Environmental Monitoring Report

Semestral Report
December 2020

Pakistan: Punjab Intermediate Cities Improvement Investment Program

Prepared by Punjab Intermediate Cities Improvement Investment Program, LG&CD Department, Government of the Punjab for the Asian Development Bank.

NOTE

(i) The fiscal year (FY) of the Government of the Islamic Republic of Pakistan and its agencies ends on 30 June.

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Top Priority
Through Email

No.LG&CD/PICIIP/PMU/18-13/2017
Government of the Punjab
Local Government & Community Development
Department

Dated Lahore, the 20th February, 2021

Mr. Umar Ali Shah
Project Team Lead (PICIIP)
Asian Development Bank
Pakistan Resident Mission

Subject: **Loan 3562-PAK: Punjab Intermediate Cities Improvement Investment Project**
- **Semi Annual Environmental Monitoring Report (July to Dec 2021)**

Dear Mr. Umar,

Please find attached the Semi-annual Environmental Monitoring Report for Loan # 3562-PAK Punjab Intermediate Cities Improvement Investment Project for the reporting period 1st July to 31st December 2020 for ADB review and approval.

Best regards,

Socrat Aman Rana
Program Director
PICIIP

Cc:

1. Chief Engineer, PICIIP
2. Director M&E, PICIIP
3. Infrastructure Engineer CIU Sahiwal
4. Infrastructure Engineer CIU Sialkot
5. DTL EPCM Consultant (NESPAK-Artelia Joint Venture)

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Abbreviations

ADB	Asian Development Bank
HSE	Health Safety and Environment
EPA	Environmental Protection Agency
EIA	Environment Impact Assessment
EMP	Environmental Management Plan
GoP	Government of Punjab
GOP	Government of Pakistan
Km	Kilometer
PEQS	Punjab Environmental Quality Standards
PICIIP	Punjab Intermediate Cities Improvement Investment Program
PIC	Project Implementation Consultant
PM	Particulate Matter
PMU	Program Management Unit
PIU	Project Implementation Unit
PMCSC	Project Management Construction Supervision Consultants
SSEMP	Site Specific Environment Management Plan
SAEMR	Semi - Annual Environmental Monitoring Report
SOP	Standard Operating Procedure

Conversion Factors

1 meter = 3.28 feet

1 hectare = 2.47 acre

1 Kanal = 505.9 m^2

1. INTRODUCTION

1.1 Preamble

1. This report represents the Semi - Annual Environmental Monitoring Review (SAEMR) for Punjab Intermediate Cities Improvement Investment Program. This report is the 2nd SAEMR for the project, consisting of the following sub-projects:

Sahiwal Parks

- Chamanzar Park
- Park and Playground Near Stop # 10, Farid Town; and
- Fateh Sher Park

Sialkot Parks

- Sialkot Fort Park
- Abdul Hakeem Park for Ladies
- Ladies and Children Park (Model Town)
- Gulshan-e-Iqbal park

Punjab Local Government Academy (PLGA), Lahore

- The PLGA will be a multi-storey building meant for training of local government employees and will be constructed over an area of 10 kanals of land with dimensions of 200' x 180' with two basements and six floors.

Water Supply & Sewerage System of Sahiwal City

- Lot-1: Rehabilitation/improvement of water supply system in North Zone (Phase-1)
- Lot-2: North Zone (A) Sewerage System upto 72-inch diameter pipes and construction of allied works (Phase-1).
- Lot-3: North Zone (B) Sewerage system for conduit, pumping station and allied works.
- Lot-4: South Zone (Water Supply and Sanitation)

Waste Water Treatment Plant (WWTP) North Zone Sahiwal

- Waste water treatment plant will be established on 199 acres of land in North of Sahiwal city. Waste Stabilization Pounds (WSP) will be constructed for the effluent treatment.

Water Supply & Sewerage System of Sialkot North Zone

- Lot-1: Laying of Sewerage Lines and Allied Works
- Lot-2: Laying of Pre-Cast RCC Conduits and Allied Work
- Lot-3: Construction of Influent Pumping Station, Force main and Allied Works
- Lot-4: Laying of Water Distribution Network

Waste water Treatment Plant (WWTP) North Zone Sialkot

- Waste water treatment plant will be established on 238 acres of land in North of Sahiwal city. Waste Stabilization Pounds (WSP) will be constructed for the effluent treatment.

1.2 Headline Information

2. Due to the proactive project management and strict monitoring of the EMP implementation by the Project Implementation Consultant (PIC), the overall situation with regards to implementation of environmental safeguards at the project sites has remained satisfactory with no major non-compliances reported during the current reporting period i.e. July to December 2020.
3. The PIC and Health, Safety and Environment (HSE) teams at site continued to perform strict monitoring of the EMP and Health & Safety (HS) Plan implementation by the Contractor.
4. Environmental monitoring plan has been strictly followed throughout the reporting period and both the independent and internal monitoring has been organized according to the plan.
5. On-site trainings / toolbox talks have been extensively provided to the workers by the Contractor throughout the reporting period under the PIC supervision.
6. Furthermore, all works are significantly affected due to the COVID-19 pandemic outbreak. Keeping in view the required measures being implemented, such as social distancing of project staff, the overall staff has also been reduced.
7. Also, the on-site HSE team strictly implemented the SOPs issued by Government of Punjab (GOP) for construction sites (disinfection of offices and machinery periodically, temperature screening at project entrances, provision of hand

sanitizers to office and labour staff, provision of surgical face masks, instruction boards and signage at different locations for COVID-19 awareness).

2. PROJECT DESCRIPTION AND CURRENT ACTIVITIES

2.1 Project Description

8. The Asian Development Bank (ADB) and the Cities Development Initiative for Asia (CDIA) are partnering with the Government of Punjab Province (GoPP), to undertake the Punjab Intermediate Cities Improvement Program (PICIIP).

9. The PICIIP aims to improve the quality of urban services available in selected cities in Punjab province (city populations between 250,000 and 1,000,000). Urban infrastructure development is an important component of the PICIIP. The duration of the program will be six years. Funding will be accessed in phases. The PICIIP's overall budget is US$250 million, to be disbursed in phases.

10. The first phase will fund investments in the intermediate cities of Sahiwal and Sialkot. Major projects planned for both cities are water supply improvement; sewerage and drainage improvement, sewage treatment plant, green spaces development and transport routes improvement.

11. Overall project will have following major outcomes:

    Output 1: Water supply systems improved

    Output 2: Sanitation systems improved

    Output 3: Urban public spaces improved

    Output 4: Institutional support and capacity development

12. PICIIP aims at transforming the selected urban areas into green, inclusive, resilient and competitive Smart cities with improved liveability supporting social and economic growth through improved Municipal Governance, integrated urban planning, improved services delivery, efficient local mobility and climate resilient infrastructure and introduction of IT for city services delivery improvement within the frame of Smart City.

13. The Local Government and Community Development (LG&LCD) department of Punjab is executing agency of the project and the city governments of Sahiwal and Sialkot (municipal corporations) will be the O & M agencies. A Project Management Unit (PMU) and two City Implementation Units (CIUs) have been established by LG & CD Department for successful execution of the overall program.

2.1.1 WATER SUPPLY & SEWERAGE SYSTEM OF SAHIWAL CITY

14. In WATSAN work of Sahiwal for Lot-1 and Lot-2, Contractors have been mobilized on site and submitted the Site Specific Environmental Management Plan (SSEMP) of each Lot to PMU that is under review, once the SSEMPs will be approved, the Contractors will start execution of project while the Lot-3 and Lot-4 works are at final stages of tendering process.

2.1.2 WATER SUPPLY & SEWERAGE SYSTEM OF SIALKOT CITY

15. In WATSAN work of Sialkot for all Lots (Lot-1 to Lot-4), Contractors have been mobilized on site and the SSEMP for each Lot is under preparation by the Contractor, once the SSEMPs will be submitted and approved, the Contractor will start execution of project.

16. The WWTP projects of both cities are in tendering process.

2.1.3 SHAIWAL & SIALKOT PARKS

17. PICIIP is undertaking rehabilitation of three public parks in Sahiwal and four public parks in Sialkot as already mentioned in **Section 1.1** above.

18. The major development works at parks involve landscaping, irrigation system, electrification, system, plumbing system, surveillance system, kiosks, toilet, gazebos, open gym, gardener room, cctv cameras, lake, fountain, ticketing booth, security room, jogging track, walkways, children play area etc.

2.1.4 PLGA

19. PICIIP is also undertaking the construction of the Punjab Local Government Academy (PLGA) in Lahore city. After promulgation of PLGA Act 2019, training is mandatory for all officers and servants of local governments and undertaking of works requiring higher engineering skills. Furthermore, heads, conveners and councillors shall cover training requirements for improved performance.

20. The existing PLGA cannot cater to the quality training needs of all employees and elected representatives of the province with existing infrastructure and resources. The PLGA will be a multi-storey building meant for training of local government employees and is being constructed over an area of 10.04 kanals of land with dimensions of 70.36m x 59.70m (4200.49 Sq.m) with two basements

(approximately 120 Nos. Car and 200 Nos. Motorcycles parking space.) and six floors.

21. It includes an administration block, IT & control room, library for 40 persons capacity, prayer hall for 200 persons capacity, dining hall for 200 persons capacity, hostel mess / cafeteria for 80 persons, training classrooms for training of 300 persons at a time, syndicate discussion rooms for 20 persons, seminar hall for 100 persons, screening hall for 300 persons, executive hall for 75 persons, instructor rooms, computer laboratory for 56 person, executive suits (double occupancy), double occupancy rooms, and day care center.

2.2 Project Contracts and Management

22. The environmental management teams for this project and their respective roles are as provided below as **Table 2.1**.

Table 2.1: Environmental Management Team

Organisation	Discipline/ Designation	Deployed Team	Location	Contact no	Email Id
PMU-PICIIP	Environmental Consultant	Humera Qasim	Lahore	03339219198	humera.qasim@gmail.com
	Director M&E / Environmental Engineer	Asifa Khan	Lahore	03028498163	engr.asifa@hotmail.com
	Urban Planner	Ali Shah	Lahore	03367985017	alishahplanner@gmail.com
	Assistant Infrastructure Engineer	Muhammad Umair	Sahiwal	03017483387	umair.piciip@punjab.gov.pk
	Research Analyst Environment	Jawad Shafiq	Sialkot	03225616588	Jawashafiq8@gmail.com
ADB	Environment Specialist	Asim Sabzwari	HQs ADB		asabzwari@adb.org
	Environment Specialist (Consultant)	Shazia Shahid	Islamabad	0346-0281336	sshahid.consultant@adb.org
NESPAK/EPCM	Resident Engineer	Rai Bilal	Lahore	03216905129	Rai_bilal@hotmail.com
	Resident Engineer	M. Tayyab	Sahiwal	03216369549	Tayyab194@gmail.com
	Resident Engineer	Abdullah Hussain	Sialkot	03087300775	Abdullahsyed5@yahoo.com

	Environmental Specialist	Anas Ahmad Khan	Lahore	03314112481	anaskhan444@outlook.com
Contractor	Environmental Engineer	Syed Hasnain Raza	Lahore	03066045875	egrsyedhasnainraza@gmail.com
	Environmental Engineer	Sharjeel Shujat	Sahiwal	03457223534	sharjeeshujaat@gmail.com
	Environmental Engineer	Ijaz Hassan	Sialkot	03035303484	Khanijaz396@gmail.com

23. Supervision is being carried out by the Project Management Unit (PMU), which is comprised of Punjab local government staff, who are assisted by the PIC NESPAK Artelia JV for technical and commercial matters. The PMU, PIC and Contractor (HCS – MASTIC JV) HSE teams ensure that mitigation and management measures proposed in the IEE report are implemented.

2.3 Project Activities during Current Reporting Period

24. The status of the progress of the three parks in Sahiwal as of December 31st, 2020 is provided in **Tables 2.1 to 2.7** below.

Table 2.1: Farid Town Park, Sahiwal

Sr. No	NAME OF STRUCTURE	PHYSICAL PROGRESS
1	Kiosk	Finishing work is in Progress
2	Security Room	Finishing work is in Progress
3	Ticketing Room	Finishing work is in Progress
4	Gardener Room	Finishing work is in Progress
5	Toilet Block	Finishing work is in Progress
6	Gazebo-1	Plantation is in Progress
7	Gazebo-2	Plantation is in Progress
8	Planter-1	Plantation is in Progress
9	Planter-2	Plantation is in Progress
10	Planter-3	Plantation is in Progress
11	Central Planter	Plantation is in Progress
12	Lake	Tile Fixing completed
13	Jogging Track	Kerb stone completed
14	Walk Ways	Kerb Stone and Tuff tile near to completion
15	Play Area	Earth filling/Dressing
16	Boundary Wall	Painting of MS Grill completed
17	Electric poles & Lights	Installation of Electric Poles is completed.

Table 2.2: Fateh Sher Park, Sahiwal

Table 2.3: Chaman Zar Park, Sahiwal

Sr.No	NAME OF STRUCTURE	PHYSICAL PROGRESS
1	Kiosk	Finishing work is in Progress
2	Security Room	Finishing work is in Progress
3	Ticketing Room	Finishing work is in Progress
4	Gardener Room	Finishing work is in Progress
5	Toilet Block	Finishing work is in Progress
6	Gazebo-1	Polishing work is in Progress
7	Gazebo-2	Polishing work is in Progress
8	Gazebo-3	Polishing work is in Progress
9	Gazebo-4	Polishing work is in Progress
10	Planter-1	Plantation is in Progress
11	Planter-2	Plantation is in Progress
12	Planter-3	Plantation is in Progress
13	Large Planter-A	Plantation is in Progress
14	Large Planter-B	Plantation is in Progress
15	Central Fountain	Tile work in Progress
16	Jogging Track	Kerb stone completed
17	Walk Ways	Kerb stone/Tuff Pavers 90% completed
18	Play Area	Earth filling in progress
19	Boundary Wall (Eastern side)	Plaster work completed
20	Electric poles & Lights	Installation of Electric Poles is completed.

Sr.No	NAME OF STRUCTURE	PHYSICAL PROGRESS
1	Kiosk	Roof Khaprail / Natural Stone Fixing
2	Security Room	Grinding of floor completed
3	Ticketing Room	Grinding of floor completed
4	Gardener Room	Grinding of floor completed
5	Toilet Block	Plumbing work in Progress
6	Gazebo-1	Polish work is in Progress
7	Gazebo-2	Polish work is in Progress
8	Central Gazebo	Kerb stone for Walk ways around Gazebo in Progress.
9	Jogging Track	Kerb stone in progress
10	Walk Ways	Kerb stone/Tuff Pavers in progress
11	Play Area	Earth filling in progress
12	Boundary Wall	MS grill posts completed
13	Electric poles & Lights	Installation of Electric Poles is completed.

Works status at Parks in Sialkot

25. All the existing facilities such as boating lake, fountains, horticulture, walkways etc. were in a poor condition and need proper rehabilitation and repair works. Facilities such as canteen/kiosk, children play area, rehabilitation of fountain and waterfall and car parking, administrative area, and public amenities such as toilets are critical elements that was not available or being provided in these parks.

Table 2.4: Gulshan-e-Iqbal Park, Sialkot

Sr. No	Structures	Total No. To Be Completed (No./Length)	Work in Progress on (No./Length)	Physical Progress
A	**GULSHAN - E -IQBAL PARK (25 Acres)**			
1	MUSEUM & AMPHITHEATER (9520 SFT)	1	1	• RCC of columns is in progress. • Brickwork above FFL is in progress.
2	TOILET BLOCK (295 SFT each)	2	2	• Natural stone fixing is completed. Plumbing work is completed.
3	Prayer Deck (608 SFT)	1	1	• Brick work and Planters construction is completed.
4	CAFÉ / KIOSK (252 SFT Each)	6	6	• Finishing works in progress.
5	GAZEBO (175 SFT Each)	9	9	• RCC work in Progress - 01 No. • Flooring in progress - 08 Nos. • Wood work in progress 3 Nos.
6	PLANTER - (400 SFT Each & 112 SFT Each)	2	1	• Brick Work completed - 01 No.
7	FOUNTAIN (4900 SFT & 1600 SFT)	1	-	-
8	JOGGING TRACK	01 Job	01 Job	• Kerbstone fixing is in Progress
9	GARDENER ROOM	2	2	• Roof Slab Completed- 02 No. & Plastering Completed. Flooring 50% completed.
10	CAR PARKING	1	1	• WBM is laid.
15	Miscellaneous Irrigation, sprinkling system, electrification, plants, grassy & swings/slides and walkways	01 Job	-	Tube well bore hole and lowering of GRP pipes and strainer is completed.

Table 2.5: Abdul Hakeem Park, Sialkot

Sr. No	Structures	Total No. To Be	Work in Progress on (No./Length)	Physical Progress
1	Toilets Block (295 SFT Each)	1	1	• Completed
2	Gazebo (348 SFT Each)	2	2	• Completed

Sr. No	Structures	Total No. To Be	Work in Progress on (No./Length)	Physical Progress
3	Tube well (0.15 cusecs capacity, 01 No.)	1	1	• Tube well completed.
4	Miscellaneous Irrigation, sprinkling system, electrification, plants, grassy & swings/slides and walkways	1	1	• Only 04m pole lights fixing is remaining.

Table 2.6: Fort Park, Sialkot

Sr. No	Structures	Total No. To Be	Work in Progress on (No./Length)	Physical Progress
1	Toilets Block (295 SFT Each)	1	1	• Finishing Work in progress
2	Gazebo (348 SFT Each)	2	2	• Plantation in progress.
3	Café/Kiosk (252 SFT)	1	1	• Finishing works in progress.
4	Fountain (4900 SFT)	1	1	• Completed
5	Tube well (0.15 cusec capacity, 01 No.)	1	-	-
6	Miscellaneous Irrigation, sprinkling system, electrification, plants, grassy & swings/slides and walkways	1	1	• Plantation is in progress • Child play equipment is remaining • 04m pole lights are remaining • CCTV works are in progress

Table 2.7: Ladies and Children Park, Sialkot

Sr. No	Structures	Total No. To Be	Work in Progress on (No./Length)	Physical Progress
1	Toilets Block (295 SFT Each)	1	1	• Completed
2	Gazebo (348 SFT Each)	2	2	• Completed
3	Tube well (0.15 cusec capacity, 01 No.)	1	1	• Completed
4	Miscellaneous Irrigation, sprinkling system, electrification, plants, grassy & swings/slides and walkways	1	1	• only 04m pole lights fixing is remaining

PLGA Lahore

26. During the reporting period, the status of the construction work areas is as follows:

Sr #	Activity	Planned Physical Progress			Actual Physical Progress			Activity Status
		Start Date	Finish Date	%	Start Date	Finish Date	%	
1	Approval of test pile design from consultant	19/Dec/2019	19/Dec/2019	100	14/Jan/2020	14/Jan/2020	100.00	Completed
2	Test Pile casting and strength gain	19/Dec/2019	15/Jan/2020	100	23/Jan/2020	20/Feb/2020	100.00	Completed
	Load test performed on test pile	16/Jan/2020	16/Jan/2020	100	3/Mar/2020	3/Mar/2020	100.00	Completed
6	Site cleaning, grading, surveying etc.	17/Jan/2020	24/Jan/2020	100	20/Feb/2020	1/Jun/2020	100.00	Completed
7	Fabrication of mild steel reinforcement bar cage for RCC bored piles & Construction of cast in place piles	25/Jan/2020	9/Mar/2020	100	22/Apr/2020	14/Jun/2020	100.00	Completed
8	Excavation up to Bed Level	14/Feb/2020	14/Mar/2020	100	28/Jun/2020	19/Sep/2020	100.00	Completed
9	Tranportation of Surplus Material	14/Feb/2020	14/Mar/2020	100	28/Jun/2020	19/Sep/2020	100.00	Completed
11	Laying Cement concrete plain (PCC)	7/Apr/2020	6/May/2020	100	22/Jul/2020	4/Oct/2020	100.00	Completed
13	Placing of Shotcrete on Piles Wall	21/Feb/2020	21/Mar/2020	100	23/Jul/2020	28/Sep/2020	100.00	Completed
14	Steel Fabrication of Raft	20/Apr/2020	2/Jun/2020	100	10/Jul/2020	4/Oct/2020	100.00	Completed
15	Concreting of Raft	16/Apr/2020	30/May/2020	100	30/Jul/2020	5/Oct/2020	100.00	Completed
16	Excavation for fuel tank, UGWT, HVAC Plant room	Additional Works			10/Aug/2020	27/Aug/2020	100.00	Completed
17	Lean concrete, water proofing for fuel tank, UGWT, HVAC Plant room				15/Aug/2020	10/Sep/2020	100.00	Completed
18	Bed preparation, steel fixing,				18/Aug/2020	26/Aug/2020	100.00	Completed

	concreting for fuel tank, UGWT, HVAC Plant room							
19	Walls concreting, water proofing for fuel tank, UGWT, HVAC Plant room				27/Aug/2020	9/Sep/2020	100.00	Completed
20	Slab concreting for fuel tank, UGWT, Plant Room				27/Sep/2020	30/Sep/2020	100.00	Completed
BASEMENT-2								
21	1st half Steel fabrication for Basement (retaining walls)/lift walls/stairs	18/Apr/2020	30/Apr/2020	100	6/Sep/2020	15/Oct/2020	100.00	Completed
22	1st half RCC of Basement ramps/ (retaining) walls /lift walls/entrance stairs/Planters	18/Apr/2020	30/Apr/2020	100	17/Sep/2020	15/Oct/2020	100.00	Completed
23	2nd half Steel fabrication for Basement (retaining walls)/lift walls/stairs	2/May/2020	13/May/2020	100	27/Sep/2020	18/Oct/2020	100.00	Completed
24	2nd half RCC of Basement ramps/ (retaining) walls /lift walls/entrance stairs/Planters	2/May/2020	13/May/2020	100	18/Oct/2020	8/Nov/2020	100.00	Completed
26	1st half Steel fabrication for columns	18/Apr/2020	30/Apr/2020	100	6/Sep/2020	19/Sep/2020	100.00	Completed
27	1st half RCC of columns	18/Apr/2020	30/Apr/2020	100	17/Sep/2020	12/Oct/2020	100.00	Completed
28	2nd half Steel fabrication for columns	2/May/2020	13/May/2020	100	19/Sep/2020	4/Oct/2020	100.00	Completed
29	2nd half RCC of columns	2/May/2020	13/May/2020	100	19/Sep/2020	10/Nov/2020	100.00	Completed
30	1st half slab & beam shuttering	29/Apr/2020	9/May/2020	100	29/Sep/2020	21/Oct/2020	100.00	Completed
31	2nd half slab & beam shuttering	11/May/2020	21/May/2020	100	19/Oct/2020	9/Nov/2020	100.00	Completed

32	1st half Steel fabrication of beams and slabs	9/May/2020	20/May/2020	100	15/Oct/2020	9/Nov/2020	100.00	Completed
33	1st half RCC of beams and slabs	9/May/2020	20/May/2020	100	24/Oct/2020	12/Nov/2020	100.00	Completed
34	2nd half Steel fabrication of beams and slabs	21/May/2020	1/Jun/2020	100	04-Nov-20 A	12-Nov-20 A	100.00	Completed
35	2nd half RCC of beams and slabs	21/May/2020	1/Jun/2020	100	05-Nov-20 A	12-Nov-20 A	100.00	Completed
BASEMENT-1								
36	1st half Steel fabrication for Basement (retaining walls)/lift walls/stairs/Ramp	21/May/2020	1/Jun/2020	100	01-Nov-20 A	19-Nov-20 A	100.00	Completed
37	1st half RCC of Basement ramps/ (retaining) walls /lift walls/entrance stairs	21/May/2020	1/Jun/2020	100	16-Nov-20 A	28-Nov-20 A	100.00	Completed
38	2nd half Steel fabrication for Basement (retaining walls)/lift walls/stairs/Ramp	2/Jun/2020	13/Jun/2020	100	16-Nov-20 A	01-Dec-20 A	100.00	Completed
39	1st half Steel fabrication for columns	21/May/2020	1/Jun/2020	100	01-Nov-20 A	19-Nov-20 A	100.00	Completed
40	1st half RCC of columns	21/May/2020	1/Jun/2020	100	03-Nov-20 A	26-Nov-20 A	100.00	Completed
41	2nd half Steel fabrication for columns	2/Jun/2020	13/Jun/2020	100	13-Nov-20 A	28-Nov-20 A	100.00	Completed
42	2nd half RCC of columns	2/Jun/2020	13/Jun/2020	100	13-Nov-20 A	-	100.00	Completed
43	1st half slab and beams shuttering	1/Jun/2020	11/Jun/2020	100	27-Nov-20 A	-	100.00	Completed
44	All activities of EMP	19/Dec/2019	30/Apr/2021	56.83	14/Jan/2020	-	56.83	In Progress
	Updated Up Till December 31, 2020	**Total Planned Physical Progress as per POW**		**60.65**	**Total Actual Physical Progress**		**31.56**	

2.4 Description of Any Changes to Project Design

27. There was no change in the design of the construction of PLGA, Lahore. Few changes made in project design in Sahiwal parks have been already reported in

the first SAEMR. Furthermore, with regards to Sialkot park, there were no changes in their design.

2.5 Description of Any Changes to Agreed Construction Methods

28. No change in the construction methodology has taken place during the reporting period of this report with the initially developed method statements still applicable

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3. ENVIRONMENTAL SAFEGUARD ACTIVITIES

3.1 General Description of Environmental Safeguard Activities

29. The key monitoring activities conducted within the reporting period are as follows:

- Quarterly EMP compliance monitoring was carried out by the PIC environment teams to identify any environmental non-compliance issues requiring attention;
- Following the EMP guidelines, instrumental environmental monitoring through an independent environmental laboratory was arranged by the Contractor's environment team, which was initiated in July and December 2020;
- Supervision for trainings being conducted by Contractor for its staff were provided by the PMU & PIC environment teams;
- Trainings on HS Plan implementation for Contractor staff were organized by the HS team;
- The PIC environment team held follow-up meetings with the Contractor for checking the compliance status of previously highlighted issues.

3.2 Site Audits

30. No formal audits have been conducted yet. Site inspections of the sub-projects are being performed in order to comply to the EMP requirements with the Contractor being immediately directed to resolve any non-compliances identified during the site inspections.

3.3 Issues Tracking (Based on Non-Conformance Notices)

31. During the reporting period, non-conformance notices were not issued. As the contractors and CIU was very vigilant on implementation of EMP and the scope of project was very limited and non-compliances were not found at sites.

3.4 Trends

32. As non-conformance notices were issued not issued, therefore analysis of trends is not applicable for this particular SAEMR.

3.5 Unanticipated Environmental Impacts or Risks

33. In order for the sub-projects to be implemented under PICIIP, there are no unanticipated environmental impacts and risks that have been identified during the

current reporting period. Details of any such impacts have been identified during the reporting period and documented.

3.6 Grievance Redressal Mechanism

34. No grievance was received up till the reporting period at all project sites since each project site is located in a closed off area with no direct public exposure.

4. RESULTS OF ENVIRONMENTAL MONITORING

4.1 Overview of Monitoring Conducted during Current Period

35. In order to conduct ambient air quality and noise monitoring during the construction phase, the different Contractors engaged EPA certified third-party laboratories with the monitoring being conducted on a quarterly basis, as committed in their respective Contract Agreements, based on the EMP for each sub-project. The details are provided in **Table 4.1** below.

Table 4.1: Third-Party Lab for quarterly monitoring

Project name	3rd Quarter		4th Quarter	
	Lab Name	Date of Analysis	Lab Name	Date of Analysis
Parks, Sahiwal	ASIAN	Aug 2020	ASIAN-	Dec 2020-
Parks, Sialkot	ASIAN	Sep 2020	ASIAN	Dec 2020
PLGA	ESPAK	Aug 2020	ESPAK	Dec 2020

4.1.1 AIR QUALITY

36. Monitoring of ambient air quality parameters i.e. SO_2, NOx, SOx, CO, $PM_{2.5}$ and PM_{10} was conducted on a twenty-four hourly basis at the 2 public parks in Sahiwal, Gulshan-e-Iqbal park, Abdul Hakeem park and Fort park in Sialkot as well as at PLGA construction site in Lahore.

37. All the environmental parameters were analyzed during the environmental testing to assess the level of compliance with the most stringent standards/guidelines between the PEQS and IFC standards. As can be observed in the **Table 4.1** below, the SO_2, $PM_{2.5}$ and PM_{10} concentrations are being exceeded at two parks of Sahiwal with the remaining pollutant parameters lying within the applicable standards/guidelines.

38. The **Table 4.2** below shows that in the case of Abdul Hakeem Park and Gulshan-e-Iqbal Park in Sialkot, the concentrations of the pollutant parameters SO_2, $PM_{2.5}$ and PM_{10} are exceeding the applicable standards/guidelines with the remaining parameters within the applicable limits. In the case of the PLGA building in Lahore, the ambient concentrations during the construction phase are shown in **Table 4.3** below. As can be observed, the $PM_{2.5}$ and PM_{10} are exceeding the applicable standards/guidelines with the remaining parameters within the applicable limits.

39. The main reason for the exceedances of SO_2, PM_{10} and $PM_{2.5}$ in Sahiwal and Sialkot as well as exceedances of PM_{10} and $PM_{2.5}$ in Lahore is overall poor air quality due to urbanization, industrialization and heavy traffic at all respective project sites. The only source of air pollution at all project sites due to construction activity is dust generation due to vehicular mobilization and emissions from the stacks of vehicles. . Other than that, reason of these high values is the dry spell/no rain during the day when the environmental testing was being conducted.

40. There is no other source of air pollution i.e burning of waste or fuel at any site, although the ambient air parameters are within the PEQs limits by implementing the more stringent measures. In order to ensure the exceedances are brought within the applicable limits, following mitigation measures will be keenly observed by the PIC and PMU Environment Specialists.

    - sprinkling of water
    - covering the excavated material
    - Preventive measures against dust adopted for on-site mixing and unloading operations
    - Regular tuning/ maintenance of vehicles being used at sites

41. The detailed laboratory test results are attached as **Appendices A** to **D**.

Table 4.1: Ambient Air Quality Monitoring Results (24 hrs) of 3rd & 4th Quarter at Sahiwal Parks

Monitoring Location	Parameter	NO (ug/m^3)	NO_2 (ug/m^3)	CO (mg/m^3)	SO_2 (ug/m^3)	$PM_{2.5}$ (ug/m^3)	PM_{10} (ug/m^3)	TSP (ug/m^3)
Fareed Town		10.89	18.40	1.03	24.11	35.2	141.2	271.6
Chaman Zar		13.39	18.42	1.00	25.36	35.9	129.6	281.5
Applicable Most Stringent Standard for 24 hours of IFC		**-**	**80**	**-**	**20**	**25**	**50**	**500**
PEQS for 24 hours		**-**	**80**	**-**	**80**	**35**	**150**	**500**

Source: ASIAN, Dec 2020.

'Exceeding' applicable guidelines for acceptable pollutant levels **'Within' applicable guidelines for acceptable pollutant levels**

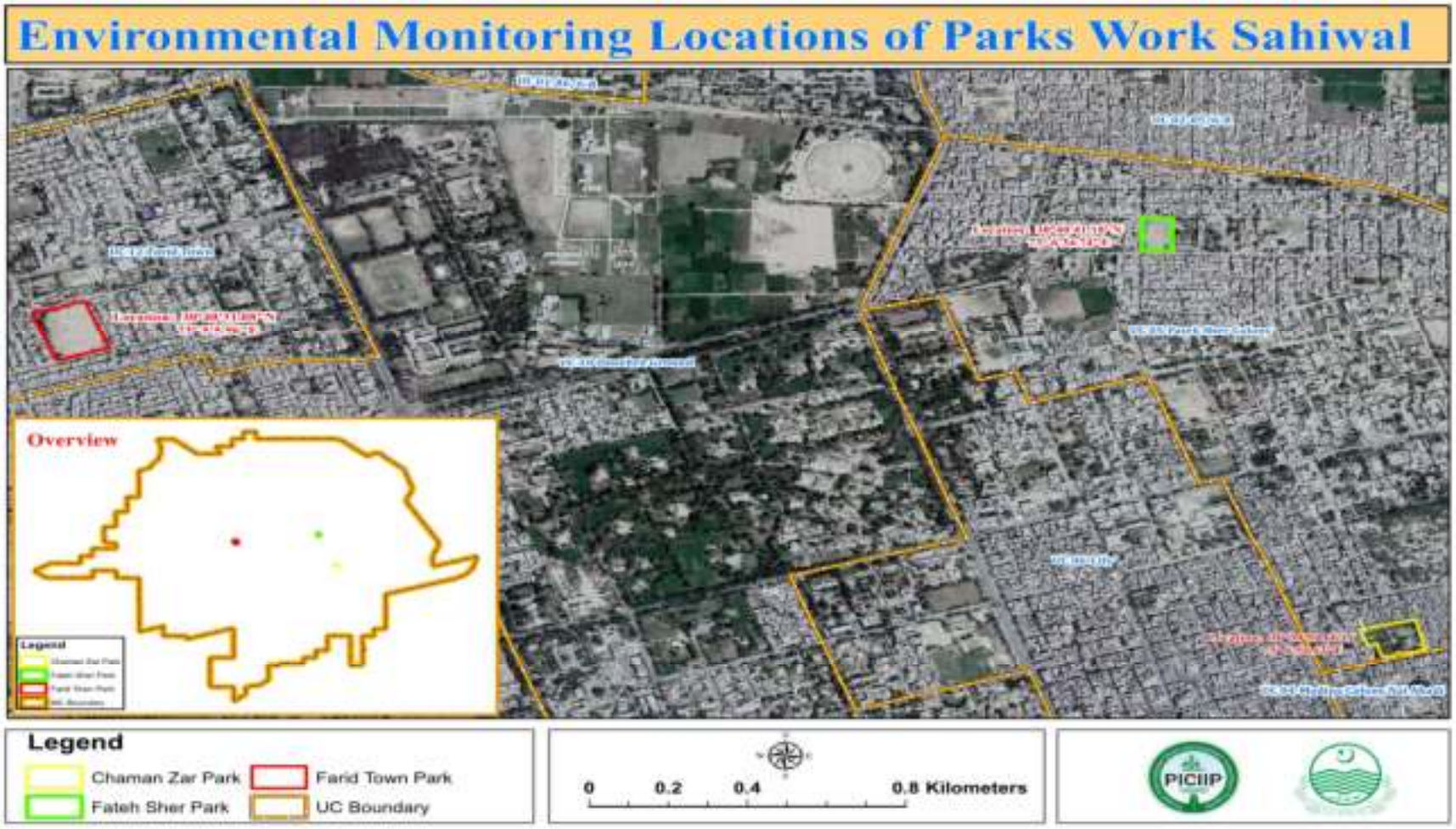

Figure 1: Sahiwal Parks Environmental Monitoring Location

Table 4.2: Ambient Air Quality Monitoring Results (24 hrs) of 3rd & 4th Quarter at Sialkot Parks

Monitoring Location	Parameter	NO (ug/m^3)	NO_2 (ug/m^3)	CO (mg/m^3)	SO_2 (ug/m^3)	$PM_{2.5}$ (ug/m^3)	PM_{10} (ug/m^3)	TSP (ug/m^3)
Gulshan-e-Iqbal Park 3rd Quarter	Average	10.98	18.78	0.80	17.86	29	131.2	298
Abdul Hakeem Park 3rd Quarter		10.64	18.87	0.73	22.52	27.1	135.6	341
Gulshan-e-Iqbal Park 4th Quarter		11.10	19.79	0.77	25.26	34.1	131.23	291.6
Applicable Most Stringent Standard for 24 hours of IFC		**-**	**80**	**-**	**20**	**25**	**50**	**500**
PEQS for 24 hours		**-**	**80**	**-**	**80**	**35**	**150**	**500**

Source: ASIAN, Sep & Dec 2020.

'Exceeding' applicable guidelines for acceptable pollutant levels 'Within' applicable guidelines for acceptable pollutant levels

Figure 2: Sialkot Parks Environmental Monitoring Location

Table 4.3: Ambient Air Quality Monitoring Results (24 hrs) at PLGA

Monitoring Location	Parameter	NO (ug/m^3)	NO_2 (ug/m^3)	CO (mg/m^3)	SO_2 (ug/m^3)	$PM_{2.5}$ (ug/m^3)	PM_{10} (ug/m^3)	TSP (ug/m^3)
PLGA 3rd Quarter	Average	9.8	15.6	0.7	10.5	29	120	341
PLGA 4th Quarter	Average	11.5	15.6	0.8	11.3	30.5	128	436
Applicable Most Stringent Standard for 24 hours of IFC		**-**	**80**	**-**	**20**	**25**	**50**	**500**
PEQS for 24 hours		**-**	**80**	**-**	**80**	**35**	**150**	**500**

Source: ESPAK, May 2020.

Figure 3: PLGA Environmental Monitoring Location

4.1.2 NOISE

42. The noise monitoring was done at all 3 public parks in Sahiwal and at the public parks in Sialkot and at PLGA construction site in Lahore. There was no use of heavy machinery at site and no use of batching plant and generator at the work sites during the reporting period. Quarterly noise monitoring is also being performed at site, which reflects that noise levels being generated are within the permissible noise standards/guidelines. The ambient noise level monitoring reports from the laboratories are provided as **Appendices A** to **D**.

43. The results of the noise monitoring are provided in **Tables 4.4** to **4.6** below. As can be observed, the averaged noise levels for all the locations resulted in daytime noise within the applicable day time standard of 65 dB. In comparison, the nighttime noise limit is also not being exceeded with average nighttime noise levels.

Table 4.4: Noise Monitoring Results at Sahiwal Parks

Monitoring Location	Parameter	Noise Reading Results	Noise Guideline (Commercial Area)	Compliance Status for Commercial Areas
Day Time Readings (0600 to 2200)				**Day time**
Average at Farid Town Park	dB(A) Leq	50.06	65	
Night time Readings **(2200 to 0600)**			Night Time	
Average at Farid Town Park	dB(A) Leq	38.7	65	
Day Time Readings (0600 to 2200)				**Day time**
Average at Chamanzar Park	dB(A) Leq	53.3	65	
Night time Readings **(2200 to 0600)**			Night Time	
Average at Chamanzar Park	dB(A) Leq	41.5	65	
Average Noise Levels (24 hour average)	dB(A) Leq	Farid Town Park 44.38	Chamanzar Park 47.4	

Source: ASIAN, Dec 2020.

Table 4.5: Noise Monitoring Results at Sialkot Park

Monitoring Location	Parameter	Noise Reading Results	Noise Guideline (Commercial Area)	Compliance Status for Commercial Areas
Day Time Readings (0600 to 2200)			**Day time**	
Average at Gulshan-e-Iqbal 3rd Quarter	dB(A) Leq	**54.8**	65	
Nighttime Readings (2200 to 0600)			**Nighttime**	
Average at Gulshan-e-Iqbal 3rd Quarter	dB(A) Leq	**46.3**	55	
Day Time Readings (0600 to 2200)			**Day time**	
Average at Abdual Hakeem Park 3rd Quarter	dB(A) Leq	**45.2**	65	
Nighttime Readings (2200 to 0600)			**Nighttime**	
Average at Abdual Hakeem Park 3rd Quarter	dB(A) Leq	**36.1**	55	
Average Noise Levels (24 hour average)	dB(A) Leq	**Gulshan-e-Iqbal 50.55**		**Abdual Hakeem 40.65**

Source: ASIAN, Sep, Dec 2020.

Table 4.6: Noise Monitoring Results at PLGA Lahore

Monitoring Location	Parameter	Noise Reading Results	Noise Guideline (Commercial Area)	Compliance Status for Commercial Areas
Day Time Readings (0600 to 2200)			**Day time**	
Average at PLGA 3rd Quarter	dB(A) Leq	53.5	65	
Night time Readings **(2200 to 0600)**			Night Time	
Average at PLGA 3rd Quarter	dB(A) Leq	53	65	
Average Noise Levels (24 hour average)	dB(A) Leq	53.1		

Source: ESPAK, Aug & Dec 2020.

4.1.3 WATER QUALITY

44. It is the prime responsibility of the Contractor not to pollute the surface water due to construction activities. The Engineer also plans to ensure that no sewage/wastewater or any construction waste is disposed-off into the open space, nearby water stream which may cause adverse impact on the water quality.

45. In the case of drinking water analysis, the water samples were taken from Fateh Sher Park, Farid Town Park and Chaman Zar Park in Sahiwal. The results indicate

that the ground water samples were overall found to be in compliance with the PEQS. Water resources are not affected by the construction activities of the project. Quarterly drinking water and wastewater monitoring analysis is also being conducted by Contactor at Sialkot and PLGA site. All the sampled drinking water sources have been found meeting the PEQS limits. Reports are attached as an Appendix. A to D.

4.2 Summary of Monitoring Outcomes

46. During the reporting period, environmental compliance remained satisfactory as major issues were not reported. The issue of improper disposal of excavated material during the PLGA works that was reported in previous SAEMR has been resolved since the excavation work has mostly been completed while only a small part of the excavation is still remaining that will be effectively managed through implementation of the specific measures stated in the SSEMP.

47. All material that was excavated has been transported in tarpaulin-covered trucks for disposal to suitable location(s), pre-approved by the PMU/CIU. At these pre-selected locations, any extra material was disposed off in accordance with international best practices to ensure no significant impacts took place.

4.3 Material Resources Utilization

48. Material resources utilization is necessary to meet the objectives of the project and to satisfy the client's requirements. During reporting period, the Contractor faced financial problems which affected the project progress. The contractor's construction resources details are given in the table below:

Table 8: Equipment/Machinery Details

Description	PLGA	Sialkot Parks	Sahiwal Parks
Generators	3		1
Loaders	2		0
Excavators	1		2
Jumping Compactor	1		
Concrete Vibrator	4	3	2

Water Pump	3	_	_
Crane	1	1	1
Welding Machine	4	1	1
Bar Cutting Machine	3	_	_
Bar Bending Machine	3	_	_
Tractor Trolley	2	5	1
Tractor Trailer	1	_	_
Transit Mixer	3	2	5
Auger Boring Machine	1	1	
Water Boozer	1	_	_
Concrete Batching Plant	1	_	_
Wood Cutter	4	_	_
Grinder	2	_	_
Cutter Steel	2	_	_

Table 9: Details of Materials

Description	Unit	PLGA	Sialkot Parks	Sahiwal Parks
Cement	Bags	106150	7500	5500
Sand	Cft	202350	13000	9490
Aggregate	Cft	372800	50000	36500
Steel	Tons	1720	130	95
Bricks	Nos	_	325000	237000

4.4 Waste Management

Sialkot parks

- Waste yard area (1100 Sqft) is built on park sites.

- Arrangements with Sialkot Waste Management Company/Municipal Corporation for safe disposal of domestic, construction and hazardous waste from work sites was made.
- Solid waste is being removed from park site waste yard at least once a week.
- Designated portable containers/waste bins for disposal of garbage at all work sites in the park were provided with all the waste being disposed off at the SWMC dumping site present at Wazirabad road.
- Waste material is disposed in waste yard in a safe condition, without blocking access for other users and people.
- Solid Waste burning at work and park site is prohibited.
- Training of labor on Solid waste management at site was conducted in third quarter.

Sahiwal Parks

49. All the solid waste generated in both the construction sites is being collected into waste bins. Regarding disposal of solid waste during the reporting period, rebar end cuttings and scrap cables were delivered to the scrap yard. Continuous housekeeping and waste segregation at all work sites increases the general and construction waste. Mesh wires, timber pieces, iron bars were collected by the Contractor. All this solid waste is either sold to local vendors or delivered to the scrapyard.

PLGA Lahore

50. Contractor installed waste bins at office camp and kitchen mess area. The excavated material and all solid waste has been collected and disposed by LWMC at Lokhadair landfill site.

4.4.1 CURRENT PERIOD

Sialkot Parks

51. The solid waste produced at all project sites was being collected into waste bins. As already discussed, construction is at minor scale and there is no workshop area, steel yard, washing yard, workshop area and batching plant area at project site. So, no bulk waste was produced from these sites. Reusable and recyclable waste is being sold to scrap collection retailers. **Figure:4** and **Figure:8** is showing the dumping sites and project site locations.

Sahiwal Parks

52. The solid waste produced at all project sites was being collected into waste bins. As already discussed, construction is at minor scale and there is no workshop area, steel yard, washing yard, workshop area and batching plant area at project site. So, no bulk waste produced from these sites. All the waste was collected at sites through waste bins which ultimately disposed-off at designated site of municipality of Sahiwal. **Figure:9 & Figure:12** is showing dumping site and project sites locations.

PLGA Lahore

53. The excavated material and all solid waste has been collected and disposed by LWMC at Lokhadair landfill site. **Figure:13 & Figure:14** is showing dumping site and project site locations.

Figure 4: Dumping Site Location Sialkot

Figure 5: Distance from Abdual Hakeem Park to Dumping Site

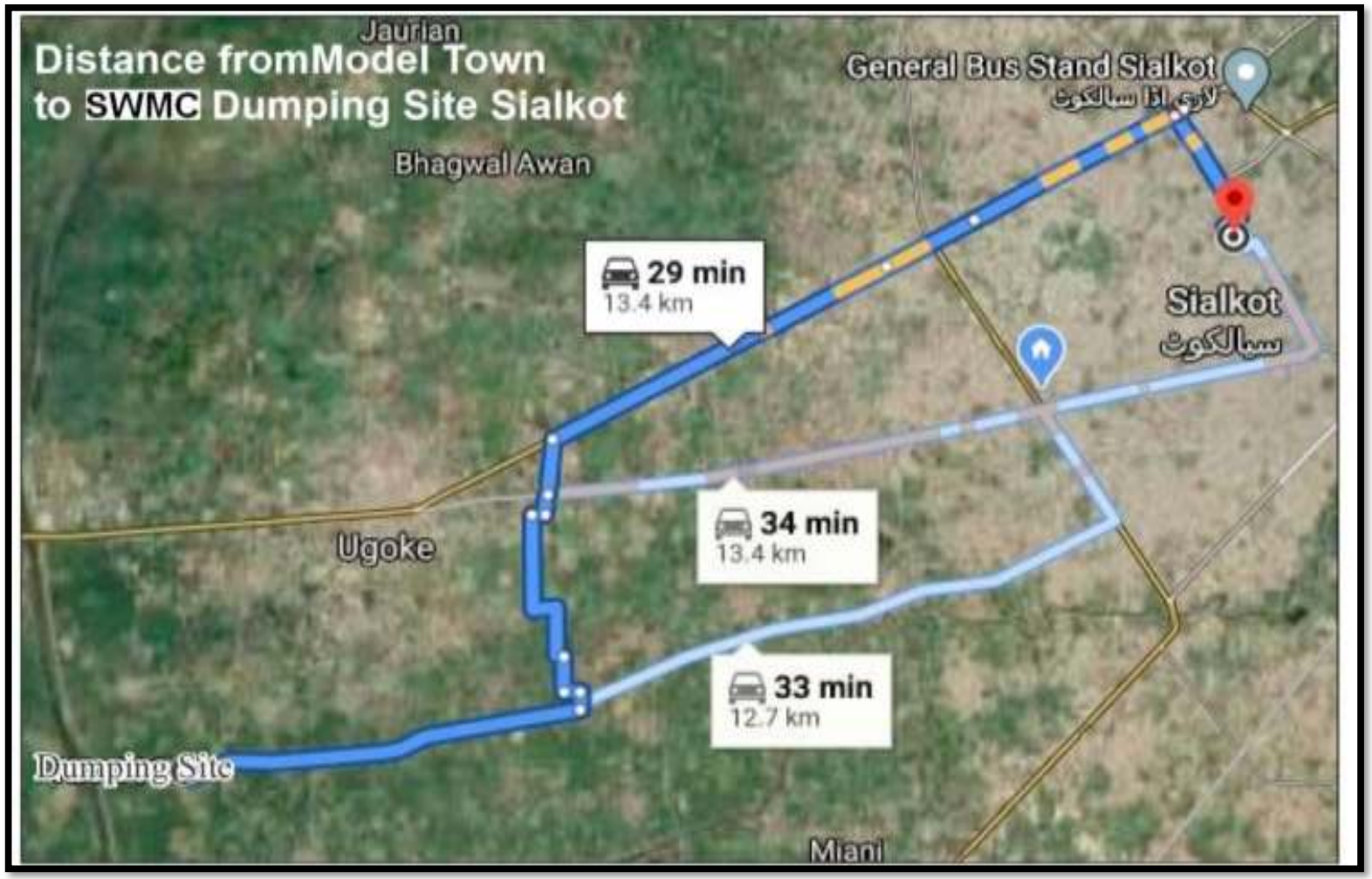

Figure 6: Distance from Model Town Ladies Park to Dumping Site

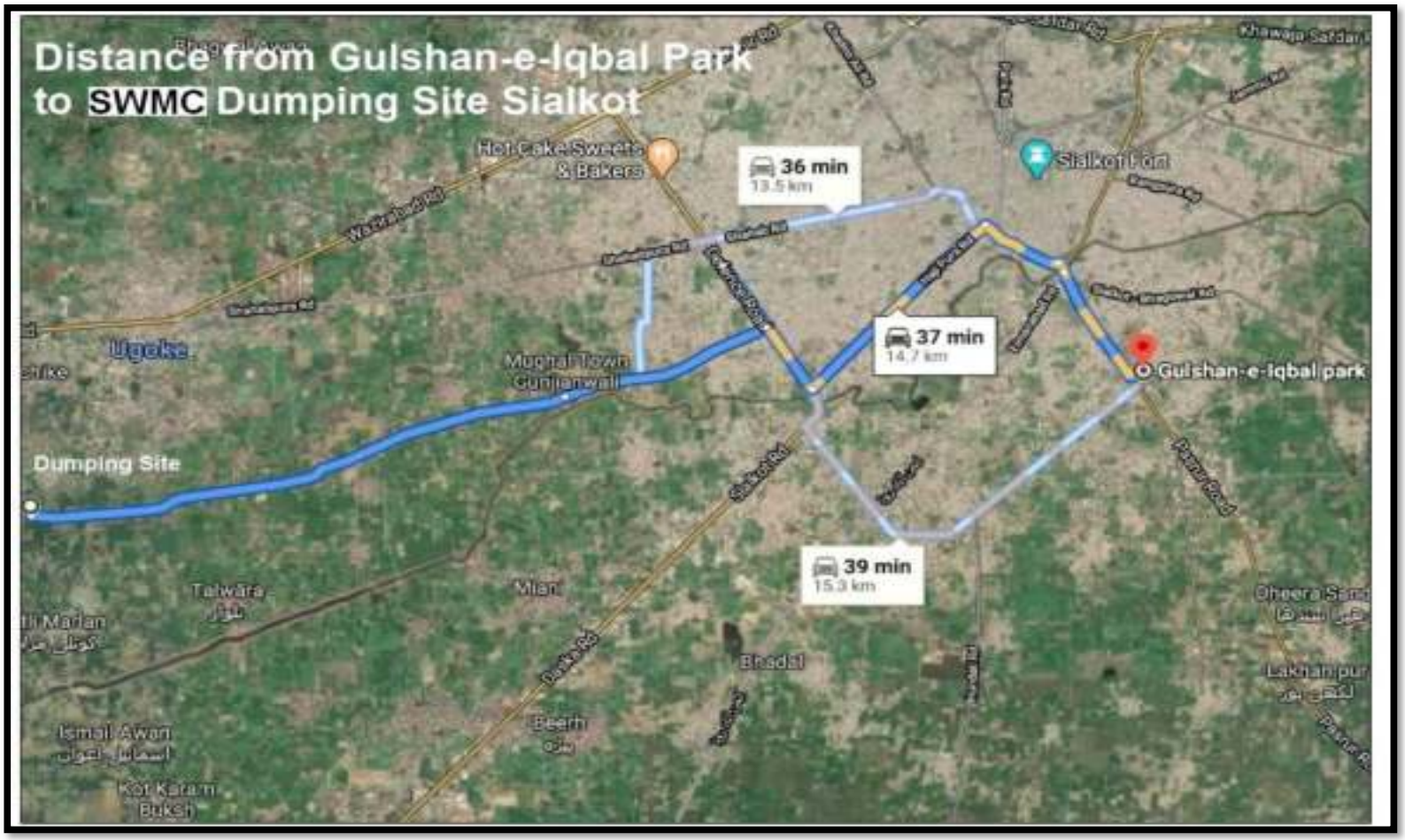

Figure 7: Distance from Gulshan e Iqbal Park to Dumping Site

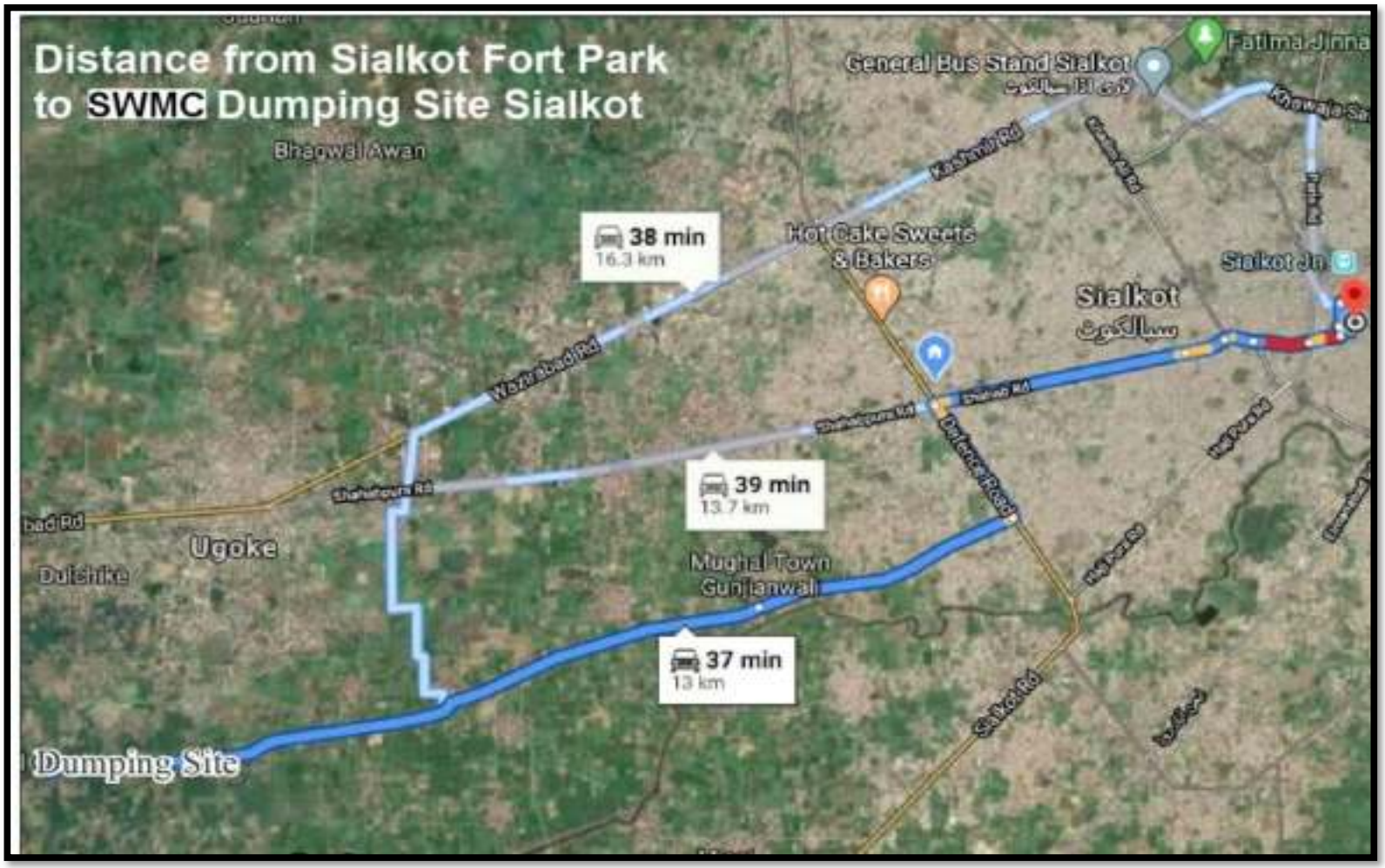
Distance from Sialkot Fort Park
to SWMC Dumping Site Sialkot
Bhagwal Awan
38 min
16.3 km
Hot Cake Sweets
& Bakers
General Bus Stand Sialkot
Fatima Jinnah
Sialkot Jn
Sialkot
39 min
13.7 km
Ugoke
Dulchike
Mughal Town
Gunjanwali
37 min
13 km
Dumping Site

Figure 8: Distance from Fort Park to Dumping Site

Figure 9: Dumping Site Location Sahiwal

Figure 10: Distance from Farid Town Park to Dumping Site

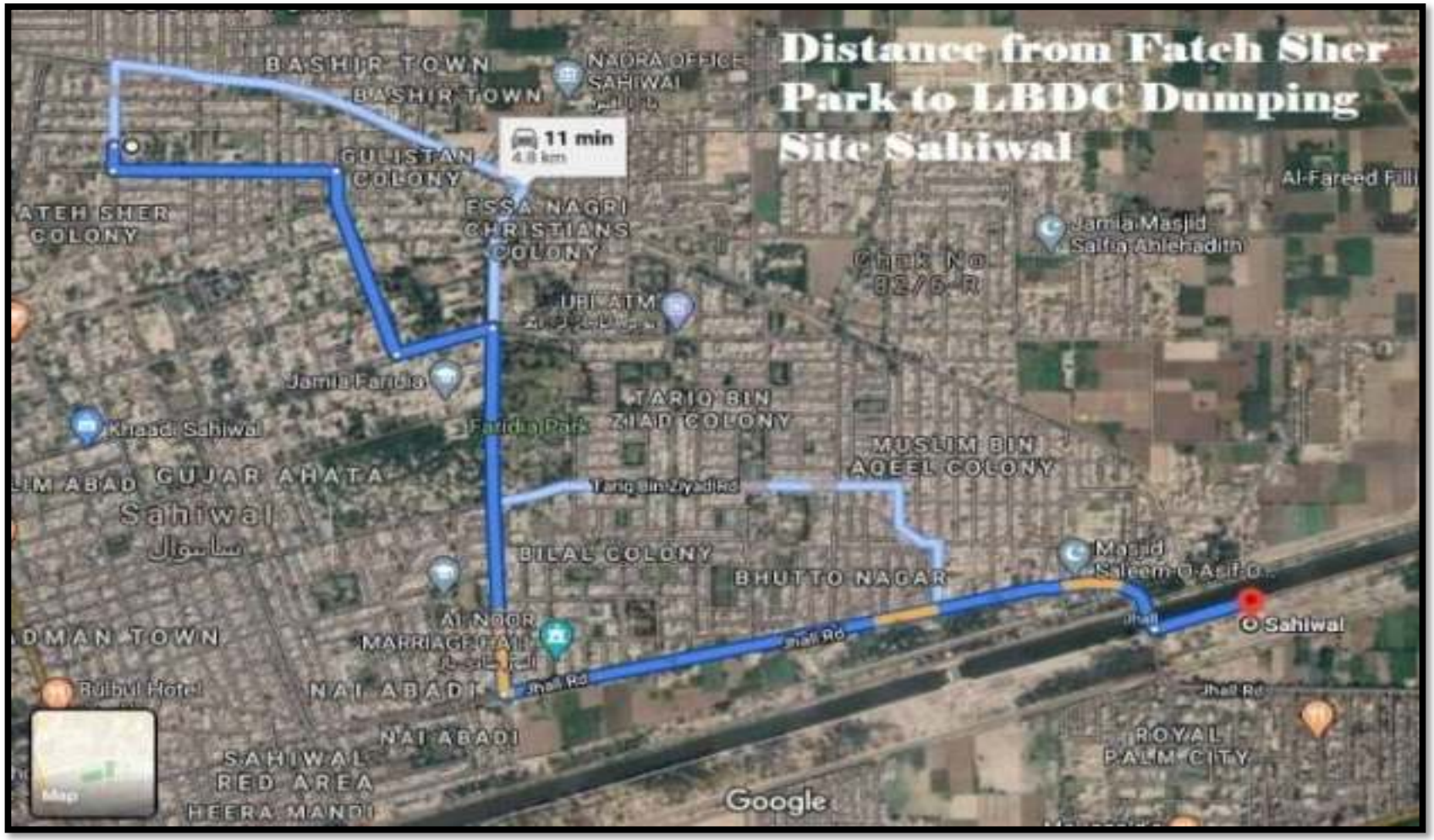

Figure 11: Distance from Fateh Sher Park to Dumping Site

Figure 12: Distance from Chaman zar Park to Dumping Site

Figure 13: Dumping Site Location Lahore

Figure 14: Distance of Dumping Site from PLGA Construction Site Location Lahore

4.4.3 CUMULATIVE WASTE GENERATION

54. For all three project sites i.e. Sahiwal Parks, Sialkot Parks and PLGA Lahore, the Contractor was advised that organic waste should be disposed-off into waste pits. Construction waste should be removed immediately from site as it creates nuisance.

55. It was observed few times during the reporting period that the waste generated from construction was discarded outside openly and not disposed in the designated place. It was ensured that the Contractor's housekeeping staff is mobilized for the removal of solid waste.

4.5 Health and Safety

4.5.1 COMMUNITY HEALTH AND SAFETY

Sialkot Parks

56. During reporting period, the Contractor took utmost care for community health and safety. No incidents related to the community health and safety have been occurred during the current reporting period. The following measures were taken to ensure the safety of community:

- The project site was cordoned off, especially the areas where machinery is involved were barricaded and constantly monitored to ensure that local residents, particularly children stay away from construction area. Also, no machinery was left unattended, particularly in running condition.

- Drivers were provided orientation on safe driving practices to minimize accidents and to prevent spill of hazardous substances and other construction materials during transport.

Sahiwal Parks

57. During reporting period, the Contractor took utmost care for community health and safety. Within this duration of the project, no massive traffic activity has been initiated. Only material supply vehicles are being used at site for shifting of material. The project site was cordoned off, especially where machinery is involved, was barricaded and constantly monitored to ensure that local residents, particularly children stay away from construction area. No incidents related to the community health and safety have been occurred during the current reporting period.

PLGA Lahore

58. No incidents related to the community health and safety have been occurred during the current reporting period.

4.5.2 WORKER SAFETY AND HEALTH

Sialkot Parks

59. Health Safety training and instructions are provided to workers on regular basis specifically awareness regarding COVID-19 preventive measures. Proper Emergency Response & Awareness System Regular supervision and monitoring of demolition and construction phase is carried out in compliance with the Health and Safety requirements as per standard specifications outlined in EMP and in the Contract. No incidents related to the workers' health and safety have been occurred during the current reporting period.

Sahiwal Parks

60. First aid medical facility was provided by contractor for each project site. Construction activities have minor impacts on safety and health of workers. Prior to starting the project engineering and administrative control measures were taken by the contractor. For example, provision of Personal Protective Equipment (PPE) to the work force is considered the mandatory step in health and safety management system. No incidents related to the workers' health and safety have been occurred during the current reporting period.

PLGA Lahore

61. In order to comply the Environmental management plan (EMP) and HSE of project area contractor strictly complied with the health safety and environment rules and regulations. Basic first aid medical facility was provided by contractor for each project site. Layout plan for camp site, indicating safety measures taken by the contractor, e.g. firefighting equipment, safe storage of construction material, security, fencing, and contingency measures in case of accidents.

4.5.4 FIREFIGHTING ARRANGEMENTS

Sialkot Parks

62. Fire Extinguishers are inspected on regular basis and kept in good condition. "Smoking is prohibited" signs are displayed at project site. The Contractor has provided the fire extinguishers at site. Furthermore, the trainings and TBTs are delivered at site to the concerned workers how to use the fire extinguishers at the

time of any fire hazards. Since the project started at site, no fire accident has occurred at site.

Sahiwal Parks

63. The fire extinguishers have been placed across the work sites with no major incident/accident or casualty reported.

PLGA, Lahore

64. The overall working environment in the project area is considered safe as no major incident/accident or casualty has been reported.

4.5.5 Use of PPEs

65. As per Health Safety and Environment (HSE) Plan, the Contractor is responsible for provision of full PPEs for the labour and staff deployed at work. For safe execution of the work, the Contractor has deputed an HSE officer and for adequate supervision of the HSE issues at site. At all three subprojects i.e. Sahiwal Parks, Sialkot Parks and PLGA Lahore overall status of use of PPEs is satisfactory. The PPEs issued to worker are Dust Mask, Ear Plugs, Safety Gloves, Safety Boots, Safety Jacket, Safety Helmet and Safety Goggles.

4.5.6 SAFETY SIGNBOARDS

66. Safety sign posters are considered one of the tools of creating awareness among the workers. The Civil Contractor has arranged satisfactory work in this regard at all site of Sialkot Parks, Sahiwal Parks and PLGA Lahore.

4.6 Appropriate Staff Name and Contact Details

67. Details mentioned in **Table 1.1**.

4.6.1 INCIDENTS DURING THE REPORTING PERIOD

68. No such incident has taken place at Sahiwal parks, Sialkot Parks and PLGA Lahore.

4.6.2 FATALITIES

69. The overall working environment at the project areas has been safe and no incident/accident or casualty has been reported on any of the sub projects till now.

4.6.3 CORRECTIVE ACTIONS

70. The Overall Health Safety & Environment (HSE) implementation was satisfactory due to continuous efforts by the supervisory staff at site as the Contractor was pressed hard to follow the HSE guidelines in true letter and spirit.

4.6.4 COMPENSATION AND INSURANCE BENEFITS

71. Not applicable for this SAEMR period.

4.7 HSE Training

72. The Contractor conducted the HSE training for their workers and administrative staff. The trainer was well qualified and having broad knowledge of handling HSE issues during construction. The training was arranged by the Contractor for safety awareness regarding execution of works with the summary of trainings conducted provided as **Table 4.7** below. The laborers were encouraged to participate in this training and advised that safety should be ensured. HSE training was delivered on following topics:

- Use of PPEs
- Slip, Trip and fall Hazards
- Access Paths
- Safety of Scaffolding
- Oil Spillage
- Electrical Wires Hazards
- Noise Hazards
- Welding, Cutting and Grinding
- Excavations

Table 4.7: No. of Trainings

Sr. No	No. of HSE Onsite Trainings
Sialkot Parks	1
Sahiwal Parks	1
PLGA Lahore	2

73. The training events at Sahiwal and Sialkot Parks were delayed due to the COVID -19 situation have been conducted in this reporting period.

Note: Check List for HSE is provided as **Appendix-E**.

4.8 Covid-19 preventive measures

74. The world has experienced a new potent challenge in the shape of Corona virus disease 2019 (COVID-2019). To intercept its local transmission Government of Punjab has issued Standard Operating Procedures for construction site. To ensure safety and prevention from COVID-19 at worksites, the following measures have been taken by the HSE teams at Sialkot Parks, Sahiwal Parks and PLGA Lahore, which have been strictly monitored:

- Temperature checking before entering to site and anyone who has high temperature or a new persistent cough and difficulty in breathing are not allowed to enter the construction site.
- Disinfection of working place and equipment periodically through Chlorine spray tanks
- Maintaining worker minimum 1-meter distance during work or at mess and sanitization before entering or leaving site,
- Visitors / meetings in closed room are not allowed or cancelled and safety sign regarding Covid-19 displayed.
- Ensure use of Personal Protective Equipment's (PPE) on site without PPEs workers / staff is not allowed to enter the site.
- Awareness training of workers to control the spread of epidemic and safety on construction site.

5. FUNCTIONING OF THE SSEMP

5.1 SSEMP Review

75. The Environmental Screening and Categorization Forms (ESCF) were prepared for Upgradation of Existing Parks of Sahiwal and Sialkot cities which lie in **Category C** under ADB SPS 2009. So, the SSEMP was not prepared for these sub-projects.

PLGA

76. The environmental safeguard screening and categorization was conducted for the construction of PLGA Lahore and the project was classified as **Category B**. The SSEMP has been submitted and approved by ADB. SSEMP is being implemented for required mitigation measures and their monitoring with full spirit at site.

77. Monitoring for the implementation of SSEMP has been actively carried out by the Consultants and PMU site staff throughout the reporting period. Following are the observations in this regard:

    a- The Contractor's level of sensitization and overall performance for the implementation of SSEMP and HS Plans has improved considerably throughout the reporting periods.

    b- The Consultants continuously provided the supervision to the Contractor, for implementation of SSEMP. The Contractor keenly made efforts for the implementation of the required mitigation measures in accordance with the SSEMP.

    c- The implementation of environmental monitoring plan remained satisfactory and internal monitoring has been carried out in accordance with the monitoring plan.

78. The SSEMP provide adequate guidance for the mitigation of environmental impacts resulting from the current construction activities. All the mitigation measures set out in the SSEMP are appropriate and no change is needed at this stage of the project.

6. GOOD PRACTICES AND OPPORTUNITY FOR IMPROVEMENT

6.1 Good Practices

79. As there are no major environmental impacts on any of the parks of Sahiwal and Sialkot cities, the project falls under Category "C" in accordance with ADBs' Safeguard Policy Statement, 2009. The project has very minimal environmental impacts for which suitable mitigation measure will be sufficient to counter the impacts. The good practices are mentioned as:

Sialkot Parks

- Noise and Vibrations are found within PEQS limits
- Air Quality has been monitored and within safe limits
- Drinking water Quality has been monitored and within safe limits
- Flora and Fauna are not unnecessarily damaged
- Health Safety standards are compliant
- Complaint register is in place of project site and No complaint/conflict observed
- A good liaison is established between CIU, Supervisory consultant and contractor to follow the environmental safeguard guidelines

Sahiwal Parks

- Establishment of Contractor's camp is within the permissible standards and parameters
- Site Specific Environmental Management Plan is in place with true letter and spirit
- Sanitation and wastewater disposal at camp site has been monitored
- Job opportunities are preferably provided to the locals
- A good liaison is established between CIU, Supervisory consultant and contractor to follow the environmental safeguard guidelines
- All workers and machinery have been got insured by the contractor.
- Noise and Vibrations are found within PEQS limits

- Air Quality has been monitored and within safe limits

PLGA Lahore

- Contractor has taken very strict action to avoid the corona virus contract.
- Frequent water sprinkling was observed to avoid dust pollution.
- Disinfection of working place and equipment periodically through Chlorine spray tanks.

6.2 Opportunities for Improvement

80. Overall quality of work and environment is satisfactory at site. However, Improvement are required;

Sahiwal Parks

- All the concerned staff has been instructed to improve OHS performance levels including use of PPEs, implementation of working hours etc.
- Training sessions must be conducted more frequently
- Reporting period and quarterly environmental monitoring timeline should be followed strictly.

Sialkot Parks

- Reporting period and quarterly environmental monitoring timeline should be followed strictly.
- Material transportation should be in the nighttime to avoid traffic issues
- Entrance of public within project vicinity must be prohibited and more vigilance needed.

PLGA, Lahore

- Reporting period and quarterly environmental monitoring timeline should be followed strictly.
- The PIC should continue to provide both off and onsite HSE training to the Contractor's top/middle management, supervisory staff and workers for the capacity building and providing them necessary awareness on how to deal with HSE issues that arises on day-to-day basis.
- The trucks carrying construction material should be properly covered to avoid public nuisance.

7. SUMMARY AND RECOMMENDATIONS

7.1 Summary

Sialkot Parks

81. The overall Health Safety & Environment (HSE) implementation is satisfactory due to continuous efforts by the supervisory staff at site as the Contractor was pressed hard to follow the HSE guidelines in true letter and spirit. The CIU staff with Research Analyst Environment and the Supervisory Consultant visit construction sites on regular basis and provide the needed feedback to the supervisory staff at site. There is no major adverse impact on ground water quality due to minor construction activities.

Sahiwal Parks

82. The Third Party External Environmental Monitoring was carried out twice during the reporting period. All the parameters tested were found to be within PEQS limits. The overall working environment at the Project Area has been safe as no major incident/accident or casualty was reported.

PLGA Lahore

83. The Third Party External Environmental Monitoring was carried out once during the reporting period. All the parameters tested were found to be within PEQS limits. The impact of dust was reduced by regular water sprinkling. Uses of PPEs was satisfactory during construction. The PMU staff with Research Analyst Environment and the Supervisory Consultant visit construction site on regular basis and provide the needed feedback to the supervisory staff at site.

7.2 Recommendations

84. The following recommendation should be applied to all the subprojects i.e. Sialkot Parks, Sahiwal Parks and PLGA, Lahore

- Contract clause regarding health safety and environment issues should be strictly followed.
- Strict compliance of EMP at project site.
- Use of PPEs during masonry work and working at height be enforced strictly.

- Presence of trained medical person and contractor's environmental officer should be ensuring during working hours.
- Stacking of construction materials at site should be according to EMP.

APPENDICES

Appendix A: Sahiwal Parks: Environmental Test Result Reports 3rd & 4th Quarters

ASIAN ENVIRONMENTAL SERVICES
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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-133-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-DW-84-2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity	SMWW 2130 B	≤ 5 NTU	0.0	N.A.	Optimal
Total Hardness (as CaCO3)	SMWW 2340 C	≤ 500 mg/L	88	± 0.61	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	≤ 1000 mg/L	174	± 1.16	Optimal
pH	SMWW 4500 H+ B	6.5- 8.5	7.15	± 0.60	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.001	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.1	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	0.21	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl-)	SMWW 4500 Cl- B	< 250 mg/L)	9.7	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.0164	N.A.	Optimal
Cyanide (CN-)	SMWW 4500 CN- F	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F-)	SMWW 4500 F- C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	<0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO3-)	SMWW 4500 NO3- B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO2-)	SMWW 4500 NO2- B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl2)	SMWW 4500 Cl- B	0.5 mg/L	0.0	N.A.	Optimal

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-DW-84-2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Phenolic Compounds (as Phenols)	SMWW 5530 D	NGVS	0.0	N.A.	Optimal
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.42	N.A.	Optimal
Microbiological Analysis					
Total Coliforms	SMWW 9222 B	0/ 100 mL CFU	0	N.A.	Optimal
Fecal Coliforms	SMWW 9222 D	0/ 100 mL CFU	0	N.A.	Optimal

Abbreviations:

PSQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
TCU = True Color Unit
N.A. = Not Available
CFU = Colony forming Unit
NTU = Nephelometric Turbidity Unit
ME = Measurement Uncertainty
NGVS = No Guideline Value Set

Remarks:

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-18C/2020	**Reporting Date**	28-08-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-DW-85-2020	**Sampling Location**	Fateh Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity	SMWW 2130 B	< 5 NTU	0.0	N.A.	Optimal
Total Hardness (as $CaCO_3$)	SMWW 2340 C	< 500 mg/L	206	± 0.61	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	< 1000 mg/L	844	± 1.16	Optimal
pH	SMWW 4500 H+ B	6.5- 8.5	7.43	± 0.60	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.001	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.004	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.03	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.07	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	<0.02	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl^-)	SMWW 4500 Cl^- B	< 250 mg/L]	130	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	<0.164	N.A.	Optimal
Cyanide (CN^-)	SMWW 4500 CN^- F	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F^-)	SMWW 4500 F^- C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	0.004	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	0.013	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO_3)	SMWW 4500 NO_3^- B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO_2)	SMWW 4500 NO_2^- B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl_2)	SMWW 4500 Cl^- B	0.5 mg/L	0.0	N.A.	Optimal

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-133-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-DW-85-2020	**Sampling Location**	Fateh Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Phenolic Compounds (as Phenols)	SMWW 5530 D	NGVS	0.0	N.A.	Optimal
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.054	N.A.	Optimal
Microbiological Analysis					
Total Coliforms	SMWW 9222 B	0/ 100 mL CFU	0	N.A.	Optimal
Fecal Coliforms	SMWW 9222 D	0/ 100 mL CFU	0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
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N.A. = Not Available
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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-DW-86-2020	**Sampling Location**	Chanasar Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity	SMWW 2130 B	< 5 NTU	0.0	N.A.	Optimal
Total Hardness (as $CaCO_3$)	SMWW 2340 C	< 500 mg/L	121	± 0.61	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	< 1000 mg/L	745	± 1.16	Optimal
pH	SMWW 4500 H+ B	6.5- 8.5	7.68	± 0.60	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.001	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.01	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.06	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	0.03	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl^-)	SMWW 4500 Cl^- B	< 250 mg/L	115	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	0.006	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.165	N.A.	Optimal
Cyanide (CN^-)	SMWW 4500 CN^- F	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F^-)	SMWW 4500 F^- C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.001	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	0.03	N.A.	Optimal
Nitrate (NO_3^-)	SMWW 4500 NO_3^- B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO_2^-)	SMWW 4500 NO_2^- B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl_2)	SMWW 4500 Cl^- B	0.5 mg/L	0.0	N.A.	Optimal

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-DW-86-2020	**Sampling Location**	Chenioter Park
Client Detail	M/S HCS-MASTIC-JV		

Phenolic Compounds (as Phenols)	SMWW 5530 D	NGVS	0.0	N.A.	Optimal
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.050	N.A.	Optimal
Microbiological Analysis					
Total Coliforms	SMWW 9222 B	0/ 100 mL CFU	0	N.A.	Optimal
Fecal Coliforms	SMWW 9222 D	0/ 100 mL CFU	0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards
TCU = True Color Unit
NTU = Nephelometric Turbidity Unit
SMWW = Standard Methods for the examination of Water and Wastewater
N.A. = Not Available
MU = Measurement Uncertainty
CFU = Colony Forming Unit
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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-WW-92/2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
pH	SMWW 4500 H+ B	6 - 9	7.13	± 0.60	Optimal
Biochemical Oxygen Demand (BOD_5)	SMWW 5210-B	80 mg/L	<5	N.A.	Optimal
Chemical Oxygen Demand (COD)	SMWW 5220 B	150 mg/L	15	N.A.	Optimal
Total Suspended Solids (TSS)	SMWW 2540 D	200 mg/L	170	N.A.	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	3500 mg/L	206	± 1.16	Optimal
Phenolic Compounds (as Phenols)	SMWW 5530 D	0.1 mg/L	0.0	N.A.	Optimal
Grease and Oil	USEPA 1664 B	10 mg/L	0.0	N.A.	Optimal
Chloride (Cl^-)	SMWW 4500 Cl- B	1000 mg/L	8.7	± 0.61	Optimal
Fluoride (F^-)	SMWW 4500 F- C	10 mg/L	0.0	N.A.	Optimal
Cyanide (CN^-)	SMWW 4500 CN- F	1.0 mg/L	0.0	N.A.	Optimal
An-ionic Detergents (as MBAs)	SMWW 5540-C	20.0 mg/L	0.0	N.A.	Optimal
Sulfate (SO_4^{2-})	SMWW 4500 SO_4^{2-} C	600 mg/L	35	N.A.	Optimal
Sulfide (S^{2-})	SMWW 4500 S^{2-} F	1.0 mg/L	0.0	N.A.	Optimal
Ammonia (NH_3)	SMWW 4500-NH_3 D	40 mg/L	0.0	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.1 mg/L	0.006	N.A.	Optimal
Chromium (Cr)	SMWW 3113 B	1.0 mg/L	0.109	N.A.	Optimal
Copper (Cu)	SMWW 3113 B	1.0 mg/L	0.165	N.A.	Optimal
Lead (Pb)	SMWW 3113 B	0.5 mg/L	0.005	N.A.	Optimal
Mercury (Hg)	SMWW 3112 B	0.01 mg/L	0.001	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.5 mg/L	<0.01	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	1.0 mg/L	0.014	N.A.	Optimal
Silver (Ag)	SMWW 3113 B	1.0 mg/L	0.080	N.A.	Optimal
Total Toxic Metals	Calculated Value	2.0 mg/L	0.725	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.124	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	1.0 mg/L	0.08	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	1.5 mg/L	0.136	N.A.	Optimal
Iron (Fe)	SMWW 3113 B	8.0 mg/L	2.38	N.A.	Optimal

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-WW-92/2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.019	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	0.119	N.A.	Optimal
Residual Chlorine (Cl_2)	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
USEPA = United States Environment Protection Agency
N.A. = Not Available
MU = Measurement Uncertainty

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-WW-93/2020	**Sampling Location**	Fateh Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
pH	SMWW 4500 H+ B	6 - 9	7.52	± 0.60	Optimal
Biochemical Oxygen Demand (BOD_5)	SMWW 5210-B	80 mg/L	<5	N.A.	Optimal
Chemical Oxygen Demand (COD)	SMWW 5220 B	150 mg/L	13	N.A.	Optimal
Total Suspended Solids (TSS)	SMWW 2540 D	200 mg/L	165	N.A.	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	3500 mg/L	218	± 1.16	Optimal
Phenolic Compounds (as Phenols)	SMWW 5530 D	0.1 mg/L	0.0	N.A.	Optimal
Grease and Oil	USEPA 1664 B	10 mg/L	0.0	N.A.	Optimal
Chloride (Cl^-)	SMWW 4500 Cl- B	1000 mg/L	9.7	± 0.61	Optimal
Fluoride (F^-)	SMWW 4500 F- C	10 mg/L	0.0	N.A.	Optimal
Cyanide (CN^-)	SMWW 4500 CN- F	1.0 mg/L	0.0	N.A.	Optimal
An-ionic Detergents (as MBAs)	SMWW 5540-C	20.0 mg/L	0.0	N.A.	Optimal
Sulfate (SO_4^{-2})	SMWW 4500 SO_4^{-2} C	600 mg/L	31.6	N.A.	Optimal
Sulfide (S^{-2})	SMWW 4500 S^{-2} F	1.0 mg/L	0.0	N.A.	Optimal
Ammonia (NH_3)	SMWW 4500-NH_3 D	40 mg/L	0.0	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.1 mg/L	0.006	N.A.	Optimal
Chromium (Cr)	SMWW 3113 B	1.0 mg/L	0.121	N.A.	Optimal
Copper (Cu)	SMWW 3113 B	1.0 mg/L	<0.164	N.A.	Optimal
Lead (Pb)	SMWW 3113 B	0.5 mg/L	<0.005	N.A.	Optimal
Mercury (Hg)	SMWW 3112 B	0.01 mg/L	0.001	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.5 mg/L	0.01	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	1.0 mg/L	0.053	N.A.	Optimal
Silver (Ag)	SMWW 3113 B	1.0 mg/L	0.081	N.A.	Optimal
Total Toxic Metals	Calculated Value	2.0 mg/L	0.756	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.199	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	1.0 mg/L	0.07	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	1.5 mg/L	0.132	N.A.	Optimal
Iron (Fe)	SMWW 3113 B	8.0 mg/L	2.1	N.A.	Optimal

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-WW-93/2020	**Sampling Location**	Fateh Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.018	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	0.113	N.A.	Optimal
Residual Chlorine (Cl_2)	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards **SMWW** = Standard Methods for the examination of Water and Wastewater
USEPA = United States Environment Protection Agency **N.A.** = Not Available **MU** = Measurement Uncertainty

Remarks:

Optimal = Compliance with Permissible Range Marginal = Close to Extreme Edge High = Exceeds from Permissible Range
Low = Less Than Permissible Range

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-WW-94/2020	**Sampling Location**	Chanazar Park
Client Detail	M/S HCS-MASTIC-JV		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
pH	SMWW 4500 H+ B	6 - 9	7.83	± 0.60	Optimal
Biochemical Oxygen Demand (BOD_5)	SMWW 5210-B	80 mg/L	<5	N.A.	Optimal
Chemical Oxygen Demand (COD)	SMWW 5220 B	150 mg/L	<5	N.A.	Optimal
Total Suspended Solids (TSS)	SMWW 2540 D	200 mg/L	8	N.A.	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	3500 mg/L	548	± 1.16	Optimal
Phenolic Compounds (as Phenols)	SMWW 5530 D	0.1 mg/L	0.0	N.A.	Optimal
Grease and Oil	USEPA 1664 B	10 mg/L	0.0	N.A.	Optimal
Chloride (Cl^-)	SMWW 4500 Cl- B	1000 mg/L	79.6	± 0.61	Optimal
Fluoride (F^-)	SMWW 4500 F- C	10 mg/L	0.0	N.A.	Optimal
Cyanide (CN^-)	SMWW 4500 CN- F	1.0 mg/L	0.0	N.A.	Optimal
An-ionic Detergents (as MBAs)	SMWW 5540-C	20.0 mg/L	0.0	N.A.	Optimal
Sulfate (SO_4^{-2})	SMWW 4500 SO_4^{-2} C	600 mg/L	46	N.A.	Optimal
Sulfide (S^{-2})	SMWW 4500 S^{-2} F	1.0 mg/L	0.0	N.A.	Optimal
Ammonia (NH_3)	SMWW 4500-NH_3 D	40 mg/L	0.0	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.1 mg/L	0.007	N.A.	Optimal
Chromium (Cr)	SMWW 3113 B	1.0 mg/L	0.09	N.A.	Optimal
Copper (Cu)	SMWW 3113 B	1.0 mg/L	<0.164	N.A.	Optimal
Lead (Pb)	SMWW 3113 B	0.5 mg/L	0.005	N.A.	Optimal
Mercury (Hg)	SMWW 3112 B	0.01 mg/L	<0.001	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.5 mg/L	0.01	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	1.0 mg/L	0.051	N.A.	Optimal
Silver (Ag)	SMWW 3113 B	1.0 mg/L	0.078	N.A.	Optimal
Total Toxic Metals	Calculated Value	2.0 mg/L	0.668	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.012	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	1.0 mg/L	0.05	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	1.5 mg/L	0.122	N.A.	Optimal
Iron (Fe)	SMWW 3113 B	8.0 mg/L	2.01	N.A.	Optimal

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-135-HC/2020	**Reporting Date**	28-08-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	18-08-2020	**Sample Receiving Date**	18-08-2020
Analysis Completion Date	26-08-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			33 °C & 57 %
Sample ID	AES-WW-94/2020	**Sampling Location**	Chamnizar Park
Client Detail	M/S HCS-MASTIC-JV		

Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.016	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	0.09	N.A.	Optimal
Residual Chlorine (Cl_2)	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
USEPA = United States Environment Protection Agency
N.A. = Not Available
MU = Measurement Uncertainty

Remarks:

(Optional) = Compliance with Permissible Range
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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-233-10C/2020
Sampling Point	Farid Town Park -Sahiwal
Date of Monitoring	09-Dec-2020 to 10-Dec- 2020
Sampling Coordinate	30°40'33.5" N 73°05'05.6" E

Sr. No.	Time	CO (mg/m³)	NO (µg/m³)	NO_2 (µg/m³)	NO_x (µg/m³)	SO_2 (µg/m³)
1	10:00	0.96	9.96	19.03	28.96	24.91
2	11:00	0.97	10.00	19.03	28.99	24.93
3	12:00	0.97	10.02	18.46	28.44	24.96
4	13:00	1.04	10.82	17.65	28.44	25.78
5	14:00	1.07	10.86	18.46	29.28	25.76
6	15:00	1.09	11.19	18.84	29.99	26.26
7	16:00	1.06	10.60	17.82	28.38	26.18
8	17:00	1.06	10.69	18.21	28.86	23.84
9	18:00	1.05	10.58	18.99	29.53	21.69
10	19:00	1.02	9.79	18.84	28.59	25.15
11	20:00	1.00	11.26	18.42	29.64	23.89
12	21:00	1.02	11.69	17.65	29.30	23.84
13	22:00	1.02	11.72	19.07	30.75	26.21
14	23:00	1.02	11.91	17.73	29.61	23.52
15	00:00	1.02	11.69	18.84	30.48	23.58
16	01:00	0.99	11.90	18.69	30.54	24.27
17	02:00	0.99	11.69	17.96	29.61	24.61
18	03:00	1.02	11.38	18.84	30.18	22.38
19	04:00	1.05	10.60	17.96	28.52	21.61
20	05:00	1.04	10.19	17.73	27.91	23.26
21	06:00	1.02	10.61	18.97	29.55	22.96
22	07:00	0.99	10.23	17.96	28.15	26.21
23	08:00	1.02	11.26	18.88	30.10	20.12
24	09:00	1.15	10.82	17.63	28.42	22.78
Average Concentration		**1.03**	**10.89**	**18.40**	**29.29**	**24.11**

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-233-HC/2020
Sampling Point	Farid Town Park -Sahiwal
Date of Monitoring	09-Dec-2020 to 10-Dec- 2020
Sampling Coordinate	30°40'33.5" N 73°05'05.6" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	24Hours	1.00	18.40	80.0
Nitrogen Oxide (NO)	$\mu g/m^3$	24Hours	1.00	10.89	40.0
NO_x	$\mu g/m^3$	24Hours	1.00	29.29	120.0
Sulphur Dioxide (SO_2)	$\mu g/m^3$	24Hours	1.00	24.11	120.0
Carbon Monoxide (CO)	mg/m^3	24Hours	0.01	1.03	05.0
Particulate Matter (PM_{10})	$\mu g/m^3$	24Hours	1.00	141.2	150
Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24Hours	1.00	35.2	35
Total Particulate Matter (TSP)	$\mu g/m^3$	24Hours	1.00	271.6	500

LDL= Lower Detection Limit PEQS= Punjab Environmental Quality Standards $\mu g/m^3$ = Micro Gram per Meter Cube

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Ambient Noise Monitoring Report

Monitoring Details	
Reference Number	AES-233-HC/2020
Sampling Point	Farid Town Park -Sahiwal
Date of Monitoring	09-Dec-2020 to 10-Dec- 2020
Sampling Coordinate	30°40'33.5" N 73°05'05.0" E

Sr. No.	Time	Noise dB(A)		PEQS
1	10:00	52		
2	11:00	52		
3	12:00	53		
4	13:00	54		
5	14:00	55		
6	15:00	61		
7	16:00	53	Day Time	65
8	17:00	51		
9	18:00	50		
10	19:00	49		
11	20:00	47		
12	21:00	49		
13	22:00	45		
14	23:00	46		
15	00:00	42		
16	01:00	40		
17	02:00	39	Night Time	55
18	03:00	37		
19	04:00	35		
20	05:00	35		
21	06:00	36		
22	07:00	40		
23	08:00	43	Day Time	65
24	09:00	47		

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-233-HC/2020
Sampling Point	Chamanzar Park -Sahiwal
Date of Monitoring	11-Dec-2020 to 12-Dec- 2020
Sampling Coordinate	30°39'57.1" N 73°06'49.5" E

Sr. No.	Time	CO (mg/m³)	NO (µg/m³)	NO_2 (µg/m³)	NO_x (µg/m³)	SO_2 (µg/m³)
1	10:00	0.99	12.09	18.84	30.93	25.62
2	11:00	1.00	12.18	17.88	30.06	25.78
3	12:00	1.01	12.20	17.90	30.10	25.81
4	13:00	1.03	12.97	18.00	30.96	25.84
5	14:00	0.97	12.83	18.03	30.87	25.94
6	15:00	0.96	13.18	18.82	32.00	25.97
7	16:00	0.97	13.14	18.19	31.33	25.60
8	17:00	1.02	13.33	18.32	31.65	25.78
9	18:00	1.03	13.14	18.82	31.96	24.35
10	19:00	1.03	12.99	17.42	30.41	25.92
11	20:00	1.00	12.97	17.56	30.52	25.04
12	21:00	0.99	13.62	18.82	32.44	25.04
13	22:00	0.96	14.10	18.00	32.09	25.07
14	23:00	0.97	14.04	18.80	32.84	24.51
15	00:00	1.02	15.09	18.82	33.91	25.62
16	01:00	1.03	14.69	18.63	33.32	24.32
17	02:00	1.03	13.37	18.84	32.21	24.53
18	03:00	1.03	13.35	18.80	32.15	24.32
19	04:00	1.00	13.14	18.76	31.90	24.27
20	05:00	0.96	13.60	18.82	32.42	24.56
21	06:00	0.96	13.69	18.44	32.13	26.58
22	07:00	1.00	14.08	18.46	32.53	26.50
23	08:00	1.01	13.88	18.30	32.19	25.62
24	09:00	1.02	13.79	18.80	32.59	26.05
Average Concentration		1.00	13.39	18.42	31.81	25.36

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-233-HC/2020
Sampling Point	Chamanzar Park -Sahiwal
Date of Monitoring	11-Dec-2020 to 12-Dec- 2020
Sampling Coordinate	30°39'57.1" N 73°06'49.5" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	24Hours	1.00	18.42	80.0
Nitrogen Oxide (NO)	$\mu g/m^3$	24Hours	1.00	13.39	40.0
NO_x	$\mu g/m^3$	24Hours	1.00	31.81	120.0
Sulphur Dioxide (SO_2)	$\mu g/m^3$	24Hours	1.00	25.26	120.0
Carbon Monoxide (CO)	mg/m^3	24Hours	0.01	1.00	05.0
Particulate Matter (PM_{10})	$\mu g/m^3$	24Hours	1.00	129.6	150
Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24Hours	1.00	**35.9**	35
Total Particulate Matter (TSP)	$\mu g/m^3$	24Hours	1.00	281.5	500

LDL= Lower Detection Limit PEQS= Punjab Environmental Quality Standards $\mu g/m^3$= Micro Gram per Meter Cube

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-233-18C/2020
Sampling Point	Chamanzar Park -Sahiwal
Date of Monitoring	11-Dec-2020 to 12-Dec- 2020
Sampling Coordinate	30°39'57.1" N 73°06'49.5" E

Sr. No.	Time	Noise dB(A)		PEQS
1	10:00	51		
2	11:00	47		
3	12:00	53		
4	13:00	48		
5	14:00	47		
6	15:00	52		
7	16:00	60	Day Time	65
8	17:00	58		
9	18:00	55		
10	19:00	49		
11	20:00	45		
12	21:00	44		
13	22:00	39		
14	23:00	37		
15	00:00	36		
16	01:00	40		
17	02:00	37	Night Time	55
18	03:00	41		
19	04:00	44		
20	05:00	47		
21	06:00	50		
22	07:00	62		
23	08:00	57	Day Time	65
24	09:00	55		

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-Z33-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			26°C & 61 %
Sample ID	AES-DW-154-2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste*	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0.0	N.A.	Optimal
Total Hardness (as $CaCO_3$) **	SMWW 2340 C	< 500 mg/L	94	± 0.61	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	192	± 1.16	Optimal
pH**	SMWW 4500 H+ B	6.5- 8.5	7.20	± 0.00	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.006	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.021	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	0.025	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl) **	SMWW 4500 Cl- B	< 250 mg/L	9.2	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.0164	N.A.	Optimal
Cyanide (CN)*	SMWW 4500 CN- E	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F-)*	SMWW 4500 F- C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	<0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO_3) *	SMWW 4500 NO3- B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO_2) *	SMWW 4500 NO2- B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl_2) *	SMWW 4500 Cl- B	0.5 mg/L	0.0	N.A.	Optimal

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ASIAN ENVIRONMENTAL SERVICES

DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			28°C & 61 %
Sample ID	AES-DW-154-2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS	0.0	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.054	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0/ 100 mL CFU	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0/ 100 mL CFU	0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.

**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards; SMWW = Standard Methods for the examination of Water and Wastewater; PCU = True Color Unit; N.A. = Not Available; CFU = Colony forming Unit; NTU = Nephelometric Turbidity Unit; MU = Measurement Uncertainty; NGVS = No Guideline Value Set

Remarks:

Optimal = Compliance with Permissible Range; Marginal = Close to Extreme Edge; High = Exceeds from Permissible Range; Low = Less Than Permissible Range

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Public Environmental Services Laboratory Lahore

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ASIAN ENVIRONMENTAL SERVICES

DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			26°C & 61 %
Sample ID	AES-DW-155-2020	**Sampling Location**	Fatch Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste*	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	≤ 5 NTU	0.0	N.A.	Optimal
Total Hardness (as $CaCO_3$) **	SMWW 2340 C	< 500 mg/L	188	± 0.61	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	326	± 1.16	Optimal
pH**	SMWW 4500 H+ B	6.5- 8.5	7.48	± 0.60	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.003	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.006	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.021	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	0.025	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl) **	SMWW 4500 Cl B	< 250 mg/L	122	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.0164	N.A.	Optimal
Cyanide (CN)*	SMWW 4500 CN F	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F-)*	SMWW 4500 F C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	<0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO_3)*	SMWW 4500 NO_3 B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO_2)*	SMWW 4500 NO_2 B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl_2)*	SMWW 4500 Cl B	0.5 mg/L	0.0	N.A.	Optimal

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	Reporting Date	21-12-2020
Nature of Sample	Drinking Water	Sampling Method Reference	AES/LMN/QSP-014
Grab/Composite	Grab	Sample Collected by/Sent By	AES
Sampling Date	09-12-2020	Sample Receiving Date	10-12-2020
Analysis Completion Date	18-12-2020	Lab Temp & Humidity	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			26°C & 61 %
Sample ID	AES-DW-155-2020	Sampling Location	Fatch Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenol) *	SMWW 5530 D	NGVS	0.0	N.A.	Optimal
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.052	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0/ 100 mL CFU	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0/ 100 mL CFU	0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards; SMWW = Standard Methods for the examination of Water and Wastewater
TCU = True Color Unit; N.A. = Not Available; CFU = Colony Forming Unit
NTU = Nephelometric Turbidity Unit; MU = Measurement Uncertainty; NGVS = No Guideline Value Set

Remarks:

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSF-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			28°C & 61 %
Sample ID	AES-DW-136-2020	**Sampling Location**	Chanar-e-Park
Client Detail	M/S HCS-MASTEC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste*	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0.0	N.A.	Optimal
Total Hardness (as CaCO3) **	SMWW 2340 C	< 500 mg/L	148	± 0.61	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	496	± 1.16	Optimal
pH**	SMWW 4500 H+ B	6.5- 8.5	7.58	± 0.00	Optimal
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	<0.005	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.006	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	0.021	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	0.025	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optimal
Chloride (Cl-) **	SMWW 4500 Cl- B	< 250 mg/L	112	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	<0.004	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.0164	N.A.	Optimal
Cyanide (CN-)*	SMWW 4500 CN- F	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F-)*	SMWW 4500 F- C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	<0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	<0.015	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	<0.02	N.A.	Optimal
Nitrate (NO3-)*	SMWW 4500 NO3- B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO2-)*	SMWW 4500 NO2- B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl2)*	SMWW 4500 Cl- B	0.5 mg/L	0.0	N.A.	Optimal

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	23-12-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5 °C & 55 %
Ambient Temperature & Humidity at the Time of Sampling			26°C & 60 %
Sample ID	AES-DW-136-2020	**Sampling Location**	Chanar ce Park
Client Detail	M/S IICS-MASTIC-JV		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS	0.0	N.A.	Optimal
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.051	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0/ 100 mL CFU	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0/ 100 mL CFU	0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards
TCU = True Color Unit
NTU = Nephelometric Turbidity Unit
SMWW = Standard Methods for the examination of Water and Wastewater
N.A. = Not Available
MU = Measurement Uncertainty
CFU = Colony Forming Unit
NGVS = No Guideline Value Set

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5°C & 55%
Ambient Temperature & Humidity at the Time of Sampling			20°C & 61%
Sample ID	AES-WW-157/2020	**Sampling Location**	Field Town Park
Client Detail	M/S HCS-MASTIC-IV.		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
pH**	SMWW 4500 H+ B	6 - 9	7.18	± 0.60	Optimal
Biochemical Oxygen Demand (BOD_5) *	SMWW 5210-B	80 mg/L	8	N.A.	Optimal
Chemical Oxygen Demand (COD)*	SMWW 5220 B	150 mg/L	17	N.A.	Optimal
Total Suspended Solids (TSS)*	SMWW 2540 D	200 mg/L	162	N.A.	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	3500 mg/L	218	± 1.16	Optimal
Phenolic Compounds (as Phenols) *	SMWW 5530 D	0.1 mg/L	0.0	N.A.	Optimal
Grease and Oil*	USEPA 1664 B	10 mg/L	0.0	N.A.	Optimal
Chloride (Cl^-)**	SMWW 4500 Cl- B	1000 mg/L	9.2	± 0.61	Optimal
Fluoride (F^-)*	SMWW 4500 F- C	10 mg/L	0.0	N.A.	Optimal
Cyanide (CN^-)*	SMWW 4500 CN- F	1.0 mg/L	0.0	N.A.	Optimal
An-ionic Detergents (as MBAs) *	SMWW 5540-C	20.0 mg/L	0.0	N.A.	Optimal
Sulfate (SO_4^{2-}) *	SMWW 4500 SO_4^{2-} C	600 mg/L	38	N.A.	Optimal
Sulfide (S^{2-}) *	SMWW 4500 S^{2-} F	1.0 mg/L	0.0	N.A.	Optimal
Ammonia (NH_3) *	SMWW 4500-NH_3 D	40 mg/L	0.0	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.1 mg/L	0.005	N.A.	Optimal
Chromium (Cr)	SMWW 3113 B	1.0 mg/L	0.08	N.A.	Optimal
Copper (Cu)	SMWW 3113 B	1.0 mg/L	0.166	N.A.	Optimal
Lead (Pb)	SMWW 3113 B	0.5 mg/L	0.006	N.A.	Optimal
Mercury (Hg)	SMWW 3112 B	0.01 mg/L	0.001	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.5 mg/L	<0.01	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	1.0 mg/L	0.02	N.A.	Optimal
Silver (Ag)	SMWW 3113 B	1.0 mg/L	0.09	N.A.	Optimal
Total Toxic Metals	Calculated Value	2.0 mg/L	0.515	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.049	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	1.0 mg/L	0.07	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	1.5 mg/L	0.037	N.A.	Optimal

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.3°C & 55%
Ambient Temperature & Humidity at the Time of Sampling			26°C & 61%
Sample ID	AES-WW-157/2020	**Sampling Location**	Farid Town Park
Client Detail	M/S HCS-MASTIC-JV		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Iron (Fe)	SMWW 3113 B	8.0 mg/L	2.01	N.A.	Optimal
Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.016	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	0.03	N.A.	Optimal
Residual Chlorine (Cl_2) *	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

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USEPA = United States Environment Protection Agency
SMWW = Standard Methods for the examination of Water and Wastewater
N.A. = Not Available
MU = Measurement Uncertainty

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	**Reporting Date**	21-12-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	09-12-2020	**Sample Receiving Date**	10-12-2020
Analysis Completion Date	18-12-2020	**Lab Temp & Humidity**	25.5°C & 55%
Ambient Temperature & Humidity at the Time of Sampling			26°C & 61%
Sample ID	AES-WW-158/2020	**Sampling Location**	Faizh Sher Park
Client Detail	M/S HCS-MASTIC-JV		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
pH**	SMWW 4500 H+ B	6 - 9	7.56	± 0.05	Optimal
Biochemical Oxygen Demand (BOD5) *	SMWW 5210-B	80 mg/L	11	N.A.	Optimal
Chemical Oxygen Demand (COD)*	SMWW 5220 B	150 mg/L	22	N.A.	Optimal
Total Suspended Solids (TSS)*	SMWW 2540 D	200 mg/L	172	N.A.	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	3500 mg/L	1066	± 1.16	Optimal
Phenolic Compounds (as Phenols) *	SMWW 5530 D	0.1 mg/L	0.0	N.A.	Optimal
Grease and Oil*	USEPA 1664 B	10 mg/L	0.0	N.A.	Optimal
Chloride (Cl^-)**	SMWW 4500 Cl- B	1000 mg/L	18	± 0.61	Optimal
Fluoride (F^-)*	SMWW 4500 F- C	10 mg/L	0.0	N.A.	Optimal
Cyanide (CN^-)*	SMWW 4500 CN- F	1.0 mg/L	0.0	N.A.	Optimal
An-ionic Detergents (as MBAs) *	SMWW 5540-C	20.0 mg/L	0.0	N.A.	Optimal
Sulfate (SO_4^{2-}) *	SMWW 4500 SO_4^{2-} C	600 mg/L	48	N.A.	Optimal
Sulfide (S^{2-}) *	SMWW 4500 S^{2-} F	1.0 mg/L	0.0	N.A.	Optimal
Ammonia (NH_3) *	SMWW 4500-NH_3 D	40 mg/L	0.0	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.1 mg/L	0.006	N.A.	Optimal
Chromium (Cr)	SMWW 3113 B	1.0 mg/L	0.09	N.A.	Optimal
Copper (Cu)	SMWW 3113 B	1.0 mg/L	0.165	N.A.	Optimal
Lead (Pb)	SMWW 3113 B	0.5 mg/L	0.006	N.A.	Optimal
Mercury (Hg)	SMWW 3112 B	0.01 mg/L	0.001	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.5 mg/L	<0.01	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	1.0 mg/L	0.026	N.A.	Optimal
Silver (Ag)	SMWW 3113 B	1.0 mg/L	0.08	N.A.	Optimal
Total Toxic Metals	Calculated Value	2.0 mg/L	0.554	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.035	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	1.0 mg/L	0.09	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	1.5 mg/L	0.038	N.A.	Optimal

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-233-HC/2020	Reporting Date	21-12-2020
Nature of Sample	Waste Water	Sampling Method Reference	AES/LMS/QSP-014
Grab/Composite	Grab	Sample Collected by/Sent By	AES
Sampling Date	09-12-2020	Sample Receiving Date	10-12-2020
Analysis Completion Date	18-12-2020	Lab Temp & Humidity	25.5°C & 55%
Ambient Temperature & Humidity at the Time of Sampling			26°C & 61%
Sample ID	AES-WW-158/2020	Sampling Location	Fatch Sher Park
Client Detail	M/S HCS-MASTIC-IV		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Iron (Fe)	SMWW 3113 B	8.0 mg/L	2.24	N.A.	Optimal
Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.019	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	0.042	N.A.	Optimal
Residual Chlorine (Cl_2) *	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
USEPA = United States Environment Protection Agency
N.A. = Not Available
MU = Measurement Uncertainty

Remarks:

Optimal = Compliance with Permissible Range
Marginal = Close to Extreme Edge
High = Exceeds from Permissible Range
Low = Less Than Permissible Range

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Reviewed By (TM)

Approved By (QM)

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Appendix B: Sialkot Parks:- Environmental Test Result Reports 3rd & 4th Quarters

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-164-16C/2020
Sampling Point	Gulshan-e-Iqbal Park-Sialkot
Date of Monitoring	26-Sep-2020 to 27-Sep- 2020
Sampling Coordinate	32°29'10.7" N 74°31'52.0" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS
Nitrogen Dioxide (NO_2)	µg/m³	24Hours	1.00	18.78	80.0
Nitrogen Oxide (NO)	µg/m³	24Hours	1.00	10.98	40.0
NO_x	µg/m³	24Hours	1.00	29.76	120.0
Sulphur Dioxide (SO_2)	µg/m³	24Hours	1.00	17.86	120.0
Carbon Monoxide (CO)	mg/m³	24Hours	0.01	0.80	05.0
Particulate Matter (PM_{10})	µg/m³	24Hours	1.00	131.2	150
Particulate Matter ($PM_{2.5}$)	µg/m³	24Hours	1.00	29	35
Total Suspended Particulate Matter (TSP)	µg/m³	24Hours	1.00	298	500

LDL= Lower Detection Limit PEQS= Punjab Environmental Quality Standard µg/m³= Micro Gram per Meter Cube

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-164-HC/2020	**Reporting Date**	30-09-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	25-09-2020	**Sample Receiving Date**	25-09-2020
Analysis Completion Date	30-09-2020	**Lab Temp & Humidity**	25.6 °C & 52 %
Ambient Temperature & Humidity at the Time of Sampling			30 °C & 52 %
Sample ID	AES-DW-165/2020	**Sampling Location**	Tap Near Main Gate Gulshan-e-Iqbal Park
Client Detail	M/S Habib Construction, Sialkot.		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color	SMWW 2120 C	≤ 15 TCU	3	N.A.	Optional
Taste	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optional
Odor	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optional
Turbidity	SMWW 2130 B	≤ 5 NTU	18.9	N.A.	Optional
Total Hardness (as CaCO3)	SMWW 2340 C	≤ 500 mg/L	252	± 0.61	Optional
Total Dissolved Solids (TDS)	SMWW 2540 C	≤ 1000 mg/L	580	± 1.16	Optional
pH	SMWW 4500 H+ B	6.5- 8.5	7.61	± 0.00	Optional
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	0.014	N.A.	Optional
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optional
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optional
Barium (Ba)	SMWW 3113 B	0.7 mg/L	<0.005	N.A.	Optional
Boron (B)	SMWW 3113 B	0.3 mg/L	0.074	N.A.	Optional
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	<0.006	N.A.	Optional
Chloride (Cl)	SMWW 4500 Cl B	≤ 250 mg/L	62	± 0.61	Optional
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	0.007	N.A.	Optional
Copper (Cu)	SMWW 3111 B	2.0 mg/L	<0.164	N.A.	Optional
Cyanide (CN)	SMWW 4500 CN F	≤ 0.05 mg/L	0.0	N.A.	Optional
Fluoride (F)	SMWW 4500 F C	≤ 1.5 mg/L	0.3	N.A.	Optional
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optional
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/L	0.051	N.A.	Optional
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optional
Nickel (Ni)	SMWW 3113 B	≤ 0.02 mg/L	0.01	N.A.	Optional
Nitrate (NO_3)	SMWW 4500 NO_3 B	≤ 50 mg/L	0.0	N.A.	Optional
Nitrite (NO_2)	SMWW 4500 NO_2 B	≤ 3.0 mg/L	0.0	N.A.	Optional
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optional
Residual Chlorine (Cl2)	SMWW 4500 Cl B	0.5 mg/L	0.0	N.A.	Optional

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-164-HC/2020	**Reporting Date**	30-09-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	25-09-2020	**Sample Receiving Date**	25-09-2020
Analysis Completion Date	30-09-2020	**Lab Temp & Humidity**	25.6 °C & 52 %
Ambient Temperature & Humidity at the Time of Sampling			38 °C & 32 %
Sample ID	AES-DW-101/2020	**Sampling Location**	Tap Near Main Gate Gulshan-e-Iqbal Park
Client Detail	M/S Habib Construction, Sialkot		

Phenolic Compounds (as Phenols)	SMWW 5530 D	NEVS	0.09	N.A.	Optional
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.058	N.A.	Optional
Microbiological Analysis					
Total Coliforms	SMWW 9222 B	0/ 100 mL CFU	02	N.A.	High
Fecal Coliforms	SMWW 9222 D	0/ 100 mL CFU	0.0	N.A.	Optional

Abbreviations:

PEQS = Punjab Environment Quality Standards; SMWW = Standard Methods for the examination of Water and Wastewater; N.A. = Not Available; CFU = Colony Forming Unit; NTU = Nephelometric Turbidity Unit; MDL = Measurement Uncertainty; NEVS = No Guideline Value Set

Remarks:

Optimal = Compliance with Permissible Range; Marginal = Close to Upper Edge; High = Exceeds from Permissible Range; Low = Less Than Permissible Range

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Noise Level Monitoring Report

Monitoring Details	
Reference Number	AES-164-HC/2020
Sampling Point	Gulshan-e-Iqbal Park-Sialkot
Date of Monitoring	26-Sep-2020 to 27-Sep- 2020
Sampling Coordinate	32°29'30.7" N 74°31'52.0" E

Sr. No.	Time	Noise (dB(A))		PEQS
1	12:00	52.1		
2	13:00	51.2		
3	14:00	54.5		
4	15:00	62.2		
5	16:00	57.1		
6	17:00	52.7	Day Time	65
7	18:00	41.2		
8	19:00	50.1		
9	20:00	53.4		
10	21:00	48.2		
11	22:00	51.1		
12	23:00	55.3		
13	00:00	42.2		
14	01:00	43.5		
15	02:00	41.7	Night Time	55
16	03:00	39.2		
17	04:00	38.2		
18	05:00	39.1		
19	06:00	35.3		
20	07:00	42.3		
21	08:00	40.4		
22	09:00	51.1	Day Time	65
23	10:00	53.7		
24	11:00	52.5		

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-164-HC/2020	**Reporting Date**	30-09-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	25-09-2020	**Sample Receiving Date**	25-09-2020
Analysis Completion Date	30-09-2020	**Lab Temp & Humidity**	25 °C & 52 %
Ambient Temperature & Humidity at the Time of Sampling			30 °C & 32 %
Sample ID	AES-WW-114/2020	**Sampling Location**	Gulshan-e-Iqbal Park outlet
Client Detail	M/S Habib Construction, Sialkot.		

Wastewater Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
pH	SMWW 4500 H+ B	6 - 9	7.98	± 0.60	Optimal
Biochemical Oxygen Demand (BOD_5)	SMWW 5210-B	80 mg/L	**225**	N.A.	High
Chemical Oxygen Demand (COD)	SMWW 5220 B	150 mg/L	**478**	N.A.	High
Total Suspended Solids (TSS)	SMWW 2540 D	200 mg/L	153	N.A.	Optimal
Total Dissolved Solids (TDS)	SMWW 2540 C	3500 mg/L	608	± 1.16	Optimal
Phenolic Compounds (as Phenols)	SMWW 5530 D	0.1 mg/L	**0.71**	N.A.	High
Grease and Oil	USEPA 1664 B	10 mg/L	0.0	N.A.	Optimal
Chloride (Cl^-)	SMWW 4500 Cl- B	1000 mg/L	99.9	± 0.61	Optimal
Fluoride (F^-)	SMWW 4500 F- C	10 mg/L	0.0	N.A.	Optimal
Cyanide (CN^-)	SMWW 4500 CN- F	1.0 mg/L	0.0	N.A.	Optimal
An-ionic Detergents (as MBAs)	SMWW 5540-C	20.0 mg/L	0.0	N.A.	Optimal
Sulfate (SO_4^{2-})	SMWW 4500 SO_4^{-2} C	600 mg/L	184	N.A.	Optimal
Sulfide (S^{2-})	SMWW 4500 S^{-2} F	1.0 mg/L	8	N.A.	Optimal
Ammonia (NH_3)	SMWW 4500-NH_3 D	40 mg/L	0.0	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.1 mg/L	0.007	N.A.	Optimal
Chromium (Cr)	SMWW 3113 B	1.0 mg/L	0.089	N.A.	Optimal
Copper (Cu)	SMWW 3113 B	1.0 mg/L	<0.164	N.A.	Optimal
Lead (Pb)	SMWW 3113 B	0.5 mg/L	<0.005	N.A.	Optimal
Mercury (Hg)	SMWW 3112 B	0.01 mg/L	<0.001	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.5 mg/L	<0.01	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	1.0 mg/L	0.055	N.A.	Optimal
Silver (Ag)	SMWW 3113 B	1.0 mg/L	<0.002	N.A.	Optimal
Total Toxic Metals	Calculated Value	2.0 mg/L	0.4035	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/L	0.084	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	1.0 mg/L	0.047	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	1.5 mg/L	<0.0035	N.A.	Optimal

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WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-164-HC/2020	**Reporting Date**	30-09-2020
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	25-09-2020	**Sample Receiving Date**	25-09-2020
Analysis Completion Date	30-09-2020	**Lab Temp & Humidity**	25.6 °C & 52 %
Ambient Temperature & Humidity at the Time of Sampling			30 °C & 52 %
Sample ID	AES-WW-114/2020	**Sampling Location**	Gulshan-e-Iqbal Park outlet
Client Detail	M/S Habib Construction, Sialkot.		

Iron (Fe)	SMWW 3113 B	8.0 mg/L	0.91	N.A.	Optimal
Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.037	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	<0.02	N.A.	Optimal
Residual Chlorine (Cl_2)	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards SMWW = Standard Methods for the examination of Water and Wastewater
USEPA = United States Environment Protection Agency N.A. = Not Available MU = Measurement Uncertainty

Remarks:

Optimal = Compliance with Permissible Range Marginal = Close to Extreme Edge High = Exceeds from Permissible Range
Low = Less Than Permissible Range

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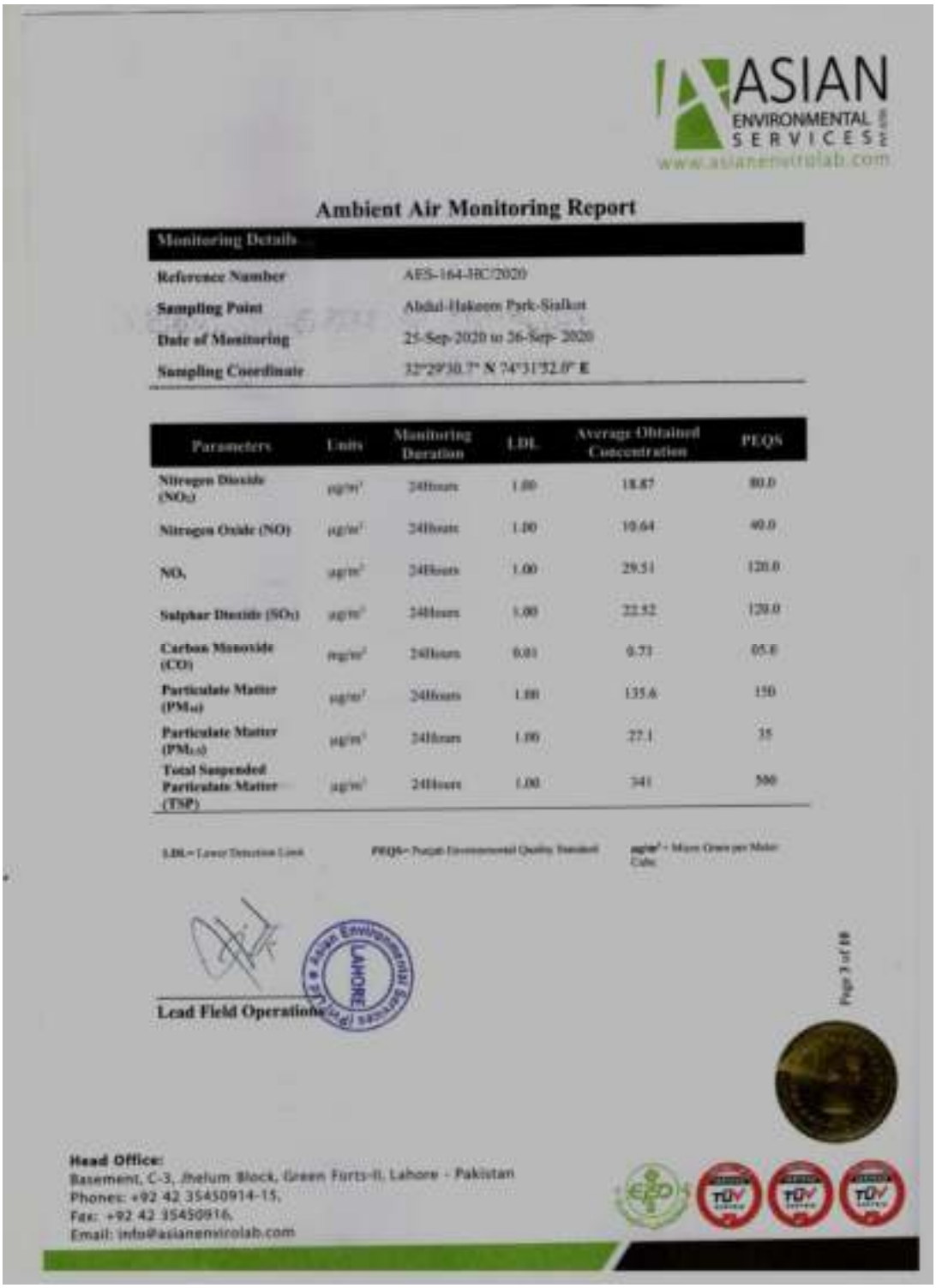

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-164-HC/2020
Sampling Point	Abdul-Hakeem Park-Sialkot
Date of Monitoring	25-Sep-2020 to 26-Sep- 2020
Sampling Coordinate	32°29'30.7" N 74°31'52.0" E

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS
Nitrogen Dioxide (NO_2)	µg/m³	24Hours	1.00	18.87	80.0
Nitrogen Oxide (NO)	µg/m³	24Hours	1.00	10.64	40.0
NO_x	µg/m³	24Hours	1.00	29.51	120.0
Sulphur Dioxide (SO_2)	µg/m³	24Hours	1.00	22.52	120.0
Carbon Monoxide (CO)	mg/m³	24Hours	0.01	0.73	05.0
Particulate Matter (PM_{10})	µg/m³	24Hours	1.00	135.6	150
Particulate Matter ($PM_{2.5}$)	µg/m³	24Hours	1.00	27.1	35
Total Suspended Particulate Matter (TSP)	µg/m³	24Hours	1.00	341	500

LDL= Lower Detection Limit PEQS= Punjab Environmental Quality Standard µg/m³ = Micro Gram per Meter Cube

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-104-HC/2020	**Reporting Date**	30-09-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-404
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	25-09-2020	**Sample Receiving Date**	25-09-2020
Analysis Completion Date	30-09-2020	**Lab Temp & Humidity**	25.6 °C & 52 %
Ambient Temperature & Humidity at the Time of Sampling			30 °C & 52 %
Sample ID	AES-DW-100/2020	**Sampling Location**	Water Cooler Near Abdul-Hakeem Park
Client Detail	M/S Habib Construction, Sialkot.		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optional
Taste	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optional
Odor	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optional
Turbidity	SMWW 2130 B	< 5 NTU	0.0	N.A.	Optional
Total Hardness (as CaCO3)	SMWW 2340 C	< 500 mg/L	460	± 0.61	Optional
Total Dissolved Solids (TDS)	SMWW 2540 C	< 1000 mg/L	515	± 1.16	Optional
pH	SMWW 4500 H+ B	6.5- 8.5	7.38	± 0.60	Optional
Aluminum (Al)	SMWW 3111 B	≤ 0.2 mg/L	0.013	N.A.	Optional
Antimony (Sb)	SMWW 3114 B	< 0.005 mg/L	<0.005	N.A.	Optional
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optional
Barium (Ba)	SMWW 3111 B	0.7 mg/L	<0.005	N.A.	Optional
Boron (B)	SMWW 3111 B	0.3 mg/L	0.075	N.A.	Optional
Cadmium (Cd)	SMWW 3111 B	0.01 mg/L	<0.006	N.A.	Optional
Chloride (Cl-)	SMWW 4500 Cl- B	< 250 mg/L	100	± 0.61	Optional
Chromium (Cr)	SMWW 3111 B	≤ 0.05 mg/L	0.007	N.A.	Optional
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optional
Cyanide (CN-)	SMWW 4500 CN- F	≤ 0.05 mg/L	0.0	N.A.	Optional
Fluoride (F-)	SMWW 4500 F- C	≤ 1.5 mg/L	0.0	N.A.	Optional
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optional
Manganese (Mn)	SMWW 3111 B	≤ 0.5 mg/l	0.049	N.A.	Optional
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.001	N.A.	Optional
Nickel (Ni)	SMWW 3111 B	≤0.02 mg/L	0.01	N.A.	Optional
Nitrate (NO3-)	SMWW 4500 NO3- B	≤ 50 mg/L	0.0	N.A.	Optional
Nitrite (NO2-)	SMWW 4500 NO2- B	≤ 3.0 mg/L	0.0	N.A.	Optional
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optional
Residual Chlorine (Cl2)	SMWW 4500 Cl- B	0.5 mg/L	0.0	N.A.	Optional

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DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-164-HC/2020	**Reporting Date**	30-09-2020
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	25-09-2020	**Sample Receiving Date**	25-09-2020
Analysis Completion Date	30-09-2020	**Lab Temp & Humidity**	25.6 °C & 52 %
Ambient Temperature & Humidity at the Time of Sampling			30 °C & 32 %
Sample ID	AES-DW-100/2020	**Sampling Location**	Water Cooler Near Abdul-Hakeem Park
Client Detail	M/S Habib Construction, Sialkot.		

Phenolic Compounds (as Phenols)	SMWW 5530 D	MOVS	0.02	N.A.	Optimal
Zinc (Zn)	SMWW 3111 B	5.0 mg/l	0.059	N.A.	Optimal
Microbiological Analysis					
Total Coliforms	SMWW 9222 B	0/ 100 mL CFU	8.0	N.A.	Optimal
Fecal Coliforms	SMWW 9222 D	0/ 100 mL CFU	8.0	N.A.	Optimal

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
TCU = True Color Unit
N.A. = Not Available
CFU = Colony forming Unit
NTU = Nephelometric Turbidity Unit
ME = Measurement Uncertainty
MOVS = No Guideline Value Set

Remarks:

Optimal = Compliance with Permissible Range
Marginal = Close to Extreme Edge
High = Exceeds from Permissible Range
Low = Less Than Permissible Range

Report Disclaimer

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- This report shall not be reproduced in part/portion.
- The provided results relate only to the sample provided/collected.
- Validity of this testing results, decision for usage of report mainly depends on client.

Analyzed By | **Reviewed By (TM)** | **Approved By (QM)**

End of Report

Document No.	AES/LMS/FRM-110	Date of Issue	22 June, 2020	Revision No.	00

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ASIAN ENVIRONMENTAL SERVICES
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Noise Level Monitoring Report

Monitoring Details	
Reference Number	AES-164-HC/2020
Sampling Point	Abdul-Hakeem Park-Sialkot
Date of Monitoring	25-Sep-2020 to 26-Sep- 2020
Sampling Coordinate	32°29'30.7" N 74°31'52.0" E

Sr. No.	Time	Noise dB(A)	PEQS	
1	11:00	50.1		
2	12:00	50.5		
3	13:00	52.7		
4	14:00	53.2		
5	15:00	48.7		
6	16:00	47.3	Day Time	65
7	17:00	50.2		
8	18:00	43.8		
9	19:00	44.1		
10	20:00	42.7		
11	21:00	40.3		
12	22:00	40.7		
13	23:00	38.3		
14	00:00	37.4		
15	01:00	35.2		
16	02:00	33.7	Night Time	55
17	03:00	35.5		
18	04:00	36.1		
19	05:00	35.2		
20	06:00	35.9		
21	07:00	36.6		
22	08:00	39.2	Day Time	65
23	09:00	40.7		
24	10:00	42.8		

Page 5 of 10

Lead Field Operations

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Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-252-HC/2020
Sampling Point	Gulshan-E-Iqbal Park-Sialkot
Date of Monitoring	31-Dec-2020 to 01-Jan-2021
Sampling Coordinates	32°28'30.7" N 74°33'04.7" E

Sr. No.	Time	CO (mg/m³)	NO (µg/m³)	NO_2 (µg/m³)	NO_x (µg/m³)	SO_2 (µg/m³)
1	14:30	0.80	11.23	20.44	31.63	24.53
2	15:30	0.80	11.19	20.46	31.61	24.51
3	16:30	0.78	11.26	20.56	31.78	24.64
4	17:30	0.78	11.00	20.54	31.50	24.51
5	18:30	0.78	11.25	19.60	30.81	24.53
6	19:30	0.78	11.46	19.53	30.94	24.88
7	20:30	0.79	11.23	19.56	30.75	24.32
8	21:30	0.80	11.38	19.51	30.85	24.83
9	22:30	0.80	11.13	19.32	30.41	24.61
10	23:30	0.80	10.27	19.32	29.55	24.59
11	00:30	0.78	10.65	19.74	30.35	25.68
12	01:30	0.78	10.69	19.79	30.45	24.91
13	02:30	0.78	10.67	19.91	30.54	26.21
14	03:30	0.78	11.46	19.93	31.34	26.58
15	04:30	0.77	11.19	19.97	31.11	26.56
16	05:30	0.78	10.61	19.93	30.50	25.15
17	06:30	0.77	11.23	19.32	30.50	26.21
18	07:30	0.77	11.19	19.91	31.06	26.58
19	08:30	0.77	11.26	19.93	31.15	24.51
20	09:30	0.77	11.30	19.32	30.58	24.58
21	10:30	0.72	11.38	19.53	30.87	24.69
22	11:30	0.73	10.67	19.53	30.16	26.32
23	12:30	0.73	11.44	19.32	30.71	25.78
24	13:30	0.73	11.38	20.02	31.36	26.50
Average Concentration		**0.77**	**11.10**	**19.79**	**30.89**	**25.26**

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Lead Field Operations

Ambient Air Monitoring Report

Monitoring Details	
Reference Number	AES-252-HC/2020
Sampling Point	Gulshan-E-Iqbal Park-Sialkot
Date of Monitoring	31-Dec-2020 to 01-Jan-2021
Sampling Coordinates	32°28'30.7" **N** 74°33'04.7" **E**

Parameters	Units	Monitoring Duration	LDL	Average Obtained Concentration	PEQS
Nitrogen Dioxide (NO_2)	$\mu g/m^3$	24Hours	1.00	19.79	80.0
Nitrogen Oxide (NO)	$\mu g/m^3$	24Hours	1.00	11.10	40.0
NO_x	$\mu g/m^3$	24Hours	1.00	30.89	120.0
Sulphur Dioxide (SO_2)	$\mu g/m^3$	24Hours	1.00	25.26	120.0
Carbon Monoxide (CO)	mg/m^3	24Hours	0.01	0.77	05.0
Particulate Matter (PM_{10})	$\mu g/m^3$	24Hours	1.00	131.23	150
Particulate Matter ($PM_{2.5}$)	$\mu g/m^3$	24Hours	1.00	34.1	35
Total Suspended Particulate Matter (TSP)	$\mu g/m^3$	24Hours	1.00	291.6	500

LDL= Lower Detection Limit **PEQS**= Punjab Environmental Quality Standard $\mu g/m^3$ = Micro Grams per Meter Cube

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Lead Field Operations

Noise Level Monitoring Report

Monitoring Details	
Reference Number	AES-252-HC/2020
Sampling Point	Gulshan-E-Iqbal Park-Sialkot
Date of Monitoring	31-Dec-2020 to 01-Jan-2021
Sampling Coordinates	32°28'30.7" **N** 74°33'04.7" **E**

Sr. No.	Time	Noise dB(A)		PEQS
1	14:30	55		
2	15:30	52		
3	16:30	61		
4	17:30	50		
5	18:30	54	Day Time	65
6	19:30	59		
7	20:30	47		
8	21:30	50		
9	22:30	42		
10	23:30	40		
11	00:30	37		
12	01:30	39		
13	02:30	36		
14	03:30	39	Night Time	55
15	04:30	38		
16	05:30	40		
17	06:30	37		
18	07:30	44		
19	08:30	49		
20	09:30	52		
21	10:30	59		
22	11:30	61	Day Time	65
23	12:30	58		
24	13:30	52		

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Lead Field Operations

DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-252-HC/2020	**Reporting Date**	05-01-2021
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	31-12-2020	**Sample Receiving Date**	01-01-2021
Analysis Completion Date	05-01-2021	**Lab Temp & Humidity**	25°C & 56 %
Ambient Temperature & Humidity at the Time of Sampling			21°C & 65%
Sample ID	AES-DW-01-2021	**Sampling Location**	Water Cooler
Client Detail	M/S Habib Construction, Sialkot.		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Lab Analysis					
Color*	SMWW 2120 C	≤ 15 TCU	0.0	N.A.	Optimal
Taste*	SMWW 2160 C	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Odor*	SMWW 2150 B	Non- Objectionable	Non- Objectionable	N.A.	Optimal
Turbidity*	SMWW 2130 B	< 5 NTU	0.0	N.A.	Optimal
Total Hardness (as $CaCO_3$) **	SMWW 2340 C	< 500 mg/L	88	± 0.61	Optimal
Total Dissolved Solids (TDS)**	SMWW 2540 C	< 1000 mg/L	384	± 1.16	Optimal
pH**	SMWW 4500 H^+ B	6.5- 8.5	7.75	± 0.60	Optimal
Aluminum (Al)	SMWW 3111 D	≤ 0.2 mg/L	0.013	N.A.	Optimal
Antimony (Sb)	SMWW 3114 B	≤ 0.005 mg/L	<0.005	N.A.	Optimal
Arsenic (As)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optimal
Barium (Ba)	SMWW 3113 B	0.7 mg/L	<0.005	N.A.	Optimal
Boron (B)	SMWW 3113 B	0.3 mg/l	0.06	N.A.	Optimal
Cadmium (Cd)	SMWW 3113 B	0.01 mg/L	0.006	N.A.	Optimal
Chloride (Cl) **	SMWW 4500 Cl- B	< 250 mg/L	28	± 0.61	Optimal
Chromium (Cr)	SMWW 3113 B	≤ 0.05 mg/L	0.007	N.A.	Optimal
Copper (Cu)	SMWW 3111 B	2.0 mg/L	0.164	N.A.	Optimal
Cyanide (CN^-)*	SMWW 4500 CN- F	≤ 0.05 mg/L	0.0	N.A.	Optimal
Fluoride (F^-)*	SMWW 4500 F^- C	≤ 1.5 mg/L	0.0	N.A.	Optimal
Lead (Pb)	SMWW 3114 B	≤ 0.05 mg/L	0.005	N.A.	Optimal
Manganese (Mn)	SMWW 3113 B	≤ 0.5 mg/l	0.05	N.A.	Optimal
Mercury (Hg)	SMWW 3114 B	≤ 0.001 mg/L	<0.000	N.A.	Optimal
Nickel (Ni)	SMWW 3113 B	≤0.02 mg/L	0.02	N.A.	Optimal
Nitrate (NO_3^-) *	SMWW 4500 NO_3^- B	≤ 50 mg/L	0.0	N.A.	Optimal
Nitrite (NO_2^-) *	SMWW 4500 NO_2^- B	≤ 3.0 mg/L	0.0	N.A.	Optimal
Selenium (Se)	SMWW 3114 B	0.01 mg/L	<0.01	N.A.	Optimal
Residual Chlorine (Cl_2) *	SMWW 4500 Cl_2 B	0.5 mg/L	0.0	N.A.	Optimal

Page 1 of 2

DRINKING WATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-252-HC/2020	**Reporting Date**	05-01-2021
Nature of Sample	Drinking Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	31-12-2020	**Sample Receiving Date**	01-01-2021
Analysis Completion Date	05-01-2021	**Lab Temp & Humidity**	25°C & 56 %
Ambient Temperature & Humidity at the Time of Sampling			21°C & 65%
Sample ID	AES-DW-01-2021	**Sampling Location**	Water Cooler
Client Detail	M/S Habib Construction, Sialkot.		

Drinking Water Analysis Results

Parameter	Analysis Method	PEQS	Result	MU (CL95%)	Remarks
Phenolic Compounds (as Phenols) *	SMWW 5530 D	NGVS	0.05	N.A.	Optimal
Zinc (Zn)	SMWW 3113 B	5.0 mg/L	0.059	N.A.	Optimal
Microbiological Analysis					
Total Coliforms*	SMWW 9222 B	0/ 100 ml. CFU	0	N.A.	Optimal
Fecal Coliforms *	SMWW 9222 D	0/ 100 ml. CFU	0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
TCU = True Color Unit
N.A. = Not Available
CFU = Colony Forming Unit
NTU = Nephelometric Turbidity Unit
MU = Measurement Uncertainty
NGVS = No Guideline Value Set

Remarks:

Optimal = Compliance with Permissible Range
Threshold = Close to Extreme Edge
High = Exceeds from Permissible Range
Low = Less Than Permissible Range

Report Disclaimer

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Analyzed By | **Reviewed By (TM)** | **Approved By (QM)**

----------End of Report----------

Page 2 of 2

WASTEWATER ANALYSIS REPORT

Sample Detail

Reference No.	AES-252-HC/2020	**Reporting Date**	05-01-2021
Nature of Sample	Waste Water	**Sampling Method Reference**	AES/LMS/QSP-014
Grab/Composite	Grab	**Sample Collected by/Sent By**	AES
Sampling Date	31-12-2020	**Sample Receiving Date**	01-01-2021
Analysis Completion Date	05-01-2021	**Lab Temp & Humidity**	25°C & 56%
Ambient Temperature & Humidity at the Time of Sampling			21°C & 65%
Sample ID	AES-WW-02/2021	**Sampling Location**	WW from Drain in Park
Client Detail	M/S Habib Construction, Sialkot.		

Barium (Ba)	SMWW 3113 B	1.5 mg/L	<0.0035	N.A.	Optimal
Iron (Fe)	SMWW 3113 B	8.0 mg/L	0.99	N.A.	Optimal
Manganese (Mn)	SMWW 3111 B	1.5 mg/L	0.037	N.A.	Optimal
Boron (B)	SMWW 3113 B	6.0 mg/L	0.02	N.A.	Optimal
Residual Chlorine (Cl_2) *	SMWW 4500 Cl- B	1.0 mg/L	0.0	N.A.	Optimal

*Parameters are approved from Punjab Environment Protection Agency.
**Parameters are accredited from Pakistan National Accreditation Council.

Conclusion: All the parameters are in compliance with Punjab Environmental Quality Standards (PEQS)

Abbreviations:

PEQS = Punjab Environment Quality Standards
SMWW = Standard Methods for the examination of Water and Wastewater
USEPA = United States Environment Protection Agency
N.A. = Not Available
MU = Measurement Uncertainty

Remarks:

Optimal = Compliance with Permissible Range
Marginal = Close to Extreme Edge
High = Exceeds from Permissible Range
Low = Less Than Permissible Range

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Analyzed By | **Reviewed By (TM)** | **Approved By (QM)**

----------End of Report----------

Page 2 of 2

Document No. AES/LMS/FRM-110, Date of Issue 22 June, 2020, Revision No. 00

Appendix D: PLGA:- Environmental Test Result Reports 3rd & 4th Quarters

ESPAK

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PAK EPA & PUNJAB EPD CERTIFIED

CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number:	ESPAK/728/20/AA/1433/00008	Date:	31/08/2020
Name of Industry/Client:	Habib Construction Services		
Address:	15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.		
Telephone No.:	---		
Nature of Sample:	Ambient Air	Monitoring Location:	Punjab Local Government Academy Johar Town, Lahore
Date of Sample Collection:	22/08/2020	Grab / Composite:	Continuous - 24 Hours
Sample Collected/Sent By:	Waleed Farooq, Field Officer, ESPAK		
Date of Completion of Analysis:	31/08/2020		

S. No	Parameters	Limit Values (PAQS-1Hour)	Concentration	Method / Equipment Used	Remarks
1	Carbon Monoxide (CO)	10 mg/m³ (1 Hour)	0.4-1.2 mg/m³	Non Dispersive Infrared Absorption (NDIR)	Within Prescribed Limits
2	Carbon Monoxide (CO)	5 mg/m³ (8 Hours)	0.7-1.0 mg/m³	Non Dispersive Infrared Absorption (NDIR)	Within Prescribed Limits
3	Sulfur Dioxide (SO_2)	120 µg/m³	10.5 µg/m³	UV Fluorescence (UVF)	Within Prescribed Limits
4	Ozone (O_3)	130 µg/m³ (1 Hour)	2.3-34.0 µg/m³	Non Dispersive UV Absorption	Within Prescribed Limits
5	Oxides of Nitrogen as NO	40 µg/m³	9.8 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
6	Oxides of Nitrogen as NO_2	80 µg/m³	31.8 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
7	Particulate Matter $PM_{2.5}$	35 µg/m³	16.0 µg/m³	Particulate Sensor	Within Prescribed Limits
8	Particulate Matter PM_{10}	150 µg/m³	120 µg/m³	Particulate Sensor	Within Prescribed Limits
9	Suspended Particulate Matter (SPM)	500 µg/m³	341 µg/m³	High Volume Sampler (HVS)	Within Prescribed Limits

NOTE: Punjab Environmental Quality Standards for Ambient Air, 2016

- Laboratory tests and measurements were carried out at 25 ± 1 °C and 50 ± 10 % Relative Humidity conditions unless stated otherwise.
- Uncertainty of Measurement (UoM) data will be provided on request, if applicable.

Note:

- **The report should be reproduced as a whole and not in parts.**
- **The responsibility of the ethical use of this report lies with the client.**
- **The values represent sample conditions when monitoring/testing was carried out.**
- **The report data is not intended to be used legally by the client.**

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ISO 9001:2015 ISO 14001:2015 ISO 45001:2018

Environmental Services Pakistan

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CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number: ESPAK/220/20/AA/1432/00008 Date: 25/08/2020

Name of Industry/Client: Habib Construction Services

1. Sample Analyzed By: Waleed Farooq, Field Officer
2. Name of Chief Analyst with Seal: Muhammad Arfan
3. Signature of Incharge of the Environmental Laboratory:

Name: Imran Malik
General Manager
Date: 25/08/2020

End of Report

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NOISE MONITORING REPORT

Reference Number:	ESPAK/228/20/N/1433/001034 Date: 25/09/2020
Name of Industry/Client:	Habib Construction Services
Address:	15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.
Telephone No.:	---
Nature of Sample:	Noise
Date of Sample Collection:	22/09/2020 Grab / Composite: Continuous - 6 Hours
Sample Collected/Sent By:	Waleed Farooq, Field Officer, ESPAK
Date of Completion of Analysis:	23/09/2020
Method/Equipment Used:	Sound Level Meter

S. No	Measurement Point	Limit Values (PEQS)	Noise Level in dB(A) Leq	Remarks
1	East Boundary Wall - Day Time	65 dB(A)	55 dB(A)	Within Limits
2	West Boundary Wall - Night Time	55 dB(A)	53 dB(A)	Within Limits
3	South Boundary Wall -Night Time	55 dB(A)	53 dB(A)	Within Limits
4	North Boundary Wall - Day Time	65 dB(A)	52 dB(A)	Within Limits

PEQS: Punjab Environmental Quality Standards for Noise in Commercial Area, 2016 Day Time Hours (6:00 am to 10:00 pm) Night Time Hours (10:00pm to 6:00am)

- Uncertainty of Measurement (UoM) data will be provided on request, if applicable.

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- The values represent sample conditions when monitoring/testing was carried out.
- The report data is not intended to be used legally by the client.

1. Sample Analyzed By: Waleed Farooq, Field Officer
2. Name of Chief Analyst with Seal: Muhammad Arfan
3. Signature of Incharge of the Environmental Laboratory:

Name: Imran Malik
General Manager
Date: 25/09/2020

End of Report

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Environmental Services Pakistan

ESPAK

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CHEMICAL ANALYSIS TEST REPORT (WASTE WATER)

Reference Number:	ESPAK/220/20/WW/1431/00233	Date:	31/08/2020
Name of Industry / Client:	Habib Construction Services		
Address:	15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.		
Telephone No.:	---		
Nature of Sample:	Camp Site Final Discharge Waste Water at Punjab Local Government Academy Johar Town, Lahore		
Date Sample Received:	22/08/2020	Grab / Composite:	Grab
Date of Sample Collection:	22/08/2020		
Sample Collected / Sent By:	Waleed Farooq, Field Officer, ESPAK		
Date of Completion of Analysis:	31/08/2020		

S. No	Parameters	Limit Values (PEQS)	Concentration	Method / Equipment Used	Remarks
1	pH value (H^+)	6-9	7.2	SMWW 4500H+ B	Within Prescribed Limits
2	Chemical Oxygen Demand (COD)	150 mg/L	135 mg/L	SMWW 5220 D	Within Prescribed Limits
3	Total Dissolved Solids (TDS)	3500 mg/L	676 mg/L	SMWW 2540 C	Within Prescribed Limits
4	Chloride (as Cl^-)	1000 mg/L	23 mg/L	SMWW 4500Cl- -B	Within Prescribed Limits
5	Cadmium (Cd)	0.1 mg/L	0.004 mg/L	U.S. EPA-200.7	Within Prescribed Limits
6	Chromium (Trivalent and Hexavalent)	1.0 mg/L	0.015 mg/L	U.S. EPA-200.7	Within Prescribed Limits
7	Copper (Cu)	1.0 mg/L	0.054 mg/L	U.S. EPA-200.7	Within Prescribed Limits
8	Iron (Fe)	8.0 mg/L	0.775 mg/L	U.S.EPA-200.7	Within Prescribed Limits
9	Lead (Pb)	0.5 mg/L	0.006 mg/L	U.S. EPA-200.7	Within Prescribed Limits
10	Manganese (Mn)	1.5 mg/L	0.100 mg/L	U.S. EPA-200.7	Within Prescribed Limits
11	Mercury (Hg)	0.01 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
12	Selenium (Se)	0.5 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
13	Nickel (Ni)	1.0 mg/L	0.009 mg/L	U.S. EPA-200.7	Within Prescribed Limits
14	Silver (Ag)	1.0 mg/L	0.002 mg/L	U.S. EPA-200.7	Within Prescribed Limits
15	Zinc (Zn)	5.0 mg/L	0.085 mg/L	U.S. EPA-200.7	Within Prescribed Limits
16	Arsenic (As)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
17	Barium (Ba)	1.5 mg/L	0.059 mg/L	U.S. EPA-200.7	Within Prescribed Limits
18	Boron (B)	6.0 mg/L	0.047 mg/L	U.S.EPA-200.7	Within Prescribed Limits
19	Total Toxic Metals	2.0 mg/L	0.196 mg/L	Calculated Value	Within Prescribed Limits
20	Biochemical Oxygen Demand (BOD_5) at 20 °C	80 mg/L	65 mg/L	SMWW 5210 B	Within Prescribed Limits
21	Total Suspended Solids (TSS)	200 mg/L	164 mg/L	SMWW 2540 D	Within Prescribed Limits
22	Grease and Oil	10 mg/L	1.5 mg/L	U.S. EPA 1664 B	Within Prescribed Limits
23	Fluoride (as F^-)	10 mg/L	1.11 mg/L	U.S. EPA 9214	Within Prescribed Limits
24	Cyanide (as CN^-)	1.0 mg/L	0.59 mg/L	SMWW 4500 CN- I	Within Prescribed Limits
25	An-ionic detergents (as MBAS)	20 mg/L	1.61 mg/L	SMWW 5540 C	Within Prescribed Limits
26	Sulfate (SO_4^{2-})	600 mg/L	48 mg/L	SMWW 4500 - SO_4^{2-} C	Within Prescribed Limits

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ISO 9001:2015 ISO 14001:2015 ISO 45001:2018

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CHEMICAL ANALYSIS TEST REPORT (WASTE WATER)

Reference Number: ESPAK/328/20/WW/1431/00033 Date: 31/08/2020

Name of Industry / Client: Habib Construction Services

S. No	Parameters	Limit Values (PEQS)	Concentration	Method / Equipment Used	Remarks
27	Sulfide (S^{2-})	1.0 mg/L	ND	SMWW 4500 - S^{2-} F	Within Prescribed Limits
28	Ammonia (NH_3)	40 mg/L	34.73 mg/L	SMWW 4500-NH_3- D	Within Prescribed Limits
29	Chlorine (Cl)	1.0 mg/L	ND	SMWW 4500-Cl B	Within Prescribed Limits
30	Phenolic Compounds (as Phenol)	0.1 mg/L	0.09 mg/L	SMWW 5530 C	Within Prescribed Limits
31	Temperature	NGVS	29 °C	Thermometer	—

PEQS: Punjab Environmental Quality Standards for Municipal & Liquid Industrial Effluents, 2016
SMWW: Standard Methods for the Examination of Water and Wastewater 23rd Edition, American Public Health Association, American Water Works Association, Water Environment Federation USA (2017)
USEPA: United States Environmental Protection Agency
NGVS: No Guideline Value Set
ND: Not Detected

- Laboratory tests and measurements were carried out at 25 ± 2 °C and 50 ± 10 % Relative Humidity conditions unless stated otherwise.
- Uncertainty of Measurement (UoM) data will be provided on request, if applicable.

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1. **Sample Analyzed By:** Waqas Ahmad (Analyst), Musharaf Jabeen (Analyst), Muhammad Irfan (Deputy Analyst)
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 31/08/2020

End of Report

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CHEMICAL ANALYSIS TEST REPORT (AMBIENT AIR)

Reference Number:	ESPAK/427/20/AA/2500/00196	**Date:**	22/12/2020
Name of Industry/Client:	Habib Construction Services		
Address:	15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.		
Telephone No.:	—		
Nature of Sample:	Ambient Air	**Monitoring Location:**	Front of Construction Site, Punjab Local Govt. Academy, Civic Center, Johar Town Lahore
Date of Sample Collection:	17/12/2020	**Grab / Composite:**	Continuous - 24 Hours
Sample Collected/Sent By:	Hamza Sohaib, Field Officer, ESPAK		
Date of Completion of Analysis:	18/12/2020		

S. No	Parameters	Limit Values (PEQS-24Hours)	Concentration	Method / Equipment Used	Remarks
1	Carbon Monoxide (CO)	10 mg/m³ (1 Hour)	0.5-1.2 mg/m³	Non Dispersive Infrared Absorption (NDIR)	Within Prescribed Limits
2	Carbon Monoxide (CO)	5 mg/m³ (8 Hours)	0.8-1.1 mg/m³	Non Dispersive Infrared Absorption (NDIR)	Within Prescribed Limits
3	Sulfur Dioxide (SO_2)	120 µg/m³	11.3 µg/m³	UV Fluorescence (UVF)	Within Prescribed Limits
4	Ozone (O_3)	130 µg/m³ (1 Hour)	2.1-84.5 µg/m³	Non Dispersive UV Absorption	Within Prescribed Limits
5	Oxides of Nitrogen as NO	40 µg/m³	11.3 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
6	Oxides of Nitrogen as NO_2	80 µg/m³	15.6 µg/m³	Chemiluminescence Detection	Within Prescribed Limits
7	Particulate Matter $PM_{2.5}$	35 µg/m³	30.5 µg/m³	Particulate Sensor	Within Prescribed Limits
8	Particulate Matter PM_{10}	150 µg/m³	128 µg/m³	Particulate Sensor	Within Prescribed Limits
9	Suspended Particulate Matter (SPM)	500 µg/m³	436 µg/m³	High Volume Sampler (HVS)	Within Prescribed Limits

PEQS- Punjab Environmental Quality Standards for Ambient Air, 2016
ertainty of Measurement (UoM) data will be provided on request, if applicable.

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NOISE MONITORING REPORT

Reference Number:	ESPAK/427/20/N/2593/D0182	**Date:**	22/12/2020
Name of Industry/Client:	Habib Construction Services		
Address:	15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.		
Telephone No.:	---		
Nature of Sample:	Noise		
Date of Sample Collection:	17/12/2020	**Grab / Composite:**	Spot Sample
Sample Collected/Sent By:	Anwer Hamza, Field Officer, ESPAK		
Date of Completion of Analysis:	17/12/2020		
Method/Equipment Used:	Sound Level Meter		

S. No	Measurement Point	Limit Values (PEQS)	Noise Level in dB(A)	Remarks
1	Punjab Local Govt. Academy, Johar Town Lahore - East Boundary Wall	65 dB(A)	62 dB(A)	---
2	Punjab Local Govt. Academy, Johar Town Lahore - West Boundary Wall	65 dB(A)	60 dB(A)	---
3	Punjab Local Govt. Academy, Johar Town Lahore - North Boundary Wall	65 dB(A)	64 dB(A)	---
4	Punjab Local Govt. Academy, Johar Town Lahore - South Boundary Wall	65 dB(A)	65 dB(A)	---

PEQS: Punjab Environmental Quality Standards for Noise in Commercial Area, 2016 Day Time Hours (8:00 am to 10:00 pm)
* Uncertainty of Measurement (UoM) data will be provided on request, if applicable.

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1. **Sample Analyzed By:** Anwer Hamza, Field Officer
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Mal... General Manager
Date: 22/12/2020

End of Report

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CHEMICAL ANALYSIS TEST REPORT (WASTE WATER)

Reference Number: ESPAK/427/20/WW/2501/00307 **Date:** 23/12/2020

Name of Industry / Client: Habib Construction Services

Address: 15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.

Telephone No.: —

Nature of Sample: Final Drain Waste Water at Punjab Local Govt. Academy, Johar Town Lahore

Date Sample Received: 17/12/2020 **Grab / Composite:** Grab

Date of Sample Collection: 17/12/2020

Sample Collected / Sent By: Ameer Hamza, Field Officer, ESPAK

Date of Completion of Analysis: 23/12/2020

S. No	Parameters	Limit Values (PEQS)	Concentration	Method / Equipment Used	Remarks
1	pH value (H+)	6-9	7.8	SMWW 4500H+ B	Within Prescribed Limits
2	Chemical Oxygen Demand (COD)	150 mg/L	27 mg/L	SMWW 5220 D	Within Prescribed Limits
3	Total Dissolved Solids (TDS)	3500 mg/L	810 mg/L	SMWW 2540 C	Within Prescribed Limits
4	Chloride (as Cl-)	1000 mg/L	19.7 mg/L	SMWW 4500Cl- -B	Within Prescribed Limits
5	Cadmium (Cd)	0.1 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
6	Chromium (Trivalent and Hexavalent)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
7	Copper (Cu)	1.0 mg/L	0.980 mg/L	U.S. EPA-200.7	Within Prescribed Limits
8	Iron (Fe)	8.0 mg/L	0.484 mg/L	U.S.EPA-200.7	Within Prescribed Limits
9	Lead (Pb)	0.5 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
10	Manganese (Mn)	1.5 mg/L	0.291 mg/L	U.S. EPA-200.7	Within Prescribed Limits
11	Mercury (Hg)	0.01 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
12	Selenium (Se)	0.5 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
13	Nickel (Ni)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
14	Silver (Ag)	1.0 mg/L	0.009 mg/L	U.S. EPA-200.7	Within Prescribed Limits
15	Zinc (Zn)	5.0 mg/L	0.184 mg/L	U.S. EPA-200.7	Within Prescribed Limits
16	Arsenic (As)	1.0 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
17	Barium (Ba)	1.5 mg/L	0.303 mg/L	U.S. EPA-200.7	Within Prescribed Limits
18	Boron (B)	6.0 mg/L	0.482 mg/L	U.S.EPA-200.7	Within Prescribed Limits
19	Total Toxic Metals	2.0 mg/L	1.694 mg/L	Calculated Value	Within Prescribed Limits
20	Biochemical Oxygen Demand (BOD5) at 20 °C	80 mg/L	10 mg/L	SMWW 5210 B	Within Prescribed Limits
21	Total Suspended Solids (TSS)	200 mg/L	ND	SMWW 2540 D	Within Prescribed Limits
22	Phenolic Compounds (as Phenol)	0.1 mg/L	0.05 mg/L	SMWW 5530 C	Within Prescribed Limits
23	Grease and Oil	10 mg/L	ND	U.S. EPA 1664 B	Within Prescribed Limits
24	Fluoride (as F-)	10 mg/L	0.78 mg/L	U.S. EPA 9214	Within Prescribed Limits
25	Cyanide (as CN-)	1.0 mg/L	0.12 mg/L	SMWW 4500 CN- F	Within Prescribed Limits
26	An-ionic detergents (as MBAS)	20 mg/L	0.33 mg/L	SMWW 5540 C	Within Prescribed Limits

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CHEMICAL ANALYSIS TEST REPORT (WASTE WATER)

Reference Number: ESPAK/427/20/WW/2591/00367 **Date:** 23/12/2020

Name of Industry / Client: Habib Construction Services

S. No	Parameters	Limit Values (PEQS)	Concentration	Method / Equipment Used	Remarks
27	Sulfate (SO_4^{2-})	600 mg/L	86.84 mg/L	SMWW 4500 - SO_4^{2-} C	Within Prescribed Limits
28	Sulfide (S^{2-})	1.0 mg/L	ND	SMWW 4500 - S^{2-} F	Within Prescribed Limits
29	Ammonia (NH_3)	40 mg/L	27.34 mg/L	SMWW 4500 NH_3- D	Within Prescribed Limits
30	Chlorine (Cl)	1.0 mg/L	ND	SMWW 4500-Cl B	Within Prescribed Limits
31	Temperature	NGVS	21.3 °C	Thermometer	—

PEQS: Punjab Environmental Quality Standards for Municipal & Liquid Industrial Effluents, 2016
SMWW: Standard Methods for the Examination of Water and WasteWater 23rd Edition, American Public Health Association, American Water Works Association, Water Environment Federation USA (2017)
USEPA: United States Environmental Protection Agency
NGVS: No Guideline Value Set
ND: Not Detected

- Laboratory tests and measurements were carried out at 25 ± 2 °C and 50 ± 10 % Relative Humidity conditions unless stated otherwise.
- Uncertainty of Measurement (UoM) data will be provided on request, if applicable.

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1. **Sample Analyzed By:** Waqas Ahmad (Analyst), Musharaf Jabeen (Analyst), Anwer Usama (Asst Analyst), Raja Zulkifal (Asst Analyst)
2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Malik
General Manager
Date: 23/12/2020

End of Report

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CHEMICAL ANALYSIS TEST REPORT (DRINKING WATER)

Reference Number: ESPAK/427/20/DW/2592/00586 **Date:** 23/12/2020
Name of Industry / Client: Habib Construction Services
Address: 15-A, Block G-1, Canal Bank Road,Near Doctors Hospital, Johar Town, Lahore.
Telephone No.: —
Nature of Sample: Drinking Water from Tap at at Punjab Local Govt. Academy, Johar Town Lahore
Date Sample Received: 17/12/2020 **Grab / Composite:** Grab
Date of Sample Collection: 17/12/2020
Sample Collected / Sent By: Ameer Hamza, Field Officer, ESPAK
Date of Completion of Analysis: 23/12/2020

S. No	Parameters	Limit Values (PEQA)	Concentration	Method / Equipment Used	Remarks
1	pH	6.5-8.5	8.7	SMWW 4500H^B	Within Prescribed Limits
2	Total Dissolved Solids (TDS)	<1000 mg/L	46 mg/L	SMWW 2540C	Within Prescribed Limits
3	Chloride (as Cl⁻)	<250 mg/L	1.9 mg/L	SMWW 4500Cl^B	Within Prescribed Limits
4	Cadmium (Cd)	0.01 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
5	Chromium (Cr)	≤0.05 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
6	Copper (Cu)	2.0 mg/L	0.034 mg/L	U.S. EPA-200.7	Within Prescribed Limits
7	Lead (Pb)	≤0.05 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
8	Manganese (Mn)	≤0.5 mg/L	0.006 mg/L	U.S. EPA-200.7	Within Prescribed Limits
9	Nickel (Ni)	≤0.02 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
10	Zinc (Zn)	5.0 mg/L	0.067 mg/L	U.S. EPA-200.7	Within Prescribed Limits
11	Antimony (Sb)	≤0.005 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
12	Aluminium (Al)	≤0.2 mg/L	0.038 mg/L	U.S. EPA-200.7	Within Prescribed Limits
13	Arsenic (As)	≤0.05 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
14	Boron (B)	0.3 mg/L	0.210 mg/L	U.S. EPA-200.7	Within Prescribed Limits
15	Barium (Ba)	0.7 mg/L	0.040 mg/L	U.S. EPA-200.7	Within Prescribed Limits
16	Mercury (Hg)	≤0.001 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
17	Selenium (Se)	0.01 mg/L	ND	U.S. EPA-200.7	Within Prescribed Limits
18	Total Coliforms	—	ND	SMWW 9221 B	—
19	Fecal Coliform Bacteria	Must not be detectable in any 100mL sample	ND	SMWW 9221 F	Within Prescribed Limits
20	E. Coli	Must not be detectable in any 100mL Sample	ND	SMWW 9221 F	Within Prescribed Limits
21	Color	≤15 TCU	Nil	SMWW 2120 C	Within Prescribed Limits
22	Taste	Non Objectionable / Acceptable	Acceptable	Organoleptic	Within Prescribed Limits

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CHEMICAL ANALYSIS TEST REPORT (DRINKING WATER)

Reference Number: ESPAK/427/20/DW/2502/00586 **Date:** 23/12/2020

Name of Industry / Client: Habib Construction Services

S. No:	Parameters	Limit Values (PEQS)	Concentration	Method / Equipment Used	Remarks
23	Odor	Non Objectionable / Acceptable	Acceptable	Organoleptic	Within Prescribed Limits
24	Turbidity	<5 NTU	0.15 NTU	SMWW 2130B	Within Prescribed Limits
25	Total Hardness as $CaCO_3$	<500 mg/L	4 mg/L	SMWW 2340C	Within Prescribed Limits
26	Cyanide (CN^-)	≤0.05 mg/L	0.05 mg/L	SMWW 4500 CN^- F	Within Prescribed Limits
27	Fluoride (F^-)	≤1.5 mg/L	0.04 mg/L	U.S. EPA 9214	Within Prescribed Limits
28	Nitrate (NO_3^-)	≤50 mg/L	0.12 mg/L	SMWW 4500NO_3^- B	Within Prescribed Limits
29	Nitrite (NO_2^-)	≤3 mg/L	0.04 mg/L	SMWW 4500NO_2^- B	Within Prescribed Limits
30	Residual Chlorine	0.2-0.5 mg/L	ND	SMWW 4500-Cl B	---
31	Phenolic Compounds (as Phenols)	NSVS	ND	SMWW 5530 C	---

PEQS: Punjab Environmental Quality Standards for Drinking Water, 2016
SMWW: Standard Methods for the Examination of Water and WasteWater 23rd Edition, American Public Health Association, American Water Works Association, Water Environment Federation USA (2017)
USEPA: United States Environmental Protection Agency
NSVS: No Guideline Value Set
ND: Not Detected
+ Laboratory tests and measurements were carried out at 25 ± 2 °C and 50 ± 10 % Relative Humidity conditions unless stated otherwise.
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2. **Name of Chief Analyst with Seal:** Muhammad Arfan
3. **Signature of Incharge of the Environmental Laboratory:**

Name: Imran Mal...
General Manager
Date: 23/12/2020

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Appendix E: SAHIWAL PARKS HSE CHECK LIST

RESIDENT ENGINEER: MUHAMMAD TAYYAB
CELL NO.: 0321-6369549
LOCATION: SAHIWAL
NAME OF PROJECT: Upgradation of 3 Existing Parks in Sahiwal under PICIIP
Date:30-12-2020

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
1	**PERSONAL PROTECTIVE EQUIPMENT'S**					
		Steel Toe Shoes		√		Ref: Appendix D
		Helmets		√		Pictures showing the labor using protective equipment's at work activities.
		Coveralls/ Uniforms			√	
		Gloves		√		
		Jacket		√		
		Goggles		√		
		Face Shields			√	
		Ear Muffs		√		
		Face Masks		√		
		Disposable PPE			√	
2	**FIRST AID EQUIPMENT**			√		Ref: Pictures Sahiwal Parks Appendix: A
3	**ROAD SAFETY & TRAFFIC MANAGEMENT**				√	Not Applicable
		Diversion Sign Boards				
		Removal of Waste Material				
		Fencing				
		Movement of Heavy Equipment at Night				
		Speed Limits				
		Lightening				
4	**WORKERS WELFARE**					
		Drinking Water		√		

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Changing Room		√		
		Smoking Area			√	
		Insurance of Workers		√		
		First Aid Facility		√		
		Toilets Available on Site		√		
5	**FIRE FIGHTING EQUIPMENT**					Ref: Appendix A
		Fire Alarm			√	
		Fire Buckets/ Fire Extinguisher		√		
		Training			√	No workers camp
		Fire Fighting System at Camp Office			√	
		Emergency Drills			√	
6	**LIGHTING ALONG THE RIGHT OF WAY**					Not Applicable
7	**TRAINING REQUIREMENTS**					
		Training Records		√		
		Attendance of Workers		√		
8	**GENERAL HOUSEKEEPING**				√	
9	**EMERGENCY RESPONSE PLAN**			√		
10	**SOPS FOR ACCIDENTS**				√	
11	**SOPs FOR SKILLED AND UNSKILLED LABOUR**			√		
		Child Labour		√		
12	**WORK AT HEIGHT**					Work at ground level
		Safety Harness				
		Fixed Working Platform				
		Proper Access				
		Toe Boards on Platforms				
		Fencing Around Active Site				
		Training of Workers				
		Weather Conditions				
		Signboards				

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Proper Supervision				
13	DRILLING OPERATION					Not Applicable
		Training				
		PPEs				
		Communication				
		Proper Access i.e. ladder				
		Covering of bore holes				
		Cordon off with steel sheets				
		Emergency Response Plan				
14	PITS & EXCAVATION					
		Proper Lighting		√		
		Sign Boards		√		
		Proper Access		√		
		Underground Facilities				Not Applicable
		Falling Objects Near Excavation				Not Applicable
		Noise & Dust		√		
		Excavated Material		√		
15	ELECTRICS ON SITE & YARD					No electrical work started yet
		Use Proper Insulated Wires				
		Wear Suitable PPEs				
		Working Place Must be Dry				
		Check Overhead Electric Power Lines				
16	LIFTING ERECTION					No lift at Site
		Area Must be Barricaded				
		Wind Speed & Direction				
		Overhead Lines				
		Safe Working Load				
		Sign Boards				

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Driver License				
		PPEs				
17	CHEMICAL HANDLING &STORAGE					Not Applicable
		Stored in Proper Shade/ Dry Place				
		Store Kept Clean/ Not Use for Other Activity				
		Proper Ventilation				
		PPEs				
		First Aid Facility				
		Fire Extinguisher				
		Warning Signs				
18	HEAVY EQUIPMENT					Not yet used
		Well Trained 7 Licensed Driver				
		Warning Light				
		Area Must be Barricaded				
		Correctly Positioned & Installed				
		Noise Monitoring				
		PPEs				
19	WELDING EQUIPMENT & OXYGEN CYLINDERS					No welding work started yet
		Fire Extinguisher				
		Cylinder Stored in Enclosed Room				
		Warning Signs				
		Proper Ventilation				
20	REPORTING OF ACCIDENT					
		Emergency Response Plan		√		
21	CONSTRUCTION ACTIVITIES NEAR HIGH VOLTAGE LINES					**Not applicable**
		Total no. of Incident				

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Incident Investigation Reports				
	General Observations	Satisfactory HSE Arrangements				
	Recommendations	…….				
	Name: MUHAMMAD TAYYAB ------- Signatures: ----------					
	RE NESPAK SAHIWAL					

Appendix F: SIALKOT PARKS HSE CHECKLIST

The Project Management Construction Supervision Consultants (PMCSC) has developed and completed the following Environmental Monitoring Checklist for assessing the effectiveness of ESMP implementation at the project sites during the reporting period:

DATE: 31-12-2020
RESIDENT ENGINEER: SYED ABDULLAH HUSSAIN
CELL NO.: 0308-7300775
LOCATION: SIALKOT
NAME OF PROJECT: Upgradation of 4 Existing Parks in Sialkot under PICIIP

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
1	PERSONAL PROTECTIVE EQUIPMENT'S					
		Steel Toe Shoes		√		
		Helmets		√		
		Coveralls/ Uniforms			√	Labour utilized on the project is on daily wedges. No permanent labour available. therefore uniform can not provided
		Gloves		√		.
		Jacket		√		
		Goggles		√		
		Face Shields			√	
		Ear Muffs		√		Noise is in permissible limits (Test results attached)
		Face Masks		√		
		Disposable PPE			√	

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
2	**FIRST AID EQUIPMENT**			√		Available at site
3	**ROAD SAFETY & TRAFFIC MANAGEMENT**				√	Work is under confined space
		Diversion Sign Boards				Work is under confined space
		Removal of Waste Material		√		
		Fencing		√		
		Movement of Heavy Equipment at Night			√	
		Speed Limits			√	
		Lightening				
4	**WORKERS WELFARE**					
		Drinking Water		√		
		Changing Room		√		
		Smoking Area		√		
		Insurance of Workers		√		
		First Aid Facility		√		
		Toilets Available on Site		√		
5	**FIRE FIGHTING EQUIPMENT**					
		Fire Alarm			√	Not provided

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Fire Buckets/ Fire Extinguisher		√		
		Training		√		Conducted on site.
		Fire Fighting System at Camp Office		√		
		Emergency Drills			√	**Will be conducted upon provision of fire/Emergency alarm.**
6	**LIGHTING ALONG THE RIGHT OF WAY**					
7	**TRAINING REQUIREMENTS**					
		Training Records		√		**Tool box talk's attendance is a**vailable at site office. Attendance sheet and RFI for training of staff and labor is available.
		Attendance of Workers		√		Available at site office.
8	**GENERAL HOUSEKEEPING**			√		Practice to keep the site clean exists but needs improvement.
9	**EMERGENCY RESPONSE PLAN**			√		Available at site office.
10	**SOPS FOR ACCIDENTS**			√		Emergency response team is established (Copy attached) and all staff is advised to contact emergency response team member in case of any accident occurs at site.
11				√		SOP's of Govt. Of the Punjab Covid-19

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
	SOPs FOR SKILLED AND UNSKILLED LABOUR	Child Labour		√		Strictly Prohibited
12	**WORK AT HEIGHT**					
		Safety Harness			√	
		Fixed Working Platform		√		
		Proper Access		√		
		Toe Boards on Platforms		√		
		Fencing Around Active Site		√		Work is under confined space.
		Training of Workers		√		Training conducted on site. Daily toolbox talk is being conducted at site.
		Weather Conditions				No work carried under extreme weather conditions.
		Signboards		√		
		Proper Supervision		√		On every daily visit, asking the site team to implement and improve the safety measures at site.
13	**DRILLING OPERATION**					
		Training		N/A		
		PPEs		N/A		
		Communication		N/A		
		Proper Access i.e. ladder		N/A		
		Covering of bore holes		√		

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Cordon off with steel sheets		N/A		
		Emergency Response Plan				
14	**PITS & EXCAVATION**					
		Proper Lighting		√		Work is during day time and all parks are closed for public.
		Sign Boards		√		
		Proper Access		√		Ladders are provided at site.
		Underground Facilities		√		
		Falling Objects Near Excavation		√		Excavated material is kept at least 2 feet away from trench side to avoid falling of material inside the trench.
		Noise & Dust		√		Dust is being controlled by sprinkling water while noise is under permissible limits.
		Excavated Material		√		
15	**ELECTRICS ON SITE & YARD**					
		Use Proper Insulated Wires		√		
		Wear Suitable PPEs		√		

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Working Place Must be Dry		√		
		Check Overhead Electric Power Lines		√		
16	**LIFTING ERECTION**					
		Area Must be Barricaded		√		
		Wind Speed & Direction		√		
		Overhead Lines		√		
		Safe Working Load		√		
		Sign Boards		N/A		
		Driver License		√		
		PPEs		√		
17	**CHEMICAL HANDLING &STORAGE**					Anti-Termite liquid, Diesel, Water Proofing Chemical etc.
		Stored in Proper Shade/ Dry Place		√		
		Store Kept Clean/ Not Use for Other Activity		√		
		Proper Ventilation		√		
		PPEs		√		
		First Aid Facility		√		

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
		Fire Extinguisher		√		
		Warning Signs		√		
18	**HEAVY EQUIPMENT**					Only material delivery vehicles inside the confined working space.
		Well Trained &Licensed Driver		√		
		Warning Light		√		
		Area Must be Barricaded		√		
		Correctly Positioned & Installed		-		
		Noise Monitoring		-		
		PPEs		√		
19	**WELDING EQUIPMENT & OXYGEN CYLINDERS**					
		Fire Extinguisher		√		
		Cylinder Stored in Enclosed Room		√		
		Warning Signs		√		
		Proper Ventilation		--		Welding is being done under open sky.

SOP. No.	Monitoring Parameters for Safe System of Work		Triggered Yes/No	Compliance Status		
				Yes	No	Remarks
20	**REPORTING OF ACCIDENT**					1 accident occurs so far
		Emergency Response Plan		√		
21	**CONSTRUCTION ACTIVITIES NEAR HIGH VOLTAGE LINES**					**Not applicable**
		Total no. of Incident		**N/A**	**-**	
		Incident Investigation Reports		**N/A**	**-**	
	General Observations	Satisfactory HSE Arrangements				
	Recommendations	…….				
	Name: Abdullah Hussain Signatures: ----------					
	RE NESPAK SIALKOT					

Appendix G: PLGA- HSE CHECKLIST

Check List for HSE Compliance

Date: 28.12.2020
Construction Manager: Muhammad Hanif Khokar
Location: Lahore
Name of Project: Punjab Local Government Academy

SOP No.	Monitoring Parameter for safe system of work		Triggered	Compliance Status		
			Yes/No	Yes	No	Remarks
1	Personal Protective Equipment					
		Safety shoes		Yes		
		Helmets		Yes		
		Safety Jacket		Yes		
		Gloves		Yes		
		Goggles		Yes		
		Ear Plugs		Yes		
		Face Mask		Yes		
2	First Aid Equipment			Yes		Available at site
3	Road safety & Traffic management					
		Diversion sign boards		N/A		Work is under confined space
		Removal of waste material		Yes		
		Fencing		Yes		
		Movement of heavy vehicles at night		N/A		
		Speed limits		N/A		
		Lighting		Yes		During Night Works
4	Workers Welfare					
		Drinking water		Yes		
		Smoking area		Yes		Smoking is prohibited on-site or inside the containers.
		First aid facility		Yes		
		Toilets available on site		Yes		8 Nos. for Labour workers.
5	Fire Fighting Equipment					
		Fire Alarm		N/A		
		Fire buckets / extinguishers		Yes		
		Training		Yes		Pictures are attached
6	Lightening along the right of way			N/A		
7	Training Requirements			Yes		Training conducted by contractor safety officer, pictures are attached
8	Attendance of workers			Yes		Available at site office.
9	General house keeping			Yes		Garbage Cans for Disposal installed at different location
10	Emergency response Plan			Yes		

11	Training for skilled and unskilled labour			Yes		
		Child labour		Yes		Child Labour is Prohibited.
12	Work at Height			N/A		Related activity not yet started
		Safety harness		N/A		
		Fixed working platform		N/A		
		Proper access		N/A		
		Toe boards along platforms		N/A		
		Fencing around work site		Yes		Work is under confined space.
		Training of workers		Yes		Toolbox talk is being conducted at site.
		Weather conditions		Yes		No work carried under extreme weather conditions.
		Sign boards		Yes		Pictures are attached
		Proper supervision		Yes		On every daily visits, asking the site team to implement and improve the safety measures at site.
13	Drilling Operation					Not yet started at site
		Training		Yes		
		PPEs		Yes		
		Communication		Yes		
		Proper access		Yes		
		Covering of bore holes		Yes		
		Cordon off with steel sheets		Yes		
14	Pits and excavation			N/A		
		Proper lighting		Yes		
		Sign boards		Yes		
		Proper access		Yes		
		Underground facilities		N/A		
		Falling objects near excavation		N/A		
		Noise & dust		Yes		Dust is being controlled by sprinkling water while noise is under permissible limits.
15	Electrics on site & yard					
		Use proper insulated wires		Yes		
		Use proper PPEs		Yes		
		Working place must be dry		Yes		
		Check overhead electric power lines		Yes		Shifted for smooth drilling operation.
16	Lighting erecting					Lighting erecting are installed on site.

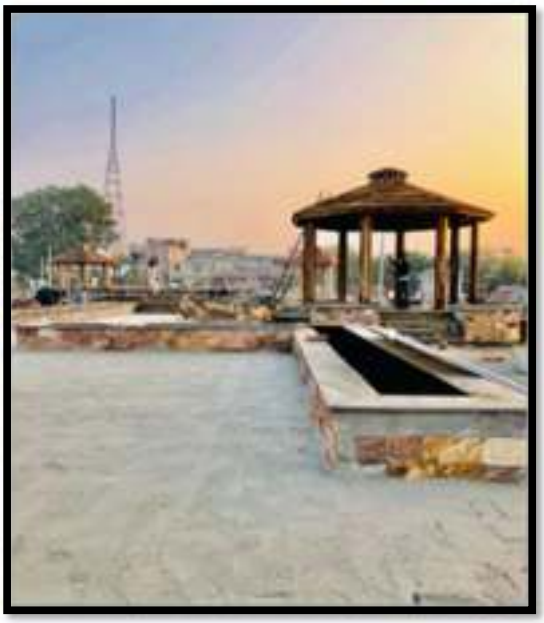
		Area must be barricaded		Yes		
		Wind speed and direction		Yes		
		Overhead lines		Yes		
		Safe working load		Yes		
		Sign board		Yes		
		Driver's license		Yes		
		PPEs		Yes		
17	Chemical handling & storage					Anti-Termite liquid, Diesel, Water Proofing Chemical etc.
		Stored in proper shade/dry place		Yes		
		Store kept clean / not used for other activity		Yes		
		Proper ventilation		Yes		
		PPEs		Yes		
		First aid facility		Yes		
		Fire extinguishers		Yes		
		Warning signs		Yes		
18	Heavy equipment					Only material delivery vehicles inside the confined working space.
		Warning light		Yes		
		Area must be barricaded		Yes		
		Correctly positioned & installed		Yes		
		Noise monitoring		Yes		Test performed (Results attached)
		PPEs		Yes		
19	Welding equipment & oxygen cylinders					
		Cylinders stored in enclosed room		yes		
		Warning signs		Yes		
		Proper ventilation		N/A		
20	Reporting of accident					No accident occured so far.
21	Construction activities near high voltage lines			N/A		
		Total no of incidents		N/A		
		Incident investigation reports		N/A		
	General observation					
	Recommendations					

Appendix H: PROJECT PHOTOGRAPHS

Physical Progress Sahiwal Parks:

Painting work at Kiosk in FT Park

Laying of Tuff Paver on front walkway in FT Park



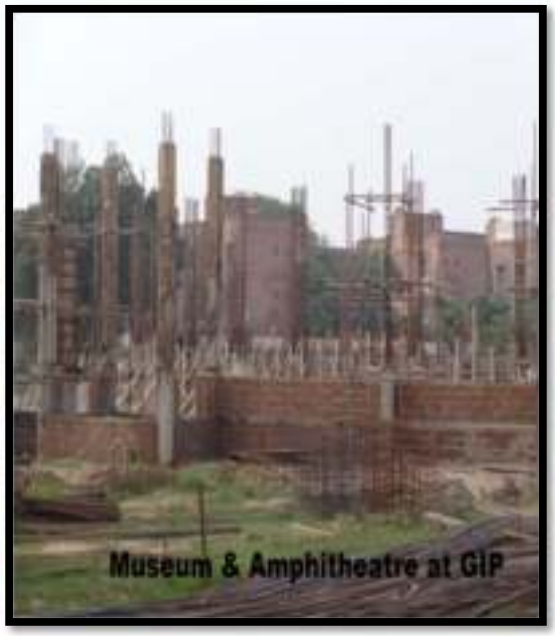
Tuff Pavers in Large Planter in Fateh Sher Park

Children Play Equipment in Fateh Sher Park

Physical Progress Sialkot Parks:

Parking Area, Gulshan-e-Iqbal Park

Kiosk, Gulshan-e-Iqbal Park



Museum & Amphitheatre, Gulshan-e-Iqbal Park

Planter, Gulshan-e-Iqbal Park

Gazebo, Abdul Hakeem Park

Walkways and Toilt Block at AH Park

Toilet Block, Ladies & Children Park

Child play Equipments, Ladies & Children Park

Physical Progress PLGA:

Good Practices Adopted:

Use of PPES by Workers at Gulshane Iqbal Park Sialkot

Use of PPES by Workers at Sahiwal & PLGA Site

:

COVID-19 SOPs Being Followed at Project Sites

Use of Safety Signage at Project Sites

Material Covered with Tarpaulin & Water Sprinkling at Project Site

Solid Waste Management Practices at Project Site

Quarterly Environmental Monitoring at Project Sites:

Trainings Conducted at Project Sites: