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Puerta de Hierro, San Justo

Partido de La Matanza, Provincia de Buenos Aires

ESTUDIO DE SUELOS

OBRA: Barrio de Viviendas

Ubicación: Puerta de Hierro, San Justo

ESTUDIO DE SUELOS

IF-2023-49831212-GDEBA-DPTYLLOPISU

CONTENIDO

OBRA: Barrio de Viviendas

Ubicación: Puerta de Hierro, San Justo

ESTUDIO DE SUELOS VIAL

1 DESCRIPCIÓN DEL TRABAJO

Con el objeto del diseño del paquete estructural de obras viales, se encararon trabajos geotécnicos en la traza que conforman las áreas de circulación en el Barrio de Viviendas a construirse, sito en Bº Puerta de Hierro, San Justo, Provincia de Buenos Aires.

Se analizaron, según la requisitoria establecida por la requirente, los siguientes ítemes.

1.1 En la traza

- Mediante barreno manual, se recuperaron muestras representativas de suelo, alteradas e inalteradas, hasta un metro y medio (1,50 m) de profundidad máxima, identificándolas y empaquetándolas de manera hermética, para conservar inalterables sus condiciones naturales de humedad (ASTM-D-1587).

- Se delimitó la secuencia y espesor de los diferentes estratos por reconocimiento tacto visual de los suelos extraídos.
- Extracción de muestras tipo en las calicatas a cielo abierto.
- En las calicatas se efectuó determinación de densidad in situ para suelos finos, método de cono de arena (VN-E8).
- Ensayos DCP, penetración dinámica de cono, en todos los puntos investigados. (ASTM D 6951).
- Mediante un geoposicionador de mano (GPS) se relevaron las ubicaciones geográficas (WGS 84) de las bocas de perforación.

1.2 En el laboratorio

Sobre la totalidad de las muestras

- Contenido natural de humedad, referido a peso de suelo secado en estufa a 110°C. (ASTM D 2216).
- Observación macroscópica de las muestras: color, textura, concreciones calcáreas, materia orgánica, óxidos, etc.
- Límites de Atterberg: líquido y plástico; por diferencia: índice de plasticidad. (ASTM D 4318).
- Determinación de la fracción menor de 0,074 mm (limo + arcilla) por lavado sobre el tamiz standard N° 200. (ASTM D 1140).
- Análisis granulométrico por tamizado sobre la serie estándar de tamices. (ASTM D 422).
- Clasificación de los suelos, conforme al Sistema de la H.B.R. (ASTM D 3282).

Sobre las *muestras tipo*, obtenidas de las calicatas, según la técnica de la DVBA

- Peso específico de las partículas sólidas, por el método del picnómetro.
- Ensayo de compactación Proctor Standard (AASHO T 99).
- Ensayo de compactación Proctor Modificado (AASHO T 180).
- Valor Soporte California (CBR) sobre probetas moldeadas con el 95 % de la máxima densidad y el 100 % del contenido de humedad.

2 ANÁLISIS DE RESULTADOS

2.1 Ubicación de las determinaciones

En la siguiente tabla se presentan las posiciones geográficas de los puntos investigados.

Calicata / Pozo a barreno	Ubicación geográfica
C01	S34° 42' 21,8'' - W58° 33' 28,2''
C02	S34° 42' 26,7'' - W58° 33' 37,1''
C03	S34° 42' 28,9'' - W58° 33' 28,9''
B01	S34° 42' 24,4'' - W58° 33' 27,8''
B02	S34° 42' 26,8'' - W58° 33' 31,3''

Mediante la imagen satelital siguiente (fuente: Google Earth), se pueden observar las ubicaciones de los cateos ejecutados.

2.2 Identificación de los Suelos Detectados

Mediante la prospección in situ, se detectaron mantos altamente antropizados con la inclusión de escombros (producido del cementerio lindante) de hormigón pobre y mampostería, mezclados con los suelos del lugar. Si bien hacia la zona de la C03 se ubica un sector de abundante vegetación, los cateos y calicatas muestran la presencia de escombros diseminados en todo el predio y en espesor importante. La identificación de los suelos encontrados entre estos escombros (en los casos que la muestra pudo ser acondicionada para los ensayos) arroja los siguientes resultados en la clasificación HRB, usual en la técnica vial.

SONDEO	PROF. DESDE (m)	PROF. FINAL (m)	COLOR / TEXTURA / OLOR	ASTM D 3282
C1M1	0.00	0.30	Relleno de escombros y ceniza, castaño claro	Escombros
C1M2	0.30	0.60	Relleno con ceniza y escombros, castaño claro. (Imposibilidad de avance por presencia de escombros)	Escombros
C2M1	0.00	0.40	Relleno con escombros, castaño	Escombros
C2M2	0.40	0.60	Relleno con escombros. (Imposibilidad de avance por presencia de escombros)	Escombros
C3M1	0.00	0.45	Relleno con escombros castaño oscuro y suelo Limoso castaño	A-4 (0)
C3M2	0.45	1.25	Tosca (en nódulos de gran tamaño), castaño rosado claro	A-4 (0)
B1M1	0.00	0.60	Relleno con ceniza, suelo vegetal y escombros, pardo	A-4 (7)
B1M2	0.60	1.00	Relleno Limo Arcilloso con escombros, castaño oscuro. (Imposibilidad de avance por presencia de escombros)	A-6 (14)
B2M1	0.00	0.50	Relleno Limoso Arcillo con escombros, castaño oscuro	A-6 (10)
B2M2	0.50	0.70	Relleno Limo Arcilloso con escombros, castaño oscuro. (Imposibilidad de avance por escombros)	A-6 (10)

Como síntesis del análisis de la totalidad de las muestras recuperadas, tanto en los pozos a barreno como en las calicatas, la siguiente tabla resume los resultados de clasificación de suelos (según la técnica vial).

Tipo de Suelo (HRB)	Tenor por Índice de Grupo [%]	Tenor por Tipo de suelo [%]
A 4 (0)	30,0	**44,0**
A 4 (7)	14,0	
A 6 (10)	17,0	**27,0**
A 6 (14)	10,0	
Material heterog.	**29,0**	**29,0**

De la misma se puede inferir que:

- Suelos tipo A4 (imosos) son los netamente predominantes (44%)
- Suelos tipo A6 (limoarcillosos) se detectaron en un 27 %.

2.3 Valoración de la Subrasante

2.3.1 Ensayos de Densidad In Situ

Mediante la técnica del Cono de Arena, se determinan los tenores de densidad seca y humedad de las diferentes capas detectadas tacto-visualmente en los cateos realizados.

La densidad seca obtenida in situ a nivel de subrasante arrojó valores que oscilaron entre los 1,178 y 1,421 g/cm³ hasta los 1,00 m de profundidad; mientras que los tenores de humedad oscilaron entre el 9% y el 16%.

2.3.2 Ensayos DCP

En todas las calicatas y pozos realizados con barreno manual se efectuaron ensayos de penetración dinámica de cono. La evaluación de los estratos se hace mediante las correlaciones dadas por diferentes autores (Van Vuren, Kleyn, Livneh e Ishai, Webster, y Siekmeier, entre otros). Los resultados arrojan los siguientes datos generales.

Pozo	***Ubicación WGS84***	***CBR redefinido en función del DCP***
Calicata C1	S34 42 21.8 W58 33 28.2	de 0,00 a 0,10 m: CBR = 10% de 0,10 a 0,15 m: CBR = 20% de 0,15 a 0,20 m: CBR = 60% de 0,20 a 1,00 m: CBR = 80%
Calicata C2	S34 42 26.7 W58 33 37.1	de 0,00 a 0,20 m: CBR = 10% de 0,20 a 0,40 m: CBR = 30% de 0,40 a 1,00 m: CBR = 12%
Calicata C3	S34 42 28.7 W58 33 28.9	de 0,00 a 0,10 m: CBR = 10% de 0,10 a 0,20 m: CBR = 20% de 0,20 a 0,30 m: CBR = 40% de 0,30 a 0,40 m: CBR = 60% de 0,40 a 1,00 m: CBR = 80%
Barreno 01	S34 42 24.4 W58 33 27.8	de 0,00 a 0,10 m: CBR = 9% de 0,10 a 0,45 m: CBR = 12% de 0,45 a 1,00 m: CBR = 8%
Barreno 02	S34 42 26.8 W58 33 31.3	de 0,00 a 0,10 m: CBR = 7% de 0,10 a 0,20 m: CBR = 12% de 0,20 a 0,60 m: CBR = 30% de 0,60 a 1,00 m: CBR = 20%

2.4 Ensayos Proctor y Valor Soporte California

De todas las muestras recuperadas, la menos alterada por la presencia de escombros fue la denominada C3M2, sobre esta muestra se realiza un ensayo de CBR, sobre probeta moldeada a humedad y densidad prefijada (la obtenida *in situ*) y ensayo de compactación Proctor Modificado, obteniéndose los siguientes valores.

Los resultados que se obtuvieron fueron los siguientes:

- PUVS máx. AASHO T 180: 1,389 g/cm³
- Hum. Ópt. AASHO T 180: 19,6 %
- CBR 100%PUVS in situ: 18%
- Hinch. < 1%

3 CONCLUSIONES

En virtud de los materiales detectados y que la zona estudiada será destinada a las áreas de circulación de vehículos, se dan las recomendaciones para el cálculo estructural de pavimentos.

- Destape: efectuar una remoción de la capa de suelo vegetal y/o relleno superior, en un espesor de 20/30 cm.
- Para el caso de la capa de subrasante y teniendo en cuenta que los valores obtenidos por el ensayo DCP fueron sobre muestras que cuentan con un estrés hídrico prolongado, se propone la adopción de un CBR de diseño de 10%.

4 ANEXO I: Planillas de Ensayos

4.1 Densidad In Situ

OBRA: Viviendas
UBICACIÓN: Puerta de Hierro, San Justo, provincia de Buenos Aires
ESTUDIO Nro. 2023002
FECHA 28/1/2023

CONTROL DE COMPACTACIÓN (DENSIDAD DEL TERRENO - METODO DE LA ARENA según Normas V.N.E. 5 Y V.N.E. 8 - 66)

PUNTO / CALICATA Nº	C1	C1	C2	C2	C3	C3
COORDENADAS X	34° 42' 21,8"	34° 42' 21,8"	34° 42' 26,7"	34° 42' 26,7"	34° 42' 28,9"	34° 42' 28,9"
COORDENADAS Y	58° 33' 28,2"	58° 33' 28,2"	58° 33' 37,1"	58° 33' 37,1"	58° 33' 28,9"	58° 33' 28,9"
PROF. DESDE [m]	0.00	0.30	0.20	0.40	0.00	0.45
PROF. HASTA [m]	0.30	0.60	0.40	0.80	0.45	1.25
DESCRIPCIÓN DE LA CAPA	Relleno claro con escombros	Relleno castaño claro	Relleno con escombros	Relleno con escombros	Relleno con escombros castaño oscuro	Tosca castaño rosado claro
PESO DE ARENA EN CONO [g]	836	836	836	836	836	836
DENSIDAD ARENA [g/cm3]	1.436	1.436	1.436	1.436	1.436	1.436
FRASCO ARENA NRO.	16	15	6	7	1	5
PESO INICIAL ARENA CON FRASCO Y TAPA [g]	2989	2996	2983	2979	2986	2981
PESO FINAL ARENA CON FRASCO Y TAPA [g]	1266	1337	1261	1288	1325	1328
PESO SUELO HÚMEDO [g]	794	886	878	892	911	859
HUMEDAD 1 - PESAF. NRO	1100	1102	1104	1106	1108	1110
HUMEDAD 1 - PP + PMH [g]	263.9	269.7	264.5	255.3	302.7	273.5
HUMEDAD 1 - PP + PMS [g]	244.1	240.2	239.2	228.8	273.1	240.1
HUMEDAD 2 - PESAF. NRO	1101	1103	1105	1107	1109	1111
HUMEDAD 2 - PP + PMH [g]	289.5	287.9	250.7	267.9	296.5	275.9
HUMEDAD 2 - PP + PMS [g]	266.8	256.4	226.2	242.2	268.5	241.3
PESO SUELO HÚMEDO [g]	794.0	886.0	878.0	892.0	911.0	859.0
PESO PESAF. 1 [g]	21.65	21.06	21.83	21.5	21.93	21.56
HUMEDAD 1 [%]	8.9	13.5	11.6	12.8	11.8	15.3
PESO PESAF. 2 [g]	22.09	21.76	21.41	21.04	22.15	21.91
HUMEDAD 2 [%]	9.3	13.4	12.0	11.6	11.4	15.8
PESO SUELO SECO [g]	727.8	781.0	785.3	795.0	816.5	743.5
PESO ARENA EN HOYO [g]	887.0	823.0	886.0	855.0	825.0	817.0
VOLUMEN HOYO [cm3]	617.9	573.3	617.2	595.6	574.7	569.1
IN SITU - PUV [g/cm3]	1.285	1.545	1.423	1.498	1.585	1.509
IN SITU - PUVS [g/cm3]	1.178	1.362	1.272	1.335	1.421	1.307

4.2 Ensayos DCP

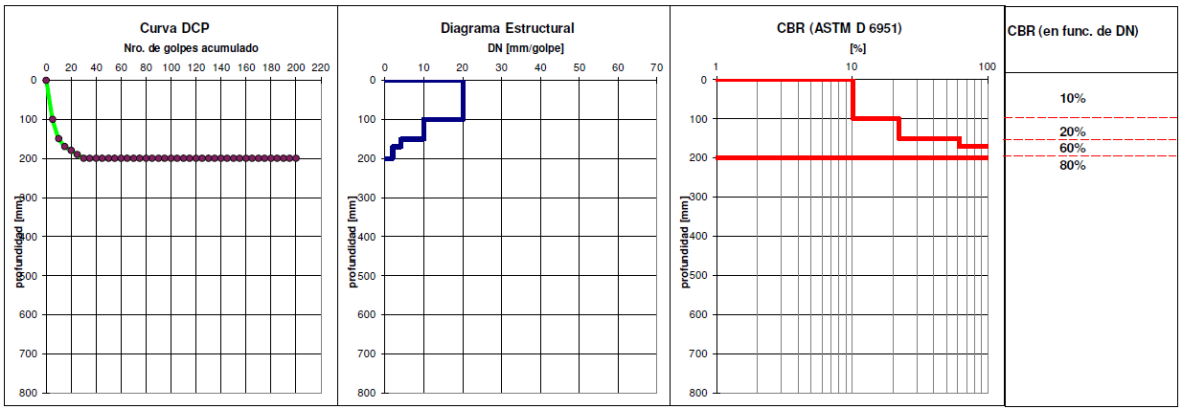
ENSAYO DE PENETRACION DINAMICO - Método DCP

OBRA: **Viviendas**

Ubicación: **Bº Puerta de Hierro, San Justo, prov. de Buenos Aires**

Progresiva/Pozo **C1** Observac.:

Coordenadas: 34° 42' 21,8" S
58° 33' 28,2" W



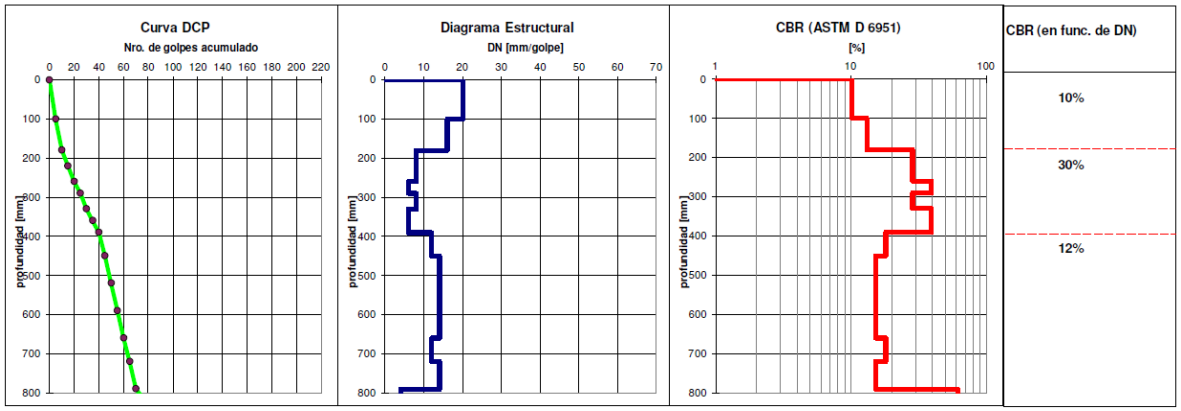
ENSAYO DE PENETRACION DINAMICO - Método DCP

OBRA: **Viviendas**

Ubicación: **Bº Puerta de Hierro, San Justo, prov. de Buenos Aires**

Progresiva/Pozo **C2** Observac.:

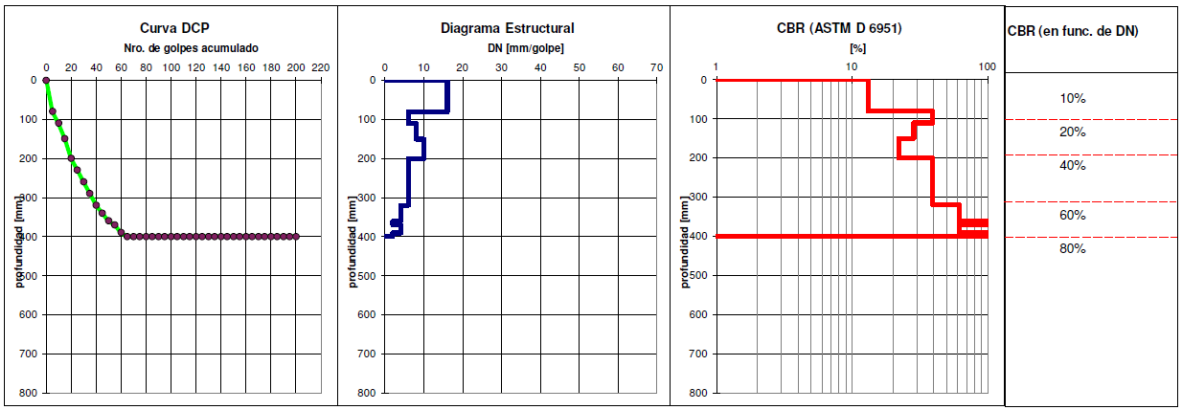
Coordenadas: 34° 42' 26,7" S
58° 33' 37,1" W



ENSAYO DE PENETRACION DINAMICO - Método DCP

OBRA: **Viviendas**

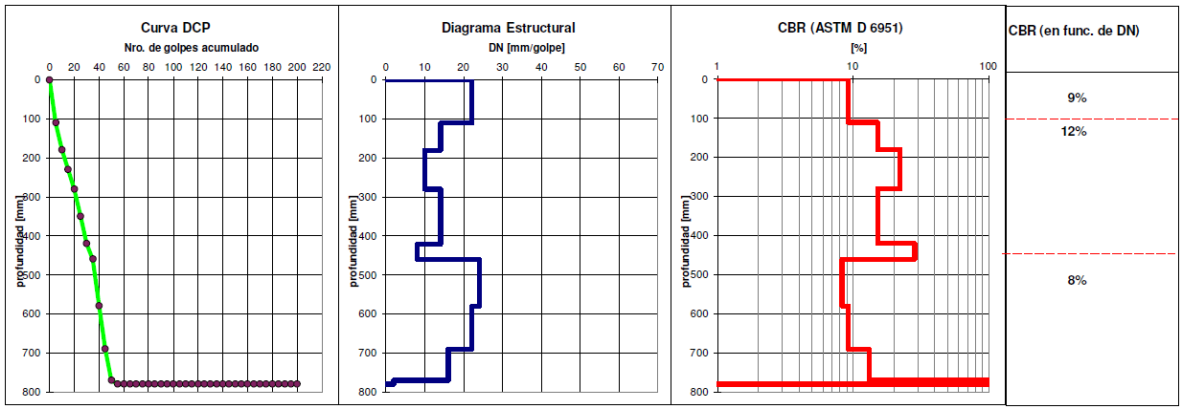
Ubicación: **Bº Puerta de Hierro, San Justo, prov. de Buenos Aires**
Progresiva/Pozo **C3** Observac.:
Coordenadas: 34° 42' 28,9" S
58° 33' 28,9" W



ENSAYO DE PENETRACION DINAMICO - Método DCP

OBRA: **Viviendas**

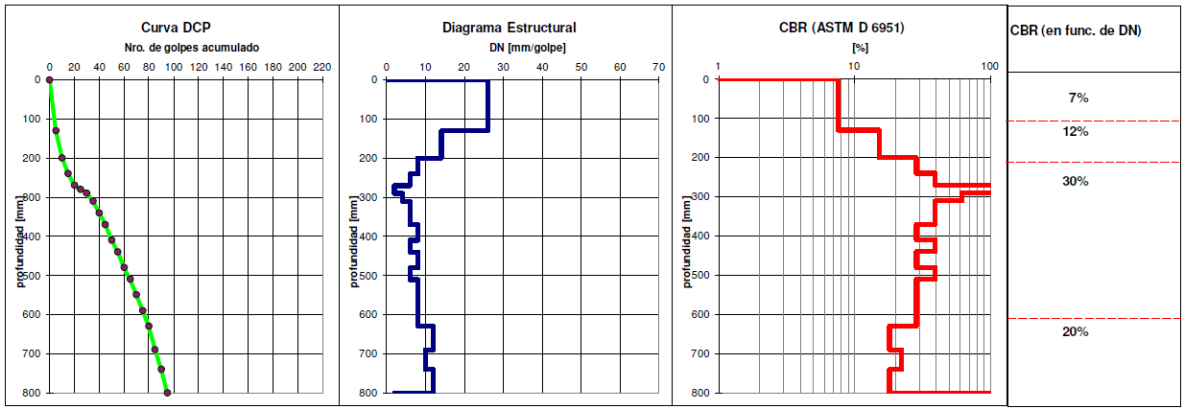
Ubicación: **Bº Puerta de Hierro, San Justo, prov. de Buenos Aires**
Progresiva/Pozo **B1** Observac.:
Coordenadas: 34° 42' 24,4" S
58° 33' 27,8" W



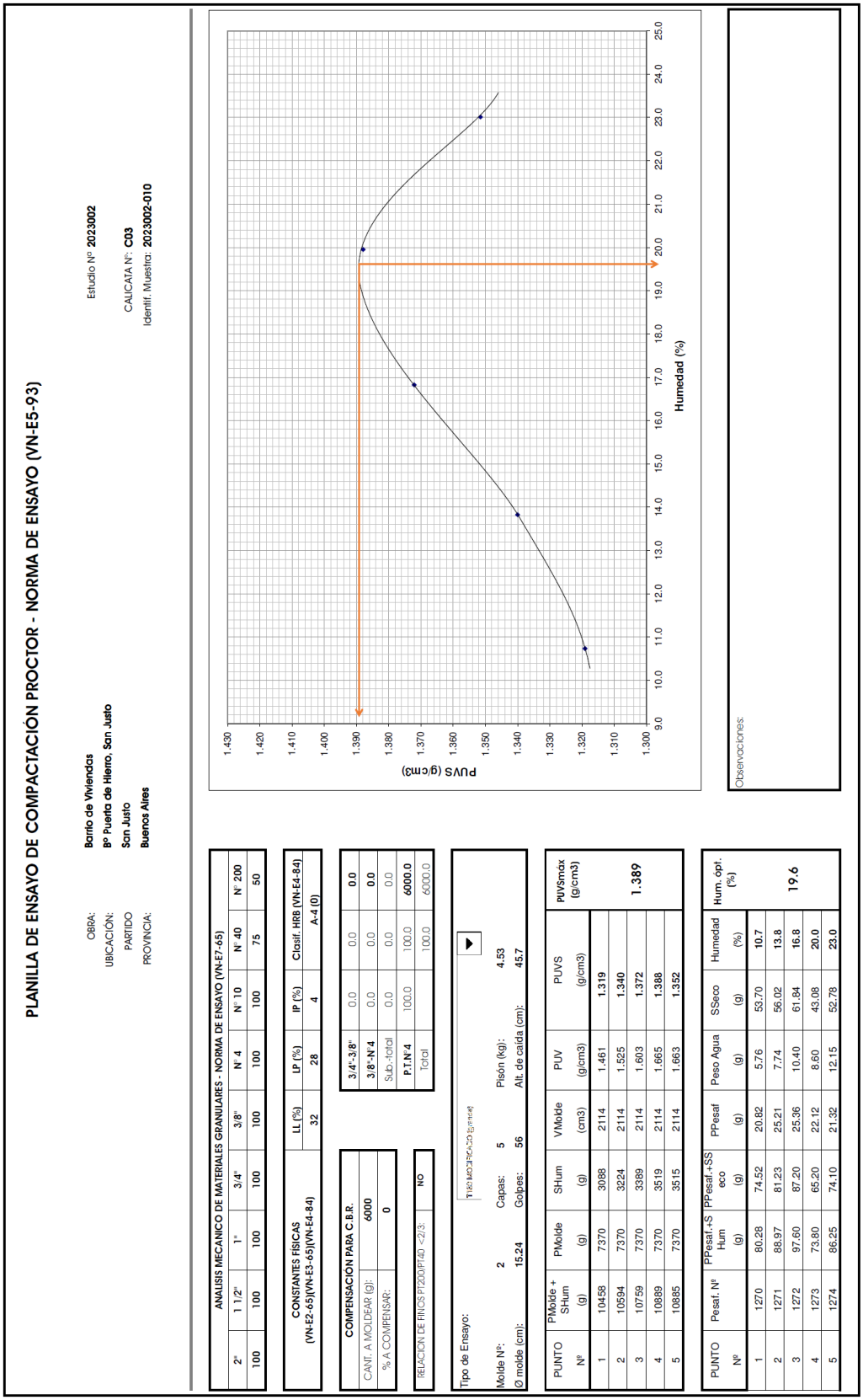
ENSAYO DE PENETRACION DINAMICO - Método DCP

OBRA: **Viviendas**

Ubicación:	**Bº Puerta de Hierro, San Justo, prov. de Buenos Aires**		
Progresiva/Pozo	**B2**	Observac.:	
Coordenadas:	34° 42' 26,8"	S	
	58° 33' 31,3"	W	



4.3 Compactación Proctor



PLANILLA DE ENSAYO DE COMPACTACIÓN PROCTOR - NORMA DE ENSAYO (VN-E5-93)

Estudio Nº **2023002**

OBRA: **Barrio de Viviendas**
UBICACIÓN: **Bº Puerta de Hierro, San Justo**
PARTIDO **San Justo**
PROVINCIA: **Buenos Aires**

CALICATA Nº: **C03**
Identif. Muestra: **2023002-010**

ANALISIS MECANICO DE MATERIALES GRANULARES - NORMA DE ENSAYO (VN-E7-65)								
2"	1 1/2"	1"	3/4"	3/8"	Nº 4	Nº 10	Nº 40	Nº 200
100	100	100	100	100	100	100	75	50

CONSTANTES FISICAS (VN-E2-65)(VN-E3-65)(VN-E4-84)	LL (%)	LP (%)	IP (%)	Clasif. HRB (VN-E4-84)
	32	28	4	A-4 (0)

COMPENSACION PARA C.B.R.	
CANT. A MOLDEAR (g):	6000
% A COMPENSAR:	0

RELACION DE FINOS PT200/PT40 <2/3:	NO

3/4"-3/8"	0.0	0.0
3/8"-Nº4	0.0	0.0
Sub.-total	0.0	0.0
P.T.Nº4	100.0	6000.0
Total	100.0	6000.0

Tipo de Ensayo: [illegible]

Molde Nº: 2 Capas: 5 Pisón (kg): 4.53
Ø molde (cm): 15.24 Golpes: 56 Alt. de caida (cm): 45.7

PUNTO Nº	PMolde + SHum (g)	PMolde (g)	SHum (g)	VMolde (cm3)	PUV (g/cm3)	PUVS (g/cm3)	PUVSmáx (g/cm3)
1	10458	7370	3088	2114	1.461	1.319	1.389
2	10594	7370	3224	2114	1.525	1.340	
3	10759	7370	3389	2114	1.603	1.372	
4	10889	7370	3519	2114	1.665	1.388	
5	10885	7370	3515	2114	1.663	1.352	

PUNTO Nº	Pesaf. Nº	PPesaf.+S Hum (g)	PPesaf.+SS eco (g)	PPesaf (g)	Peso Agua (g)	SSeco (g)	Humedad (%)	Hum. opt. (%)
1	1270	80.28	74.52	20.82	5.76	53.70	10.7	19.6
2	1271	88.97	81.23	25.21	7.74	56.02	13.8	
3	1272	97.60	87.20	25.36	10.40	61.84	16.8	
4	1273	73.80	65.20	22.12	8.60	43.08	20.0	
5	1274	86.25	74.10	21.32	12.15	52.78	23.0	

Observaciones:

4.4 Valor Soporte California

VALOR SOPORTE ESTÁTICO - A HUMEDAD Y DENSIDAD PREFIJADA

OBRA:	Barrio de Viviendas	Estudio Nº:	**2023002**
UBICACIÓN:	**Bº Puerta de Hierro, San Justo**		
PARTIDO	San Justo	CALICATA Nº:	**C03**
PROVINCIA:	**Buenos Aires**	Identif. Muestra:	**2023002-010**

PLANILLA DE ENSAYO DE VALOR SOPORTE E HINCHAMIENTO - NORMA DE ENSAYO (VN-E6-84)

ANALISIS MECANICO DE MATERIALES GRANULARES - NORMA DE ENSAYO (VN-E7-65)
CONSTANTES FÍSICAS (VN-E2-65)(VN-E3-65)(VN-E4-84)

2"	100	**Nº 10**	**100**	**Clasificación HRB**
1 1/2"	100	**Nº 40**	**75**	
1"	100	**Nº 200**	**50**	
3/4"	100	**LL (%):**	**32**	
3/8"	100	**LP (%):**	**28**	**A-4 (0)**
Nº 4	100	**IP (%):**	**4**	

HUMEDAD HIGROSCÓPICA

Pesafiltro Nº		**1110**	**1111**
Pesaf+Shum	[g]	**105.40**	**120.33**
Pesaf +SSeco	[g]	**75.22**	**88.23**
Agua	[g]	30.18	32.10
Peso Pesaf.	[g]	21.56	21.91
SSeco	[g]	53.66	66.32
Humedad	[%]	11.5	11.5

MOLDEO

PUVSmoldeo (g/cm3)	1.307	Molde Nº	**110**	**111**
Hum moldeo (%)	**15.6**	Peso Molde + SHúm. [g]	**12143.5**	**11398.2**
Peso del Suelo con Hum. Higr. [g]	10000	Peso Molde [g]	8838.00	8121.00
Peso de Suelo Seco [g]	8968.60	Peso SHúm. [g]	3305.51	3277.18
Agua Higroscópica [g]	1031.40	Peso Suelo Seco [g]	2859.44	2834.93
Agua total (g)	1399.10	Altura Probeta [cm]	11.67	11.57
Agua a Agregar [g]	**367.70**	Volumen [cm³]	2187.79	2169.04

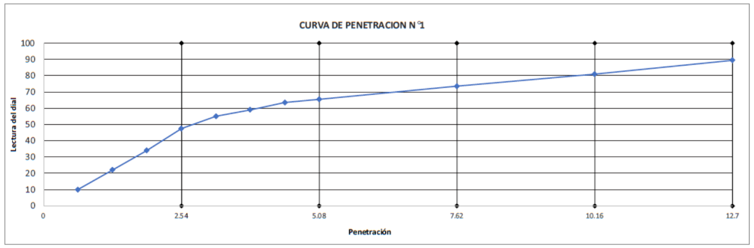
COMPENSACIÓN PARA C.B.R.

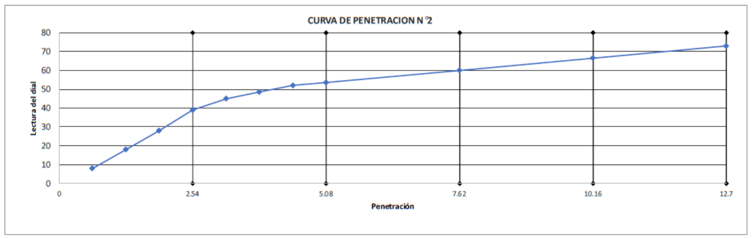
Cantidad a moldear		**6000**		Relación de Finos PT200/PT40 <2/3:
% a Compensar		**0**		
3/4"-3/8"	0.0	0.0	**0**	
3/8"-Nº4	0.0	0.0	**0**	
Sub.-total	0.0	0.0	0	**NO**
P.T.Nº4	100.0	100.0	**6000**	
Total		100.0	6000	

ARO Nº:	FAC. ARO [kg/Div.]:	CAP. ARO [kg]:	SECCIÓN [cm²]:	SOBREC. [kg]:	Molde Nº	P.Molde+ Suelo+Agua (g)	P.Molde (g)	P.Suelo+ Agua (g)	Volumen Molde (cm3)	Densidad Húmeda (g/cm3)	Pesaf. (Nº)	Pesaf.+SHum [g]	Pesaf.+SSeco [g]	Agua [g]	Tara Pesaf. [g]	SSeco [g]	**Humedad** (%)	**Densidad Seca** (g/cm³)	Densidad de Moldeo (%)	Altura Probeta (cm)	Lectura del Dial 0 Día	1º Día	2º Día	3º Día	4º Día	Hinchamiento (%)	P.Molde+Suelo +Agua EMB. (g)	Humedad final (%)
3000	6.369	3000	19.4	4.5	**110**	**12139**	8838	3301	2187.8	1.509	**1023**	**71.85**	**65.11**	6.74	21.73	43.38	**15.5**	**1.306**	99.9	11.67	50				98	**0.4%**	12548.7	**29.8**
					111	**11389**	8121	3268	2169.0	1.507	**1024**	**83.32**	**75.04**	21.38	21.38	53.66	**15.4**	**1.305**	99.9	11.57	50				105	**0.5%**	11801.8	**30.0**

LECTURAS CARGAS - DEFORMACIONES

RPU Standard [kg/cm²]					70				105	133	161	182	**VSR**
Penetración		0.63	1.27	1.90	**2.54**	3.18	3.81	4.45	**5.08**	**7.62**	**10.16**	**12.70**	
110	Lect. Dial	10	22	34	47.5	55	59	63.5	65.5	73.5	81	89.5	
111	Lect. Dial	8	18	28	39	45	48.5	52	53.5	60	66.5	73	
110	Lect. corregida												
111	Lect. corregida												
Diferencia (*)					0%				0%	0%	0%	0%	
Menor lectura corregida					39				53.5	60	66.5		**18%**
Factor de cálculo					0.0047				0.0031	0.0025	0.0020	0.0018	
Factor calc x Lect. Corregida					18%				17%	15%	14%		





OBSERVACIONES

Muestra moldeada al 100% PUVS in situ y 100% Humedad in situ.

INTEGRACIÓN URBANA LEÓN GALLO

PROYECTO DE PAVIMENTACIÓN Y DESAGÜES PLUVIALES

Puerta de Hierro, San Justo

Partido de La Matanza, Provincia de Buenos Aires

ANEXO III
VERIFICACIONES HIDRÁULICAS

Hydraulic Analysis Report

Project Data

Project Title: BARRIO PTA DE HIERRO

Designer:

Project Date: Monday, May 15, 2023

Project Units: SI Units (Metric)

Notes:

Curb and Gutter Analysis: Diseo CC30-S1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 4.0000 m

Gutter Result Parameters

Width of Spread: 2.9218 m

Gutter Result Parameters

Design Flow: 0.0303 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0854 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 58.4366 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0161 cms

Bypass Flow: 0.0142 cms

Efficiency: 0.5308

Curb and Gutter Analysis: Diseo CC31-S2

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 4.0000 m

Gutter Result Parameters

Width of Spread: 2.8779 m

Gutter Result Parameters

Design Flow: 0.0291 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0828 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 57.5577 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0157 cms

Bypass Flow: 0.0134 cms

Efficiency: 0.5383

Curb and Gutter Analysis: Diseo CC20-S4

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.0730 m

Gutter Result Parameters

Design Flow: 0.0281 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0430 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.4606 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0183 cms

Bypass Flow: 0.0098 cms

Efficiency: 0.6501

Curb and Gutter Analysis: Diseo S3

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.4102 m

Gutter Result Parameters

Design Flow: 0.0420 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0581 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 48.2046 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0239 cms

Bypass Flow: 0.0181 cms

Efficiency: 0.5688

Curb and Gutter Analysis: Diseo CC21-S5

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.6301 m

Gutter Result Parameters

Design Flow: 0.0431 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0692 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 52.6029 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0358 cms

Bypass Flow: 0.0073 cms

Efficiency: 0.8307

Curb and Gutter Analysis: Diseo CC22-S6

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.1051 m

Gutter Result Parameters

Design Flow: 0.0238 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0443 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 42.1014 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0178 cms

Bypass Flow: 0.0060 cms

Efficiency: 0.7496

Curb and Gutter Analysis: Diseo CC27-S9

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.8311 m

Gutter Result Parameters

Design Flow: 0.0460 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0801 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 56.6212 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0298 cms

Bypass Flow: 0.0162 cms

Efficiency: 0.6481

Curb and Gutter Analysis: Diseo CC28-S10

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.3813 m

Gutter Result Parameters

Design Flow: 0.0290 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0567 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.6260 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0217 cms

Bypass Flow: 0.0073 cms

Efficiency: 0.7473

Curb and Gutter Analysis: Diseo S7

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0490 cms

Gutter Result Parameters

Width of Spread: 2.8989 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0840 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 57.9787 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 4.0000 m

Effective Perimeter: 4.0000 m

Area: 0.2000 m^2

Effective Area: 0.2000 m^2

Depth at curb face (upstream of local depression): 0.0380 m

Computed Width of Spread at Sag: 1.8981 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo S8

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0430 cms

Gutter Result Parameters

Width of Spread: 2.7604 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0762 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 55.2072 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 4.0000 m

Effective Perimeter: 4.0000 m

Area: 0.2000 m^2

Effective Area: 0.2000 m^2

Depth at curb face (upstream of local depression): 0.0348 m

Computed Width of Spread at Sag: 1.7398 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo CC25

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.3005 m

Gutter Result Parameters

Design Flow: 0.0265 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0529 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 46.0102 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0265 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC26

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.1023 m

Gutter Result Parameters

Design Flow: 0.0208 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0442 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 42.0454 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0208 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC13

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.7606 m

Gutter Result Parameters

Design Flow: 0.0198 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0310 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 35.2126 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0198 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.1898 m

Gutter Result Parameters

Design Flow: 0.0314 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0480 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 43.7961 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0314 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC2

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.6840 m

Gutter Result Parameters

Design Flow: 0.2385 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2194 m^2

Eo (Gutter Flow to Total Flow): 0.9746

Gutter Depth at Curb: 93.6796 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.2385 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC32

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.3235 m

Gutter Result Parameters

Design Flow: 0.0082 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0175 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 26.4708 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0082 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC3

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.9440 m

Gutter Result Parameters

Design Flow: 0.0567 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0867 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 58.8791 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0567 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC4

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.3743 m

Gutter Result Parameters

Design Flow: 0.1630 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1913 m^2

Eo (Gutter Flow to Total Flow): 0.9864

Gutter Depth at Curb: 87.4858 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1630 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC5

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.7153 m

Gutter Result Parameters

Design Flow: 0.0394 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0737 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 54.3052 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0394 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC6

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.2829 m

Gutter Result Parameters

Design Flow: 0.0393 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0521 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 45.6581 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0393 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC7

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.5085 m

Gutter Result Parameters

Design Flow: 0.0319 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0629 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 50.1709 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0319 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC8

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.9914 m

Gutter Result Parameters

Design Flow: 0.0273 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0397 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 39.8274 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0273 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC9
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 1.9127 m

Gutter Result Parameters

Design Flow: 0.0259 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0366 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.2539 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0259 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC10

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.8297 m

Gutter Result Parameters

Design Flow: 0.0236 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0335 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 36.5937 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0236 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC11

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.1520 m

Gutter Result Parameters

Design Flow: 0.0067 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0133 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 23.0391 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0067 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC12

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.1537 m

Gutter Result Parameters

Design Flow: 0.0069 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0133 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 23.0745 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0069 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC16

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.0980 m

Gutter Result Parameters

Design Flow: 0.0942 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1679 m^2

Eo (Gutter Flow to Total Flow): 0.9941

Gutter Depth at Curb: 81.9605 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0942 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC33

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 3.8454 m

Gutter Result Parameters

Design Flow: 0.0795 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1479 m^2

Eo (Gutter Flow to Total Flow): 0.9984

Gutter Depth at Curb: 76.9083 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0795 cms

Efficiency: 0.0000

Channel Analysis: Diseo CC34

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 10.0000 m/m

Side Slope 2 (Z2): 10.0000 m/m

Longitudinal Slope: 0.0035 m/m

Manning's n: 0.0150

Flow 0.0795 cms

Result Parameters

Depth 0.1161 m

Area of Flow 0.1349 m^2

Wetted Perimeter 2.3342 m

Hydraulic Radius 0.0578 m

Average Velocity 0.5895 m/s

Top Width 2.3226 m

Froude Number: 0.7809

Critical Depth 0.1052 m

Critical Velocity 0.7185 m/s

Critical Slope: 0.0059 m/m

Critical Top Width 2.10 m

Calculated Max Shear Stress 3.9842 N/m^2

Calculated Avg Shear Stress 1.9822 N/m^2

Curb and Gutter Analysis: Diseo CC17

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.5839 m

Gutter Result Parameters

Design Flow: 0.1270 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2101 m^2

Eo (Gutter Flow to Total Flow): 0.9787

Gutter Depth at Curb: 91.6773 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1270 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC18

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 2.8777 m

Gutter Result Parameters

Design Flow: 0.0595 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0828 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 57.5548 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0595 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC35
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 1.8147 m

Gutter Result Parameters

Design Flow: 0.0174 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0329 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 36.2947 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0174 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC15

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.7068 m

Gutter Result Parameters

Design Flow: 0.1219 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2215 m^2

Eo (Gutter Flow to Total Flow): 0.9736

Gutter Depth at Curb: 94.1363 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1219 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC29

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.7993 m

Gutter Result Parameters

Design Flow: 0.0461 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0784 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 55.9857 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0461 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC14

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.0861 m

Gutter Result Parameters

Design Flow: 0.1572 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1670 m^2

Eo (Gutter Flow to Total Flow): 0.9944

Gutter Depth at Curb: 81.7215 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1572 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC36-S11
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 1.9230 m

Gutter Result Parameters

Design Flow: 0.0230 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0370 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.4608 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0159 cms

Bypass Flow: 0.0071 cms

Efficiency: 0.6927

Curb and Gutter Analysis: Diseo CC37-S12

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.9230 m

Gutter Result Parameters

Design Flow: 0.0230 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0370 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.4608 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0159 cms

Bypass Flow: 0.0071 cms

Efficiency: 0.6927

Curb and Gutter Analysis: Diseo CC19

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0276 cms

Gutter Result Parameters

Width of Spread: 2.0591 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0424 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.1823 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0276 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC23

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0226 cms

Gutter Result Parameters

Width of Spread: 2.0548 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0422 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.0969 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0226 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC24

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0219 cms

Gutter Result Parameters

Width of Spread: 2.0307 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0412 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 40.6149 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0219 cms

Efficiency: 0.0000

Hydraulic Analysis Report

Project Data

Project Title: BARRIO PTA DE HIERRO

Designer:

Project Date: Monday, May 15, 2023

Project Units: SI Units (Metric)

Notes:

Curb and Gutter Analysis: Diseo CC30-S1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 4.0000 m

Gutter Result Parameters

Width of Spread: 3.0842 m

Gutter Result Parameters

Design Flow: 0.0350 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0951 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 61.6835 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0177 cms

Bypass Flow: 0.0173 cms

Efficiency: 0.5045

Curb and Gutter Analysis: Diseo CC31-S2

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 4.0000 m

Gutter Result Parameters

Width of Spread: 3.0373 m

Gutter Result Parameters

Design Flow: 0.0336 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0923 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 60.7465 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0172 cms

Bypass Flow: 0.0164 cms

Efficiency: 0.5119

Curb and Gutter Analysis: Diseo CC20-S4

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.1586 m

Gutter Result Parameters

Design Flow: 0.0313 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0466 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 43.1717 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0196 cms

Bypass Flow: 0.0117 cms

Efficiency: 0.6277

Curb and Gutter Analysis: Diseo S3

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.5340 m

Gutter Result Parameters

Design Flow: 0.0480 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0642 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 50.6799 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0261 cms

Bypass Flow: 0.0219 cms

Efficiency: 0.5433

Curb and Gutter Analysis: Diseo CC21-S5

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.8220 m

Gutter Result Parameters

Design Flow: 0.0520 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0796 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 56.4393 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0411 cms

Bypass Flow: 0.0109 cms

Efficiency: 0.7899

Curb and Gutter Analysis: Diseo CC22-S6

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.2344 m

Gutter Result Parameters

Design Flow: 0.0279 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0499 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 44.6871 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0199 cms

Bypass Flow: 0.0080 cms

Efficiency: 0.7148

Curb and Gutter Analysis: Diseo CC27-S9

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0402 cms

Gutter Result Parameters

Width of Spread: 2.6915 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0724 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 53.8306 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0272 cms

Bypass Flow: 0.0130 cms

Efficiency: 0.6765

Curb and Gutter Analysis: Diseo CC28-S10

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0249 cms

Gutter Result Parameters

Width of Spread: 2.2490 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0506 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 44.9800 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0194 cms

Bypass Flow: 0.0055 cms

Efficiency: 0.7808

Curb and Gutter Analysis: Diseo S7

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0610 cms

Gutter Result Parameters

Width of Spread: 3.1471 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0990 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 62.9424 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 4.0000 m

Effective Perimeter: 4.0000 m

Area: 0.2000 m^2

Effective Area: 0.2000 m^2

Depth at curb face (upstream of local depression): 0.0439 m

Computed Width of Spread at Sag: 2.1965 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo S8

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0510 cms

Gutter Result Parameters

Width of Spread: 2.9428 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0866 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 58.8550 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 4.0000 m

Effective Perimeter: 4.0000 m

Area: 0.2000 m^2

Effective Area: 0.2000 m^2

Depth at curb face (upstream of local depression): 0.0390 m

Computed Width of Spread at Sag: 1.9494 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo CC25

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0290 cms

Gutter Result Parameters

Width of Spread: 2.3813 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0567 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.6260 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0290 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC26

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0233 cms

Gutter Result Parameters

Width of Spread: 2.1937 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0481 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 43.8736 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0233 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC13

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.8593 m

Gutter Result Parameters

Design Flow: 0.0229 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0346 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 37.1867 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0229 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.3122 m

Gutter Result Parameters

Design Flow: 0.0363 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0535 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 46.2436 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0363 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC2

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.9429 m

Gutter Result Parameters

Design Flow: 0.2753 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2443 m^2

Eo (Gutter Flow to Total Flow): 0.9627

Gutter Depth at Curb: 98.8586 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.2753 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC32

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.3986 m

Gutter Result Parameters

Design Flow: 0.0095 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0196 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 27.9726 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0095 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC3

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 3.1076 m

Gutter Result Parameters

Design Flow: 0.0655 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0966 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 62.1524 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0655 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC4

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 4.6157 m

Gutter Result Parameters

Design Flow: 0.1881 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2130 m^2

Eo (Gutter Flow to Total Flow): 0.9774

Gutter Depth at Curb: 92.3130 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1881 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC5
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 2.8635 m

Gutter Result Parameters

Design Flow: 0.0454 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0820 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 57.2698 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0454 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC6

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.4098 m

Gutter Result Parameters

Design Flow: 0.0454 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0581 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 48.1966 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0454 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC7

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.6493 m

Gutter Result Parameters

Design Flow: 0.0369 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0702 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 52.9865 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0369 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC8

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.1012 m

Gutter Result Parameters

Design Flow: 0.0315 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0441 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 42.0230 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0315 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC9
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 2.0185 m

Gutter Result Parameters

Design Flow: 0.0299 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0407 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 40.3706 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0299 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC10

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.9297 m

Gutter Result Parameters

Design Flow: 0.0272 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0372 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.5947 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0272 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC11

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.2195 m

Gutter Result Parameters

Design Flow: 0.0078 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0149 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 24.3906 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0078 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC12

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.2195 m

Gutter Result Parameters

Design Flow: 0.0080 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0149 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 24.3906 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0080 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC16

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.3241 m

Gutter Result Parameters

Design Flow: 0.1087 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1870 m^2

Eo (Gutter Flow to Total Flow): 0.9880

Gutter Depth at Curb: 86.4811 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1087 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC33

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.0569 m

Gutter Result Parameters

Design Flow: 0.0917 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1646 m^2

Eo (Gutter Flow to Total Flow): 0.9950

Gutter Depth at Curb: 81.1379 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0917 cms

Efficiency: 0.0000

Channel Analysis: Diseo CC34

Notes:

Input Parameters

Channel Type: Triangular

Side Slope 1 (Z1): 10.0000 m/m

Side Slope 2 (Z2): 10.0000 m/m

Longitudinal Slope: 0.0035 m/m

Manning's n: 0.0150

Flow 0.0917 cms

Result Parameters

Depth 0.1225 m

Area of Flow 0.1501 m^2

Wetted Perimeter 2.4626 m

Hydraulic Radius 0.0610 m

Average Velocity 0.6109 m/s

Top Width 2.4504 m

Froude Number: 0.7879

Critical Depth 0.1114 m

Critical Velocity 0.7393 m/s

Critical Slope: 0.0058 m/m

Critical Top Width 2.23 m

Calculated Max Shear Stress 4.2033 N/m^2

Calculated Avg Shear Stress 2.0912 N/m^2

Curb and Gutter Analysis: Diseo CC17

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.8373 m

Gutter Result Parameters

Design Flow: 0.1466 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2340 m^2

Eo (Gutter Flow to Total Flow): 0.9677

Gutter Depth at Curb: 96.7466 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1466 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC18

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 3.0372 m

Gutter Result Parameters

Design Flow: 0.0687 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0922 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 60.7431 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0687 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC35
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Width of Spread: 1.9156 m

Gutter Result Parameters

Design Flow: 0.0201 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0367 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.3121 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0201 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC15

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.7068 m

Gutter Result Parameters

Design Flow: 0.1219 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.2215 m^2

Eo (Gutter Flow to Total Flow): 0.9736

Gutter Depth at Curb: 94.1363 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1219 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC29

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.7993 m

Gutter Result Parameters

Design Flow: 0.0461 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0784 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 55.9857 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0461 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC14

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 4.0861 m

Gutter Result Parameters

Design Flow: 0.1572 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.1670 m^2

Eo (Gutter Flow to Total Flow): 0.9944

Gutter Depth at Curb: 81.7215 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters
Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1572 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC36-S11
Notes:

Gutter Input Parameters
Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters
Design Flow: 0.0266 cms

Gutter Result Parameters

Width of Spread: 2.0308 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0412 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 40.6163 mm

Inlet Input Parameters
Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0176 cms

Bypass Flow: 0.0090 cms

Efficiency: 0.6616

Curb and Gutter Analysis: Diseo CC37-S12

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 2.0308 m

Gutter Result Parameters

Design Flow: 0.0266 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0412 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 40.6163 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0176 cms

Bypass Flow: 0.0090 cms

Efficiency: 0.6616

Curb and Gutter Analysis: Diseo CC19

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.1572 cms

Gutter Result Parameters

Width of Spread: 3.9413 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.1553 m^2

Eo (Gutter Flow to Total Flow): 0.9971

Gutter Depth at Curb: 78.8263 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.1572 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC23

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0291 cms

Gutter Result Parameters

Width of Spread: 2.2592 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0510 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 45.1834 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0291 cms

Efficiency: 0.0000

Curb and Gutter Analysis: Diseo CC24

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0264 cms

Gutter Result Parameters

Width of Spread: 2.1782 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0474 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 43.5632 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 0.0000 m

Local Depression: 0.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0000 cms

Bypass Flow: 0.0264 cms

Efficiency: 0.0000

Hydraulic Analysis Report

Project Data

Project Title: BARRIO PTA DE HIERRO

Designer:

Project Date: Monday, May 15, 2023

Project Units: SI Units (Metric)

Notes:

Curb and Gutter Analysis: Diseo CC30-S1

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 4.0000 m

Gutter Result Parameters

Design Flow: 0.0400 cms

Gutter Result Parameters

Width of Spread: 3.2425 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.1051 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 64.8510 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0192 cms

Bypass Flow: 0.0208 cms

Efficiency: 0.4811

Curb and Gutter Analysis: Diseo CC31-S2

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 4.0000 m

Gutter Result Parameters

Design Flow: 0.0390 cms

Gutter Result Parameters

Width of Spread: 3.2119 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.1032 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 64.2382 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0189 cms

Bypass Flow: 0.0201 cms

Efficiency: 0.4855

Curb and Gutter Analysis: Diseo CC20-S4

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0390 cms

Gutter Result Parameters

Width of Spread: 2.3442 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0550 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 46.8834 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0228 cms

Bypass Flow: 0.0162 cms

Efficiency: 0.5833

Curb and Gutter Analysis: Diseo S3

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0600 cms

Gutter Result Parameters

Width of Spread: 2.7552 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0759 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 55.1032 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0301 cms

Bypass Flow: 0.0299 cms

Efficiency: 0.5024

Curb and Gutter Analysis: Diseo CC21-S5

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0660 cms

Gutter Result Parameters

Width of Spread: 3.0859 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0952 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 61.7176 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0487 cms

Bypass Flow: 0.0173 cms

Efficiency: 0.7376

Curb and Gutter Analysis: Diseo CC22-S6

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0340 cms

Gutter Result Parameters

Width of Spread: 2.4063 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0579 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 48.1266 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0229 cms

Bypass Flow: 0.0111 cms

Efficiency: 0.6723

Curb and Gutter Analysis: Diseo CC27-S9

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0460 cms

Gutter Result Parameters

Width of Spread: 2.8311 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0801 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 56.6212 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0298 cms

Bypass Flow: 0.0162 cms

Efficiency: 0.6481

Curb and Gutter Analysis: Diseo CC28-S10

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0290 cms

Gutter Result Parameters

Width of Spread: 2.3813 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0567 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.6260 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0217 cms

Bypass Flow: 0.0073 cms

Efficiency: 0.7473

Curb and Gutter Analysis: Diseo S7

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0760 cms

Gutter Result Parameters

Width of Spread: 3.4176 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.1168 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 68.3518 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 4.0000 m

Effective Perimeter: 4.0000 m

Area: 0.2000 m^2

Effective Area: 0.2000 m^2

Depth at curb face (upstream of local depression): 0.0509 m

Computed Width of Spread at Sag: 2.5432 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo S8

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0610 cms

Gutter Result Parameters

Width of Spread: 3.1471 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0990 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 62.9424 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 4.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 4.0000 m

Effective Perimeter: 4.0000 m

Area: 0.2000 m^2

Effective Area: 0.2000 m^2

Depth at curb face (upstream of local depression): 0.0439 m

Computed Width of Spread at Sag: 2.1965 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo CC36-S11

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0310 cms

Gutter Result Parameters

Width of Spread: 2.1440 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0460 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 42.8807 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0194 cms

Bypass Flow: 0.0116 cms

Efficiency: 0.6272

Curb and Gutter Analysis: Diseo CC37-S12

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0300 cms

Gutter Result Parameters

Width of Spread: 2.1178 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0449 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 42.3567 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0190 cms

Bypass Flow: 0.0110 cms

Efficiency: 0.6340

Hydraulic Analysis Report

Project Data

Project Title: BARRIO PTA DE HIERRO

Designer:

Project Date: Monday, May 15, 2023

Project Units: SI Units (Metric)

Notes:

Curb and Gutter Analysis: Diseo CC36-S13

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0230 cms

Gutter Result Parameters

Width of Spread: 2.3902 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0571 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.8033 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0121 cms

Bypass Flow: 0.0109 cms

Efficiency: 0.5272

Curb and Gutter Analysis: Diseo CC37-S14

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0230 cms

Gutter Result Parameters

Width of Spread: 2.3902 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0571 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.8033 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0121 cms

Bypass Flow: 0.0109 cms

Efficiency: 0.5272

Curb and Gutter Analysis: Diseo CC38-S15

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0340 cms

Gutter Result Parameters

Width of Spread: 2.7675 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0766 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 55.3496 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0268 cms

Bypass Flow: 0.0072 cms

Efficiency: 0.7882

Curb and Gutter Analysis: Diseo CC39-S16

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0340 cms

Gutter Result Parameters

Width of Spread: 2.7675 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0766 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 55.3496 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0268 cms

Bypass Flow: 0.0072 cms

Efficiency: 0.7882

Curb and Gutter Analysis: Diseo CC40-S17

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0300 cms

Gutter Result Parameters

Width of Spread: 1.9411 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0377 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.8217 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0170 cms

Bypass Flow: 0.0130 cms

Efficiency: 0.5674

Curb and Gutter Analysis: Diseo CC41-S18

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0300 cms

Gutter Result Parameters

Width of Spread: 1.9411 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0377 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.8217 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0170 cms

Bypass Flow: 0.0130 cms

Efficiency: 0.5674

Curb and Gutter Analysis: Diseo CC42-S19

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0360 cms

Gutter Result Parameters

Width of Spread: 2.0784 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0432 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.5688 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0192 cms

Bypass Flow: 0.0168 cms

Efficiency: 0.5328

Curb and Gutter Analysis: Diseo CC43-S20

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0360 cms

Gutter Result Parameters

Width of Spread: 2.0784 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0432 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.5688 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0192 cms

Bypass Flow: 0.0168 cms

Efficiency: 0.5328

Curb and Gutter Analysis: Diseo CC44-S21

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0300 cms

Gutter Result Parameters

Width of Spread: 1.9411 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0377 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.8217 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 9.3000 m

Effective Perimeter: 9.3000 m

Area: 0.1500 m^2

Effective Area: 0.1500 m^2

Depth at curb face (upstream of local depression): 0.0186 m

Computed Width of Spread at Sag: 0.9309 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo CC45-S22

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0300 cms

Gutter Result Parameters

Width of Spread: 1.9411 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0377 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.8217 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 9.3000 m

Effective Perimeter: 9.3000 m

Area: 0.1500 m^2

Effective Area: 0.1500 m^2

Depth at curb face (upstream of local depression): 0.0186 m

Computed Width of Spread at Sag: 0.9309 m

Flow type: Weir Flow

Efficiency: 1.0000

Hydraulic Analysis Report

Project Data

Project Title: BARRIO PTA DE HIERRO

Designer:

Project Date: Monday, May 15, 2023

Project Units: SI Units (Metric)

Notes:

Curb and Gutter Analysis: Diseo CC36-S13

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0265 cms

Gutter Result Parameters

Width of Spread: 2.5206 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0635 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 50.4113 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0133 cms

Bypass Flow: 0.0132 cms

Efficiency: 0.5015

Curb and Gutter Analysis: Diseo CC37-S14

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0265 cms

Gutter Result Parameters

Width of Spread: 2.5206 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0635 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 50.4113 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0133 cms

Bypass Flow: 0.0132 cms

Efficiency: 0.5015

Curb and Gutter Analysis: Diseo CC38-S15

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0395 cms

Gutter Result Parameters

Width of Spread: 2.9275 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0857 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 58.5510 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0298 cms

Bypass Flow: 0.0097 cms

Efficiency: 0.7553

Curb and Gutter Analysis: Diseo CC39-S16

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0395 cms

Gutter Result Parameters

Width of Spread: 2.9275 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0857 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 58.5510 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0298 cms

Bypass Flow: 0.0097 cms

Efficiency: 0.7553

Curb and Gutter Analysis: Diseo CC40-S17

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0365 cms

Gutter Result Parameters

Width of Spread: 2.0892 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0436 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.7844 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0194 cms

Bypass Flow: 0.0171 cms

Efficiency: 0.5302

Curb and Gutter Analysis: Diseo CC41-S18

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0365 cms

Gutter Result Parameters

Width of Spread: 2.0892 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0436 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 41.7844 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0194 cms

Bypass Flow: 0.0171 cms

Efficiency: 0.5302

Curb and Gutter Analysis: Diseo CC42-S19

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0435 cms

Gutter Result Parameters

Width of Spread: 2.2313 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0498 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 44.6260 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0217 cms

Bypass Flow: 0.0218 cms

Efficiency: 0.4984

Curb and Gutter Analysis: Diseo CC43-S20

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0435 cms

Gutter Result Parameters

Width of Spread: 2.2313 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0498 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 44.6260 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0217 cms

Bypass Flow: 0.0218 cms

Efficiency: 0.4984

Curb and Gutter Analysis: Diseo CC44-S21

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0412 cms

Gutter Result Parameters

Width of Spread: 2.1863 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0478 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 43.7261 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 9.3000 m

Effective Perimeter: 9.3000 m

Area: 0.1500 m^2

Effective Area: 0.1500 m^2

Depth at curb face (upstream of local depression): 0.0230 m

Computed Width of Spread at Sag: 1.1502 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo CC45-S22

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0412 cms

Gutter Result Parameters

Width of Spread: 2.1863 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0478 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 43.7261 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 9.3000 m

Effective Perimeter: 9.3000 m

Area: 0.1500 m^2

Effective Area: 0.1500 m^2

Depth at curb face (upstream of local depression): 0.0230 m

Computed Width of Spread at Sag: 1.1502 m

Flow type: Weir Flow

Efficiency: 1.0000

Hydraulic Analysis Report

Project Data

Project Title: BARRIO PTA DE HIERRO

Designer:

Project Date: Monday, May 15, 2023

Project Units: SI Units (Metric)

Notes:

Curb and Gutter Analysis: Diseo CC36-S13

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0304 cms

Gutter Result Parameters

Width of Spread: 2.6537 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0704 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 53.0747 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0145 cms

Bypass Flow: 0.0159 cms

Efficiency: 0.4775

Curb and Gutter Analysis: Diseo CC37-S14

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0304 cms

Gutter Result Parameters

Width of Spread: 2.6537 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0704 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 53.0747 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 1.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0145 cms

Bypass Flow: 0.0159 cms

Efficiency: 0.4775

Curb and Gutter Analysis: Diseo CC38-S15

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0464 cms

Gutter Result Parameters

Width of Spread: 3.1097 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0967 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 62.1949 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0334 cms

Bypass Flow: 0.0130 cms

Efficiency: 0.7201

Curb and Gutter Analysis: Diseo CC39-S16

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0464 cms

Gutter Result Parameters

Width of Spread: 3.1097 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0967 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 62.1949 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0334 cms

Bypass Flow: 0.0130 cms

Efficiency: 0.7201

Curb and Gutter Analysis: Diseo CC40-S17

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0434 cms

Gutter Result Parameters

Width of Spread: 2.2294 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0497 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 44.5875 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0216 cms

Bypass Flow: 0.0218 cms

Efficiency: 0.4988

Curb and Gutter Analysis: Diseo CC41-S18

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0434 cms

Gutter Result Parameters

Width of Spread: 2.2294 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0497 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 44.5875 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0216 cms

Bypass Flow: 0.0218 cms

Efficiency: 0.4988

Curb and Gutter Analysis: Diseo CC42-S19

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0524 cms

Gutter Result Parameters

Width of Spread: 2.3926 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0572 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.8524 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0244 cms

Bypass Flow: 0.0280 cms

Efficiency: 0.4662

Curb and Gutter Analysis: Diseo CC43-S20

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0524 cms

Gutter Result Parameters

Width of Spread: 2.3926 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0572 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.8524 mm

Inlet Input Parameters

Inlet Location: Inlet on Grade

Inlet Type: Curb Opening

Length of Inlet: 2.0000 m

Local Depression: 50.0000 mm

Inlet Result Parameters

Intercepted Flow: 0.0244 cms

Bypass Flow: 0.0280 cms

Efficiency: 0.4662

Curb and Gutter Analysis: Diseo CC44-S21

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Design Flow: 0.0500 cms

Gutter Result Parameters

Width of Spread: 2.3509 m

Gutter Depression: 0.0000 mm

Area of Flow: 0.0553 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 47.0184 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 9.3000 m

Effective Perimeter: 9.3000 m

Area: 0.1500 m^2

Effective Area: 0.1500 m^2

Depth at curb face (upstream of local depression): 0.0262 m

Computed Width of Spread at Sag: 1.3086 m

Flow type: Weir Flow

Efficiency: 1.0000

Curb and Gutter Analysis: Diseo CC45-S22

Notes:

Gutter Input Parameters

Longitudinal Slope of Road: 0.0000 m/m

Cross-Slope of Pavement: 0.0200 m/m

Uniform Gutter Geometry

Manning's n: 0.0150

Gutter Width: 3.5000 m

Gutter Result Parameters

Width of Spread: 1.9411 m

Gutter Result Parameters

Design Flow: 0.0300 cms

Gutter Depression: 0.0000 mm

Area of Flow: 0.0377 m^2

Eo (Gutter Flow to Total Flow): 1.0000

Gutter Depth at Curb: 38.8217 mm

Inlet Input Parameters

Inlet Location: Inlet in Sag

Percent Clogging: 0.0000 %

Inlet Type: Curb Opening

Length of Inlet: 3.0000 m

Curb opening height: 0.0000 mm

Local Depression: 50.0000 mm

Inlet Result Parameters

Perimeter: 9.3000 m

Effective Perimeter: 9.3000 m

Area: 0.1500 m^2

Effective Area: 0.1500 m^2

Depth at curb face (upstream of local depression): 0.0186 m

Computed Width of Spread at Sag: 0.9309 m

Flow type: Weir Flow

Efficiency: 1.0000

G O B I E R N O DE LA P R O V I N C I A DE B U E N O S A I R E S
2023 - Año de la democracia Argentina

Hoja Adicional de Firmas
Informe gráfico

Número: IF-2023-49831212-GDEBA-DPTYLLOPISU

LA PLATA, BUENOS AIRES
Lunes 4 de Diciembre de 2023

Referencia: ESTUDIO DE SUELOS_CONSOLIDACIÓN URBANA ENTORNO VIVIENDAS LEÓN GALLO

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Date: 2023.12.04 11:29:06 -03'00'

Maximiliano Perello
Director
Dirección de Pliegos Técnicos y Legajos Licitatorios
Organismo Provincial de Integración Social y Urbana

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