	11.92	25.47	11.92	28.8	12	29.63	12.04	31.48	12.13
37.86	12.21	40.92	12.28	42.2	8.92	42.63	8.9	46.59	8.9
47.3	8.92	48.08	12.44	50.8	12.58	53.55	12.69	54.93	12.74
58.2	12.85	61.48	12.95	62.52	12.99	62.7	12.99	62.8	12.99
62.9	12.99	63.78	13	65.79	13	67.94	13	68.68	13.03
71.19	13.06	76.03	13.13	78.65	13.23	79.26	13.24	82.23	13.35
82.58	13.37	82.82	13.42	88.63	13.54	94.13	13.89	94.55	13.9
94.81	13.9	97.89	13.96	99.95	14	100.18	14	101.24	14.01
102.78	14.01	104.72	14.07	107.33	14.09	107.68	14.09	113.09	14.25
113.37	14.27	116.24	14.54	116.45	14.56	116.65	14.56	116.72	14.57
117.05	14.58	117.41	14.59	117.79	14.59	124.12	14.78	124.62	14.78
126.42	14.78	128.48	14.83	130.76	14.83	138.54	15	138.67	15
139.57	15	139.8	15.01	142.54	15.01	144.28	15.05	147.01	15.07
148.54	15.07	150.9	15.14	153.1	15.15	154.92	15.17	157.4	15.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	58.28	.045	62.39	.06

Bank Sta: Left Right Coeff Contr. Expan.

Sta L	Sta R	Elev	Permanent
0	58.25	12.6	T
62.5	159.99	12.6	T

Downstream Deck/Roadway Coordinates num= 2

Sta HI Cord	Lo Cord	Sta HI Cord	Lo Cord
40.92	12.28	8	48.08 12.44

Downstream Bridge Cross Section Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.21	3.73	12.17	5.33	12.13	5.39	12.12	6.05	12.08
7.42	12	8.34	12.03	9.95	12.05	13.54	12	19.96	12
24.98	11.92	25.47	11.92	28.8	12	29.63	12.04	31.48	12.13
37.86	12.21	40.92	12.28	42.2	8.92	42.63	8.9	46.59	8.9
47.3	8.92	48.08	12.44	50.8	12.58	53.55	12.69	54.93	12.74
58.2	12.85	61.48	12.95	62.52	12.99	62.7	12.99	62.8	12.99
62.9	12.99	63.78	13	65.79	13	67.94	13	68.68	13.03
71.19	13.06	76.03	13.13	78.65	13.23	79.26	13.24	82.23	13.35
82.58	13.37	82.82	13.42	88.63	13.54	94.13	13.89	94.55	13.9
94.81	13.9	97.89	13.96	99.95	14	100.18	14	101.24	14.01
102.78	14.01	104.72	14.07	107.33	14.09	107.68	14.09	113.09	14.25
113.37	14.27	116.24	14.54	116.45	14.56	116.65	14.56	116.72	14.57
117.05	14.58	117.41	14.59	117.79	14.59	124.12	14.78	124.62	14.78
126.42	14.78	128.48	14.83	130.76	14.83	138.54	15	138.67	15
139.57	15	139.8	15.01	142.54	15.01	144.28	15.05	147.01	15.07
148.54	15.07	150.9	15.14	153.1	15.15	154.92	15.17	157.4	15.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	40.92	.045	48.08	.06

Bank Sta: Left Right Coeff Contr. Expan.

Sta L	Sta R	Elev	Permanent
40.92	48.08		

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
 Downstream Embankment side slope = 0 horiz. to 1.0 vertical
 Maximum allowable submergence for weir flow = .95
 Elevation at which weir flow begins =
 Energy head used in spillway design =
 Spillway height used in design =
 Weir crest shape = Broad Crested

Number of culverts = 1

Culvert Name shape Rise Span

PASO 1	Conspan Arch	1.7	2			
FHWA Chart # 60 - Span/Rise ratio approximate 2:1						
FHWA scale # 1 - 0 degree wing wall angle						
Solution criteria = Highest U.S. EG						
Culvert Upstrm Dist	Length	Top n	Bottom n	Depth Blocked	Entrance Loss Coef	Exit Loss Coef
3.01	12.99	.015	.015	0	.5	1

Upstream Elevation = 9.2
 Centerline station = 60.27
 Downstream Elevation = 8.94
 Centerline station = 44.63

CROSS SECTION

RIVER: Innominado
 REACH: superior
 RS: 25.786

INPUT

Description: Station Elevation Data num= 80

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	12.21	3.73	12.17	5.33	12.13	5.39	12.12	6.05	12.08
7.42	12	8.34	12.03	9.95	12.05	13.54	12	19.96	12
24.98	11.92	25.47	11.92	28.8	12	29.63	12.04	31.48	12.13
37.86	12.21	40.92	12.28	42.2	8.92	42.63	8.9	46.59	8.9
47.3	8.92	48.08	12.44	50.8	12.58	53.55	12.69	54.93	12.74
58.2	12.85	61.48	12.95	62.52	12.99	62.7	12.99	62.8	12.99
62.9	12.99	63.78	13	65.79	13	67.94	13	68.68	13.03
71.19	13.06	76.03	13.13	78.65	13.23	79.26	13.24	82.23	13.35
82.58	13.37	82.82	13.42	88.63	13.54	94.13	13.89	94.55	13.9
94.81	13.9	97.89	13.96	99.95	14	100.18	14	101.24	14.01
102.78	14.01	104.72	14.07	107.33	14.09	107.68	14.09	113.09	14.25
113.37	14.27	116.24	14.54	116.45	14.56	116.65	14.56	116.72	14.57
117.05	14.58	117.41	14.59	117.79	14.59	124.12	14.78	124.62	14.78
126.42	14.78	128.48	14.83	130.76	14.83	138.54	15	138.67	15
139.57	15	139.8	15.01	142.54	15.01	144.28	15.05	147.01	15.07
148.54	15.07	150.9	15.14	153.1	15.15	154.92	15.17	157.4	15.23

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.06	40.92	.045	48.08	.06

Bank Sta: Left Right Lengths: Left channel Right Coeff Contr. Expan.

Sta L	Sta R	Length	Left channel	Right	Coeff Contr.	Expan.
40.92	48.08		21.34	25.79	.1	.3

APROBADO
 Resoluci3n celebrada el dia 27 SET. 2016 (Articulo 128,3 del Reglamento de Planeamiento Urbanistico).
 EL SECRETARIO DEL AYUNTAMIENTO



tarifa

SUMMARY OF MANNING'S N VALUES

River: Innominado

Reach	River Sta.	n1	n2	n3
superior	732.439	.045	.035	.045
superior	697.415	.045	.035	.045
superior	656.082	.045	.035	.045
superior	616.672	.045	.035	.045
superior	576.256	.045	.035	.045
superior	554.557	.045	.035	.045
superior	535.806	.045	.035	.045
superior	514.322	.045	.035	.045
superior	497.047	.045	.035	.045
superior	475.941	.045	.035	.045
superior	456.031	.045	.035	.045
superior	435.143	.045	.035	.045
superior	417.714	.045	.035	.045
superior	395.035	.045	.035	.045
superior	374.659	.05	.4	.05
superior	354.377	.05	.4	.05
superior	334.743	.05	.4	.05
superior	315.248	.05	.4	.05
superior	295.581	.05	.4	.05
superior	274.643	.05	.4	.05
superior	254.479	.05	.4	.05
superior	235.222	.05	.4	.05
superior	215.711	.05	.4	.05
superior	195.639	.05	.4	.05
superior	175.516	.05	.4	.05
superior	154.810	.05	.4	.05
superior	135.038	.05	.4	.05
superior	114.780	.05	.4	.05
superior	94.778	.06	.045	.06
superior	74.522	.06	.045	.06
superior	54.184	.06	.045	.06
superior	42.856	.06	.045	.06
superior	35	culvert	.06	.045
superior	25.786			

SUMMARY OF REACH LENGTHS

River: Innominado

Reach	River Sta.	Left	Channel	Right
superior	732.439	33.55	35.02	35.8
superior	697.415	43.5	41.33	39.58
superior	656.082	38.63	39.41	39.77
superior	616.672	39.17	40.42	41.41
superior	576.256	21.69	21.7	21.6
superior	554.557	19.68	18.75	17.72
superior	535.806	22.16	21.49	20.54
superior	514.322	16.62	17.27	17.85
superior	497.047	20.87	21.11	21.29
superior	475.941	19.08	19.91	20.58
superior	456.031	20.23	20.89	21.24
superior	435.143	16.92	17.43	17.97
superior	417.714	22.31	22.68	22.96
superior	395.035	20.09	20.38	20.67
superior	374.659	20.2	20.28	20.33
superior	354.377	19.41	19.64	19.79
superior	334.743	19.59	19.5	18.97
superior	315.248	19.95	19.67	19.29
superior	295.581	22.27	20.94	19.08
superior	274.643	21.17	20.16	19.06
superior	254.479	18.9	19.26	19.61
superior	235.222	19.18	19.51	19.78
superior	215.711	22.27	20.94	20.4
superior	195.639	19.99	20.12	20.05
superior	175.516	20.08	20.71	21.68
superior	154.810	19.6	19.71	19.58
superior	135.038	20.4	20.32	20.8
superior	114.780	20.37	20	19.67
superior	94.778	20.77	20.26	19.78
superior	74.522	18.75	20.34	21.33
superior	54.184	11.23	11.33	10.52
superior	42.856	17.7	17.07	17.17
superior	35	culvert	25.79	25.83
superior	25.786			

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

River: Innominado

Reach	River Sta.	Contr.	Expan.
superior	732.439	.1	.3
superior	697.415	.1	.3
superior	656.082	.1	.3
superior	616.672	.1	.3
superior	576.256	.1	.3
superior	554.557	.1	.3
superior	535.806	.1	.3
superior	514.322	.1	.3
superior	497.047	.1	.3
superior	475.941	.1	.3
superior	456.031	.1	.3
superior	435.143	.1	.3
superior	417.714	.1	.3
superior	395.035	.1	.3
superior	374.659	.1	.3
superior	354.377	.1	.3
superior	334.743	.1	.3
superior	315.248	.1	.3
superior	295.581	.1	.3
superior	274.643	.1	.3
superior	254.479	.1	.3
superior	235.222	.1	.3
superior	215.711	.1	.3
superior	195.639	.1	.3
superior	175.516	.1</	

RESOLUCIÓN: aprobado
dictada por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día **27 SEPT. 2016** (Artículo 128,5 del Reglamento de Planeamiento Urbanístico).

EL SECRETARIO DEL AYUNTAMIENTO



SALIDA DE INFORME DE CÁLCULO DEL PROGRAMA HEC-RAS 3.1.3
ESCENARIO ESTADO ACTUAL

```

X X XXXXXX XXXX XXXX XX XXXX
X X X X X X X X X X X X
X X X X X X X X X X X X
XXXXXXXX XXXX X XXX XXXX XXXX XXXX
X X X X X X X X X X X X
X X XXXXXX XXXX X X X XXXXX
    
```

PROJECT DATA
 Project Title: tarifa
 Project File: tarifa.prj
 Run Date and Time: 25/02/2016 14:42:07
 Project in SI units

PLAN DATA
 Plan Title: Plan 05
 Plan File: C:\TARIFA2\tarifa.p05
 Geometry Title: tarifa
 Geometry File: C:\TARIFA2\tarifa.g01
 Flow Title: tarifa
 Flow File: C:\TARIFA2\tarifa.f01

Plan Summary Information:
 Number of: Cross Sections = 33 Multiple Openings = 0
 Culverts = 1 Inline Structures = 0
 Bridges = 0 Lateral Structures = 0

Computational Information
 Water surface calculation tolerance = 0.003
 Critical depth calculation tolerance = 0.003
 Maximum number of iterations = 20
 Maximum difference tolerance = 0.1
 Flow tolerance factor = 0.001

Computation Options
 Critical depth computed only where necessary
 Conveyance Calculation Method: At breaks in n values only
 Friction Slope Method: Average Conveyance
 Computational Flow Regime: Mixed Flow

FLOW DATA
 Flow Title: tarifa
 Flow File: C:\TARIFA2\tarifa.f01

River	Reach	RS	10 Años	50 Años	100 Años	500 Años
Innominado	superior	732.439	3.76	5.2	8.09	7.8
Innominado	superior	235.222	5.26	7.25		10.84

River	Reach	Profile	Upstream	Downstream
Innominado	superior	10 Años	Critical	Normal S = 0.02
Innominado	superior	50 Años	Critical	Normal S = 0.02
Innominado	superior	100 Años	Critical	Normal S = 0.02
Innominado	superior	500 Años	Critical	Normal S = 0.02

GEOMETRY DATA
 Geometry Title: tarifa
 Geometry File: C:\TARIFA2\tarifa.g01

CROSS SECTION
 RIVER: Innominado
 REACH: superior
 RS: 732.439

INPUT
 Description:
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	38.76	36	38.69	2.26	38.37	4.38	38	5.76	37.8
6.48	37.74	7.34	37.64	8.01	37.57	8.02	37.57	8.58	37.51
9.09	37.48	10.52	37.37	10.97	37.33	12.02	37.24	12.65	37.19
13.46	37.12	13.8	37.09	14.52	37.03	14.78	37.01	14.88	37
15.15	36.98	15.48	36.96	15.79	36.94	16.1	36.91	16.25	36.9
16.53	36.89	16.74	36.87	16.88	36.86	17.32	36.84	17.48	36.83
17.55	36.82	18.09	36.78	19.57	36.67	20.61	36.62	20.78	36.6
20.82	36.6	20.98	36.59	21.58	36.55	21.7	36.54	21.86	36.53
21.99	36.52	22.15	36.51	22.28	36.5	22.43	36.49	22.57	36.48
22.71	36.47	22.72	36.47	22.87	36.46	23.11	36.44	23.26	36.44
23.49	36.42	23.64	36.41	23.85	36.4	23.9	36.39	24.09	36.38
24.24	36.37	24.43	36.36	25.12	36.3	25.3	36.31	25.49	36.29
25.82	36.28	25.95	36.27	26.17	36.26	26.41	36.24	26.64	36.23
26.89	36.21	26.98	36.2	28.63	36.03	28.79	36.08	29.65	36
29.72	35.99	31.73	35.81	32.56	35.72	33.55	35.63	33.89	35.6
34.2	35.57	34.48	35.55	34.69	35.53	34.83	35.52	34.95	35.51
35.08	35.5	35.19	35.49	35.31	35.48	35.33	35.47	35.44	35.47
36.5	35.35	37.8	35.12	38.72	38.95	35.12	39.7	35.12	39
40.86	35.34	41.43	35.41	42.2	35.49	46.16	35.94	46.41	35.97
45.65	36	51.56	36.63	53.74	37	53.8	37.02	57.25	38
59.76	38.49	62.11	39	65.8	39.71	67.34	40	69.19	40.59
70.58	41	71.67	41.24	74.96	42	76.5	42.39		

Manning's n Values

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	36.5	.035	40.86	.045

Bank Sta: Left 36.5 Right 40.86 Lengths: Left channel 33.55 Right 35.02 Coeff Contr. .1 Expan. .3

CROSS SECTION
 RIVER: Innominado
 REACH: superior
 RS: 697.415

INPUT
 Description:
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	36.72	.14	36.7	3.43	36	6.1	35.75

Page 1



Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
14.56	35	15.18	34.94	15.48	34.92	15.55	34.91	15.88	34.85
16.76	34.81	16.98	34.79	17.78	34.72	18.11	34.7	18.82	34.64
19.25	34.61	20.36	34.52	20.59	34.5	20.85	34.48	21.49	34.43
25.25	34.12	25.69	34.08	25.71	34.08	25.74	34.08	25.75	34.08
25.79	34.07	25.83	34.07	25.86	34.07	25.9	34.06	25.93	34.06
26.09	34.05	26.6	34	27.74	33.79	27.9	33.76	28.04	33.73
28.17	33.71	28.3	33.69	28.48	33.66	28.72	33.62	28.93	33.58
29.11	33.55	30.09	33.4	30.77	33.37	30.78	33.37	32.75	33.11
33.12	33.16	34.78	33.25	36.24	33.36	37.59	33.45	38.66	33.55
43.69	34	43.71	34	47.99	34.52	50.13	34.77	51.99	35
55.54	35.47	58.26	35.85	58.96	35.94	59.31	36	61.7	36.34
66.08	37	66.84	37.12	69.17	37.49	72.31	38	74.99	38.49
76.33	38.73								

Manning's n Values
 Sta n Val Sta n Val Sta n Val
 0 .045 30.77 .035 34.78 .045

Bank Sta: Left 30.77 Right 34.78 Lengths: Left channel 43.5 Right 41.33 Coeff Contr. .1 Expan. .3

CROSS SECTION
 RIVER: Innominado
 REACH: superior
 RS: 656.082

INPUT
 Description:
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	34.42	21	34.39	33	34.37	43	34.26	79	34.31
.84	34.3	1.10	34.25	1.26	34.24	1.33	34.23	1.71	34.18
1.76	34.17	2.04	34.13	2.08	34.13	2.1	34.12	2.12	34.12
2.14	34.12	2.95	34	4.15	33.83	4.31	33.8	4.47	33.78
4.62	33.75	4.8	33.74	4.5	33.7	5.02	33.7	5.1	33.69
5.18	33.67	5.25	33.66	5.33	33.65	5.4	33.64	5.62	33.61
6.15	33.54	7.17	33.41	7.33	33.39	7.97	33.29	8.27	33.25
8.52	33.22	8.81	33.17	9.14	33.12	9.51	33.06	9.52	33.06
9.91	33	9.93	33	9.98	32.99	10.14	32.97	10.29	32.95
10.43	32.93	10.57	32.92	10.71	32.9	10.84	32.88	10.96	32.87
10.98	32.87	11.1	32.85	11.23	32.84	11.34	32.82	11.39	32.82
11.48	32.81	11.58	32.8	11.66	32.79	11.95	32.78	12.04	32.76
12.13	32.76	12.47	32.74	12.45	32.73	13	32.67	13.05	32.67
13.19	32.66	13.35	32.64	13.66	32.62	13.92	32.59	14.73	32.51
15.1	32.47	15.68	32.42	15.88	32.41	17.15	32.29	17.3	32.28
17.44	32.27	17.57	32.26	19.24	32.11	19.46	32.09	19.99	32.04
20.42	32	20.57	31.99	21.15	31.94	21.63	31.9	25.99	31.5
27.62	31.33	28.79	31.22	28.87	31.21	28.98	31.2	29.08	31.19
29.12	31.19	29.24	31.18	29.35	31.17	29.37	31.17	29.43	31.16
29.49	31.16	29.54	31.15	29.59	31.15	29.64	31.15	29.76	31.14
29.9	31.12	30.02	31.12	30.12	31.11	31.05	31	31.69	30.95
33.42	30.82	33.72	30.82	34.7	30.86	35.83	30.9	36.44	30.93
37.87	31	40.63	31.28	44.8	31.76	46.5	31.95	46.91	32
47.15	32.04	53.62	33	59.64	33.68	60.49	34	61.72	34.17
67.75	35	70.39	35.47	73.28	36	78.06	36.9	78.51	37
78.99	37.14	80.93	37.7						

Manning's n Values
 Sta n Val Sta n Val Sta n Val
 0 .045 31.69 .035 35.83 .045

Bank Sta: Left 31.69 Right 35.83 Lengths: Left channel 38.68 Right 39.77 Coeff Contr. .1 Expan. .3

CROSS SECTION
 RIVER: Innominado
 REACH: superior
 RS: 616.672

INPUT
 Description:
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.87	.25	31.85	.27	31.85	.51	31.83	.74	31.81
.76	31.81	.98	31.79	1.19	31.77	1.23	31.77	1.25	31.77
1.29	31.77	1.51	31.75	1.55	31.74	1.59	31.74	1.81	31.72
1.85	31.72	2.05	31.7	2.11	31.7	2.16	31.69	2.36	31.65
2.37	31.67	2.46	31.67	2.65	31.65	2.74	31.64	2.81	31.64
2.89	31.63	2.98	31.62	3.05	31.61	3.15	31.61	3.22	31.6
3.1	31.59	3.4	31.59	3.47	31.58	3.54	31.57	3.64	31.57
3.71	31.56	3.7	31.55	3.85	31.55	3.92	31.55	3.99	31.54
4.18	31.52	4.26	31.51	4.34	31.51	4.42	31.5	4.5	31.5
4.57	31.49	4.64	31.49	4.7	31.48	4.77	31.47	4.85	31.47
4.96	31.46	5.09	31.45	5.23	31.43	5.62	31.39	5.76	31.37
6.28	31.32	7.03	31.24	7.16	31.22	7.38	31.22	8.56	31.04
8.61	31.04	8.9	31	10.35	30.79	10.43	30.78	11.6	30.62
11.7	30.6	11.82	30.58	12.13	30.54	12.9	30.43	13.49	30.35
13.87	30.3	14.29	30.24	14.92	30.16	15.69	30.06	15.73	30.05
16.16	30	16.44	29.99	16.9	29.95	17.51	29.93	17.6	29.93
18.13	29.9	18.37	29.89	18.93	29.87	19.02	29.86	19.09	29.86
19.19	29.85	21.88	29.74	22.04	29.73	22.08	29.73	22.23	29.73
22.39	29.72	22.55	29.71	24.38	29.62	27.7	29.42	31.27	29.26
25.8	29.6	26.67	28.95	40.57	28.94	41.3	28.93	42.22	28.92
42.81	28.92	43.22	28.93	43.33	28.93	43.83	28.94	44.51	28.95
45.36	28.96	45.96	28.98	47.03	29	48.38	29.15	49.96	29.39
51.79	28.64	52.71	29.78	53.94	30	56.2	30.42	59.43	31
63.15	31.7	64.69	32	65.36	32.15	69.41	33	71.52	33.5
73.59	34	76.1	34.56	77.64	35	79.61	35.49	81.67	36
82.22	36.15								

Manning's n Values
 Sta n Val Sta n Val Sta n Val
 0 .045 40.57 .035 43.83 .045

Bank Sta: Left 40.57 Right 43.83 Lengths: Left channel 39.17 Right 40.42 Coeff Contr. .1 Expan. .3

CROSS SECTION
 RIVER: Innominado
 REACH: superior
 RS: 576.256

INPUT
 Description:
 Station Elevation Data

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.81	1.49	31.54	4.47	31	9.49	30.09	9.97	30
12.08	29.62	15.06	29.08	15.47	29	28.88	28.05	29.58	28
19.61	28	30.39	27.94	30.85	27.9	31.96	27.87	31.64	27.84

REACH: superior RS: 554.557

INPUT Description: Station Elevation Data num= 85

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.61	1.54	31.35	2.73	31.13	2.98	31.09	3.5	31
6.76	30.45	6.93	30.42	7.11	30.38	7.33	30.34	8.36	30.16
8.66	30.11	9.29	30	10.78	29.75	11.95	29.55	12.06	29.53
12.3	29.49	12.6	29.43	13.72	29.32	13.31	29.31	13.4	29.29
13.5	29.28	13.61	29.26	13.72	29.24	14.21	29.15	14.52	29.09
15.08	29	15.1	29	15.93	28.89	16.12	28.87	16.85	28.77
17.04	28.75	17.24	28.72	18.09	28.62	18.32	28.58	18.42	28.57
18.95	28.5	19.01	28.49	19.59	28.42	20	28.37	20.32	28.33
20.55	28.3	20.8	28.27	21	28.24	21.28	28.21	22.78	28.03
22.82	28.03	22.86	28.02	23.09	28	23.12	28	23.78	27.94
24.77	27.86	24.93	27.84	24.99	27.84	25.74	27.77	26.75	27.64
27.54	27.6	28.24	27.53	29	27.46	29.9	27.38	34.08	27.2
34.16	26.99	35.27	26.91	36.39	26.81	38.39	26.63	40.39	26.71
44.79	26.86	45.47	26.89	46.24	26.92	46.65	26.93	48.65	27
50.59	27.09	51.61	27.14	53.16	27.25	54.26	27.34	56.85	27.5
62	28	64.26	28.4	68.04	29	72.31	29.73	74.05	30
75.85	30.38	78.68	31	80.05	31.22	84.19	32	85.24	32.22

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	36.39	.035	40.39	.045

Bank Sta: Left Right Lengths: Left channel Right

36.39 40.39 19.68 18.72

coeff Contr. Expan. .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 535.806

INPUT Description: Station Elevation Data num= 119

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	30.09	.63	30	3.75	29.59	4.13	29.55	5.27	29.41
5.38	29.39	5.6	29.36	5.84	29.33	6.11	29.29	6.41	29.25
6.74	29.2	6.87	29.18	7.16	29.14	7.47	29.1	7.82	29.05
8.17	29	8.2	28.99	8.56	28.93	8.88	28.88	9.03	28.85
9.29	28.81	9.53	28.77	9.75	28.73	9.95	28.7	10.13	28.67
10.3	28.64	10.42	28.62	10.61	28.59	10.79	28.56	10.95	28.53
11.87	28	11.79	27.8	16.13	27.77	17.67	27.6	17.67	27.63
17.69	27.62	18.54	27.55	18.95	27.48	19.62	27.46	20.09	27.42
20.62	27.37	21.45	27.3	21.54	27.3	22.14	27.25	22.43	27.22
22.52	27.22	22.58	27.21	22.8	27.19	22.89	27.19	24.72	27.05
24.8	27.05	24.8	27.05	25.57	26.99	25.84	26.99	26.99	26.99
28.79	26.81	29.95	26.71	30.73	26.65	31.33	26.61	31.85	26.57
32.31	26.53	32.92	26.48	33.19	26.46	33.2	26.45	33.77	26.41
34.1	26.38	34.76	26.33	34.81	26.32	35.58	26.26	37.49	26.07
38.14	26	38.38	26	38.41	26	38.45	26	38.45	26
38.46	26	38.51	26	38.55	26	38.98	25.94	39.42	25.87
40.31	25.99	40.39	26	40.44	26	40.49	26	40.6	26
41.39	26.04	43.19	26.14	47.9	26.35	47.92	26.35	47.93	26.35
47.94	26.35	47.95	26.35	47.96	26.35	50.94	26.51	53.7	26.64
54.46	26.67	54.63	26.67	54.79	26.68	54.95	26.69	55.1	26.69
59.62	26.95	59.65	26.95	59.67	26.95	59.71	26.95	59.74	26.95
59.88	26.96	59.94	26.96	60.63	27	61.43	27.13	64.99	28
65.43	28.07	70.66	29	73.23	29.48	75.34	29.30	79.67	30.87
80.23	31	81.09	31.17	82.56	31.47	83.05	31.57		

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	37.49	.035	41.39	.045

Bank Sta: Left Right Lengths: Left channel Right

37.49 41.39 22.16 21.49

coeff Contr. Expan. .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 514.322

INPUT Description: Station Elevation Data num= 186

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	27	.86	27	5.09	27	5.45	27		
5.49	27	5.69	27	6.85	27	7.05	27	8.45	27
8.73	27	8.86	27	9.16	27	10.51	27	11.16	27
11.32	27	11.36	27	11.39	27	11.55	27	11.58	27
11.62	27	11.66	27	11.8	27	11.83	27	11.86	27
11.99	27	12.12	27	12.25	27	12.37	27	13.24	27
16.84	27	16.97	27	17.12	27	17.28	27	17.46	27
18.89	27	18.9	27	18.91	27	18.94	27	18.95	27
18.99	27	19	27	19.04	27	19.05	27	20.4	27.2
20.42	27.2	20.46	27.2	20.5	27.2	20.54	27.2	20.57	27.2
20.6	27.2	20.63	27.2	20.66	27.2	20.7	27.2	20.72	27.2
20.76	27.2	21.15	27.2	21.19	27.2	21.24	27.2	21.28	27.2
21.33	27.2	21.77	27.2	21.81	27.2	21.82	27.2	21.86	27.2
21.89	27.2	21.92	27.2	22.37	27.2	22.4	27.2	22.43	27.2
22.46	27.2	22.49	27.2	22.51	27.2	22.83	27.2	22.86	27.2
22.89	27.2	22.94	27.2	22.99	27.2	23.04	27.2	23.09	27.2
23.14	27.69	23.2	27.67	23.22	27.67	23.28	27.66	23.3	27.65
23.31	27.65	23.33	27.65	23.4	27.63	23.41	27.63	23.43	27.62
23.44	27.62	23.49	27.61	23.51	27.61	23.52	27.6	23.54	27.6
23.55	27.59	23.82	27.54	23.84	27.54	23.87	27.53	23.89	27.53
23.92	27.53	23.94	27.52	23.97	27.52	24.13	27.5	24.63	27.38
24.75	27.36	24.87	27.35	24.9	27.34	25.07	27.31	25.33	27.28
25.49	27.24	25.66	27.2	25.67	27.2	25.69	27.2	25.75	27.18
25.78	27.18	25.84	27.17	25.91	27.16	25.94	27.15	26	27.14
26.06	27.13	26.09	27.12	26.14	27.11	26.22	27.1	26.3	27.08
26.32	27.08	26.4	27.06	26.42	27.06	26.54	27.04	26.67	27.02
26.77	27	26.8	27	26.85	27.09	27.35	27.04	27.39	26.94
27.49	26.93	27.6	26.93	27.8	26.87	27.92	26.87	28.03	26.85
28.14	26.84	28.25	26.83	28.36	26.81	28.41	26.81	28.47	26.8
28.54	26.79	28.61	26.78	28.67	26.77	28.69	26.76	28.75	26.75
28.81	26.74	28.83	26.74	28.84	26.74	28.91	26.72	28.92	26.72
28.98	26.72	29.06	26.69	29.45	26.6	29.46	26.6	29.53	26.57
30.7	26	34.68	25.39	34.74	25.39	37.78	25	39.29	24.94
39.62	24.92	41.4	24.85	41.98	24.89	43.09	25	43.32	25.02
46.59	25.34	47.06	25.39	53.93	25.99	54.06	26	55.31	26.13
63.58	27	63.76	27.06	66.89	28	68.59	28.51	70.26	29
72.81	29.75	73.71	30	74.68	30.26	77.29	31	79.95	31.62
80.26	31.69								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	39.29	.035	43.32	.045

Bank Sta: Left Right Lengths: Left channel Right

39.29 43.32 16.62 17.27

coeff Contr. Expan. .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 497.047

INPUT Description: Station Elevation Data num= 101

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	26.58	.04	26.58	.13	26.58	.24	26.57		

tarifa

aprobado

27 SEI. 2016

El Secretario D. L. AYUNTAMIENTO

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
.42	26.59	.53	26.58	.55	26.58	.56	26.58	.59	26.58
.61	26.58	.63	26.58	.65	26.59	.67	26.59	.79	26.6
1	26.62	1.64	26.54	1.89	26.56	2.01	26.57	2.72	26.48
8.17	26	8.36	26	8.46	26	12.24	26	13.06	26
13.08	26	13.1	26	13.58	26	13.83	26	13.84	26
14.5	26	14.97	26	15.52	26	19.73	26	20.05	25.41
20.09	25.41	20.47	25.36	20.53	25.35	20.57	25.34	20.63	25.33
22.54	25.1	23.19	25	23.5	25	23.61	25	23.66	25
24.26	25	24.29	25	24.35	25	24.73	25	24.8	25
24.82	25	24.83	25	25.83	25	25.85	25	25.87	25
25.88	25	25.9	25	25.92	25	25.94	25	25.94	25
32.73	24.49	32.76	24.46	32.78	24.46	32.81	24.46	32.94	24.46
34.04	24.37	34.09	24.37	34.15	24.37	36.46	24.26	36.74	24.25
36.78	24.25	36.81	24.24	36.82	24.24	38.43	24.15	40.67	24.34
41.81	24.44	42.05	24.46	44.75	24.66	44.99	24.65	45.84	24.75
46.05	24.77	46.28	24.79	46.4	24.8	46.66	24.83	46.93	24.86
47.23	24.89	47.54	24.92	47.66	24.93	48.24	25	50.99	25.29
57.93	26	59.69	26.39	62.72	27	65.55	27.83	67.37	28
68.03	28.24	70.32	29	73.58	29.79	74.56	30	75.7	30.26
76.86	30.53								

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	36.46	.035	40.67	.045

Bank Sta: Left Right Lengths: Left channel Right

36.46 40.67 20.87 21.11

coeff Contr. Expan. .1 .3

CROSS SECTION

RIVER: Innominado REACH: superior RS: 475.941

INPUT Description: Station Elevation Data num= 162

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	26.06	.36	26	.41	26	.5	26	.65	26
.68	26	.71	26	.73	26	.76	26	.99	26
1.26	25.92	1.27	25.92	1.29	25.92	1.31	25.91	1.33	25.91
1.35	25.9	1.38	25.89	1.39	25.89	1.41	25.88	1.46	25.87
1.7	25.86	1.54	25.85	1.56	25.84	1.59</			

69.26	25.9	69.71	26	71.62	26.57	71.99	26.68	73.22	tarifa
76.58	27.47	77.72	27.63	80.21	28	80.53	28.18		27

Manning's n Values	num=	3							
Sta n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.045	39.55	.035	43.43	.045				

Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.
39.55	43.43	16.92	17.43	17.97	.1		.3

CROSS SECTION
RIVER: Innominado
REACH: superior
RS: 417.714

INPUT Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	26.97	6.7	26.84	5.02	26	5.69	25.87	6.92	25.63
7.6	25.5	7.72	25.48	8.2	25.38	8.52	25.32	10.06	25
10.72	24.87	11.87	24.65	11.95	24.65	12.11	24.61	15.25	24
18.08	23.63	18.39	23.6	20.2	23.42	20.44	23.39	20.58	23.38
20.72	23.36	20.87	23.35	21.02	23.33	21.19	23.32	21.33	23.3
21.62	23	21.71	23.26	22.57	23.16	22.91	23.12	23.01	23.11
24.27	23	28.81	22.56	28.89	22.56	32.7	22.19	33.7	22.09
34.69	22	37.89	21.72	39.66	21.56	39.8	21.55	39.88	21.54
40.01	21.54	40.81	21.58	41.72	21.63	48.4	22	53.34	22.7
55.42	23	56.1	23.1	56.42	23.14	58.71	23.47	62.44	24
67.18	24.8	68.41	25	68.61	25.06	68.72	25.09	72.01	26
72.14	26.03	72.99	26.19	74.26	26.43				

Manning's n Values	num=	3							
Sta n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.045	37.89	.035	41.72	.045				

Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.
37.89	41.72	22.31	22.68	22.96	.1		.3

CROSS SECTION
RIVER: Innominado
REACH: superior
RS: 395.035

INPUT Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	25.92	2.53	25.41	2.57	25.4	2.84	25.34	4.41	25
6.8	24.47	6.13	24	12.28	23.44	13.27	23.3	13.64	23.3
15.2	23	16.49	22.87	16.32	22.86	16.58	22.86	16.58	22.85
16.62	22.85	16.64	22.85	17.1	22.8	18.74	22.61	19.41	22.53
19.83	22.49	20.36	22.43	21.42	22.33	22.27	22.23	22.93	22.16
23.73	22.07	23.81	22.06	24.34	22	24.45	21.99	24.78	21.95
25.08	21.92	25.37	21.88	25.63	21.85	25.67	21.85	25.72	21.84
25.86	21.83	27	21.7	30.36	21.33	33.4	21	33.57	20.99
35.51	20.87	36.44	20.81	38.46	20.67	39.96	20.74	40.55	20.76
40.68	20.77	44.73	21	45.04	21.04	45.24	21.06	45.69	21.12
52.16	22	54.13	22.29	55.61	22.51	58.93	23	60.67	23.26
65.67	24	67.36	24.4	69.76	25	69.92	25.04	74.11	25.98

Manning's n Values	num=	3							
Sta n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.045	36.44	.035	40.55	.045				

Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.
36.44	40.55	20.09	20.38	20.67	.1		.3

CROSS SECTION
RIVER: Innominado
REACH: superior
RS: 374.659

INPUT Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	24.96	3.87	24.18	4.72	24	7.91	23.34	9.55	23
9.84	22.94	9.85	22.94	9.86	22.93	9.88	22.93	9.93	22.92
9.96	22.92	9.97	22.91	9.99	22.91	10	22.91	11.92	22.52
11.94	22.52	12.37	22.44	12.86	22.37	13.14	22.32	13.31	22.3
14.25	22.16	14.48	22.12	14.61	22.1	14.79	22.07	14.82	22.06
15	22.03	15.18	22.01	15.2	22	15.22	22	15.35	21.99
15.5	21.98	15.63	21.96	15.67	21.96	15.81	21.95	15.84	21.95
15.9	21.95	16.09	21.91	17.59	21.78	17.83	21.76	18.9	21.67
19.03	21.66	19.4	21.63	19.43	21.63	19.8	21.59	21.43	21.46
21.87	21.42	21.99	21.41	23.72	21.25	24.33	21.2	25.82	21.04
25.88	21.03	26.16	21	29.77	20.65	31.59	20.51	32.74	20.4
33.14	20.36	33.72	20.31	34.01	20.28	34	20.25	34.74	20.23
37.58	20	38.7	19.96	39.63	19.93	40.75	19.89	42.89	19.95
42.91	19.95	44.49	20	46.35	20.22	46.45	20.23	47.09	20.33
47.62	20.42	51.04	21.46	51.53	21.46	54.53	21.55	56.72	21.9
56.97	21.94	57.37	22	61.01	22.58	63.6	23	67.39	23.93
67.69	24	67.8	24.04	71.08	25	71.41	25.06	76.42	26
76.57	26.09	76.76	26.19	77.68	26.67				

Manning's n Values	num=	3							
Sta n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.05	38.7	.4	42.89	.05				

Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.
38.7	42.89	20.2	20.28	20.33	.1		.3

CROSS SECTION
RIVER: Innominado
REACH: superior
RS: 354.377

INPUT Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	24.21	.09	24.19	.13	24.18	.36	24.13	.61	24.08
.73	24.05	.75	24.05	.77	24.04	.78	24.04	.78	24.03
.81	24.03	.85	24	3.25	23	8.57	22.55		
8.84	22.51	11.74	22	12.69	21.84	12.87	21.81	13.15	21.76
13.6	21.68	15.41	21.36	17.05	21.08	17.5	21	18.55	20.9
18.58	20.89	18.6	20.89	18.63	20.89	20.75	20.8	20.75	20.8
20.09	20.74	21.1	20.64	21.18	20.64	21.25	20.63	21.68	20.59
21.91	20.57	22.13	20.55	22.33	20.53	22.52	20.51	22.7	20.49
22.86	20.48	23.02	20.46	23.17	20.45	23.18	20.45	23.31	20.43
23.43	20.42	23.55	20.41	23.66	20.4	23.77	20.39	23.87	20.39
23.97	20.38	24.06	20.37	24.15	20.36	24.49	20.33	24.77	20.31
28.39	20	30.72	19.8	31.06	19.77	31.27	19.76	32.35	19.68
36.02	19.38	38.1	19.24	38.47	19.22	38.73	19.2	40.53	19.1
40.55	19.1	40.77	19.03	40.85	19.08	40.87	19.05	40.88	19.08
41.01	19.07	41.04	19.07	41.06	19.07	42	19.06	42.48	19.03
43.3	19.03	44.13	19.1	44.32	19.12	45.11	19.21	45.79	19.25
46.49	19.33	47.5	19.46	48.96	19.6	51.73	20	55.56	20.81
56.51	21	56.88	21.03	61.3	22	63.97	22.57	64.02	22.58
64.32	22.64	65.02	23	67.74	23.46	68.27	23.6	69.25	23.85
69.84	24	71.41	24.54	72.02	24.75	72.76	25	75.27	25.48
78	26	78.22	26.1	79	26.39	79.8	26.74		

Manning's n Values	num=	3							
Sta n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.05	33.55	.4	37.67	.05				

Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.

AGENCIA
 Aprobado
 Socialmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.5 del Reglamento de Planeamiento Urbanístico).
 EL SECRETARIO DEL AYUNTAMIENTO

0	.05	40.53	.4	44.32	.05				tarifa
Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.		
40.53	44.32	19.41	19.64	19.79	.1		.3		

CROSS SECTION
RIVER: Innominado
REACH: superior
RS: 334.743

INPUT Description: Station Elevation Data									
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	24.01	.05	24	3.33	23.47	6.68	23	7.91	22.8
9.54	22.54	12.66	22	14.51	21.52	16.5	21	18.7	20.64
21.27	20.21	21.78	20.12	22.52	20	24.07	19.84	32.23	19
32.26	19	32.29	19	34.38	18.87	39.71	18.5	41.96	18.34
44.25	18.64	44.37	18.65	47.24	19	50.05	19.58	51.93	20
55.32	20.76	56.35	20.98	56.46	21	56.6	21.03	57.82	21.29
61.29	22	62.74	22.32	65.85	23	68.97	23.89	69.35	24
69.66	24.1	72.58	25	74.14	25.32	74.61	25.42	74.8	25.46
75.04	25.52	75.35	25.58	75.74	25.67	76.27	25.79	76.85	25.91

Manning's n Values	num=	3							
Sta n Val	Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val	
0	.05	39.71	.4	44.25	.05				

Bank Sta: Left	Right	Lengths: Left	channel	Right	Coeff	Contr.	Expan.
39.71	44.25	19.59	19.5				

33.55	37.67	21.17	20.16	19.06	.1	.3	tarifa
CROSS SECTION							

RIVER: Innoninado
REACH: superior RS: 254.479

Description:							
Station Elevation Data							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	21.25	7.3	21.1	1.22	21	5.25	20.22
6.85	19.92	9.8	19.36	10.81	19.18	11.7	16.22
16.95	18	17.12	17.97	17.15	17.97	17.17	17.96
17.22	17.96	17.57	17.9	18.04	17.81	22.82	16.64
25.68	16.59	26.4	16.52	26.28	16.52	26.52	16.46
26.93	16.44	27.1	16.42	27.25	16.4	30.23	15.9
30.99	15.9	31.02	15.89	31.05	15.89	31.08	15.88
31.15	15.87	31.17	15.87	31.21	15.86	31.25	15.86
31.35	15.84	31.37	15.83	31.41	15.82	31.45	15.81
32.29	15.71	32.69	15.65	32.83	15.63	32.98	15.61
33.51	15.53	33.54	15.53	33.68	15.51	33.8	15.49
34.12	15.45	34.23	15.43	34.33	15.41	34.64	15.37
35.06	15.32	35.63	15.24	35.83	15.22	36.05	15.19
36.39	15.14	36.59	15.12	36.71	15.1	37.21	15.04
38.42	14.87	38.72	14.83	38.82	14.82	38.86	14.81
38.93	14.8	39.18	14.81	41.07	14.96	41.66	15
44.66	15.36	44.83	15.38	45.05	15.41	45.79	15.5
47.27	15.68	48.54	15.83	48.57	15.84	48.86	15.87
49.51	15.95	49.71	15.98	49.87	16	50.55	16.1
52.44	16.39	52.46	16.4	53.16	16.5	53.64	16.58
54.28	16.67	56.3	17	57.78	17.42	58.88	17.75
59.44	17.92	59.72	18	61.79	18.57	63.38	19
66.38	19.79	66.59	19.84	67.18	20	67.55	20.1
71.26	21.09	74.64	22	74.79	22.04	74.92	22.08
78.37	23	79.38	23.27	79.82	23.59	80.31	23.52

Manning's n Values	num= 3
Sta n Val	Sta n Val
0 .05	37.51
41.66	.05
Bank Sta: Left	Right
37.51	41.66
Lengths: Left channel	Right
18.9	19.26
19.61	
Coeff Contr.	Expan.
.1	.3

CROSS SECTION

RIVER: Innoninado
REACH: superior RS: 235.222

Description:							
Station Elevation Data							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	20.76	2.21	20.33	3.93	20	5.36	19.74
6.37	19.59	9.82	19	10	18.97	10.39	18.69
14.95	18	18.91	17.15	19.73	17	24.79	16.35
33.38	15.07	33.84	15	36.2	14.67	37.69	14.47
38.52	14.36	38.81	14.32	39.04	14.29	39.08	14.28
40.76	14.1	41.27	14.03	41.6	14.03	41.8	14.01
42.06	14.03	42.13	14.04	42.2	14.05	43.15	14.12
43.85	14.18	44.09	14.2	45.53	14.37	47.03	14.54
52.72	15.28	57.52	16	60.53	16.68	61.84	17
63.77	17.49	64.01	17.55	65.81	18	67.79	18.5
71.83	19.56	72.37	19.7	72.51	19.74	73.5	20
76.64	21	79	21.81	79.07	21.83	79.18	21.86
79.43	21.95	79.57	22	80.18	22.2	80.23	22.22
81.16	22.53	82.07	22.83				

Manning's n Values	num= 3
Sta n Val	Sta n Val
0 .05	39.57
43.85	.05
Bank Sta: Left	Right
39.57	43.85
Lengths: Left channel	Right
19.18	19.51
19.78	
Coeff Contr.	Expan.
.1	.3

CROSS SECTION

RIVER: Innoninado
REACH: superior RS: 215.711

Description:							
Station Elevation Data							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	19.66	0.17	19.64	4.8	19.56	5.4	19.55
8	19.49	.91	19.47	1.01	19.45	1.1	19.43
1.69	19.3	1.75	19.29	1.81	19.28	1.83	19.27
1.88	19.26	2.52	19.13	2.52	19.12	3.14	19
3.92	18.84	5.4	18.54	5.85	18.45	6.16	18.38
6.59	18.3	6.73	18.27	6.85	18.24	6.95	18.22
7.11	18.19	7.17	18.17	7.22	18.16	7.27	18.15
12.1	17.12	12.36	17.24	12.53	17.21	12.61	17.19
12.82	17.15	12.93	17.13	13.05	17.11	13.17	17.09
13.44	17.04	13.58	17.01	13.67	17	14.85	16.84
15.17	16.79	15.34	16.77	15.5	16.75	15.66	16.73
16.18	16.65	16.99	16.53	20.72	16	23.82	15.65
20.55	15.43	25.77	15.41	26.3	15.35	26.68	15.3
28.3	15.1	28.4	15.09	29.07	15	29.18	15
33.74	14.32	34.46	14.22	34.83	14.17	35.06	14.13
35.22	14.11	35.28	14.1	35.95	14	37.38	13.9
40.49	13.72	40.55	13.72	40.59	13.72	40.64	13.72
40.75	13.71	40.8	13.71	40.85	13.71	40.89	13.71
40.96	13.7	41	13.7	41.03	13.7	41.07	13.7
41.12	13.7	41.7	13.62	42.59	13.7	43.92	13.84
45.56	14	48.09	14.34	49.49	14.53	50.56	14.68
52.91	15	56.2	15.58	58.57	16	60.36	16.49
63.16	17.26	65.83	18	67.56	18.48	69.45	19
72.8	20	73.28	20.14	76.34	21	78.26	21.54
79.99	22.05	80.41	22.18				

Manning's n Values	num= 3
Sta n Val	Sta n Val
0 .05	39.6
43.93	.05
Bank Sta: Left	Right
39.6	43.93
Lengths: Left channel	Right
19.5	20.07
20.4	
Coeff Contr.	Expan.
.1	.3

CROSS SECTION

RIVER: Innoninado
REACH: superior RS: 195.639

Description:							
Station Elevation Data							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	19.43	0.31	19.37	3.4	19.37	9.7	19.25
6.11	18.28	7.55	18	9.38	17.64	10.78	17.36
16.45	16.36	16.67	16.33	17.08	16.28	18.18	16.14
19.14	16	21.23	19.13	25.32	15.12	3.14	15.19
26.04	15.02	26.18	15	26.7	14.95	29.82	14.72
32.07	14.55	32.09	14.55	32.68	14.5	33.19	14.47
35.46	14.28	38.2	14.04	38.21	14.04	38.25	14.04
39.29	13.93	40.01	13.85	42.17	13.52	44.16	13.21
50.61	13.9	50.74	13.92	50.9	13.93	51.06	13.95
51.44	13.99	51.52	14	52.35	14.1	53.79	14.27

aprobado

Actualmente por el Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016. (Artículo 128.5 del Reglamento de Planeamiento Urbanístico).

EL SECRETARIO DEL AYUNTAMIENTO

62.78	15.76	63.71	16	64.57	16.22	66.98	16.84	67.6	tarifa
67.68	17.02	68.6	17.27	71.32	18	72.48	18.31	75.21	17
78.76	19.83	79.41	20	80.44	20.29	82.97	21	83.74	21.22

Manning's n Values	num= 3
Sta n Val	Sta n Val
0 .05	42.17
46.23	.05
Bank Sta: Left	Right
42.17	46.23
Lengths: Left channel	Right
19.99	20.12
20.05	
Coeff Contr.	Expan.
.1	.3

CROSS SECTION

RIVER: Innoninado
REACH: superior RS: 175.516

Description:							
Station Elevation Data							
Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	18.91	3.43	18.23	4.48	18	6.85	17.54
13.41	16.24	13.45	16.24	13.48	16.23	13.9	16.15
14.46	16.08	14.47	16.08	14.48	16.08	14.49	16.08
14.85	15.68	14.6	16.07	14.62	16.07	14.65	16.07
14.7	16.07	14.72	16.07	14.74	16.07	14.77	16.07
14.85	16.07	16.06	16.01	16.19	16	16.21	16
16.32	16	16.38	16	16.44	16	16.5	16
16.6	16	16.65	16	16.7	16	18.16	15.76
21.11	15.55	21.28	15.58	21.37	15.59	21.47	15.59
21.59	15.6	21.69	15.6	21.79	15.6	21.82	15.6
22.02	15.62	22.09	15.62	22.23	15.63	22.38	15.64
22.85	15.68	23.12	15.78	23.59	15.79	24.42	15.79
24.59	15.67	24.65	15.68	24.71	15.68	24.77	15.69
24.89	15.7	24.95	15.7	25.01	15.71	25.26	15.73
25.62	15.75	25.69	15.75	25.72	15.75	27.05	15.76
27.2	15.77	27.27	15.78	27.42	15.78	27.42	15.78
29.05	15.82	29.33	15.83	29.44	15.84	29.67	15.87
29.95	15.9	30.19	15.92	30.44	15.94	30.71	15.97
30.76	15.97	31.1	16	31.15	16	31.17	16
31.45	16	31.47	16	31.49	16	31.95	16
32.26	16	32.36	16	32.46	16	32.55	16
34.4	16	34.48	16	34.57	16	34.65	16
34.82	16	34.83	16	34.93	16	35.05	16
35.18	15.93	35.18	15.92	35.24	15.9	35.42	15.89
35.5	15.88	35.58	15.87	35.65	15.85	35.66	15.85
35.8	15.84	35.82	15.84	35.87	15.83	36	15.81
36.15	15.8	36.16	15.8	36.28	15.78	36.3	15.78
36.73	15.76	36.75	15.76	37.42	15.64	38.29	15.2
41	14.07	41.17	14	41.2	13.99	41.38	13.96
45.08	13	46.21	12.93	46.9	12.89	48.96	12.95
50.55	13	56.71	13.93	57.17	14	61.89	14.77
63.26	15	63.38	15.02	65.93	15.56	66.92	15.62
66.86	15.76	67.26	15.85	67.76	15.96	67.94	16
72.67	17	73.65	17.21	74.48	17.38	74.7	17.43
75.84	17.65	76.15	17.73	77.48	18	77.49	18
77.82	18.11	78.19	18.58	80.02	18.61	81.76	19
86.29	20	88.62	20.57				

Manning's n Values	num= 3
Sta n Val	Sta n Val
0 .05	45.03
48.96	.05
Bank Sta: Left	Right
45.03	48.96
Lengths: Left channel	Right

96.76	15.8	96.98	15.82	97.06	15.83	97.13	15.84	97.19	15.85
97.25	15.85	97.3	15.86	97.35	15.87	97.36	15.87	97.73	15.91
98.59	16	102.03	16.41	102.05	16.41	102.08	16.41	105.02	16.73
105.05	16.73	105.08	16.73	105.1	16.73	105.12	16.74	105.15	16.74
105.17	16.74	105.21	16.75	105.27	16.75	105.31	16.76	105.36	16.76
105.41	16.77	105.64	16.8	105.68	16.8	105.72	16.8	105.76	16.81
105.79	16.81	105.83	16.81	106.1	16.84	106.19	16.85	106.21	16.85
106.3	16.87	106.39	16.88	106.42	16.88	106.51	16.89	106.53	16.89
106.66	16.91	106.69	16.91	106.7	16.91	106.71	16.91	107.29	17
107.44	17	107.5	17	107.53	17	107.56	17	107.6	17
107.63	17	107.66	17	107.69	17	107.7	17	107.79	17.01
107.88	17.02	107.97	17.03	108.03	17.04	108.04	17.05	108.11	17.05
108.12	17.06	108.2	17.07	108.27	17.08	108.29	17.08	108.36	17.09
108.38	17.09	108.46	17.1	108.53	17.11	108.54	17.11	108.54	17.11
108.57	17.12	108.78	17.15	108.81	17.16	108.85	17.16	108.86	17.16
108.9	17.17	108.95	17.17	109	17.18	109.2	17.22	109.26	17.23
109.91	17.34								

Manning's n Values
Sta n Val Sta n Val
0 .05 51 54.05

Bank Sta: Left Right Lengths: Left channel Right
51 54.05 20.4 20.32
Left Levee Station= 51 Elevation= 14.75

CROSS SECTION

RIVER: Innominado
REACH: superior RS: 114.780

INPUT Description: Station Elevation Data num= 110

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	17.56	9.71	17.35	9.91	17.31	10.15	17.4	10.23	17.28
10.88	17.38	11.29	17.38	19.95	16.8	46.03	15	46.42	14.62
46.83	14.44	47.7	14	48.76	13.22	49.02	13	49.24	12.65
49.73	12	50.21	11.97	51.48	11.88	53.42	11.75	55.11	11.91
55.28	11.93	56.2	12	56.24	12	58.62	12	59.01	12
59.36	12	59.66	12	72.09	12.42	73.32	12.46	77.44	12.63
80.13	12.65	80.19	12.65	80.54	12.66	86.11	13	87.23	13.14
88.59	13.31	92.69	14	92.72	14	92.75	14	92.77	14
92.81	14	92.85	14	92.89	14	92.93	14	92.95	14
94.85	14.3	95.14	14.34	95.17	14.34	95.26	14.35	95.34	14.37
95.43	14.38	95.51	14.39	95.59	14.4	95.66	14.41	95.96	14.46
99.02	15	99.12	15	99.14	15	99.16	15	99.18	15
99.2	15	99.22	15	99.25	15	99.27	15	99.29	15
100.48	15.2	100.54	15.21	100.61	15.22	100.68	15.23	100.76	15.24
100.86	15.25	101.33	15.31	101.38	15.32	101.53	15.34	101.7	15.36
101.89	15.39	102.17	15.42	102.52	15.47	102.99	15.53	103.25	15.57
103.82	15.65	105.62	15.89	105.91	15.92	106.23	15.97	106.46	16
106.6	16.03	106.63	16.04	107.08	16.14	107.45	16.22	107.65	16.27
107.98	16.35	108.25	16.41	108.62	16.5	108.98	16.58	109.5	16.7
110.32	16.9	110.45	16.93	110.74	17	111.33	17.13	111.46	17.16
112.22	17.32	112.52	17.4	113.05	17.51	113.52	17.62	113.85	17.69
114.46	17.84	114.56	17.86	115.16	18	115.61	18.1	117.44	18.49

Manning's n Values
Sta n Val Sta n Val
0 .05 51.48 55.28

Bank Sta: Left Right Lengths: Left channel Right
51.48 55.28 20.37 19.67
Left Levee Station= 51.25 Elevation= 14.5

CROSS SECTION

RIVER: Innominado
REACH: superior RS: 94.778

INPUT Description: Station Elevation Data num= 88

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	15.75	.57	15.7	2.84	15.48	3.28	15.53	3.63	15.45
9.82	15.53	13.28	15.47	26.29	15.42	42.04	15	43.81	15
47.31	15	47.6	14.76	48.39	14.7	48.7	13.81	50.05	13
50.32	12.82	51.34	12	52.77	11.75	52.99	11.73	54.88	11.49
56.9	11.6	57.42	11.62	58.19	11.63	58.28	11.63	59.91	11.64
61.91	11.71	69.56	12	69.75	12	69.96	12	70.83	12
71.51	12	71.99	12	72.24	12	76.85	12	77.05	12
77.16	12	77.82	12	78.5	12	79.19	12	85.85	12
85.88	12	85.99	12.01	86	12.01	86.02	12.01	89.18	12.28
89.58	12.32	90.45	12.4	90.56	12.4	90.67	12.41	90.78	12.42
90.88	12.43	90.99	12.44	91.08	12.45	91.12	12.45	91.34	12.47
91.55	12.49	92.15	12.54	92.34	12.56	92.52	12.57	92.54	12.58
93.17	12.63	97.04	13	97.13	13.01	97.22	13.03	100.67	13.54
103.74	14	104.08	14.05	104.1	14.06	104.16	14.07	104.27	14.09
104.8	14.19	106.66	14.53	108.28	14.87	108.29	14.87	108.5	14.91
108.92	15	111.62	15.61	113.36	16	114.88	16.34	117.06	16.82
117.87	17	118.21	17.07	120.37	17.55	121.9	17.89	122.11	17.94
122.38	18	122.98	18.13	123.86	18.32				

Manning's n Values
Sta n Val Sta n Val
0 .06 52.99 56.9

Bank Sta: Left Right Lengths: Left channel Right
52.99 56.9 20.77 20.26
Left Levee Station= 52.5 Elevation= 14

CROSS SECTION

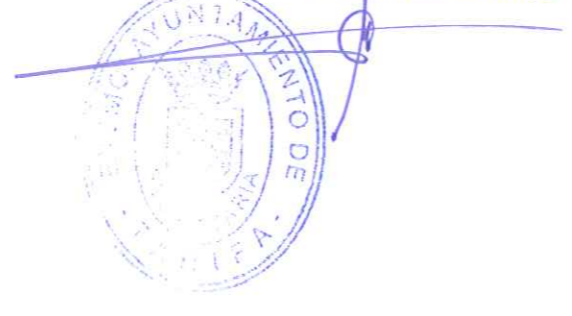
RIVER: Innominado
REACH: superior RS: 74.522

INPUT Description: Station Elevation Data num= 170

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.7	2.81	13.8	8.76	13.88	12.44	13.84	12.83	13.82
14.7	13.74	22.22	14	30.67	14	30.82	13.72	31.27	13
31.28	12.5	32	12	35	11.25	36.61	11.25	36.77	11.25
37	11.24	37	11.24	37.42	11.23	37.52	11.22	37.71	11.21
38.09	11.2	38.13	11.1	42.13	11.1	44.63	11.1	44.63	11.1
44.67	11.1	44.7	11.1	44.74	11.1	44.77	11.1	44.81	11.1
44.84	11.1	44.85	11.1	44.91	11.1	46.67	11.1	47.01	10.98
49.14	10.96	49.78	10.94	50.54	10.92	51.04	10.9	51.58	10.89
52.02	10.87	52.33	10.87	52.59	10.84	53.26	10.9	53.67	10.94
54.17	11	54.78	11.11	55.63	11.27	57.61	11.55	58.32	11.64
58.83	11.73	61.72	12	62.39	12.03	63	12.05	63.16	12.07
66.09	12.18	66.1	12.19	66.11	12.19	66.12	12.19	66.14	12.19
67.99	12.2	68.01	12.2	68.02	12.2	68.49	12.19	68.5	12.19
68.72	12.26	69.24	12.27	69.36	12.27	69.47	12.26	71.15	12.27
71.27	12.26	71.4	12.26	72.1	12.25	72.22	12.24	72.36	12.24
72.51	12.23	72.64	12.22	73.15	12.25	73.29	12.24	73.89	12.26
74.49	12.25	75.11	12.25	75.54	12.24	75.69	12.24	76.13	12.23
76.28	12.22	76.38	12.22	76.52	12.21	76.54	12.21	76.65	12.21
76.71	12.21	76.81	12.21	76.91	12.21	77.37	12.19	79.6	12.19
79.66	12.19	79.72	12.19	79.79	12.19	79.85	12.19	79.91	12.19
79.97	12.19	80	12.19	80.04	12.19	80.07	12.19	80.11	12.19
80.14	12.19	82.37	12.19	82.41	12.19	82.45	12.19	82.48	12.19
82.5	12.19	82.53	12.19	82.56	12.19	82.59	12.18	82.62	12.18
82.95	12.19	82.98	12.19	83.01	12.18	83.04	12.18	83.2	12.18
83.56	12.17	84.09	12.18	85.45	12.21	85.88	12.9	87.35	12.22
87.37	12.22	87.4	12.22	87.42	12.22	87.45	12.22	87.47	12.22

aprobado
Decreto del Excmo. Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.5 del Reglamento de Planeamiento Urbanístico).

EL SECRETARIO DEL AYUNTAMIENTO



87.5	12.22	87.52	12.22	87.63	12.22	87.81	12.22	89.26	12.22
89.45	12.23	89.54	12.23	89.57	12.23	90.07	12.24	90.1	12.24
91.21	12.26	91.32	12.26	91.44	12.27	91.55	12.27	91.67	12.27
91.73	12.27	91.85	12.27	91.97	12.27	92.06	12.28	92.18	12.28
92.3	12.28	92.37	12.28	92.41	12.28	96.8	12.52	97.87	12.6
93.74	12.76	100.81	12.86	100.86	12.86	102.42	13	105.34	13.56
107.68	14	108.24	14.12	112.73	15	113.1	15.07	113.5	15.14
116.93	15.78	117.95	15.97	118.1	16	122.82	16.93	123.14	16.99

Manning's n Values
Sta n Val Sta n Val
0 .06 49.78 .045 53.67 .06

Bank Sta: Left Right Lengths: Left channel Right
49.78 53.67 18.75 20.34 21.33
Blocked obstructions num= 1
Sta L Sta R Elev
8.75 31 17

CROSS SECTION

RIVER: Innominado
REACH: superior RS: 54.184

INPUT Description: Station Elevation Data num= 175

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	13.1	6.23	13.04	6.39	13.03	8.38	13.06	15.05	13.06
17.28	13.13	21.96	13	26.56	13	31.09	13	39.52	12.91
39.66	12.52	39.82	12	40.28	11.04	40.3	11	40.31	11
40.3	11	40.33	11	40.33	11	40.33	11	40.33	11
45.21	10.22	45.36	10.21	45.81	10.21	45.95	10.18	46.07	10.18
46.19	10.17	46.29	10.17	46.74	10.16	46.79	10.16	46.89	10.16
48.15	10.15	49.79	10.13	49.79	10.12	49.85	10.12	50.36	10.08
50.87	10.06	51.11	10.05	51.21	10.04	51.91	10	51.93	10
52.54	9.95	53.66	9.84	56.12	9.58	56.73	9.68	56.84	9.7
57.02	9.73	57.36	9.79	57.59	9.82	57.79	9.85	58.71	10
60.53	10.54	60.83	10.63	61.25	10.75	61.31	10.77	62.22	11
62.4	11.07	63.49	11.84	64.19	11.93	64.72	12	64.42	12.06
64.48	12.08	64.54	12.1	64.72	12.17	65.54	12.44	67.19	13
67.21	13	67.27	13	67.34	13	67.38	13	67.44	13
67.46	13	67.51	13	67.52	13	67.58	13	67.62	13
67.64	13	67.69	13	67.73	13	67.75	13	84.34	13.72
84.58	13.73	84.64	13.73	84.79	13.74	84.91	13.74	85.03	13.75
85.									

CULVERT

REIVER: Innoninado
REACH: superior RS: 35

INPUT
Description: PASO SOBRE CALLE BATALLA DEL SALADO
Distance from Upstream XS = 3.01
Deck/Roadway width = 12.99
Weir coefficient = 1.44
Upstream Deck/Roadway coordinates

Table with 4 columns: Sta, Hi, Cord, Lo Cord. Values for upstream and downstream coordinates.

Upstream Bridge Cross Section Data. Table with 10 columns: Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains 195 data points.

Manning's n Values. Table with 4 columns: Sta, n Val, Sta, n Val. Values for upstream and downstream.

Bank Sta: Left, Right, Coeff Contr., Expan. Values for upstream and downstream.

Ineffective Flow. Table with 4 columns: Sta L, Sta R, Elev, Permanent. Values for upstream and downstream.

Left Levee. Table with 4 columns: Station, Elevation. Values for upstream and downstream.

Downstream Bridge Cross Section Data. Table with 10 columns: Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains 80 data points.

Manning's n Values. Table with 4 columns: Sta, n Val, Sta, n Val. Values for upstream and downstream.

Bank Sta: Left, Right, Coeff Contr., Expan. Values for upstream and downstream.

Upstream Embankment side slope = 0 horiz. to 1.0 vertical
Downstream Embankment side slope = 0 horiz. to 1.0 vertical
Maximum allowable submergence for weir flow = .95
Elevation at which weir flow begins =
Energy head used in spillway design =
Spillway height used in design =
Weir crest shape = Broad crested

Number of Culverts = 1
Culvert Name Shape Rise Span
PASO 1 Conspan Arch 1.7 2

Table with 10 columns: Culvert Upstrn Dist, Length, Top n, Bottom n, Depth Blocked, Entrance Loss Coef, Exit Loss Coef. Values for upstream and downstream.

Upstream Centerline Station = 60.27
Downstream Elevation = 8.94
Centerline Station = 44.63

CROSS SECTION
REIVER: Innoninado
REACH: superior RS: 25.786

Station Elevation Data. Table with 10 columns: Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev, Sta, Elev. Contains 80 data points.

tarifa
Se celebra el día 27 SET. 2016
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EL SECRETARIO DEL AYUNTAMIENTO



Table with 10 columns: Sta, n Val, Sta, n Val, Sta, n Val, Sta, n Val. Values for Manning's n values.

Table with 6 columns: Bank Sta, Left, Right, Lengths, Left Channel, Right, Coeff Contr., Expan. Values for bank stations and coefficients.

SUMMARY OF MANNING'S N VALUES

Table with 5 columns: Reach, River Sta., n1, n2, n3. Lists Manning's n values for various reaches.

SUMMARY OF REACH LENGTHS

Table with 5 columns: Reach, River Sta., Left, channel, Right. Lists reach lengths for various reaches.

SUMMARY OF CONTRACTION AND EXPANSION COEFFICIENTS

Table with 4 columns: Reach, River Sta., Contr., Expan. Lists contraction and expansion coefficients for various reaches.

superior	175.516	.1	.3
superior	154.810	.1	.3
superior	135.098	.1	.3
superior	114.780	.1	.3
superior	94.778	.1	.3
superior	74.922	.1	.3
superior	54.184	.1	.3
superior	42.856	.3	.5
superior	35		
superior	25.766	Culvert .1	.3

tarifa

Ayuntamiento de Tarifa en se-
 sión celebrada el día **27 SET. 2016** (Artículo 128,3
 del Reglamento de Planeamiento Urbanístico).
EL SECRETARIO DEL AYUNTAMIENTO



PRESENCIA aprobada
por el Excmo. Ayuntamiento de Tarifa en se-
sión celebrada el día **27 SET. 2016** (Artículo 128,5
del Reglamento de Planeamiento Urbanístico).
EL SECRETARIO DEL AYUNTAMIENTO



SALIDA DE INFORME DE CÁLCULO DEL PROGRAMA HEC-RAS 3.1.3
ESCENARIO ESTADO FUTURO

HEC-RAS Version 3.1.3 May 2005
 U.S. Army Corp of Engineers
 Hydrologic Engineering Center
 609 Second Street
 Davis, California

tarifa

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X X XXXXXX XXXX XXXX XX XXXX
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X X X X X X X X X X X
X X X X X X X X X X X
X X XXXXXX XXXX X X X XXXXXX
  
```

PROJECT DATA
 Project Title: tarifa
 Project File: c:\TARIFA2\tarifa.prj
 Run Date and Time: 25/02/2016 17:34:45
 Project in SI units

PLAN DATA
 Plan Title: Plan 07
 Plan File: c:\TARIFA2\tarifa.p07
 Geometry Title: tarifa
 Geometry File: c:\TARIFA2\tarifa.g01
 Flow Title: tarifa
 Flow File: c:\TARIFA2\tarifa.f02

Plan Summary Information:
 Number of Cross Sections = 33 Multiple Openings = 0
 Culverts = 1 Inline Structures = 0
 Bridges = 0 Lateral Structures = 0

Computational Information
 Water surface calculation tolerance = 0.003
 Critical depth calculation tolerance = 0.003
 Maximum number of iterations = 20
 Maximum difference tolerance = 0.1
 Flow tolerance factor = 0.001

Computation Options
 Critical depth computed only where necessary
 Conveyance Calculation Method: At breaks in n values only
 Friction Slope Method: Average Conveyance
 Computational Flow Regime: Mixed Flow

FLOW DATA
 Flow Title: tarifaf
 Flow File: c:\TARIFA2\tarifa.f02
 Flow Data (m3/s)

River	Reach	RS	10 AÑOS	50 AÑOS	100 AÑOS	500 AÑOS
Innominado	superior	732.439	7.48	10.05	11.13	14.63
Innominado	superior	235.222	9.19	12.36	13.69	18.06

Boundary conditions

River	Reach	Profile	Upstream	Downstream
Innominado	superior	10 AÑOS	Critical	Normal S = 0.02
Innominado	superior	50 AÑOS	Critical	Normal S = 0.02
Innominado	superior	100 AÑOS	Critical	Normal S = 0.02
Innominado	superior	500 AÑOS	Critical	Normal S = 0.02

GEOMETRY DATA
 Geometry Title: tarifa
 Geometry File: c:\TARIFA2\tarifa.g01

CROSS SECTION

RIVER: Innominado
 REACH: superior RS: 732.439

INPUT Description: Station Elevation Data num= 109

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	35.76	36	38.69	2.26	38.37	4.38	37.8
6.48	37.74	7.34	37.64	8.01	37.57	8.02	37.57
9.09	37.48	10.52	37.37	10.97	37.33	12.02	37.24
13.46	37.12	13.8	37.09	14.52	37.03	14.78	37.01
15.15	36.98	15.48	36.96	15.79	36.94	16.1	36.91
16.53	36.89	16.74	36.87	16.88	36.86	17.32	36.84
17.55	36.82	18.09	36.78	19.57	36.67	20.61	36.62
20.82	36.6	20.98	36.59	21.58	36.55	21.7	36.54
21.99	36.52	22.15	36.51	22.28	36.5	22.43	36.49
22.71	36.47	22.72	36.47	22.87	36.46	23.11	36.44
23.49	36.42	23.64	36.41	23.85	36.4	23.9	36.39
24.24	36.37	24.43	36.36	25.12	36.32	25.3	36.31
25.82	36.28	25.95	36.27	26.17	36.26	26.41	36.24
26.89	36.21	26.98	36.2	28.63	36.08	28.79	36.08
29.72	35.99	31.73	35.81	32.56	35.72	33.55	35.63
34.2	35.57	34.48	35.55	34.69	35.53	34.83	35.52
35.08	35.5	35.19	35.49	35.31	35.48	35.33	35.47
36.5	35.35	37.8	35.12	38.72	35.12	38.95	35.12
40.86	35.34	41.43	35.41	42.2	35.49	46.16	35.94
46.65	36	51.56	36.63	53.74	37	53.8	37.02
59.76	38.49	62.11	39	65.8	39.71	67.34	40
70.58	41	71.67	41.24	74.96	42	76.5	42.39

Manning's n Values num= 3

Sta	n Val	Sta	n Val	Sta	n Val
0	.045	36.5	.035	40.86	.045

Bank Sta: Left 36.5 Right 40.86 Lengths: Left channel 33.55 Right 35.02 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Innominado
 REACH: superior RS: 697.415

INPUT Description: Station Elevation Data num= 66

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	36.72	14	36.7	3.43	36	6.1	35.75

aprobado
 Municipalmente por el Excmo Ayuntamiento de Tarifa en sesión celebrada el día 27 SET. 2016 (Artículo 128.6 del Reglamento de Planeamiento Urbanístico).
 EL SECRETARIO DEL AYUNTAMIENTO



Sta	n Val	Sta	n Val	Sta	n Val	Sta	n Val
14.56	35	15.18	34.94	15.48	34.92	15.55	34.91
16.76	34.81	16.98	34.79	17.78	34.72	18.11	34.7
19.25	34.61	20.36	34.52	20.59	34.5	20.85	34.48
25.25	34.12	25.69	34.08	25.71	34.08	25.74	34.08
25.79	34.07	25.83	34.07	25.86	34.07	25.9	34.06
26.09	34.05	26.6	34	27.74	33.79	27.9	33.76
28.17	33.71	28.3	33.69	28.48	33.66	28.72	33.62
29.11	33.55	30.09	33.4	30.27	33.37	30.78	33.37
33.12	33.12	34.78	33.25	36.24	33.36	37.59	33.45
43.69	34	43.71	34	47.99	34.52	50.13	34.77
55.54	35.47	58.26	35.85	58.96	35.94	59.31	36
65.08	37	66.84	37.12	69.17	37.49	72.31	38
76.33	38.73						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 30.77 .035 34.78 .045

Bank Sta: Left 30.77 Right 34.78 Lengths: Left channel 43.5 Right 41.33 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Innominado
 REACH: superior RS: 656.082

INPUT Description: Station Elevation Data num= 127

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	34.42	24	33.59	33	34.37	43	34.36
.84	34.3	1.19	34.25	1.26	34.24	1.33	34.23
1.76	34.17	2.04	34.13	2.08	34.13	2.1	34.12
2.14	34.12	2.95	34	4.15	33.83	4.31	33.8
4.62	33.75	4.84	33.72	5	33.7	5.02	33.7
5.18	33.67	5.25	33.66	5.33	33.65	5.4	33.64
6.15	33.54	7.17	33.41	7.33	33.39	7.97	33.29
8.52	33.22	8.81	33.17	9.14	33.12	9.51	33.06
9.91	33	9.93	33	9.98	32.99	10.14	32.97
10.43	32.93	10.57	32.92	10.71	32.9	10.84	32.88
10.98	32.87	11.1	32.85	11.23	32.84	11.34	32.82
11.48	32.81	11.58	32.8	11.66	32.79	11.95	32.78
12.13	32.76	12.77	32.7	13.47	32.73	13.67	32.7
13.19	32.66	13.35	32.64	13.66	32.62	13.92	32.59
15.1	32.47	15.68	32.42	15.88	32.41	17.15	32.29
17.44	32.27	17.57	32.26	18.24	32.16	19.46	32.09
20.42	32	20.57	32	21.15	31.94	21.63	31.9
27.62	31.33	28.79	31.22	28.87	31.21	28.98	31.2
29.12	31.19	29.24	31.18	29.35	31.17	29.37	31.17
29.49	31.16	29.54	31.15	29.59	31.15	29.64	31.15
29.9	31.12	30.02	31.12	30.15	31.11	31.05	31.1
33.42	30.82	33.72	30.82	34.7	30.86	35.83	30.9
37.87	31	40.63	31.28	44.8	31.76	46.5	31.95
47.15	32.04	53.62	33	59.64	33.88	60.49	34
67.75	35	70.39	35.47	73.28	36	78.06	36.9
78.99	37.14	80.93	37.7				

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 31.69 .035 35.83 .045

Bank Sta: Left 31.69 Right 35.83 Lengths: Left channel 38.68 Right 39.77 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Innominado
 REACH: superior RS: 616.672

INPUT Description: Station Elevation Data num= 126

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.87	.25	31.85	.27	31.85	.51	31.83
.76	31.81	.98	31.79	1.19	31.77	1.23	31.77
1.29	31.77	1.51	31.74	1.55	31.74	1.59	31.74
1.85	31.72	2.06	31.7	2.11	31.7	2.16	31.69
2.37	31.67	2.46	31.67	2.65	31.65	2.74	31.64
2.89	31.63	2.98	31.62	3.05	31.61	3.15	31.61
3.3	31.59	3.4	31.59	3.47	31.58	3.54	31.57
3.71	31.56	3.78	31.55	3.85	31.55	3.92	31.55
4.18	31.52	4.26	31.51	4.34	31.51	4.42	31.5
4.57	31.49	4.64	31.49	4.7	31.48	4.77	31.47
4.96	31.46	5.09	31.45	5.23	31.43	5.62	31.39
6.28	31.32	7.03	31.24	7.16	31.22	7.18	31.22
8.61	31.04	8.9	31	10.35	30.79	10.43	30.78
11.7	30.6	11.82	30.58	12.13	30.54	12.9	30.43
13.87	30.3	14.29	30.24	14.92	30.11	15.69	30.06
16.16	30	16.44	29.99	16.99	29.96	17.51	29.93
18.13	29.9	18.37	29.89	18.93	29.87	19.02	29.86
19.19	29.85	21.88	29.74	22.04	29.73	22.08	29.73
23.9	29.72	22.55	29.71	24.38	29.62	27.7	29.42
35.24	29	36.67	28.95	40.57	28.94	41.3	28.93
42.81	28.92	43.22	28.93	43.33	28.93	43.83	28.94
45.36	28.96	45.96	28.98	47.03	29	48.38	29.15
51.9	29.64	52.71	29.78	53.94	30	56.2	30.42
63.15	31.7	64.69	32	65.36	32.15	69.41	33
73.59	34	76.1	34.56	77.64	35	79.61	35.49
82.22	36.15						

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 40.57 .035 43.83 .045

Bank Sta: Left 40.57 Right 43.83 Lengths: Left channel 39.17 Right 40.42 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Innominado
 REACH: superior RS: 576.256

INPUT Description: Station Elevation Data num= 45

Sta	Elev	Sta	Elev	Sta	Elev	Sta	Elev
0	31.81	1.49	31.54	4.47	31	9.49	30.09
12.08	29.62	15.06	29.08	15.47	29	28.88	28.05
29.61	28	30.39	27.94	30.85	27.9	31.26	27.87
31.73	27.83	31.97	27.82	32.2	27.8	32.42	27.78
32.75	27.76	32.9	27.75	33.04	27.74	33.18	27.73
33.44	27.71	33.85	27.69	34.22	27.65	34.55	27.64
39.05	27.46	40.97	27.53	46.2	27.71	53.37	28
62.57	29	66.52	29.89	67.05	30	67.56	30.12
76.38	31.79	77.67	32	78.71	32.18	79.87	32.38

Manning's n Values num= 3
 Sta n Val Sta n Val Sta n Val
 0 .045 37.19 .035 40.97 .045

Bank Sta: Left 37.19 Right 40.97 Lengths: Left channel 21.69 Right 21.7 Coeff Contr. .1 Expan. .3

CROSS SECTION

RIVER: Innominado