

AC.3.3 Photos of Existing Pumping Stations

WP1 Tariq Abad

Item	Contents
Present Pump Formation	-
Present Total Capacity	3.4 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Over View of WP1



Sign Board



Pump Well



Pump Room



Mechanical Equipment



Electrical Equipment



Delivery Pipe

AC.3.3 Photos of Existing Pumping Stations

WP2 Chenab Chowk

Item	Contents
Present Pump Formation	-
Present Total Capacity	6.8 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Overview of WP2



Suction Pipe



Pump Unit



Potable Engine Pump



Mechanical Equipment



Delivery Pipe



Pump Well

AC.3.3 Photos of Existing Pumping Stations

WP3 Akbar Abad

Item	Contents
Present Pump Formation	-
Present Total Capacity	37.4 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Inlet Pipes and Pump Well



Force Mains of WP3



Discharge Point of Drainage Channel No.1



Sign Board



Delivery Chamber



Discharge Drain – Drainage Channel No.1

Electrical Equipment

AC.3.3 Photos of Existing Pumping Stations

WP4 Gulistan Colony

Item	Contents
Present Pump Formation	-
Present Total Capacity	37.4 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Sign Board



Drainage Channel No.1g



Emergency Camp W.A. Site Office



Pump Well



Mechanical Equipment



Electrical Equipment



Generator

AC.3.3 Photos of Existing Pumping Stations

WP5 Millat Town B-Block

Item	Contents
Present Pump Formation	-
Present Total Capacity	6.8 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Abandon



Pump Room and Pump Unit



Pump Equipment



Over View of WP5



Suction and Delivery Pipe

Mechanical Equipment



Electrical Equipment

Generator

AC.3.3 Photos of Existing Pumping Stations

WP6 Shadman

Item	Contents
Present Pump Formation	-
Present Total Capacity	30.6 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Shadman Site Office



Shadman Whole View



Pump Well



Delivery Chamber



Screen Equipment



Electrical Equipment



Generator

AC.3.3 Photos of Existing Pumping Stations

WP7 Noor Pur

Item	Contents
Present Pump Formation	-
Present Total Capacity	84.9 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Overview of PS-28



Drainage Point of Drainage Channel No.1g



Preliminary Treatment Facility



Inlet Work



Mechanical Equipment



Electrical Equipment



Name Plate of Generator

AC.3.3 Photos of Existing Pumping Stations

WP8 PS-30

Item	Contents
Present Pump Formation	-
Present Total Capacity	108.7 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



PS-30



Inlet Pipe and Pump Well



Preliminary Treatment Facility



Screen facility



Mechanical Equipment



Electrical Equipment



Power Receiving Equipment

AC.3.3 Photos of Existing Pumping Stations

WP9 PS-38

Item	Contents
Present Pump Formation	-
Present Total Capacity	152.8 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



PS-38 Sign



Whole View



Discharge Point and Pharang Drain



Inlet Chamber



Discharge Channel



Electrical Motor



Generator

AC.3.3 Photos of Existing Pumping Stations

WP10 PS19

Item	Contents
Present Pump Formation	-
Present Total Capacity	84.9 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Inlet Channel and Inlet Gate



Discharge Point – Pharang Drain



Pump Well



Inlet Gate and Coarse Screen



Discharge Chamber



Electrical Equipment



Discharge Point of Pharang Drain

AC3.3 Photos of Existing Pumping Stations

WP11 PS-27

Item	Contents
Present Pump Formation	4cfs-4
Present Total Capacity	27.2 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Overview of PS-27



Under Construction of New Inlet Work



Discharge Point of Pahrang Drain



Pump Building and Pump Well



Mechanical Equipment



Pump Room



Generator

AC3.3 Photos of Existing Pumping Stations

WP12 Weavers Colony

Item	Contents
Present Pump Formation	1cfs-1
Present Total Capacity	1.7 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Pump Room and Pump Unit



Pump Equipment



Discharge Pipe and Drainage Channel No.1



Illegal Discharge of Domestic Wastewater



Pump Well and Suction Pipe



Inlet Chamber



Sign Board

AC3.3 Photos of Existing Pumping Stations

WP13 Kanak Basti

Item	Contents
Present Pump Formation	4cfs-2
Present Total Capacity	13.6(m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Overview of WP13



Investigation of Manhole Depth



Pump Equipment



Pump Well and Suction pipe



Discharge Point of Drainage Channel No.1



Force Main from WP13



Sign Board

AC3.3 Photos of Existing Pumping Stations

WP14 Ghulshan Colony

Item	Contents
Present Pump Formation	2cfs-2
Present Total Capacity	6.8 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Sign Board



Pump Well and Suction Pipe



Blockage of Sewer Pipe Near WP14



Pump Equipment



Pump Equipment



Electrical Equipment



Electrical Equipment

AC3.3 Photos of Existing Pumping Stations

WP15 Metropole

Item	Contents
Present Pump Formation	4cfs-4
Present Total Capacity	27.2 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Sign board



Pump Well and Pump Equipment



Preliminary Treatment Facility



Pump Equipment



Pump Equipment



Electrical Equipment



Electrical Equipment

AC3.3 Photos of Existing Pumping Stations

WP16 Liaquat Town

Item	Contents
Present Pump Formation	1cfs-2,2cfs-1
Present Total Capacity	6.8 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Sign Board



Inlet Chamber and Suction Pipe



Pump Room



Mechanical Equipment



Mechanical Equipment



Delivery Pipe



Pump Equipment

AC3.3 Photos of Existing Pumping Stations

WP17 Jhang Road

Item	Contents
Present Pump Formation	4cfs-3,6cfs-2
Present Total Capacity	40.8 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Pump Well and Pump House



Discharge Channel



Over View of WP17



Inlet Pipe and Pump Well



Suction Pipe



Pump Equipment



Delivery Pipe and Discharge Channel

AC3.3 Photos of Existing Pumping Stations

WP18 Shadab Colony

Item	Contents
Present Pump Formation	4cfs-4
Present Total Capacity	27.2 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Pump Well



Sign Board



Pump Room



Suction Pipe



Discharge Pipe



Electrical Equipment



Over View of WP18

AC3.3 Photos of Existing Pumping Stations

WP19 Dijikot Drain

Item	Contents
Present Pump Formation	4cfs-4
Present Total Capacity	27.2 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Abandon



Sign Board of WP19



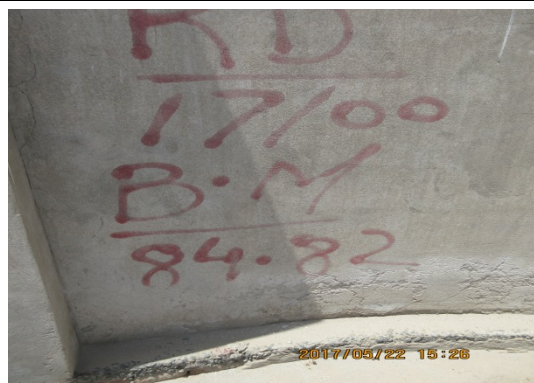
Inlet Manhole of WP19



Inlet pipe and Pump Well



Discharge Channel to Dijikot Drain



Bench mark of WP19



Typical Dying Wastewater Opposite WP19

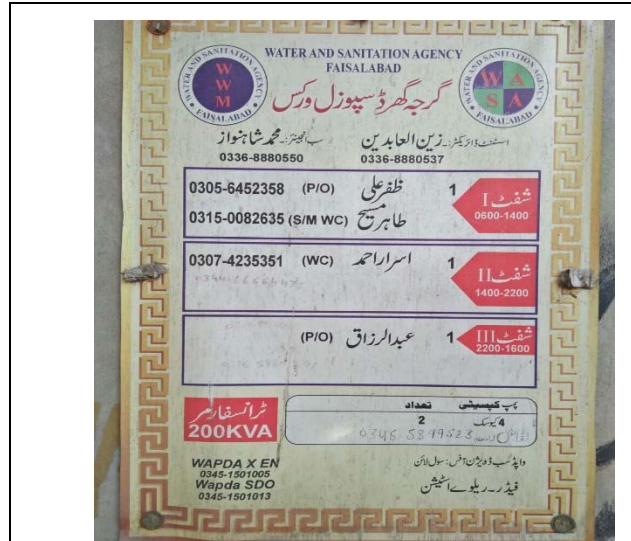


Generator

AC3.3 Photos of Existing Pumping Stations

WP20 Girja Ghar

Item	Contents
Present Pump Formation	4cfs-2
Present Total Capacity	13.6 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Board showing Operation Shift and Staff



Delivery Pipe and Chamber



Discharge Channel goes to Sewer Pipe



Mechanical Equipment



Mechanical Equipment

AC3.3 Photos of Existing Pumping Stations

WP21 PS-3

Item	Contents
Present Pump Formation	40cfs-2,25cfs-4
Present Total Capacity	305.6 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Influent P/S



Overview from Inlet Chamber



Pump Equipment



Pump Equipment



Pump Equipment



Delivery Channel to WWTP



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

WP22 Nishatabad

Item	Contents
Present Pump Formation	4cfs-3,2cfs-1
Present Total Capacity	3.4 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Abandon



Overview of Inlet Chamber



Inlet Chamber



Pump Well and Equipment



Delivery Chamber



Overview of Delivery Chamber

AC3.3 Photos of Existing Pumping Stations

EP1 Satiana Road Old

Item	Contents
Present Pump Formation	15cfs-3,10cfs-1,6cfs-1
Present Total Capacity	103.6 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Board showing the Staff & Shift



Whole View



Preliminary Treatment Facility



Mechanical Equipment



Mechanical Equipment



Mechanical Equipment



Electrical Equipment

AC3.3 Photos of Existing Pumping Stations

EP2 PS-31 Satiana Road

Item	Contents
Present Pump Formation	25cfs-4
Present Total Capacity	169.8 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Board showing the Staff & Shift



Inlet Chamber



Coarse Screen Work



Mechanical Equipment



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP3 PS-36

Item	Contents
Present Pump Formation	15cfs-2,25cfs-2
Present Total Capacity	135.8 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Pump Building



Discharge Point



Preliminary Treatment Facility



Receiving and Flow Adjustment Well



Pump House and Discharge Channel



Electrical Equipment

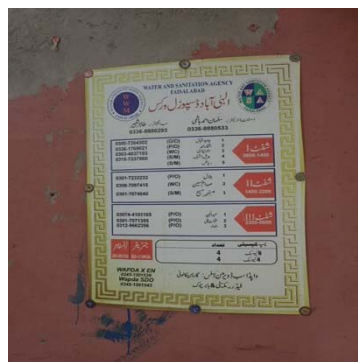


Control Panel

AC3.3 Photos of Existing Pumping Stations

EP4 People Colony no.2

Item	Contents
Present Pump Formation	6cfs-4,4cfs-4
Present Total Capacity	67.9 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Board showing the Staff & Shift



Whole View



Inlet Chamber



Receiving and Flow Adjustment Well



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP-5 PS-34 Samana Aabad

Item	Contents
Present Pump Formation	6cfs-3,4cfs-2
Present Total Capacity	44.1 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Inlet Work and Pump House



Inlet Chamber



Preliminary Treatment Facility



Receiving and Flow Adjustment Well



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP6 PS-42

Item	Contents
Present Pump Formation	15cfs-4,10cfs-1
Present Total Capacity	118.9 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Name Plate at the Pump House



Inlet Chamber



Preliminary Treatment Facility



Coarse Screen



Discharge Point



Electrical Equipment



Satiana Road Sullage Drain

AC3.3 Photos of Existing Pumping Stations

EP7 D-Type

Item	Contents
Present Pump Formation	4cfs-4,6cfs-1
Present Total Capacity	37.4 (m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Storm-water P/S



Overview of EP7



Screen Unit



Pump Well and Suction Pipe



Receiving and Flow Adjustment Well



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP8 Sharipura

Item	Contents
Present Pump Formation	4cfs-2
Present Total Capacity	13.6 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Identification Plate



Sign Board



Pump Equipment



Discharge Chamber and Pipe



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP9 Abdullahpur

Item	Contents
Present Pump Formation	4cfs-2,6cfs-1
Present Total Capacity	23.8 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Abandon



Board showing Operation Shift and Staff



Pump Unit and Suction Pipe



Pump Wells



Inlet Works



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP10 Mansoorabad

Item	Contents
Present Pump Formation	6cfs-2,4cfs-1
Present Total Capacity	27.2 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Abandon

WATER AND SANITATION AGENCY
FASALABAD

منصورہ آباد پانی و سہولتیں

سب ڈیویژن طاہر ٹیپ
0336-8880293

اسسٹنٹ ایگرو سولڈر
0336-8880531

0321-6665176	G/O	مدان سید	1
0345-7865288	P/O	پوٹو	2
0303-6265489	G/O	گورنر	3
0301-7811126	(WC)	میرنگ	4

شماره 1
9600-1400

0312-4060214	P/O (WC)	عامر خانوور	1
0306-707111	(WC)	محمد امین	2

شماره 2
1400-2200

0303-6247262	P/O	شیانہ حسن	1
0332-6538762	P/O (WC)	محمد امین	2

شماره 3
2200-9600

تعداد 2

200KVA 210KVA

کیپیسٹیٹی

2

4 کیوسک

6 کیوسک

WAPDA X EN

0345-1501037

Wapda SDO

0345-1501039

واپڈا سب ڈیویژن ٹیپ مدان سید منصورہ آباد

فیڈر - سب ڈیویژن مدان سید

Board showing Operation Shift and Staff



Inlet Work



Suction Pipe



Pump Well



Mechanical Equipment



Electrical Equipment



Generator

AC3.3 Photos of Existing Pumping Stations

EP11 Jhal Khnuana

Item	Contents
Present Pump Formation	2cfs-2
Present Total Capacity	6.8 (m ³ /min)
Present Function	Lift P/S
Proposed Plan	Replacement



Board showing Operation Shift and Staff



Whole View



Pump Well and Pump House



Mechanical Equipment



Delivery Pipe



Electrical Equipment

AC3.3 Photos of Existing Pumping Stations

EP12 PS-33 Sitara colony

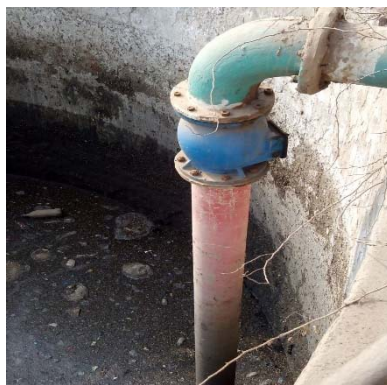
Item	Contents
Present Pump Formation	1cfs-1
Present Total Capacity	1.7(m ³ /min)
Present Function	Disposal P/S
Proposed Plan	Abandon



Board showing Operation Shift and Staff



Pump House and Suction Pipe



Pump well



Coarse Screen



Mechanical Equipment



Electrical Equipment



Discharge Point

AC3.4 Equipment List of Existing Pumping Stations

Basic information on major facilities is collected and summarized in the same format as shown in the following pages.

LIST OF MAJOR EQUIPMENT (SEWERAGE AND DRAINAGE) (1/169)

Facility Name	Item		Sheet No.
Satiana Road Old	No.1 Pump/Motor/Starter	-----	1-1
Satiana Road Old	No.2 Pump/Motor/Starter	-----	1-2
Satiana Road Old	No.3 Pump/Motor/Starter	-----	1-3
Satiana Road Old	No.4 Pump/Motor/Starter	-----	1-4
Satiana Road Old	Transformer/Generator	-----	1-5
PS-31	No.1 Pump/Motor/Starter	-----	2-1
PS-31	No.2 Pump/Motor/Starter	-----	2-2
PS-31	No.3 Pump/Motor/Starter	-----	2-3
PS-31	No.4 Pump/Motor/Starter	-----	2-4
PS-31	Transformer/Generator	-----	2-5
PS-36	No.1 Pump/Motor/Starter	-----	3-1
PS-36	No.2 Pump/Motor/Starter	-----	3-2
PS-36	No.3 Pump/Motor/Starter	-----	3-3
PS-36	No.4 Pump/Motor/Starter	-----	3-4
PS-36	Transformer/Generator	-----	3-5
Elahi Abad	No.1 Pump/Motor/Starter	-----	4-1
Elahi Abad	No.2 Pump/Motor/Starter	-----	4-2
Elahi Abad	No.3 Pump/Motor/Starter	-----	4-3
Elahi Abad	No.4 Pump/Motor/Starter	-----	4-4
Elahi Abad	No.5 Pump/Motor/Starter	-----	4-5
Elahi Abad	No.6 Pump/Motor/Starter	-----	4-6
Elahi Abad	No.7 Pump/Motor/Starter	-----	4-7
Elahi Abad	No.8 Pump/Motor/Starter	-----	4-8
Elahi Abad	No.1 Transformer/Generator	-----	4-9
Elahi Abad	No.2 Transformer/Generator	-----	4-10
PS-34 Samana Abad	No.1 Pump/Motor/Starter	-----	5-1
PS-34 Samana Abad	No.2 Pump/Motor/Starter	-----	5-2
PS-34 Samana Abad	No.3 Pump/Motor/Starter	-----	5-3
PS-34 Samana Abad	No.4 Pump/Motor/Starter	-----	5-4
PS-34 Samana Abad	No.5 Pump/Motor/Starter	-----	5-5
PS-34 Samana Abad	Transformer/Generator	-----	5-6
PS-42	No.1 Pump/Motor/Starter	-----	6-1
PS-42	No.2 Pump/Motor/Starter	-----	6-2
PS-42	No.3 Pump/Motor/Starter	-----	6-3
PS-42	No.4 Pump/Motor/Starter	-----	6-4
PS-42	No.5 Pump/Motor/Starter	-----	6-5
PS-42	Transformer/Generator	-----	6-6

LIST OF MAJOR EQUIPMENT (SEWERAGE AND DRAINAGE) (2/169)

Facility Name	Item		Sheet No.
D-Type	No.1 Pump/Motor/Starter	-----	7-1
D-Type	No.2 Pump/Motor/Starter	-----	7-2
D-Type	No.3 Pump/Motor/Starter	-----	7-3
D-Type	No.4 Pump/Motor/Starter	-----	7-4
D-Type	No.5 Pump/Motor/Starter	-----	7-5
D-Type	No.6 Pump/Motor/Starter	-----	7-6
D-Type	Transformer/Generator	-----	7-7
Sharif Pura	No.1 Pump/Motor/Starter	-----	8-1
Sharif Pura	No.2 Pump/Motor/Starter	-----	8-2
Sharif Pura	Transformer/Generator	-----	8-3
Abdullah Pur	No.1 Pump/Motor/Starter	-----	9-1
Abdullah Pur	No.2 Pump/Motor/Starter	-----	9-2
Abdullah Pur	No.3 Pump/Motor/Starter	-----	9-3
Abdullah Pur	Transformer/Generator	-----	9-4
Mansoorabad	No.1 Pump/Motor/Starter	-----	10-1
Mansoorabad	No.2 Pump/Motor/Starter	-----	10-2
Mansoorabad	No.3 Pump/Motor/Starter	-----	10-3
Mansoorabad	Transformer/Generator	-----	10-4
Jhal Khanuana	No.1 Pump/Motor/Starter	-----	11-1
Jhal Khanuana	No.2 Pump/Motor/Starter	-----	11-2
Jhal Khanuana	Transformer/Generator	-----	11-3
Sitara Colony	No.1 Pump/Motor/Starter	-----	12-1
Tariqabad	No.1 Pump/Motor/Starter	-----	13-1
Tariqabad	No.2 Pump/Motor/Starter	-----	13-2
Tariqabad	Transformer/Generator	-----	13-3
Chenab Chowk (Chenab Club)	No.1 Pump/Motor/Starter	-----	14-1
Chenab Chowk (Chenab Club)	No.2 Pump/Motor/Starter	-----	14-2
Chenab Chowk (Chenab Club)	Transformer/Generator	-----	14-3
Akberabad	No.1 Pump/Motor/Starter	-----	15-1
Akberabad	No.2 Pump/Motor/Starter	-----	15-2
Akberabad	No.3 Pump/Motor/Starter	-----	15-3
Akberabad	No.4 Pump/Motor/Starter	-----	15-4
Akberabad	No.5 Pump/Motor/Starter	-----	15-5
Akberabad	Transformer/Generator	-----	15-6

LIST OF MAJOR EQUIPMENT (SEWERAGE AND DRAINAGE) (3/169)

Facility Name	Item		Sheet No.
Gulistan Colony	No.1 Pump/Motor/Starter	-----	16-1
Gulistan Colony	No.2 Pump/Motor/Starter	-----	16-2
Gulistan Colony	No.3 Pump/Motor/Starter	-----	16-3
Gulistan Colony	No.4 Pump/Motor/Starter	-----	16-4
Gulistan Colony	No.5 Pump/Motor/Starter	-----	16-5
Gulistan Colony	No.6 Pump/Motor/Starter	-----	16-6
Gulistan Colony	No.7 Pump/Motor/Starter	-----	16-7
Gulistan Colony	No.8 Pump/Motor/Starter	-----	16-8
Gulistan Colony	Transformer/Generator	-----	16-9
Millat Town B-Block	No.1 Pump/Motor/Starter	-----	17-1
Millat Town B-Block	No.2 Pump/Motor/Starter	-----	17-2
Millat Town B-Block	Transformer/Generator	-----	17-3
Shadman	No.1 Pump/Motor/Starter	-----	18-1
Shadman	No.2 Pump/Motor/Starter	-----	18-2
Shadman	No.3 Pump/Motor/Starter	-----	18-3
Shadman	No.4 Pump/Motor/Starter	-----	18-4
Shadman	Transformer/Generator	-----	18-5
PS-28 Noor Pur	No.1 Pump/Motor/Starter	-----	19-1
PS-28 Noor Pur	No.2 Pump/Motor/Starter	-----	19-2
PS-28 Noor Pur	No.3 Pump/Motor/Starter	-----	19-3
PS-28 Noor Pur	No.4 Pump/Motor/Starter	-----	19-4
PS-28 Noor Pur	No.5 Pump/Motor/Starter	-----	19-5
PS-28 Noor Pur	No.1 Transformer/Generator	-----	19-6
PS-28 Noor Pur	No.2 Transformer/Generator	-----	19-7
PS-30 Bawa Chak	No.1 Pump/Motor/Starter	-----	20-1
PS-30 Bawa Chak	No.2 Pump/Motor/Starter	-----	20-2
PS-30 Bawa Chak	No.3 Pump/Motor/Starter	-----	20-3
PS-30 Bawa Chak	No.4 Pump/Motor/Starter	-----	20-4
PS-30 Bawa Chak	No.1 Transformer/Generator	-----	20-5
PS-30 Bawa Chak	No.2 Transformer/Generator	-----	20-6
PS-38 Ismail	No.1 Pump/Motor/Starter	-----	21-1
PS-38 Ismail	No.2 Pump/Motor/Starter	-----	21-2
PS-38 Ismail	No.3 Pump/Motor/Starter	-----	21-3
PS-38 Ismail	No.4 Pump/Motor/Starter	-----	21-4
PS-38 Ismail	No.5 Pump/Motor/Starter	-----	21-5
PS-38 Ismail	No.6 Pump/Motor/Starter	-----	21-6
PS-38 Ismail	No.1 Transformer/Generator	-----	21-7
PS-38 Ismail	No.2 Transformer/Generator	-----	21-8

LIST OF MAJOR EQUIPMENT (SEWERAGE AND DRAINAGE) (4/169)

Facility Name	Item		Sheet No.
PS-19 Bhai Wala	No.1 Pump/Motor/Starter	-----	22-1
PS-19 Bhai Wala	No.2 Pump/Motor/Starter	-----	22-2
PS-19 Bhai Wala	No.3 Pump/Motor/Starter	-----	22-3
PS-19 Bhai Wala	No.4 Pump/Motor/Starter	-----	22-4
PS-19 Bhai Wala	Transformer/Generator	-----	22-5
PS-27	No.1 Pump/Motor/Starter	-----	23-1
PS-27	No.2 Pump/Motor/Starter	-----	23-2
PS-27	No.3 Pump/Motor/Starter	-----	23-3
PS-27	No.4 Pump/Motor/Starter	-----	23-4
PS-27	Transformer/Generator	-----	23-5
Weavers Colony	No.1 Pump/Motor/Starter	-----	24-1
Weavers Colony	Transformer/Generator	-----	24-2
Kanak Basti	No.1 Pump/Motor/Starter	-----	25-1
Kanak Basti	No.2 Pump/Motor/Starter	-----	25-2
Kanak Basti	Transformer/Generator	-----	25-3
Gulshan Colony	No.1 Pump/Motor/Starter	-----	26-1
Gulshan Colony	No.2 Pump/Motor/Starter	-----	26-2
Gulshan Colony	No.1 Transformer/Generator	-----	26-3
Gulshan Colony	No.2 Transformer/Generator	-----	26-4
Metropole	No.1 Pump/Motor/Starter	-----	27-1
Metropole	No.2 Pump/Motor/Starter	-----	27-2
Metropole	No.3 Pump/Motor/Starter	-----	27-3
Metropole	No.4 Pump/Motor/Starter	-----	27-4
Metropole	Transformer/Generator	-----	27-5
Liaqat Town	No.1 Pump/Motor/Starter	-----	28-1
Liaqat Town	No.2 Pump/Motor/Starter	-----	28-2
Liaqat Town	No.3 Pump/Motor/Starter	-----	28-3
Liaqat Town	Transformer/Generator	-----	28-4
Jhang Road	No.1 Pump/Motor/Starter	-----	29-1
Jhang Road	No.2 Pump/Motor/Starter	-----	29-2
Jhang Road	No.3 Pump/Motor/Starter	-----	29-3
Jhang Road	No.4 Pump/Motor/Starter	-----	29-4
Jhang Road	No.5 Pump/Motor/Starter	-----	29-5
Jhang Road	No.1 Transformer/Generator	-----	29-6
Jhang Road	No.2 Transformer/Generator	-----	29-7

LIST OF MAJOR EQUIPMENT (SEWERAGE AND DRAINAGE) (5/169)

Facility Name	Item		Sheet No.
Shadaab	No.1 Pump/Motor/Starter	-----	30-1
Shadaab	No.2 Pump/Motor/Starter	-----	30-2
Shadaab	No.3 Pump/Motor/Starter	-----	30-3
Shadaab	No.4 Pump/Motor/Starter	-----	30-4
Shadaab	Transformer/Generator	-----	30-5
Dijkot Drain	No.1 Pump/Motor/Starter	-----	31-1
Dijkot Drain	No.2 Pump/Motor/Starter	-----	31-2
Dijkot Drain	No.3 Pump/Motor/Starter	-----	31-3
Dijkot Drain	No.4 Pump/Motor/Starter	-----	31-4
Dijkot Drain	Transformer/Generator	-----	31-5
Girja Ghar	No.1 Pump/Motor/Starter	-----	32-1
Girja Ghar	No.2 Pump/Motor/Starter	-----	32-2
Girja Ghar	Transformer/Generator	-----	32-3
PS-3 Chokera	No.1 Pump/Motor/Starter	-----	33-1
PS-3 Chokera	No.2 Pump/Motor/Starter	-----	33-2
PS-3 Chokera	No.3 Pump/Motor/Starter	-----	33-3
PS-3 Chokera	No.4 Pump/Motor/Starter	-----	33-4
PS-3 Chokera	No.5 Pump/Motor/Starter	-----	33-5
PS-3 Chokera	No.6 Pump/Motor/Starter	-----	33-6
PS-3 Chokera	Transformer/Generator	-----	33-7

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Satiana Road Old			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-SATIANA ROAD OLD NO.1			Master Plan Facility ID	East-1				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

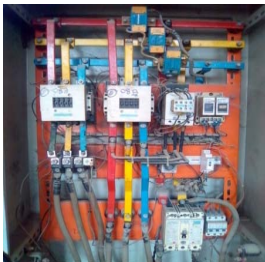
Sheet No.	1-1	Survey Date	2017/10/10
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PUMP			
WASA ID	DS-E-SATIANA ROAD OLD NO.1		
Make	KSB		
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	15
Head		m	
	☒	feet	45
Speed (rpm)	740		
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-SATIANA ROAD OLD NO.1
Make	SIEMENS
Country of Origin	
Model No	
Serial No	
Voltage (V)	440
Current (A)	100
Power	☒ kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER															
WASA ID	DS-E-SATIANA ROAD OLD NO.1					Country of Origin									
Make	SIEMENS					Year of Manufac.									
Type		DOL		SD		SS		AT		VFD		Others :			
Voltage	☒	400 V		3.3 kV		11kV		Others :							
Instruments	☒	V		A		PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF		OL		OT	SL	BT	Others :
Operation	☒	Manual		Auto											

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Satiana Road Old			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-SATIANA ROAD OLD NO.1			Master Plan Facility ID	East-1				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	1-2	Survey Date	2017/10/10
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PUMP			
WASA ID	DS-E-SATIANA ROAD OLD NO.2		
Make	KSB		
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☒	feet	45
Speed (rpm)	740		
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory	Pressure Gauge		

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-SATIANA ROAD OLD NO.2
Make	SIEMENS
Country of Origin	
Model No	LPK0073197A
Serial No	
Voltage (V)	400
Current (A)	174
Power	kW
	☒ HP
Pole	
Power Factor	0.82
Speed (rpm)	740
Year of Manufac.	

STARTER																
WASA ID	DS-E-SATIANA ROAD OLD NO.1					Country of Origin	KOREA									
Make	HYUNDAI					Year of Manufac.										
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	Others :					
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :									
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual				Auto										

Photo  	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Satiana Road Old			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-SATIANA ROAD OLD NO.1			Master Plan Facility ID	East-1				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	1-3	Survey Date	
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PUMP			
WASA ID	DS-E-SATIANA ROAD OLD NO.3		
Make	KSB		
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☒	feet	45
Speed (rpm)	740		
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory	Pressure Gauge		

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-SATIANA ROAD OLD NO.3		
Make	SIEMENS		
Country of Origin			
Model No	LPK0073197A		
Serial No			
Voltage (V)	400		
Current (A)	174		
Power	☐	kW	
	☒	HP	125
Pole			
Power Factor	0.82		
Speed (rpm)	740		
Year of Manufac.			

STARTER																
WASA ID	DS-E-SATIANA ROAD OLD NO.3						Country of Origin	KOREA								
Make	HYUNDAI						Year of Manufac.									
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

Photo	 	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Satiana Road Old			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-SATIANA ROAD OLD NO.1			Master Plan Facility ID	East-1				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	1-4	Survey Date	
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PUMP			
WASA ID	DS-E-SATIANA ROAD OLD NO.4		
Make	KSB		
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	10
Head	☐	m	
	☒	feet	45
Speed (rpm)	500		
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-SATIANA ROAD OLD NO.4
Make	
Country of Origin	POLAND
Model No	
Serial No	
Voltage (V)	400
Current (A)	
Power	☒ kW
	☐ HP
Pole	
Power Factor	
Speed (rpm)	500
Year of Manufac.	1975

STARTER															
WASA ID	DS-E-SATIANA ROAD OLD NO.3				Country of Origin	KOREA									
Make	HYUNDAI				Year of Manufac.										
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☐	OT	SL	BT	Others :
Operation	☒	Manual	☐ Auto												

Photo 		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Satiana Road Old	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID	DS-E-SATIANA ROAD OLD NO.1	Master Plan Facility ID	East-1				
Function	SATIANA ROAD DRAIN FAISALABAD						
Location (Address)	SATIANA ROAD FAISALABAD						
Year of Construction			Year of Operation Start				

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TRANSFORMER	
WASA ID	DS-E-JHUMRA ROAD NO.1
Make	PEL
Country of Origin	PAKISTAN
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	50KVA
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

Photo



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	☒ kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed

Photo

Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-31			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS-31			Master Plan Facility ID	East-2				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

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PUMP			
WASA ID	DS-E-PS-31		
Make	TORISHMA		
Country of Origin	JAPAN		
Model No	XAP674176		
Serial No	1001		
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☒	feet	40
Speed (rpm)	490		
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-PS-31		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No	E13X342HF		
Voltage (V)	400		
Current (A)	250		
Power	☒	kW	90
	☒	HP	125
Pole	12		
Power Factor	0.56		
Speed (rpm)	490		
Year of Manufac.	2013		

STARTER															
WASA ID	DS-E-PS-31					Country of Origin	KOREA								
Make	HYUNDAI					Year of Manufac.									
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☒	VFD	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL	BT	Others :
Operation	☐	Manual	☒	Auto											

Photo 		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-31			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS-31			Master Plan Facility ID	East-2				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	2-2	Survey Date	2017/10/10
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PUMP			
WASA ID	DS-E-PS-31		
Make	TORISHMA		
Country of Origin	JAPAN		
Model No	XAP674176		
Serial No	1001		
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☒	feet	40
Speed (rpm)	490		
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-PS-31		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No	E13X340HF		
Voltage (V)	400		
Current (A)	250		
Power	☒	kW	90
	☒	HP	125
Pole	12		
Power Factor	0.56		
Speed (rpm)	490		
Year of Manufac.	2013		

STARTER															
WASA ID	DS-E-PS-31				Country of Origin	KOREA									
Make	HYUNDAI				Year of Manufac.										
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☒	VFD	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL	BT	Others :
Operation	☐	Manual	☒	Auto											



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-31			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS-31			Master Plan Facility ID	East-2				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	2-3	Survey Date	
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PUMP			
WASA ID	DS-E-PS-31		
Make	TORISHMA		
Country of Origin	JAPAN		
Model No	XAP674176		
Serial No	1001		
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☒	feet	40
Speed (rpm)	490		
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-PS-31		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No	E13X343HF		
Voltage (V)	400		
Current (A)	250		
Power	☒	kW	90
	☒	HP	125
Pole	12		
Power Factor	0.56		
Speed (rpm)	490		
Year of Manufac.	2013		

STARTER																
WASA ID	DS-E-PS-31						Country of Origin	KOREA								
Make	HYUNDAI						Year of Manufac.									
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☒	VFD	Others :					
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :									
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	BT	Others :
Operation	☐	Manual	☒	Auto												

Photo 		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-31			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS-31			Master Plan Facility ID		East-2			
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	2-4	Survey Date	2017/10/10
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PUMP			
WASA ID	DS-E-PS-31		
Make	TORISHMA		
Country of Origin	JAPAN		
Model No	XAP674176		
Serial No	1001		
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☒	feet	40
Speed (rpm)	490		
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-PS-31		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No	E13X344HF		
Voltage (V)	400		
Current (A)	250		
Power	☒	kW	90
	☒	HP	125
Pole	12		
Power Factor	0.56		
Speed (rpm)	490		
Year of Manufac.	2013		

STARTER																
WASA ID	DS-E-PS-31						Country of Origin	KOREA								
Make	HYUNDAI						Year of Manufac.									
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☒	VFD	Others :					
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :									
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	BT	Others :
Operation	☐	Manual	☒	Auto												



Maintenance Record

Comments

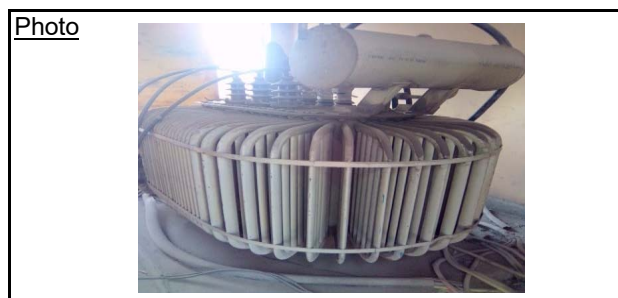
Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-31	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID	DS-E-PS-31	Master Plan Facility ID		East-2			
Function	SATIANA ROAD DRAIN FAISALABAD						
Location (Address)	SATIANA ROAD FAISALABAD						
Year of Construction			Year of Operation Start				

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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-36			Type			Water Supply	☒ Sewerage and Drainage	
							☒ DP/S		LP/S
WASA Facility ID	DS-E-AHMAD NAGAR NO.1			Master Plan Facility ID	East-3				
Function									
Location (Address)	AHMAD NAGAR								
Year of Construction	1997			Year of Operation Start					

Sheet No.	3-1	Survey Date	
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PUMP			
WASA ID	DS-E-AHMAD NAGAR NO.1		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐ m ³ /h		
	☐ m ³ /min		
	☐ l/sec		
	☒ cfs	25	
Head	☐ m		
	☐ feet		
Speed (rpm)	485		
Year of Manufac.	2013		
Motor Coupling	☐ Direct	☒	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-AHMAD NAGAR NO.1		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No	E13X346HF		
Voltage (V)	400		
Current (A)	250		
Power	☒ kW	90	
	☐ HP		
Pole	12		
Power Factor	0.56		
Speed (rpm)	490		
Year of Manufac.	2013		

STARTER															
WASA ID	DS-E-AHMED NAGER NO.1						Country of Origin								
Make							Year of Manufac.								
Type	☐ DOL	☒	☐ SD	☐ SS	☐ AT	☐ VFD	Others :								
Voltage	☒ 400 V	☐ 3.3 kV	☐ 11kV	Others :											
Instruments	☒ V	☒ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :								
Protection	☒ UV	☒ OV	☐ DG	☐ EF	☒ OL	☐ OT	☐ SL	☐ BT	Others :						
Operation	☒ Manual	☐ Auto													

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-36			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-AHMAD NAGAR NO.1			Master Plan Facility ID	East-3				
Function									
Location (Address)	AHMAD NAGAR								
Year of Construction	1997			Year of Operation Start					

Sheet No.	3-2	Survey Date	
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PUMP			
WASA ID	DS-E-AHMAD NAGAR NO.2		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☐	feet	
Speed (rpm)	485		
Year of Manufac.	2013		
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐ Pressure Gauge		

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-AHMAD NAGAR NO.2
Make	TOSHIBA
Country of Origin	JAPAN
Model No	
Serial No	E13X345HF
Voltage (V)	400
Current (A)	250
Power	☒ kW
	☐ HP
Pole	12
Power Factor	0.56
Speed (rpm)	490
Year of Manufac.	2013

STARTER																
WASA ID	DS-E-AHMAD NAGAR NO.2					Country of Origin										
Make						Year of Manufac.										
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	Others :					
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :									
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐			Auto										

Photo  	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-36			Type			Water Supply	☒ Sewerage and Drainage	
							☒ DP/S		LP/S
WASA Facility ID	DS-E-AHMAD NAGAR NO.1			Master Plan Facility ID	East-3				
Function									
Location (Address)	AHMAD NAGAR								
Year of Construction	1997			Year of Operation Start					

Sheet No.	3-3	Survey Date	
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PUMP			
WASA ID	DS-E-AHMAD NAGAR NO.3		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐ m ³ /h		
	☐ m ³ /min		
	☐ l/sec		
	☒ cfs	15	
Head	☐ m		
	☐ feet		
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐ Direct	☒	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-AHMAD NAGAR NO.3		
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No	22017001		
Voltage (V)	400		
Current (A)	178		
Power	☐ kW		
	☒ HP	125	
Pole			
Power Factor	0.82		
Speed (rpm)	740		
Year of Manufac.			

STARTER															
WASA ID	DS-E-AHMAD NAGAR NO.3						Country of Origin								
Make							Year of Manufac.								
Type	☐ DOL	☒	☐ SD	☐ SS	☐ AT	☐ VFD	Others :								
Voltage	☒ 400 V	☐ 3.3 kV	☐ 11kV	Others :											
Instruments	☒ V	☒ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :								
Protection	☒ UV	☒ OV	☐ DG	☐ EF	☒ OL	☐ OT	☐ SL	☐ BT	Others :						
Operation	☒ Manual	☐ Auto													

Photo  	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-36			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-AHMAD NAGAR NO.1			Master Plan Facility ID	East-3				
Function									
Location (Address)	AHMAD NAGAR								
Year of Construction	1997			Year of Operation Start					

Sheet No.	3-4	Survey Date	
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PUMP			
WASA ID	DS-E-AHMAD NAGAR NO.4		
Make	TOSHIBA		
Country of Origin	JAPAN		
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-AHMAD NAGAR NO.4		
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No	22017001		
Voltage (V)	400		
Current (A)	178		
Power	☐	kW	
	☒	HP	125
Pole			
Power Factor	0.82		
Speed (rpm)	740		
Year of Manufac.			

STARTER																
WASA ID	DS-E-AHMAD NAGAR NO.4						Country of Origin									
Make							Year of Manufac.									
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

<u>Photo</u>		
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-36	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID	DS-E-AHMAD NAGAR NO.1	Master Plan Facility ID		East-3			
Function							
Location (Address)	AHMAD NAGAR						
Year of Construction	1997	Year of Operation Start					

Sheet No.	3-5	Survey Date	
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TRANSFORMER	
WASA ID	DISPOSAL AHMAD NAGAR PS-36
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	630X2
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	DISPOSAL AHMAD NAGAR PS-36
Make	SIEMENS
Country of Origin	PAKISTAN
Model No	DG500
Serial No	D6S9742
Rated Output	☒ kVA
	☐ kW
	☐ HP
Rated Voltage (V)	400
Year of Manufac.	2012
Fuel Day Tank Capacity (L)	650
	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo	
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Maintenance Record

<u>Comments</u> Pump is in operating condition and installed in pit.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																
WASA ID											Country of Origin					
Make											Year of Manufac.					
Type		DOL		SD		SS		AT		VFD		Others :				
Voltage		400 V			3.3 kV			11kV			Others :					
Instruments		V		A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation		Manual			Auto											

Photo	 	
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Maintenance Record

Comments Pump is in operating condition and installed in pit.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 300/500 D-2		
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID					Country of Origin								
Make					Year of Manufac.								
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo		
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

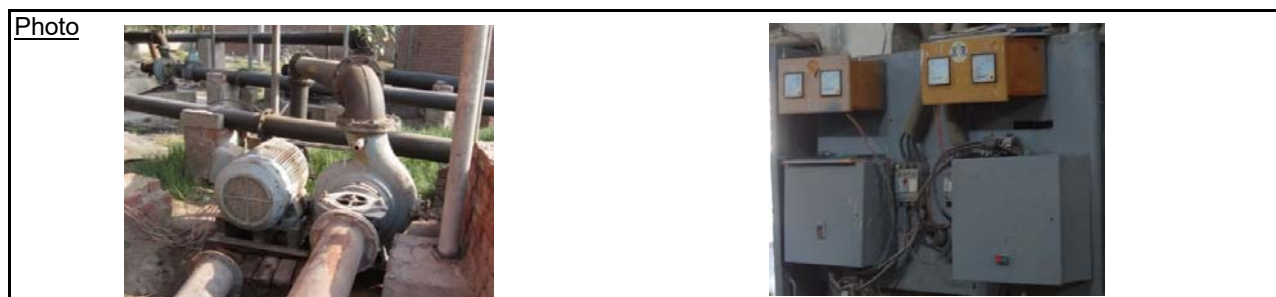
Sheet No.	4-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL BT Others :
Operation	☐	Manual		☐	Auto								



<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-5	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL BT Others :
Operation	☐	Manual		☐	Auto								

<u>Photo</u> 	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-6	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.6 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V			3.3 kV			11kV			Others :		
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL
Operation		Manual			Auto								

Photo			
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Maintenance Record

Comments Motor is removed and pump is inoperable.
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Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-7	Survey Date	May 2017
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Item	No.7 Pump/Motor/Starter
------	-------------------------

PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type		Vertical Shaft Centrifugal	
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo	 	
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Maintenance Record

<u>Comments</u> Pump is not in good maintenance condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Elahi Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain								
Location (Address)									
Year of Construction	1970?			Year of Operation Start					

Sheet No.	4-8	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Vertical Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.8 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL
Operation	☐	Manual		☐	Auto								

Photo		
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Maintenance Record

Comments

Pump is not in good maintenance condition and reduction gear is used.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Elahi Abad	Type		Water Supply	☒	Sewerage and Drainage	☒
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain						
Location (Address)							
Year of Construction	1970?	Year of Operation Start					

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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	No.1 Transformer/Generator
------	----------------------------

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin	Pakistan	
Model No	1FC 6 286-4	
Serial No	LPK 01560043	
Rated Output	☒ kVA	210
	☐ kW	
	☐ HP	
Rated Voltage (V)	415	
Year of Manufac.	1995	
Fuel Day Tank Capacity (L)		
	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Elahi Abad	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	East-4				
Function	discharging to Dijkat Drain						
Location (Address)							
Year of Construction	1970?		Year of Operation Start				

Sheet No.	4-10	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	PAK ELEKTRON
Country of Origin	PAKISTAN
Model No	IDB-200-11
Serial No	
Type of Cooling	ONAN
Capacity (kVA)	200
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2011



Maintenance Record

Comments

Item	No.2 Transformer/Generator
------	----------------------------

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin	Pakistan	
Model No	1FC 2 351-4	
Serial No	LPK 01360188	
Rated Output	☒ kVA	300
	☐ kW	
	☐ HP	
Rated Voltage (V)	415	
Year of Manufac.		
Fuel Day Tank Capacity (L)	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-34 Samana Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID	PS-34 Samana Abad			Master Plan Facility ID	East-5				
Function	discharging to Dijkot Drain								
Location (Address)	Samana Abad								
Year of Construction	1998			Year of Operation Start	1999				

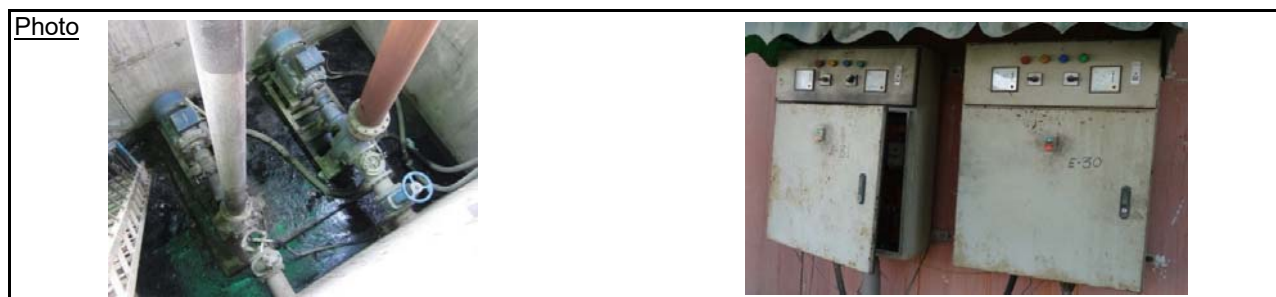
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PUMP			
WASA ID	E-30		
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 200-400 D-2		
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	60
Speed (rpm)	960		
Year of Manufac.	2012		
Motor Coupling	☒	Direct	☐ Belt
Accessory	Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	E-30		
Make	SIEMENS		
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																		
WASA ID	E-30					Country of Origin												
Make						Year of Manufac.												
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :										
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :
Operation	☒	Manual						Auto										



Maintenance Record

Comments Pump is in operating condition and installed in pit.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-34 Samana Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	PS-34 Samana Abad			Master Plan Facility ID	East-5				
Function	discharging to Dijkot Drain								
Location (Address)	Samana Abad								
Year of Construction	1998			Year of Operation Start	1999				

Sheet No.	5-2	Survey Date	May 2017
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PUMP			
WASA ID	E-31		
Make	KSB		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
	☒	feet	60
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	E-31		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER															
WASA ID	E-31				Country of Origin										
Make					Year of Manufac.										
Type		DOL		SD		SS		AT		VFD		Others :			
Voltage		400 V		3.3 kV		11kV		Others :							
Instruments		V		A		PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF		OL		OT	SL	BT	Others :
Operation		Manual		Auto											



Maintenance Record

Comments Pump is in operating condition and installed in pit.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-34 Samana Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	PS-34 Samana Abad			Master Plan Facility ID	East-5				
Function	discharging to Dijkot Drain								
Location (Address)	Samana Abad								
Year of Construction	1998			Year of Operation Start	1999				

Sheet No.	5-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	Others :
Operation	☐	Manual		☐	Auto								

Photo	
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Maintenance Record

<u>Comments</u> Pump is not in good maintenance condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-34 Samana Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	PS-34 Samana Abad			Master Plan Facility ID	East-5				
Function	discharging to Dijkot Drain								
Location (Address)	Samana Abad								
Year of Construction	1998			Year of Operation Start	1999				

Sheet No.	5-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Vertical Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V			3.3 kV			11kV			Others :		
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL
Operation		Manual			Auto								

Photo	
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Maintenance Record

<u>Comments</u> Reduction gear is used and pump is not in good maintenance condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-34 Samana Abad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	PS-34 Samana Abad			Master Plan Facility ID	East-5				
Function	discharging to Dijkot Drain								
Location (Address)	Samana Abad								
Year of Construction	1998			Year of Operation Start	1999				

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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☐
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	Others :
Operation	☐	Manual		☐	Auto								

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u> This pump was probably removed.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-34 Samana Abad	Type		Water Supply	☒	Sewerage and Drainage			
						DP/S	☒	LP/S	
WASA Facility ID	PS-34 Samana Abad	Master Plan Facility ID			East-5				
Function	discharging to Dijkot Drain								
Location (Address)	Samana Abad								
Year of Construction	1998		Year of Operation Start		1999				

Sheet No.	5-6	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	PAK ELEKTRON
Country of Origin	PAKISTAN
Model No	IDB-103-11
Serial No	139096
Type of Cooling	ON
Capacity (kVA)	100
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	1999
Number of Incoming Line from FESCO	1



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR			
WASA ID			
Make		SIEMENS	
Country of Origin		Pakistan	
Model No		1FC2 283-4	
Serial No		LPK 08260208	
Rated Output	☒	kVA	210
	☐	kW	
	☐	HP	
Rated Voltage (V)		415	
Year of Manufac.		2003	
Fuel Day Tank Capacity (L)			
		☒	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-42			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS			Master Plan Facility ID		East-6			
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	6-1	Survey Date	
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PUMP			
WASA ID	DS-E-PS-42 NO.1		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	15
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-PS-42 NO.1
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	65
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																		
WASA ID	DS-E-PS-42 NO.1					Country of Origin	KOREA											
Make	HYUNDAI					Year of Manufac.												
Type		DOL		SD		SS		AT		VFD		Others :						
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V	☒	A		PF		kW		kVA		kWh	Others :					
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☒	OT	☒	SL	☒	BT	Others :	
Operation	☒	Manual		Auto														

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-42			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS			Master Plan Facility ID	East-6				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	6-2	Survey Date	
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PUMP			
WASA ID	DS-E-PS NO.2		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	10
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-PS NO.2
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																
WASA ID	DS-E-PS NO.2					Country of Origin	KOREA									
Make	HYUNDAI					Year of Manufac.										
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☒	OT	☒	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-42			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS			Master Plan Facility ID	East-6				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

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PUMP			
WASA ID	DS-E-PS NO.3		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	10
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-PS NO.3
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	65
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																		
WASA ID	DS-E-PS NO.3					Country of Origin	KOREA											
Make	HYUNDAI					Year of Manufac.												
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :										
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☒	OT	☒	SL	☒	BT	☐	Others :
Operation	☒	Manual						Auto										

Photo 	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-42			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS			Master Plan Facility ID	East-6				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	6-4	Survey Date	
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PUMP			
WASA ID	DS-E-PS NO.4		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	10
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-PS NO.4
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																
WASA ID	DS-E-PS NO.4					Country of Origin	KOREA									
Make	HYUNDAI					Year of Manufac.										
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	Others :					
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :									
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☒	OT	☒	SL	BT	Others :
Operation	☒	Manual				Auto										

Photo 	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-42			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-E-PS			Master Plan Facility ID	East-6				
Function	SATIANA ROAD DRAIN FAISALABAD								
Location (Address)	SATIANA ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	6-5	Survey Date	
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PUMP			
WASA ID	DS-E-PS NO.5		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	10
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-PS NO.5
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	65
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																		
WASA ID	DS-E-PS NO.5					Country of Origin	KOREA											
Make	HYUNDAI					Year of Manufac.												
Type		DOL		SD		SS		AT		VFD		Others :						
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :				
Protection	☒	UV	☒	OV	☒	DG	☒	EF	☒	OL	☒	OT	☒	SL	☒	BT		Others :
Operation	☒	Manual		Auto														

<u>Photo</u>	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-42	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID	DS-E-PS	Master Plan Facility ID		East-6			
Function	SATIANA ROAD DRAIN FAISALABAD						
Location (Address)	SATIANA ROAD FAISALABAD						
Year of Construction			Year of Operation Start				

Sheet No.	6-6	Survey Date	
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TRANSFORMER	
WASA ID	DS-E-JHUMRA ROAD NO.1
Make	PEL
Country of Origin	PAKISTAN
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	630KVA
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	☒ kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage			
					☒	DP/S		LP/S	
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7					
Function									
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	7-1	Survey Date	
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PUMP			
WASA ID	DS-E-D'TYPE NO.1		
Make	YAALY		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☐	feet	
Speed (rpm)	145		
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-D'TYPE NO.1		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)	145		
Year of Manufac.			

STARTER																			
WASA ID	DS-E-D'TYPE NO.1								Country of Origin										
Make									Year of Manufac.										
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :											
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☒	Manual	☐	Auto															

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage			
					☒	DP/S		LP/S	
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7					
Function									
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	7-2	Survey Date	
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PUMP			
WASA ID	DS-E-D'TYPE NO.2		
Make			
Country of Origin			
Model No			
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)	145		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-D'TYPE NO.2		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																
WASA ID	DS-E-D'TYPE NO.2								Country of Origin							
Make									Year of Manufac.							
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :		
Protection	☒	UV	☒	OV		DG		EF	☒	OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7					
Function									
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	7-3	Survey Date	
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PUMP			
WASA ID	DS-E-D'TYPE NO.3		
Make			
Country of Origin			
Model No			
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-D'TYPE NO.3		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																		
WASA ID	DS-E-D'TYPE NO.3										Country of Origin							
Make											Year of Manufac.							
Type		DOL	☒	SD		SS		AT		VFD		Others :						
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V	☒	A		PF		kW		kVA		kWh	Others :					
Protection	☒	UV	☒	OV		DG		EF	☒	OL		OT		SL		BT	Others :	
Operation	☒	Manual		Auto														

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7					
Function									
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	7-4	Survey Date	
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PUMP			
WASA ID	DS-E-D-TYPE NO.4		
Make	PECO		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	50
Speed (rpm)	960		
Year of Manufac.	2015		
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-D-TYPE NO.4
Make	PECO
Country of Origin	PAKISTAN
Model No	
Serial No	
Voltage (V)	400
Current (A)	57.6
Power	☒ kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	960
Year of Manufac.	

STARTER																
WASA ID	DS-E-D-TYPE NO.4					Country of Origin										
Make						Year of Manufac.										
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

Photo  

Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage			
					☒	DP/S		LP/S	
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7					
Function									
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	7-5	Survey Date	
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PUMP			
WASA ID	DS-E-D-TYPE NO.5		
Make	PECO		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity	m ³ /h		
	m ³ /min		
	l/sec		
	☒ cfs	4	
Head	m		
	☒ feet	50	
Speed (rpm)	960		
Year of Manufac.	2015		
Motor Coupling	Direct	☒	Belt
Accessory	Pressure Gauge		

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-D-TYPE NO.5		
Make	PECO		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Voltage (V)	400		
Current (A)	57.6		
Power	☒ kW	30	
	☒ HP	40	
Pole			
Power Factor			
Speed (rpm)	960		
Year of Manufac.			

STARTER																		
WASA ID	DS-E-D-TYPE NO.5								Country of Origin									
Make									Year of Manufac.									
Type	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :					
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	Others :	
Operation	☒	Manual		Auto														

Photo



Maintenance Record

Comments

Notes:

UV: Under Voltage
SL: Seal Leakage

DOL: Direct On Line
OV: Over Voltage
BT: Bearing Temp.

SD: Star Delta
DG: Directional Ground

SS: Soft Starter
EF: Earth Fault

AT: Auto Tr
OL: Over Load

VFD: Variable Frequency Drive
OT: Over Torque

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7					
Function									
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	7-6	Survey Date	
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PUMP			
WASA ID	DS-E-D'TYPE NO.6		
Make			
Country of Origin			
Model No			
Serial No			
Type	SUBMERCIBLE		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	2
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒
Accessory		Pressure Gauge	

Item	No.6 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-D'TYPE NO.6		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	25
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																			
WASA ID	DS-E-D'TYPE NO.6					Country of Origin													
Make						Year of Manufac.													
Type		DOL	☒	SD		SS		AT		VFD		Others :							
Voltage	☒	400 V		3.3 kV		11kV		Others :											
Instruments	☒	V	☒	A		PF		kW		kVA		kWh	Others :						
Protection	☒	UV	☒	OV		DG		EF	☒	OL		OT		SL		BT		Others :	
Operation	☒	Manual		Auto															

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	D-Type	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID	DS-E-D-TYPE NO.1	Master Plan Facility ID		East-7			
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	7-7	Survey Date	
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TRANSFORMER	
WASA ID	
Make	PAN POWER
Country of Origin	Pakistan
Model No	
Serial No	F-09
Type of Cooling	ONAN
Capacity (kVA)	200
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin	Pakistan	
Model No	1FC 6 286-4	
Serial No	LPK 12560024	
Rated Output	☒ kVA	210
	☐ kW	
	☐ HP	
Rated Voltage (V)	415	
Year of Manufac.	1995	
Fuel Day Tank Capacity (L)		
	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Sharif Pura			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-SHARIF PURA NO.1			Master Plan Facility ID	East-8				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	8-1	Survey Date	
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PUMP			
WASA ID	DS-E-SHARIF PURA NO.1		
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	65
Speed (rpm)	980		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-SHARIF PURA NO.1		
Make	SIEMENS		
Country of Origin			
Model No			
Serial No	LPK05833767		
Voltage (V)	400		
Current (A)	68		
Power		kW	
	☒	HP	50
Pole			
Power Factor	0.85		
Speed (rpm)	980		
Year of Manufac.			

STARTER																
WASA ID	DS-E-SHARIF PURA NO.1						Country of Origin									
Make	LG						Year of Manufac.									
Type		DOL		SD	☒	SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments		V	☒	A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

Photo			
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Sharif Pura			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-SHARIF PURA NO.1			Master Plan Facility ID	East-8				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	8-2	Survey Date	
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PUMP			
WASA ID	DS-E-SHARIF PURA NO.2		
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	65
Speed (rpm)	980		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-SHARIF PURA NO.2		
Make	SIEMENS		
Country of Origin			
Model No			
Serial No	LPK05833767		
Voltage (V)	400		
Current (A)	68		
Power		kW	
	☒	HP	50
Pole			
Power Factor	0.85		
Speed (rpm)	980		
Year of Manufac.			

STARTER																
WASA ID	DS-E-SHARIF PURA NO.2								Country of Origin							
Make	LG								Year of Manufac.							
Type		DOL		SD	☒	SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments		V	☒	A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

Photo  	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION						
Name	Sharif Pura	Type		Water Supply	☒	Sewerage and Drainage
					☐	☒ DP/S ☐ LP/S
WASA Facility ID	DS-E-SHARIF PURA NO.1	Master Plan Facility ID	East-8			
Function						
Location (Address)						
Year of Construction			Year of Operation Start			

Sheet No.	8-3	Survey Date	
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TRANSFORMER	
WASA ID	DS-E-JHUMRA ROAD NO.1
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	25KVA
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Abdullah Pur			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-ABDULLAH PUR NO.1			Master Plan Facility ID	East-9				
Function									
Location (Address)	ABDULLAH PUR CANAL ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	9-1	Survey Date	11-Oct
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PUMP			
WASA ID	DS-E-ABDULLAH PUR NO.1		
Make	KCB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity	m ³ /h		
	m ³ /min		
	l/sec		
	☒ cfs	4	
Head	m		
	☒ feet	3	
Speed (rpm)	980		
Year of Manufac.			
Motor Coupling	Direct	☒	Belt
Accessory	Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-ABDULLAH PUR NO.1
Make	SIEMENS
Country of Origin	
Model No	LPK03933019
Serial No	
Voltage (V)	400
Current (A)	45
Power	kW
	☒ HP
Pole	
Power Factor	0.85
Speed (rpm)	980
Year of Manufac.	

STARTER															
WASA ID	DS-E-ABDULLAH PUR NO.1						Country of Origin	JAPAN							
Make	FUJI						Year of Manufac.								
Type	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒ 400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒ V	☒ A	☒ PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☐ UV	☐ OV	☐ DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	BT	☐	Others :
Operation	Manual		☐		Auto										

<u>Photo</u> 	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Abdullah Pur			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-ABDULLAH PUR NO.1			Master Plan Facility ID	East-9				
Function									
Location (Address)	ABDULLAH PUR CANAL ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	9-2	Survey Date	11-Oct
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☐	cfs	
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☐
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☐
	☐
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :			
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :							
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	
Operation	☐	Manual	☐	Auto											

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Abdullah Pur			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-ABDULLAH PUR NO.1			Master Plan Facility ID	East-9				
Function									
Location (Address)	ABDULLAH PUR CANAL ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	9-3	Survey Date	11-Oct
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PUMP			
WASA ID	DS-E-ABDULLAH PUR NO.3		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
		cfs	
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒
		Belt	
Accessory	Pressure Gauge		

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-ABDULLAH PUR NO.3		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
		HP	
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER														
WASA ID	DS-E-ABDULLAH PUR NO.3					Country of Origin								
Make						Year of Manufac.								
Type		DOL		SD		SS		AT		VFD		Others :		
Voltage	☒	400 V		3.3 kV		11kV		Others :						
Instruments	☒	V	☒	A	☒	PF		kW		kVA		kWh		Others :
Protection		UV		OV		DG		EF		OL		OT		SL
Operation		Manual			Auto									

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION					
Name	Abdullah Pur	Type		Water Supply	☒ Sewerage and Drainage ☐ DP/S ☒ LP/S
WASA Facility ID	DS-E-ABDULLAH PUR NO.1	Master Plan Facility ID	East-9		
Function					
Location (Address)	ABDULLAH PUR CANAL ROAD FAISALABAD				
Year of Construction			Year of Operation Start		

Sheet No.	9-4	Survey Date	
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TRANSFORMER	
WASA ID	DS-E-JHUMRA ROAD NO.1
Make	PEL
Country of Origin	PAKISTAN
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	50KVA
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	☒ kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Mansoorabad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DE-E-MANSOORABAD NO.1			Master Plan Facility ID	East-10				
Function									
Location (Address)	MANSOORABAD CANAL ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	10-1	Survey Date	11-Oct
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PUMP			
WASA ID	DE-E-MANSOORABAD NO.1		
Make	KCB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
		feet	
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DE-E-MANSOORABAD NO.1		
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER															
WASA ID	DE-E-MANSOORABAD NO.1				Country of Origin	KOREA									
Make	HYUNDAI				Year of Manufac.										
Type		DOL		SD		SS		AT		VFD		Others :			
Voltage	☒	400 V		3.3 kV		11kV		Others :							
Instruments	☒	V	☒	A	☒	PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF		OL		OT	SL	BT	Others :
Operation		Manual		Auto											

<u>Photo</u>		
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Mansoorabad	Type		Water Supply	☒	Sewerage and Drainage			
						☐	☒	☐	DP/S LP/S
WASA Facility ID	DE-E-MANSOORABAD NO.1	Master Plan Facility ID		East-10					
Function									
Location (Address)	MANSOORABAD CANAL ROAD FAISALABAD								
Year of Construction			Year of Operation Start						

Sheet No.	10-2	Survey Date	
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PUMP			
WASA ID	DS-E-MANSOORABAD NO.2		
Make	KCB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling	☐	Direct	☒
	☐	Belt	
Accessory	Pressure Gauge		

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-MANSOORABAD NO.2		
Make	SIEMENS		
Country of Origin			
Model No			
Serial No			
Voltage (V)	220		
Current (A)	60		
Power		kW	
	☒	HP	60
Pole			
Power Factor			
Speed (rpm)	960		
Year of Manufac.			

STARTER																
WASA ID	DS-E-MANSOORABAD NO.2						Country of Origin	KOREA								
Make	HYUNDAI						Year of Manufac.									
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☒	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	
Operation	☐	Manual	☐	Auto												

Photo  

Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Mansoorabad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DE-E-MANSOORABAD NO.1			Master Plan Facility ID	East-10				
Function									
Location (Address)	MANSOORABAD CANAL ROAD FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	10-3	Survey Date	
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☐	cfs	
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☐
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☐	HP	
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :			
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :							
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :	
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	
Operation	☐	Manual	☐	Auto											

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION					
Name	Mansoorabad	Type		Water Supply	☒ Sewerage and Drainage ☐ DP/S ☒ LP/S
WASA Facility ID	DE-E-MANSOORABAD NO.1	Master Plan Facility ID	East-10		
Function					
Location (Address)	MANSOORABAD CANAL ROAD FAISALABAD				
Year of Construction			Year of Operation Start		

Sheet No.	10-4	Survey Date	
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TRANSFORMER	
WASA ID	DS-E-JHUMRA ROAD NO.1
Make	PEL
Country of Origin	PAKISTAN
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	50KVA
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

Photo



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	☒ kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed

Photo



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhal Khanuana			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-JHAL KHANUANA NO.1			Master Plan Facility ID	East-11				
Function									
Location (Address)	JHAL KHANUANA NEAR JHAL UNDERPASS FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	11-1	Survey Date	2017/10/11
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PUMP			
WASA ID	DS-E-JHAL KHANUANA NO.1		
Make	PECO		
Country of Origin	PAKISTAN		
Model No	CNP100-400		
Serial No			
Type	HORIZONTAL		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	2
Head		m	
		feet	
Speed (rpm)	960		
Year of Manufac.	2015		
Motor Coupling	Direct	☒	Belt
Accessory	Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-E-JHAL KHANUANA NO.1
Make	PECO
Country of Origin	PAKISTAN
Model No	LPK04536411
Serial No	
Voltage (V)	400
Current (A)	15
Power	☒ kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	960
Year of Manufac.	

STARTER																		
WASA ID	DS-E-JHAL KHANUANA NO.1					Country of Origin												
Make						Year of Manufac.												
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	Others :							
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :											
Instruments	☒	V	☒	A	☒	PF	☐	kW	☐	kVA	☐	kWh	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	BT	Others :	
Operation	☐	Manual			☐	Auto												

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhal Khanuana			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-E-JHAL KHANUANA NO.1			Master Plan Facility ID	East-11				
Function									
Location (Address)	JHAL KHANUANA NEAR JHAL UNDERPASS FAISALABAD								
Year of Construction				Year of Operation Start					

Sheet No.	11-2	Survey Date	11-Oct
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PUMP			
WASA ID	DS-E-JHAL KHANUANA NO.2		
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	2
Head		m	
		feet	
Speed (rpm)	1460		
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	Pressure Gauge		

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-E-JHAL KHANUANA NO.1		
Make	SIEMENS		
Country of Origin	PAKISTAN		
Model No	LPK1202230		
Serial No			
Voltage (V)	400		
Current (A)	34		
Power		kW	
	☒	HP	25
Pole			
Power Factor	0.84		
Speed (rpm)	1460		
Year of Manufac.	1982		

STARTER																			
WASA ID	DS-E-JHAL KHANUANA NO.1					Country of Origin													
Make						Year of Manufac.													
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :											
Instruments	☒	V	☒	A	☒	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☐	Manual	☐	Auto															

Photo



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Jhal Khanuana	Type		Water Supply	☒	Sewerage and Drainage	
						☐	☒
						☐	☐
WASA Facility ID	DS-E-JHAL KHANUANA NO.1	Master Plan Facility ID	East-11				
Function							
Location (Address)	JHAL KHANUANA NEAR JHAL UNDERPASS FAISALABAD						
Year of Construction			Year of Operation Start				

Sheet No.	11-3	Survey Date	
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TRANSFORMER	
WASA ID	DS-E-DAWOOD CHOWK NO.1
Make	PEL
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	200KVA
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	☒ kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	
	not installed

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Sitara Colony			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	East-12				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	12-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	1
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL
Operation	☐	Manual	☐	Auto									

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Tariqabad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-1				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	13-1	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Type		HORIZONTAL	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	1.5
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																		
WASA ID												Country of Origin						
Make		LOCAL										Year of Manufac.						
Type		DOL	☒	SD		SS		AT		VFD		Others :						
Voltage		400 V		3.3 kV		11kV		Others :										
Instruments		V		A		PF		kW		kVA		kWh	Others :					
Protection		UV		OV		DG		EF		OL		OT		SL		BT		Others :
Operation		Manual		Auto														



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Tariqabad			Type		Water Supply	☒	Sewerage and Drainage	
WASA Facility ID				Master Plan Facility ID	West-1				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	13-2	Survey Date	
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PUMP			
WASA ID			
Make	PECO		
Country of Origin	PAKISTAN		
Model No	PCOCNP150135		
Serial No			
Type	HORIZONTAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	2
Head	☐	m	
	☐	feet	
Speed (rpm)	960		
Year of Manufac.	2012		
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)	980		
Year of Manufac.			

STARTER															
WASA ID							Country of Origin								
Make	LOCAL						Year of Manufac.								
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :			
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :							
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	SL	BT	Others :
Operation	☐	Manual	☐	Auto											

Photo

Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Tariqabad	Type		Water Supply	☒	Sewerage and Drainage	
						☐	☒
						☐	☐
WASA Facility ID		Master Plan Facility ID	West-1				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	13-3	Survey Date	
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TRANSFORMER	
WASA ID	
Make	ELEMETEC
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	50
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Chenab Chowk (Chenab Club)			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-2				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	14-1	Survey Date	
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PUMP			
WASA ID			
Make	KSB		
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	2
Head		m	
	☒	feet	30
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)	950		
Year of Manufac.	2000		

STARTER																		
WASA ID						Country of Origin												
Make						Year of Manufac.												
Type		DOL	☒	SD	☒	SS		AT		VFD		Others :						
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :				
Protection		UV		OV		DG		EF	☒	OL		OT		SL		BT		Others :
Operation	☒	Manual		Auto														

<u>Photo</u>		
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Chenab Chowk (Chenab Club)			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-2				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	14-2	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKSITAN	
Model No			
Serial No			
Type		Horizontal Shaft	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	2
Head	☐	m	
	☒	feet	30
Speed (rpm)		900	
Year of Manufac.		2000	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)		950	
Year of Manufac.		2000	

STARTER																
WASA ID					Country of Origin											
Make					Year of Manufac.											
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Chenab Chowk (Chenab Club)		Type			Water Supply	☒	Sewerage and Drainage	
							☐	DP/S	☒
							☐	LP/S	
WASA Facility ID			Master Plan Facility ID	West-2					
Function									
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	14-3	Survey Date		Item	Transformer/Generator		
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TRANSFORMER	
WASA ID	
Make	ELMETC
Country of Origin	PAKISTAN
Model No	
Serial No	
Type of Cooling	ON
Capacity (kVA)	50
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2000
Number of Incoming Line from FESCO	1

GENERATOR		
WASA ID		
Make		
Country of Origin		
Model No		
Serial No		
Rated Output	kVA	
	kW	
	HP	
Rated Voltage (V)		
Year of Manufac.		
Fuel Day Tank Capacity (L)		
		not installed

Photo



Photo

Maintenance Record

Maintenance Record

Comments

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Akberabad			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-3				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	15-1	Survey Date	
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Item	No.1 Pump/Motor/Starter
------	-------------------------

PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☐	HP	
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																
WASA ID											Country of Origin					
Make											Year of Manufac.					
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	BT	Others :
Operation	☐	Manual		☐	Auto											

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Akberabad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-3				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	15-2	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin			
Model No			
Serial No			
Type		Horizontal	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	40
Speed (rpm)		950	
Year of Manufac.		1992	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin			
Model No			
Serial No			
Voltage (V)		400	
Current (A)			
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.		1992	

STARTER																		
WASA ID												Country of Origin						
Make												Year of Manufac.						
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :										
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :
Operation	☒	Manual	☐	Auto														

Photo  	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Akberabad	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-3						
Function									
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	15-3	Survey Date	
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PUMP			
WASA ID			
Make	KSB		
Country of Origin			
Model No			
Serial No			
Type	Horizontal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	40
Speed (rpm)	950		
Year of Manufac.	1992		
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin			
Model No			
Serial No			
Voltage (V)	400		
Current (A)	60		
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.	1992		

STARTER																			
WASA ID											Country of Origin								
Make											Year of Manufac.								
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :											
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☒	Manual	☐	Auto															

<u>Photo</u>  	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Akberabad			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-3				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	15-4	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAK	
Model No		KWP 200/400 0-2	
Serial No			
Type		Horizontal	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	400
Speed (rpm)		960	
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No		170223036A	
Serial No			
Voltage (V)		400	
Current (A)		63	
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		1380	
Year of Manufac.		2017	

STARTER																
WASA ID								Country of Origin								
Make								Year of Manufac.								
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

<u>Photo</u>	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Akberabad			Type			Water Supply	☒ Sewerage and Drainage	
							☒ DP/S		LP/S
WASA Facility ID				Master Plan Facility ID	West-3				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	15-5	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Type		Horizontal	
Capacity	☐ m ³ /h		
	☐ m ³ /min		
	☐ l/sec		
	☒ cfs	6	
Head	☐ m		
	☒ feet	40	
Speed (rpm)		950	
Year of Manufac.		1992	
Motor Coupling		☐ Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER													
WASA ID				Country of Origin									
Make				Year of Manufac.									
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :					
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	Others :
Operation	☒	Manual	☐	Auto									

<u>Photo</u>	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Akberabad	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-3				
Function							
Location (Address)							
Year of Construction		Year of Operation Start					

Sheet No.	15-6	Survey Date	
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TRANSFORMER	
WASA ID	
Make	PEL
Country of Origin	PAKISTAN
Model No	
Serial No	
Type of Cooling	ON
Capacity (kVA)	200
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	2012
Number of Incoming Line from FESCO	1

<u>Photo</u>	
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<u>Maintenance Record</u>	
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<u>Comments</u>	
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Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	CUMMENZ	
Country of Origin		
Model No	3529035	
Serial No	1F2894019	
Rated Output	☒ kVA	210
	☐ kW	
	☐ HP	
Rated Voltage (V)		
Year of Manufac.	1995	
Fuel Day Tank Capacity (L)		
	not installed	

<u>Photo</u>	
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<u>Maintenance Record</u>	
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<u>Comments</u>	
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EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-4						
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	16-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 300/500 D-2		
Serial No	14-208		
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	Pakistan		
Model No	1LA4 283-6AA90		
Serial No			
Voltage (V)	440		
Current (A)	75		
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)	980		
Year of Manufac.	1996		

STARTER																
WASA ID						Country of Origin										
Make						Year of Manufac.										
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

Photo		
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Maintenance Record

<u>Comments</u> Pump is in operating condition.
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Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-4						
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	16-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 300/500 D-2		
Serial No	14-208		
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No	YE2VP-280M-6		
Serial No	22017004		
Voltage (V)	440		
Current (A)	57.3		
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor	0.86		
Speed (rpm)	980		
Year of Manufac.	212017		

STARTER																
WASA ID						Country of Origin										
Make						Year of Manufac.										
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

Photo	 	
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Maintenance Record

<u>Comments</u> Pump is in operating condition.
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Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-4						
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	16-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 300/500 D-2		
Serial No	14-208		
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	PAKISTAN		
Model No	1LA4-283-6AA-60		
Serial No			
Voltage (V)	440		
Current (A)	75		
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor	0.86		
Speed (rpm)	980		
Year of Manufac.	1995		

STARTER																		
WASA ID						Country of Origin												
Make						Year of Manufac.												
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :										
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	BT	☐	Others :
Operation	☒	Manual	☐	Auto														

Photo		
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Maintenance Record

Comments Motor is removed and pump is inoparable.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony			Type		Water Supply	☒	Sewerage and Drainage	
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-4				
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	16-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	SIEMENS
Country of Origin	PAKISTAN
Model No	1LA4-283-6AA60
Serial No	
Voltage (V)	440
Current (A)	75
Power	kW
	☒ HP
Pole	
Power Factor	0.86
Speed (rpm)	980
Year of Manufac.	1995

STARTER															
WASA ID							Country of Origin								
Make							Year of Manufac.								
Type		DOL	☒	SD		SS		AT		VFD		Others :			
Voltage	☒	400 V		3.3 kV		11kV		Others :							
Instruments	☒	V	☒	A		PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF	☒	OL		OT	SL	BT	Others :
Operation	☒	Manual		Auto											

Photo	
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Maintenance Record

<u>Comments</u> Pump is installed in a pit.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-4						
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	16-5	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	40
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																			
WASA ID											Country of Origin								
Make											Year of Manufac.								
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :											
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☒	Manual	☐	Auto															

Photo	 	
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-4				
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	16-6	Survey Date	May 2017
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PUMP			
WASA ID			
Make		KSB	
Country of Origin			
Model No		KWP 2001400 D-2	
Serial No			
Type		Horizontal Shaft Centrifugal	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)		960	
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.6 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																
WASA ID					Country of Origin											
Make					Year of Manufac.											
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☐	Manual	☐	Auto												

Photo	 	
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-4				
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	16-7	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Submersible		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	8
Head		m	
	☒	feet	60
Speed (rpm)	950		
Year of Manufac.	2005		
Motor Coupling		Direct	Belt
Accessory		Pressure Gauge	

Item	No.7 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	60
Pole			
Power Factor			
Speed (rpm)	950		
Year of Manufac.	2005		

STARTER																
WASA ID											Country of Origin					
Make											Year of Manufac.					
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh	Others :			
Protection		UV		OV		DG		EF	☒	OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

Photo		
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Maintenance Record

<u>Comments</u> Four submersible pumps are installed.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulistan Colony	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-4						
Function	discharging to Drainage Channel No.1 through PS38								
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	16-8	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type	Submersible		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	10
Head	☐	m	
	☒	feet	40
Speed (rpm)	980		
Year of Manufac.	2005		
Motor Coupling	☐	Direct	☐
Accessory	☐	Pressure Gauge	

Item	No.8 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Voltage (V)	440		
Current (A)	75		
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)	980		
Year of Manufac.	2005		

STARTER														
WASA ID						Country of Origin								
Make						Year of Manufac.								
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :		
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :						
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :	
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL
Operation	☒	Manual	☐	Auto										

Photo		
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Maintenance Record

<u>Comments</u> Four submersible pumps are installed.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Gulistan Colony	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-4				
Function	discharging to Drainage Channel No.1 through PS38						
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	16-9	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	ELMETEC
Country of Origin	PAKISTAN
Model No	ETO400/11
Serial No	E213
Type of Cooling	ONAN
Capacity (kVA)	400
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2012
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	Denyo	
Country of Origin	Japan	
Model No	DCA-400SPKII	
Serial No	3878404	
Rated Output	☒ kVA	400
	☐ kW	
	☐ HP	
Rated Voltage (V)	200/400	
Year of Manufac.		
Fuel Day Tank Capacity (L)	☒ not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Millat Town B-Block			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-5				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	17-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		Pakistan	
Model No		KWP-150-135	
Serial No		3118-2	
Type		Horizontal Shaft Centrifugal	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	2
Head	☐	m	
	☒	feet	40
Speed (rpm)		1500	
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		PECO	
Country of Origin		Pakistan	
Model No		KC326-4	
Serial No			
Voltage (V)		380/420	
Current (A)		52.6	
Power	☐	kW	
	☒	HP	40
Pole		4	
Power Factor			
Speed (rpm)		1480	
Year of Manufac.			

STARTER													
WASA ID		DS-W-PSMT-001				Country of Origin							
Make						Year of Manufac.							
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL
Operation	☐	Manual		☐	Auto								



<u>Maintenance Record</u>

<u>Comments</u> Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Millat Town B-Block			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-5				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	17-2	Survey Date	May 2017
-----------	------	-------------	----------

PUMP			
WASA ID			
Make		KSB	
Country of Origin		Pakistan	
Model No		KWP 150/315 D-2	
Serial No		18-4198	
Type		Horizontal Shaft Centrifugal	
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	2
Head		m	
	☒	feet	42
Speed (rpm)		960	
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																
WASA ID					Country of Origin											
Make					Year of Manufac.											
Type		DOL		SD		SS		AT		VFD		Others :				
Voltage		400 V			3.3 kV			11kV			Others :					
Instruments		V		A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation		Manual			Auto											

Photo	
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Maintenance Record

Comments Motor is removed and pump is inoperable.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Millat Town B-Block	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID		West-5			
Function	discharging to Paharang Drain						
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	17-3	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	SIEMENS
Country of Origin	PAKISTAN
Model No	TSUN5341
Serial No	LPK20240369
Type of Cooling	ON
Capacity (kVA)	200
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2002
Number of Incoming Line from FESCO	1

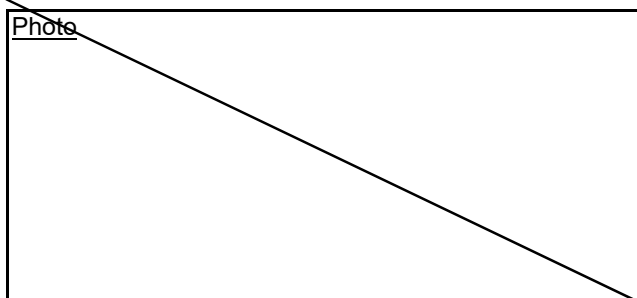


Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadman			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-6				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	18-1	Survey Date	
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.	1995		
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Voltage (V)	400		
Current (A)			
Power		kW	
	☒	HP	75
Pole			
Power Factor	0.86		
Speed (rpm)	980		
Year of Manufac.	1995		

STARTER																
WASA ID									Country of Origin							
Make									Year of Manufac.							
Type		DOL		SD		SS		AT		VFD		Others :				
Voltage		400 V			3.3 kV			11kV			Others :					
Instruments		V		A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation		Manual			Auto											

<u>Photo</u> 		
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadman			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-6				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	18-2	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Type		KWP-200/400 0-2	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	50
Speed (rpm)		960	
Year of Manufac.		1995	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Voltage (V)		400	
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		960	
Year of Manufac.		1995	

STARTER																
WASA ID								Country of Origin								
Make								Year of Manufac.								
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	BT	Others :
Operation	☐	Manual		☐	Auto											

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadman			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-6				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	18-3	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No		KWP-200/400 0-2	
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	50
Speed (rpm)		960	
Year of Manufac.		1995	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Voltage (V)		400	
Current (A)			
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		960	
Year of Manufac.		1995	

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL BT Others :
Operation	☐	Manual		☐	Auto								

<u>Photo</u>  	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadman			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-6				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	18-4	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	65
Speed (rpm)		960	
Year of Manufac.		1995	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Voltage (V)		400	
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		982	
Year of Manufac.		1995	

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual				Auto							

<u>Photo</u>  

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Shadman	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-6				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	18-5	Survey Date	
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TRANSFORMER	
WASA ID	
Make	PEL
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	200
Primary Voltage (V)	400
Secondary Voltage (V)	
Year of Manufac.	1995
Number of Incoming Line from FESCO	1



Maintenance Record

Comments 2 Numober of transformers installed. 100kVA and 200kVA. PEL Company.

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	SIEMENS/CUMMENZ	
Country of Origin		
Model No	LTA-10G2	
Serial No	35002812	
Rated Output	☒ kVA	210
	☐ kW	
	☒ HP	310
Rated Voltage (V)	400	
Year of Manufac.	2000	
Fuel Day Tank Capacity (L)	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-28 Noor Pur			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-7				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	19-1	Survey Date	
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PUMP			
WASA ID			
Make	Local		
Country of Origin			
Model No			
Serial No			
Type	Horizontal		
Capacity	m ³ /h		
	m ³ /min		
	l/sec		
	☒ cfs	4	
Head	m		
	☒ feet	40	
Speed (rpm)	950		
Year of Manufac.			
Motor Coupling	Direct	☒	Belt
Accessory	Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	kW		
	☒ HP	50	
Pole			
Power Factor			
Speed (rpm)	950		
Year of Manufac.			

STARTER																		
WASA ID									Country of Origin									
Make	Local								Year of Manufac.									
Type	DOL	☒	SD	☒	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	400 V		3.3 kV		11kV		Others :											
Instruments	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :						
Protection	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	☐	BT	☐	Others :	
Operation	Manual		☐		Auto													



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-28 Noor Pur			Type			Water Supply	☒	Sewerage and Drainage
WASA Facility ID				Master Plan Facility ID	West-7				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	19-2	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No		KVPK 350/500	
Serial No			
Type		Vertical	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☒	feet	65
Speed (rpm)		950	
Year of Manufac.		2005	
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Voltage (V)		400	
Current (A)		130	
Power	☐	kW	
	☒	HP	125
Pole			
Power Factor			
Speed (rpm)		950	
Year of Manufac.		2005	

STARTER																		
WASA ID					Country of Origin					ENGLAND								
Make					Year of Manufac.													
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :							
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	☐	BT	☐	Others :
Operation	☐	Manual		☐	Auto													

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-28 Noor Pur			Type			Water Supply	☒	Sewerage and Drainage
								☐	DP/S ☒ LP/S
WASA Facility ID				Master Plan Facility ID	West-7				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	19-3	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No		KVPK 350/500	
Serial No			
Type		Vertical	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☐	feet	
Speed (rpm)		950	
Year of Manufac.		2005	
Motor Coupling		☐ Direct	☐ Belt
Accessory		☐ Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Voltage (V)		400	
Current (A)		130	
Power	☐	kW	
	☒	HP	125
Pole			
Power Factor			
Speed (rpm)		950	
Year of Manufac.		2005	

STARTER																			
WASA ID								Country of Origin								ENGLAND			
Make								Year of Manufac.								1998			
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	☐	BT	☐	Others :	
Operation	☐	Manual		☐	Auto														

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-28 Noor Pur			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-7				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	19-4	Survey Date	
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PUMP			
WASA ID			
Make	TORISHIMA		
Country of Origin			
Model No			
Serial No			
Type	Cortan Shaft		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	8
Head		m	
	☒	feet	60
Speed (rpm)	750		
Year of Manufac.	1992		
Motor Coupling	☒	Direct	☐ Belt
Accessory	Pressure Gauge		

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin			
Model No			
Serial No			
Voltage (V)	400		
Current (A)			
Power		kW	
	☒	HP	60
Pole			
Power Factor			
Speed (rpm)	1400		
Year of Manufac.	1992		

STARTER														
WASA ID						Country of Origin	ENGLAND							
Make						Year of Manufac.	1998							
Type	☐ DOL	☐ SD	☒ SS	☐ AT	☐ VFD	Others :								
Voltage	400 V		3.3 kV		11kV		Others :							
Instruments	☐ V	☐ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :							
Protection	☐ UV	☐ OV	☐ DG	☐ EF	☐ OL	☒ OT	☐ SL	☐ BT	Others :					
Operation	Manual		Auto											

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-28 Noor Pur			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-7				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	19-5	Survey Date	
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PUMP			
WASA ID			
Make		TORISHIMA	
Country of Origin			
Model No			
Serial No			
Type		CORTAN SHAFT	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	8
Head	☐	m	
	☒	feet	60
Speed (rpm)		750	
Year of Manufac.		1992	
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																			
WASA ID					Country of Origin														
Make					Year of Manufac.														
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :						
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	☐	BT	☐	Others :	
Operation	☐	Manual		☐	Auto														

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-28 Noor Pur		Type		Water Supply	☒	Sewerage and Drainage		
							☐	☒	☐
WASA Facility ID			Master Plan Facility ID	West-7					
Function									
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	19-6	Survey Date		Item	No.1 Transformer/Generator				
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TRANSFORMER	
WASA ID	
Make	SIEMENS
Country of Origin	
Model No	
Serial No	
Type of Cooling	ON
Capacity (kVA)	400
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	1995
Number of Incoming Line from FESCO	

GENERATOR		
WASA ID		
Make		
Country of Origin		
Model No		
Serial No		
Rated Output	kVA	
	kW	
	HP	
Rated Voltage (V)		
Year of Manufac.		
Fuel Day Tank Capacity (L)		
		not installed

Photo



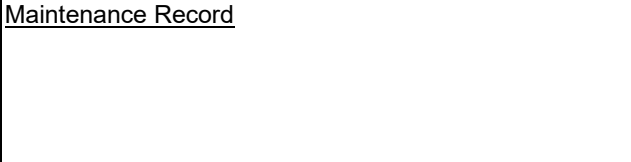
Photo



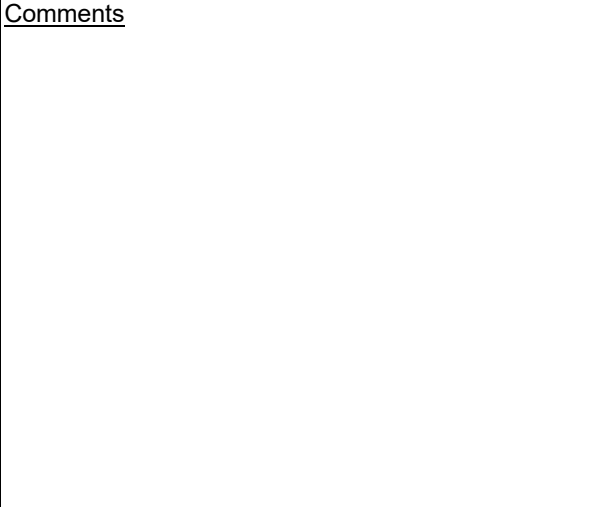
Maintenance Record



Maintenance Record



Comments



Comments



EQUIPMENT SHEET

FACILITY INFORMATION					
Name	PS-28 Noor Pur	Type		Water Supply	☒ Sewerage and Drainage ☐ DP/S ☒ LP/S
WASA Facility ID		Master Plan Facility ID	West-7		
Function					
Location (Address)					
Year of Construction		Year of Operation Start			

Sheet No.	19-7	Survey Date	
-----------	------	-------------	--

TRANSFORMER	
WASA ID	
Make	CLIMAX
Country of Origin	
Model No	
Serial No	
Type of Cooling	ON
Capacity (kVA)	400
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	1995



Maintenance Record

Comments

Item	No.2 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	CUMENZ
Country of Origin	
Model No	
Serial No	
Rated Output	☒ kVA 310
	☐ kW
	☐ HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-30 Bawa Chak			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-8				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	20-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make	Torishima		
Country of Origin	Japan		
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	13
Head		m	
	☒	feet	40
Speed (rpm)	700		
Year of Manufac.	1994		
Motor Coupling	☒	Direct	☐ Belt
Accessory	Pressure Gauge		

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	Mareli Motori
Country of Origin	Italy
Model No	A4C 280-040
Serial No	C 26927
Voltage (V)	440
Current (A)	100
Power	kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	1400
Year of Manufac.	

STARTER																		
WASA ID						Country of Origin												
Make						Year of Manufac.												
Type		DOL	☒	SD		SS		AT		VFD		Others :						
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V		A		PF		kW		kVA		kWh		Others :				
Protection		UV	☒	OV		DG		EF	☒	OL		OT		SL		BT		Others :
Operation	☒	Manual		Auto														

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-30 Bawa Chak			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-8				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	20-2	Survey Date	
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PUMP			
WASA ID			
Make		Torishima	
Country of Origin		Japan	
Model No		APC 74168	
Serial No			
Type		CFV-600	
Capacity	☐	m ³ /h	
	☒	m ³ /min	42.75
	☐	l/sec	
	☒	cfs	25
Head	☒	m	8
	☐	feet	
Speed (rpm)		485	
Year of Manufac.		2013	
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Japan	
Model No	
IDF-CVKWII	
Serial No	
E 139700 HF	
Voltage (V)	
400	
Current (A)	
250	
Power	☒ kW
	90
	HP
Pole	
12	
Power Factor	
Speed (rpm)	
Year of Manufac.	
2013	

STARTER																
WASA ID					Country of Origin					Korea						
Make					Year of Manufac.					2013						
Type	☐	DOL	☐	SD	☐	SS	☒	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☒	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												

<u>Photo</u> 

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-30 Bawa Chak			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-8				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	20-3	Survey Date	
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PUMP			
WASA ID			
Make		Torishima	
Country of Origin		Japan	
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	13
Head		m	
	☒	feet	40
Speed (rpm)		700	
Year of Manufac.		1994	
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Maseli Motori	
Country of Origin	
Italy	
Model No	
A 4C280-040	
Serial No	
C 26927	
Voltage (V)	
440	
Current (A)	
100	
Power	kW
	☒ HP
100	
Pole	
Power Factor	
Speed (rpm)	
1400	
Year of Manufac.	

STARTER																
WASA ID					Country of Origin											
Make					Year of Manufac.											
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V		A		PF		kW		kVA		kWh	Others :			
Protection		UV	☒	OV		DG		EF	☒	OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

<u>Photo</u> 	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-30 Bawa Chak			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-8				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	20-4	Survey Date	May 2017
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PUMP			
WASA ID	DS-W-PS30-004		
Make	Torishima		
Country of Origin	Japan		
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	13
Head	☐	m	
	☒	feet	40
Speed (rpm)	700		
Year of Manufac.	1994		
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐ Pressure Gauge		

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	Mareli Motori		
Country of Origin	Italy		
Model No	A4C280-040		
Serial No	C26927		
Voltage (V)	440		
Current (A)	100		
Power	☐	kW	
	☒	HP	100
Pole			
Power Factor			
Speed (rpm)	1400		
Year of Manufac.			

STARTER																			
WASA ID											Country of Origin								
Make											Year of Manufac.								
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :											
Instruments	☒	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☒	Manual	☐	Auto															

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-30 Bawa Chak	Type		Water Supply	☒	Sewerage and Drainage	☒
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-8				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	20-5	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	CLIMAX
Country of Origin	Pakistan
Model No	
Serial No	
Type of Cooling	ON
Capacity (kVA)	400
Primary Voltage (V)	415
Secondary Voltage (V)	415
Year of Manufac.	
Number of Incoming Line from FESCO	

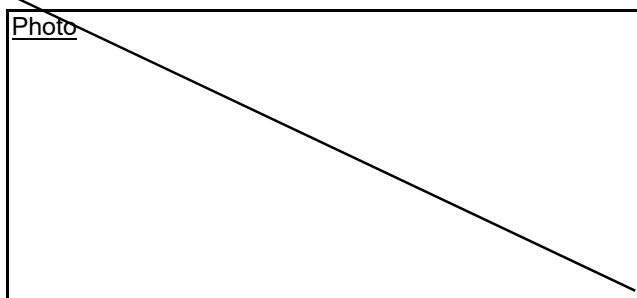


Maintenance Record

Comments

Item	No.1 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-30 Bawa Chak	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-8				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	20-6	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	CLIMAX
Country of Origin	Pakistan
Model No	
Serial No	
Type of Cooling	ON
Capacity (kVA)	400
Primary Voltage (V)	415
Secondary Voltage (V)	415
Year of Manufac.	

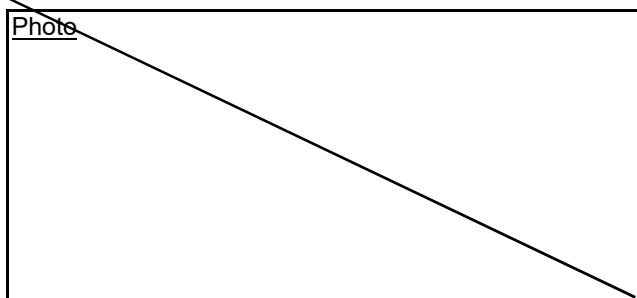


Maintenance Record

Comments

Item	No.2 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-1	Survey Date	May 2017
-----------	------	-------------	----------

PUMP			
WASA ID			
Make		KSB	
Country of Origin		Pakistan	
Model No		1LG4 313-6AAH	
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	15
Head		m	
	☒	feet	40
Speed (rpm)		988	
Year of Manufac.		2005	
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	☒ HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																
WASA ID					Country of Origin		Pakistan									
Make		PAMPAK			Year of Manufac.		2005									
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :		
Protection	☒	UV	☒	OV		DG		EF		OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-2	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	1LG4 313-6AA61		
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	15
Head		m	
	☒	feet	40
Speed (rpm)	900		
Year of Manufac.	2005		
Motor Coupling	☒	Direct	☐ Belt
Accessory	☒	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	Siemens		
Country of Origin	Pakistan		
Model No			
Serial No			
Voltage (V)	400		
Current (A)	130		
Power		kW	
	☒	HP	125
Pole			
Power Factor			
Speed (rpm)	900		
Year of Manufac.	2005		

STARTER																
WASA ID						Country of Origin	Pakistan									
Make	PAMPAK					Year of Manufac.	2005									
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :		
Protection	☒	UV	☒	OV		DG		EF		OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-3	Survey Date	
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No	1LG4 313-6AA61		
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	15
Head		m	
	☒	feet	40
Speed (rpm)	988		
Year of Manufac.	2005		
Motor Coupling	☒	Direct	Belt
Accessory	☒	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Voltage (V)	400		
Current (A)	130		
Power		kW	
	☒	HP	125
Pole			
Power Factor			
Speed (rpm)	900		
Year of Manufac.	2005		

STARTER																
WASA ID							Country of Origin	PAKISTAN								
Make	PAMPAK						Year of Manufac.	2005								
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :		
Protection	☒	UV	☒	OV		DG		EF		OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												

Photo

Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-4	Survey Date	
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☐
Accessory	☐	Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	KSB
Country of Origin	PAKISTAN
Model No	VE2VP 315L-8V1
Serial No	622017002
Voltage (V)	400
Current (A)	178
Power	☐ kW
	☒ HP
Pole	
Power Factor	0.82
Speed (rpm)	75-740
Year of Manufac.	

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :			
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :				
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :	
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	
Operation	☐	Manual		☐	Auto										

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-5	Survey Date	
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PUMP			
WASA ID			
Make		MIRAJ	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☒	feet	40
Speed (rpm)		700	
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No		6833959	
Voltage (V)		400	
Current (A)		130	
Power	☐	kW	
	☒	HP	125
Pole			
Power Factor		0.86	
Speed (rpm)		700	
Year of Manufac.		2012	

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	Others :
Operation	☐	Manual		☐	Auto								

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-6	Survey Date	
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PUMP			
WASA ID			
Make		TORISHIMA	
Country of Origin		JAPAN	
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	13
Head	☐	m	
	☒	feet	40
Speed (rpm)		700	
Year of Manufac.		1994	
Motor Coupling		☐ Direct	☐ Belt
Accessory		☐ Pressure Gauge	

Item	No.6 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		LOCAL	
Country of Origin			
Model No			
Serial No			
Voltage (V)		400	
Current (A)		220	
Power	☐	kW	
	☒	HP	220
Pole			
Power Factor			
Speed (rpm)		700	
Year of Manufac.			

STARTER																		
WASA ID					Country of Origin													
Make					Year of Manufac.													
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :										
Instruments	☒	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☐	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :
Operation	☒	Manual	☐	Auto														

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-38 Ismail	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-9				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	21-7	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	PEL
Country of Origin	PAKISTAN
Model No	IEC-60076
Serial No	DB 630-11
Type of Cooling	ONAN
Capacity (kVA)	630
Primary Voltage (V)	415
Secondary Voltage (V)	11000
Year of Manufac.	
Number of Incoming Line from FESCO	1



Maintenance Record

Comments

Item	No.1 Transformer/Generator
------	----------------------------

GENERATOR		
WASA ID		
Make	DENYO	
Country of Origin	JAPAN	
Model No	DCA-400SPK II	
Serial No	3878 405	
Rated Output	☒ kVA	350, 400
	☒ kW	310 / 357
	HP	
Rated Voltage (V)	200 / 400 220/440	
Year of Manufac.		
Fuel Day Tank Capacity (L)	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-38 Ismail			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-9				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	21-8	Survey Date		Item	No.2 Transformer/Generator				
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	

GENERATOR		
WASA ID		
Make	CUMMINS	
Country of Origin	PAKISTAN	
Model No	QST30-G4	
Serial No	10045	
Rated Output	☒ kVA	1000
	☐ kW	
	☐ HP	
Rated Voltage (V)	400	
Year of Manufac.	2012	
Fuel Day Tank Capacity (L)	1600	
		not installed

Photo

Photo



Maintenance Record

Maintenance Record



Comments

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-19 Bhai Wala			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID	DS-W-PS19			Master Plan Facility ID	West-10				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction	2012			Year of Operation Start	2015				

Sheet No.	22-1	Survey Date	May 2017
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PUMP			
WASA ID	DS-W-PS19-001		
Make	KSB		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Vertical Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	15
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-W-PS19-001
Make	SIEMENS
Country of Origin	Czech
Model No	
Serial No	EPL-0011447712
Voltage (V)	400
Current (A)	140
Power	kW
	☒ HP
Pole	8
Power Factor	0.83
Speed (rpm)	738
Year of Manufac.	2012

STARTER																
WASA ID	DS-W-PS19-001					Country of Origin										
Make	KSB					Year of Manufac.	2012									
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh	Others :			
Protection	☒	UV	☒	OV		DG		EF	☒	OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												



Maintenance Record

Comments Pump is in good operating condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-19 Bhai Wala			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-W-PS19			Master Plan Facility ID	West-10				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction	2012			Year of Operation Start	2015				

Sheet No.	22-2	Survey Date	May 2017
-----------	------	-------------	----------

PUMP			
WASA ID	DS-W-PS19-002		
Make	KSB		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Vertical Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	15
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-W-PS19-002
Make	SIEMENS
Country of Origin	Czech
Model No	
Serial No	EPL-0011447712
Voltage (V)	400
Current (A)	140
Power	kW
	☒ HP 125
Pole	8
Power Factor	0.83
Speed (rpm)	738
Year of Manufac.	2012

STARTER																
WASA ID	DS-W-PS19-002					Country of Origin										
Make	KSB					Year of Manufac.	2012									
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :								
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :		
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☒	Manual	☐	Auto												



Maintenance Record

Comments Pump is in good operating condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-19 Bhai Wala			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID	DS-W-PS19			Master Plan Facility ID	West-10				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction	2012			Year of Operation Start	2015				

Sheet No.	22-3	Survey Date	May 2017
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PUMP			
WASA ID	DS-W-PS19-003		
Make	KSB		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Vertical Shaft Centrifugal		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	10
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	DS-W-PS19-003
Make	SIEMENS
Country of Origin	Czech
Model No	
Serial No	EPL-0011447712
Voltage (V)	400
Current (A)	140
Power	☐ kW
	☒ HP
Pole	8
Power Factor	0.83
Speed (rpm)	738
Year of Manufac.	2012

STARTER													
WASA ID	DS-W-PS19-003				Country of Origin								
Make	KSB				Year of Manufac.	2012							
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	Others :		
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	Others :						
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	SL
Operation	☒	Manual	☐	Auto									



Maintenance Record

Comments Pump is in good operating condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-19 Bhai Wala			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID	DS-W-PS19			Master Plan Facility ID	West-10				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction	2012			Year of Operation Start	2015				

Sheet No.	22-4	Survey Date	May 2017
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PUMP			
WASA ID	DS-W-PS19-004		
Make	KSB		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Vertical Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	10
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID	DS-W-PS19-004		
Make	SIEMENS		
Country of Origin	Czech		
Model No			
Serial No	EPL-0011447712		
Voltage (V)	400		
Current (A)	140		
Power		kW	
	☒	HP	100
Pole	8		
Power Factor	0.83		
Speed (rpm)	738		
Year of Manufac.	2012		

STARTER																
WASA ID	DS-W-PS19-004						Country of Origin									
Make	KSB						Year of Manufac.	2012								
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage	☒	400 V		3.3 kV		11kV		Others :								
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :		
Protection	☒	UV	☒	OV		DG		EF	☒	OL		OT		SL	BT	Others :
Operation	☒	Manual		Auto												



Maintenance Record

Comments Pump is in good operating condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-19 Bhai Wala	Type		Water Supply	☒	Sewerage and Drainage	☒
					☒	DP/S	LP/S
WASA Facility ID	DS-W-PS19	Master Plan Facility ID	West-10				
Function	discharging to Paharang Drain						
Location (Address)							
Year of Construction	2012	Year of Operation Start	2015				

Sheet No.	22-5	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	ELMETEC
Country of Origin	PAKISTAN
Model No	ETO630/1
Serial No	F91
Type of Cooling	ONAN
Capacity (kVA)	630
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2012
Number of Incoming Line from FESCO	

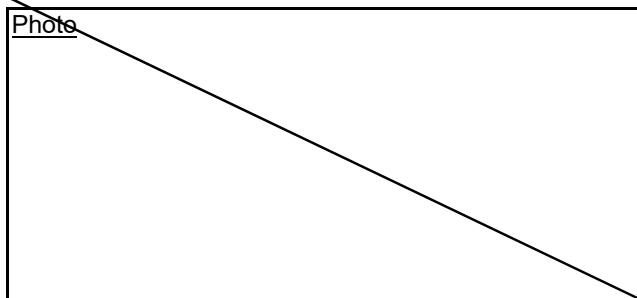


Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-27			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-W-PS27			Master Plan Facility ID	West-11				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	23-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make		KBS	
Country of Origin		Pakistan	
Model No		SEWATEC K250-401 G	
Serial No		9972048895/100/02	
Type		Horizontal Shaft Centrifugal	
Capacity	☒	m ³ /h	612
		m ³ /min	
		l/sec	
		cfs	
Head		m	
	☒	feet	40
Speed (rpm)		978	
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID						Country of Origin							
Make						Year of Manufac.							
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									



Maintenance Record

Comments Pump is in good operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-27			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-W-PS27			Master Plan Facility ID	West-11				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	23-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make		KBS	
Country of Origin		Pakistan	
Model No		SEWATEC K250-401 G	
Serial No		9972048895/100/02	
Type		Horizontal Shaft Centrifugal	
Capacity	☒	m ³ /h	612
		m ³ /min	
		l/sec	
		cfs	
Head		m	
	☒	feet	40
Speed (rpm)		978	
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID						Country of Origin							
Make						Year of Manufac.							
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									



Maintenance Record

Comments Motor and impeller are removed and pump is inoperable.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-27			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-W-PS27			Master Plan Facility ID	West-11				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	23-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make		KBS	
Country of Origin		Pakistan	
Model No		SEWATEC K250-401 G	
Serial No		9972048895/100/02	
Type		Horizontal Shaft Centrifugal	
Capacity	☒ m ³ /h	612	
	☐ m ³ /min		
	☐ l/sec		
	☐ cfs		
Head	☐ m		
	☒ feet	40	
Speed (rpm)		978	
Year of Manufac.			
Motor Coupling	☒ Direct	☐	Belt
Accessory	Pressure Gauge		

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐ kW		
	☒ HP	40	
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID						Country of Origin							
Make						Year of Manufac.							
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL
Operation	☐	Manual	☐	Auto									



Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-27			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID	DS-W-PS27			Master Plan Facility ID	West-11				
Function	discharging to Paharang Drain								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	23-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make		KBS	
Country of Origin		Pakistan	
Model No		SEWATEC K250-401 G	
Serial No		9972048895/100/02	
Type		Horizontal Shaft Centrifugal	
Capacity	☒	m ³ /h	612
		m ³ /min	
		l/sec	
		cfs	
Head		m	
	☒	feet	40
Speed (rpm)		978	
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo	 
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	PS-27	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID	DS-W-PS27	Master Plan Facility ID		West-11			
Function	discharging to Paharang Drain						
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	23-5	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	PAK ELEKTRON LTD
Country of Origin	Pakistan
Model No	IDB-400-11
Serial No	300172
Type of Cooling	ONAN
Capacity (kVA)	400
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2011
Number of Incoming Line from FESCO	1



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID	GEN 03	
Make	PERKINS	
Country of Origin		
Model No		
Serial No		
Rated Output	☒ kVA	135
	☐ kW	
	☐ HP	
Rated Voltage (V)	400	
Year of Manufac.		
Fuel Day Tank Capacity (L)	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Weavers Colony			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-12				
Function	Discharging to Drainage Channel No.1								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	24-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	1
Head		m	
	☒	feet	40
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																	
WASA ID											Country of Origin						
Make											Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :					
Voltage		400 V			3.3 kV			11kV			Others :						
Instruments		V		A		PF		kW		kVA		kWh		Others :			
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :	
Operation		Manual				Auto											

Photo	 	
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Maintenance Record

Comments Pump is in operating condition. Pump foundation is made of bricks.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Weavers Colony	Type		Water Supply	☒	Sewerage and Drainage	☒
						DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-12				
Function	Discharging to Drainage Channel No.1						
Location (Address)							
Year of Construction		Year of Operation Start					

Sheet No.	24-2	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

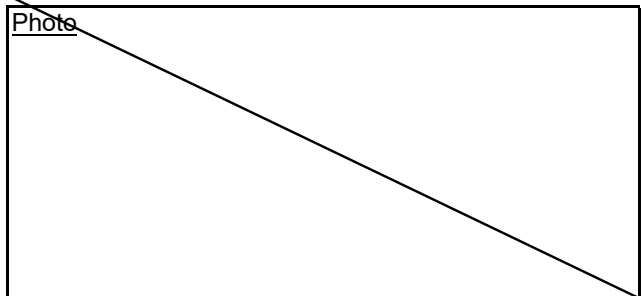


Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	not installed
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Kanak Basti			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-13				
Function	Discharging to Drainage Channel No.1								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	25-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																	
WASA ID											Country of Origin						
Make											Year of Manufac.						
Type		DOL	☒	SD		SS		AT		VFD		Others :					
Voltage	☒	400 V		3.3 kV		11kV		Others :									
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :			
Protection		UV		OV		DG		EF	☒	OL		OT		SL	BT	Others :	
Operation	☒	Manual		Auto													

Photo		
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Kanak Basti			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-13				
Function	Discharging to Drainage Channel No.1								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	25-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL BT Others :
Operation	☐	Manual		☐	Auto								

Photo		
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Maintenance Record

Comments Pump is under repair.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Kanak Basti	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-13				
Function	Discharging to Drainage Channel No.1						
Location (Address)							
Year of Construction		Year of Operation Start					

Sheet No.	25-3	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	SIEMENS
Country of Origin	PAKISTAN
Model No	TSUN5041
Serial No	LPK20230413
Type of Cooling	ON
Capacity (kVA)	100
Primary Voltage (V)	11000
Secondary Voltage (V)	415
Year of Manufac.	2002
Number of Incoming Line from FESCO	1

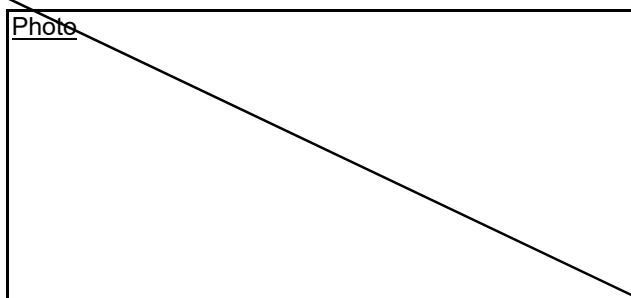


Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulshan Colony	Type		Water Supply	☒	Sewerage and Drainage			
						☐	DP/S	☒	LP/S
WASA Facility ID		Master Plan Facility ID		West-14					
Function									
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	26-1	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin			
Model No			
Serial No		883-472-236	
Type		HORIZONTAL	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	2
Head	☐	m	
	☒	feet	30
Speed (rpm)		1470	
Year of Manufac.		1990	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No			
Serial No		9310787	
Voltage (V)		380	
Current (A)		702	
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		1450	
Year of Manufac.			

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type	☐	DOL	☒	SD	☒	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☒	400 V	☐	3.3 kV	☐	11kV	☐	Others :					
Instruments	☒	V	☒	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☒	OT	Others :
Operation	☒	Manual	☐	Auto									



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulshan Colony			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-14				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	26-2	Survey Date	
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PUMP			
WASA ID			
Make		Local	
Country of Origin			
Model No			
Serial No			
Type		HORIZONTAL	
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	2
Head		m	
	☒	feet	30
Speed (rpm)		1470	
Year of Manufac.		1995	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor		1450	
Speed (rpm)			
Year of Manufac.			

STARTER																		
WASA ID					Country of Origin													
Make					Year of Manufac.													
Type		DOL	☒	SD	☒	SS		AT		VFD		Others :						
Voltage	☒	400 V		3.3 kV		11kV		Others :										
Instruments	☒	V	☒	A		PF		kW		kVA		kWh		Others :				
Protection		UV		OV		DG		EF	☒	OL	☒	OT		SL		BT		Others :
Operation	☒	Manual		Auto														

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Gulshan Colony	Type		Water Supply	☒	Sewerage and Drainage			
						DP/S	☒	LP/S	
WASA Facility ID		Master Plan Facility ID		West-14					
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	26-3	Survey Date	
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

Item	No.1 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	
	not installed

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Gulshan Colony	Type		Water Supply	☒	Sewerage and Drainage	
						☐	DP/S
						☒	LP/S
WASA Facility ID		Master Plan Facility ID	West-14				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	26-4	Survey Date	
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TRANSFORMER	
WASA ID	
Make	PEL
Country of Origin	
Model No	105389
Serial No	
Type of Cooling	
Capacity (kVA)	200
Primary Voltage (V)	440
Secondary Voltage (V)	
Year of Manufac.	2012



Maintenance Record

Comments

Item	No.2 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	
	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Metropole			Type			Water Supply	☒	Sewerage and Drainage
WASA Facility ID				Master Plan Facility ID	West-15				
Function	discharging to PS3 through Trunk Main Sewer								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	27-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 200/400 D-2		
Serial No	14-0195		
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	Pakistan		
Model No	1LA 4 253-6		
Serial No	LPK 03535359		
Voltage (V)	380/400		
Current (A)	72		
Power		kW	
	☒	HP	50
Pole	6		
Power Factor	0.85		
Speed (rpm)	980		
Year of Manufac.	1995		

STARTER													
WASA ID					Country of Origin								
Make					Year of Manufac.								
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo			
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Metropole			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-15				
Function	discharging to PS3 through Trunk Main Sewer								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	27-2	Survey Date	May 2017
-----------	------	-------------	----------

PUMP			
WASA ID			
Make	Yaaly Products		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	50
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER															
WASA ID					Country of Origin										
Make					Year of Manufac.										
Type		DOL		SD		SS		AT		VFD		Others :			
Voltage		400 V		3.3 kV		11kV		Others :							
Instruments		V		A		PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF		OL		OT	SL	BT	Others :
Operation		Manual		Auto											

Photo	 	
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Metropole			Type			Water Supply	☒	Sewerage and Drainage
WASA Facility ID				Master Plan Facility ID	West-15				
Function	discharging to PS3 through Trunk Main Sewer								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	27-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make		Yaaly Products	
Country of Origin		Pakistan	
Model No			
Serial No			
Type		Horizontal Shaft Centrifugal	
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	50
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID								Country of Origin					
Make								Year of Manufac.					
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo			
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Metropole			Type			Water Supply	☒	Sewerage and Drainage
WASA Facility ID				Master Plan Facility ID	West-15				
Function	discharging to PS3 through Trunk Main Sewer								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	27-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make	Yaaly Products		
Country of Origin	Pakistan		
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	50
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V			3.3 kV			11kV			Others :		
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL
Operation		Manual			Auto								

Photo			
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION						
Name	Metropole	Type		Water Supply	☒	Sewerage and Drainage
					☐	DP/S ☒ LP/S
WASA Facility ID		Master Plan Facility ID	West-15			
Function	discharging to PS3 through Trunk Main Sewer					
Location (Address)						
Year of Construction		Year of Operation Start				

Sheet No.	27-5	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin	Pakistan	
Model No	1FC 6 286-4	
Serial No	LKP 08560129	
Rated Output	☒ kVA	210
	☐ kW	
	☐ HP	
Rated Voltage (V)	415	
Year of Manufac.	1995	
Fuel Day Tank Capacity (L)	☒ not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Liaqat Town	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-16						
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	28-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	1
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	15
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL
Operation	☐	Manual	☐	Auto									

Photo			
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Liaqat Town	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-16						
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	28-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	m ³ /h		
	m ³ /min		
	l/sec		
	☒ cfs	1	
Head	m		
	feet		
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	Belt
Accessory	Pressure Gauge		

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	kW		
	☒ HP	15	
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐ DOL	☐ SD	☐ SS	☐ AT	☐ VFD	Others :							
Voltage	400 V		3.3 kV		11kV		Others :						
Instruments	☐ V	☐ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :						
Protection	☐ UV	☐ OV	☐ DG	☐ EF	☐ OL	☐ OT	☐ SL	☐ BT	Others :				
Operation	☐ Manual		☐ Auto										

Photo		
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Maintenance Record

Comments Pump is not in good maintenance condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Liaqat Town	Type		Water Supply	☒	Sewerage and Drainage	☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-16						
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction			Year of Operation Start						

Sheet No.	28-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	2
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	30
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																		
WASA ID											Country of Origin							
Make											Year of Manufac.							
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :						
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :							
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :				
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	BT	☐	Others :
Operation	☐	Manual		☐	Auto													

Photo		
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Maintenance Record

Comments Pump is not in good maintenance condition.
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Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Liaqat Town	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID		West-16			
Function	discharging to Drainage Channel No.3						
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	28-4	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

Item	Transformer/Generator
------	-----------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhang Road			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start	1978				

Sheet No.	29-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL
Operation		Manual		Auto									

Photo	 	
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhang Road			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start	1978				

Sheet No.	29-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 300/500 D-2		
Serial No	14-201		
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	6
Head		m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type		DOL		SD		SS		AT		VFD		Others :	
Voltage		400 V		3.3 kV		11kV		Others :					
Instruments		V		A		PF		kW		kVA		kWh	Others :
Protection		UV		OV		DG		EF		OL		OT	SL BT Others :
Operation		Manual		Auto									

Photo	 	
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhang Road			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start	1978				

Sheet No.	29-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakistan		
Model No	KWPK 300/500 D-2		
Serial No	14-201		
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	6
Head	☐	m	
	☒	feet	65
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	75
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																			
WASA ID						Country of Origin													
Make						Year of Manufac.													
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :											
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :						
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☐	Manual	☐	Auto															

Photo		
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhang Road			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start	1978				

Sheet No.	29-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
		feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type		DOL		SD		SS		AT		VFD		Others :			
Voltage		400 V			3.3 kV			11kV			Others :				
Instruments		V		A		PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF		OL		OT	SL	BT	Others :
Operation		Manual			Auto										

Photo										
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Jhang Road			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start	1978				

Sheet No.	29-5	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☒	HP	40
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID							Country of Origin						
Make							Year of Manufac.						
Type	☐	DOL	☐	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☐	OT	SL
Operation	☐	Manual		☐	Auto								

Photo			
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Maintenance Record

Comments Impeller is removed and pump is inoperable.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Jhang Road	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3						
Location (Address)							
Year of Construction		Year of Operation Start	1978				

Sheet No.	29-6	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	PEL
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

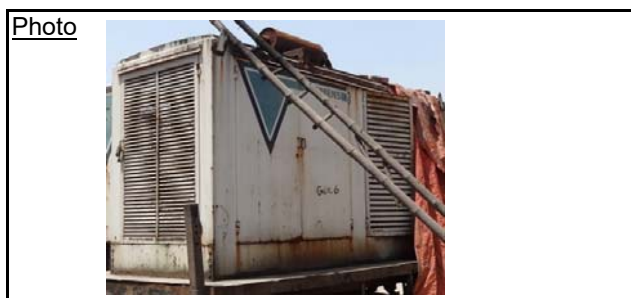


Maintenance Record

Comments

Item	No.1 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Jhang Road	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-17				
Function	discharging to Drainage Channel No.3						
Location (Address)							
Year of Construction		Year of Operation Start	1978				

Sheet No.	29-7	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	

Photo	
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Maintenance Record	
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Comments	
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Item	No.2 Transformer/Generator
------	----------------------------

GENERATOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Rated Output	kVA
	kW
	HP
Rated Voltage (V)	
Year of Manufac.	
Fuel Day Tank Capacity (L)	not installed

Photo	
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Maintenance Record	
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Comments	
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EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadaab			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-18				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	30-1	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakiatan		
Model No	KWP 200/400 D-2		
Serial No	16-951		
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	50
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	Pakiatan		
Model No	1LA4 253-6AA90		
Serial No	LPK 11930970		
Voltage (V)	400		
Current (A)	68.6		
Power		kW	
	☒	HP	50
Pole	6		
Power Factor	0.85		
Speed (rpm)	980		
Year of Manufac.			

STARTER																
WASA ID									Country of Origin							
Make									Year of Manufac.							
Type		DOL		SD		SS		AT		VFD		Others :				
Voltage		400 V		3.3 kV		11kV		Others :								
Instruments		V		A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation		Manual		Auto												

Photo		
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadaab			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-18				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	30-2	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakiatan		
Model No	KWP 200/400 D-2		
Serial No	16-952		
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	50
Speed (rpm)	960		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	SIEMENS		
Country of Origin	Pakiatan		
Model No	1LA4 253-6AA90		
Serial No	LPK 11930970		
Voltage (V)	400		
Current (A)	68.6		
Power		kW	
	☒	HP	50
Pole	6		
Power Factor	0.85		
Speed (rpm)	980		
Year of Manufac.			

STARTER															
WASA ID						Country of Origin									
Make						Year of Manufac.									
Type		DOL		SD		SS		AT		VFD		Others :			
Voltage		400 V		3.3 kV		11kV		Others :							
Instruments		V		A		PF		kW		kVA		kWh	Others :		
Protection		UV		OV		DG		EF		OL		OT	SL	BT	Others :
Operation		Manual		Auto											

Photo		
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Maintenance Record

Comments Pump is in operating condition.

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadaab			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-18				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	30-3	Survey Date	May 2017
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	Pakiatan		
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	5
Head		m	
	☒	feet	70
Speed (rpm)	1450		
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER														
WASA ID					Country of Origin									
Make					Year of Manufac.									
Type		DOL		SD		SS		AT		VFD		Others :		
Voltage		400 V		3.3 kV		11kV		Others :						
Instruments		V		A		PF		kW		kVA		kWh	Others :	
Protection		UV		OV		DG		EF		OL		OT	SL	
Operation		Manual		Auto										



Maintenance Record

Comments Pump is not in good maintenance condition.
--

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Shadaab			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
WASA Facility ID				Master Plan Facility ID	West-18				
Function	discharging to Drainage Channel No.3								
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	30-4	Survey Date	May 2017
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	Horizontal Shaft Centrifugal		
Capacity		m ³ /h	
		m ³ /min	
		l/sec	
	☒	cfs	4
Head		m	
	☒	feet	50
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power		kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER																
WASA ID											Country of Origin					
Make											Year of Manufac.					
Type		DOL		SD		SS		AT		VFD		Others :				
Voltage		400 V			3.3 kV			11kV			Others :					
Instruments		V		A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF		OL		OT		SL	BT	Others :
Operation		Manual			Auto											

Photo	 	
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Maintenance Record

Comments Only this pump is installed in building.
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Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Shadaab	Type		Water Supply	☒	Sewerage and Drainage	
					☒	DP/S	LP/S
WASA Facility ID		Master Plan Facility ID	West-18				
Function	discharging to Drainage Channel No.3						
Location (Address)							
Year of Construction		Year of Operation Start					

Sheet No.	30-5	Survey Date	May 2017
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TRANSFORMER	
WASA ID	
Make	SIEMENS
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin		
Model No	DG210	
Serial No		
Rated Output	☒ kVA	210
	☐ kW	
	☐ HP	
Rated Voltage (V)	415	
Year of Manufac.	2003	
Fuel Day Tank Capacity (L)	☒ not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Dijkot Drain			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-19				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	31-1	Survey Date	
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PUMP			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No	9971546620-000300		
Type	SUBMERSIBLE		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)	960		
Year of Manufac.	2009		
Motor Coupling	☐	Direct	☒ Belt
Accessory	☐	Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make	KSB		
Country of Origin	PAKISTAN		
Model No			
Serial No			
Voltage (V)	400-690		
Current (A)	47-27.3		
Power	☒	kW	26
	☐	HP	
Pole			
Power Factor			
Speed (rpm)	960		
Year of Manufac.	2009		

STARTER															
WASA ID					Country of Origin	PAKISTAN									
Make	PEMPAK				Year of Manufac.										
Type	☐	DOL	☐	SD	☒	SS	☒	AT	☐	VFD	Others :				
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☒	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	SL	BT	Others :
Operation	☐	Manual	☐	Auto											

Photo 		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Dijkot Drain			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-19				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	31-2	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No		9971546620-000300	
Type		SUBMERSIBLE	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)		960	
Year of Manufac.		2009	
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																
WASA ID					Country of Origin					PAKISTAN						
Make					PEMPAK					Year of Manufac.						
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☒	UV	☒	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	BT	Others :
Operation	☐	Manual		☐	Auto											

<u>Photo</u>	
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<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Dijkot Drain			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-19				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	31-3	Survey Date	
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Item	No.3 Pump/Motor/Starter
------	-------------------------

PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No			
Serial No			
Type		HORIZONTAL	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	50
Speed (rpm)		960	
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

MOTOR			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Voltage (V)			
Current (A)			
Power	☐	kW	
	☐	HP	
Pole			
Power Factor			
Speed (rpm)			
Year of Manufac.			

STARTER													
WASA ID						Country of Origin		PAKISTAN					
Make		PEMPAK				Year of Manufac.							
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :	
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :		
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	SL
Operation	☐	Manual		☐	Auto								

Photo

Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Dijkot Drain			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-19				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	31-4	Survey Date	
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PUMP			
WASA ID			
Make		LOCAL	
Country of Origin			
Model No			
Serial No		HORIZONTAL	
Type			
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER																
WASA ID							Country of Origin		PAKISTAN							
Make		PEMPAK					Year of Manufac.									
Type		DOL	☒	SD		SS		AT		VFD		Others :				
Voltage		400 V			3.3 kV			11kV			Others :					
Instruments		V		A		PF		kW		kVA		kWh		Others :		
Protection		UV		OV		DG		EF	☒	OL		OT		SL	BT	Others :
Operation		Manual			Auto											

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Dijkot Drain			Type			Water Supply	x	Sewerage and Drainage
							x	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-19				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	31-5	Survey Date		Item	Transformer/Generator				
-----------	------	-------------	--	------	-----------------------	--	--	--	--

TRANSFORMER	
WASA ID	
Make	PAN POWER
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	200
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

GENERATOR		
WASA ID		
Make		
Country of Origin		
Model No		
Serial No		
Rated Output	kVA	
	kW	
	HP	
Rated Voltage (V)		
Year of Manufac.		
Fuel Day Tank Capacity (L)		not installed

Photo



Photo

Maintenance Record

Maintenance Record

Comments

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Girja Ghar	Type		Water Supply	☒	Sewerage and Drainage			
						☐	☒	☐	DP/S LP/S
WASA Facility ID		Master Plan Facility ID	West-20						
Function									
Location (Address)									
Year of Construction					Year of Operation Start				

Sheet No.	32-1	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No		KWP 200/400 D2	
Serial No		15-8998	
Type		HORIZONTAL	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	50
Speed (rpm)		960	
Year of Manufac.			
Motor Coupling		Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin			
Model No		1LA4 253-6AA90	
Serial No		LPK 07133227	
Voltage (V)		400	
Current (A)		68.6	
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		980	
Year of Manufac.			

STARTER																			
WASA ID								Country of Origin				PAKISTAN							
Make				SIEMENS				Year of Manufac.											
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	☐	BT	☐	Others :	
Operation	☐	Manual		☐	Auto														

Photo	
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	Girja Ghar	Type		Water Supply	☒	Sewerage and Drainage			
						☐	DP/S	☒	LP/S
WASA Facility ID		Master Plan Facility ID		West-20					
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	32-2	Survey Date	
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PUMP			
WASA ID			
Make		KSB	
Country of Origin		PAKISTAN	
Model No		KWPK-2000/400 D.2	
Serial No		14-0189	
Type		HORIZONTAL	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	4
Head	☐	m	
	☒	feet	65
Speed (rpm)		960	
Year of Manufac.			
Motor Coupling		☐ Direct	☒ Belt
Accessory		Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR			
WASA ID			
Make		SIEMENS	
Country of Origin		PAKISTAN	
Model No		1LG4 253-6AA60	
Serial No		VC 1204110944903	
Voltage (V)		400/690	
Current (A)		71, 41	
Power	☐	kW	
	☒	HP	50
Pole			
Power Factor			
Speed (rpm)		980	
Year of Manufac.			

STARTER																			
WASA ID								Country of Origin				PAKISTAN							
Make				SIEMENS				Year of Manufac.											
Type	☐	DOL	☒	SD	☐	SS	☐	AT	☐	VFD	☐	Others :							
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :								
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	☐	Others :					
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☒	OL	☐	OT	☐	SL	☐	BT	☐	Others :	
Operation	☐	Manual		☐	Auto														

<u>Photo</u>

<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION							
Name	Girja Ghar	Type		Water Supply	☒	Sewerage and Drainage	
						☐	DP/S
						☒	LP/S
WASA Facility ID		Master Plan Facility ID	West-20				
Function							
Location (Address)							
Year of Construction			Year of Operation Start				

Sheet No.	32-3	Survey Date	
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TRANSFORMER	
WASA ID	
Make	ELEMENTEC
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	2000
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	



Maintenance Record

Comments

Item	Transformer/Generator
------	-----------------------

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin		
Model No		
Serial No		
Rated Output	☒ kVA	100
	☐ kW	
	☐ HP	
Rated Voltage (V)	415	
Year of Manufac.	1995	
Fuel Day Tank Capacity (L)	not installed	



Maintenance Record

Comments

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	33-1	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make		APE	
Country of Origin			
Model No			
Serial No			
Type		VERTICAL	
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	40
Head	☐	m	
	☐	feet	
Speed (rpm)		490	
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.1 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
GREAT BRITAIN	
Country of Origin	
B306E04/12	
Model No	
Serial No	
3300	
Voltage (V)	
Current (A)	
163	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
490	
Year of Manufac.	
1979	

STARTER																
WASA ID					Country of Origin											
Make					Year of Manufac.											
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :				
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :					
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :			
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	BT	Others :
Operation	☐	Manual		☐	Auto											



Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	33-2	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.2 Pump/Motor/Starter
------	-------------------------

MOTOR		
WASA ID		
Make	SIEMENS	
Country of Origin	Germany	
Model No	1LA4 356 4AA60	
Serial No		
Voltage (V)	400	
Current (A)	350	
Power	☒ kW	200
	☐ HP	
Pole		
Power Factor	0.84	
Speed (rpm)	782	
Year of Manufac.		

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐ DOL	☐ SD	☒ SS	☐ AT	☐ VFD	Others :									
Voltage	400 V		3.3 kV		11kV		Others :								
Instruments	☐ V	☐ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :								
Protection	☐ UV	☐ OV	☐ DG	☐ EF	☐ OL	☒ OT	☐ SL	☐ BT	Others :						
Operation	☐ Manual		☐ Auto												



<u>Maintenance Record</u>

<u>Comments</u>

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	33-3	Survey Date	
-----------	------	-------------	--

PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.3 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :			
Voltage	☐	400 V	☐	3.3 kV	☐	11kV	☐	Others :							
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	
Operation	☐	Manual	☐	Auto											

Photo	
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Maintenance Record

Comments

Notes: UV: Under Voltage SL: Seal Leakage
 DOL: Direct On Line OV: Over Voltage BT: Bearing Temp.
 SD: Star Delta DG: Directional Ground
 SS: Soft Starter EF: Earth Fault
 AT: Auto Tr OL: Over Load
 VFD: Variable Frequency Drive OT: Over Torque

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	33-4	Survey Date	
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PUMP			
WASA ID			
Make			
Country of Origin			
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	40
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.4 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐	DOL	☐	SD	☒	SS	☐	AT	☐	VFD	☐	Others :			
Voltage	☐	400 V		☐	3.3 kV		☐	11kV		☐	Others :				
Instruments	☐	V	☐	A	☐	PF	☐	kW	☐	kVA	☐	kWh	Others :		
Protection	☐	UV	☐	OV	☐	DG	☐	EF	☐	OL	☒	OT	☐	SL	
Operation	☐	Manual		☐	Auto										

Photo 		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒	Sewerage and Drainage
							☒	DP/S	LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	33-5	Survey Date	
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PUMP			
WASA ID			
Make			
Country of Origin	JAPAN		
Model No			
Serial No			
Type	VERTICAL		
Capacity	☐	m ³ /h	
	☐	m ³ /min	
	☐	l/sec	
	☒	cfs	25
Head	☐	m	
	☐	feet	
Speed (rpm)			
Year of Manufac.			
Motor Coupling	☒	Direct	☐ Belt
Accessory	☐	Pressure Gauge	

Item	No.5 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	TMEIC
Country of Origin	JAPAN
Model No	
Serial No	E13X350HF
Voltage (V)	400
Current (A)	290
Power	☒ kW
	☐ HP
Pole	12
Power Factor	0.59
Speed (rpm)	490
Year of Manufac.	2013

STARTER															
WASA ID											Country of Origin				
Make											Year of Manufac.				
Type	☐ DOL	☐ SD	☒ SS	☐ AT	☐ VFD	Others :									
Voltage	400 V		3.3 kV		11kV		Others :								
Instruments	☐ V	☐ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :								
Protection	☐ UV	☐ OV	☐ DG	☐ EF	☐ OL	☒ OT	☐ SL	☐ BT	Others :						
Operation	☐ Manual		☐ Auto												

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒ Sewerage and Drainage	
							☒ DP/S		LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

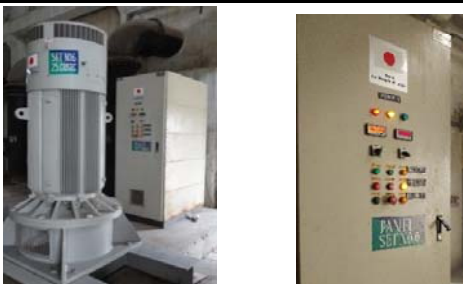
Sheet No.	33-6	Survey Date	
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PUMP			
WASA ID			
Make		TORISHIMA	
Country of Origin		JAPAN	
Model No			
Serial No			
Type		VERTICAL	
Capacity	☐ m ³ /h		
	☐ m ³ /min		
	☐ l/sec		
	☒ cfs	25	
Head	☐ m		
	☐ feet		
Speed (rpm)		485	
Year of Manufac.			
Motor Coupling	☒ Direct	☐	Belt
Accessory	Pressure Gauge		

Item	No.6 Pump/Motor/Starter
------	-------------------------

MOTOR	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Voltage (V)	
Current (A)	
Power	☒ kW
	HP
Pole	
Power Factor	
Speed (rpm)	
Year of Manufac.	

STARTER														
WASA ID					Country of Origin									
Make					Year of Manufac.									
Type	☐ DOL	☐ SD	☒ SS	☐ AT	☐ VFD	Others :								
Voltage	400 V		3.3 kV		11kV		Others :							
Instruments	☐ V	☐ A	☐ PF	☐ kW	☐ kVA	☐ kWh	Others :							
Protection	☐ UV	☐ OV	☐ DG	☐ EF	☐ OL	☒ OT	☐ SL	☐ BT	Others :					
Operation	☐ Manual		☐ Auto											

Photo		
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Maintenance Record

Comments

Notes: DOL: Direct On Line SD: Star Delta SS: Soft Starter AT: Auto Tr VFD: Variable Frequency Drive
 UV: Under Voltage OV: Over Voltage DG: Directional Ground EF: Earth Fault OL: Over Load OT: Over Torque
 SL: Seal Leakage BT: Bearing Temp.

EQUIPMENT SHEET

FACILITY INFORMATION									
Name	PS-3 Chokera			Type			Water Supply	☒	Sewerage and Drainage
								☒	DP/S
									LP/S
WASA Facility ID				Master Plan Facility ID	West-21				
Function									
Location (Address)									
Year of Construction				Year of Operation Start					

Sheet No.	33-7		Survey Date		
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TRANSFORMER	
WASA ID	
Make	
Country of Origin	
Model No	
Serial No	
Type of Cooling	
Capacity (kVA)	
Primary Voltage (V)	
Secondary Voltage (V)	
Year of Manufac.	
Number of Incoming Line from FESCO	

GENERATOR		
WASA ID		
Make	SIEMENS	
Country of Origin		
Model No	LPK 011260010	
Serial No	IEC60034	
Rated Output	☒ kVA	500
	☐ kW	
	☐ HP	
Rated Voltage (V)	400	
Year of Manufac.		
Fuel Day Tank Capacity (L)		
	not installed	

Photo



Photo



Maintenance Record

Maintenance Record

Comments

Comments

APPENDIX FOR CHAPTER C7 POLLUTION LOAD ESTIMATES AND WATER QUALITY PROJECTIONS IN PUBLIC WATER BODIES

AC7.1 Western Zone (Paharang Drain and Chenab River)

The calculation sheets to estimate the pollution load and the water quality in the future for each scenario are presented in Table AC7.1.1 to Table AC7.1.4. The results are illustrated as shown in Figure AC7.1.1 to Figure AC7.1.5.

AC7.2 Eastern Zone (Madhuana Drain and Ravi River)

The calculation sheets to estimate the pollution load and the water quality in the future for each scenario are presented in Table AC7.2.1 to Table AC7.2.4. The results are illustrated as shown in Figure AC7.2.1 to Figure AC7.2.5.

Table AC7.1.1 Present Pollution Load Discharge in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	130,910	40.3	40.3	1	40.3	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	495,915	49,592	19.8	17.9	0.9	16.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	774,433	61,955	31.0	21.7	0.7	15.2	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	25,670	5.1	5.1	1	5.1	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)		268,126	96.2	85.0		76.7	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	132,270	41.6	41.6	1	41.6	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	655,490	224.7	224.7		224.7	-	-
8 Total BOD generation load (1~7)	-		320.9				-	-
9 Total discharge with sewerage service (1+4+5)	-	679,800	-	228.5	-	228.5	-	-
10 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
11 Total BOD effluent load				290.4			-	-
12 Total BOD run-off load into Pahang Drain	-	-	-		-	282.1	-	-
13 Overall BOD run-off load into Chenab River	-	-	-		-	282.1	-	-
14 Overall wastewater discharged into Chenab River	-	923,616	-	-	-	-	-	-
15 BOD concentration in the discharge to Chenab River{(13)*10 ⁶ /(14)}	-	-	-	-	-	-	305	298 mg/L, Survey result
16 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0		BOD 20mg/L at low flow
17 BOD concentration in the down stream side of Chenab River	-	3,316,896	-	-	-	330.1	100	BOD 95mg/L, Survey Results

Table AC7.1.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	138,714	45.3	45.3	1	45.3	-	138 lpcd 45 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,199,290	119,929	54.0	48.6	0.9	43.7	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)	-	374,339	138.6	123.9	-	112.5	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	High Scenario BOD load of 443 ton/d within Study Area, Refer to Tab. C7.4.15
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	742,140	259.7	259.7	1	259.7	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.8	554.8	-	554.8	-	-
8 Total BOD generation load (1~7)	-	-	693.4	-	-	-	-	-
9 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
10 Total BOD effluent load	-	-	-	659.5	-	-	-	-
11 Total BOD run-off load into Pahang Drain	-	-	-	-	-	648.1	-	-
12 Overall discharge into Chenab River	-	-	-	-	-	648.1	-	-
13 Overall wastewater discharged into Chenab River	-	1,959,619	-	-	-	-	-	-
14 BOD concentration in the discharge to Chenab River{(12)*10 ⁶ /(13)}	-	-	-	-	-	-	331	-
15 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
16 BOD concentration in the down stream side of Chenab River	-	4,352,899	-	-	-	696.1	160	Predicted BOD Conc.

Table AC7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	49.4		42.9	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)		1,585,280	554.9	536.4	-	536.4	-	-
8 Total BOD generation load (1~7)	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	585.8	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	579.3	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	579.3	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River $\{(1)*10^6/(12)\}$	-	-	-	-	-	-	289	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	627.3	143	Predicted BOD Conc.

Table AC7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	6.1	1	6.1	-	138 lpcd 45 g/capita/day Effluent BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	0.8	1	0.8	-	Influent BOD 200mg/L Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	28.7		22.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	1.4	1	1.4	-	Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.9	532.4	-	532.4	-	-
8 Total BOD generation load	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	561.1	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	554.5	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	554.5	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	277	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	602.5	137	Predicted BOD Conc.

Table AC7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	419,612	138.6	49.4	-	42.9	-	
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	95.8	1	95.8	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	25.6	1	25.6	-	-ditto-
Sub-total of industrial (5+6+7)	-	1,585,280	554.9	126.8	-	101.2	-	
8 Total BOD generation load	-	-	693.5	-	-	-	-	
9 Total BOD effluent load	-	-	-	176.2	-	-	-	
10 Total BOD run-off load into Paharang Drain (1~6)	-	-	-	-	-	170.0	-	
11 Overall BOD run-off load into Chenab River (7+10)	-	-	-	-	-	170.0	-	
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	85	
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	218.0	50	Predicted BOD Conc.

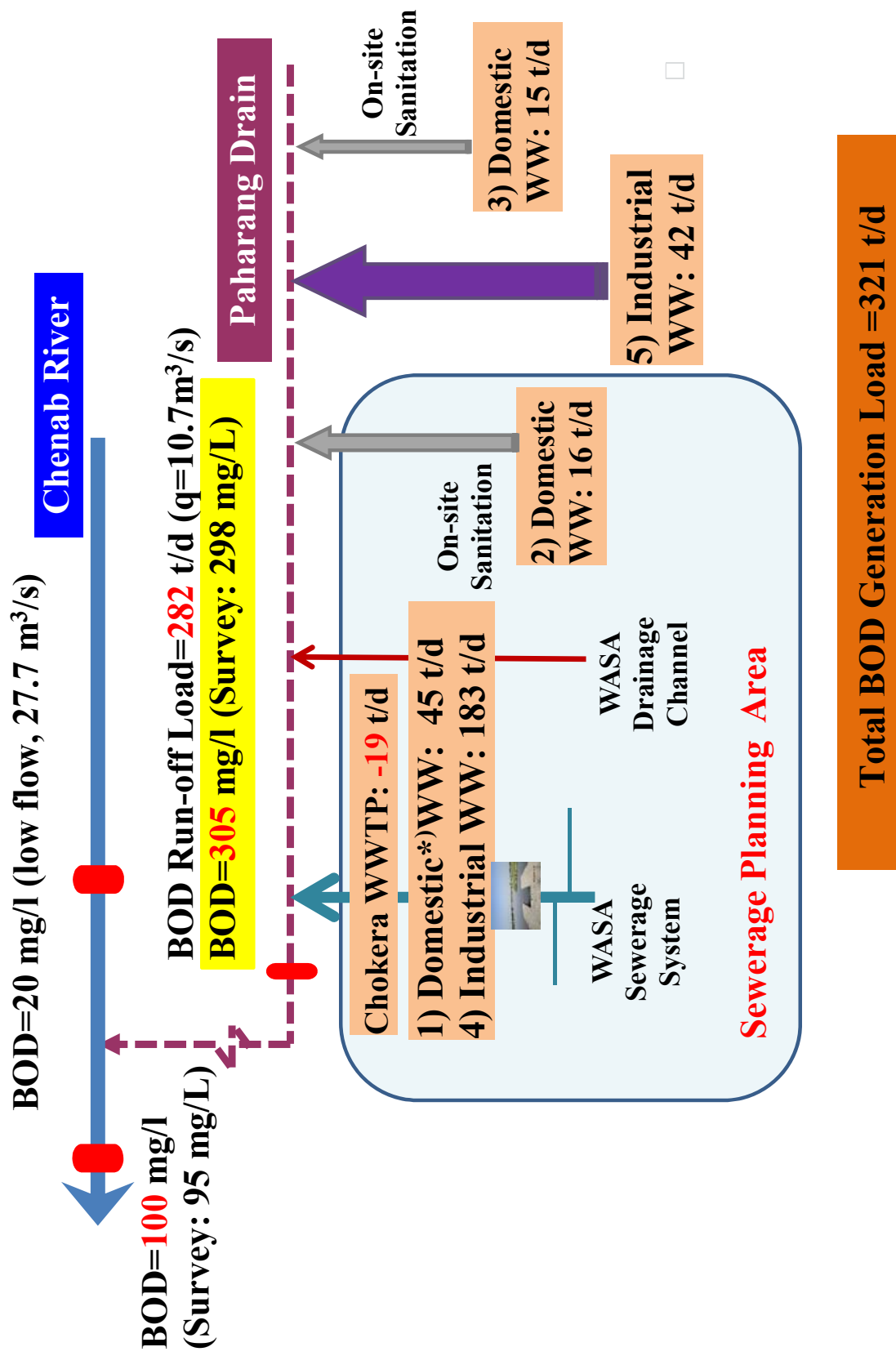


Figure AC 7.1.1 Present Pollution Load in the Western Zone

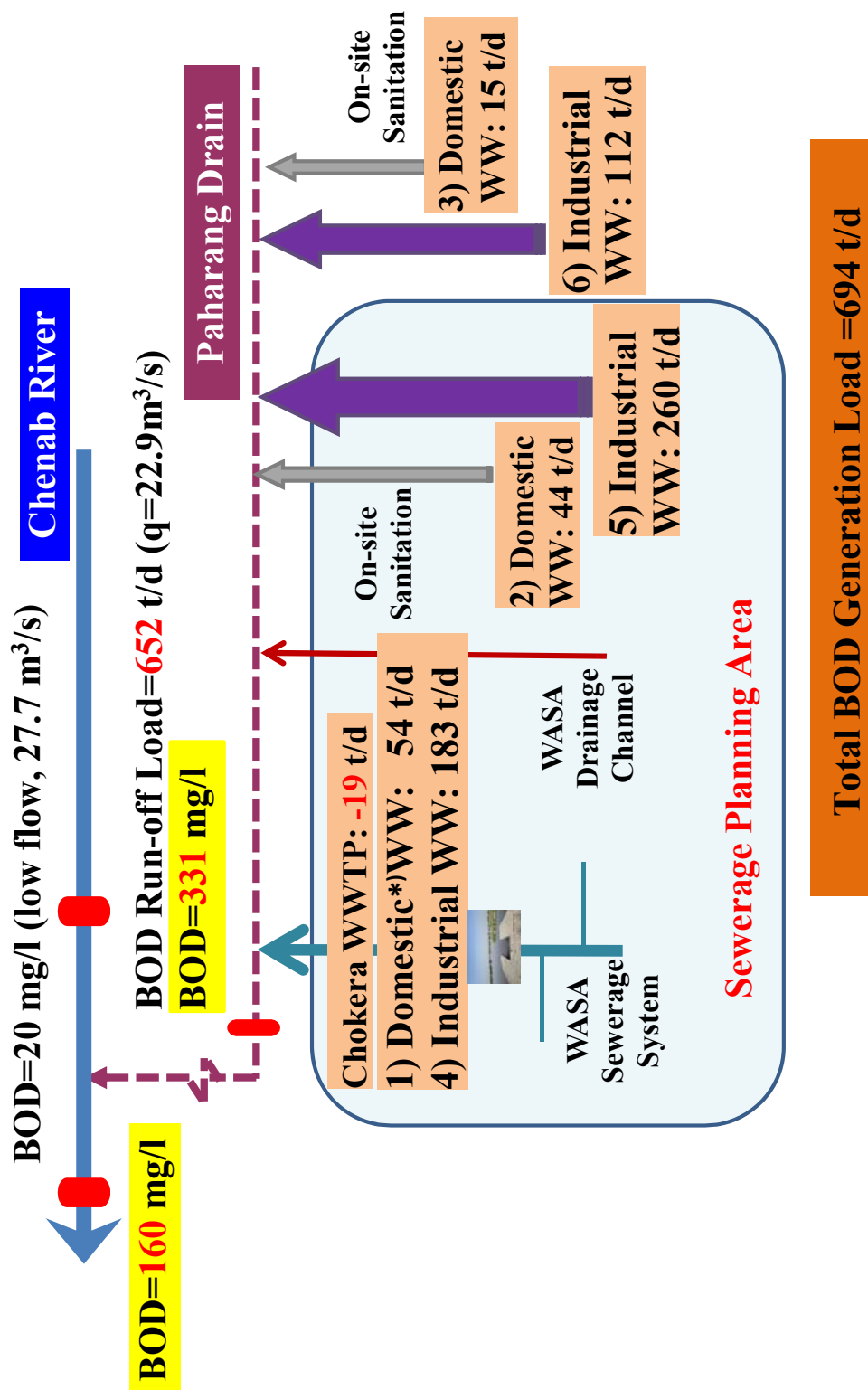


Figure AC 7.1.2 Target Year's Pollution Load Discharge in Case of Without Project in the Western Zone

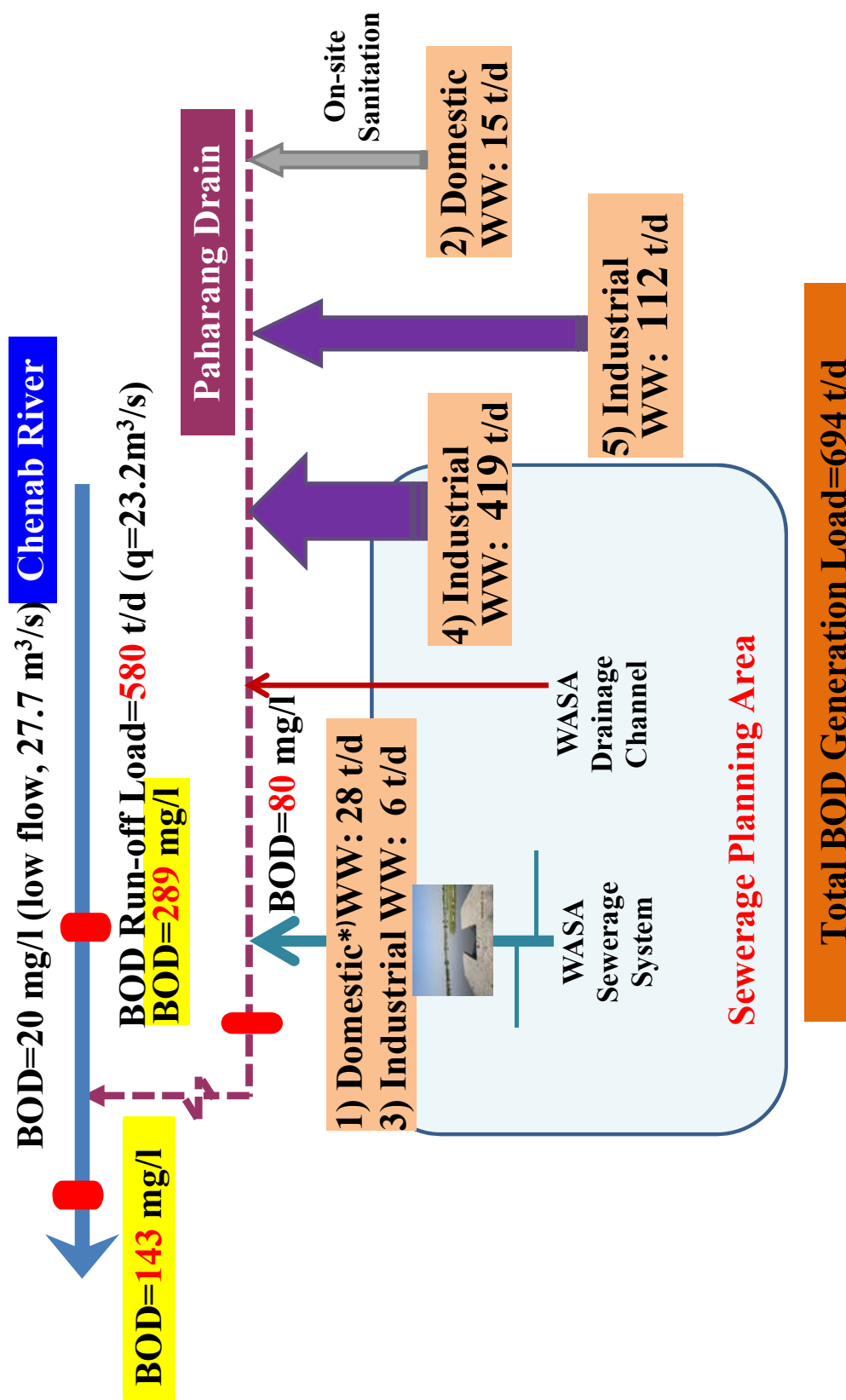


Figure AC 7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

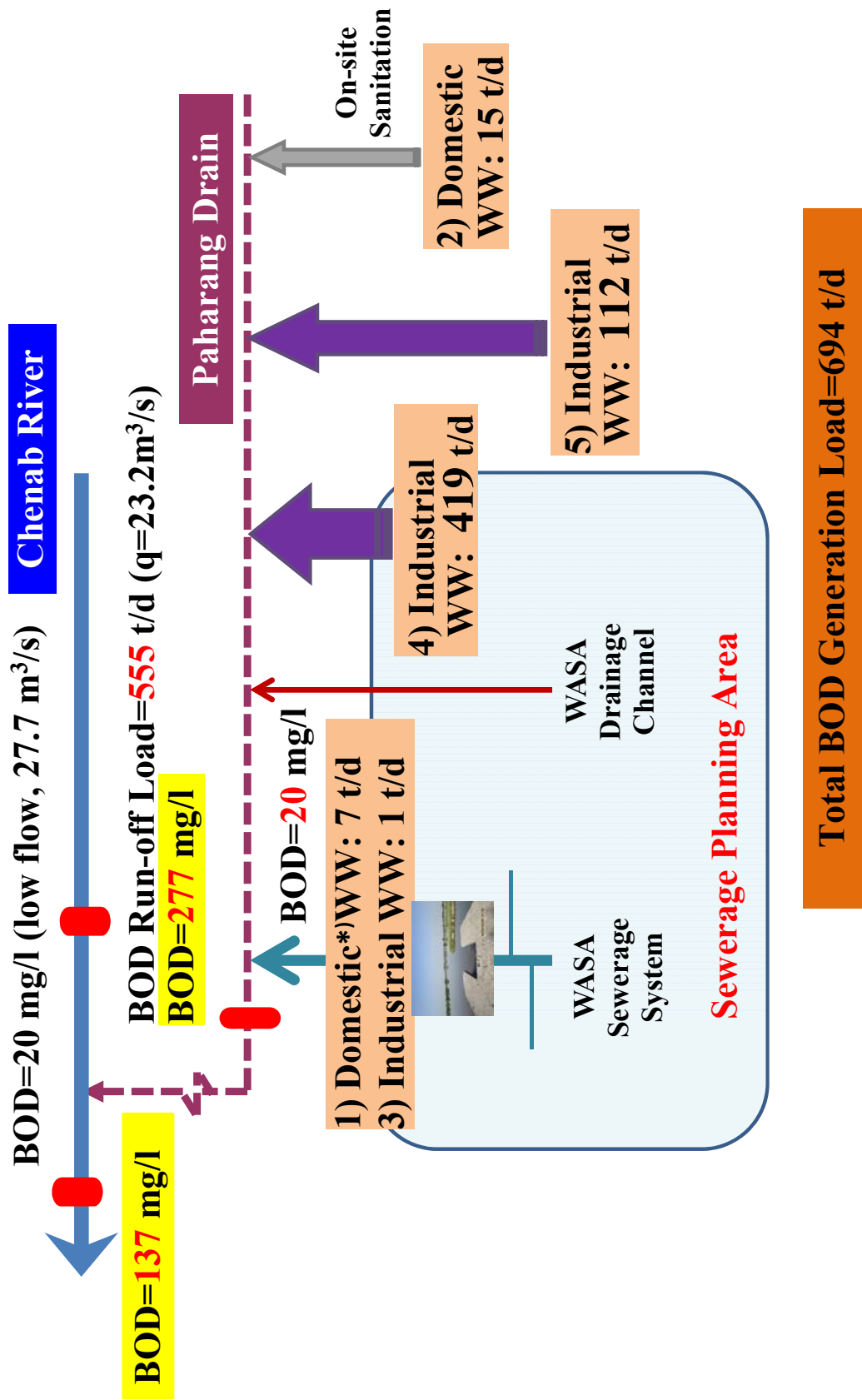


Figure AC 7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

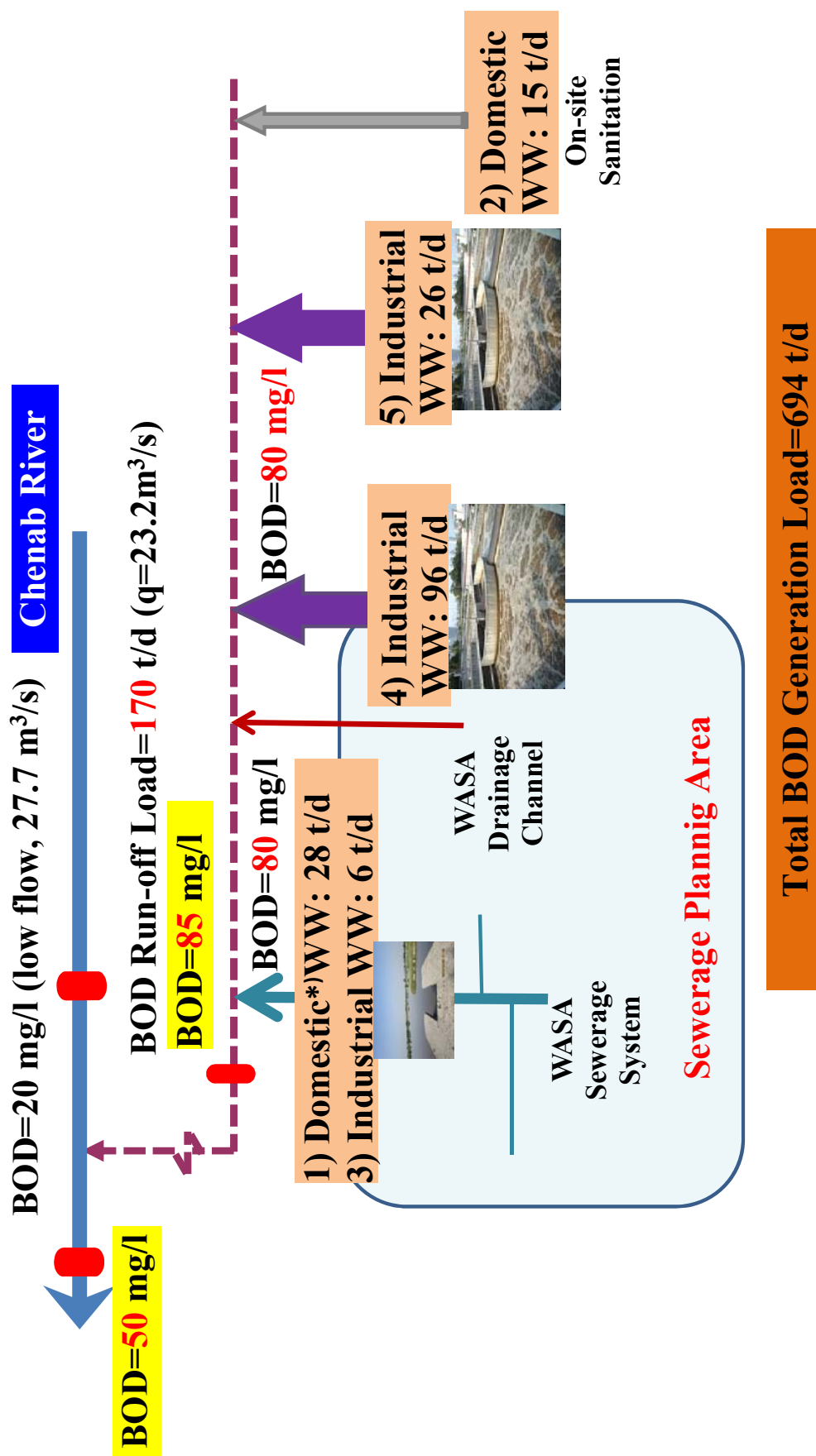


Figure AC 7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

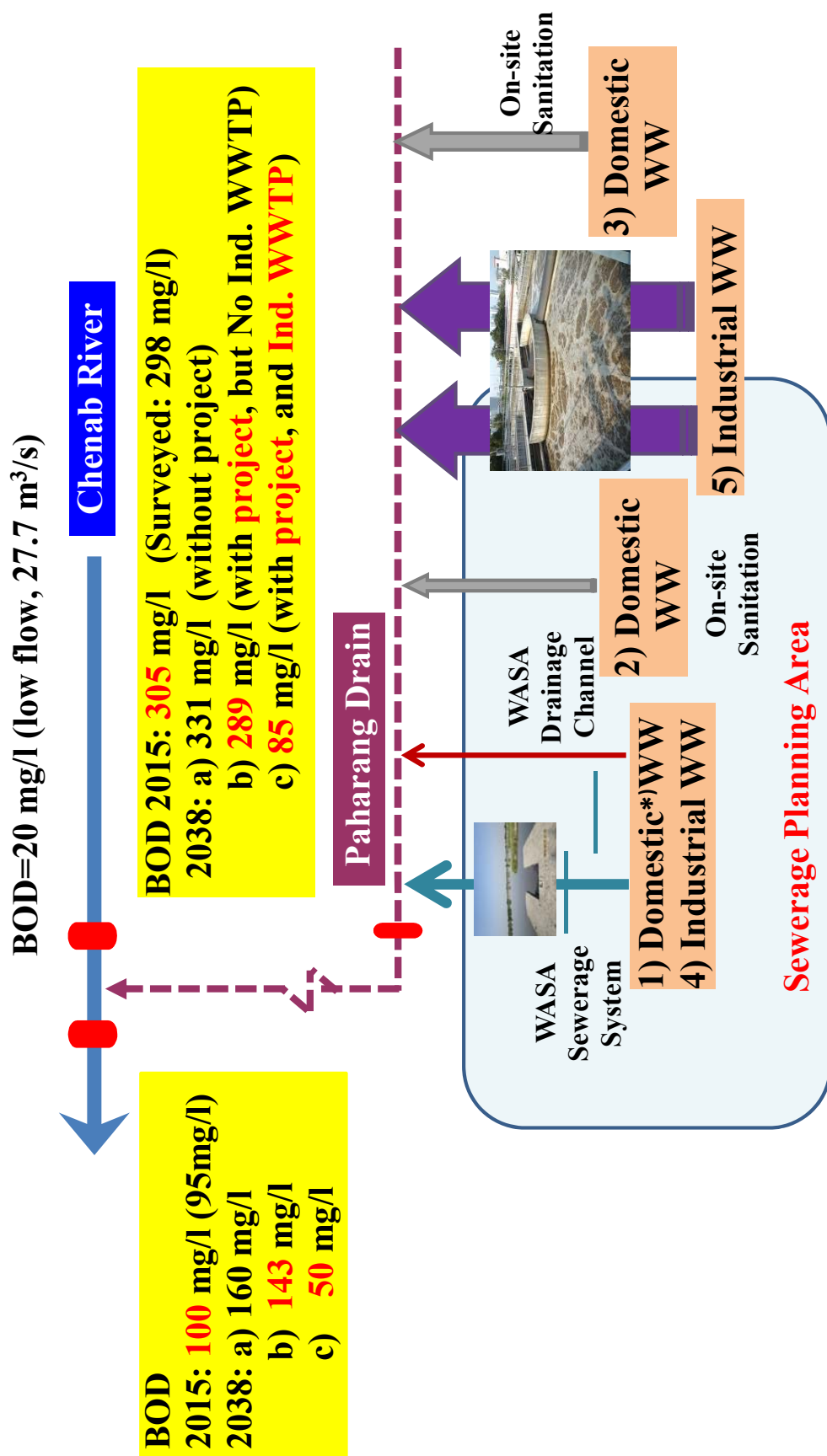


Figure AC 7.1.5 Results of Water Quality Projections in the Western Zone

Table AC7.2.1 Present Pollution Load Discharge in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	99,112	30.5	30.5	1	30.5	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	190,625	19,063	7.6	6.8	0.9	6.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	573,875	45,910	23.0	16.1	0.7	11.3	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	19,430	3.9	3.9	1	3.9	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)	-	183,515	65.0	57.3		51.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	300,420	105.1	105.1	1	105.1	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	559,360	195.7	195.8	-	195.8	-	-
8 Total BOD generation load (1~7)	-	742,875	260.7	-	-	-	-	-
9 Total discharge with sewerage service (1+4+5)	-	377,482	-	125.0	-	125.0	-	-
10 Total BOD effluent load	-	-	-	253.1		-	-	-
11 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	247.6	-	-
12 Overall BOD run-off load into Ravi River	-	-	-	-	-	247.6	-	-
13 Overall wastewater discharged into Ravi River	-	742,875	-	-	-	-	-	-
14 BOD concentration in the discharge to Ravi River {(12)*10 ⁶ /(13)}	-	-	-	-	-	-	333	330 mg/L, Survey result
15 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L , Survey Results
16 BOD concentration in the down stream side of Ravi River	-	1,123,035	-	-	-	323.6	288	BOD 290mg/L , Survey Results

Table AC7.2.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	105,021	30.5	34.3	1	34.3	-	138 lpcd 45 g/capita • day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,323,420	127,048	59.6	53.6	0.9	48.2	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)		314,535	115.6	108.2		99.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	High Scenario BOD load of 219 ton/d within Study Area, Refer to Tab. C7.4.15
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	367,410	128.6	128.6	1	128.6	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	473.5	-	473.5	-	-
8 Total BOD generation load (1~7)	-	-	589.1	-	-	-	-	-
9 Total BOD effluent load	-	-	-	581.7	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	572.7	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	572.7	-	-
12 Overall wastewater discharged into Ravi River (5+9)	-	1,667,475	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	343	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,047,635	-	-	-	648.7	317	Predicted BOD Conc.

Table AC7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	450.5	-	450.5	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	488.9	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	485.3	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	485.3	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River $\{(1) \cdot 10^6 / (12)\}$	-	-	-	-	-	-	282	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	561.3	267	Predicted BOD Conc.

Table AC7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	5.7	1	5.7	-	138 lpcd 45 g/capita/day Treated WW BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	0.8	1	0.8	-	Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	18.7	-	15.0	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	1.7	1	1.7	-	Influent 350mg/L Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	445.4	-	445.4	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	464.1	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	460.4	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	460.4	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	267	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	536.4	255	Predicted BOD Conc.

Table AC7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	-	-	-	-	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	541,090	189.4	43.3	1	43.3	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	58.1	1	58.1	-	-ditto-
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	108.2	-	108.2	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	146.6	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	143.0	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	143.0	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	83	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	219.0	104	Predicted BOD Conc.

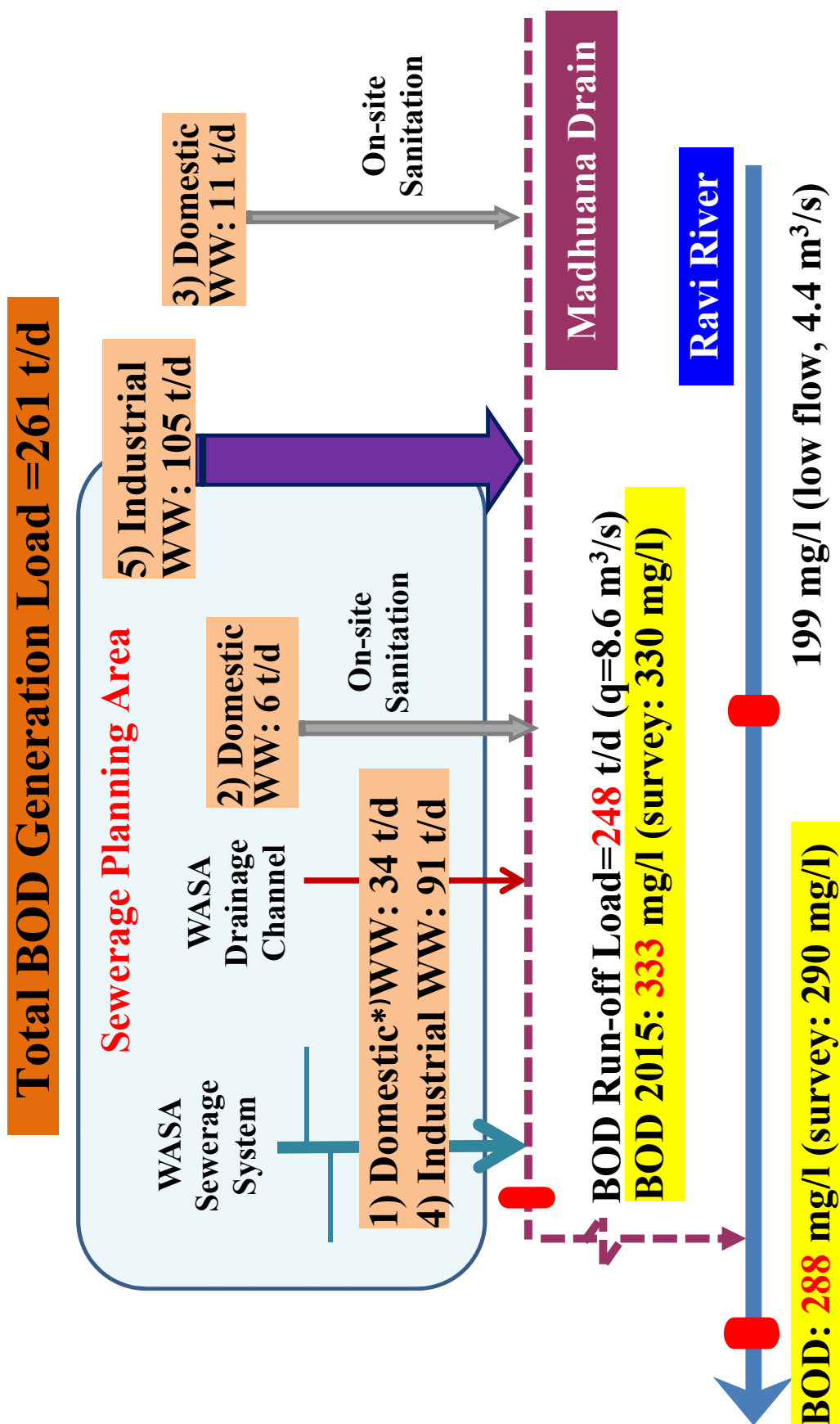


Figure AC 7.2.1 Present Pollution Load in the Eastern Zone

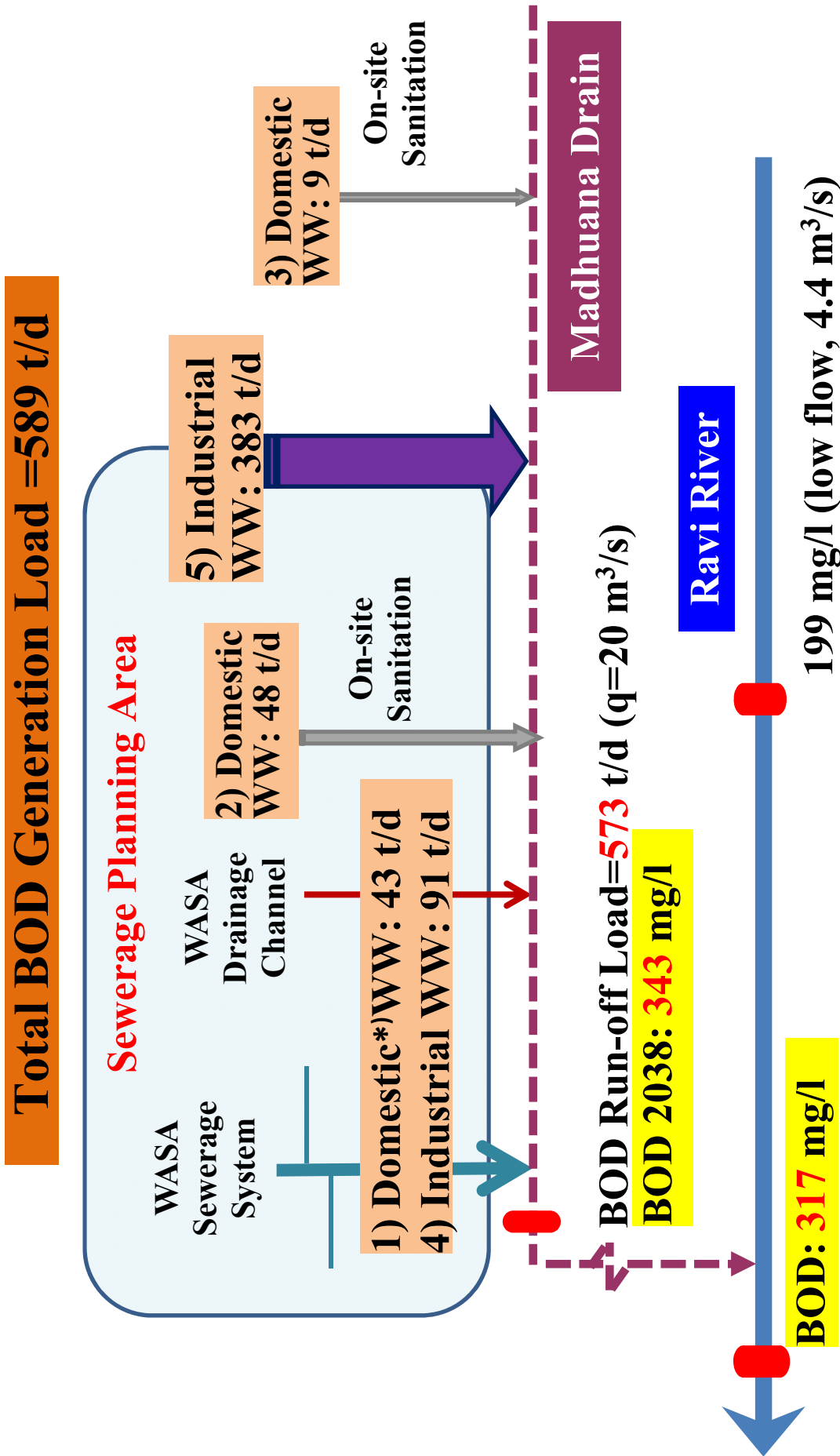


Figure AC 7.2.2 Target Year's Pollution Load Discharge in Case of Without Project in the Eastern Zone

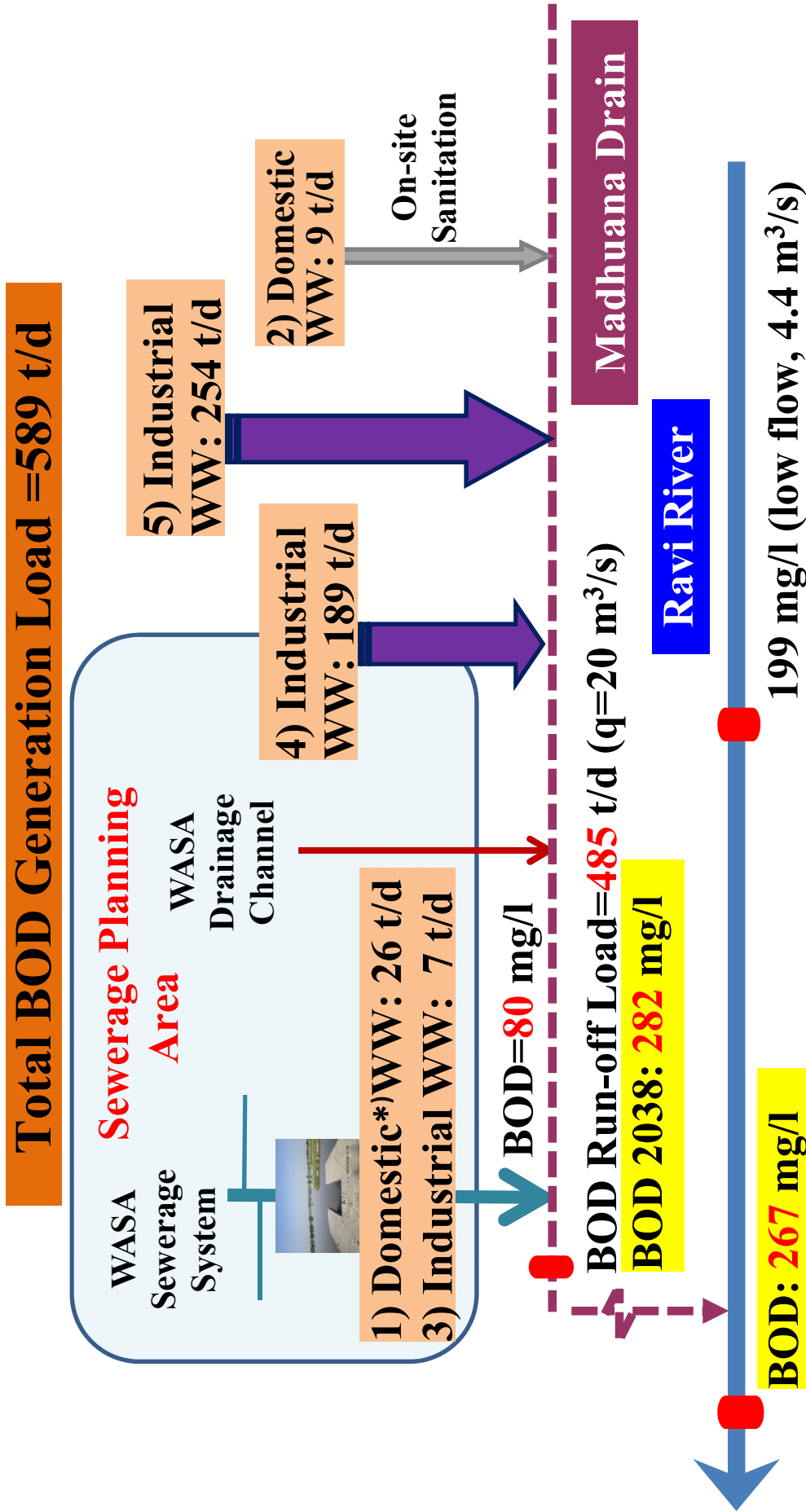


Figure AC 7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

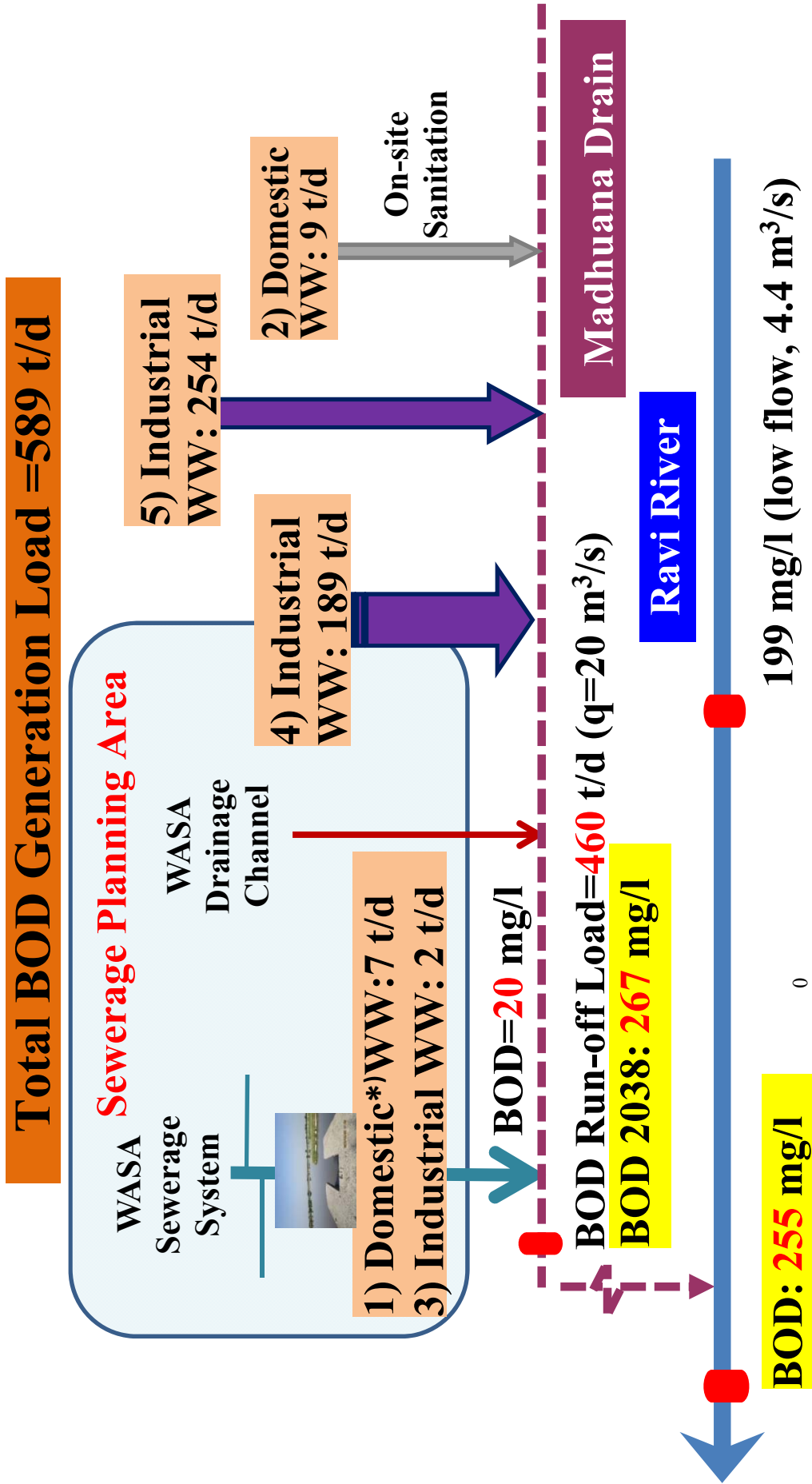


Figure AC 7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

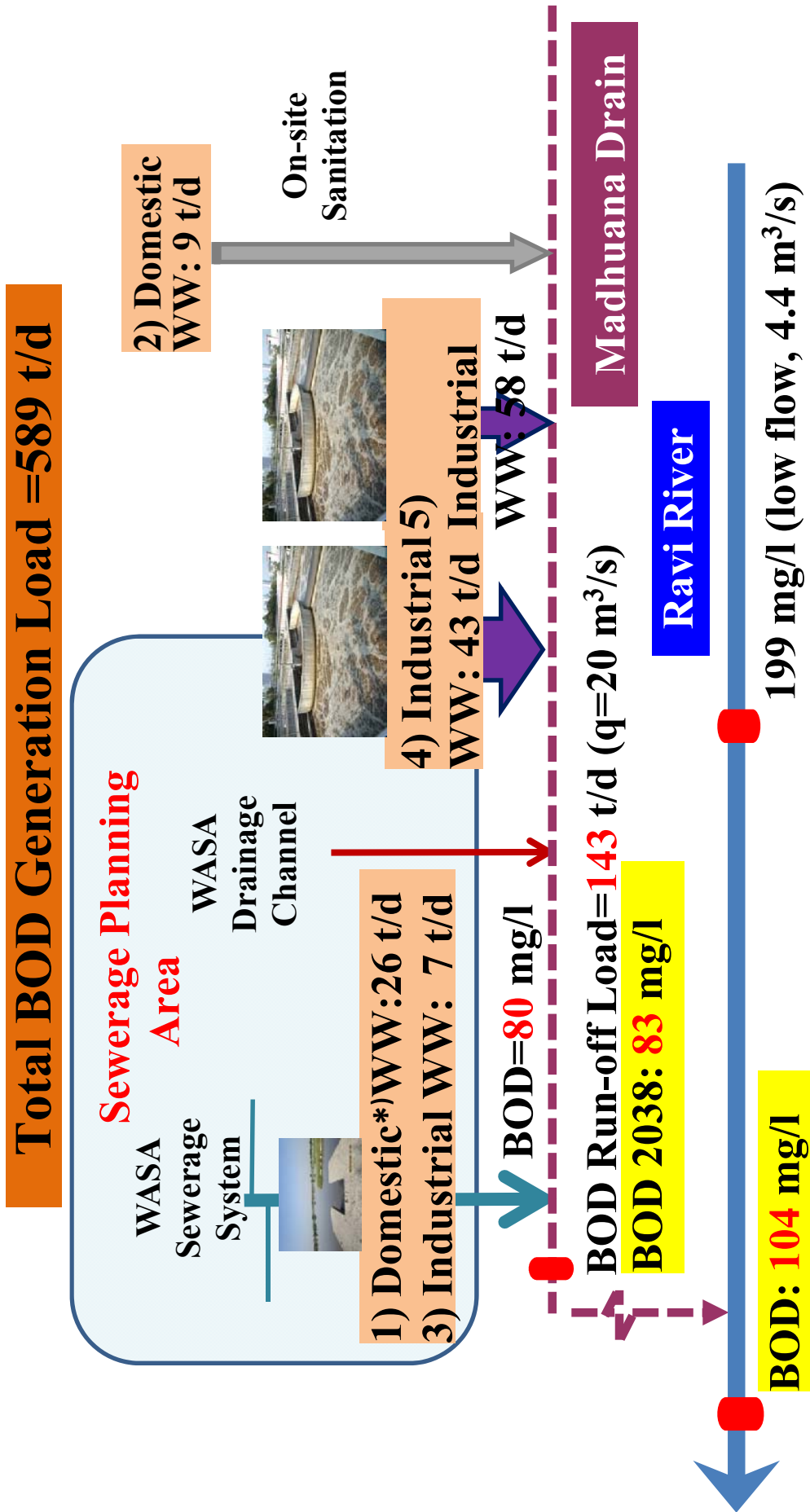


Figure AC 7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern

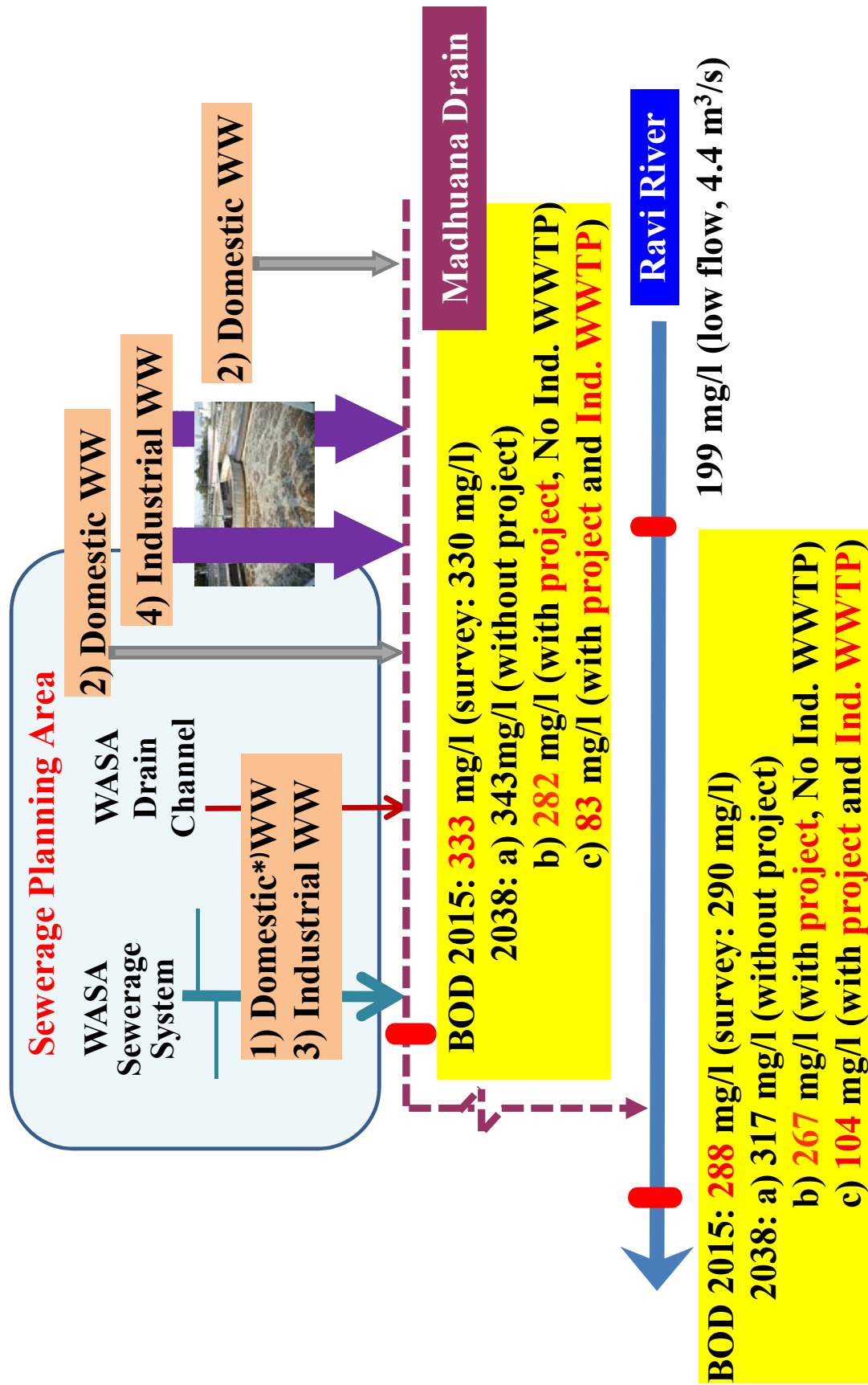


Figure AC 7.2.5 Water Quality Projections in the Eastern Zone

Table AC7.1.1 Present Pollution Load Discharge in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	130,910	40.3	40.3	1	40.3	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	495,915	49,592	19.8	17.9	0.9	16.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	774,433	61,955	31.0	21.7	0.7	15.2	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	25,670	5.1	5.1	1	5.1	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)		268,126	96.2	85.0		76.7	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	132,270	41.6	41.6	1	41.6	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	655,490	224.7	224.7		224.7	-	-
8 Total BOD generation load (1~7)	-		320.9				-	-
9 Total discharge with sewerage service (1+4+5)	-	679,800	-	228.5	-	228.5	-	-
10 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
11 Total BOD effluent load				290.4			-	-
12 Total BOD run-off load into Pahang Drain	-	-	-		-	282.1	-	-
13 Overall BOD run-off load into Chenab River	-	-	-		-	282.1	-	-
14 Overall wastewater discharged into Chenab River	-	923,616	-	-	-	-	-	-
15 BOD concentration in the discharge to Chenab River{(13)*10 ⁶ /(14)}	-	-	-	-	-	-	305	298 mg/L, Survey result
16 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0		BOD 20mg/L at low flow
17 BOD concentration in the down stream side of Chenab River	-	3,316,896	-	-	-	330.1	100	BOD 95mg/L, Survey Results

Table AC7.1.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	138,714	45.3	45.3	1	45.3	-	138 lpcd 45 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,199,290	119,929	54.0	48.6	0.9	43.7	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)	-	374,339	138.6	123.9	-	112.5	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	High Scenario BOD load of 443 ton/d
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	742,140	259.7	259.7	1	259.7	-	within Study Area, Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.8	554.8	-	554.8	-	-
8 Total BOD generation load (1~7)	-	-	693.4	-	-	-	-	-
9 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
10 Total BOD effluent load	-	-	-	659.5	-	-	-	-
11 Total BOD run-off load into Pahang Drain	-	-	-	-	-	648.1	-	-
12 Overall discharge into Chenab River	-	-	-	-	-	648.1	-	-
13 Overall wastewater discharged into Chenab River	-	1,959,619	-	-	-	-	-	-
14 BOD concentration in the discharge to Chenab River{(12)*10 ⁶ /(13)}	-	-	-	-	-	-	331	-
15 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
16 BOD concentration in the down stream side of Chenab River	-	4,352,899	-	-	-	696.1	160	Predicted BOD Conc.

Table AC7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	49.4		42.9	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)		1,585,280	554.9	536.4	-	536.4	-	-
8 Total BOD generation load (1~7)	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	585.8	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	579.3	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	579.3	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River $\{(1)*10^6/(12)\}$	-	-	-	-	-	-	289	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	627.3	143	Predicted BOD Conc.

Table AC7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	6.1	1	6.1	-	138 lpcd 45 g/capita/day Effluent BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	0.8	1	0.8	-	Influent BOD 200mg/L Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	28.7		22.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	1.4	1	1.4	-	Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.9	532.4	-	532.4	-	-
8 Total BOD generation load	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	561.1	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	554.5	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	554.5	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	277	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	602.5	137	Predicted BOD Conc.

Table AC7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	419,612	138.6	49.4	-	42.9	-	
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	95.8	1	95.8	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	25.6	1	25.6	-	-ditto-
Sub-total of industrial (5+6+7)	-	1,585,280	554.9	126.8	-	101.2	-	
8 Total BOD generation load	-	-	693.5	-	-	-	-	
9 Total BOD effluent load	-	-	-	176.2	-	-	-	
10 Total BOD run-off load into Paharang Drain (1~6)	-	-	-	-	-	170.0	-	
11 Overall BOD run-off load into Chenab River (7+10)	-	-	-	-	-	170.0	-	
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	85	
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	218.0	50	Predicted BOD Conc.

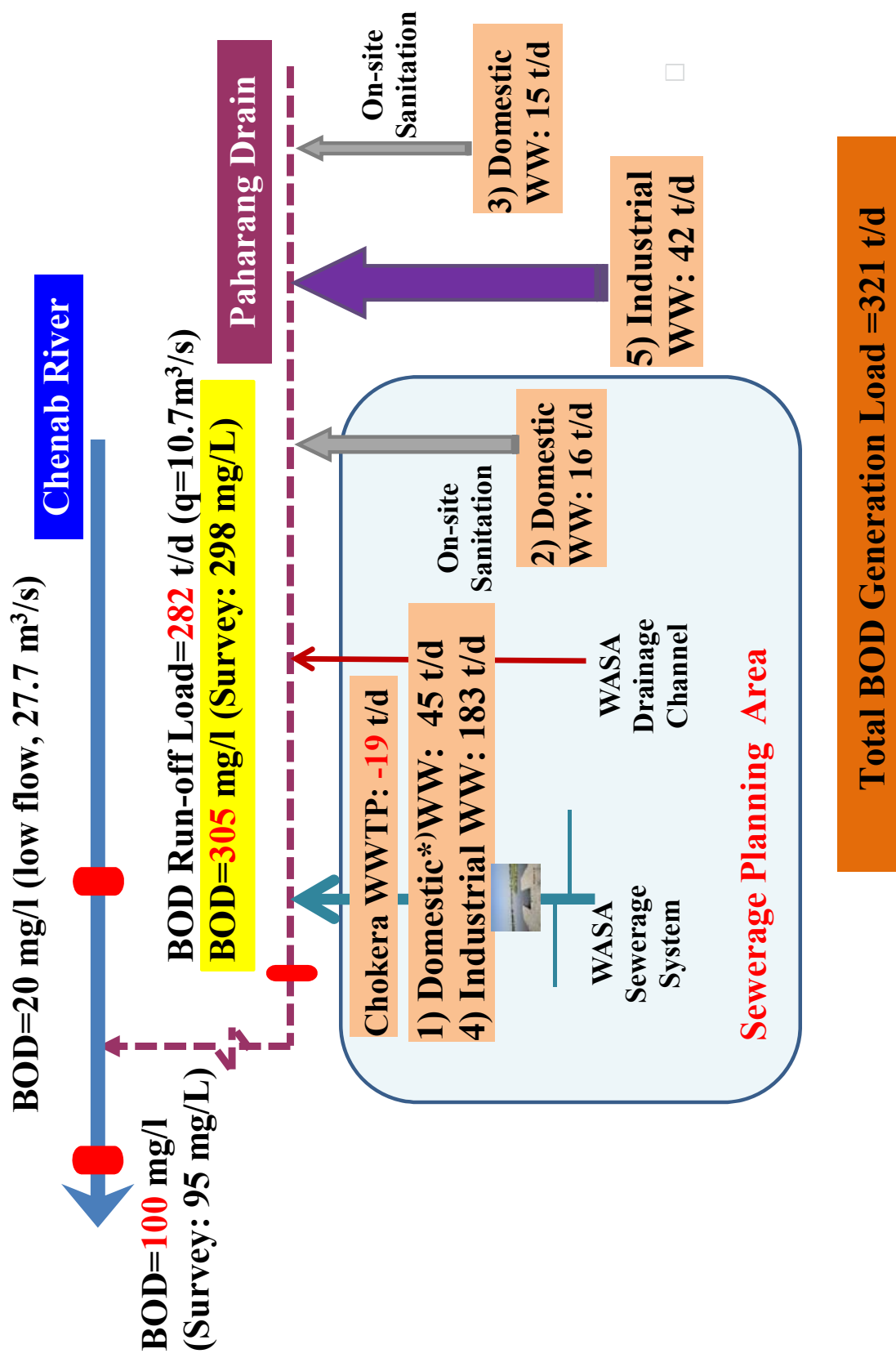


Figure AC 7.1.1 Present Pollution Load in the Western Zone

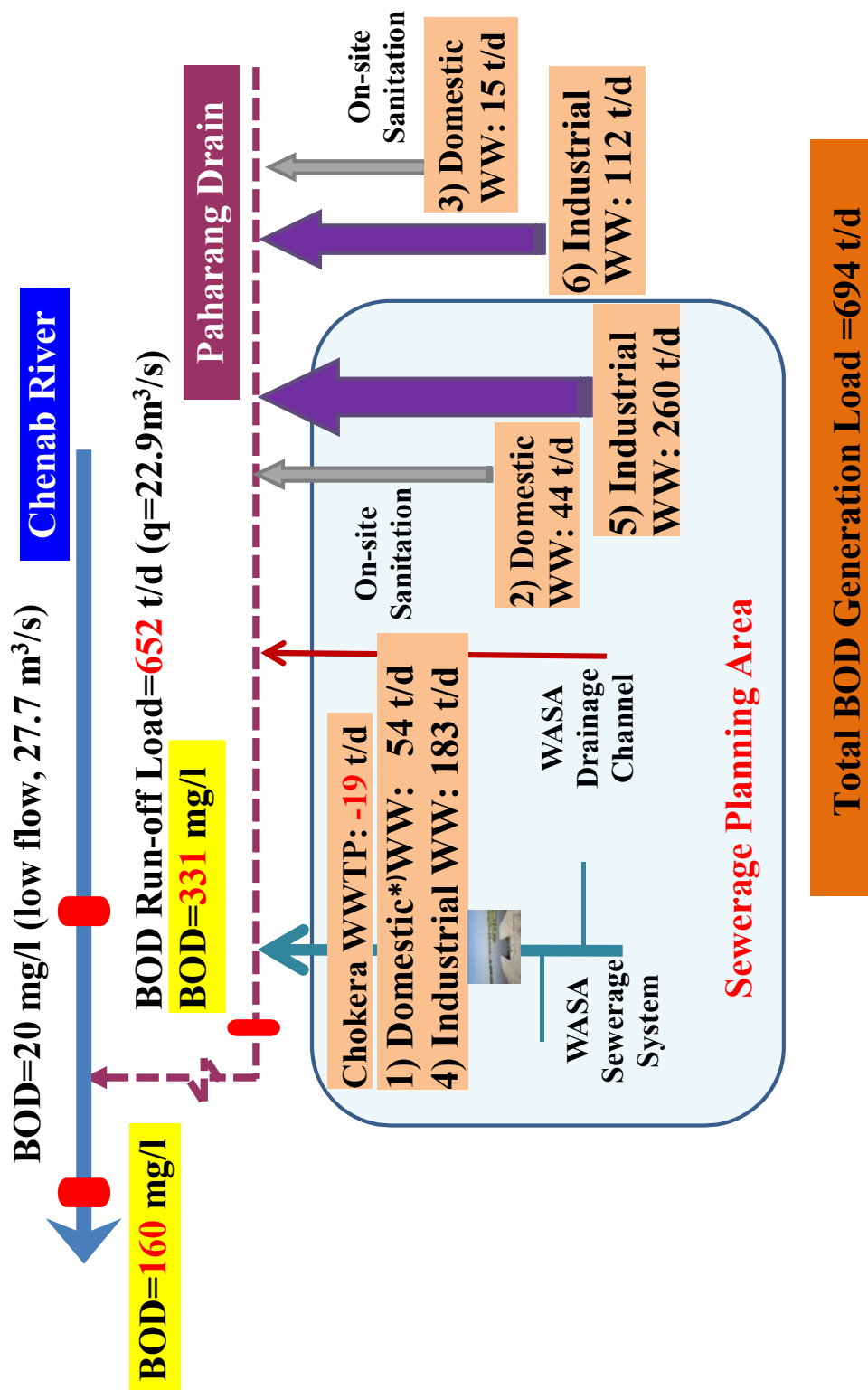


Figure AC 7.1.2 Target Year's Pollution Load Discharge in Case of Without Project in the Western Zone

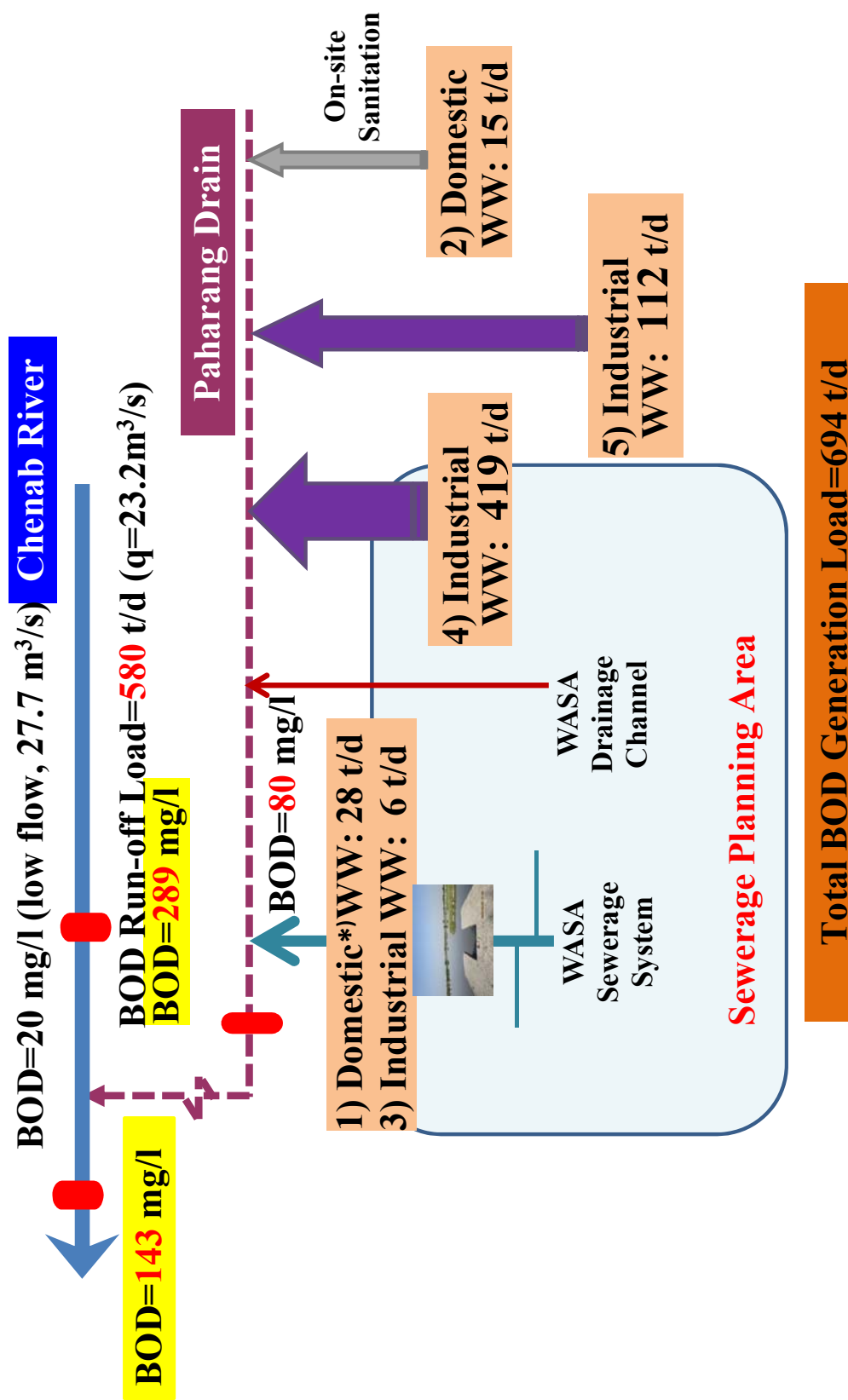


Figure AC 7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

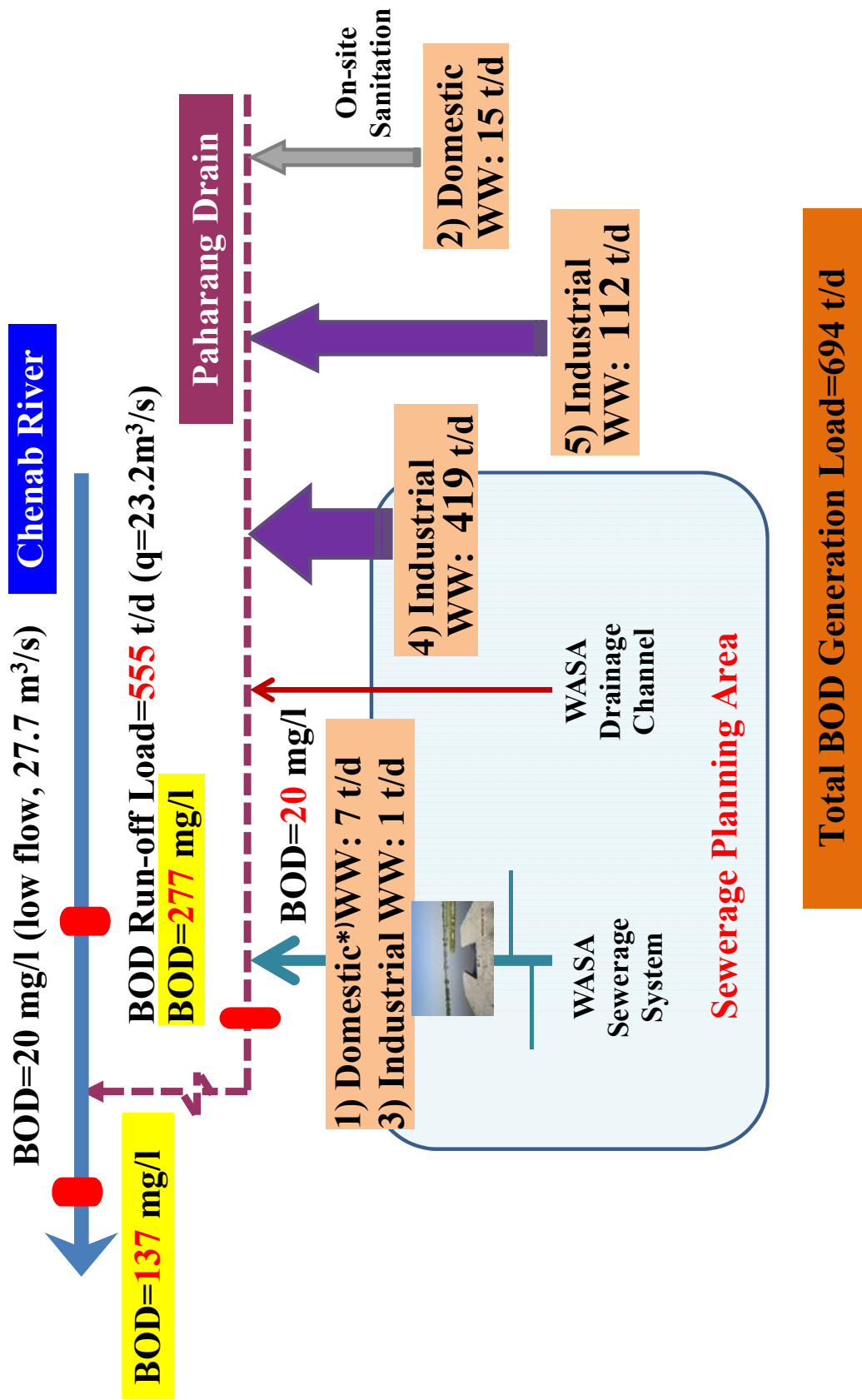


Figure AC 7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

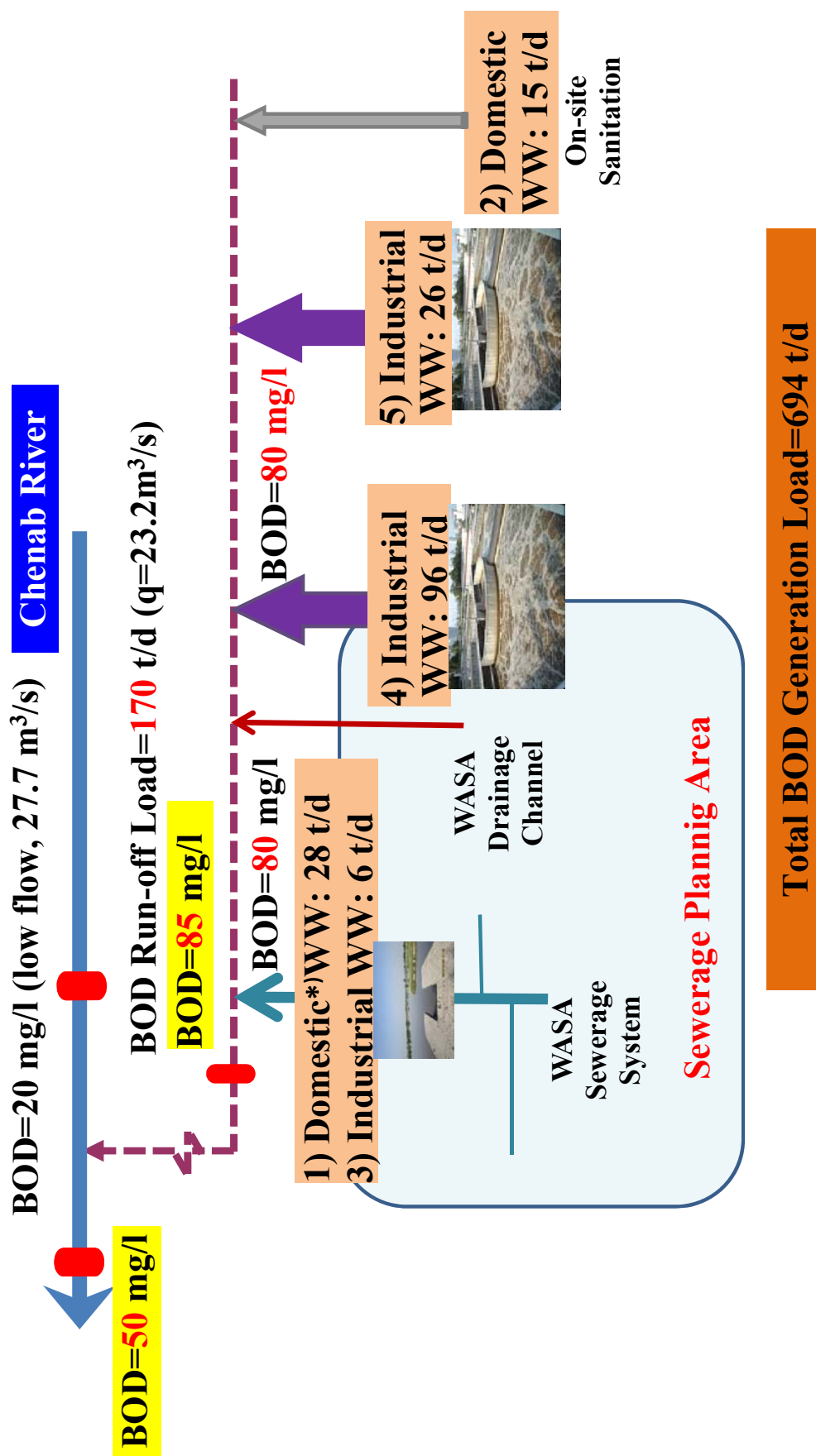


Figure AC 7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

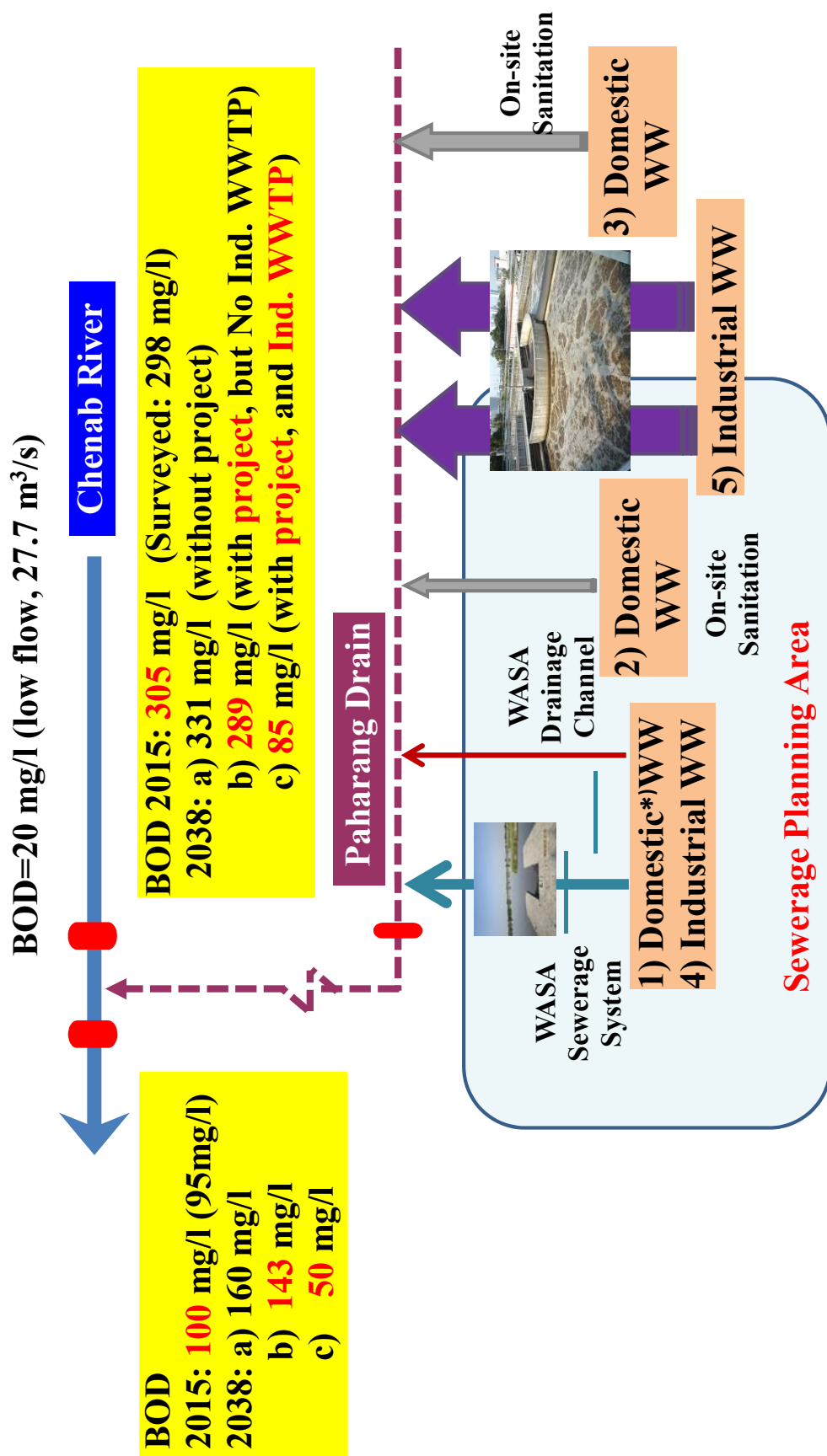


Figure AC 7.1.5 Results of Water Quality Projections in the Western Zone

Table AC7.2.1 Present Pollution Load Discharge in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	99,112	30.5	30.5	1	30.5	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	190,625	19,063	7.6	6.8	0.9	6.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	573,875	45,910	23.0	16.1	0.7	11.3	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	19,430	3.9	3.9	1	3.9	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)	-	183,515	65.0	57.3		51.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	300,420	105.1	105.1	1	105.1	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	559,360	195.7	195.8	-	195.8	-	-
8 Total BOD generation load (1~7)	-	742,875	260.7	-	-	-	-	-
9 Total discharge with sewerage service (1+4+5)	-	377,482	-	125.0	-	125.0	-	-
10 Total BOD effluent load	-	-	-	253.1		-	-	-
11 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	247.6	-	-
12 Overall BOD run-off load into Ravi River	-	-	-	-	-	247.6	-	-
13 Overall wastewater discharged into Ravi River	-	742,875	-	-	-	-	-	-
14 BOD concentration in the discharge to Ravi River {(12)*10 ⁶ /(13)}	-	-	-	-	-	-	333	330 mg/L, Survey result
15 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L , Survey Results
16 BOD concentration in the down stream side of Ravi River	-	1,123,035	-	-	-	323.6	288	BOD 290mg/L , Survey Results

Table AC7.2.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	105,021	30.5	34.3	1	34.3	-	138 lpcd 45 g/capita • day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,323,420	127,048	59.6	53.6	0.9	48.2	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)		314,535	115.6	108.2		99.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	High Scenario BOD load of 219 ton/d within Study Area, Refer to Tab. C7.4.15
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	367,410	128.6	128.6	1	128.6	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	473.5	-	473.5	-	-
8 Total BOD generation load (1~7)	-	-	589.1	-	-	-	-	-
9 Total BOD effluent load	-	-	-	581.7	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	572.7	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	572.7	-	-
12 Overall wastewater discharged into Ravi River (5+9)	-	1,667,475	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	343	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,047,635	-	-	-	648.7	317	Predicted BOD Conc.

Table AC7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off BOD Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	450.5	-	450.5	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	488.9	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	485.3	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	485.3	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River $\{(1) \cdot 10^6 / (12)\}$	-	-	-	-	-	-	282	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	561.3	267	Predicted BOD Conc.

Table AC7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	5.7	1	5.7	-	138 lpcd 45 g/capita/day Treated WW BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	0.8	1	0.8	-	Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	18.7	-	15.0	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	1.7	1	1.7	-	Influent 350mg/L Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	445.4	-	445.4	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	464.1	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	460.4	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	460.4	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	267	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	536.4	255	Predicted BOD Conc.

Table AC7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	-	-	-	-	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	541,090	189.4	43.3	1	43.3	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	58.1	1	58.1	-	-ditto-
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	108.2	-	108.2	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	146.6	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	143.0	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	143.0	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	83	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	219.0	104	Predicted BOD Conc.

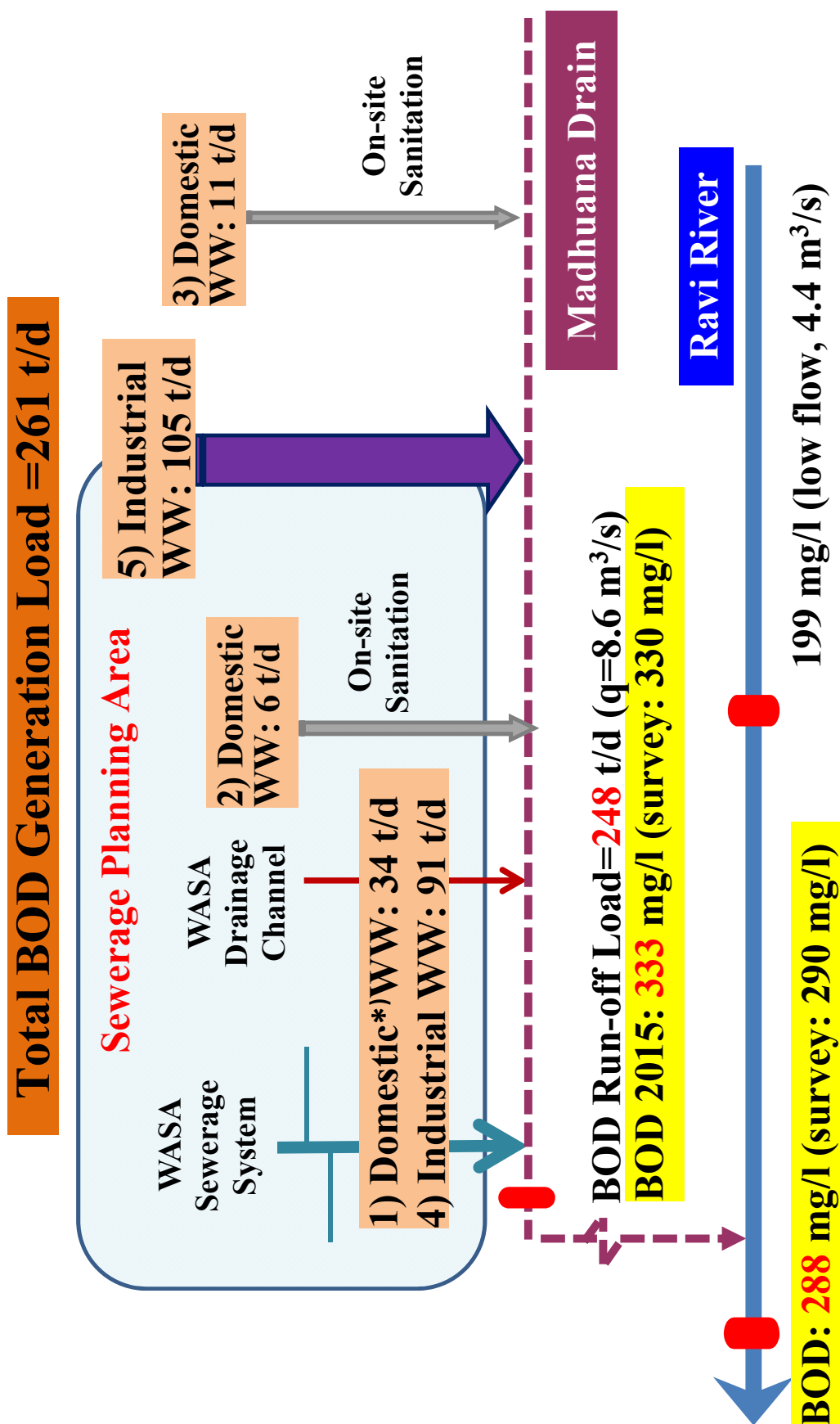


Figure AC 7.2.1 Present Pollution Load in the Eastern Zone

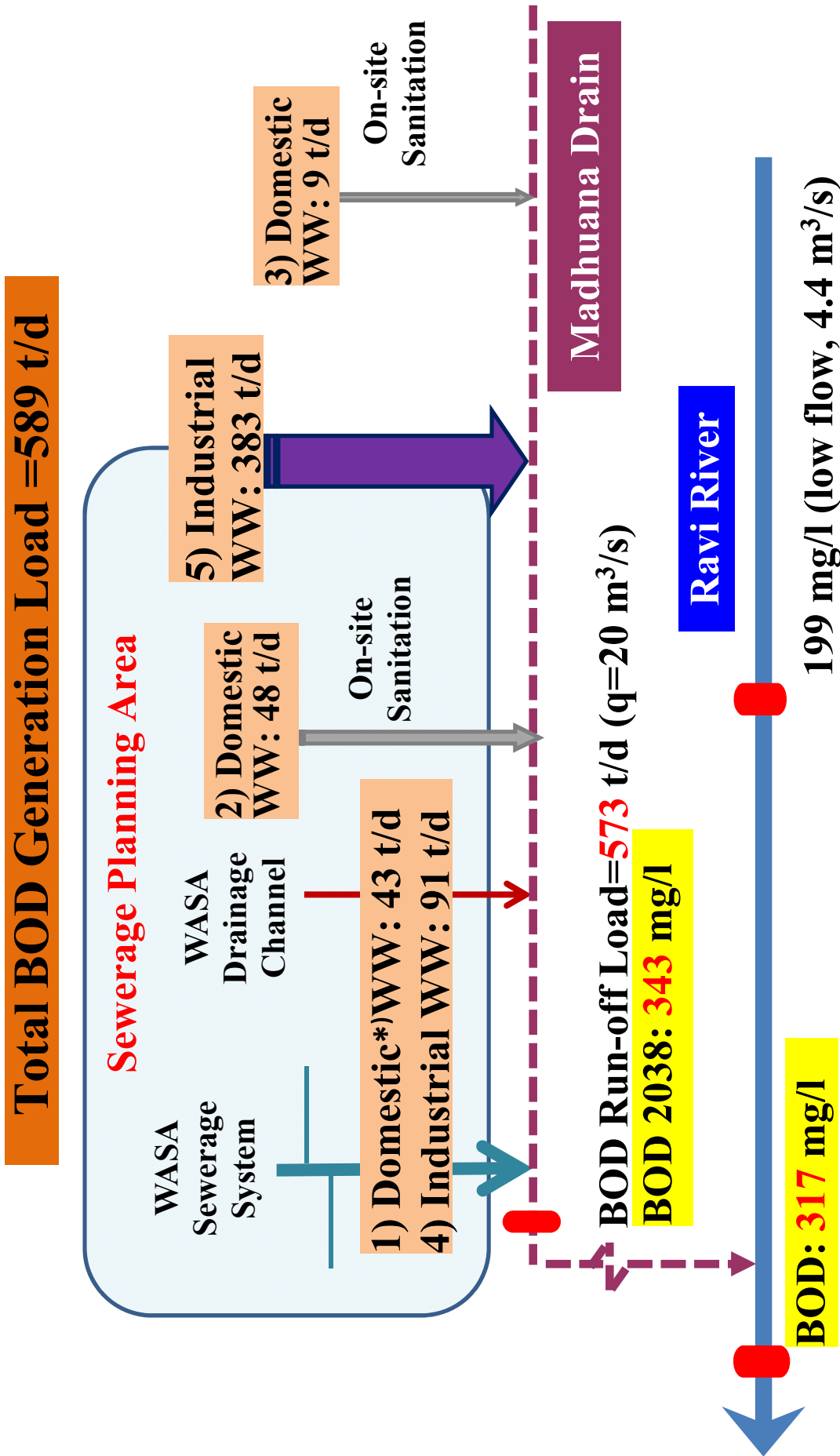


Figure AC 7.2.2 Target Year's Pollution Load Discharge in Case of Without Project in the Eastern Zone

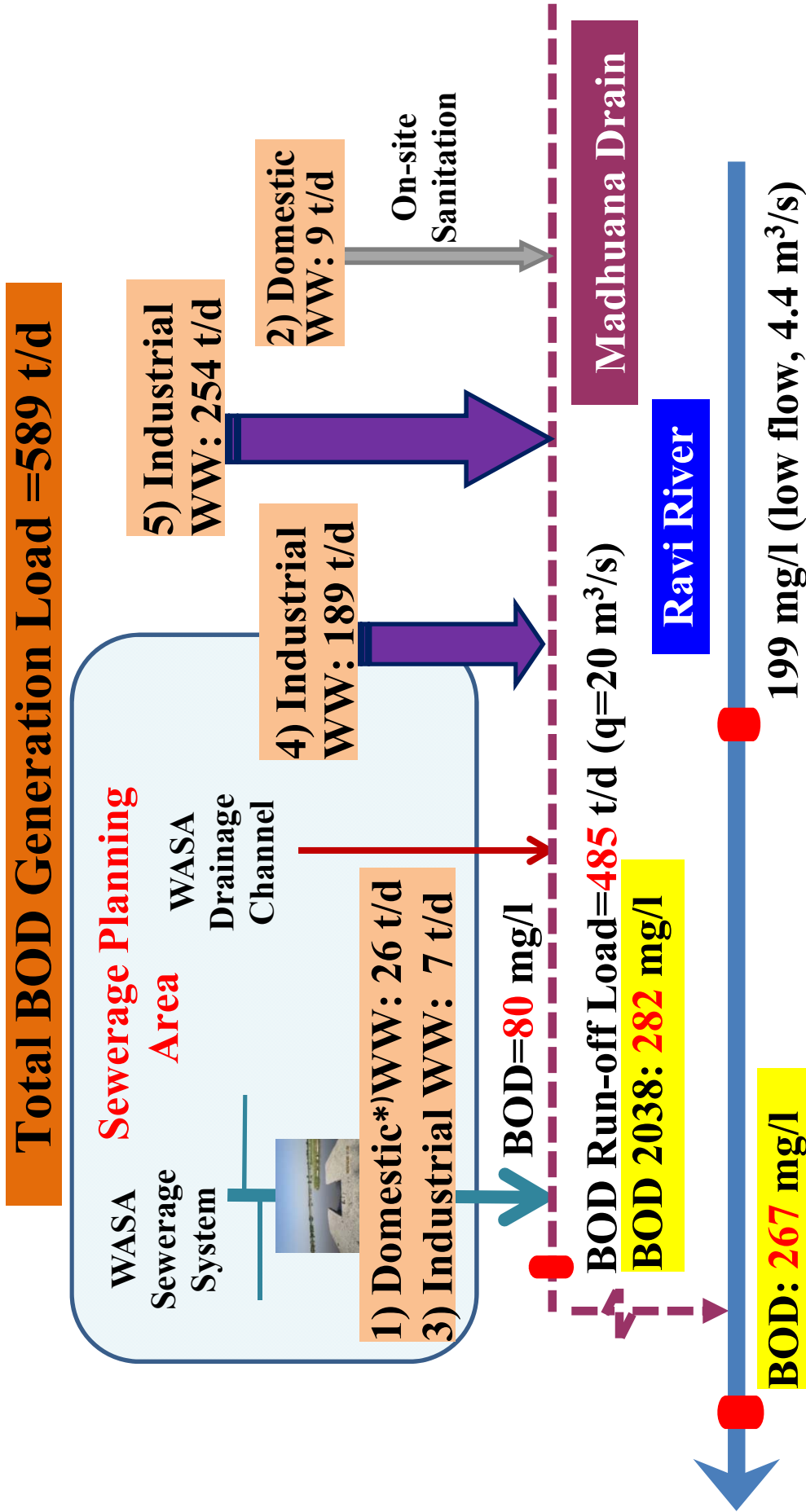


Figure AC 7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

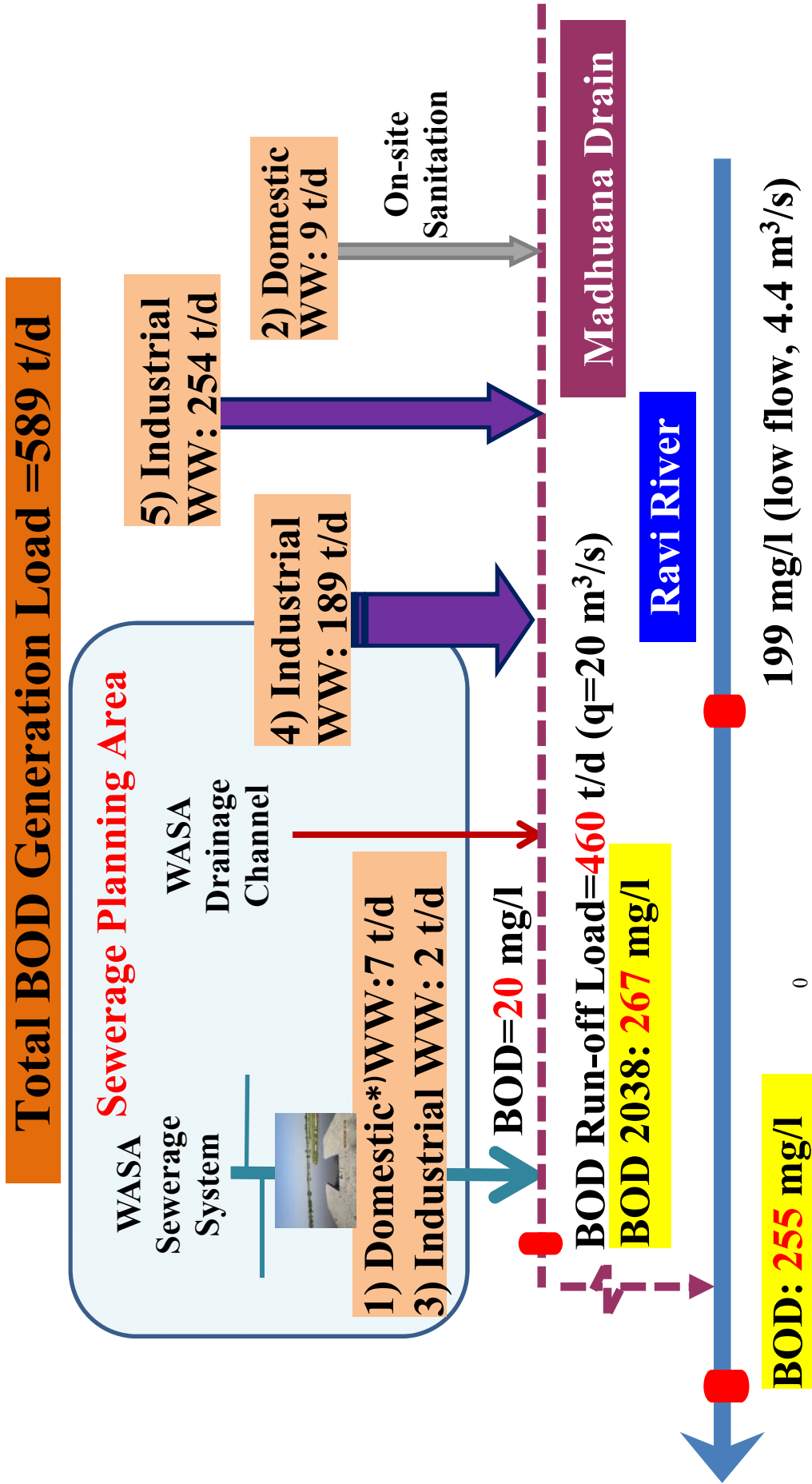


Figure AC 7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

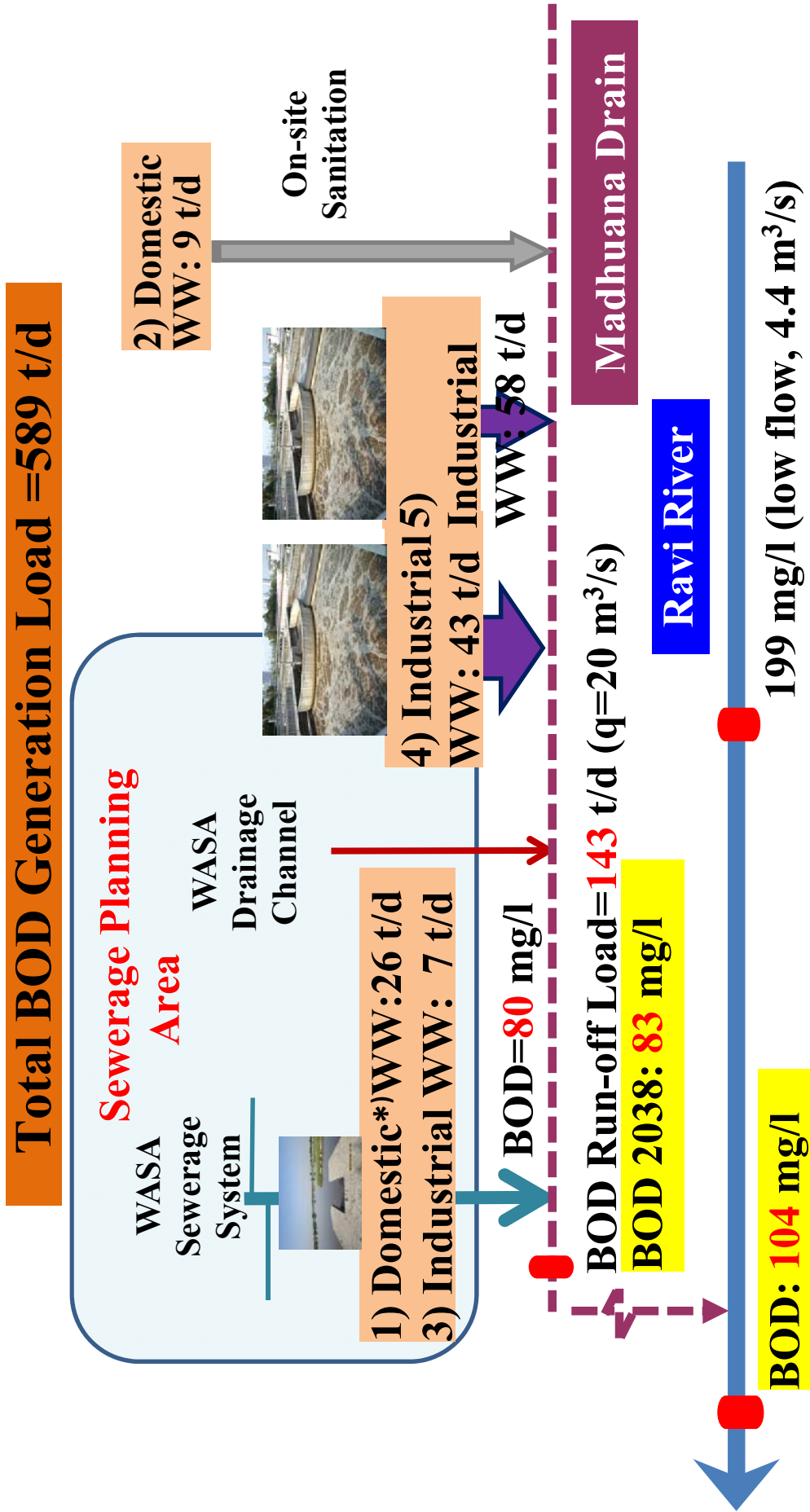


Figure AC 7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern

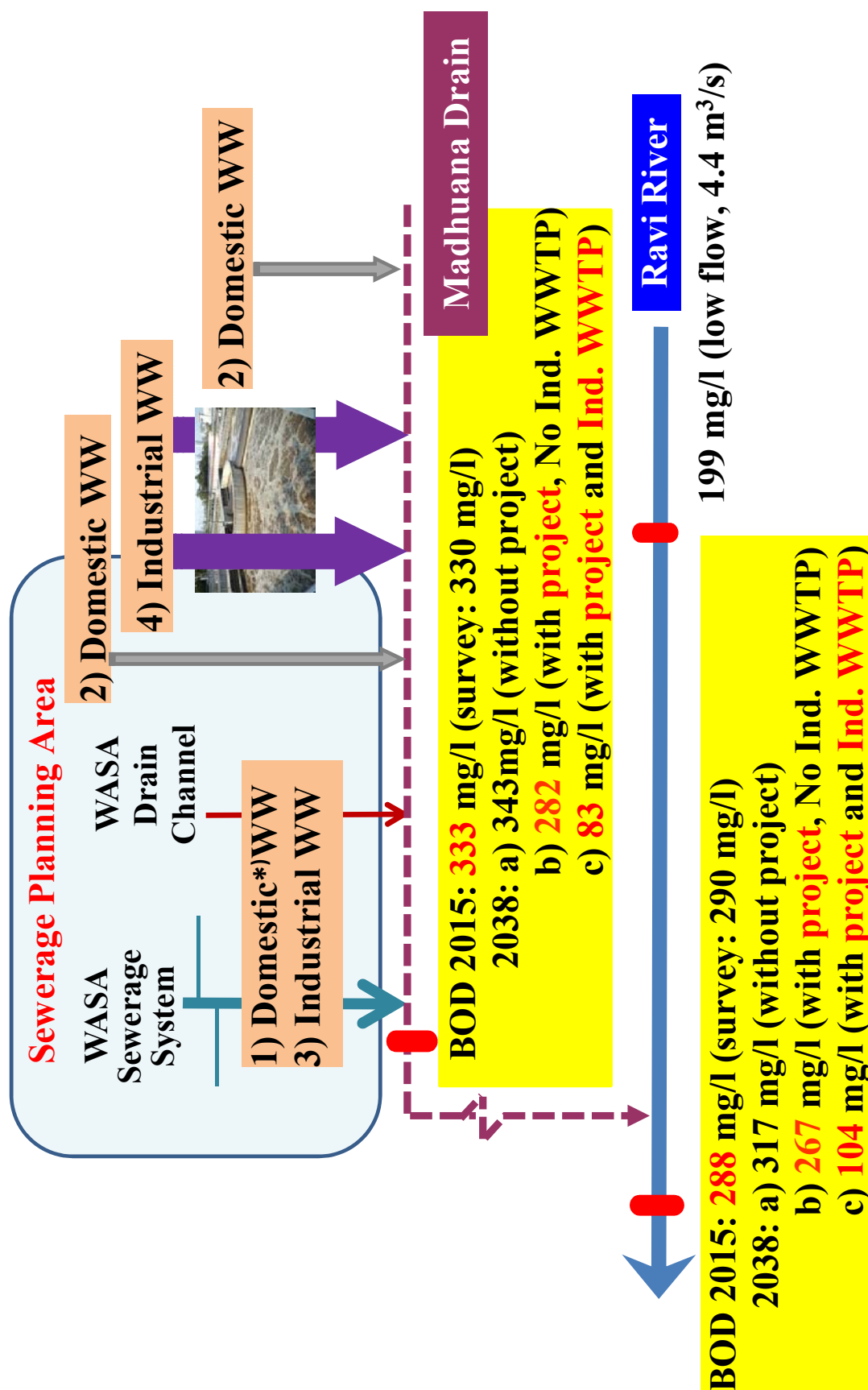


Figure AC 7.2.5 Water Quality Projections in the Eastern Zone

APPENDIX FOR CHAPTER C7 POLLUTION LOAD ESTIMATES AND WATER QUALITY PROJECTIONS IN PUBLIC WATER BODIES

AC7.1 Western Zone (Paharang Drain and Chenab River)

The calculation sheets to estimate the pollution load and the water quality in the future for each scenario are presented in Table AC7.1.1 to Table AC7.1.4. The results are illustrated as shown in Figure AC7.1.1 to Figure AC7.1.5.

AC7.2 Eastern Zone (Madhuana Drain and Ravi River)

The calculation sheets to estimate the pollution load and the water quality in the future for each scenario are presented in Table AC7.2.1 to Table AC7.2.4. The results are illustrated as shown in Figure AC7.2.1 to Figure AC7.2.5.

Table AC7.1.1 Present Pollution Load Discharge in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	130,910	40.3	40.3	1	40.3	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	495,915	49,592	19.8	17.9	0.9	16.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	774,433	61,955	31.0	21.7	0.7	15.2	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	25,670	5.1	5.1	1	5.1	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)		268,126	96.2	85.0		76.7	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	132,270	41.6	41.6	1	41.6	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	655,490	224.7	224.7		224.7	-	-
8 Total BOD generation load (1~7)	-		320.9				-	-
9 Total discharge with sewerage service (1+4+5)	-	679,800	-	228.5	-	228.5	-	-
10 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
11 Total BOD effluent load				290.4			-	-
12 Total BOD run-off load into Pahang Drain	-	-	-		-	282.1	-	-
13 Overall BOD run-off load into Chenab River	-	-	-		-	282.1	-	-
14 Overall wastewater discharged into Chenab River	-	923,616	-	-	-	-	-	-
15 BOD concentration in the discharge to Chenab River{(13)*10 ⁶ /(14)}	-	-	-	-	-	-	305	298 mg/L, Survey result
16 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0		BOD 20mg/L at low flow
17 BOD concentration in the down stream side of Chenab River	-	3,316,896	-	-	-	330.1	100	BOD 95mg/L, Survey Results

Table AC7.1.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	138,714	45.3	45.3	1	45.3	-	138 lpcd 45 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,199,290	119,929	54.0	48.6	0.9	43.7	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)	-	374,339	138.6	123.9	-	112.5	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	High Scenario BOD load of 443 ton/d within Study Area, Refer to Tab. C7.4.15
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	742,140	259.7	259.7	1	259.7	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.8	554.8	-	554.8	-	-
8 Total BOD generation load (1~7)	-	-	693.4	-	-	-	-	-
9 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
10 Total BOD effluent load	-	-	-	659.5	-	-	-	-
11 Total BOD run-off load into Pahang Drain	-	-	-	-	-	648.1	-	-
12 Overall discharge into Chenab River	-	-	-	-	-	648.1	-	-
13 Overall wastewater discharged into Chenab River	-	1,959,619	-	-	-	-	-	-
14 BOD concentration in the discharge to Chenab River{(12)*10 ⁶ /(13)}	-	-	-	-	-	-	331	-
15 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
16 BOD concentration in the down stream side of Chenab River	-	4,352,899	-	-	-	696.1	160	Predicted BOD Conc.

Table AC7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off BOD Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	49.4		42.9	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)		1,585,280	554.9	536.4	-	536.4	-	-
8 Total BOD generation load (1~7)	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	585.8	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	579.3	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	579.3	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River $\{(1)*10^6/(12)\}$	-	-	-	-	-	-	289	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	627.3	143	Predicted BOD Conc.

Table AC7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	6.1	1	6.1	-	138 lpcd 45 g/capita/day Effluent BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	0.8	1	0.8	-	Influent BOD 200mg/L Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	28.7		22.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	1.4	1	1.4	-	Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.9	532.4	-	532.4	-	-
8 Total BOD generation load	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	561.1	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	554.5	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	554.5	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	277	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	602.5	137	Predicted BOD Conc.

Table AC7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	419,612	138.6	49.4	-	42.9	-	
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	95.8	1	95.8	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	25.6	1	25.6	-	-ditto-
Sub-total of industrial (5+6+7)	-	1,585,280	554.9	126.8	-	101.2	-	
8 Total BOD generation load	-	-	693.5	-	-	-	-	
9 Total BOD effluent load	-	-	-	176.2	-	-	-	
10 Total BOD run-off load into Paharang Drain (1~6)	-	-	-	-	-	170.0	-	
11 Overall BOD run-off load into Chenab River (7+10)	-	-	-	-	-	170.0	-	
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	85	
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	218.0	50	Predicted BOD Conc.

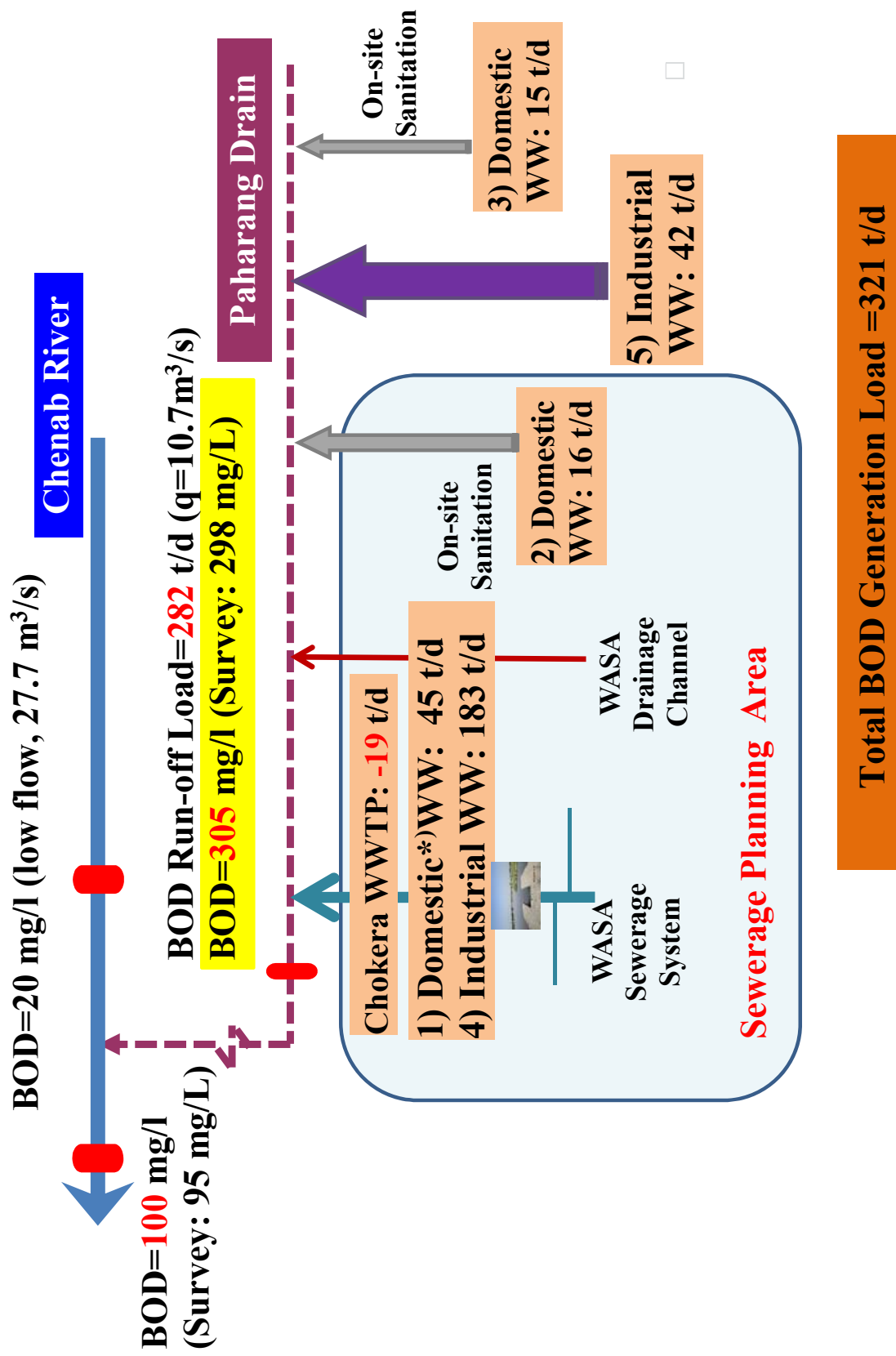


Figure AC 7.1.1 Present Pollution Load in the Western Zone

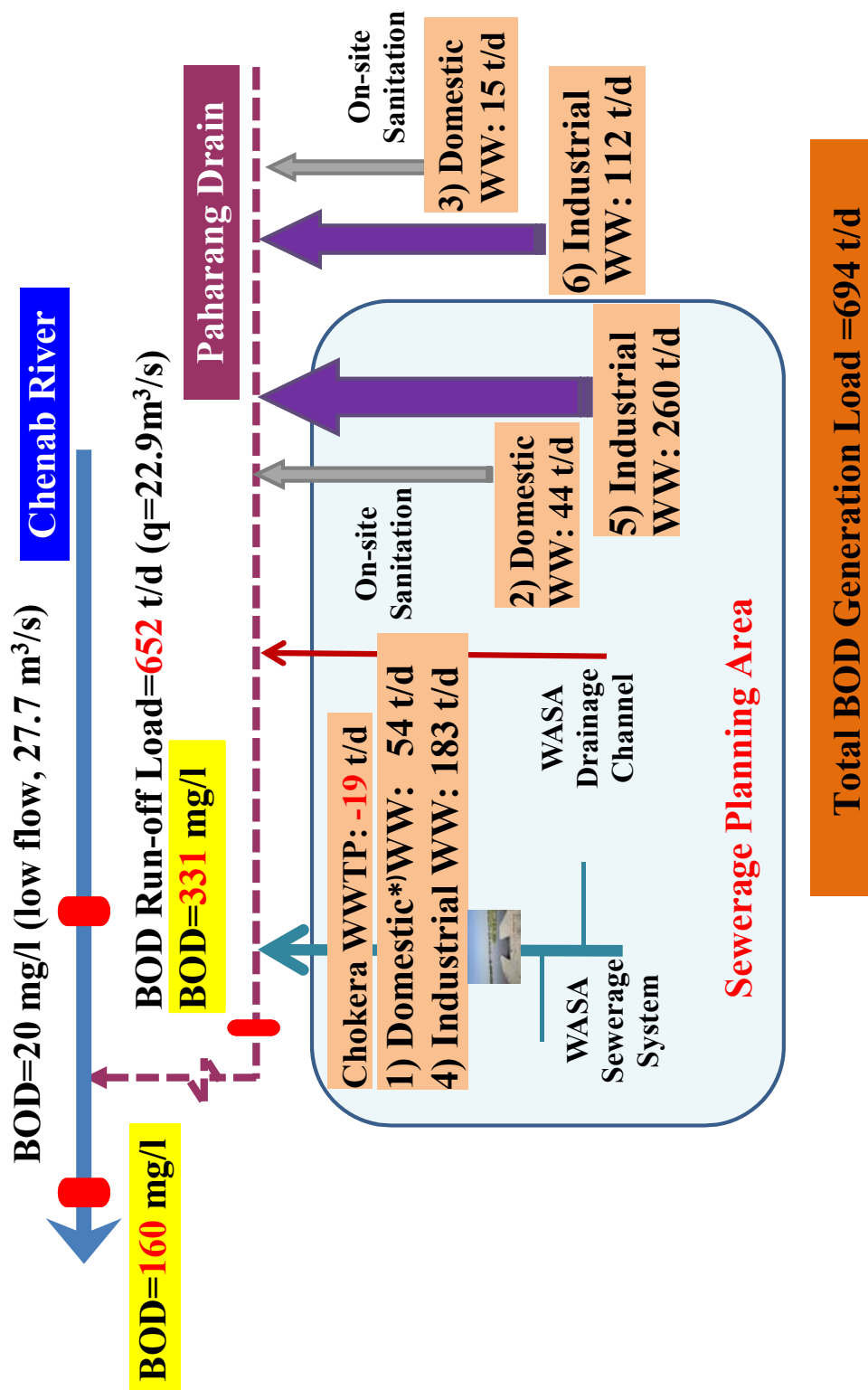


Figure AC 7.1.2 Target Year's Pollution Load Discharge in Case of Without Project in the Western Zone

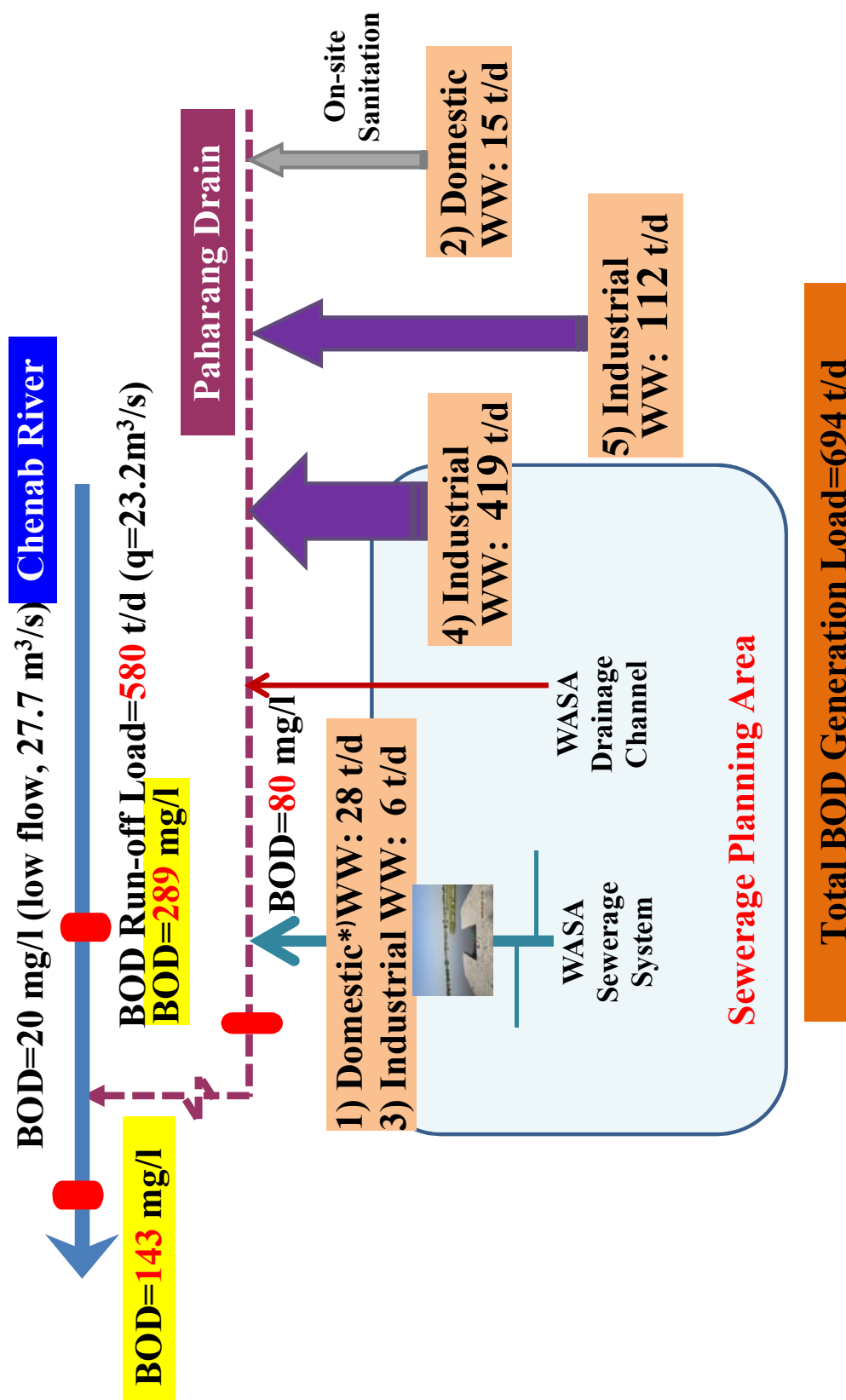


Figure AC 7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

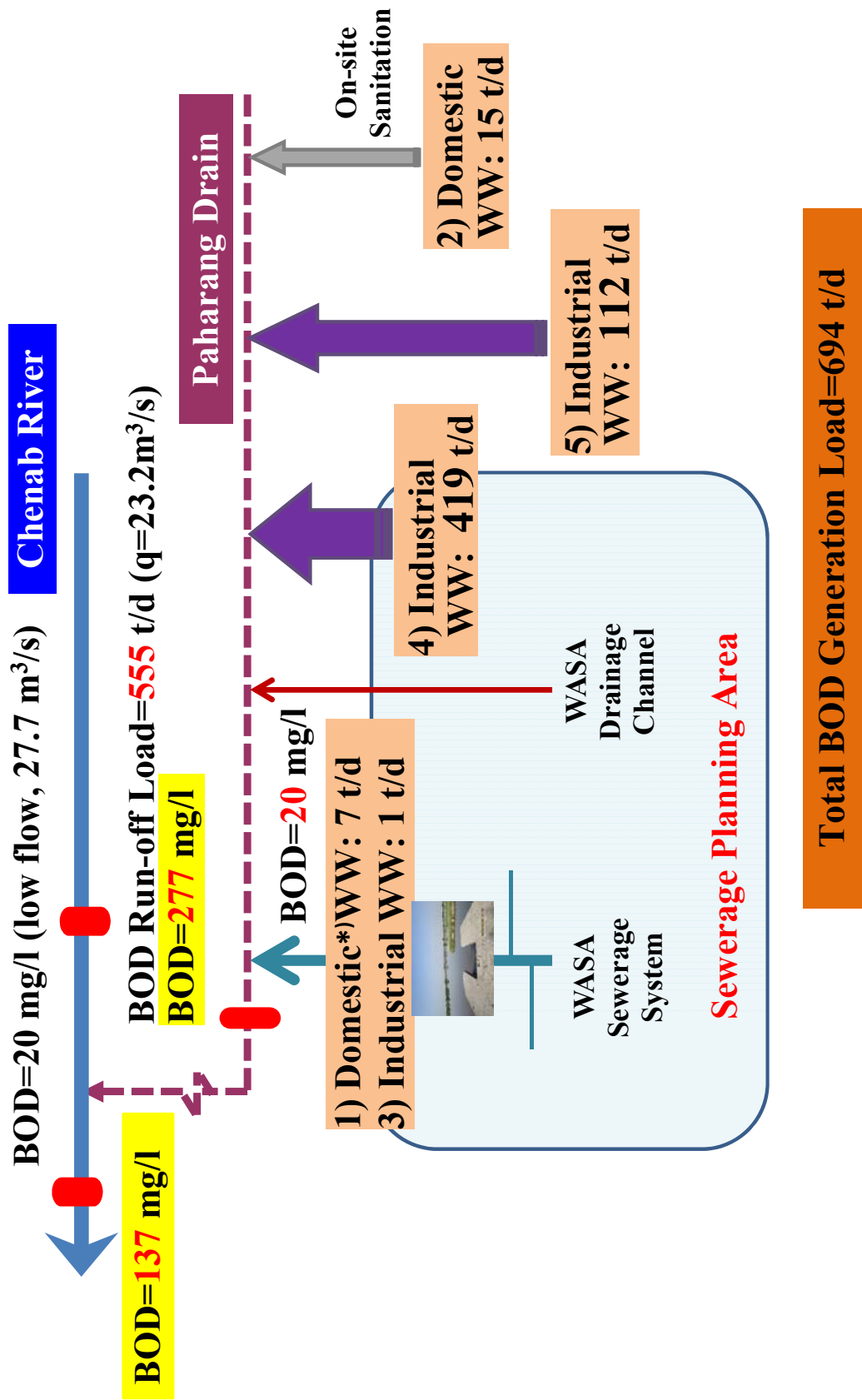


Figure AC 7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

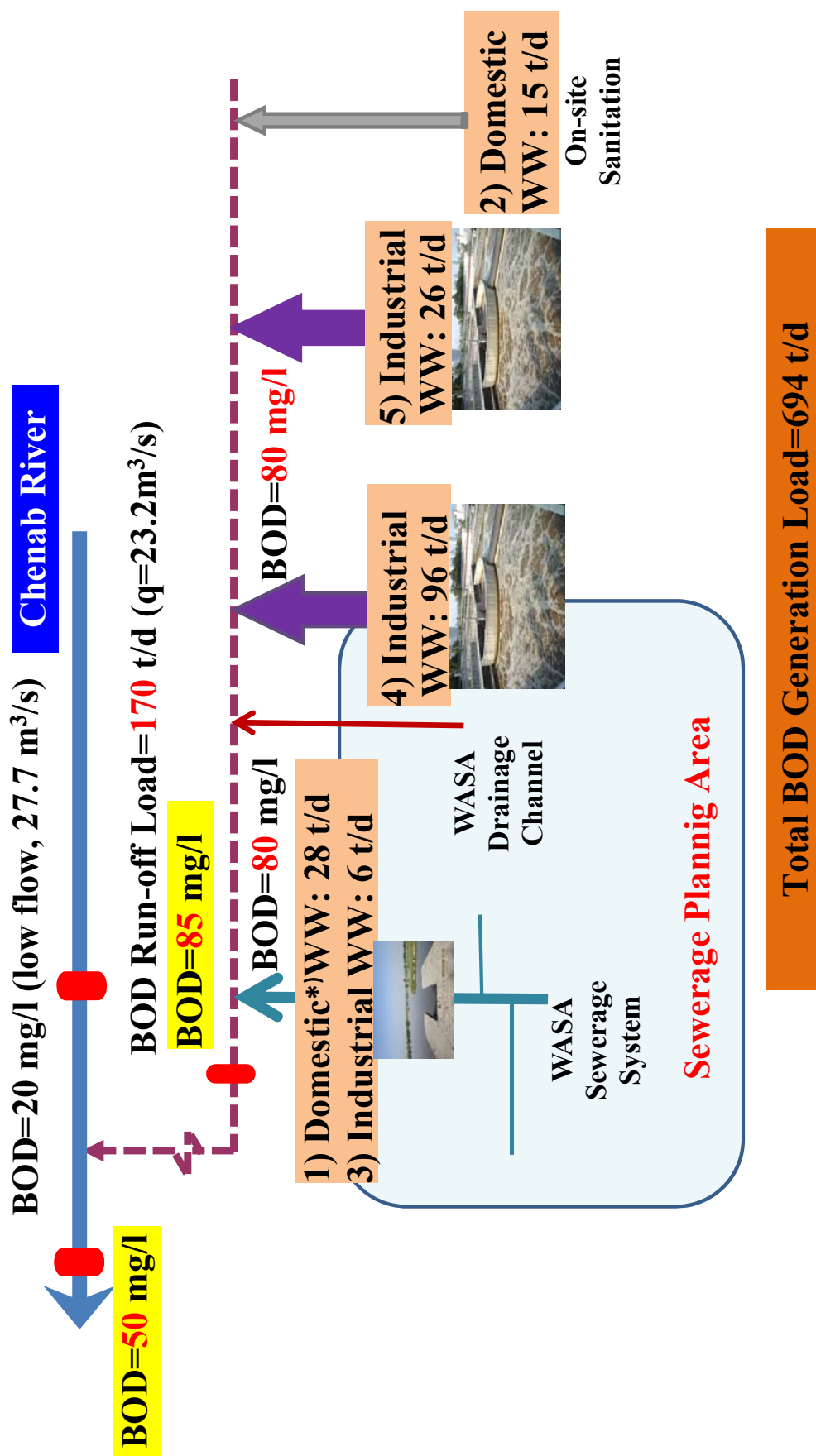


Figure AC 7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

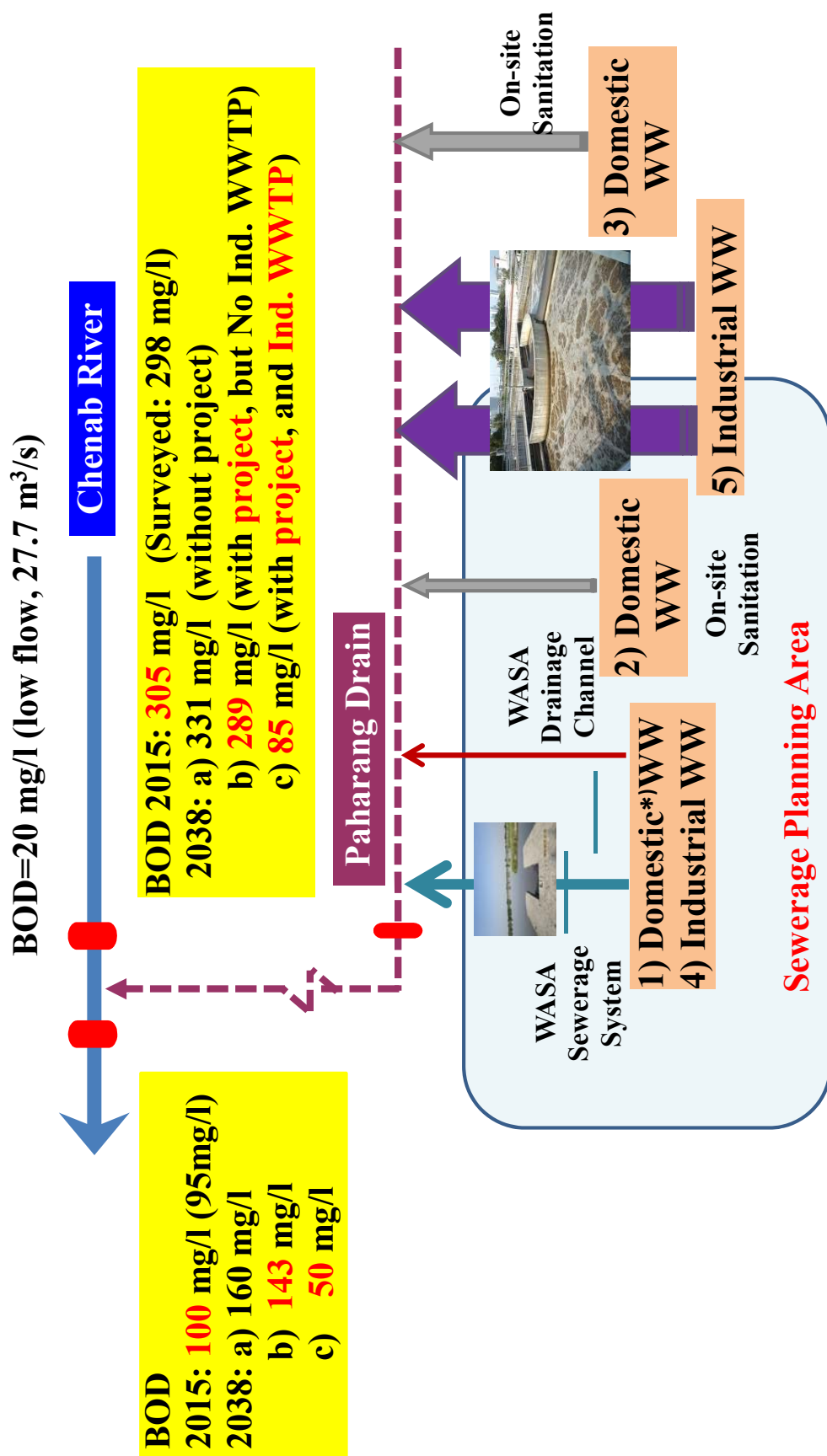


Figure AC 7.1.5 Results of Water Quality Projections in the Western Zone

Table AC7.2.1 Present Pollution Load Discharge in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	99,112	30.5	30.5	1	30.5	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	190,625	19,063	7.6	6.8	0.9	6.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	573,875	45,910	23.0	16.1	0.7	11.3	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	19,430	3.9	3.9	1	3.9	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)	-	183,515	65.0	57.3		51.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	300,420	105.1	105.1	1	105.1	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	559,360	195.7	195.8	-	195.8	-	-
8 Total BOD generation load (1~7)	-	742,875	260.7	-	-	-	-	-
9 Total discharge with sewerage service (1+4+5)	-	377,482	-	125.0	-	125.0	-	-
10 Total BOD effluent load	-	-	-	253.1		-	-	-
11 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	247.6	-	-
12 Overall BOD run-off load into Ravi River	-	-	-	-	-	247.6	-	-
13 Overall wastewater discharged into Ravi River	-	742,875	-	-	-	-	-	-
14 BOD concentration in the discharge to Ravi River {(12)*10 ⁶ /(13)}	-	-	-	-	-	-	333	330 mg/L, Survey result
15 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
16 BOD concentration in the down stream side of Ravi River	-	1,123,035	-	-	-	323.6	288	BOD 290mg/L, Survey Results

Table AC7.2.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	105,021	30.5	34.3	1	34.3	-	138 lpcd 45 g/capita • day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,323,420	127,048	59.6	53.6	0.9	48.2	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)		314,535	115.6	108.2		99.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	High Scenario BOD load of 219 ton/d within Study Area, Refer to Tab. C7.4.15
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	367,410	128.6	128.6	1	128.6	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	473.5	-	473.5	-	-
8 Total BOD generation load (1~7)	-	-	589.1	-	-	-	-	-
9 Total BOD effluent load	-	-	-	581.7	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	572.7	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	572.7	-	-
12 Overall wastewater discharged into Ravi River (5+9)	-	1,667,475	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	343	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,047,635	-	-	-	648.7	317	Predicted BOD Conc.

Table AC7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off BOD Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	450.5	-	450.5	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	488.9	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	485.3	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	485.3	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River $\{(1) \cdot 10^6 / (12)\}$	-	-	-	-	-	-	282	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	561.3	267	Predicted BOD Conc.

Table AC7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	5.7	1	5.7	-	138 lpcd 45 g/capita/day Treated WW BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	0.8	1	0.8	-	Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	18.7	-	15.0	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	1.7	1	1.7	-	Influent 350mg/L Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	445.4	-	445.4	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	464.1	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	460.4	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	460.4	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	267	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	536.4	255	Predicted BOD Conc.

Table AC7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	-	-	-	-	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	541,090	189.4	43.3	1	43.3	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	58.1	1	58.1	-	-ditto-
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	108.2	-	108.2	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	146.6	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	143.0	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	143.0	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	83	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	219.0	104	Predicted BOD Conc.

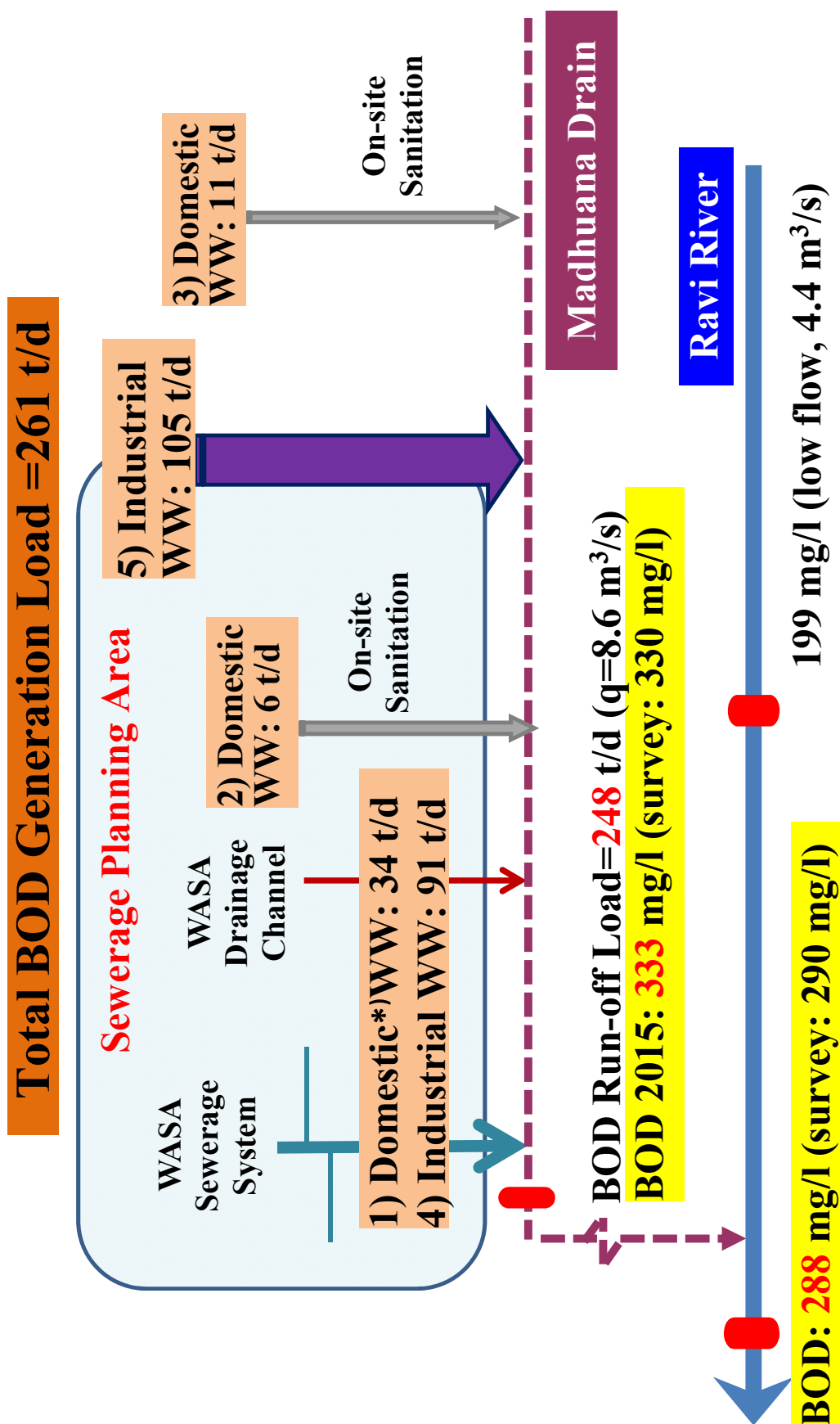


Figure AC 7.2.1 Present Pollution Load in the Eastern Zone

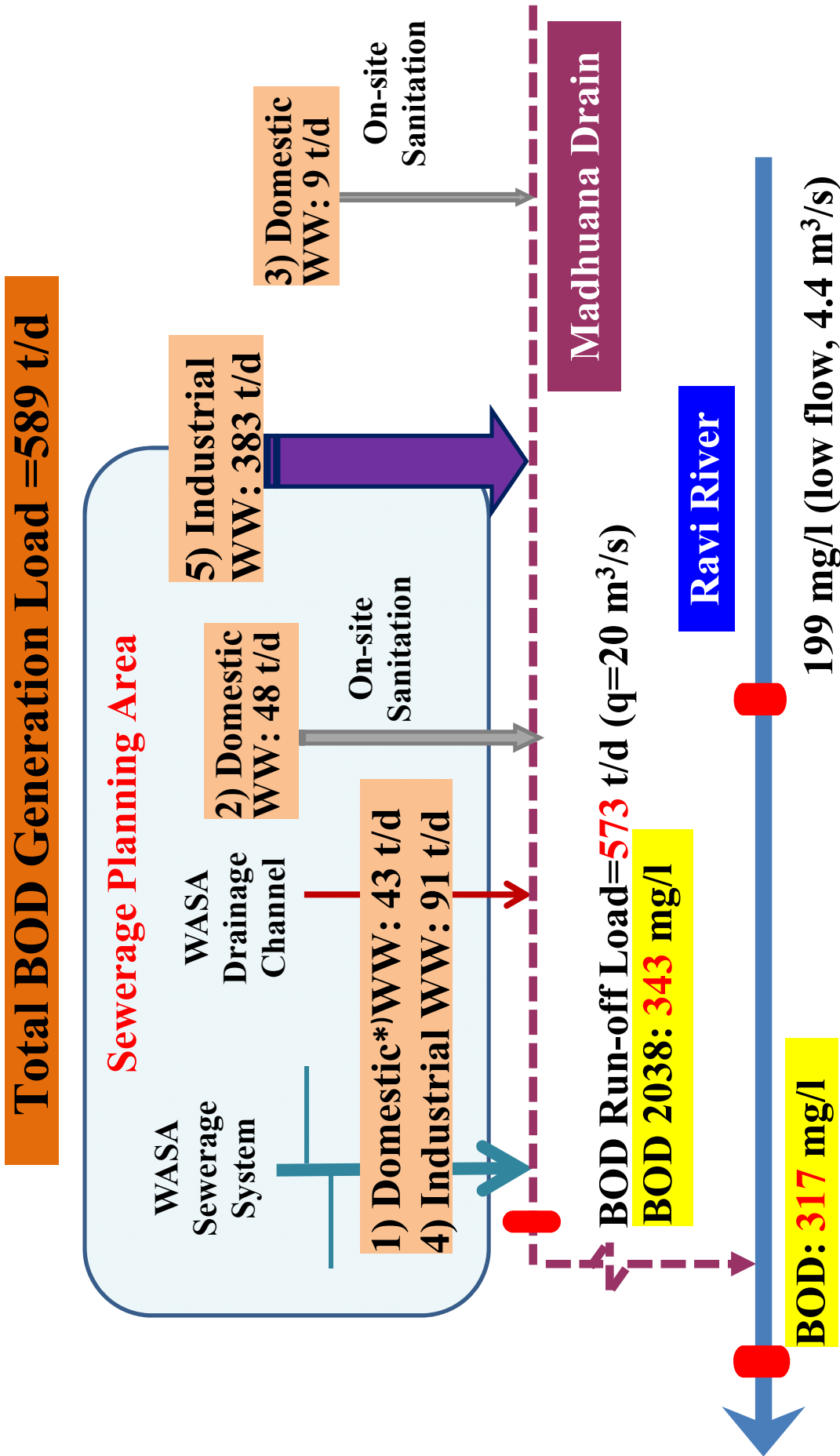


Figure AC 7.2.2 Target Year's Pollution Load Discharge in Case of Without Project in the Eastern Zone

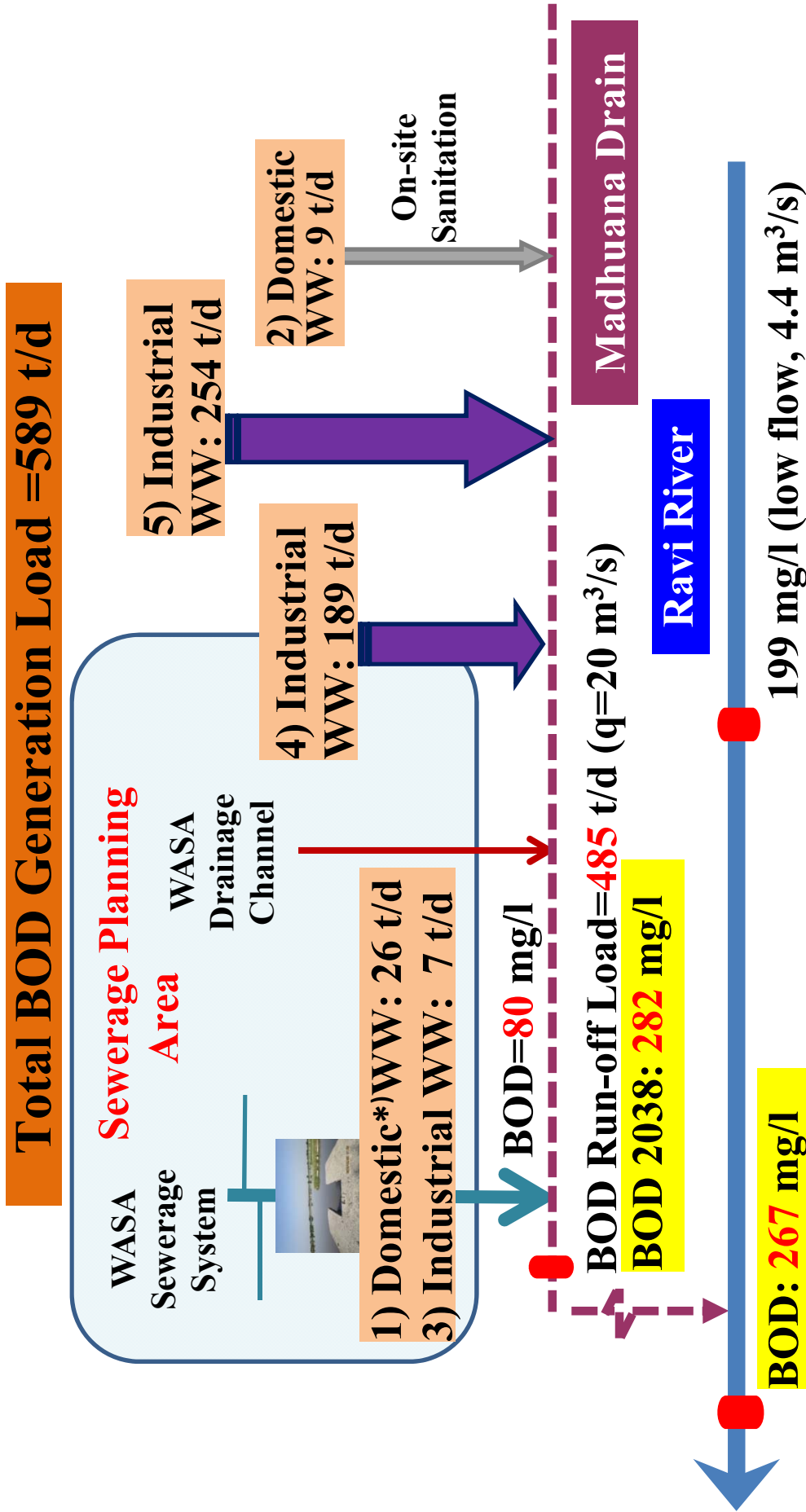


Figure AC 7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

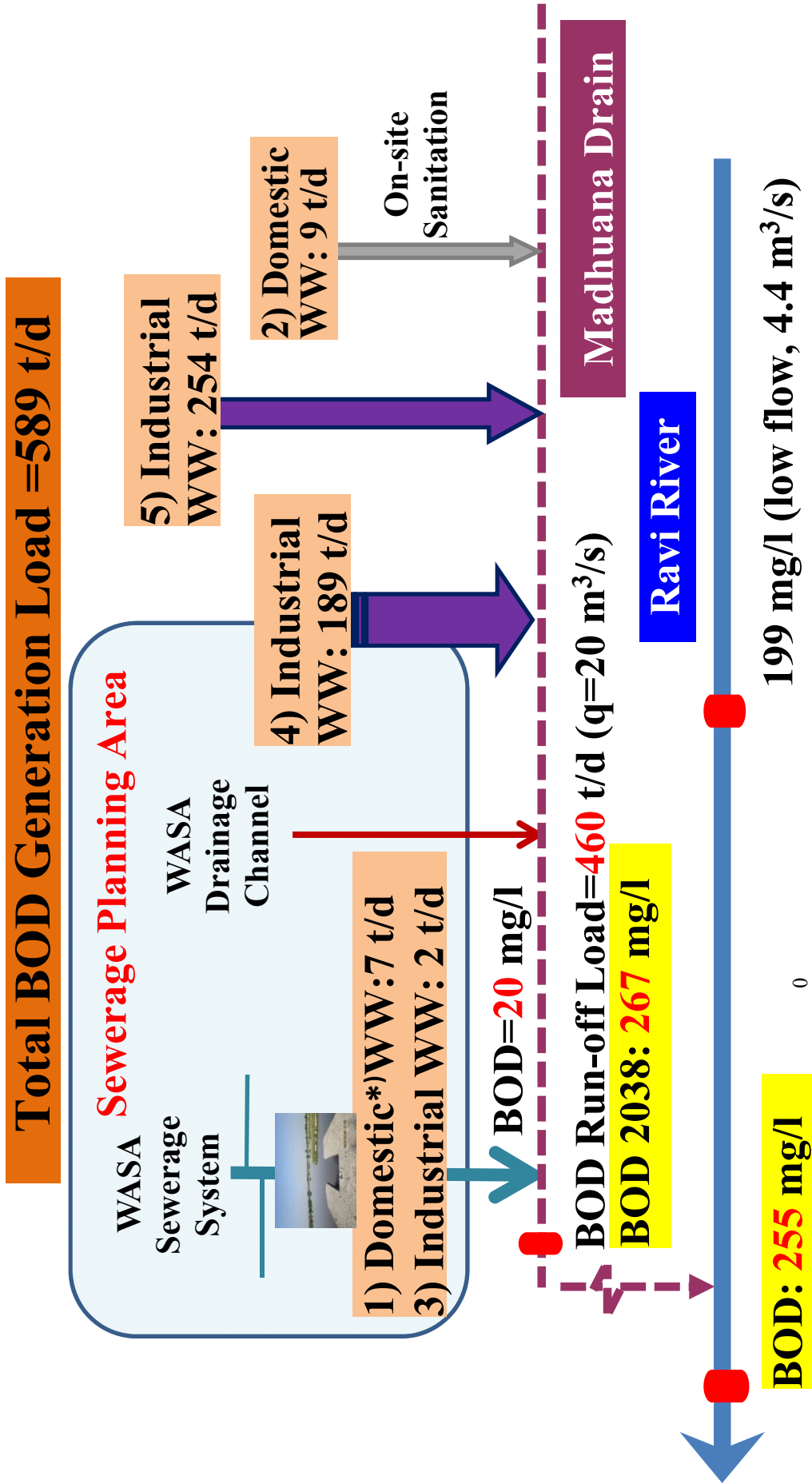


Figure AC 7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

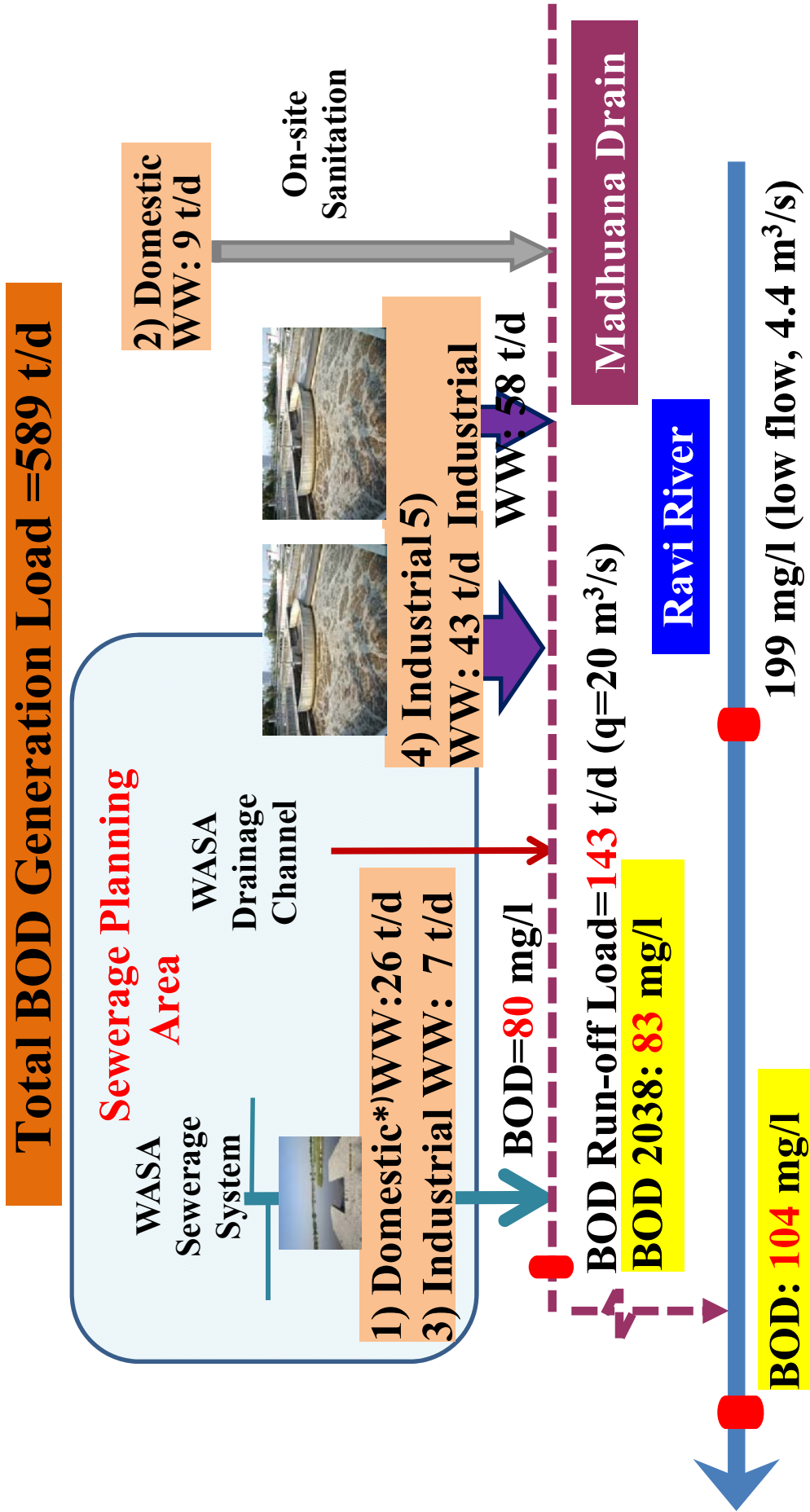


Figure AC 7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern

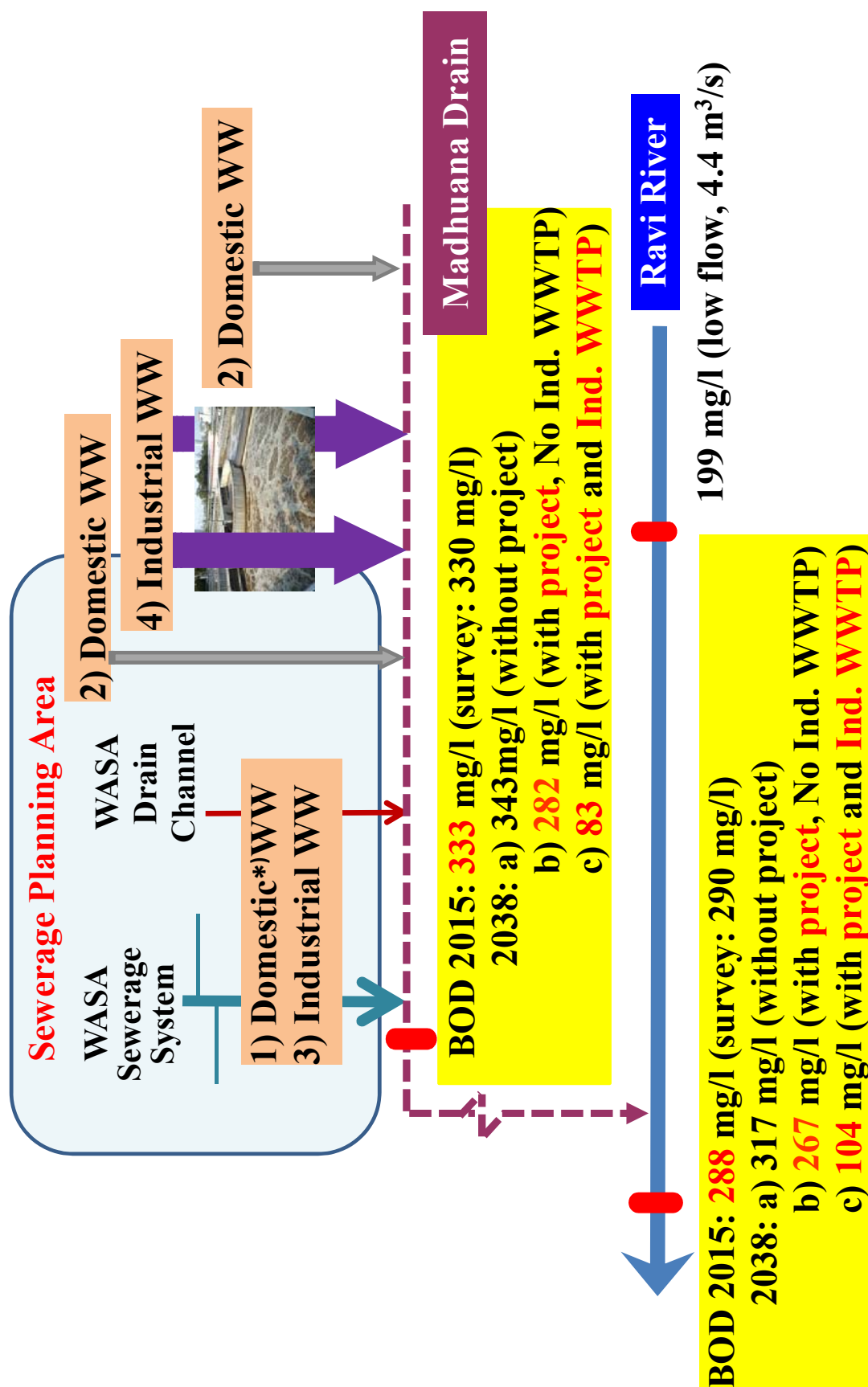


Figure AC 7.2.5 Water Quality Projections in the Eastern Zone

Table AC7.1.1 Present Pollution Load Discharge in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	130,910	40.3	40.3	1	40.3	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	495,915	49,592	19.8	17.9	0.9	16.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	774,433	61,955	31.0	21.7	0.7	15.2	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	25,670	5.1	5.1	1	5.1	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)		268,126	96.2	85.0		76.7	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	132,270	41.6	41.6	1	41.6	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	655,490	224.7	224.7		224.7	-	-
8 Total BOD generation load (1~7)	-		320.9				-	-
9 Total discharge with sewerage service (1+4+5)	-	679,800	-	228.5	-	228.5	-	-
10 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
11 Total BOD effluent load				290.4			-	-
12 Total BOD run-off load into Pahang Drain	-	-	-		-	282.1	-	-
13 Overall BOD run-off load into Chenab River	-	-	-		-	282.1	-	-
14 Overall wastewater discharged into Chenab River	-	923,616	-	-	-	-	-	-
15 BOD concentration in the discharge to Chenab River{(13)*10 ⁶ /(14)}	-	-	-	-	-	-	305	298 mg/L, Survey result
16 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0		BOD 20mg/L at low flow
17 BOD concentration in the down stream side of Chenab River	-	3,316,896	-	-	-	330.1	100	BOD 95mg/L, Survey Results

Table AC7.1.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	1,007,000	138,714	45.3	45.3	1	45.3	-	138 lpcd 45 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,199,290	119,929	54.0	48.6	0.9	43.7	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)	-	374,339	138.6	123.9	-	112.5	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	523,220	183.1	183.1	1	183.1	-	High Scenario BOD load of 443 ton/d
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	742,140	259.7	259.7	1	259.7	-	within Study Area, Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.8	554.8	-	554.8	-	-
8 Total BOD generation load (1~7)	-	-	693.4	-	-	-	-	-
9 Pollution load reduction by Chokera WWTP	-	46,700	-	-19.3	1	-19.3	-	Survey results (reduced BOD conc. 415mg/L)
10 Total BOD effluent load	-	-	-	659.5	-	-	-	-
11 Total BOD run-off load into Pahang Drain	-	-	-	-	-	648.1	-	-
12 Overall discharge into Chenab River	-	-	-	-	-	648.1	-	-
13 Overall wastewater discharged into Chenab River	-	1,959,619	-	-	-	-	-	-
14 BOD concentration in the discharge to Chenab River{(12)*10 ⁶ /(13)}	-	-	-	-	-	-	331	-
15 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
16 BOD concentration in the down stream side of Chenab River	-	4,352,899	-	-	-	696.1	160	Predicted BOD Conc.

Table AC7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	49.4		42.9	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)		1,585,280	554.9	536.4	-	536.4	-	-
8 Total BOD generation load (1~7)	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	585.8	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	579.3	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	579.3	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River $\{(1)*10^6/(12)\}$	-	-	-	-	-	-	289	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	627.3	143	Predicted BOD Conc.

Table AC7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	6.1	1	6.1	-	138 lpcd 45 g/capita/day Effluent BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	0.8	1	0.8	-	Influent BOD 200mg/L Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)		419,612	138.6	28.7		22.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	1.4	1	1.4	-	Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	419.0	1	419.0	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	112.0	1	112.0	-	High Scenario Refer to Tab. C7.4.15
Sub-total of industrial WW (5+6+7)	-	1,585,280	554.9	532.4	-	532.4	-	-
8 Total BOD generation load	-	-	693.5	-	-	-	-	-
9 Total BOD effluent load	-	-	-	561.1	-	-	-	-
10 Total BOD run-off load into Paharang Drain	-	-	-	-	-	554.5	-	-
11 Overall BOD run-off load into Chenab River	-	-	-	-	-	554.5	-	-
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	-
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	277	-
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	602.5	137	Predicted BOD Conc.

Table AC7.1.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Western Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,206,290	303,916	99.3	24.3	1	24.3	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	-	-	0	-	
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	778,080	74,696	31.1	21.8	0.7	15.3	-	96 lpcd, 40 g/capita/day 30% BOD removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	41,000	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	419,612	138.6	49.4	-	42.9	-	
5 Industrial wastewater collected and disposed by the sewerage system	-	68,170	23.9	5.5	1	5.5	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	1,197,190	419.0	95.8	1	95.8	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	319,920	112.0	25.6	1	25.6	-	-ditto-
Sub-total of industrial (5+6+7)	-	1,585,280	554.9	126.8	-	101.2	-	
8 Total BOD generation load	-	-	693.5	-	-	-	-	
9 Total BOD effluent load	-	-	-	176.2	-	-	-	
10 Total BOD run-off load into Paharang Drain (1~6)	-	-	-	-	-	170.0	-	
11 Overall BOD run-off load into Chenab River (7+10)	-	-	-	-	-	170.0	-	
12 Overall wastewater discharged into Chenab River	-	2,004,892	-	-	-	-	-	
13 BOD concentration in the discharge to Chenab River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	85	
14 BOD load in the upper stream side of Chenab River	-	2,393,280	-	-	-	48.0	-	BOD 20mg/L at low flow
15 BOD concentration in the down stream side of Chenab River	-	4,398,172	-	-	-	218.0	50	Predicted BOD Conc.

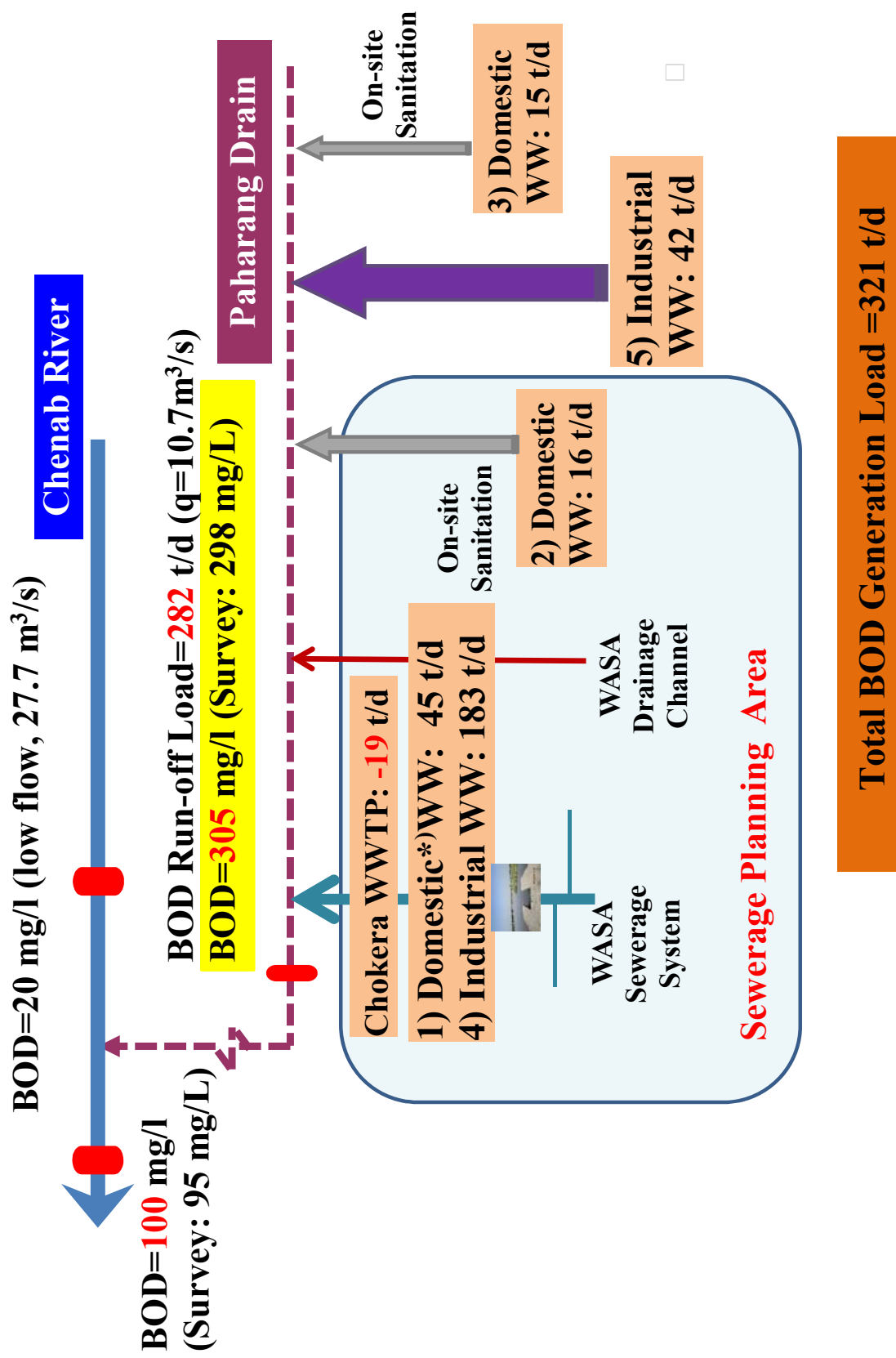


Figure AC 7.1.1 Present Pollution Load in the Western Zone

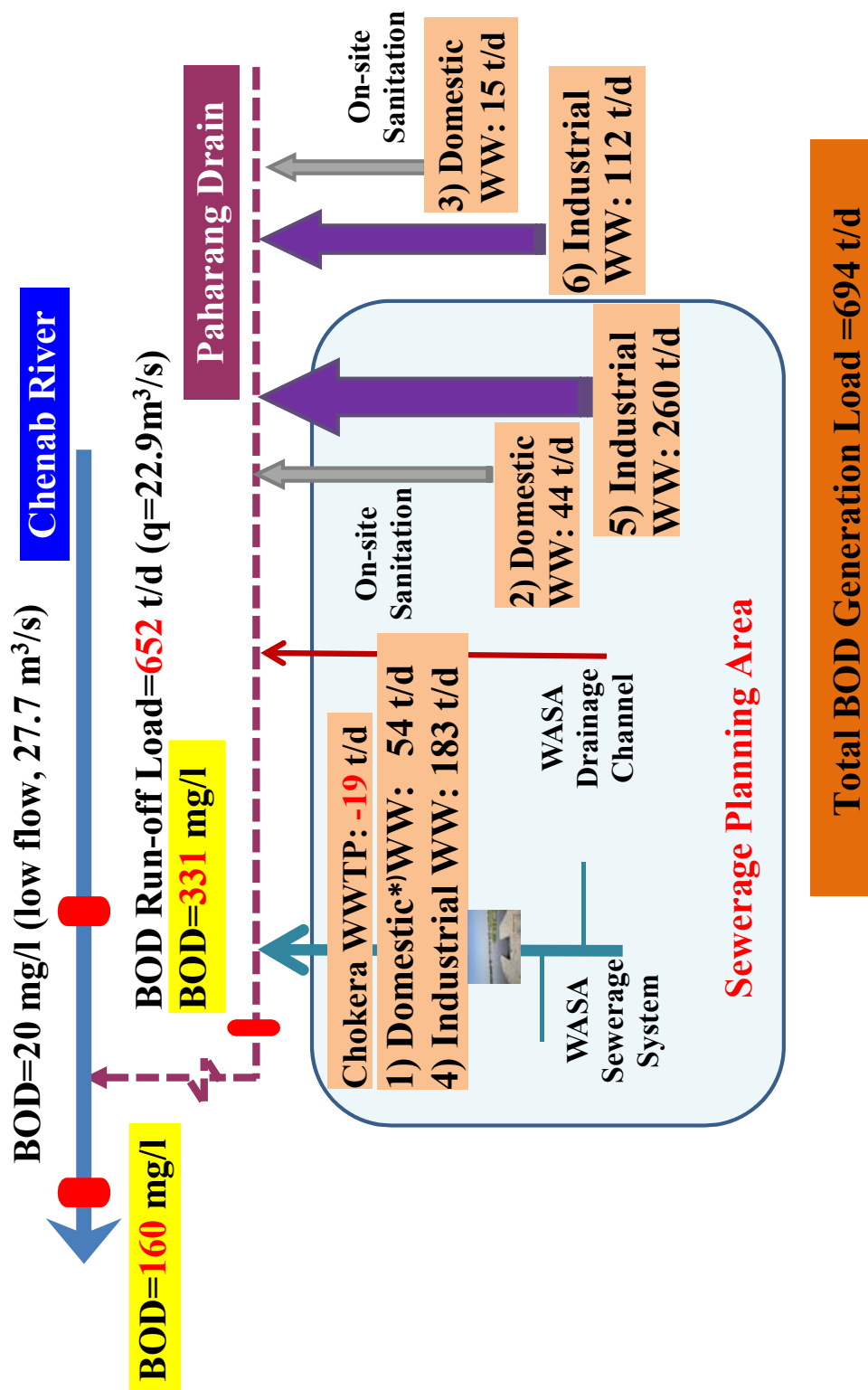


Figure AC 7.1.2 Target Year's Pollution Load Discharge in Case of Without Project in the Western Zone

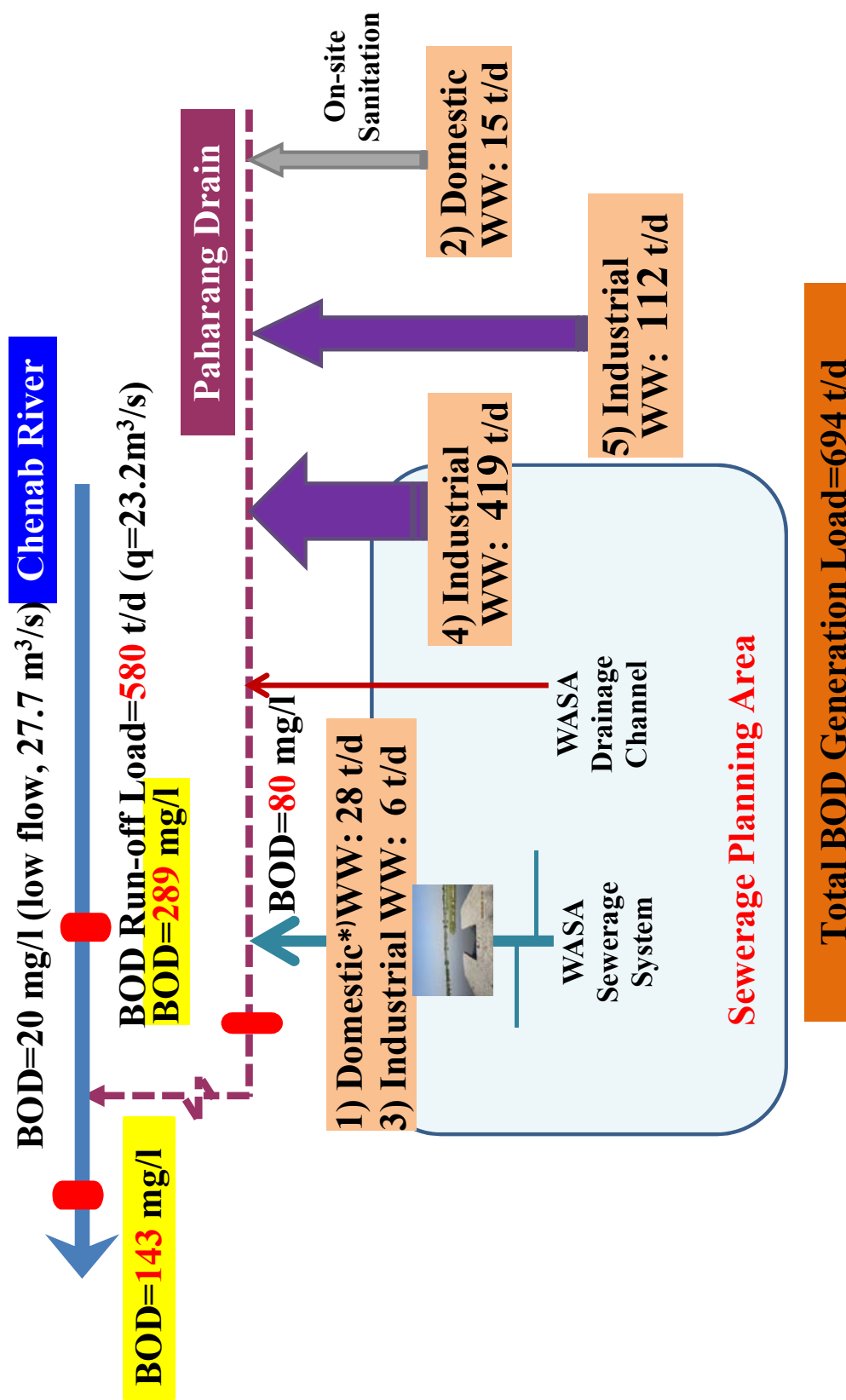


Figure AC 7.1.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

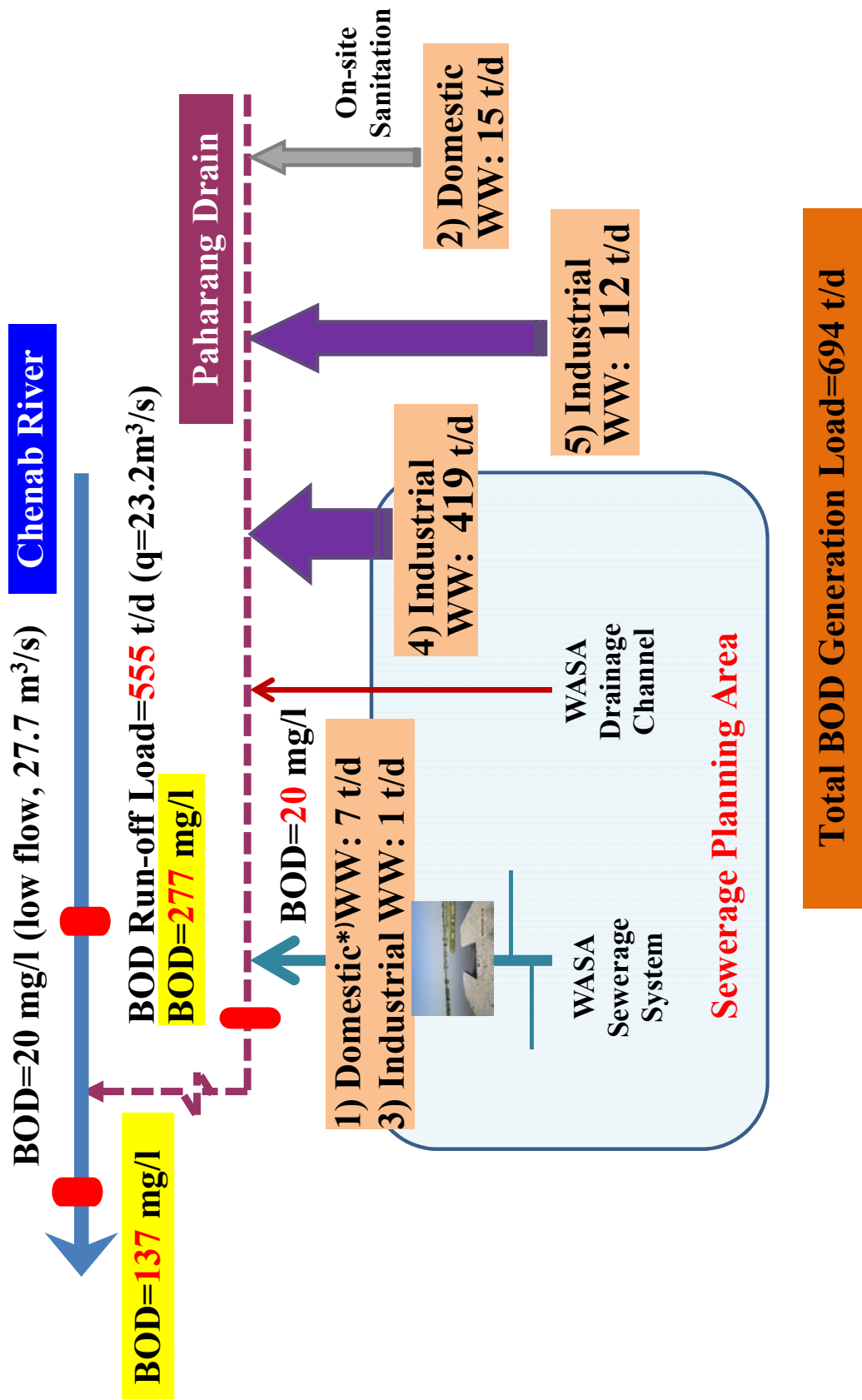


Figure AC 7.1.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Western Zone

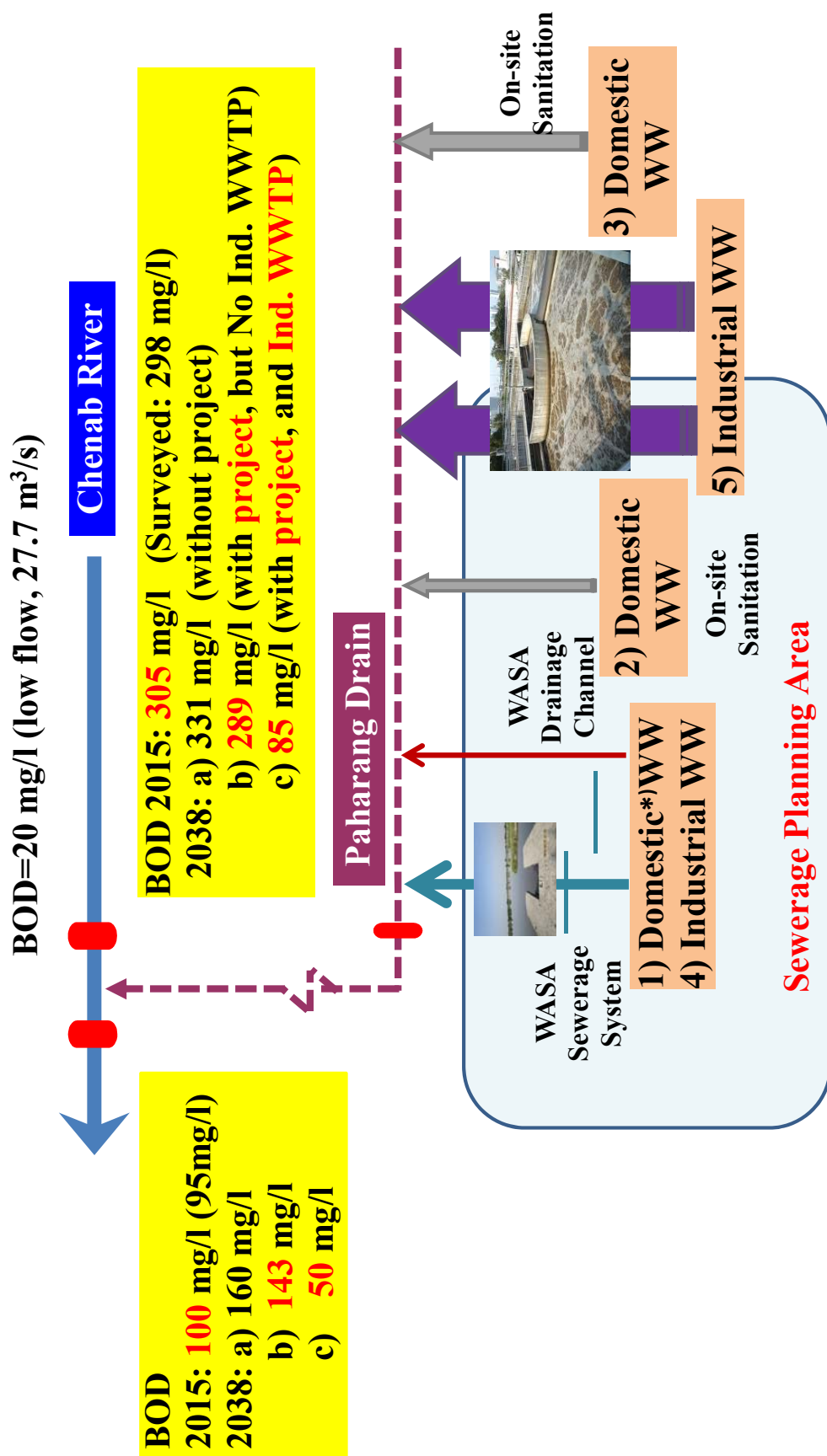


Figure AC 7.1.5 Results of Water Quality Projections in the Western Zone

Table AC7.2.1 Present Pollution Load Discharge in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	99,112	30.5	30.5	1	30.5	-	130 lpcd 40 g/capita/day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	190,625	19,063	7.6	6.8	0.9	6.1	-	100 lpcd, 40 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	573,875	45,910	23.0	16.1	0.7	11.3	-	80 lpcd 40 g/capita/day 30% BOD Removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	19,430	3.9	3.9	1	3.9	-	Influent BOD 200mg/L
Sub-total of Domestic WW (1+2+3+4)	-	183,515	65.0	57.3		51.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	Survey results Refer to Tab. C7.4.9
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	-	-	-	-	-	-	-
7 Industrial wastewater outside of the sewerage planning area	-	300,420	105.1	105.1	1	105.1	-	Survey results Refer to Tab. C7.4.9
Sub-total of Industrial WW (5+6+7)	-	559,360	195.7	195.8	-	195.8	-	-
8 Total BOD generation load (1~7)	-	742,875	260.7	-	-	-	-	-
9 Total discharge with sewerage service (1+4+5)	-	377,482	-	125.0	-	125.0	-	-
10 Total BOD effluent load	-	-	-	253.1		-	-	-
11 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	247.6	-	-
12 Overall BOD run-off load into Ravi River	-	-	-	-	-	247.6	-	-
13 Overall wastewater discharged into Ravi River	-	742,875	-	-	-	-	-	-
14 BOD concentration in the discharge to Ravi River $\{(12)*10^6/(13)\}$	-	-	-	-	-	-	333	330 mg/L, Survey result
15 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L , Survey Results
16 BOD concentration in the down stream side of Ravi River	-	1,123,035	-	-	-	323.6	288	BOD 290mg/L , Survey Results

Table AC7.2.2 Target Year's Pollution Load Discharge in Case of Witout Project in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	762,400	105,021	30.5	34.3	1	34.3	-	138 lpcd 45 g/capita • day
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	1,323,420	127,048	59.6	53.6	0.9	48.2	-	45 g/capita/day 10% BOD Removal
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	8.2	1	8.2	-	Influent BOD 200mg/L
Sub-total of domestic WW (1+2+3+4)		314,535	115.6	108.2		99.2	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	258,940	90.6	90.6	1	90.6	-	High Scenario BOD load of 219 ton/d within Study Area, Refer to Tab. C7.4.15
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	367,410	128.6	128.6	1	128.6	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	473.5	-	473.5	-	-
8 Total BOD generation load (1~7)	-	-	589.1	-	-	-	-	-
9 Total BOD effluent load	-	-	-	581.7	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	572.7	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	572.7	-	-
12 Overall wastewater discharged into Ravi River (5+9)	-	1,667,475	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	343	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,047,635	-	-	-	648.7	317	Predicted BOD Conc.

Table AC7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Popu- lation (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Con- centration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Effluent BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated WW BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	450.5	-	450.5	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	488.9	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	485.3	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	485.3	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River $\{(1) \cdot 10^6 / (12)\}$	-	-	-	-	-	-	282	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	561.3	267	Predicted BOD Conc.

Table AC7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Witout Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	5.7	1	5.7	-	138 lpcd 45 g/capita/day Treated WW BOD 20mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	0.0	0.0	-	0.0	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	0.8	1	0.8	-	Treated WW BOD 20mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	18.7	-	15.0	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	1.7	1	1.7	-	Influent 350mg/L Treated WW BOD 20mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area or move to suburbs	-	541,090	189.4	189.4	1	189.4	-	High Scenario Refer to Tab. C7.4.15
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	254.3	1	254.3	-	High Scenario Refer to Tab. C7.4.15
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	445.4	-	445.4	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	464.1	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	460.4	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	460.4	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11)*10 ⁶ /(12)}	-	-	-	-	-	-	267	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	536.4	255	Predicted BOD Conc.

Table AC7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern Zone

Item	Population (capita)	Flow Rate (m ³ /d)	Generated BOD Load (ton/d)	Effluent BOD Load (ton/d)	Run-off Ratio	Run-off BOD Load (ton/d)	BOD Concentration (mg/L)	Remarks
1 Domestic wastewater within sewerage planning area with sewerage service	2,085,820	287,322	93.9	23.0	1	23.0	-	138 lpcd, 45 g/capita/day, Treated WW BOD 80mg/L
2 Domestic wastewater within sewerage planning area, but with on-site sanitation facilities	0	-	-	-	-	-	-	-
3 Domestic wastewater out of sewerage planning area with on-site sanitation facilities	433,600	41,626	17.3	12.1	0.7	8.5	-	96 lpcd 40 g/capita/day 30% removal
4 Commercial/Institutional wastewater within the sewerage planning area	-	40,840	8.2	3.3	1	3.3	-	Influent BOD 200mg/L Treated BOD 80mg/L
Sub-total of domestic WW (1+2+3+4)	-	369,787	119.4	38.4		34.8	-	-
5 Industrial wastewater collected and disposed by the sewerage system	-	85,260	29.8	6.8	1	6.8	-	Influent BOD 350mg/L Treated WW BOD 80mg/L
6 Industrial wastewater treated and disposed by each factory within the sewerage planning area	-	541,090	189.4	43.3	1	43.3	-	-ditto-
7 Industrial wastewater outside of the sewerage planning area	-	726,590	254.3	58.1	1	58.1	-	-ditto-
Sub-total industrial WW (5+6+7)	-	1,352,940	473.5	108.2	-	108.2	-	-
8 Total BOD generation load	-	-	592.9	-	-	-	-	-
9 Total BOD effluent load	-	-	-	146.6	-	-	-	-
10 Total BOD run-off load into Madhuana Drain	-	-	-	-	-	143.0	-	-
11 Overall BOD run-off load into Ravi River	-	-	-	-	-	143.0	-	-
12 Overall wastewater discharged into Ravi River	-	1,722,727	-	-	-	-	-	-
13 BOD concentration in the discharge to Ravi River{(11*10 ⁶ /(12))}	-	-	-	-	-	-	83	-
14 BOD load in the upper stream side of Ravi River	-	380,160	-	-	-	76.0	-	BOD 199mg/L, Survey Results
15 BOD concentration in the down stream side of Ravi River	-	2,102,887	-	-	-	219.0	104	Predicted BOD Conc.

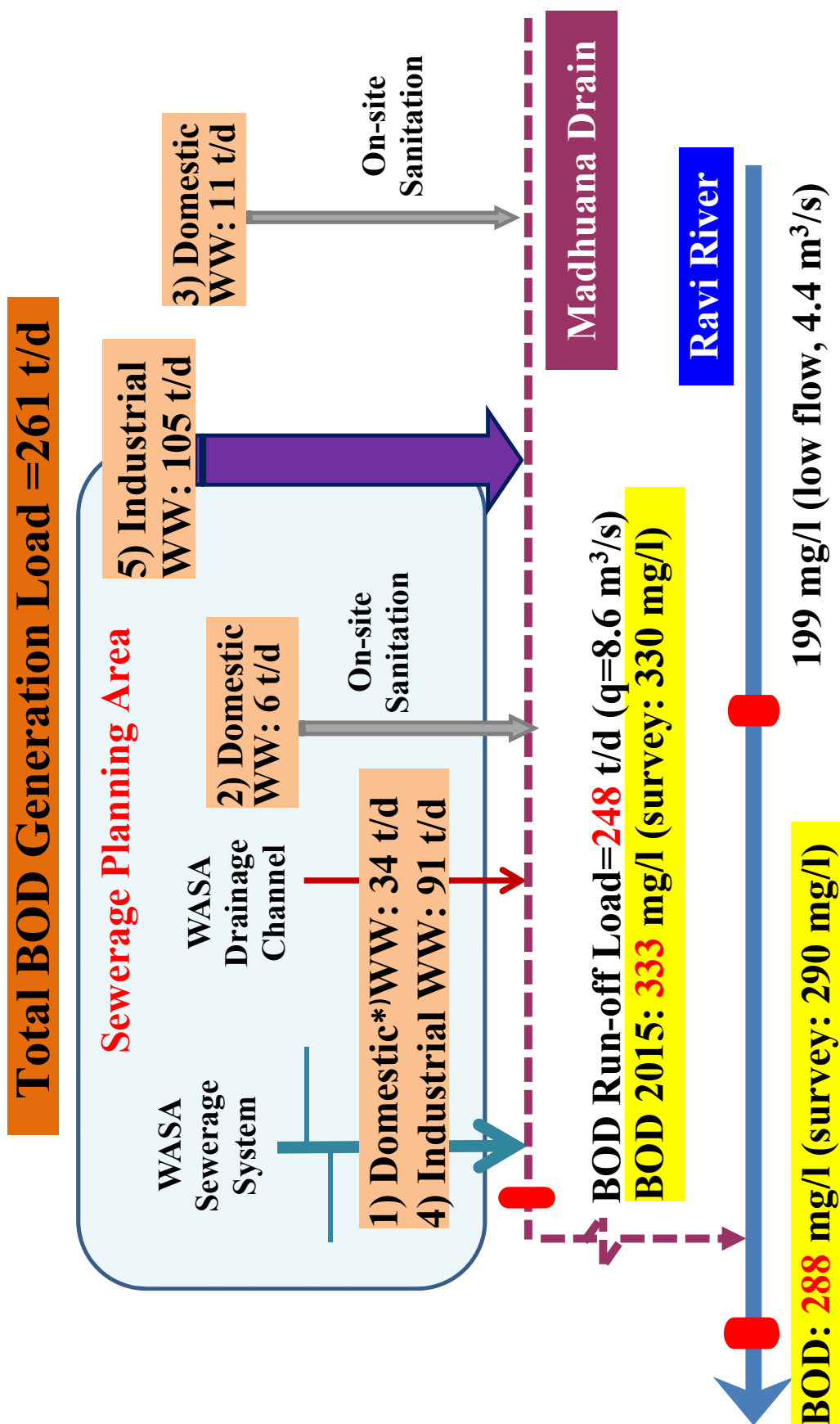


Figure AC 7.2.1 Present Pollution Load in the Eastern Zone

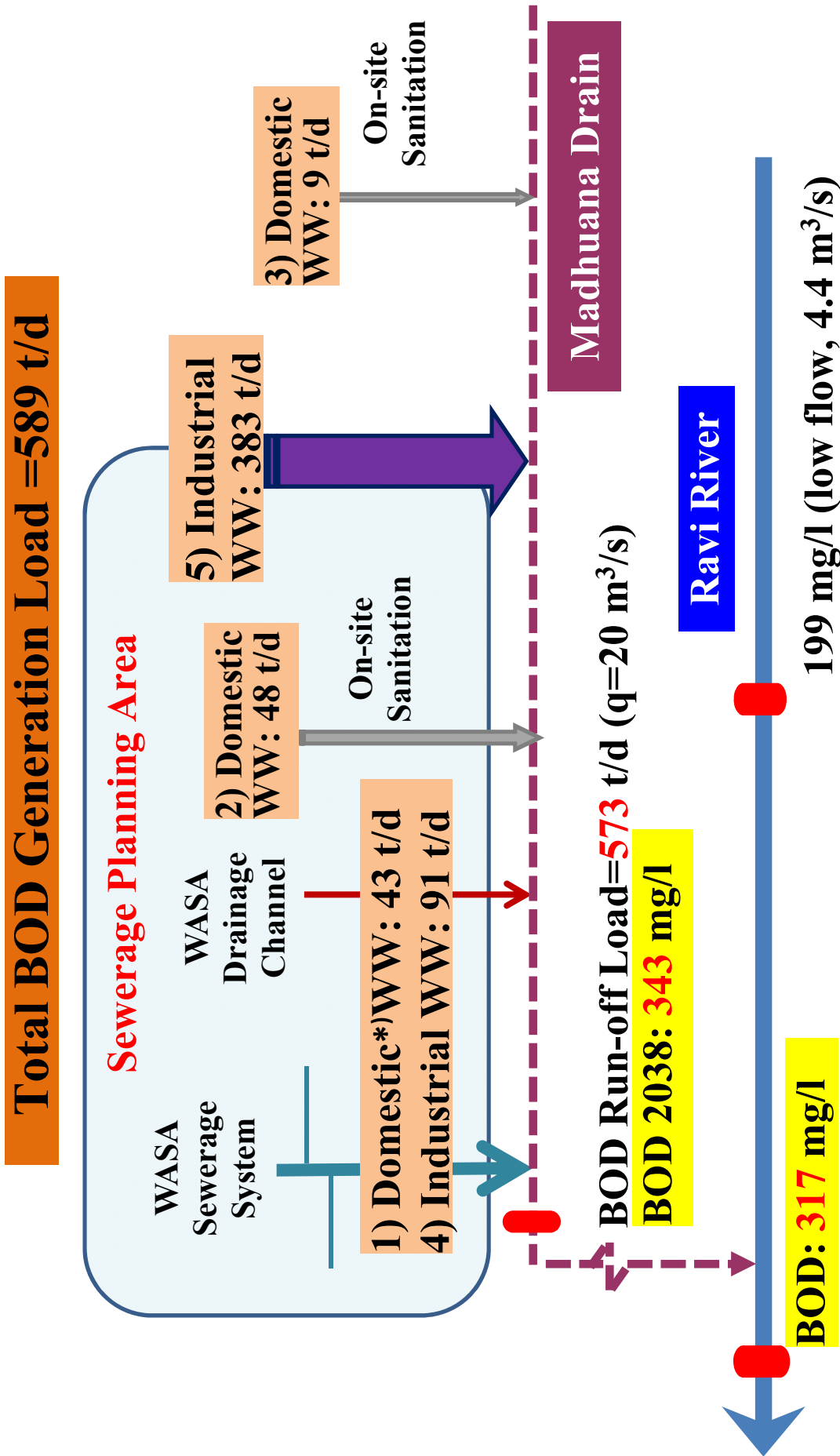


Figure AC 7.2.2 Target Year's Pollution Load Discharge in Case of Without Project in the Eastern Zone

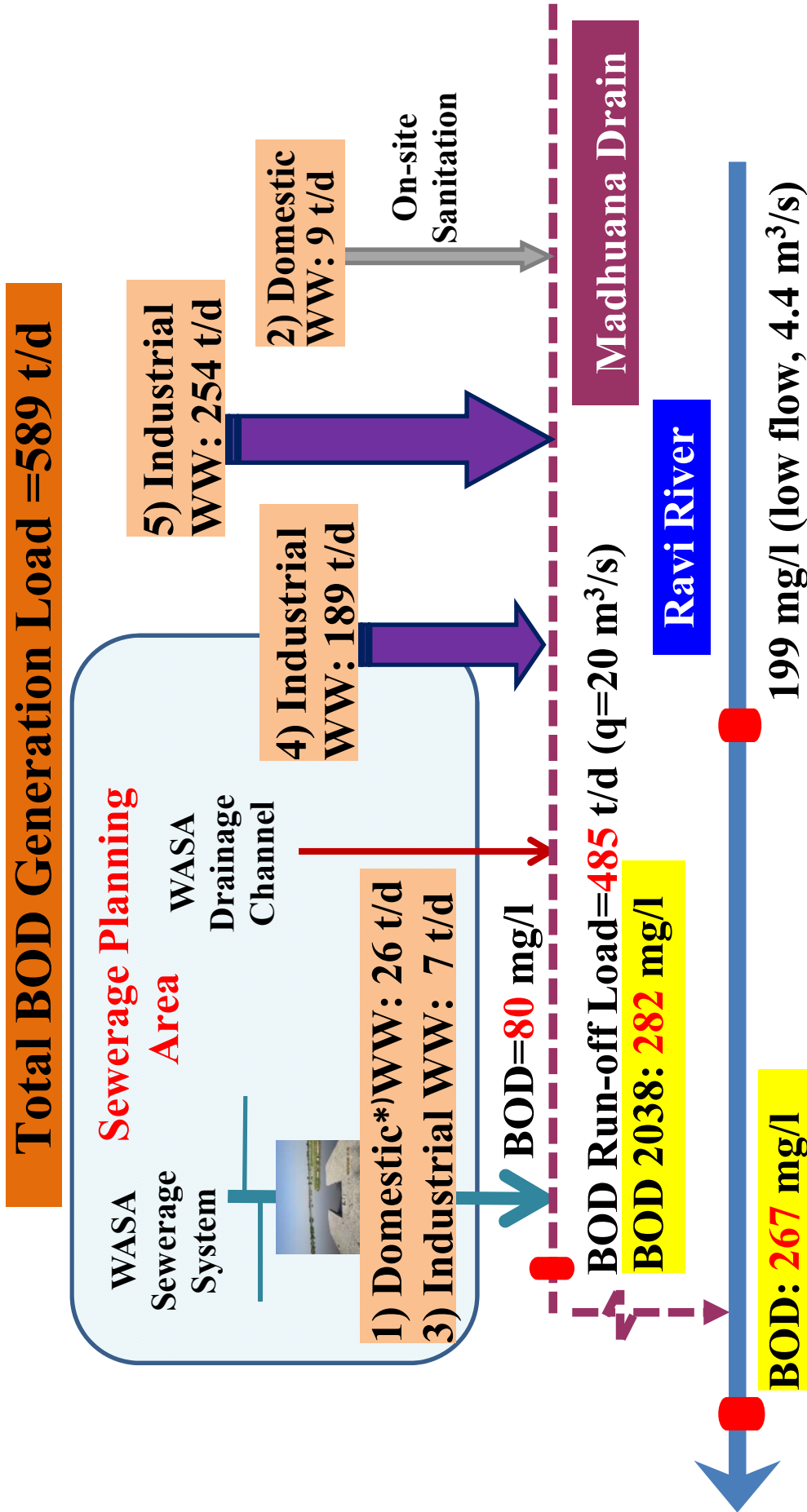


Figure AC 7.2.3 (1) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

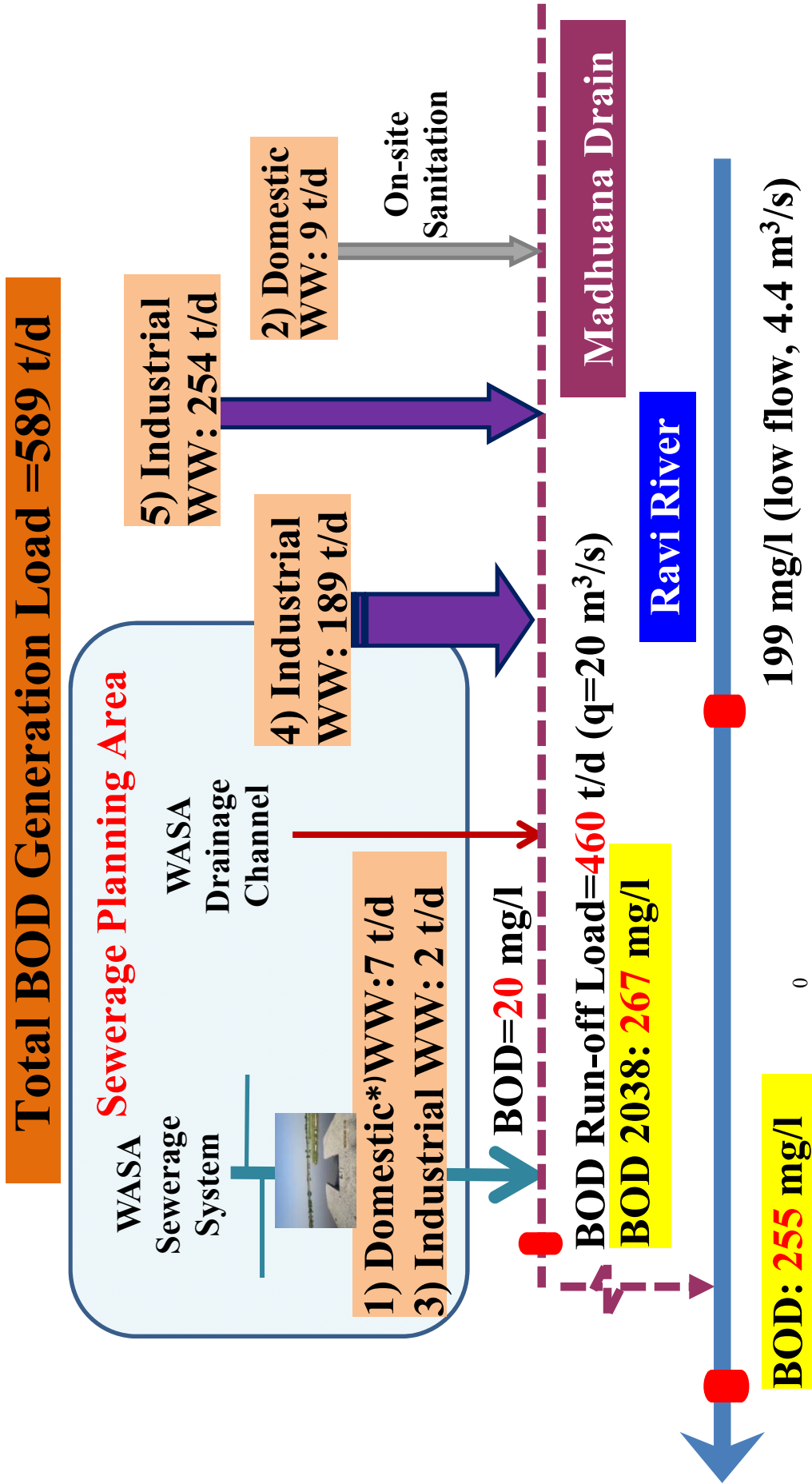


Figure AC 7.2.3 (2) Target Year's Pollution Load Discharge in Case of With Project but Without Industrial Wastewater Control in the Eastern Zone

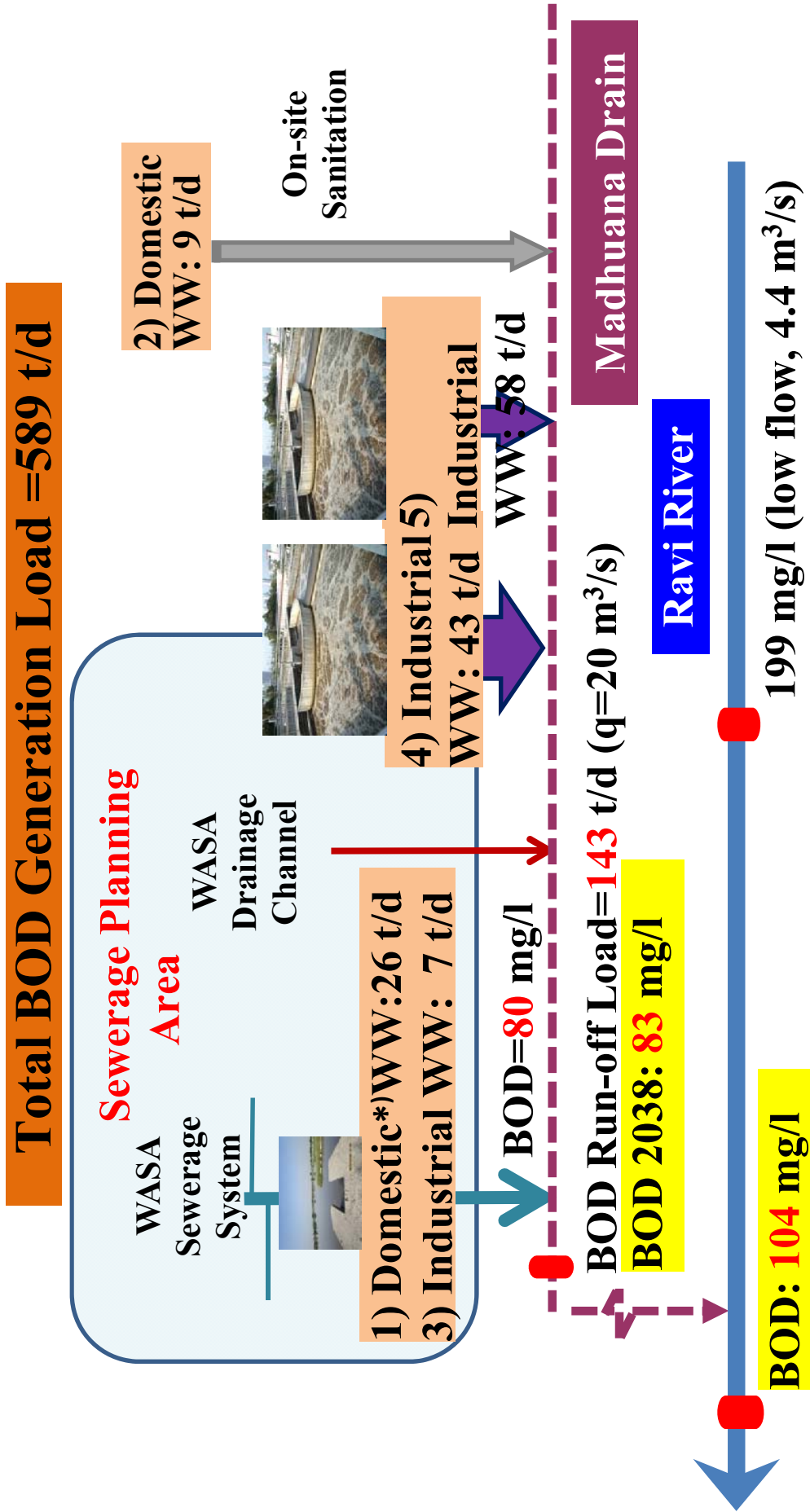


Figure AC 7.2.4 Target Year's Pollution Load Discharge in Case of With Project and With Industrial Wastewater Control in the Eastern

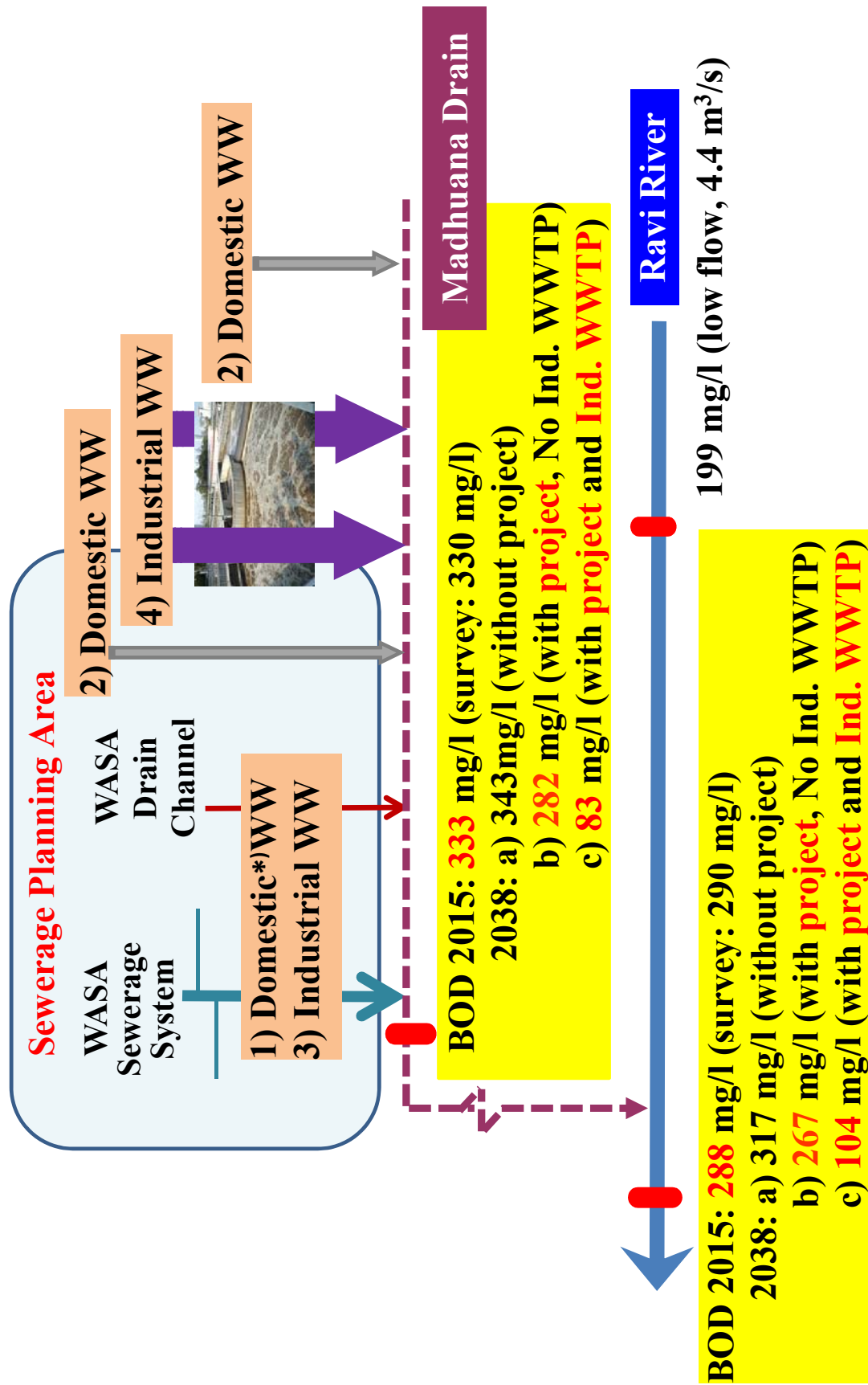


Figure AC 7.2.5 Water Quality Projections in the Eastern Zone