

添付資料 7 パイロットプロジェクト (P/P) 関連資料

7-1 新規処分場 P/P

7-2 既存処分場 P/P

Scope of Works and Technical Specifications for the Basic Design of New Final Disposal Site

Attached is a draft form of the following Scope of Works and Technical Specifications for the basic design of new final disposal site.

It can be used for other projects by modifying the letters [] in the form.

1. Scope of Works and Technical Specifications for Basic Design
2. Scope of Works and Technical Specifications for Topographic Survey
3. Scope of Works and Technical Specifications for Geological Survey

**SCOPE OF WORKS AND TECHNICAL SPECIFICATIONS
FOR
The Project for Institutional Capacity Development on Nation-wide Solid
Waste Management in Dominican Republic
[Basic Design]**

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1. GENERAL

This scope of work and technical specifications detailed herein will be applied to a series of basic designs ("the Basic Design") to be conducted for a new final disposal site] of approximately [36 hectares] planned within [El Rosario (DM), San Juan Province], Dominican Republic.

The execution of design works together with methodology necessary to achieve the objectives of the Basic Design shall be prepared by a specialized Sub-Consultant having sufficient expertise, experience, and capacity to undertake the Basic Design in accordance with international and local standards, as previously approved by the Client.

2. OBJECTIVE

The purpose of this contract is to carry out the [basic design] for the new final disposal site planned in [El Rosario (DM)].

3. RESPONSIBILITY OF THE SUB-CONSULTANT

The Sub-Consultant shall be responsible to carry out all works necessary to complete the design works and services described in this specification ("the Works") in accordance with the Contract, including, but not necessarily limited to, the following:

- 1) Provision of the necessary numbers of experienced and qualified civil engineers, architects and electrical engineers, and supervisors as may be required for the implementation of the Basic Design;
- 2) Procurement, use and maintenance of appropriate information equipment and design tools for the Basic Design, including but not necessarily limited to personal computer and programs equipment;
- 3) Provision of transportation, and the operation and maintenance of all equipment and vehicles to be used for the site visits required for Basic Design;
- 4) Provision and use of officially licensed software for the Basic Design, including MS-Word/Excel and AUTOCAD; and
- 5) Procurement of any necessary authorizations and approvals required for the implementation of the Basic Design.

4. SCOPE OF WORKS

The Sub-Consultant shall undertake the Basic Design using only licensed civil engineers, architect and electrical engineers, and supervisors.

4.1 BASIC DESIGN [NEW FINAL DISPOSAL SITE]

The details and requirements of the Basic Design are described as follows:

- 1) Site visit: The site visit is conducted based on surveyed topographic maps (scale [1/1000]) or commercially available topographic maps (scale [1/2500] or larger) to understand the existing conditions (topography, rivers, roads, houses, surrounding facilities, land use, water use, etc.).
- 2) Access road planning: Several access road routes from public roads to the final disposal site are considered, and the most appropriate route is selected. For the selected route, the plan, longitudinal plan, cross-sectional plan, plan of relevant structures such as slopes and drainage, and pavement configuration are examined. Quantities of earthwork and facilities are calculated based on the plane alignment and typical cross sections. Several typical cross-sections should be considered according to the topographic change points.
- 3) Storage structure planning and landfill development planning: The storage structure and landfill development shape should be considered according to the required landfill volume. Based on the results of the geological survey, the strength of the foundation ground for the structures shall be confirmed. For the landfill development plan, examine longitudinal and transverse sections at [100m] intervals so that the quantities of earthworks and facilities can be calculated.
- 4) Liner facility planning: Based on the results of the geological survey, the type and structure of the liner facility should be considered.
- 5) Planning of leachate collection and drainage facilities and regulating reservoirs: The amount of leachate is calculated based on the amount of rainfall at the final disposal site, and the layout and structure of leachate collection and drainage facilities and regulating reservoirs are studied.
- 6) Planning of rainwater collection and drainage facilities: The amount of rainwater runoff is calculated based on the amount of rainfall at the final disposal site, and the layout and structure of rainwater collection and drainage facilities are studied.
- 7) Planning of groundwater collection and drainage facilities: Based on the results of the geological survey, if the groundwater level in the proposed final disposal site is high, the layout and structure of groundwater collection and drainage facilities should be considered.
- 8) Planning of gas venting facilities: Consider the layout and structure of gas venting facilities needed to keep the landfill waste in an aerobic atmosphere as much as possible and to promote decomposition and stabilization of the landfill waste. The gas venting facility should be a continuous structure with a leachate collection and drainage facility.
- 9) Reception and weighing facility planning: Consider the size and number of truck scales needed to weigh incoming waste, and the facilities needed for waste inspection, recording, and fee collection.
- 10) Administration building planning: Calculate the area required for weighing equipment necessary for waste haulage management, control equipment for water treatment facilities, offices for management personnel, meeting rooms, etc., and study the building plan for the management building.

- 11) Management road planning: Study the layout plan, longitudinal plan, cross-section plan, plan of related structures such as slopes and drainage, and pavement plan of management roads. The management road consists of roads around final disposal sites which are necessary for landfilling and maintenance work and roads connecting to facilities such as leachate treatment facilities. Quantities of earthwork and facilities are calculated based on the plane alignment and typical cross sections. Several typical cross-sections should be considered according to the topographic change points.
- 12) Other facility planning: Car wash facilities, shatterproof facilities, water supply and sewerage facilities, security facilities such as gate and fence, electrical and communication facilities, etc. required for the final disposal site shall be considered, and layout plans and standard structural drawings shall be prepared.
- 13) Preparation of basic design drawings: Based on the results of the above study, the following basic design drawings shall be prepared.
 - a. Layout plans of the final disposal facilities.
 - b. Typical FDS cross sections
 - c. Cut and fill plans of the waste area.
 - d. Longitudinal and cross sections of the SDF.
 - e. Standard structural drawings of storage structures.
 - f. Access road plans, typical cross sections (including pavement structure).
 - g. Administration road plans, typical cross-sections (including pavement structure).
 - h. Internal road plans, typical cross sections (including pavement structure).
 - i. Overlay facility design drawings, and standard structural drawings.
 - j. Leachate collection and drainage facility and gas treatment facility layout plans, standard structural drawings.
 - k. Layout plans of rainwater collection and drainage facility and groundwater collection and drainage facility, and standard structural drawings.
 - l. Leachate regulation reservoir design plans, standard structural drawings.
 - m. Leachate treatment facility design plans, standard structural drawings.
 - n. Overall plans and typical sections of buffer zones.
 - o. Floor plans, elevations, and standard structural drawings of the administration building and weighing area.
 - p. General structural plans and drawings of the security facility (gate and fence) and waste scattering prevention structure.
 - q. Groundwater monitoring structure.
 - r. Overall and general structural drawings of all required auxiliary infrastructure (car wash, water supply, wastewater drainage, electrical, communication, etc.).
- 14) Preparation of quantity calculation sheet: Calculate the quantity of construction works for the final disposal facilities compiled in the basic design drawings.

15) Calculation of estimated construction cost: Estimated construction cost shall be calculated based on the statement of quantities. For materials, equipment, and labor unit prices necessary to calculate the construction cost, refer to the standard unit prices of the subject municipality or quotations from suppliers.

16) Quantities for Basic Design

Item	Description	Qty	Unit	Remarks
1	Preparation and site visit	1	LS	
2	Study and Planning for basic design	1	LS	
3	Drawings (approx. [30] drawings)	1	LS	
4	Quantities	1	LS	
5	Cost Estimate	1	LS	
6	Final Report Processing	1	Set	

4.2 REPORTING

The Sub-Consultant shall submit to the Client the following documents referring to the Basic Design:

- 1) Work Plan: The Work Plan shall include the following information:
 - General explanation of the proposed work methodology, including engineers, equipment, and software to be used;
 - Proposed design procedures and detailed time schedule for completing the design works; and
 - Names and contact information of responsible persons and all related persons assigned to the design.
- 2) Basic Design Report: The Basic Design Report shall include, but not necessarily be limited to, the following contents:
 - General description of the Works, including location map of the new final disposal site, referenced to National Grid;
 - Description of the conditions, design process and results of the basic design, including a description and source of the criteria, standards and reference data used in the design study; and
 - Design drawings prepared based on the design study.
 - Calculation of quantities and cost estimation.

5. DELIVERABLES

The Sub-Consultant shall submit to the Client the following documents in English.

- 1) Work Plan: [one (1) physical copy] and digital version.
- 2) Draft Basic Design Report: [one (1) physical copy] and digital version.
- 3) Basic Design Report: [one (1) physical copy] and digital version in editable format, exported into the programs mentioned in section 3.

The required contents of each report have been described above in the earlier sections. The above reports shall be submitted as sets of draft report at first. The reports, after receiving review comments and approval, these shall be finalized and submitted to the Client.

6. WORK SCHEDULE

Proposals and/or quotations to perform this work will be received no later than March 10, 2023. They will be evaluated based on the offered price and the company's experience. The result will be notified via e-mail no later than March 17, 2023.

After the contract award, the Sub-Consultant shall submit the reports in the following schedule:

- 1) The Work Plan shall be submitted no later than [one (1) week] after the signing of the Contract and shall cover all proposed design works;
- 2) The draft Basic Design Report shall be submitted no later than [one (1) weeks] after the completion of the Basic Design;

The Final Reports shall be submitted no later than [two (2) weeks] after receiving review comments from the Client. The Basic Design will be completed only after the Client has issued the final approval of the Reports as described in the previous section.

7. OTHERS

The Sub-Consultant shall conduct all necessary design study (and approval procedures if required), survey and allocate all required equipment, labors and supervision, materials, consumables, transportation, accommodation, technical and professional service and all other works and services contained in the above scope of work and shall perform all operations necessary and required for the satisfactory performance of the work. Transportation of equipment to/from the job site, and local transportation in [El Rosario (DM)] and within the job site, is the responsibility of the Sub-Consultant.

8. SUB-CONSULTANT EVALUATION CRITERIA FOR BASIC DESIGN

Evaluation Item	Evaluation Contents
Experience and capability of company	<ul style="list-style-type: none"> - Experience in Sanitary Design for the past 5 years: 3 sanitary projects or more. - Civil 3D (preferable) and AutoCAD licenses. - Number of employees (engineers and CAD operators).
Experience and capability of engineer in charge	<ul style="list-style-type: none"> - Experience in Sanitary Designs for the past 10 years: 5 sanitary projects or more. - Civil 3D (preferable) and AutoCAD skills. - Capacity to calculate estimate cost for civil works. - Educational record and qualifications of engineers.
Project implementation structure	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation system that can be completed within the required time frame without difficulty.
Project implementation schedule	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation schedule that can be completed within the required time frame without difficulty.
Project implementation cost	<ul style="list-style-type: none"> - Whether the cost estimate is reasonable.

**SCORP OF WORKS AND TECHNICAL SPECIFICATIONS
FOR
The Project for Institutional Capacity Development on Nation-wide
Solid Waste Management in Dominican Republic
[Topographic Survey]**

1. GENERAL

This scope of works and technical specifications detailed herein will be applied to a series of surveys (“the Survey”) to be conducted on the proposed site for a new final disposal site of [21 hectares] in [El Rosario (DM)] San Juan Province.

The execution of the Survey together with methodology necessary to achieve the objectives of the study shall be prepared by a specialized Consultant having sufficient expertise, experience and capacity to undertake the Survey in accordance with international standards, as approved by the Client.

2. OBJECTIVE

The Survey is to be carried out with the aim of providing basic data to permit the basic design for the new final disposal site planned in [El Rosario (DM) San Juan Province].

3. RESPONSIBILITY OF THE CONSULTANT

The Consultant shall be responsible to carry out all works necessary to complete the physical surveys and services described in this specification (“the Works”) in accordance with the Contract, including, but not necessarily limited to, the following:

- 1) Provision of the necessary numbers of experienced and qualified survey professionals, survey technicians, surveyors, and supervisors as may be required for the implementation of the Survey;
- 2) Procurement and use of appropriate equipment, surveying tools and sampling equipment for the Survey, including but not necessarily limited to total station survey equipment;
- 3) Provision of transportation, and the operation and maintenance of all equipment and vehicles to be used for the Survey;
- 4) Provision and use of officially licensed software for the Survey, including MS-Word/Excel and AUTOCAD;
- 5) Procurement of any necessary authorizations and approvals required for the implementation of the Survey; and
- 6) Calibration of all survey equipment and laboratory testing apparatus prior to use. The record of processes of survey, test and analysis, such as the date, equipment settings and conditions, calibration records and original charts shall be maintained by the Consultant and submitted to the Client for quality control purposes. If it becomes necessary, the Consultant shall be

responsible for checking any anomalous results by re-surveying or re-testing, as directed by the Client.

4. SCOPE OF WORKS

The Consultant shall undertake the Topographic Survey using only licensed (topographic) surveyors.

4.1 Topographic Survey for New Final Disposal Site

The details and requirements of the topographic survey are described as follows:

- 1) The survey shall consist of ground control survey and leveling survey, with sufficient data points acquired to prepare appropriate and accurate topographic maps, longitudinal profiles, topographic levels curves and cross-sections;
- 2) The legend and symbols used in the map shall follow National Standard. National coordinates and an elevation system referenced to mean sea level shall also be applied to the survey and mapping;
- 3) [Three (3)] permanent bench marks shall be established at the site on bedrock, at locations to be agreed with the Client. Bench marks shall be constructed to ensure permanency and shall be referenced to national grid and mean sea level;
- 4) A total station survey shall be undertaken for the entire candidate site and adjacent areas, as determined by the Client and advised on-site. For the purpose of planning the work, it should be assumed that the survey will cover [21 hectares] of the new final disposal site;
- 5) Mapping shall be done to a scale of [1/1,000] or other appropriate scale, as may be directed by the Client;
- 6) Sufficient survey points shall be recorded in order to establish accurate contours of the surface of the site and survey area, at intervals of not greater than 1.0 m vertical spacing;
- 7) All existing features shall be picked up and delineated on the plans and sections to be prepared. These shall include any physical structures, such as buildings, roads, fences, culverts, as well as stream courses, springs and trees; and
- 8) Quantities for Topographic Survey

a. Proposed Site for [Final Disposal Site] (Area=[21ha])

Item	Description	Qt'y	Unit	Remarks
1	Ground Control Points & Levelling Survey	[84]	Point	4 points per hectare
2	Topographical Survey	[21]	Ha	
3	Longitudinal survey	[21]	Ha	50m intervals
4	Cross sectional survey	[21]	Ha	50m intervals
5	Drawing	[1]	Set	
6	Final Report Processing	[1]	Set	

4.2 Reporting

The Consultant shall submit to the Client the following documents referring to the Topographic Survey:

- 1) Work Plan: The Work Plan shall include the following information:
 - General explanation of the proposed work methodology, inclusive of surveyors, equipment, and software to be used;
 - Proposed survey procedures and detailed time schedule for completing the survey works; and
 - Names and contact points of responsible persons and all related persons assigned to the survey.

- 2) Topographic Survey Report: The Survey Report shall include, but not necessarily be limited to, the following contents:
 - General description of the Works, including location map of the survey site and area surveyed, referenced to National Grid;
 - Description of the methodology of the survey works, including details of the resources actually deployed on-site;
 - Contoured topographic survey plan of the whole area surveyed, including all surface details;
 - At the proposed area of new final disposal site, longitudinal profiles at [50m] intervals, or other number to be agreed with the Client, at equal spacing across the surveyed area, from approximately [east] to [west];
 - At the proposed area of [new final disposal site], cross-sectional profiles at [50m] intervals, or other number to be agreed with the Client, at equal spacing across the surveyed area, from approximately [north] to [south];
 - CAD files of the plans, longitudinal profiles and cross-sectional profiles; and
 - Photographic documentation detailing the survey activities.

5. DELIVERABLES

The Consultant shall submit to the Client the following documents in English and Spanish:

- 1) Work Plan: [one (1) copy] and digital version.
- 2) Draft Topographic Survey Report: [one (1) copy] and digital version.
- 3) Topographic Survey Report: [one (1) copy] and digital version.

The required contents of each report have been described above in the earlier sections. The above reports shall be submitted as sets of draft report at first. The reports, after receiving review comments and approval, shall be finalized and submitted to the Client.

6. WORK SCHEDULE

The Consultant shall submit the reports in the following schedule:

- 1) The Work Plan shall be submitted no later than [one (1) week] after the signing of the Contract and shall cover all proposed survey works;
- 2) The draft Topographic Survey Report shall be submitted no later than [three (3) weeks] after the approval of the Work Plan;

The Final Reports shall be submitted no later than [two (2) weeks] after receiving review comments from the Client. The Survey will be completed only after the Client has issued the final approval of the Reports as described in the previous section.

7. OTHERS

The Consultant shall conduct all necessary investigation and allocate all required equipment, labors and supervision, materials, consumables, transportation, accommodation, technical and professional service and all other works and services contained in the above scope of work, and shall perform all operations necessary and required for the satisfactory performance of the work. Transportation of equipment to/from the job site, and local transportation in [El Rosario (DM)] and within the job site, is the responsibility of the Consultant.

8. EVALUATION CRITERIA FOR CONSULTANTS

Evaluation Item	Evaluation Contents
Experience and capability of company	<ul style="list-style-type: none"> - Experience in topographic surveys using electronic and satellite tools. - Current AutoCAD license or similar program (to be discussed). - Equipment with certified calibration, including Total Station and any other required to perform planimetric and altimetric surveys and place fixed reference points (BM).
Experience and capability of engineer in charge	<ul style="list-style-type: none"> - Experience in surveying in rural areas. - Civil 3D (preferred) and AutoCAD skills. - Ability to calculate volumetry from altimetric survey and geodetic mesh. - Educational record and qualifications (degree, title).
Project implementation structure	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation system that can be completed within the required time frame without difficulty.
Project implementation schedule	<ul style="list-style-type: none"> - To be discussed according to the required project schedule.
Project implementation cost	<ul style="list-style-type: none"> - Whether the cost estimate is reasonable.

**SCORP OF WORKS AND TECHNICAL SPECIFICATIONS
FOR
The Project for Institutional Capacity Development on Nation-wide
Solid Waste Management in Dominican Republic
[Geological Survey]**

1. GENERAL

This scope of works and technical specifications detailed herein will be applied to a series of surveys (“the Survey”) to be conducted in the planned site for new final disposal site with an approximate area of [36 ha] in [El Rosario (DM)].

The execution of the Survey together with methodology necessary to achieve the objectives of the study shall be prepared by a specialized the Consultant having sufficient expertise, experience and capacity to undertake the Survey in accordance with international standards, as approved by the Client.

2. OBJECTIVE

The Survey is to be carried out with the aim of providing basic data to permit the [basic design] for new final disposal site in [El Rosario (DM)].

3. RESPONSIBILITY OF THE CONSULTANT

The Consultant shall be responsible to carry out all works necessary to complete the physical surveys and services described in this specification (“the Works”) in accordance with the Contract, including, but not necessarily limited to, the following:

- 1) provision of the necessary numbers of experienced and qualified geologists, hydrogeologists, engineers, environmental specialists, surveyors and supervisors as may be required for the implementation of the Survey;
- 2) procurement and use of appropriate equipment, surveying tools and sampling equipment for the Survey, including but not necessarily limited to total station survey equipment, drilling rig, soil samplers, and soil quality laboratory testing equipment;
- 3) provision of transportation, and the operation and maintenance of all equipment and vehicles to be used for the Survey;
- 4) provision and use of officially licensed software for the Survey, including MS-Word/Excel and CAD;
- 5) procurement of any necessary authorizations and approvals required for the implementation of the Survey; and
- 6) calibration of all survey equipment and laboratory testing apparatus prior to use. The record of processes of survey, test and analysis, such as the date, equipment settings and conditions, calibration records and original charts shall be maintained by the Consultant and submitted

to the Client for quality control purposes. If it becomes necessary, the Consultant shall be responsible for checking any anomalous results by re-surveying or re-testing, as directed by the Client.

4. SCOPE OF WORKS

4.1 Geological Survey New Final Disposal Site

The Consultant shall implement a geological and groundwater level survey (hereafter referred to as the “Geological Survey”) of the new final disposal site using accredited and experienced geological specialist.

4.1.1 Objectives of the Geological Survey

The Geological Survey has the following primary objectives:

- 1) To determine the soil properties of the new final disposal site.
- 2) To determine the permeability of the soil in the new final disposal site.
- 3) To determine the strength of the soil in the new final disposal site.
- 4) To determine the groundwater level in the new final disposal site.

4.1.2 Scope of Work

The scope of work shall comprise:

- 1) a desk-based study, to acquire and collate relevant existing information; and
- 2) a field-based study, including field reconnaissance, site investigations, sample recovery, laboratory testing and groundwater level survey.

4.1.3 Contents of Survey

The contents of survey shall comprise:

- 1) Borehole drilling

Borehole points will be carried out at [9 points] in the project area. The exact points of the boreholes will be instructed by the Client before commencement of the survey. The depth will be assumed [30m] per point.

- 2) Standard Penetration Test (SPT)

The SPT shall be carried out in accordance with ASTM D1586. The SPT shall be performed at every 1.0 m intervals except for the depth of undisturbed sampling.

- 3) Undisturbed Sampling

Undisturbed sampling shall be carried out in accordance with ASTM D 1587 or equivalent.

- 4) In Situ Permeability Test

The In Situ Permeability Test shall be carried out in accordance with ASTM D4631 or equivalent.

- proposed survey procedures and detailed time schedule for completing the survey works;
 - proposed locations of sampling points, to be discussed and agreed with the Client; and
 - names and contact points of responsible persons and all related persons assigned to the survey.
- 2) Survey Report: The Geological Survey Report shall include, but not necessarily be limited to, the following contents:
- Evaluation of the survey results (including establishment of soil constants)
 - Actual location of the boreholes,
 - Borehole Logs (including records of groundwater levels),
 - Photograph of drilling core samples,
 - Geological profile,
 - Daily drilling report (including photos of survey activities), and
 - Laboratory Soil Test results

5. DELIVERABLES

The Consultant shall submit to the Client the following documents in English.

- 1) Work Plan: [one (1) copy] and digital version.
- 2) Draft Geological Survey Report: [one (1) copy] and digital version.
- 3) Geological Survey Report: [one (1) copy] and digital version.

The required contents of each report have been described above in the earlier sections. The above reports shall be submitted as sets of draft report at first. The reports, after receiving review comments and approval, shall be finalized and submitted to the Client.

6. WORK SCHEDULE

The Consultant shall submit the reports in the following schedule:

- 1) The Work Plan shall be submitted no later than [one (1) week] after the signing of the Contract and shall cover all proposed survey works;
- 2) The draft Environmental Survey Report shall be submitted no later than [three (3) weeks] after implementation of survey.

The Final Reports shall be submitted no later than [two (2) weeks] after receiving review comments from the Client. The Survey will be completed only after the Client has issued the final approval of the Reports as described in the previous section.

7. OTHERS

The Consultant shall conduct all necessary investigation and allocate all required equipment, labors and supervision, materials, consumables, transportation, accommodation, technical and professional service and all other works and services contained in the above scope of work, and shall perform all operations necessary and required for the satisfactory performance of the work. Transportation of equipment to/from the job site, and local transportation in [El Rosario (DM)] and within the job site, is the responsibility of the Consultant.

8. EVALUATION CRITERIA FOR CONSULTANTS

Evaluation Item	Evaluation Contents
Experience and capability of company	<ul style="list-style-type: none"> - Experience in soil studies of polluted areas (preferably landfills) in the last 5 years: 3 projects or more. - Availability to use the necessary equipment to perform the required borings with certified calibration, including. - Ability to perform standard penetration test, in situ permeability, hydraulic transmissivity.
Experience and capability of engineer in charge	<ul style="list-style-type: none"> - Experience in soil studies in rural areas in the last 3 years. - Educational record and qualifications (degree, title).
Project implementation structure	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation system that can be completed within the required time frame without difficulty.
Project implementation schedule	<ul style="list-style-type: none"> - To be discussed according to the required project schedule.
Project implementation cost	<ul style="list-style-type: none"> - Whether the cost estimate is reasonable.

Landfill Calculation Sheet for New FDS in El Rosario (DM), San Juan Province

1. Calculation for Waste Volume
2. Calculation for Landfill Area

1. Waste Volume

Population	person	[1]	182,808
Unit Waste Volume	kg/capita/day	[2]	0.775
Waste Volume-d	t/day	[3]=[1]*[2]/1000	141.676
			142

2. Landfill Area

Waste Volume-d	t/d	[1]	142
Waste Volume-y	t/yr	[2]=[1]x365	51,830
Unit Weight	t/m ³	[3]	0.6
Landfill Volume-d (LV-d)	m ³ /d	[4]=[1]/[3]	237
Landfill Volume-y (LV-y)	m ³ /y	[5]=[2]/[3]	86,383
LF-d inc. Cover Soil	m ³ /d	[6]=[4]x1.3	308
LV-y inc. Cover soil	m ³ /y	[7]=[5]x1.3	112,298
Operation Period	y	[8]	20
LV-t inc. Cover soil	m ³	[9]=[7]x[8]	2,245,967
	m ³	Round up of [9]	2,246,000
Landfill Height	m	[10]	15
Landfill Area	ha	[11]=[9]/[10]/10000	15.0
Facility coefficient	-	[12]	1.4
Facility area	ha	[13]=[11]*[12]	21.0

Scope of Works and Technical Specifications for the Basic Design of Rehabilitation and Closure of the Existing Final Disposal Site

Attached is a draft form of the following Scope of Works and Technical Specifications for the basic design of rehabilitation and closure of existing final disposal site.

It can be used for other projects by modifying the letters [] in the form.

1. Scope of Works and Technical Specifications for Basic Design
2. Scope of Works and Technical Specifications for Topographic Survey
3. Scope of Works and Technical Specifications for Geological Survey

**SCOPE OF WORKS AND TECHNICAL SPECIFICATIONS
FOR
The Project for Institutional Capacity Development on Nation-wide Solid
Waste Management in Dominican Republic
[Basic Design]**

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8. SUB-CONSULTANT EVALUATION CRITERIA FOR BASIC DESIGN	6

1. GENERAL

This scope of work and technical specifications detailed herein will be applied to a series of basic designs ("the Basic Design") to be conducted for a existing final disposal site] of approximately [10 hectares] located within [El Pinar (DM), San José de Ocoa Province], Dominican Republic.

The execution of design works together with methodology necessary to achieve the objectives of the Basic Design shall be prepared by a specialized Sub-Consultant having sufficient expertise, experience, and capacity to undertake the Basic Design in accordance with international and local standards, as previously approved by the Client.

2. OBJECTIVE

The purpose of this contract is to carry out the [basic design] for rehabilitation and closure of the existing final disposal site (dumping site) in [El Pinar (DM), San José de Ocoa].

3. RESPONSIBILITY OF THE SUB-CONSULTANT

The Sub-Consultant shall be responsible to carry out all works necessary to complete the design works and services described in this specification ("the Works") in accordance with the Contract, including, but not necessarily limited to, the following:

- 1) Provision of the necessary numbers of experienced and qualified civil engineers, architects and electrical engineers, and supervisors as may be required for the implementation of the Basic Design;
- 2) Procurement, use and maintenance of equipment and tools for the Basic Design, including, among others, personal computer and programs equipment;
- 3) Provision of transportation, and the operation and maintenance of all equipment and vehicles to be used for the site visits required for Basic Design;
- 4) Provision and use of officially licensed software for the Basic Design, including MS-Word/Excel and AUTOCAD; and
- 5) Procurement of any necessary authorizations and approvals required for the implementation of the Basic Design.

4. SCOPE OF WORKS

The Sub-Consultant shall undertake the Basic Design using only licensed civil engineers, architect and electrical engineers, and/or supervisors.

4.1 BASIC DESIGN [REHABILITATION AND CLOSURE]

The details and requirements of the Basic Design are described as follows:

- 1) Site visit: The site visit is conducted based on surveyed topographic maps (scale [1/1000]) or commercially available topographic maps (scale [1/2500] or larger) to understand the existing conditions (topography, rivers, roads, houses, surrounding facilities, land use, water use, etc.).
- 2) Storage structure planning and landfill development planning: The storage structure and landfill development shape should be considered according to the required landfill volume. Based on the results of the geological survey, the strength of the foundation ground for the structures shall be confirmed. For the landfill development plan, examine longitudinal and transverse sections at [100m] intervals so that the quantities of earthworks and facilities can be calculated.
- 3) Planning of leachate collection and drainage facilities and regulating reservoirs: The amount of leachate is calculated based on the amount of rainfall at the final disposal site, and the layout and structure of leachate collection and drainage facilities and regulating reservoirs are studied.
- 4) Planning of rainwater collection and drainage facilities: The amount of rainwater runoff is calculated based on the amount of rainfall at the final disposal site, and the layout and structure of rainwater collection and drainage facilities are studied.
- 5) Planning of gas venting facilities: Consider the layout and structure of gas venting facilities needed to keep the landfill waste in an aerobic atmosphere as much as possible and to promote decomposition and stabilization of the landfill waste.
- 6) Other facility planning: Other miscellaneous such as gate and fence, etc. required for the final disposal site shall be considered, and layout plans and standard structural drawings shall be prepared.
- 7) Preparation of basic design drawings: Based on the results of the above study, the following basic design drawings shall be prepared.
 - a. Layout plans of the final disposal facilities.
 - b. Typical FDS cross sections
 - c. Cut and fill plans of the waste area.
 - d. Longitudinal and cross sections of the SDF.
 - e. Standard structural drawings of storage structures.
 - f. Internal road plans, typical cross sections (including pavement structure).
 - g. Leachate collection and drainage facility and gas treatment facility layout plans, standard structural drawings.
 - h. Layout plans of rainwater collection and drainage facility and standard structural drawings.
 - i. Leachate regulation reservoir design plans, standard structural drawings.
 - j. Overall plans and typical sections of buffer zones.
 - k. General structural plans and drawings of the security facility (gate and fence) and waste scattering prevention structure.

- 8) Preparation of quantity calculation sheet: Calculate the quantity of construction works for the final disposal facilities compiled in the basic design drawings.
- 9) Calculation of estimated construction cost: Estimated construction cost shall be calculated based on the statement of quantities. For materials, equipment, and labor unit prices necessary to calculate the construction cost, refer to the standard unit prices of the subject municipality or quotations from suppliers.
- 10) Quantities for Basic Design

Item	Description	Qty	Unit	Remarks
1	Preparation and site visit	1	LS	
2	Study and Planning for basic design	1	LS	
3	Drawings (approx. [30] drawings)	1	LS	
4	Quantities	1	LS	
5	Estimated cost of the project	1	LS	
6	Final Report Processing	1	Set	

4.2 REPORTING

The Sub-Consultant shall submit to the Client the following documents referring to the Basic Design:

- 1) Work Plan: The Work Plan shall include the following information:
 - General explanation of the proposed work methodology, including engineers, equipment, and software to be used;
 - Proposed design procedures and detailed time schedule for completing the design works; and
 - Names and contact information of responsible persons and all related persons assigned to the design. Curriculum Vitae of Staff should be submitted in the proposal.
- 2) Basic Design Report: The Basic Design Report shall include, but not necessarily be limited to, the following contents:
 - General description of the Works, including location map of the new final disposal site, referenced to National Grid;
 - Description of the conditions, design process and results of the basic design, including a description and source of the criteria, standards and reference data used in the design study; and
 - Design drawings prepared based on the design study.
 - Calculation of quantities and cost estimation.

5. DELIVERABLES

The Sub-Consultant shall submit to the Client the following documents in English.

- 1) Work Plan: [one (1) physical copy] and digital version.
- 2) Draft Basic Design Report: [one (1) physical copy] and digital version.
- 3) Basic Design Report: [one (1) physical copy] and digital version in editable format, exported into the programs mentioned in section 3.

The required contents of each report have been described above in the earlier sections. The above reports shall be submitted as sets of draft report at first. After receiving review comments and approval, these shall be finalized and submitted to the Client.

6. WORK SCHEDULE

Proposals and/or quotations to perform this work will be received no later than March 10, 2023. They will be evaluated based on the offered price and the company's experience. The result will be notified via e-mail no later than March 17, 2023.

After the contract award, the Sub-Consultant shall submit the reports in the following schedule:

- 1) The Work Plan shall be submitted no later than [one (1) week] after the signing of the Contract and shall cover all proposed design works;
- 2) The draft Basic Design Report shall be submitted no later than [one (1) weeks] after the completion of the Basic Design;

The Final Reports shall be submitted no later than [two (2) weeks] after receiving review comments from the Client. The Basic Design will be completed only after the Client has issued the final approval of the Reports as described in the previous section.

7. OTHERS

The Sub-Consultant shall conduct all necessary design study (and approval procedures if required), survey and allocate all required equipment, labors and supervision, materials, consumables, transportation, accommodation, technical and professional service and all other works and services contained in the above scope of work and shall perform all operations necessary and required for the satisfactory performance of the work. Transportation of equipment to/from the job site, and local transportation in El Pinar, San José de Ocoa, and within the job site, is the responsibility of the Sub-Consultant.

8. SUB-CONSULTANT EVALUATION CRITERIA FOR BASIC DESIGN

Evaluation Item	Evaluation Contents
Experience and capability of company	<ul style="list-style-type: none"> - Experience in Sanitary Design for the past 5 years: 3 sanitary projects or more. - Civil 3D (preferable) and AutoCAD licenses. - Number of employees (engineers and CAD operators).
Experience and capability of engineer in charge	<ul style="list-style-type: none"> - Experience in Sanitary Designs for the past 10 years: 5 sanitary projects or more. - Civil 3D (preferable) and AutoCAD skills. - Capacity to calculate estimate cost for civil works. - Educational record and qualifications of engineers.
Project implementation structure	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation system that can be completed within the required time frame without difficulty.
Project implementation schedule	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation schedule that can be completed within the required time frame without difficulty.
Project implementation cost	<ul style="list-style-type: none"> - Whether the cost estimate is reasonable.

**SCOPE OF WORKS AND TECHNICAL SPECIFICATIONS
FOR
The Project for Institutional Capacity Development on Nation-wide
Solid Waste Management in Dominican Republic Phase 2
[Topographic Survey]**

1. GENERAL

This scope of works and technical specifications detailed herein will be applied to a series of surveys (“the Survey”) to be conducted in the existing solid waste disposal site ([El Pinar, San José de Ocoa]) with an approximate area of [10.0 ha].

The execution of the Survey together with the methodology necessary to achieve the objectives of the study shall be prepared by a specialized Consultant having sufficient expertise and capacity to undertake the Survey in accordance with international standards, as approved by the JICA Project Team.

2. OBJECTIVE

The Survey is to be carried out with the aim of providing basic data to permit the pilot plan for rehabilitation and closure of the existing solid waste disposal site (El Pinar, San José de Ocoa).

3. RESPONSIBILITY OF THE CONSULTANT

The Consultant shall be responsible to carry out all works necessary to complete the physical surveys and services described in this specification (“the Works”) in accordance with the Contract, including, but not necessarily limited to, the following:

- 1) Provision of the necessary numbers of experienced and qualified geologists, hydrogeologists, engineers, environmental specialists, surveyors and supervisors as may be required for the implementation of the Survey;
- 2) Procurement and use of appropriate equipment, surveying tools and sampling equipment for the Survey, including but not necessarily limited to total station survey equipment, drilling rig, water samplers, and water quality laboratory testing equipment;
- 3) Provision of transportation, and the operation and maintenance of all equipment and vehicles to be used for the Survey;
- 4) Provision and use of officially licensed software for the Survey, including MS-Word/Excel and Auto CAD;
- 5) Procurement of any necessary authorizations and approvals required for the implementation of the Survey; and
- 6) Calibration of all survey equipment and laboratory testing apparatus prior to use. The record of processes of survey, test, and analysis, such as the date, equipment settings and conditions, calibration records and original charts shall be maintained by the Consultant and submitted

to the JICA Project Team for quality control purposes. If it becomes necessary, the Consultant shall be responsible for checking any anomalous results by re-surveying or re-testing, as directed by the JICA Project Team.

4. SCOPE OF WORKS

The Consultant shall undertake the Topographic Survey using only licensed (topographic) surveyors.

4.1 Existing Solid Waste Disposal Site (El Pinar, San José de Ocoa)

The details and requirements of the topographic survey are described as follows:

- 1) The survey shall consist of ground control survey and leveling survey, with sufficient data points acquired to prepare appropriate and accurate topographic maps, longitudinal profiles and cross-sections;
- 2) The legend and symbols used in the map shall follow National Standard. National coordinates and an elevation system referenced to mean sea level shall also be applied to the survey and mapping;
- 3) [Three (3)] permanent bench marks shall be established at the site on a stable point, at locations to be agreed with the JICA Project Team. Bench marks shall be constructed to ensure permanency and shall be referenced to national grid and mean sea level;
- 4) A total station survey shall be undertaken for the whole of the whole disposal site and for adjacent contiguous areas, as determined by the JICA Project Team and advised on-site. For the purpose of planning the work, it should be assumed that the survey will extend to [10 ha];
- 5) Mapping shall be done to a scale of [1/1,000] or other appropriate scale, as may be directed by the JICA Project Team;
- 6) Sufficient survey points shall be recorded in order to establish accurate contours of the surface of the site and survey area, at intervals of not greater than 1.0 m vertical spacing;
- 7) All existing features shall be picked up and delineated on the plans and sections to be prepared. These shall include any physical structures, such as dumped waste, buildings, roads, fences, culverts, as well as stream courses, springs and trees; and
- 8) The boundary of the deposited waste with bedrock shall be surveyed and delimited accurately on the survey plans.
- 9) The Surveyor in charge shall investigate in the Land Court the status of the title of the land within the study area, in order to recommend the process required for the municipality to execute the subsequent works related to the rehabilitation and closure.

4.2 Reporting

The Consultant shall submit to the JICA Project Team the following documents pertaining to the Topography Survey:

- 1) Work Plan: The Work Plan shall include the following information:
 - General explanation of the proposed work methodology, inclusive of surveyors, equipment, and software to be used;
 - Proposed survey procedures and detailed time schedule for completing the survey works; and
 - Names and contact points of responsible persons and all related persons assigned to the survey.

- 2) Topographic Survey Report: The Survey Report shall include, but not necessarily be limited to, the following contents:
 - General description of the Works, including location map of the survey site and area surveyed, referenced to National Grid;
 - Description of the methodology of the survey works, including details of the resources actually deployed on-site;
 - Contoured topographic survey plan of the whole area surveyed, including all surface details and the area occupied by old waste;
 - Five (5) No. long/cross-section profiles, or other number to be agreed with the JICA Project Team, at equal spacing across the surveyed area, approximately from north to south;
 - Five (5) No. cross-sections profiles, or other number to be agreed with the JICA Project Team, at equal spacing across the surveyed area, approximately from east to west;
 - CAD files of the plans, long profiles and cross-sections; and
 - Photographic documentation detailing the survey activities.

- 3) Legal status survey: Report of results of investigation on the Land Court about legal status of land (all portions and owner).

5. DELIVERABLES

The Consultant shall submit to the JICA Project Team the following documents in English and Spanish.

- 1) Work Plan: [two (2)] copies and digital;
- 2) Topography Survey Report: [three (3)] copies and digital;
- 3) Legal status of the land survey: [two (2)] copies and digital;

The required contents of each report have been described above in the earlier sections. The above reports shall be submitted as sets of draft report at first. The reports, after receiving review comments and approval, shall be finalized and submitted to the JICA Project Team.

6. WORK SCHEDULE

Proposals to carry out this work will be received no later than March 10, 2023. It will be evaluated based on the price offered and the experience of the company. The result will be notified via email no later than March 17, 2023.

After the contract is awarded, the Consultant shall submit the reports in the following schedule:

- 1) The Work Plan shall be submitted no later than [one (1) week] after the signing of the Contract and shall cover all proposed survey works;
- 2) The draft Topographic Survey Report shall be submitted no later than [three (3) weeks] after the approval of the Work Plan;
- 3) The Legal information about Land shall be submitted no later than [four (4) weeks] after the approval of Work Plan;

The Final Reports shall be submitted no later than [two (2) weeks] after receiving review comments from the JICA Project Team. The Survey will be completed only after the JICA Project Team has issued the final approval of the Reports as described in the previous section.

7. OTHERS

The Consultant shall conduct all necessary investigation and furnish all required equipment, labors and supervision, materials, consumables, transportation, accommodation, technical and professional service and all other works and services contained in the above scope of work and shall perform all operations necessary and required for the satisfactory performance of the work. Transportation of equipment to/from the job site, and local transportation in [Ocoa City] and within the job site, is the responsibility of the Consultant.

8. EVALUATION CRITERIA FOR CONSULTANTS

Evaluation Item	Evaluation Contents
Experience and capability of company	<ul style="list-style-type: none"> - Experience in topographic surveys using electronic and satellite tools. - Current AutoCAD license or similar program (to be discussed). - Equipment with certified calibration, including Total Station and any other required to perform planimetric and altimetric surveys and place fixed reference points (BM).
Experience and capability of engineer in charge	<ul style="list-style-type: none"> - Experience in surveying in rural areas. - Civil 3D (preferred) and AutoCAD skills. - Ability to calculate volumetry from altimetric survey and geodetic mesh. - Educational record and qualifications (degree, title).
Project implementation structure	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation system that can be completed within the required time frame without difficulty.
Project implementation schedule	<ul style="list-style-type: none"> - To be discussed according to the required project schedule.
Project implementation cost	<ul style="list-style-type: none"> - Whether the cost estimate is reasonable.

**SCOPE OF WORKS AND TECHNICAL SPECIFICATIONS
FOR
The Project for Institutional Capacity Development on Nation-wide
Solid Waste Management in Dominican Republic Phase 2
[Geological Survey]**

1. GENERAL

This scope of works and technical specifications detailed herein will be applied to a series of surveys (“the Survey”) to be conducted in the existing solid waste disposal site **[El Pinar, San José de Ocoa]** with an approximate area of [10.0 ha].

The execution of the Survey together with methodology necessary to achieve the objectives of the study shall be prepared by a specialized Consultant having sufficient expertise, experience and capacity to undertake the Survey in accordance with international standards, as approved by the JICA Project Team.

2. OBJECTIVE

The Survey is to be conducted with the aim of providing basic data to permit the pilot plan for rehabilitation and closure of existing solid waste disposal site [El Pinar, San José de Ocoa].

3. RESPONSIBILITY OF THE CONSULTANT

The Consultant shall be responsible to carry out all works necessary to complete the physical surveys and services described in this specification (“the Works”) in accordance with the Contract, including, but not necessarily limited to, the following:

- 1) Provision of the necessary numbers of experienced and qualified geologists, hydrogeologists, engineers, environmental specialists, surveyors and supervisors as may be required for the implementation of the Survey;
- 2) Procurement and use of appropriate equipment, surveying tools and sampling equipment for the Survey, including but not necessarily limited to drilling rig, soil samplers, and soil quality laboratory testing equipment;
- 3) Provision of transportation, and the operation and maintenance of all equipment and vehicles to be used for the Survey;
- 4) Provision and use of officially licensed software for the Survey, including MS-Word/Excel and CAD;
- 5) Procurement of any necessary authorizations and approvals required for the implementation of the Survey; and

- 6) Calibration of all survey equipment and laboratory testing apparatus prior to use. The record of processes of survey, test, and analysis, such as the date, equipment settings and conditions, calibration records and original charts shall be maintained by the Consultant and submitted to the JICA Project Team for quality control purposes. If it becomes necessary, the Consultant shall be responsible for checking any anomalous results by re-surveying or re-testing, as directed by the JICA Project Team.

4. SCOPE OF WORKS

The Consultant shall undertake the Geological Survey using only licensed engineers.

4.1 Existing Solid Waste Disposal Site (El Pinar, San José de Ocoa)

The details and requirements of the geological survey are described as follows:

1) Borehole drilling

Borehole points will be conducted at [2 points] in the project area. The exact points of the boreholes will be instructed by the Consultant before the commencement of the survey. the depth will be assumed [30m] per point.

2) Standard Penetration Test (SPT)

The SPT shall be carried out in accordance with ASTM D1586. The SPT shall be performed at every 1.0 m intervals except for the depth of undisturbed sampling.

3) Undisturbed Sampling

Undisturbed sampling shall be carried out in accordance with ASTM D 1587 or equivalent.

4) In Situ Permeability Test

The SPT shall be carried out in accordance with ASTM D4631 or equivalent.

5) Laboratory Test

- | | |
|------------------------------|-------------|
| • Specific Gravity | ASTM D 854 |
| • Natural Moisture | ASTM D 2216 |
| • Particle Size Distribution | ASTM D 422 |
| • Atterberg limits | ASTM D 4318 |
| • Unconfined Compression | ASTM D 4543 |
| • Consolidation | ASTM D 2435 |

6) Observation well

Establish 2 observation wells which are used drilled bore hall.

7) Reporting

The survey report shall be prepared in English, in proper forms. The report shall include the followings:

- Evaluation of the survey results
- Actual location of the boreholes,

- Borehole Logs,
- Photograph of drilling core samples,
- Geological profile,
- Daily drilling report, and
- Laboratory Soil Test results

4.2 Bill of Quantities for Geological Survey

Item	Description	Unit	Qty	Unit Price	Amount
				(USD)	(USD)
1	Preparation work	Set	[1]		
2	Boring works				
	1) Installation of equipment	Set	[2]		
	2) Borehole drilling	m	[60]		
	3) Standard penetration test (SPT)	Set	[6]		
	4) Undisturbed Sampling	Set	[6]		
	5) Permeability test	Set	[12]		
	6) Observation well	Set	[2]		
3	Laboratory test				
	1) Specific Gravity	Set	[90]		
	2) Particle-size analysis	Set	[90]		
	3) Moisture content	Set	[90]		
	4) Atterberg limits	Set	[90]		
	5) Consolidation	Set	[6]		
	7) Uniaxial compressive strength	Set	[6]		
4	Final report	Set	[1]		
5	Storing of the boxed samples	Year	[2]		
Total amount (USD)					
Commercial Tax					
Grand Total Amount (USD)					

4.3 Reporting

The Consultant shall submit to the JICA Project Team the following documents pertaining to the Geological Survey:

- 1) Work Plan: The Work Plan shall include the following information:
 - General explanation of the proposed work methodology, inclusive of surveyors, equipment, and software to be used;

- Proposed survey procedures and detailed time schedule for completing the survey works; and
 - Names and contact points of responsible persons and all related persons assigned to the survey.
- 2) Geological Survey Report: The Survey Report shall include, but not necessarily be limited to, the following contents:
- General description of the Works, including location map of the survey site and area surveyed, referenced to National Grid;
 - Description of the methodology of the survey works, including details of the resources deployed on-site;
 - Geological survey plan of the whole area surveyed, including all geological details and the area occupied by old waste;

5. DELIVERABLES

The Consultant shall submit to the JICA Project Team the following documents in English and Spanish.

- 1) Work Plan: [two (2) copies] and digital;
- 2) Geological Survey Report: [three (3) copies] and digital;

The required contents of each report have been described above in the earlier sections. The above reports shall be submitted as sets of draft report at first. The reports, after receiving review comments and approval, shall be finalized, and submitted to the JICA Project Team.

6. WORK SCHEDULE

Proposals to carry out this work will be received no later than March 10, 2023. It will be evaluated based on the price offered and the experience of the company. The result will be notified via email no later than March 17, 2023.

After the contract is awarded, the Consultant shall submit the reports in the following schedule:

- 1) The Work Plan shall be submitted no later than [one (1) week] after the signing of the Contract and shall cover all proposed survey works;
- 2) The draft Geological Survey Report shall be submitted no later than [Four (4) weeks] after the approval of the Work Plan;

The Final Reports shall be submitted no later than [two (2) weeks] after receiving review comments from the JICA Project Team. The Survey will be completed only after the JICA Project Team has

issued the final approval of the Reports as described in the previous section.

7. OTHERS

The Consultant shall conduct all necessary investigation and furnish all required equipment, labors and supervision, materials, consumables, transportation, accommodation, technical and professional service and all other works and services contained in the above scope of work and shall perform all operations necessary and required for the satisfactory performance of the work. Transportation of equipment to/from the job site, and local transportation in [Ocoa City] and within the job site, is the responsibility of the Consultant.

8. EVALUATION CRITERIA FOR CONSULTANTS

Evaluation Item	Evaluation Contents
Experience and capability of company	<ul style="list-style-type: none"> - Experience in soil studies of polluted areas (preferably landfills) in the last 5 years: 3 projects or more. - Availability to use the necessary equipment to perform the required borings with certified calibration, including. - Ability to perform standard penetration test, in situ permeability, hydraulic transmissivity.
Experience and capability of engineer in charge	<ul style="list-style-type: none"> - Experience in soil studies in rural areas in the last 3 years. - Educational record and qualifications (degree, title).
Project implementation structure	<ul style="list-style-type: none"> - Whether it is possible to establish an implementation system that can be completed within the required time frame without difficulty.
Project implementation schedule	<ul style="list-style-type: none"> - To be discussed according to the required project schedule.
Project implementation cost	<ul style="list-style-type: none"> - Whether the cost estimate is reasonable.



Alcaldía del Municipio de San José de Ocoa

Calle Andrés Pimentel esq. Duarte

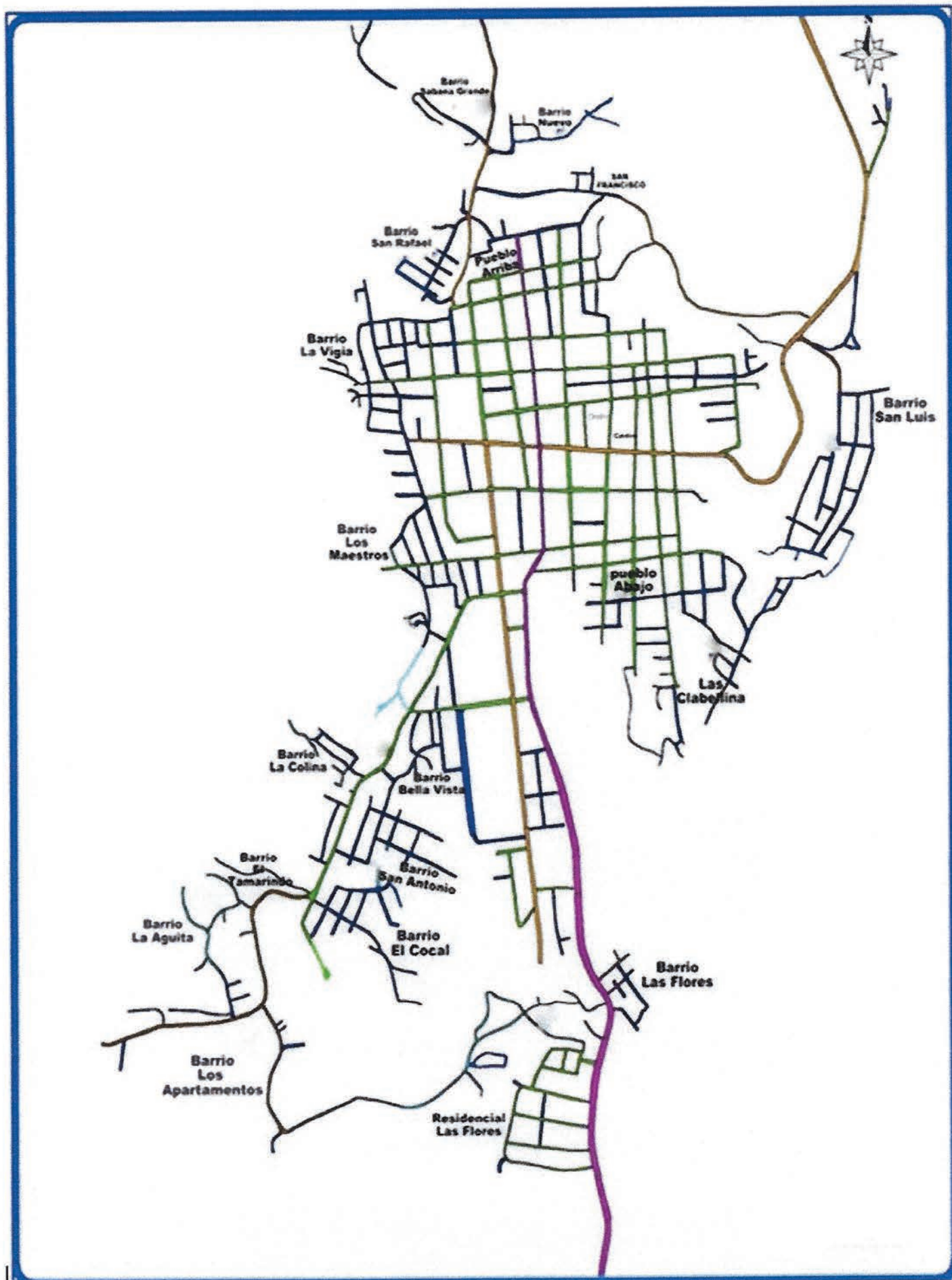
Tel.: 809-558-2202 – Tele-Fax.: 809-558-2225
Servicio de Manejo de Residuos Sólidos

Informe Estimación de Generación de Residuos Sólidos Urbanos Domiciliarios Municipales (Diciembre 2021)

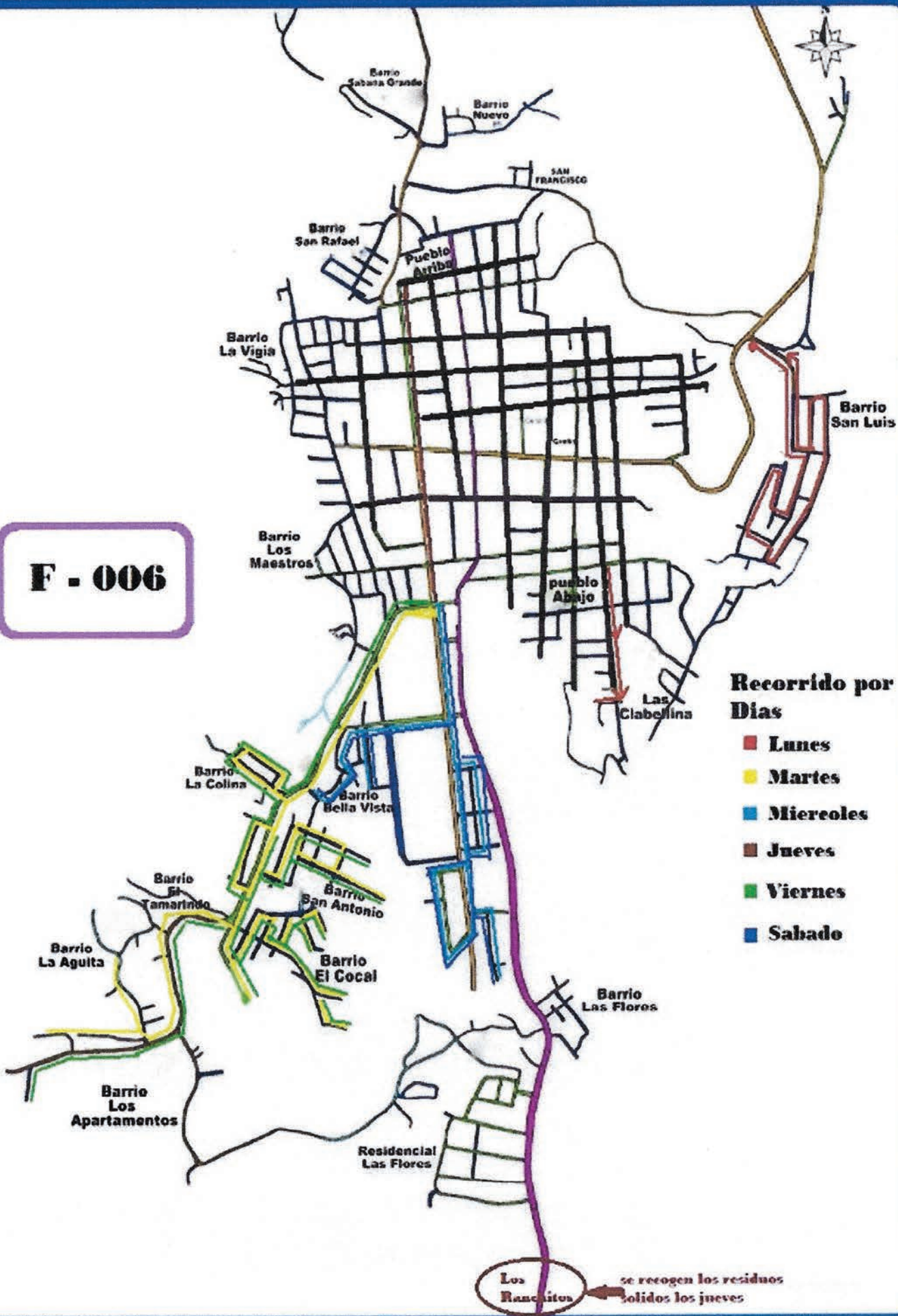
No se ha realizado un levantamiento exacto sobre la cantidad de residuos sólidos urbanos que genera el Municipio; sin embargo basándonos en el tonelaje de cada camión recolector y en los viajes que cada uno realiza al vertedero, podemos determinar de forma aproximada la cantidad de residuos que cada día se recogen.

Fecha	SERVICIO DE RECOLECCIÓN (Cálculo de tonelaje de residuos sólidos recogidos en todo el municipio)				
	Carga útil del camión recolector	Número de viajes por jornada	Toneladas recogidas diariamente	Toneladas recogidas semanalmente	Toneladas recogidas mensualmente
F-006	3.3 Toneladas	4	13.2	79.2	316.8
F-007	3.3 Toneladas	4	13.2	79.2	316.8
F-008	3.5 Toneladas	4	14	84	336
F-009	3.5 Toneladas	4	14	84	336
F-010	3.5 Toneladas	4	14	84	336
F-016	3 Toneladas	4	12	72	288
F-017	3 Toneladas	4	12	72	288
F-018	3 Toneladas	4	12	72	288
TOTALES.....		32	104.4	626.4	3,177.6

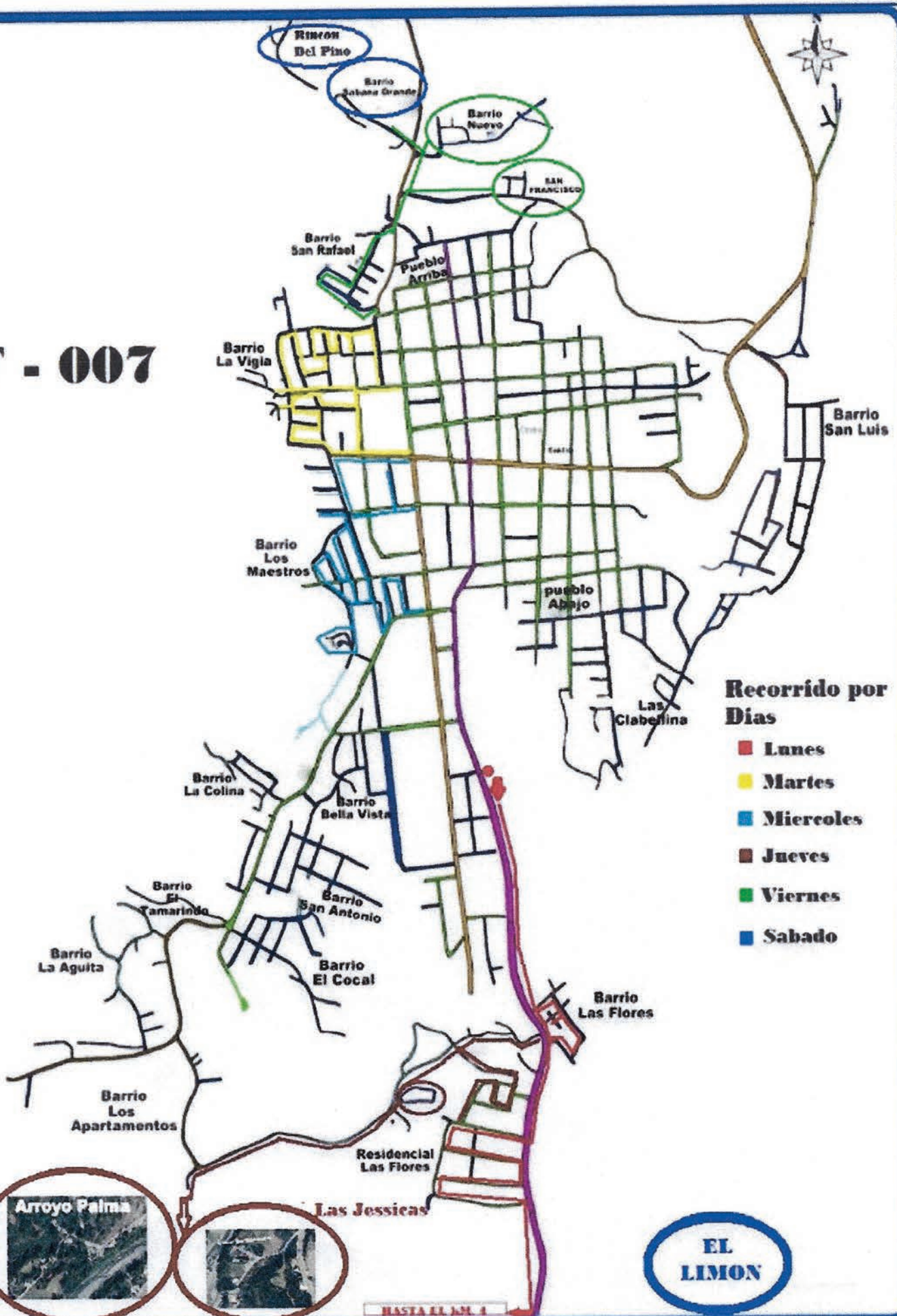

Jose Manuel Mateo Beltré (Negro)
 Director de Aseo Urbano



F - 006



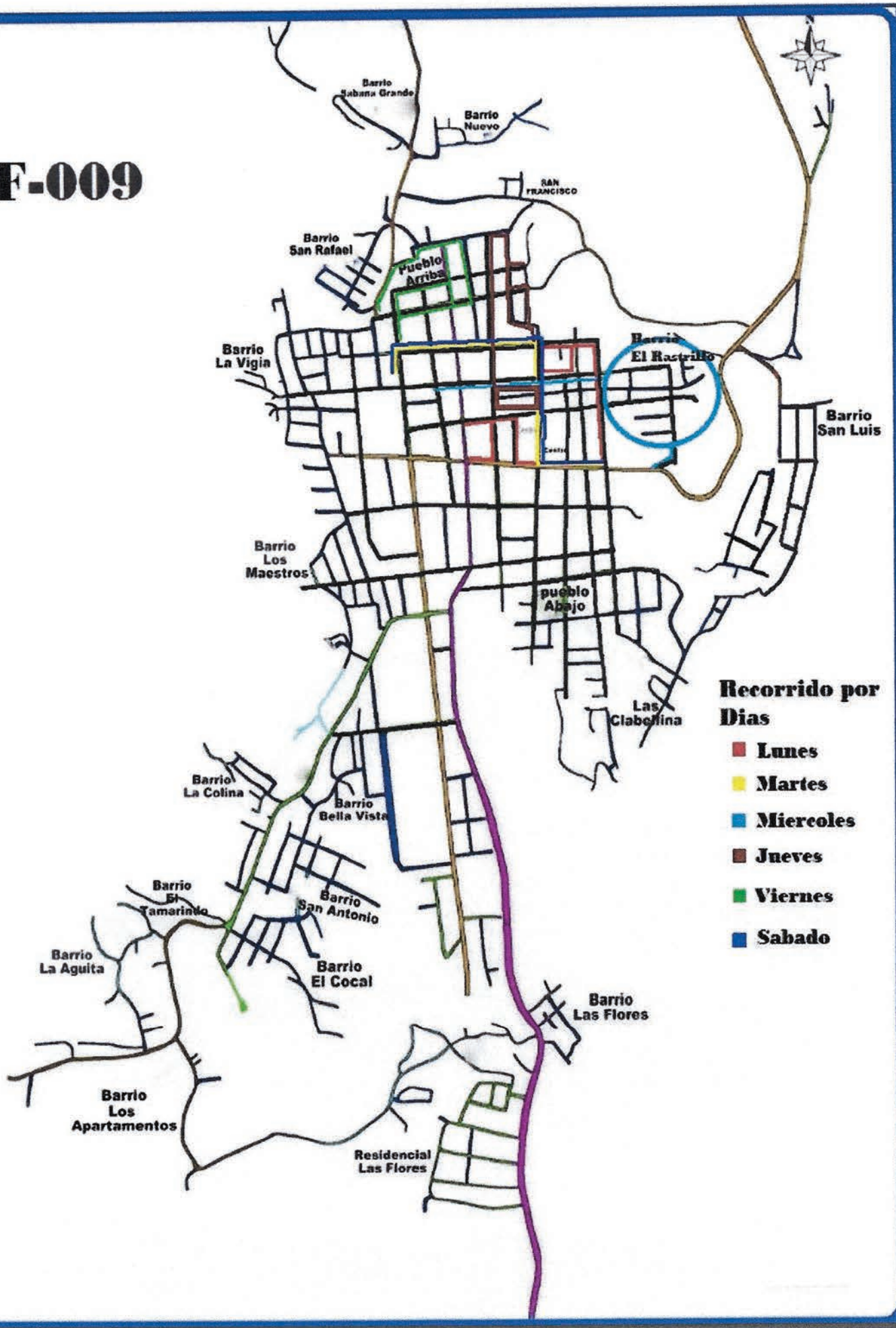
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EL LIMON

HASTA EL KM. 1

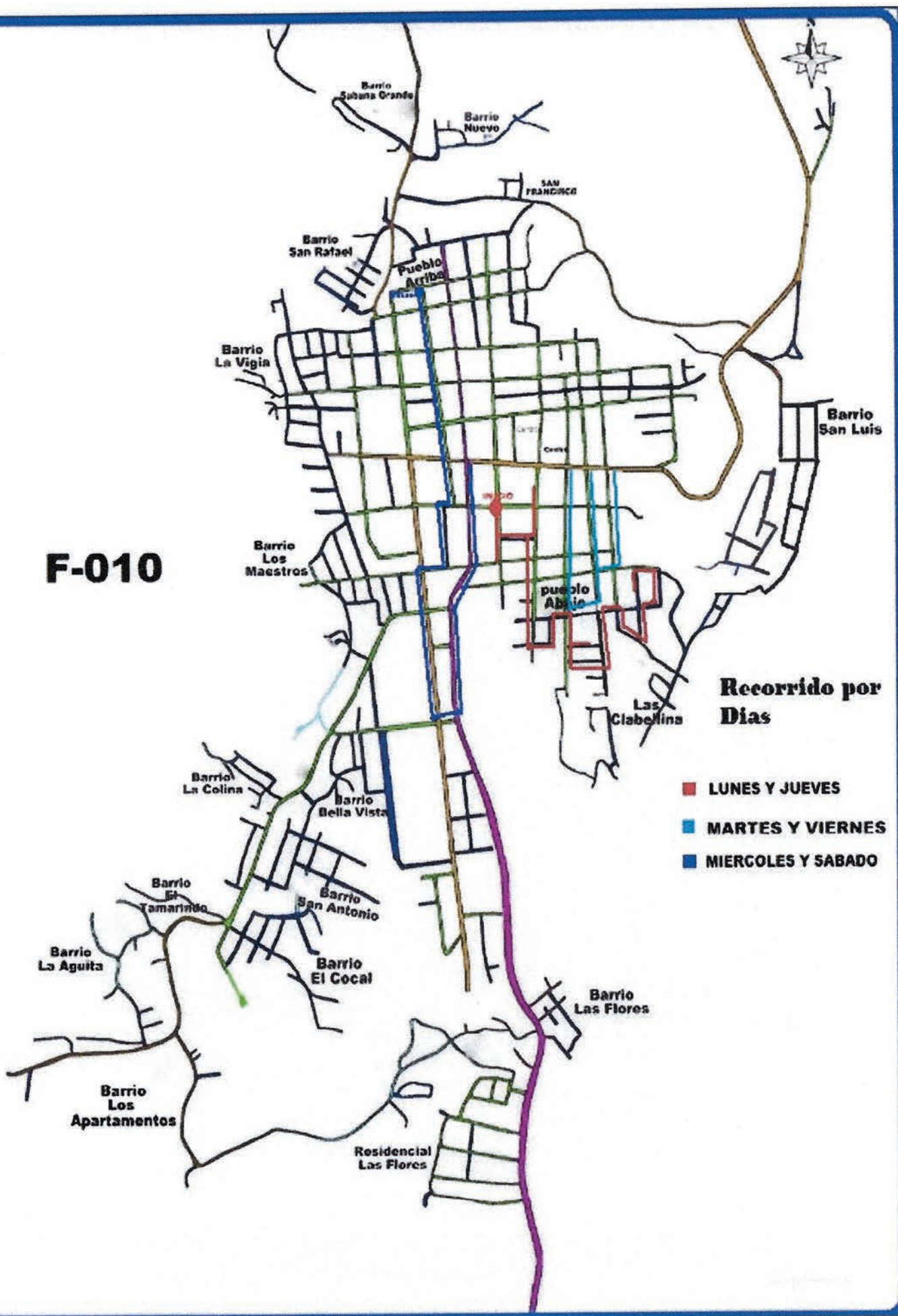
F-009



Recorrido por Dias

- **Lunes**
- **Martes**
- **Miércoles**
- **Jueves**
- **Viernes**
- **Sabado**

F-010



CONTROL DE DESECHOS SÓLIDOS QUE SE DEPOSITAN EN EL VERTEDERO DE SAN JOSÉ DE OCOA (VEHICULOS DE LOS AYUNTAMIENTOS) NÚMERO DE VIAJES Y M3 DEPOSITADOS POR VIAJE. (DEL 25/8/2022 AL 02/09/2022) Nota: Los días 27 y 28 /8/2022, no se realizó el control																			
Tipo de camión	ID. Del	Compac-tador	Camión		Camión		Camión		Camión		Camión		Camión						
			Ficha 16	Ficha 06	Ficha 07	Ficha 08	Ficha 09	Ficha 14	El Pinar	El Naranjal	Nizao	La Cienaga							
Capacidad	M3	TN	13.8 con los accesorios		13.8 con los accesorios		13.8 con los accesorios		13.8 con los accesorios		13.8 con los accesorios		13.8 con los accesorios						
Dias	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X					
		Dia		Dia		Dia		Dia		Dia		Dia		Dia					
25/08/2022	1	12	3	41.4	1	13.8	2	27.6	2	27.6	3	41.4	1	13.8	1	13.8	-	-	
26/08/2022	2	24	3	41.4	3	41.4	2	27.6	2	27.6	2	27.6	1	13.8	-	-	-	-	
29/08/2022	3	26	2	27.6	3	41.4	2	27.6	2	27.6	3	41.4	2	27.6	2	27.6	2	27.6	
30/08/2022	3	26	2	27.6	4	55.2	3	41.4	3	41.4	4	55.2	3	41.4	3	41.4	1	13.8	
31/08/2022	4	48	2	27.6	3	41.4	3	41.4	2	27.6	3	41.4	2	27.6	3	41.4	3	41.4	
01/09/2022	2	24	2	27.6	3	41.4	3	41.4	3	41.4	3	41.4	1	13.8	1	13.8	-	-	
02/09/2022	2	24	2	27.6	3	41.4	1	13.8	4	55.2	2	27.6	2	27.6	1	13.8	1	13.8	
Total de Viajes	17		16		20		15		18		20		12		10		8		1
Total de Toneladas	184		195.8		276		220.8		248.4		276		165.6		138		110.4		13.8

CONTROL DE DESECHOS SÓLIDOS QUE SE DEPOSITAN EN EL VERTEDERO DE SAN JOSÉ DE OCOA (VEHÍCULOS DE PARTICULARES) NÚMERO DE VIAJES Y M3 DEPOSITADOS POR VIAJE. (DEL 25/8/2022 AL 02/09/2022) Nota: Los días 27 y 28 /8/2022, no se realizó el control																			
Tipo de camión	Nombre de la Empresa	Camión		Camión		Camión		Camión		Camión		Camión							
		Polellera Estrella	Polellera Mirella	Pollera Colón	Pollera cibao	Nestico	Taller Ebanistería	Votes de escombros	Hospital	Barra Baco y la Cadena Camioneta	Votes de podas								
Capacidad	TN. M3	2.5		5		1.5		2.5		2.5		2.5		2		5		2.5	
		Estimación de carga transportada por viaje en M3 = 2		Estimación de carga transportada por viaje en M3 = 2		Estimación de carga transportada por viaje en M3 = 1.9		Estimación de carga transportada por viaje en M3 = 1.5		Estimación de carga transportada por viaje en M3 = 1.5		Estimación de carga transportada por viaje en M3 = 1.9		Estimación de carga transportada por viaje en M3 = 2		Estimación de carga transportada por viaje en M3 = 5		Estimación de carga transportada por viaje en M3 = 2	
Días		Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X	Viajes	M3. X
		Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día	Día
25/08/2022	1	2	1.9	1	1.9	-	-	-	-	1	1.9	-	-	-	-	-	-	-	-
26/08/2022	1	2	1.9	1	1.9	-	-	-	-	-	-	-	-	-	-	-	-	1	2
29/08/2022	1	2	1.9	1	1.9	1	1.5	2	3	1	1.9	1	1.9	-	-	-	-	-	-
30/08/2022	1	2	1.9	1	1.9	-	-	1	1.5	-	-	5	9.5	-	-	-	-	3	6
31/08/2022	2	4	3.8	2	3.8	2	3	2	3	2	2	-	-	1	5	-	-	-	-
01/09/2022	1	2	1.9	1	1.9	-	-	1	1.5	1	1.9	1	1.9	3	6	1	2	1	2
02/09/2022	1	2	1.9	1	1.9	-	-	-	-	1	1.9	1	1.9	2	4	1	2	1	2
Total de Viajes	8	7	8	3	4	5	9	1	5	5	6	17.1	5	5	6	10	10	10	10
Total de Toneladas	16	14	15.2	4.5	6	5	17.1	5	5	5	5	17.1	5	5	6	10	10	10	10

RESULTADOS DE LA MEDICIÓN VEHICULOS DE LOS AYUNTAMIENTOS (DEL 25/8/2022 AL 02/09/2022) Nota: Los días 27 y 28 /8/2022, no se realizó el control						
Tipo de residuos recolección directa	Tipo de vehículo	ID. Del vehículo	Capacidad en M3 *C	Densidad aparente *(M3)	Número de viajes realizados *V	Cantidad de residuos durante el tiempo de medición, en Toneladas (*C) X (*M3) X (*V)
Recolección	Compactador	Ficha 16	12	0.5	17	102
Recolección	Camión	Ficha 6	13.8	0.3	16	66.24
Recolección	Camión	Ficha 7	13.8	0.3	20	82.8
Recolección	Camión	Ficha 8	13.8	0.3	15	62.1
Recolección	Camión	Ficha 9	13.8	0.3	18	74.52
Recolección	Camión	Ficha 14	13.8	0.3	20	82.8
TOTAL DE TONELADAS VERTIDAS POR EL AYUNTAMIENTO DE SAN JOSÉ DE OCOA						470.46
Recolección	Camión	El Pinar	13.8	0.3	12	49.68
Recolección	Camión	El Naranjal	13.8	0.3	10	41.4
Recolección	Camión	Nizao	13.8	0.3	8	33.12
Recolección	Camión	La Cienaga	13.8	0.3	1	4.14
TOTAL DE TONELADAS VERTIDAS POR LOS DISTRITOS MUNICIPALES						128.61
TOTAL DE TONELADAS DE RESIDUOS DEPOSITADOS POR LOS AYUNTAMIENTOS						599.07

**RESULTADOS DE LA MEDICIÓN
VEHÍCULOS PARTICULARES
(DEL 25/8/2022 AL 02/09/2022)**

Nota: Los días 27 y 28 /8/2022, no se realizó el control

Tipo de residuos recolección directa	Tipo de vehículo	ID. Del vehículo	Capacidad en M3	*C	Densidad aparente *(M3)	Número de viajes realizados *V	Cantidad de residuos durante el tiempo de medición, en Toneladas (*C) X (*M3) X (*V)
Directa	Camión	Pollera Estrella	2		0.3	8	4.8
Directa	Camión	Pollera Mirella	1.9		0.3	7	3.99
Directa	Camión	Pollera Colón	1.5		0.3	8	3.6
Directa	Camión	Pollera Cibao	1.5		0.3	3	1.35
Directa	Camión	Nestico	1		0.3	4	1.2
Directa	Camión	Taller Ebanistería	1.9		0.3	5	2.85
Directa	Camión	Bote de Escombros	5		0.3	9	13.5
Directa	Camión	Hospital	1		0.3	1	0.3
Directa	Camioneta	Barra Baco y Super Cadena	2		0.3	5	3
Directa	Camión	Votes de Podas	10		0.3	6	15
TOTAL DE TONELADAS DE RESIDUOS DEPOSITADOS POR PARTICULARES							49.59

RESULTADO FINAL DE LA MEDICIÓN VOTES EN TONELADAS Y METROS CUBICOS (DEL 25/8/2022 AL 02/09/2022) <i>Nota: Los días 27 y 28 /8/2022, no se realizó el control</i>		
INSTITUCIÓN QUE VIERTE	VOTE EN TONELADAS	VOTE EN M3
AYUNTAMIENTO SAN JOSÉ DE OCOA	470.46	1401
AYUNTAMIENTO EL PINAR	49.68	165.6
AYUNTAMIENTO EL NARANJAL	41.4	138
AYUNTAMIENTO NIZAO	33.12	110.4
AYUNTAMIENTO LA CIENAGA	4.14	13.8
VEHICULOS DE PARTICULARES	49.59	102.8
TOTALES	648.39	1931.6

5: Cálculo de conversión a Tonelada:

A) **Compactadores**
 $\Rightarrow \text{Volumen(m}^3\text{)} \times \mathbf{0.5} \text{ (t/m}^3\text{)}$

B) **Camiones y Volteo abiertos**
 $\Rightarrow \text{Volumen(m}^3\text{)} \times \mathbf{0.3} \text{ (t/m}^3\text{)}$



**TOPOGRAPHIC SURVEY FOR REHABILITATION
AND CLOSURE OF THE FINAL SOLID WASTE
DISPOSAL SITE OF SAN JOSÉ DE OCOA**

TOPOGRAPHIC SURVEY REPORT

NKC-002-TO-INF-002-A



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

TOPOGRAPHIC SURVEY REPORT

NKC-002-TO-INF-002-A

CONTENT

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2. OBJETCT OF THE SURVEY	4
3. GENERAL DESCRIPTION OF THE WORKS PERFORMED	4
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Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

1. INTRODUCTION

As part of the activities of the **Project to Strengthen the Institutional Capacity for the Integral Management of Solid Waste at the national level in the Dominican Republic - Phase 2**, it has been required to carry out a topographic survey for the design works of the rehabilitation and closure of the existing final disposal site located in El Pinar, San José de Ocoa province.

For such purposes, TECNOAMBIENTE has been contracted for the services of topographical survey of the plot of approximately 10 hectares.

The image below shows the location of the disposal site, relative to San José de Ocoa, which is about 3 km southwest of the town center.

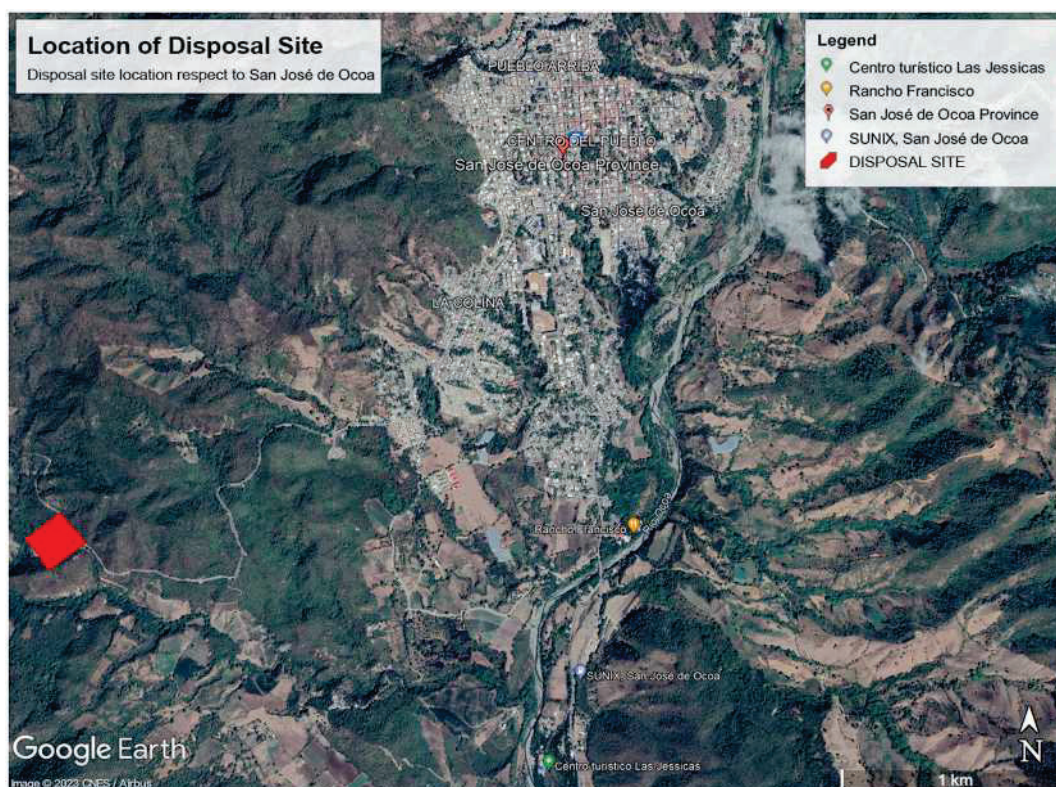


Image 1 Location of disposal site.



2. OBJETCT OF THE SURVEY

The main purpose of this survey is to obtain information on the terrain where solid urban waste deposit activities are currently carried out, in order to estimate the amount of existing waste and subsequently design the works required for its rehabilitation and closure.

3. GENERAL DESCRIPTION OF THE WORKS PERFORMED

From Jul 11, 2023, to Aug 9, 2023, the topographic survey was carried out on the plot corresponding to the final disposal site.

Field work was formally started on July 11, 2023, with a reconnaissance visit to the site to be surveyed by the topographic crew. During that visit, in conjunction with the Nippon Koei technical team, it was defined the location of the topographic control points that would be established to carry out the survey work. Three control points were placed using a monumented plate, as shown in the table below:

Table 1 Topographic control points

Control point	Easting (m)	Northing (m)	Elevation (m)	Description
PC-1	338575.771	2049491.293	526.303	Monumented plate
PC-2	338611.552	2049444.535	525.226	Monumented plate
PC-3	338519.541	2049559.829	524.110	Monumented plate

The following images show the process of determining the control points:



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.



Image 2 Identification of control point 1.



Image 3 Identification of control point 2.



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.



Image 4 Identification of control point 3.

After the definition and location of the control points, the topographic survey started. An altimetric survey of spaced points (grid type) was carried out. Subsequently, a survey of the structures was carried out: buildings, roads, gates, channels, drainage works, among others. The area occupied by the waste at the time of the survey was also surveyed. It was possible to estimate an average depth of approximately 1 m as thickness of solid waste, at the time of the survey.

During the topographic survey work, it was conducted a drone flight, to have aerial images that would allow a better perspective of the surveyed area. The image below shows the aerial photography taken with the drone, delimiting the surveyed contour.



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

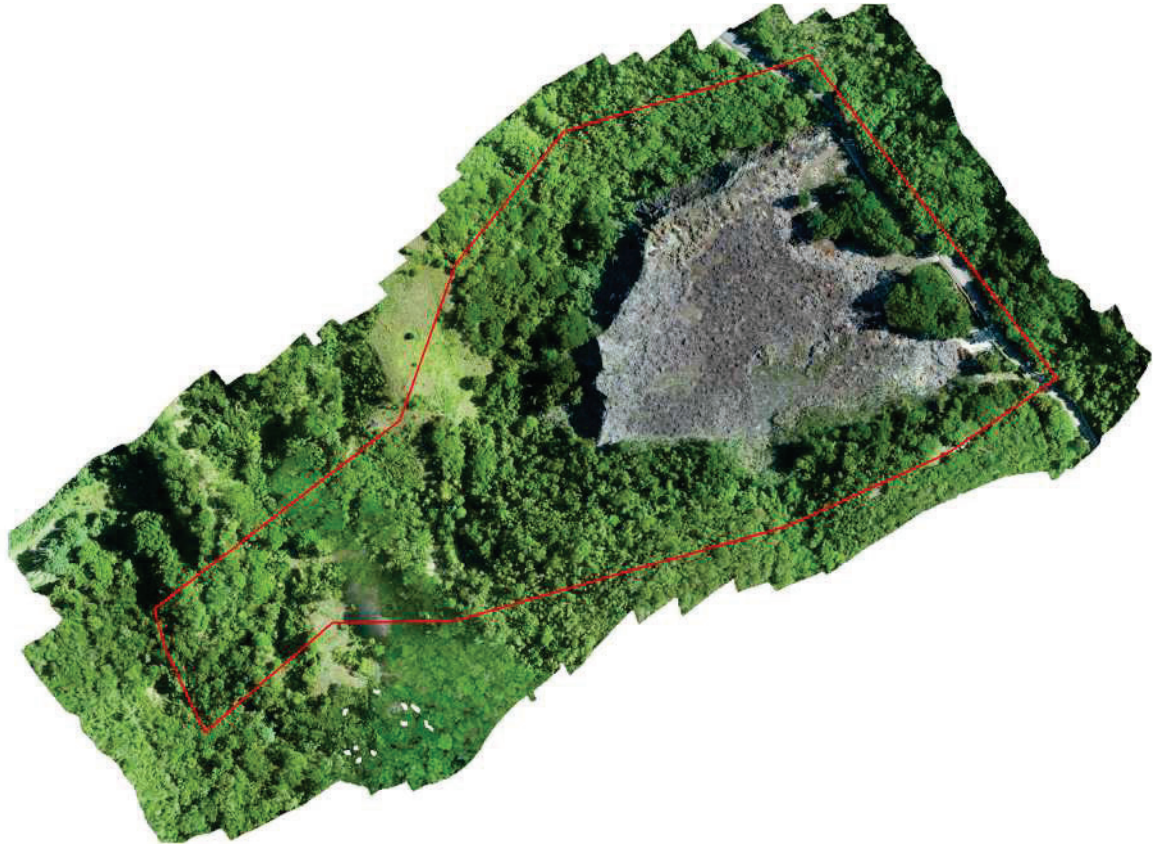


Image 5 Aerial foto with drone showing the final disposal site and surveyed contour.



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.



Image 6 Drone photos.

Once the survey work in the field was completed, the information collected was processed for its subsequent use in the generation of contour lines and profiles.

The final product of this processing resulted in a general topographic map, as shown in the image below:



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

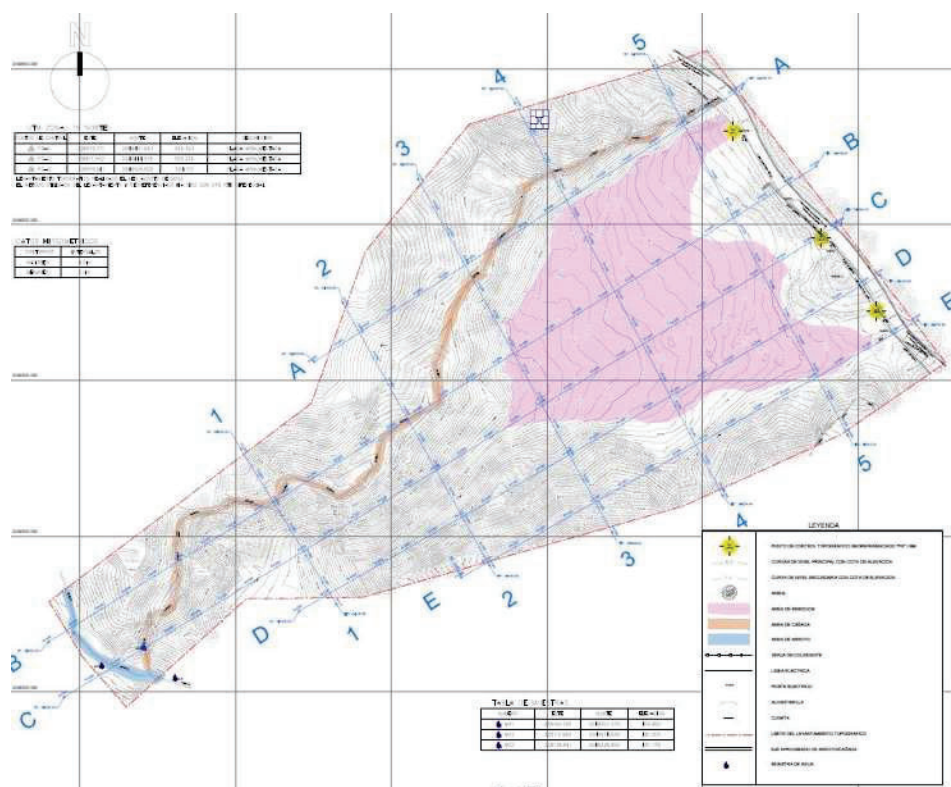


Image 7 General topographic map showing axis of profiles generated.

The drawing NKC-002-TO-00-101-A found in Exhibit No. 1, contains the general plan of the topographic survey.

Within the information collected, the following main elements could be defined:

- Area occupied by solid waste.
- Stream area to the north.
- Creek area to the west.
- Trees around the waste area
- Electric service line and poles.
- East boundary fence.



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

4. DESCRIPTION OF THE SURVEY METHODOLOGY

In the topographic survey, a series of fundamental resources and tools were used to obtain precise and detailed measurements of the terrain.

A topography crew made up of 3 people was used, whose main tools/equipment were:

- RTK GPS, at points where there was good satellite reception.
- Total Station with prism, in areas where there was not good satellite reception. The Total Station with laser was used in the zone of high density of trees.

5. SAMPLING FOR WATER QUALITY ANALISYS

As part of the topographic survey work, sampling was included at 3 points in watercourses surrounding the final disposal site. The sampling points were defined by the NIPPON KOEI technical team on site. The images below show the sampling process.



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.



Image 8. Sampling process for water quality analysis

The sampling points were surveyed with topographic equipment, to obtain their precise location for evaluation purposes. The table below shows the relationship of the coordinates of the sampling points:



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

Table 2 Sampling points

Sampling point	Easting (m)	Northing (m)	Elevation (m)	Description
M1	338160.100	2049207.075	459.893	Downstream stream/creek confluence
M2	338112.982	2049214.929	461.503	Upstream stream/creek confluence
M3	338139.891	2049226.829	461.178	Stream upstream confluence with creek

The laboratory water quality results are attached in Exhibit No. 3.

The drawing NKC-002-TO-00-101-A found in Exhibit No. 1, also contains information on the location of sampling points, shown in the general topographic map.

By TECNOAMBIENTE:

Stalin Acosta, M.Sc.

CODIA: 20771
September 7, 2023.



Topographic survey for rehabilitation and closure of the final solid waste disposal site of San Jose de Ocoa.

EXHIBITS

EXHIBIT 1

TOPOGRAPHIC SURVEY DRAWINGS

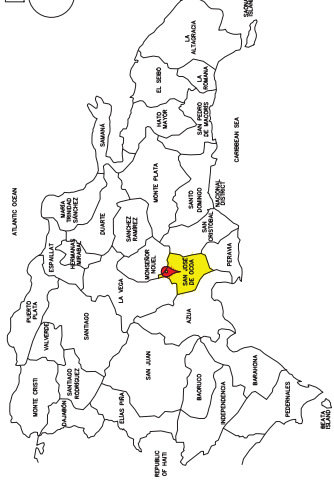
EXHIBIT 2

TOPOGRAPHIC SURVEY IMAGES

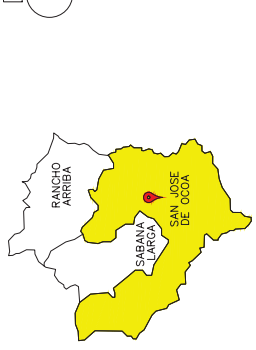
EXHIBIT 3

WATER QUALITY LAB RESULTS

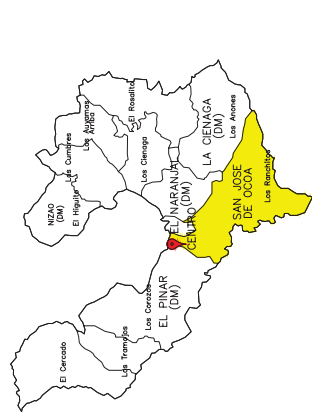
再委託調査結果



LOCATION ON THE MAP OF THE COUNTRY, DOMINICAN REPUBLIC



LOCATION ON THE MAP OF THE PROVINCE, SAN JOSE DE OCOA



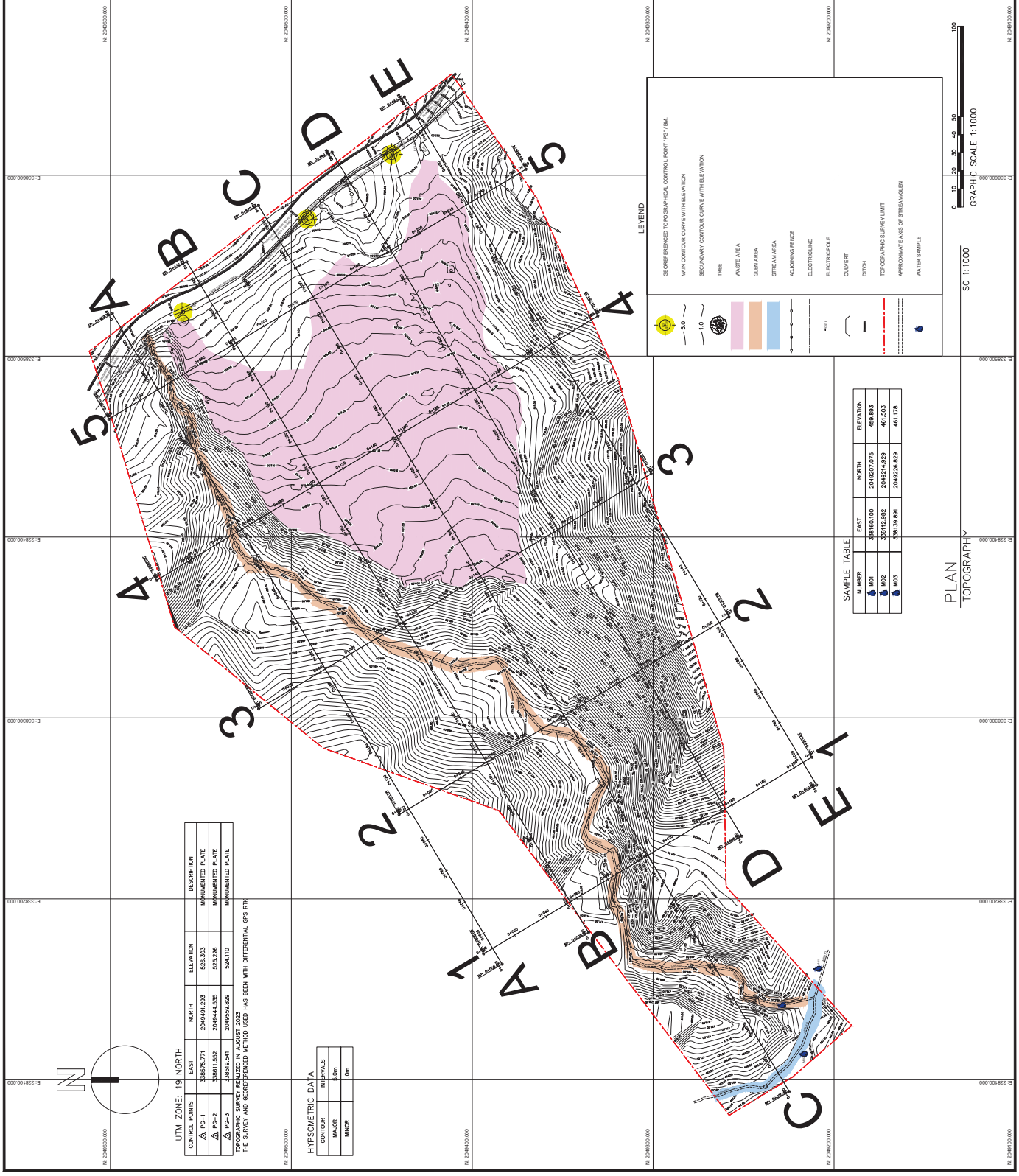
LOCATION ON THE MAP OF THE MUNICIPALITY: SAN JOSE DE OCOA

PROJECT'S NAME:
 TOPOGRAPHIC SURVEY FOR REHABILITATION AND CLOSURE OF THE FINAL SOLID WASTE DISPOSAL SITE LOCATED IN EL PINAR, SAN JOSE DE OCOA PROVINCE, DOMINICAN REPUBLIC

PLAN TITLE:
 GENERAL PLAN TOPOGRAPHICAL SURVEY

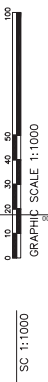
PROJECT	AREA	ELEMENT	SERIE	REVISION
NKC-002	TO	00	101	A

DATE: 2023-09-18



LEGEND

- GEOREFERENCED TOPOGRAPHICAL CONTROL POINT (M)
- MAIN CONTOUR CURVE WITH ELEVATION
- SECONDARY CONTOUR CURVE WITH ELEVATION
- TREE
- WASTE AREA
- GLEN AREA
- STREAM AREA
- ADJUTING FENCE
- ELECTRIC LINE
- ELECTRIC POLE
- CULVERT
- DITCH
- APPROXIMATE AXIS OF STREAM/RIVER
- WATER SAMPLE



UTM ZONE: 18N NORTH

CONTROL POINTS	EAST	NORTH	ELEVATION	DESCRIPTION
PC-1	338575.771	2049491.293	526.303	MONUMENTED PLATE
PC-2	338611.552	2049444.535	525.226	MONUMENTED PLATE
PC-3	338593.541	2049559.829	524.110	MONUMENTED PLATE

TOPOGRAPHIC SURVEY REALIZED IN AUGUST 2023
 THE SURVEY AND GEOREFERENCED METHOD USED HAS BEEN WITH DIFFERENTIAL GPS RTK

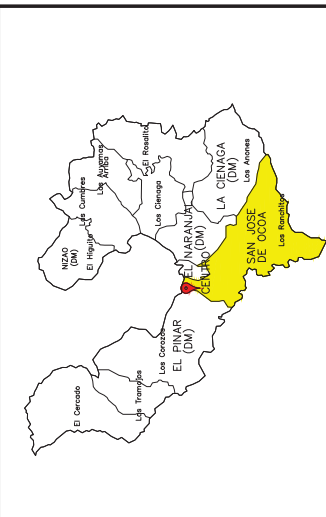
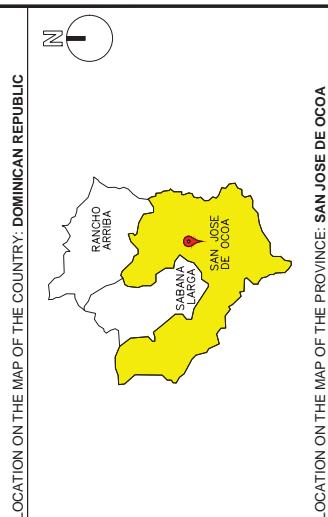
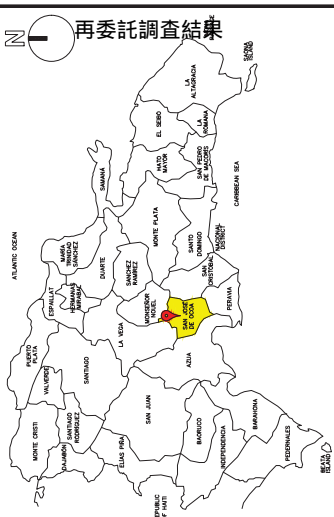
HYPSONETRIC DATA

CONTOUR INTERVALS	10m	5m	10m
CONTOUR			
MAJOR			
MINOR			

SAMPLE TABLE

NUMBER	EAST	NORTH	ELEVATION
M01	339163.100	2049207.075	409.893
M02	339112.882	2049214.529	441.503
M03	339139.891	2049206.829	441.176

PLAN TOPOGRAPHY

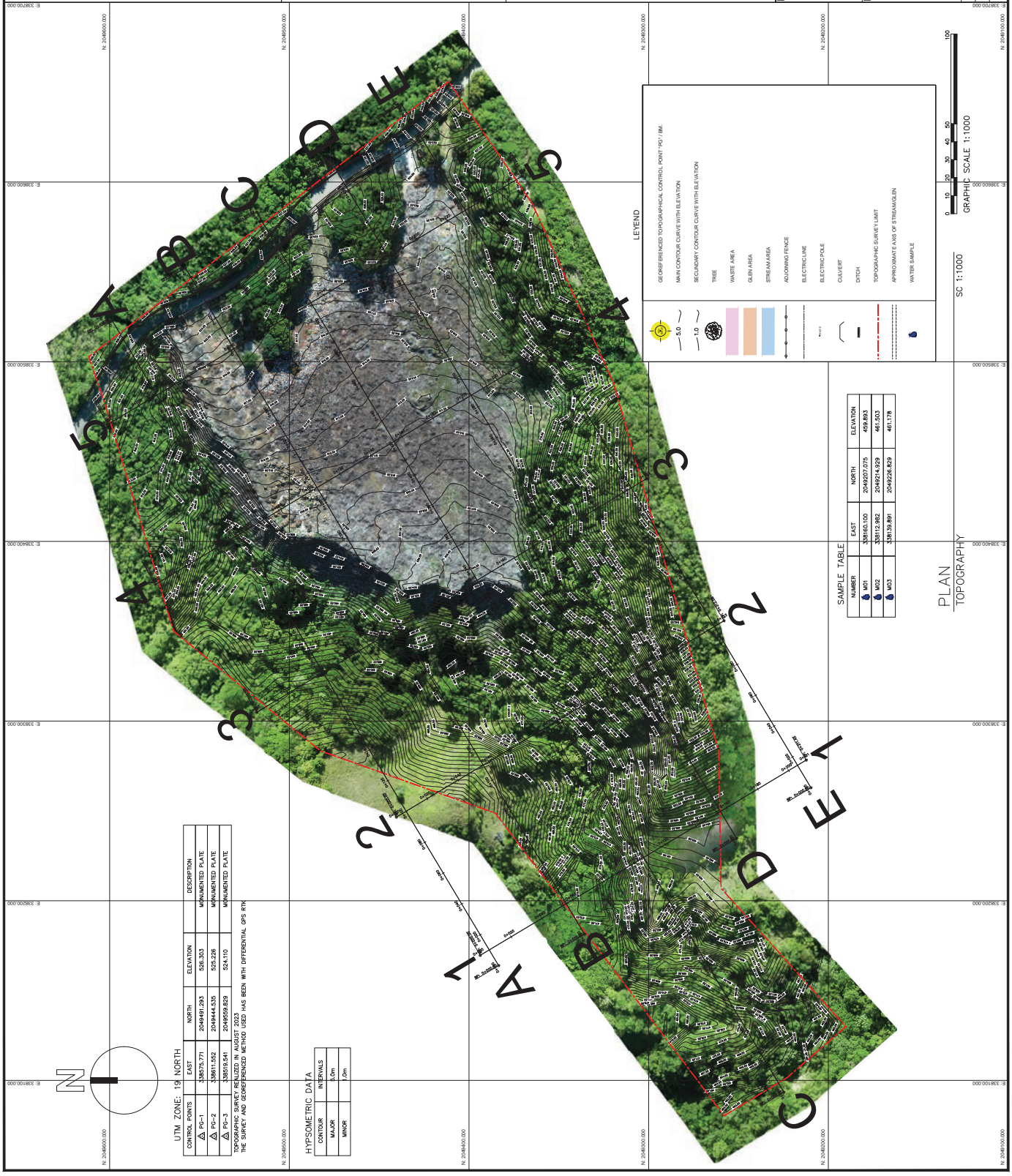


TOPOGRAPHIC CURVE FOR REHABILITATION AND CLOSURE OF THE FINAL SOLID WASTE DISPOSAL SITE LOCATED IN EL PINAR, SAN JOSE DE OCOA PROVINCE, DOMINICAN REPUBLIC

PLAN TITLE:
GENERAL PLAN TOPOGRAPHICAL SURVEY WITH ORTOPHOTO

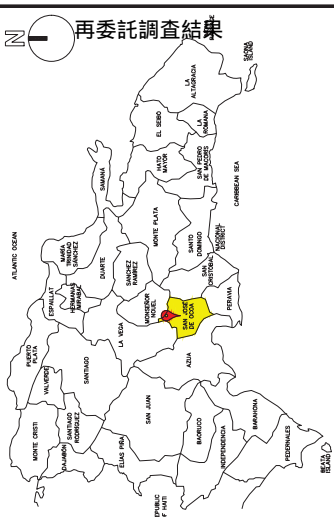
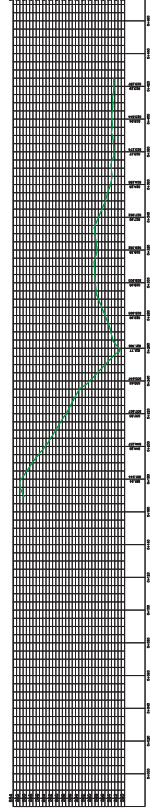
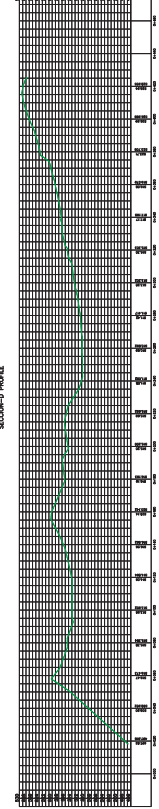
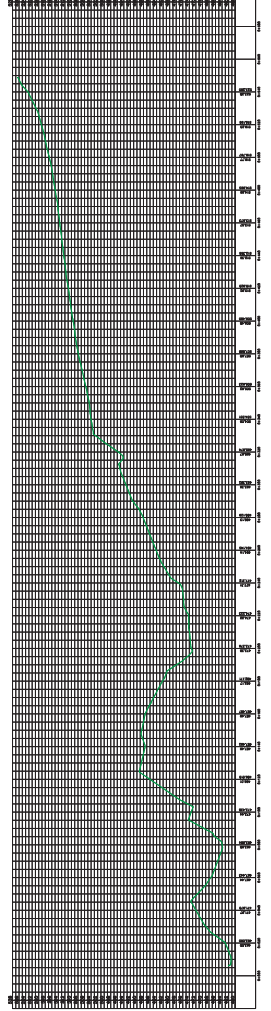
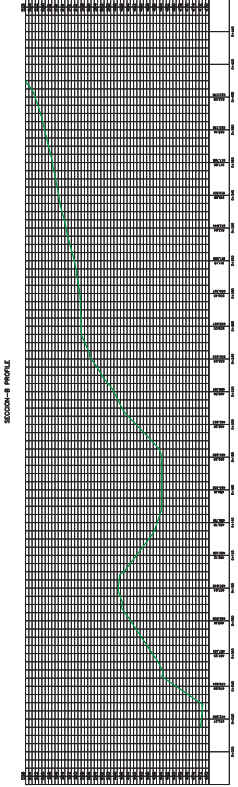
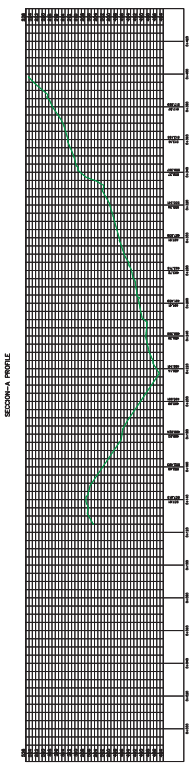
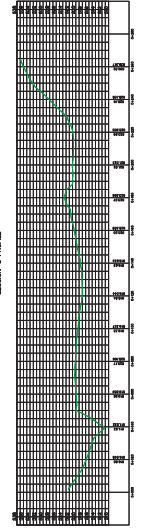
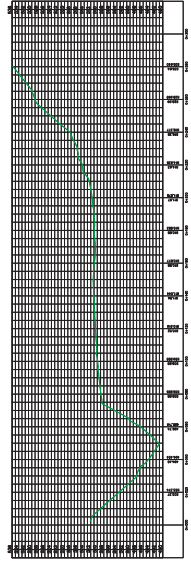
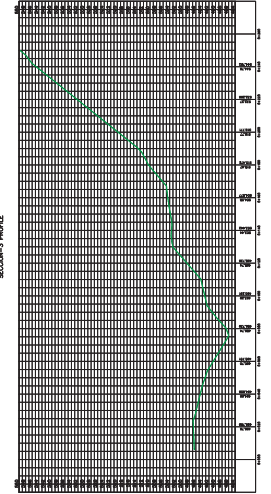
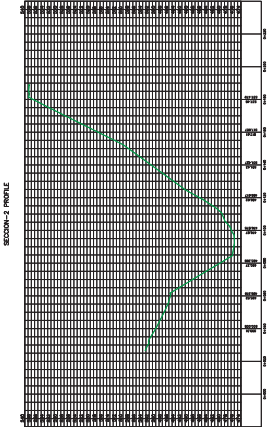
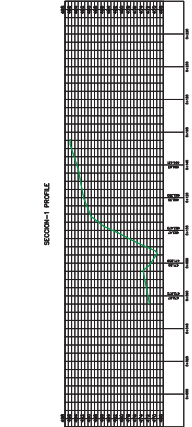
DATE: 2023-09-18

PROJECT	AREA	PLAN CODE	REVISION
NKC-002	TO	00	10
			A

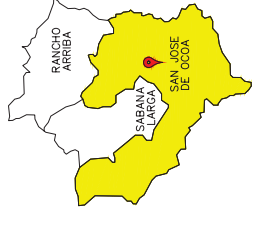


SAMPLE TABLE

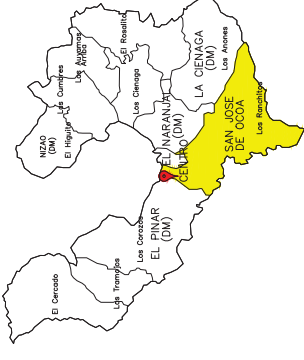
NUMBER	EAST	NORTH	ELEVATION
M01	338116.100	2049207.075	409.803
M02	338112.882	2049214.529	441.503
M03	338139.804	2049226.829	441.176



LOCATION ON THE MAP OF THE COUNTRY, DOMINICAN REPUBLIC



LOCATION ON THE MAP OF THE PROVINCE, SAN JOSE DE OCOA



LOCATION ON THE MAP OF THE MUNICIPALITY: SAN JOSE DE OCOA

PROJECT'S NAME:

TOPOGRAPHIC SURVEY FOR REHABILITATION AND CLOSURE OF THE FINAL SOLID WASTE DISPOSAL SITE LOCATED IN EL PINAR, SAN JOSE DE OCOA PROVINCE, DOMINICAN REPUBLIC

PLAN TITLE:

GENERAL PLAN TOPOGRAPHICAL SURVEY WITH ORTOPHOTO

DATE: 2023-09-18

PROJECT		PLAN CODE		REVISION	
AREA	TO	ELEMENT	SERIE	NO.	DESCRIPTION
NKC-002		00	301		A

添付資料7-2

ANEXO 2_IMÁGENES PROCESO LEVANTAMIENTO





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DJL_0035.JPG
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DJL_0039.JPG
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DJL_0039 (1).JPG
3 日前



DJL_0038.JPG
3 日前



DJL_0038 (1).JPG
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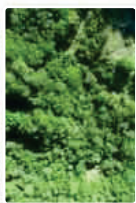
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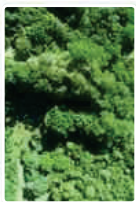
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DJL_0044.JPG
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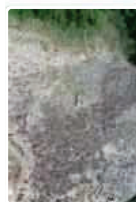
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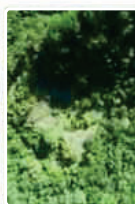
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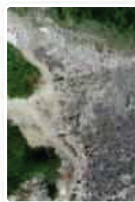
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DJL_0055.JPG
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DJL_0061.JPG
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DJL_0059.JPG
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DJL_0063.JPG
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DJL_0068.JPG
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DJL_0067 (1).JPG
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DJI_0076 (1).JPG
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DJI_0083.JPG
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DJI_0087 (1).JPG
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DJI_0071.JPG
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DJI_0075.JPG
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DJI_0079.JPG
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DJI_0083 (1).JPG
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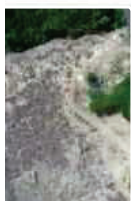
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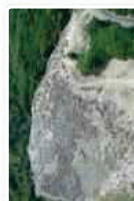
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DJI_0081.JPG
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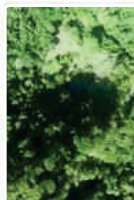
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DJI_0084.JPG
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DJI_0072.JPG
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DJI_0080.JPG
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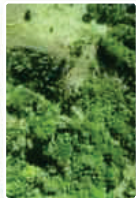
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DJI_0089 (1).JPG
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DJI_0089.JPG
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DJI_0090 (1).JPG
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DJI_0090.JPG
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DJI_0091 (1).JPG
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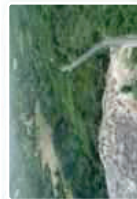
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DJI_0095.JPG
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DJI_0096.JPG
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DJI_0097.JPG
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DJI_0098 (1).JPG
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DJI_0098.JPG
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DJI_0099.JPG
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DJI_0100.JPG
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DJI_0101 (1).JPG
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DJI_0101.JPG
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DJI_0102.JPG
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DJI_0105.JPG

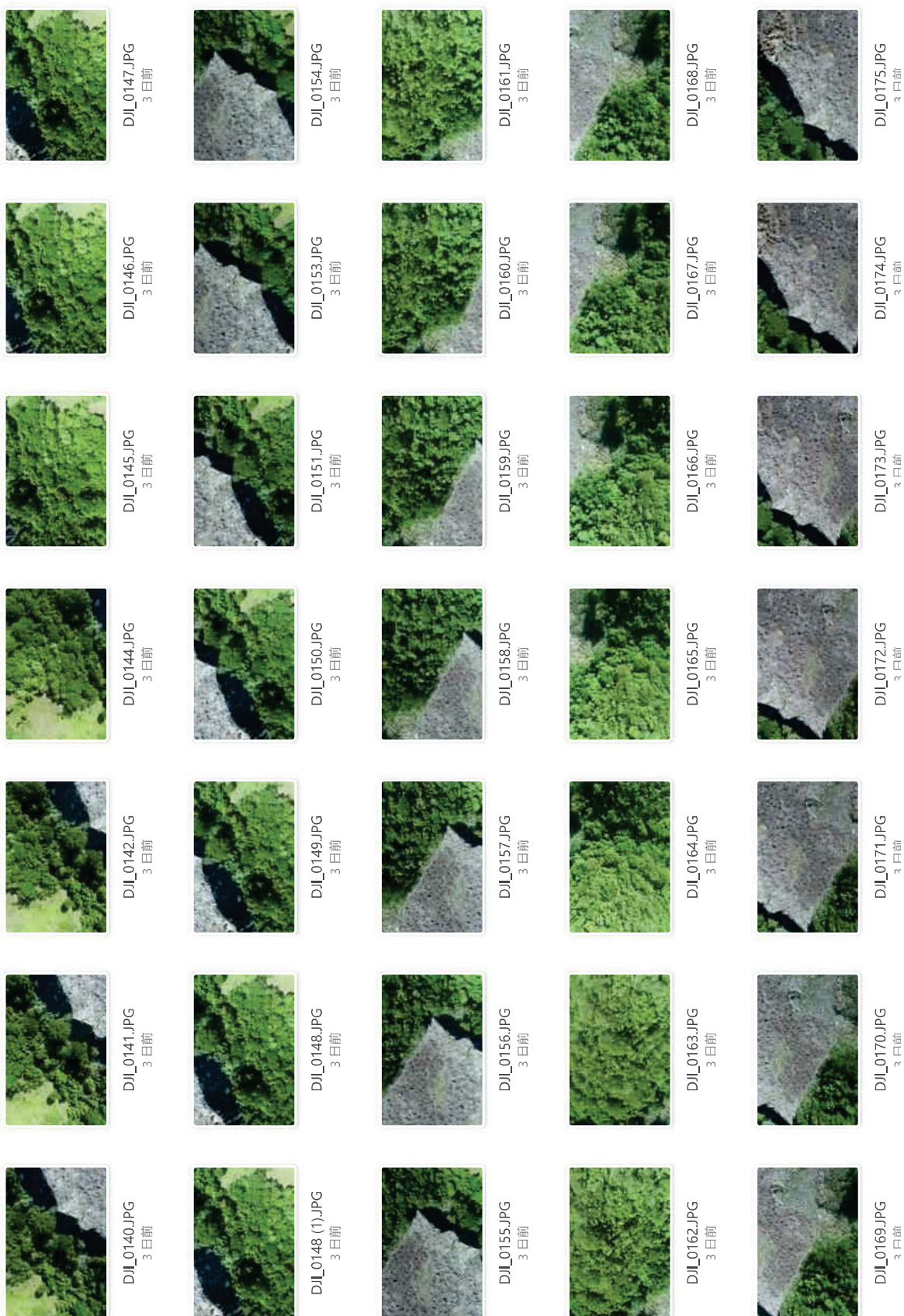


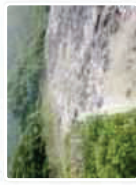
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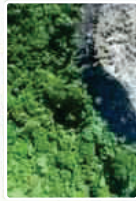
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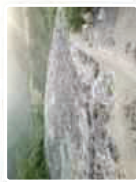




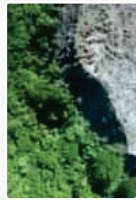
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DJL_0177 (1).JPG
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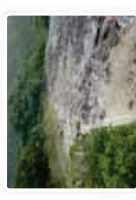
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DJL_0180 (1).JPG
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DJL_0188 (1).JPG
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DJL_0187.JPG
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DJL_0187 (2).JPG
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DJL_0187 (1).JPG
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DJL_0186.JPG
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DJL_0185.JPG
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DJL_0191 (2).JPG
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DJL_0191 (1).JPG
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DJL_0190.JPG
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DJL_0189.JPG
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DJL_0189 (1).JPG
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DJL_0188.JPG
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DJL_0194.JPG
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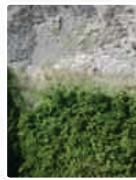
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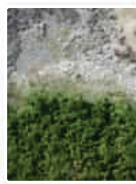
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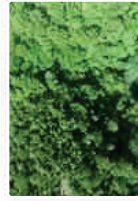
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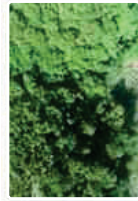
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DJL_0205.JPG
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DJL_0204.JPG
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DJL_0203.JPG
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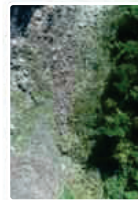
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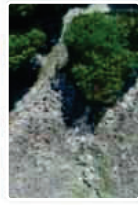
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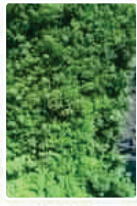
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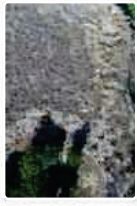
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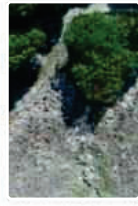
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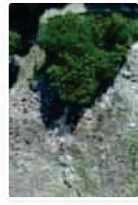
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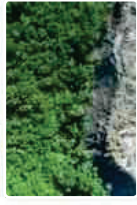
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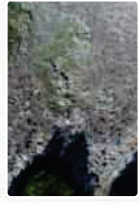
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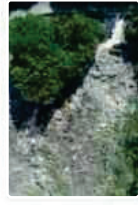
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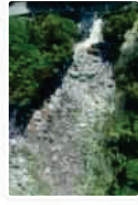
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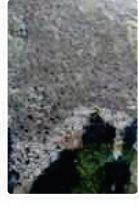
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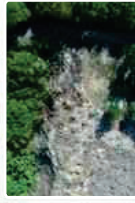
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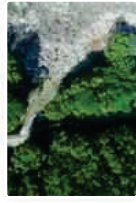
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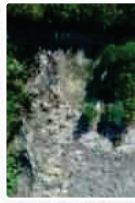
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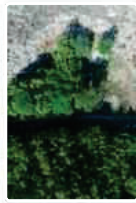
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DJI_0261.JPG
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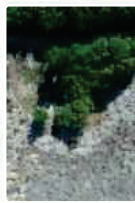
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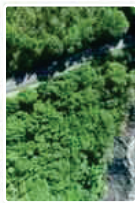
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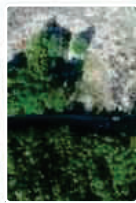
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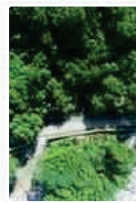
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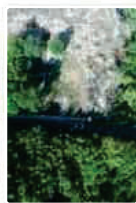
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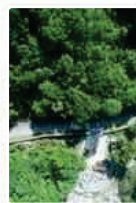
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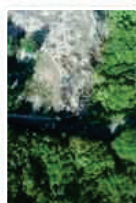
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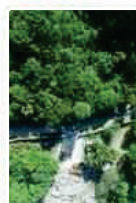
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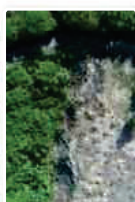
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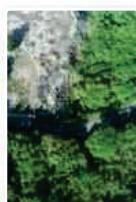
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3 日前



DJI_0257.JPG
3 日前



DJI_0264.JPG
3 日前



DJI_0271.JPG
3 日前



DJI_0280.JPG
3 日前



DJI_0290 (1).JPG
3 日前



DJI_0290.JPG
3 日前



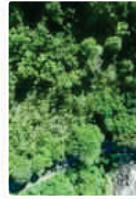
DJI_0292.JPG
3 日前



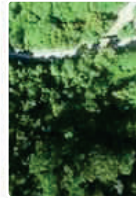
DJI_0294.JPG
3 日前



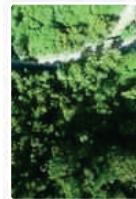
DJI_0296.JPG
3 日前



DJI_0297.JPG
3 日前



DJI_0298.JPG
3 日前



DJI_0299.JPG
3 日前



IMG_0246.jpg
3 日前



IMG_0257.jpg
3 日前



IMG_0267.jpg
3 日前



WhatsApp Image 2023-...



WhatsApp Image 2023-...



WhatsApp Image 2023-...



WhatsApp Image 2023-...



WhatsApp Image 2023-...



WhatsApp Image 2023-...



WhatsApp Image 2023-...

Informe Técnico

Quien suscribe la presente, Agrim. Miguel Ángel Gonzalez Valdez, dominicano, mayor de edad, casado, portador de la cédula de identidad y electoral No. 001-0448076-9, miembro del Colegio Dominicano de Ingenieros, Arquitectos y Agrimensores (CODIA); registrado bajo el número 10868, con estudio profesional abierto en la Av. 27 de febrero, Ministerio de Deportes y Recreación, Centro Olímpico Juan Pablo Duarte, D.N. teléfono 809 540-4010, ext. 2127, celular 829 637-7892, certifica lo siguiente:

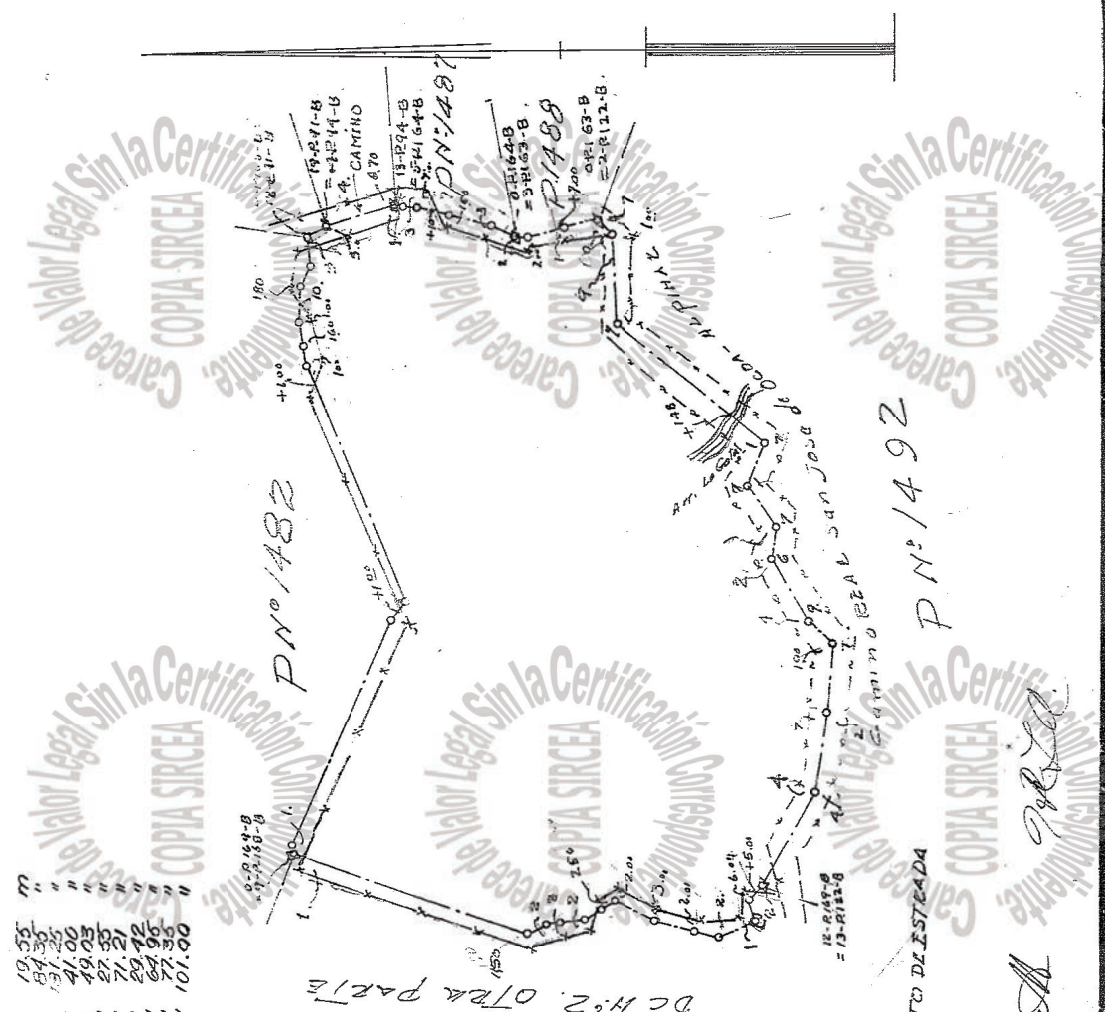
Que de acuerdo con los registros cartográficos del Sistema de Recuperación, Control y Explotación de Archivos de la Jurisdicción Inmobiliaria (SIRCEA), encontramos alrededor del levantamiento parcelario realizado en el vertedero de Ocoa por el Arq. Daniel Hernández, en la sección La Cuneta del Municipio San José De Ocoa, las siguientes Parcelas: 1486, 1492 y 1493, 1785, 1790 y la Posicional P-N 303498179198 del D.C. No. 02 del municipio de San José De Ocoa, Provincia Peravia, por tanto, en la ubicación del Vertedero no aparece hasta el momento ninguna parcela registrada y se recomienda un proceso de Saneamiento.

Dada, en Santo Domingo, D. N., a los diez (10) del mes de agosto del año Dos Mil veintitrés (2023).



Miguel Ángel González Valdez
Agrimensor Codia No.10868

Anexo documentos del proceso de investigación



1-	N	45-57	17.00	m	19.35	m
	S	79-12	23.00	"	34.30	"
	N	22-44	37.07	"	37.30	"
	N	10-44	24.28	"	41.00	"
	N	28-13	38.52	"	49.23	"
	N	41-11	13.18	"	37.30	"
	N	26-11	21.62	"	26.72	"
	N	04-31	15.00	"	26.72	"
	N	51-23	18.50	"	34.96	"
	N	19-23	18.50	"	101.00	"
	S	60-45	6.50	"		
	S	66-49	235.06	"		
	S	67-50	243.22	"		
	N	82-29	18.18	"		
	N	75-13	23.96	"		
	S	81-35	51.44	"		
	S	73-24	22.71	"		
	S	65-33	26.58	"		
	S	16-59	71.34	"		
	S	03-50	7.00	"		
	S	14-41	14.00	"		
	S	13-21	28.00	"		
	S	28-32	45.00	"		
	S	07-20	25.00	"		
	S	12-52	11.00	"		
	S	11-57	30.21	"		

**REPUBLICA DOMINICANA
MENSURA CATASTRAL**

PARCELA No. 1486 MANZANA No.
SOLAR No.
D. C. No. 2 DEL MUNICIPIO DE SAN JOSE DE OCCA
SECCION LAS LAGUNETAS LUGAR:
PROVINCIA PERRAVIA
ANTIGUO D. C. No.
PRIORIDAD DE FECHA: 7 DE AGOSTO DE 1956
RECLAMANTE:
PROPIEDAD DE: MARIA DE LOS REYES CASTILLO SOTO DISTRADA
POR DECISION No. 500 ESCENA 13 DE ENERO, 1964
AREA = 2580.19 m²
FECHA: ADE MAYO DE 1964 APROBADO

AGRIENSOR
DIRECTOR GENERAL



25-19-23
5364-D

P N° 1492

DC N° 2. OTRA PARTE

再委託調査結果

添付資料7-2

Registrado primeramente en cumplimiento del Decreto ú Orden No. del Trib. Sup. de Tierras, en el Libro Registro Vol. folio bajo el No. el día de

TRANSFERENCIA del Certificado No. Libro No. folio

TRANSFERIDO al Certificado No. Libro No. folio

REPUBLICA DOMINICANA



REGISTRO DE TITULOS

EN NOMBRE DE LA REPUBLICA

SOLAR No.
MANZANA No.
PORCION No.
PARCELA No. 1486
DIST. CATASTRAL No. 2
DE SAN JOSE DE OCOA

AREA:

25.H.19.A.23.M....D

Certificado de Título Núm. " 2787 " -

PROPIETARIO (S) : " FELIPE IBAN MATEO FUJOLS " -

MUNICIPIO : SAN JOSE DE OCOA. -

DESCRIPCION : POR ACTO BAJO FIRMA PRIVADA DE FECHA 23(VEINTITRES) DE JUNIO DE 1980, LEGALIZADO POR EL DOCTOR VICTOR LIBIO CEDENO JIENESZ, ABOGADO-NOTARIO PUBLICO DE LOS DEL NUMERO DEL DISTRITO NACIONAL, INSCRITO EN EL REGISTRO DE TITULOS DEL DEPARTAMENTO DE SAN CRISTOBAL, EN FECHA 9 DE JULIO DE 1980, BAJO EL NO.1772, FOLIO 443, DEL LIBRO DE INSCRIPCIONES NO. 14, LA SEÑORA MARIA DE LOS REYES CASTILLO SOFO VIUDA ESPRADA, DOMINICANA, MAYOR DE EDAD, SOLTERA, DE OFICIOS DOMESTICOS, PORTADORA DE LA CEDULA PERSONAL DE IDENTIFICACION NO.1297, SERIE 13, SELLO AL DIA Y CON SU CARNET DEL REGISTRO ELECTORAL DOMICILIADA Y RESIDENTE EN LA CASA NO.19 DE LA CALLE DANAE, DE LA CIUDAD DE SANTO DOMINGO; VENDE EN LA SUMA DE RD\$5,000.00(CINCO MIL PESOS), EN FAVOR DEL SEÑOR FELIPE IBAN MATEO FUJOLS, DOMINICANO, MAYOR DE EDAD, SOLTERO, ESTUDIANTE, PORTADOR DE LA CEDULA DE IDENTIFICACION PERSONAL NO.20139, SERIE 13, SELLO AL DIA, CON SU REGISTRO ELECTORAL, DOMICILIADO Y RESIDENTE EN LA CALLE BENIGNO FILOMENO ROJAS NO.306, DE LA CIUDAD DE SANTO DOMINGO; LA PARCELA NO.1486(MIL CUATROCIENTO OCHENTA Y SEIS) DEL DISTRITO CATASTRAL NO. 2(DOS) DEL MUNICIPIO DE SAN JOSE DE OCOA, SECCION "LAS LAGUNETAS", PROVINCIA DE PERAVIA, LA CUAL TIENE UNA EXTENSION SUPERFICIAL DE: 25(VEINTICINCO) HECTAREAS; 19(DIECINUEVE) AREAS Y 23(VEINTITRES) CENTIAREAS; Y CON LOS SIGUIENTES LINDEROS: AL NORTE: P.NO.1482; AL ESTE: CAMINO REAL SAN JOSE DE OCOA AL PINAR, PS. NOS. 1487, 1488; AL SUR: CAMINO REAL SAN JOSE DE OCOA AL PINAR, P.NO.1492; AL OESTE: D.C.NO.2 DEL MUNICIPIO DE SAN JOSE DE OCOA (OTRA PARTE).-EN CONSECUENCIA, SE DECLARA AL SEÑOR FELIPE IBAN MATEO FUJOLS, INVENTADO CON EL DERECHO DE PROPIEDAD DE ESTA PARCELA.-SAN CRISTOBAL, R.D. 19 DE AGOSTO DE 1980.- EL REGISTRADOR DE TITULOS:

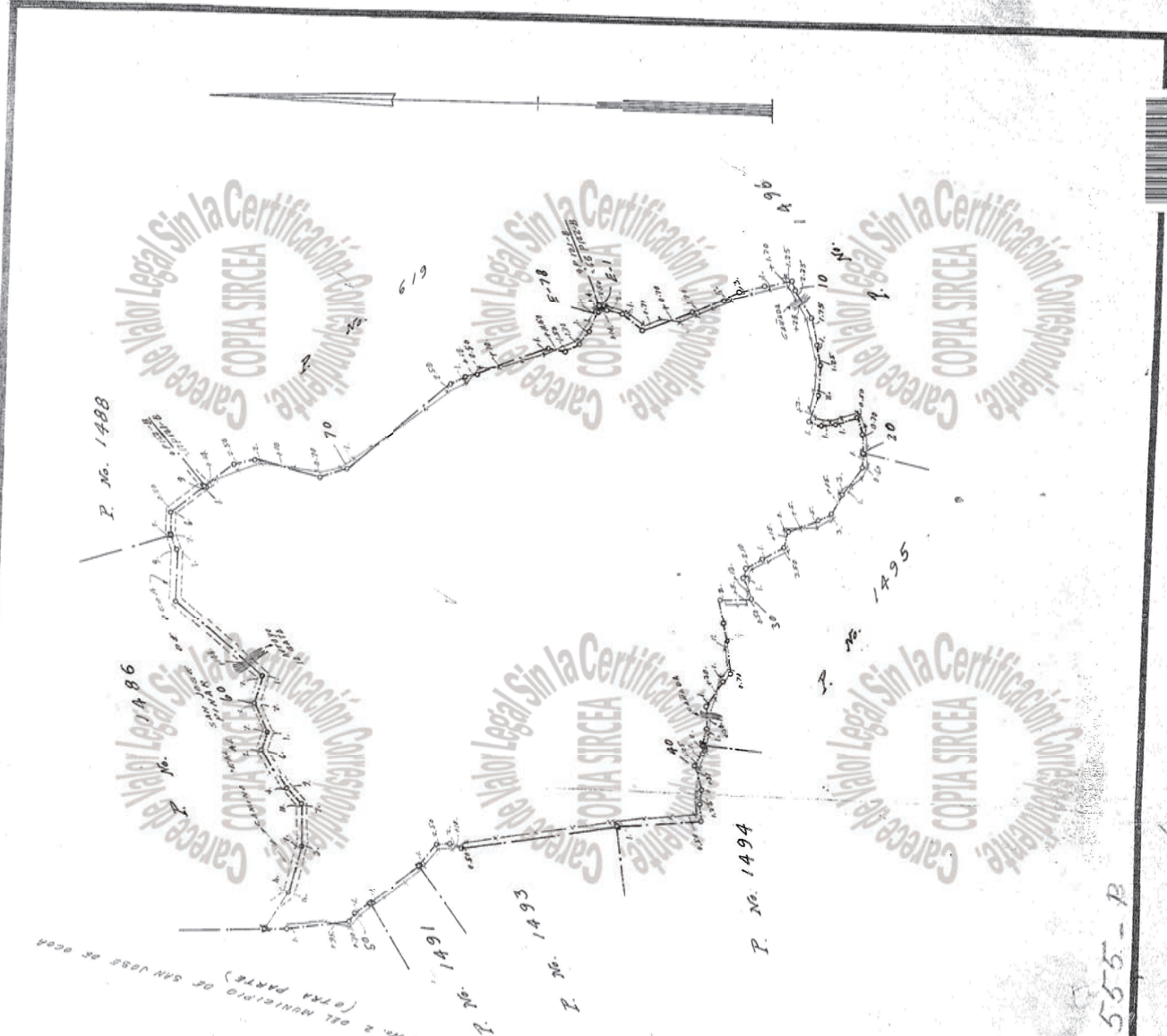
EN ESTA HOJA DEBAJO DE ESTE SELLO NO HAY NINGUNA ANOTACION

PASA AL LIBRO _____ FOLIO _____



265

Pasa al 23 folio 129



1- S-22-55-W	13.11 m	57-N-22-12-W	120.42 m
S-15-51-W	25.86 *	N-16-47-W	37.05 *
S-23-05-W	35.22 *	S-62-23-E	101.00 *
S-20-39-E	29.69 *	S-80-30-E	77.35 *
S-26-17-E	54.50 *	S-85-10-E	64.95 *
S-24-52-E	22.75 *	N-41-10-E	29.42 *
S-12-48-E	40.00 *	N-68-38-E	71.21 *
S-14-54-E	43.00 *	N-88-07-E	27.55 *
S-25-34-W	14.05 *	N-88-19-E	49.03 *
N-S-64-59-W	49.10 *	N-89-27-E	41.00 *
S-80-43-W	44.44 *	N-39-26-E	181.25 *
N-78-01-W	30.62 *	N-4-57-E	19.55 *
N-87-31-W	49.50 *	S-79-40-E	36.50 *
N-79-59-W	40.80 *	S-42-19-E	26.37 *
S-15-17-W	16.50 *	S-38-44-E	21.69 *
S-09-54-E	21.04 *	S-36-31-E	17.50 *
S-24-01-E	33.50 *	S-02-08-E	127.75 *
S-20-08-W	23.47 *	S-25-44-E	206.00 *
S-82-14-W	32.74 *	S-25-57-E	18.75 *
N-89-07-W	23.56 *	S-38-59-E	26.47 *
N-66-00-W	49.59 *	S-05-44-W	22.57 *
N-31-57-W	34.39 *	S-25-34-E	24.00 *
N-30-50-W	20.92 *	S-67-44-E	36.55 *
N-89-41-W	46.00 *	78-N-07-49-E	8.50 *
N-26-49-W	40.47 *		
N-38-45-W	33.50 *		
N-25-52-W	14.25 *		
S-73-10-W	35.28 *		
N-08-16-W	45.75 *		
S-82-38-W	32.00 *		
S-74-03-W	28.00 *		
S-80-44-W	52.00 *		
N-42-39-W	14.47 *		
N-62-25-W	46.87 *		
N-88-19-W	37.87 *		
S-84-34-W	25.00 *		
N-65-14-W	15.00 *		
N-79-16-W	23.80 *		
S-79-59-W	40.00 *		
S-82-49-W	38.80 *		
N-86-55-W	22.50 *		
N-05-59-W	128.30 *		
N-09-56-W	239.37 *		
N-05-36-E	15.01 *		
N-22-04-W	16.38 *		
N-47-22-W	42.86 *		
N-38-55-W	96.77 *		
N-36-12-W	29.57 *		
N-58-34-W	7.30 *		

REPUBLICA DOMINICANA
 MENSURA CATASTRAL
 PARCELA No. 1492
 SOLAR No. MANZANA No.
 D. C. No. 2 DEL MUNICIPIO DE SAN JOSE DE OCAJA
 SECCION Los RANCHOS-LUGAR: ARROYO FRIO
 PROVINCIA DE: PERAVIA
 ANTIGUO D. C. No.
 PRIORIDAD DE FECHA: 7 de agosto de 1968
 RECLAMANTE:
 PROPIEDAD DE: SOC. DE LOS HEREDEROS SOLANO DE 1908
 POR DECISION No. DE FECHA 11 de mayo de 1968
 AREA = 61,24 H. ESCALA 1 = 5000
 FECHA DE APROBACION: 17/12/1968
 DIRECTOR GENERAL

57 555-B

ASP-01



再委託調査結果

添付資料7-2

Registrado primeramente en cumplimiento del Decreto ó Orden No. del Trib. Sup. de Tierras, en el Libro Registro Vql. folio bajo el No. el día de de

TRANSFERENCIA del Certificado No. 2208... Libro No. 8. folio 62.

TRANSFERIDO al Certificado No. Libro No. folio

REPUBLICA DOMINICANA



REGISTRO DE TITULOS EN NOMBRE DE LA REPUBLICA

SOLAR No.
 MANZANA No.
 PORCION No.
 PARCELA No. 1492
 DIST. CATASTRAL No. 2...
 DE SAN. JOSE. DE. OCOA

AREA:

87. H, 24. A, 42. M, D

Certificado de Título Núm. "2462".

PROPIETARIO (S): "NICOLAS SOLANO MARTINEZ Y RAMON MATEO SOLANO",

MUNICIPIO : SAN J. DE OCOA

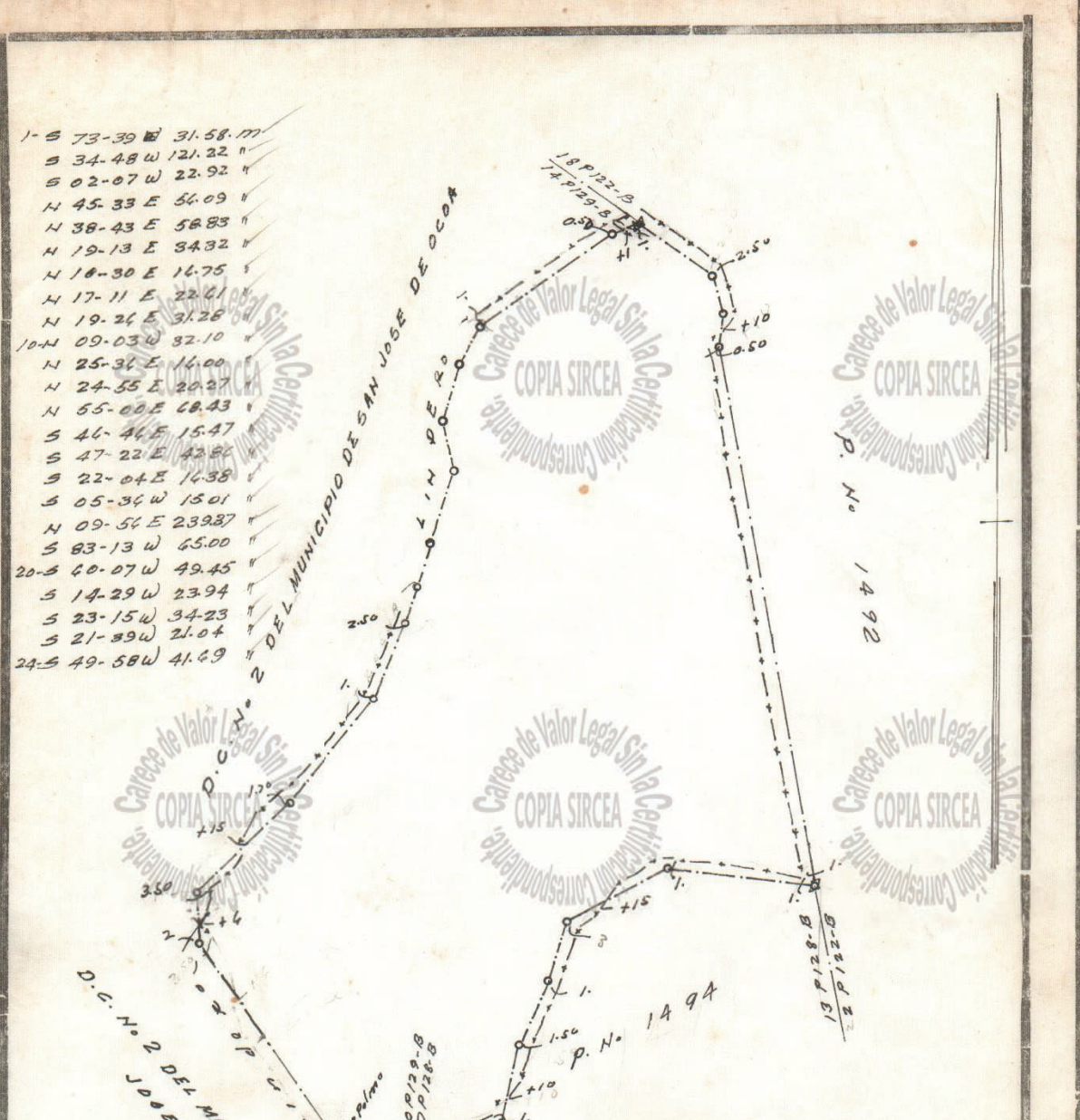
DESCRIPCION : EN VIRTUD DE LA DECISION NUMERO 5 (CINCO) DE JURISDICCION ORIGINAL DE FECHA 19 DE ENERO DE 1984, REVISADA Y APROBADA POR EL TRIBUNAL SUPERIOR DE TIERRAS DE FECHA 3 (TRES) DE ABRIL DE 1984, INSCRITA EN EL REGISTRO DE TITULOS DEL DEPARTAMENTO DE SAN CRISTOBAL, EN FECHA 15 DE MAYO DE 1984, BAJO EL NO. 1379, FOLIO 345, DEL LIBRO DE INSCRIPCIONES NO. 19, QUE DECLARA QUE LAS UNICAS PERSONAS CON CALIDAD LEGAL PARA RECOGER LOS BIENES RELICTOS DEL FINADO LORINZO SOLANO DE JESUS, SON LOS SEÑORES JUAN PAULINO, NICOLAS MARIA DE LOS ANGELES (A) SANTA, ADELINA ELIANA, JUANA BAUTISTA, ROSA MARIA, MARIA SIMONA Y JOSE VICTORIANO SOLANO MARTINEZ, HIJOS LEGITIMOS, Y SU HIJO NATURAL RECONOCIDOS NICOLAS EURIBIADES SOLANO MARTINEZ; QUE ORDENA TRANSFERENCIA Y LA CANCELACION DEL CERTIFICADO DE TITULO NO. 2208 QUE AMPARA LA PARCELA NO. 1492 (MIL CUATROCIENTOS NOVENTIDOS) DEL DISTRITO CATASTRAL NO. 2 (DOS) DEL MUNICIPIO DE SAN JOSE DE OCOA, SECCION "LOS RANCHITOS", PROVINCIA DE PERAVIA LA CUAL TIENE UNA EXTENSION SUPERFICIAL DE: SESENTIUNA (61) HECTAREAS, VEINTICUATRO (24) AREAS, CUARENTIDOS (42) CENTIAREAS, Y CON LOS SIGUIENTES LINDEROS: AL NORTE: P. NO. 1486 Y CAMINO REAL SAN JOSE DE OCOA AL PINAR, P. NO. 1488; AL ESTE: PS. NOS. 619 Y 1496; AL SUR: PS. NOS. 95, 1494, Y 1496; AL OESTE: PS. NOS. 1494, 1493, 1491, D. C. NO. 2 DEL MUNICIPIO DE SAN JOSE DE OCOA (OTRA PARTE) Y QUE ORDENA ADEMAS LA EXPEDICION DE UN NUEVO CERTIFICADO DE TITULO QUE AMPARE ESTA PARCELA Y SUS MEJORAS, EN FAVOR DE LOS SEÑORES NICOLAS SOLANO MARTINEZ Y RAMON MATEO SOLANO. EN CONSECUENCIA, SE DECLARA A LOS SEÑORES NICOLAS SOLANO MARTINEZ Y RAMON MATEO SOLANO, INVESTITO CON EL DERECHO DE PROPIEDAD DE ESTA PARCELA Y SUS MEJORAS. - SAN CRISTOBAL, R. ., 18 DE MAYO DE 1984. - EL REGISTRADOR DE TITULOS:

[Handwritten signature]

EN ESTA HOJA DEBAJO DE ESTE SELLO NO HAY NINGUNA ANOTACION
 PISAAL LIBRO _____ FOLIO _____



- 1-S 73-39 E 31.58.17
- S 34-48 W 121.22 "
- S 02-07 W 22.92 "
- N 45-33 E 54.09 "
- N 38-43 E 58.83 "
- N 19-13 E 34.32 "
- N 16-30 E 16.75 "
- N 17-11 E 22.61 "
- N 19-24 E 31.28 "
- 10-N 09-03 W 32.10 "
- N 25-34 E 16.00 "
- N 24-55 E 20.27 "
- N 55-00 E 68.43 "
- S 46-44 E 15.47 "
- S 47-22 E 42.80 "
- S 22-04 E 14.38 "
- S 05-34 W 15.01 "
- N 09-54 E 239.87 "
- S 83-13 W 65.00 "
- 20-S 40-07 W 49.45 "
- S 14-29 W 23.94 "
- S 23-15 W 34.23 "
- S 21-39 W 21.04 "
- 24-S 49-58 W 41.49 "



REPUBLICA DOMINICANA
MENSURA CATASTRAL

PARCELA NO. 1493
 SOLAR NO. MANZANA NO.
 D. C. NO. 2 DEL MUNICIPIO DE SAN JOSE DE OCOA
 SECCION LA GUNETA LUGAR: ARROYO PALMA
 PROVINCIA DE PERAVIA
 ANTIGUO D. C. NO.
 PRIORIDAD DE FECHA: 7 de Agosto 1954
 RECLAMANTE:
 PROPIEDAD DE: MARCELINO PREGINAL SANTOS
 POR DECISION NO. DE FECHA: 10 de Agosto 1971
 AREA: 54 69' 35" ESCALA: 1:2000
 FECHA: 8 de OCTUBRE 1971 APROBADO:
 AGREMENSOR: *Carrión* DIRECTOR GENERAL: *[Signature]*

REVISADO CONFORME
 Por los Registrados

97364-D



Registrado primeramente en cumplimiento del Decreto u Orden No. del Trib. Sup. de Tierras, en el Libro Registro Vol. folio bajo el No. el día de de

TRANSFERENCIA del Certificado No. Libro No. folio

TRANSFERIDO al Certificado No. Libro No. folio

REPUBLICA DOMINICANA



REGISTRO DE TITULOS EN NOMBRE DE LA REPUBLICA

SOLAR No.
MANZANA No.
PORCION No.
PARCELA No. 1493
DIST. CATASTRAL No. 2
DE SAN J. DE OCOA

AREA:
05 69 35
H. A. M. D

Certificado de Título Núm. 2352.-

PROPIETARIO (S) : "MARCELINO PRESINAL SANTOS",

DESCRIPCION : DECRETO NO. 71-2423 DE FECHA 8 DEL MES DE NOVIEMBRE DEL AÑO 1971.- PARCELA NO. 1493 (MIL CUATROCIENTOS NOVENTA Y TRES) DEL DISTRITO CATASTRAL NO. 2 (DOS) DEL MUNICIPIO DE SAN JOSE DE OCOA, SECCION "LAGUNETA", PROVINCIA DE PERAVIA.- SE DECLARA AL SEÑOR MARCELINO PRESINAL SANTOS, DOMINICANO, MAYOR DE EDAD, CASADO, CON ANGELINA TEJEDA DIAZ, CED. NO. 4892, S-13, DOMICILIADO Y RESIDENTE EN SANTO DOMINGO,- INVESTIDO CON EL DERECHO DE PROPIEDAD DE ESTA PARCELA, LA CUAL TIENE UNA EXTENSION SUPERFICIAL DE: CINCO (05) HECTAREAS, SESENTA Y NUEVE (69) AREAS Y TREINTA Y CINCO (35) CENTIAREAS.- Y CON LOS SIGUIENTES LINDEROS ACTUALES: AL NORTE: D. C. NO. 2 DEL MUNICIPIO DE SAN JOSE DE OCOA; AL ESTE: P. NO. 1492; AL SUR: P. NO. 1494; AL OESTE: D. C. NO. 2 DEL MUNICIPIO DE SAN JOSE DE OCOA (OTRA PARTE).- DE ACUERDO CON LA CERTIFICACION ANEXA DEL DIRECTOR GENERAL DE MENSURAS CATASTRALES.- E INVESTIDO CON EL DERECHO DE PROPIEDAD DE LAS MEJORAS EXISTENTES EN ESTA PARCELA.- EXPEDIDO EN SANTO DOMINGO, REPUBLICA DOMINICANA, HOY DIA 8 DEL MES DE NOVIEMBRE DEL AÑO 1971.- FDO. DR. FCO. ML. PELLERANO J.- SECRETARIO.- HAY UN SELLO QUE DICE TRIBUNAL DE TIERRAS-REPUBLICA DOMINICANA.-

TRANSCRITO EL DIA 11 DEL MES DE NOVIEMBRE DEL AÑO 1971
el REGISTRADOR DE TITULOS DEL DEPARTAMENTO DE SAN CRISTOBAL.-

TITULOS

ESTE TITULO NO TIENE VALOR LEGAL SIN LA COPIA SIRCEA
NO HAY MENCION ANOTACION





1- N 65-04 E	41.00 M.	21- S 25-11 E	21.62 M.
N 46-50 E	32.50 "	S 41-11 E	13.18 "
N 37-35 E	66.00 "	S 28-20 W	44.34 "
N 02-32 E	43.21 "	S 15-13 W	38.32 "
N 22-43 E	89.00 "	S 10-44 W	24.28 "
N 19-18 E	18.36 "	S 22-46 E	37.07 "
N 00-37 W	24.66 "	S 40-52 W	30.93 "
N 40-59 E	29.51 "	S 11-31 W	31.21 "
N 66-55 E	10.00 "	S 80-25 W	53.40 "
10- N 81-24 E	36.06 "	30- N 59-23 W	63.74 "
N 89-48 E	40.07 "	48- S 58 W	84.20 "
S 59-02 E	73.50 "	N 17-04 W	15.00 "
S 33-08 E	75.28 "	N 76-45 W	144.00 "
S 86-53 E	110.93 "	S 87-11 W	62.29 "
S 89-27 E	11.61 "	35- N 27- 51 W	67.25 "
S 88-10 E	47.00 "		
S 19-23 W	78.00 "		
S 31-50 E	18.50 "		
S 15-31 E	15.00 "		
20- S 04-21 E	20.57 "		

REPUBLICA DOMINICANA
 MENSURA CATASTRAL

PARCELA NO. 1785
 SOLAR NO. MANZANA NO.
 D. C. NO. 2 DEL MUNICIPIO DE SAN JOSE DE OCOA P. No. 1790
 SECCIONES LAGUNETAS LUGAR.
 PROVINCIA DE PERAVIA
 ANTIGUIDAD DE FECHA 7 DE AGOSTO DE 1956
 RECLAMANTE:
 PROPIEDAD DE: SUCC. DE EUGENIO CALDERON MEJIA
 DECISION
 AREA 12 HA. 38 a. 00 ca. ESCALA
 FECHA: 2 de Mayo de 1984
 DIRECTOR
 AGRI-ME-508
 CODIA-1983

REPUBLICA DOMINICANA



REGISTRO DE TITULOS EN NOMBRE DE LA REPUBLICA

Registrado primeramente en cumplimiento del Decreto ú Orden No. del Trib. Sup. de Tierras, en el Libro Registro Vol. folio. bajo el No. el día. de

TRANSFERENCIA del Certificado No. 2504 Libro No. 15 folio. 112

TRANSFERIDO al Certificado No. Libro No. folio.

SOLAR No.

MANZANA No.

PORCION No.

PARCELA No. 1785

DIST. CATASTRAL No. 2

DE SAN JOSE DE OCOA

AREA:

12 38 00
H. A. M. D

Certificado de Titulo Num. "2937"

PROPIETARIO (S): "MARIA DEL CARMEN CALDERON CUSTODIO, JULIA CALDERON CUSTODIO Y JUAN - MARTINEZ SOLANO!"

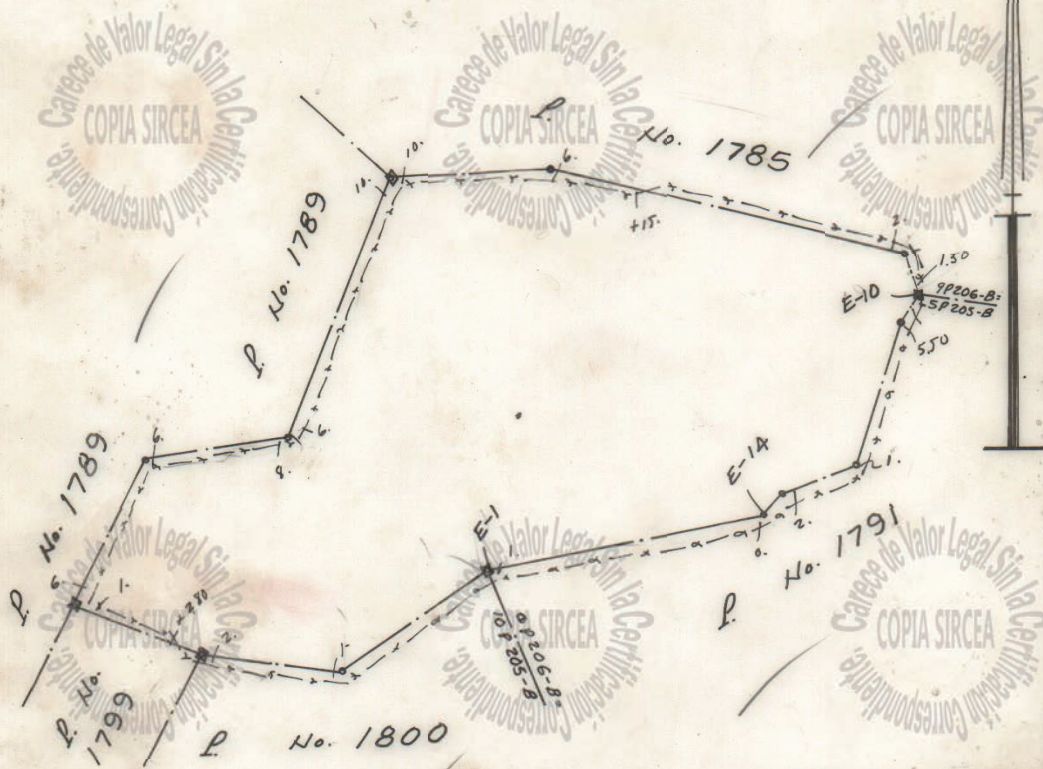
MUNICIPIO: SAN JOSE DE OCOA.-

DESCRIPCION: EN VIRTUD DE RESOLUCION DEL TRIBUNAL SUPERIOR DE TIERRAS DE FECHA 15 (QUINCE) DE MARZO DE 1988, INSCRITA EN EL REGISTRO DE TITULOS DEL DEPARTAMENTO DE SAN CRISTOBAL EN FECHA 7 DE SEPTIEMBRE DE 1988, BAJO EL NO. 1319, FOLIO 300, DEL LIBRO DE INSCRIPCIONES NO. 26, QUE DECLARA QUE LAS UNICAS PERSONAS CON CALIDAD LEGAL PARA RECIBIR LOS BIENES DE LOS FINADOS EUGENIO CALDERON MEJIA Y EMILIA CUSTODIO DE JESUS, SON SUS HIJOS DE NOMBRES: JULIA CALDERON CUSTODIO, DOMINGA CALDERON CUSTODIO, JUANA BAUTISTA CALDERON CUSTODIO, MARIA DEL CARMEN CALDERON CUSTODIO; QUE ORDENA CANCELAR EL CERTIFICADO DE TITULO NO. 2504 QUE AMPARA EL DERECHO DE PROPIEDAD DE LA PARCELA NO. 1785, DEL D.C. NO. 2 (DOS) DEL MUNICIPIO DE SAN JOSE DE OCOA, LA CUAL TIENE UNA EXTENSION SUPERFICIAL DE 12 (DOCE) HECTAREAS, 38 (TREINTIOCHO) AREAS, 00 (CERO) CENTIAREAS, Y CON LOS SIGUIENTES LINDEROS: AL NORTE: P. NO. 1771; AL ESTE: Y = SUR: PS. NOS. 1791, 1790; OESTE: PS. NOS. 1789, 1770; Y QUE ORDENA ADEMAS, LA EXPEDICION DE UN NUEVO CERTIFICADO DE TITULO QUE AMPARE ESTA PARCELA EN LA SIGUIENTE FORMA Y PROPORCION: A) 3 HAS., 09.5 AS., 00 CAS., PARA CADA UNA DE LAS SRAS. MARIA DEL CARMEN CALDERON CUSTODIO, DOMINICANA MAYOR DE EDAD, CEDULA NO. 5753, SERIE 13, DOMICILIADA Y RESIDENTE EN SANTO DOMINGO; JULIA CALDERON CUSTODIO, DOMINICANA, MAYOR DE EDAD, CEDULA PERSONAL NO. 6941, SERIE 13, DOMICILIADA Y RESIDENTE EN SANTO DOMINGO; B) 6 HAS., 19 AS., 00 CAS., EN FAVOR DEL SR. JUAN MARTINEZ SOLANO, DOMINICANO, MAYOR DE EDAD, CASADO, CEDULA DE IDENTIFICACION PERSONAL NO. 65, SERIE 13, DOMICILIADO Y RESIDENTE EN LA CASA NO. 4 DE LA CALLE RAMON RAMIREZ DEL ENSANCHE LUPERON DE LA CIUDAD DE SANTO DOMINGO.- EN CONSECUENCIA, SE DECLARA A LOS SRES. MARIA DEL CARMEN CALDERON CUSTODIO, JULIA CALDERON CUSTODIO Y JUAN MARTINEZ SOLANO, INVESTIDOS CON EL DERECHO DE PROPIEDAD DE ESTA PARCELA EN LA FORMA Y PROPORCION INDICADA.- SAN CRISTOBAL, R. D., 12 DE SEPTIEMBRE DE 1988.- EL REGISTRADOR DE TITULOS:

Des. Alfonso de Jesús

EN ESTA HOJA DEBAJO DE ESTE SELLO NO HAY NINGUNA ANOTACION
PASAR AL LIBRO _____ FOLIO _____





- 1- S 56-20 W 70.00 M.
- H 84-46 W 53.00 "
- H 67-15 W 52.88 "
- H 26-46 E 64.25 "
- H 92-01 E 54.25 "
- H 20-29 E 110.67 "
- H 87-11 E 62.29 "
- S 76-45 E 144.00 "
- S 17-04 E 15.00 "
- 10-S 35-46 W 13.58 "
- S 15-11 W 59.22 "
- S 69-10 W 30.00 "
- S 46-22 W 11.48 "
- 14-S 77-39 W 110.22 "

REPUBLICA DOMINICANA
MENSURA CATASTRAL

✓ PARCELA No. 1790
 ✓ SOLAR No. 2 MANZANA No. DEL MUNICIPIO DE SAN JOSE DE OCA
 ✓ SECCION LOS RANCHITOS LUGAR: LAS LAGUNETAS
 ✓ PROVINCIA DE PERAVIA
 ✓ ANTIGUO D. C. No.
 ✓ PRIORIDAD DE FECHA: 7 DE AGOSTO DE 1956
 ✓ RECLAMANTE:
 ✓ PROPIEDAD DE: EDUARDO ANTONIO ESPINAL CASADO
 ✓ POR DECISION DE FECHA 9 DE MARZO DE 1984
 ✓ AREA = 3Ha. 51a. 64ca. ESCALA: 1=2000
 ✓ FECHA: 13 DE MARZO 1984 APROBADO
 ✓ ACRIMENSOR DIRECTOR GENERAL

[Handwritten signature]
 DIRECTOR GENERAL

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 27/9/84

R
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b
s

CODIA-1983

Gr 364-D



Registrado primeramente en cumplimiento del Decreto ú Orden No. del Trib. Sup. de Tierras, en el Libro Registro Vol. folio bajo el No. el día de

TRANSFERENCIA del Certificado No. Libro No. folio

TRANSFERIDO al Certificado No. Libro No. folio

REPUBLICA DOMINICANA



REGISTRO DE TITULOS EN NOMBRE DE LA REPUBLICA

SOLAR No.
MANZANA No.
PORCION No.
PARCELA No. 1790
DIST. CATASTRAL No. 2
DE SA. JOSE DE OCOA.

AREA:

2.4H., 51A., 64M.,D

Certificado de Título Núm. " 5461.-

PROPIETARIO (S): " EDUARDO ANTONIO ESPINAL CASADO.-

MUNICIPIO : SA. JOSE DE OCOA.-

DESCRIPCION : DECRETO N.º. 84-450 DE FECHA 27 (VEINTISIETE) DEL MES DE ABRIL DE 1984.- PARCELA N.º. 1790, (MIL SETECIENTOS NOVENTA) DEL DISTRITO CATASTRAL N.º. 2 (DOS) DEL MUNICIPIO DE SA. JOSE DE OCOA, SECCION "LOS RANCHITOS", PROVINCIA DE PERAVIA.- SE DECLARA: AL SEÑOR EDUARDO ANTONIO ESPINAL CASADO.- DOMINICANO, MAYOR DE EDAD, CON CEDULA N.º. 16658, SERIE 13, CON DOMICILIO EN SA. JOSE DE OCOA.- LLEVADO CON EL DERECHO DE PROPIEDAD DE ESTA PARCELA, LA CUAL TIENE UNA EXTENSION SUPERFICIAL DE: 3 (TRES) HECTAREAS, 51 (CINCUENTA Y UNA) AREAS, 64 (SESENTA Y CUATRO) CENTIAREAS, Y CON LOS SIGUIENTES LINDEROS ACTUALES: AL NORTE: P. N.º. 1785.- AL ESTE: P. N.º. 1785, 1791.- AL SUR: P. N.º. 1791, 1800, 1799.- AL OESTE: P. N.º. 1789.- DE ACUERDO CON LA CERTIFICACION ANEXA DEL DIRECTOR GENERAL DE MEDSURAS CATASTRALES, E LLEVADO CON EL DERECHO DE PROPIEDAD DE SUS MEJORAS DE FRUTOS MENORES Y MAYORES.- PASTOS NATURALES Y CERCAS DE ALAMBRES DE PUAS.- EXPEDIDO EN SANTO DOMINGO, REPUBLICA DOMINICANA.- HOY, DIA 27 DEL MES DE ABRIL DEL AÑO 1984.- FDO. DR. FCO. MILLERANO J.- SECRETARIO.- HAY UN SELLO QUE DICE TRIBUNAL DE TIERRAS- SANTO DOMINGO, REPUBLICA DOMINICANA.-

TRANSCRITO EL DIA 17 DEL MES DE MAYO DE 1984.-

EL REGISTRADOR DE TITULOS DEL DEPARTAMENTO DE SA. CRISTOBAL.-

EN ESTA HOJA DEBAJO DE ESTE SELLO NO HAY NINGUNA ANOTACION

PASA AL LIBRO _____ FOLIO _____



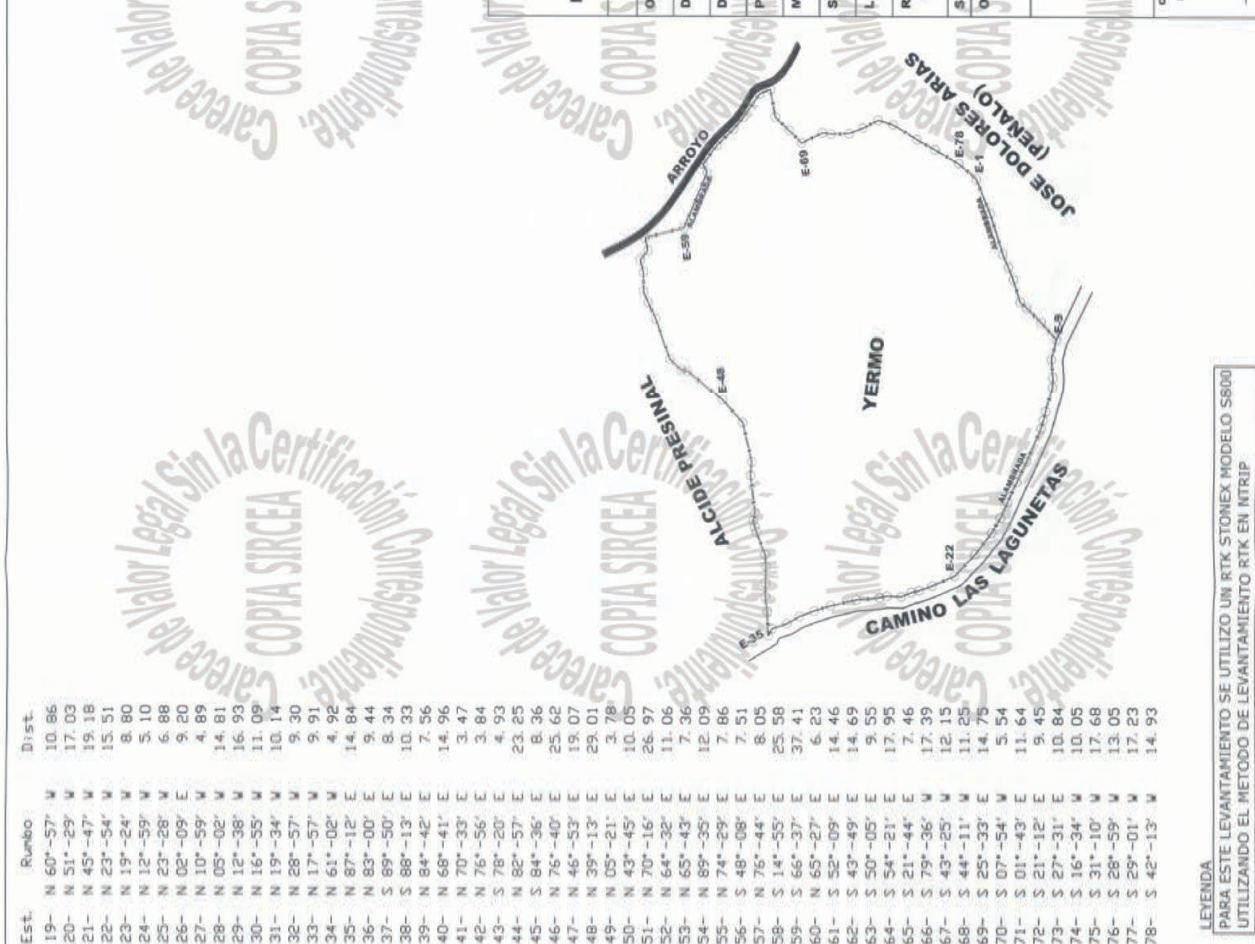
PUNTOS GEORREFERENCIADOS (COORDENADAS UTM ZONA 18N)

FACTOR DE ESCALA COMBINADO: 0.9997144661

PUNTO	X	Y	MATERIALIZACION	FECHA
PG-01	339197.25	2048891.57	HITO DE VARILLA	24/05/19
PG-02	339202.69	2048728.33	HITO DE VARILLA	24/05/19
VINCULACION A LA RED GEODESICA DE LA JI				
REP. JI	EPOCA DE REFERENCIA	FECHA		
BARA, LVEG	2016.434	06/06/16 (158 D.J.)		

Est.	COORDENADAS GEOMETRICAS		Rumbo	Dist.	
	X	Y			
1	339308.26	2048641.72	49	359188.59	2048825.94
2	339287.08	2048532.56	50	339188.94	2048829.70
3	339261.92	2048624.34	51	339195.90	2048836.96
4	339253.62	2048620.81	52	339221.28	2048846.06
5	339245.93	2048617.59	53	339231.26	2048850.82
6	339232.31	2048613.20	54	339237.97	2048853.85
7	339228.58	2048608.97	55	339250.06	2048853.94
8	339219.62	2048599.77	56	339257.63	2048856.04
9	339208.89	2048589.99	57	339263.23	2048851.02
10	339196.55	2048593.29	58	339271.07	2048852.87
11	339183.19	2048592.19	59	339277.65	2048828.16
12	339178.97	2048592.44	60	339311.99	2048813.31
13	339163.67	2048597.09	61	339317.66	2048815.90
14	339158.29	2048598.55	62	339329.08	2048807.03
15	339153.05	2048600.01	63	339339.25	2048796.43
16	339132.51	2048608.99	64	339346.57	2048790.30
17	339119.58	2048615.23	65	339361.16	2048779.84
18	339106.76	2048620.93	66	339363.92	2048772.91
19	339097.90	2048625.38	67	339346.82	2048769.77
20	339088.06	2048630.66	68	339338.47	2048760.95
21	339074.73	2048641.26	69	339330.63	2048758.88
22	339060.99	2048654.64	70	339336.98	2048739.57
23	339054.70	2048658.82	71	339336.22	2048734.08
24	339051.78	2048677.12	72	339336.57	2048722.45
25	339050.64	2048682.08	73	339339.99	2048713.64
26	339047.90	2048688.39	74	339344.99	2048704.03
27	339048.24	2048697.59	75	339342.13	2048694.39
28	339047.31	2048702.39	76	339332.98	2048679.27
29	339046.01	2048717.14	77	339326.66	2048667.85
30	339042.31	2048733.66	78	339318.30	2048652.78

Est.	COORDENADAS GEOMETRICAS		Rumbo	Dist.	
	X	Y			
1	339035.69	2048753.83	1	S 66°-36' V	23.08
2	339031.18	2048761.97	2	S 72°-10' V	26.84
3	339028.13	2048771.39	3	S 65°-56' W	8.66
4	339023.83	2048773.77	4	S 67°-18' W	8.33
5	339020.65	2048774.50	5	S 72°-08' W	14.31
6	339018.01	2048775.65	6	S 41°-27' W	5.64
7	339056.36	2048775.62	7	S 44°-12' V	12.84
8	339066.69	2048775.30	8	S 47°-40' V	14.52
9	339074.21	2048776.00	9	N 75°-01' V	12.78
10	339088.15	2048781.44	10	S 84°-29' W	11.41
11	339091.42	2048782.59	11	N 87°-44' W	6.23
12	339095.99	2048783.46	12	N 73°-06' W	15.99
13	339099.99	2048782.47	13	N 74°-46' V	5.58
14	339123.07	2048785.32	14	N 74°-28' V	5.44
15	339131.40	2048784.53	15	N 66°-23' W	22.42
16	339136.33	2048790.44	16	N 64°-14' W	14.35
17	339156.33	2048803.47	17	N 65°-02' W	14.03
18	339170.25	2048803.47	18	N 64°-12' W	10.23



REPUBLICA DOMINICANA
PODER JUDICIAL
JURISDICCION INMOBILIARIA
DIRECCION REGIONAL DE MENSURAS CATASTRALES
DEPARTAMENTO ESTE

OPERACION: MENSURA PARA SANEAMIENTO
PLANO INDIVIDUAL
DESIGNACION CATASTRAL DE ORIGEN No.: P. No. 1498 D C. 02
DESIGNACION TEMPORAL No.: 42019022025 1 1
PROVINCIA: SAN JOSE DE OCOA
MUNICIPIO: SAN JOSE DE OCOA

SECCION:
LUGAR: LAS LAGUNETAS

REFERENCIA DE UBICACION:
LAS LAGUNETAS EN EL MUNICIPIO Y PROVINCIA SAN JOSE DE OCOA

SUPERFICIE DE PARCELA: 55,861.66 m²
ESCALA: 1: 3,200
No. DE LA MINA: 2
OBSERVACIONES:
DESIGNACION CATASTRAL POSICIONAL:

De conformidad con lo dispuesto en el Reglamento General de Mensuras Catastrales.
AGENCIARIA: AGENTURA BESLA
Agrónomo Geómetra: EUGENIO

LEYENDA
PARA ESTE LEVANTAMIENTO SE UTILIZO UN RTK STONEX MODELO S600 UTILIZANDO EL METODO DE LEVANTAMIENTO RTK EN NTRIP





REGISTRO DE TÍTULOS

JURISDICCIÓN INMOBILIARIA
PODER JUDICIAL REPÚBLICA DOMINICANA

MATRÍCULA



3000763808

FECHA Y HORA DE INSCRIPCIÓN

12/9/2022 03:46 p. m.

MUNICIPIO

SAN JOSÉ DE OCOA

PROVINCIA

SAN JOSÉ DE OCOA

SUPERFICIE EN METROS CUADRADOS

55,861.66 m²

OFICINA

Registro de Títulos de Bani

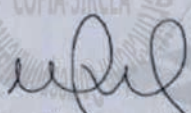
DESIGNACIÓN CATASTRAL

303498179198

PROPIETARIO

ERNESTO FRANCISCO FERNANDEZ ALVAREZ Y KENIA JOSEFINA TEJEDA DE FERNANDEZ

En virtud de la Ley y en nombre de la República se declara TITULAR DEL DERECHO DE PROPIEDAD a ERNESTO FRANCISCO FERNANDEZ ALVAREZ, de nacionalidad Dominicana, mayor de edad, Cédula de Identidad No.001-0371156-0 y KENIA JOSEFINA TEJEDA DE FERNANDEZ, de nacionalidad Dominicana, mayor de edad, Cédula de Identidad No.001-0373879-5, casados entre si, sobre el inmueble identificado como 303498179198, que tiene una superficie de 55,861.66 metros cuadrados, matrícula No.3000763808, ubicado en SAN JOSÉ DE OCOA, SAN JOSÉ DE OCOA. El derecho tiene su origen en SANEAMIENTO, según consta en el documento No.2022-0149 de fecha 19/abr/2022, Sentencia emitida por el Tribunal de Tierras de Jurisdicción Original de la provincia Peravia. Inscrito a las 3:46:51 p. m. el 12/sep/2022. La sentencia en que se fundan los derechos garantizados por el presente Certificado de Título puede ser impugnada mediante el Recurso de Revisión por Causa de Fraude durante un (1) año a partir de la emisión del presente. Ninguna persona que adquiera este inmueble antes del vencimiento del plazo indicado se reputa tercer adquirente de buena fe. Emitido el 13 de septiembre del 2022.


Mariel Gross
Firma Habilitada
Registro de Títulos de Bani



Original

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LEER AL DORSO

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	LM-IF-01					
	Revisión No. 2					
Documento Oficial	No. Servicio	LM-AA-4123	Fecha	10 agosto 2023	Página	1

Caracterización De Aguas Superficiales Tecnoambiente, San José de Ocoa, R.D.

LABORATORIO AMBIENTAL Y ENERGETICO



Monitoreo Realizado Para TECNOAMBIENTE

Agosto 2023
Santo Domingo, República Dominicana

LAMENER SRL, Santo Domingo, R.D.	hespinosa@lamener.com
Manzana B, No.15, Residencial Don Gregorio, Km 15 Aut. Duarte	Teléfono 809-372-5521



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	Revisión No. 2					
Documento Oficial	No. Servicio	LM-AA-4123	Fecha	10 agosto 2023	Pagina	2

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B- PRESERVANTES	5
C- COOLER	5
RECEPCIÓN DE MUESTRAS EN EL LABORATORIO	5
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EQUIPOS UTILIZADOS PARA LOS ANÁLISIS	7
RESULTADOS	8
CONCLUSIONES Y RECOMENDACIONES:	9

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 LAMENER Laboratorio Ambiental y Energético	Código documento		CARACTERIZACIÓN AGUAS SUPERFICIALES TECNOAMBIENTE			
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INTRODUCCIÓN

A continuación, presentaremos los resultados del muestreo y caracterización de las Aguas Superficiales de Arroyo y Cañada en San José de Ocoa, República Dominicana.

El muestreo fue realizado por el cliente, en fecha del 10 de agosto de 2023, en horario diurno y las muestras se trasladaron al laboratorio ese mismo día en condiciones adecuadas.

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Manzana B, No.15, Residencial Don Gregorio, Km 15 Aut. Duarte	Teléfono 809-372-5521

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I- RECOLECCIÓN DE MUESTRAS

Las muestras fueron recolectadas por el cliente utilizando las directrices de la norma NORDOM 39.

a- FRASCOS UTILIZADOS

Se utilizaron tres (3) tipos de frascos para recolectar las muestras según los lineamientos de la norma NORDOM 39 y de la OPS.

Estos frascos se colocan en una bolsa Ziploc por si ocurre un derrame el agua permanezca dentro de la bolsa y no se mezclen.

Cada frasco debe cumplir con condiciones diferentes y cada uno es destinado de acuerdo con el tipo de muestra que se requiere analizar.


Para este muestreo se utilizaron:

- 1-Plastico 1000 ml, Parámetros fisicoquímicos
- 2-Cristal color ámbar 1000 ml, parámetros orgánicos
- 3-Plasticos 125 ml, parámetros bacteriológicos



Foto 1.1-Kit de frascos para monitoreo utilizado por LAMENER.

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Manzana B, No.15, Residencial Don Gregorio, Km 15 Aut. Duarte	Teléfono 809-372-5521

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b- PRESERVANTES

Los preservantes se utilizan para conseguir que la muestra llegue al laboratorio con condiciones muy similares a las existentes en el punto de muestreo cuando se tomó la muestra.

En este monitoreo utilizamos los siguientes preservantes:

- 1- Ice Blue para mantener la temperatura
- 2- Hielo para mantener la temperatura


c- COOLER

Se utilizaron cooler de mano marca COLEMAN.

II- RECEPCIÓN DE MUESTRAS EN EL LABORATORIO

Las muestras fueron recibidas en las instalaciones de LAMENER con una temperatura de **8.6 Grados Celsius**, es decir que según con las normas de la OPS y lo recomendado por los métodos Estándar que es 10 grados Celsius a la llegada las muestras se encontraron dentro de norma.

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III- METODOLOGÍA

Para la preparación y análisis de estas muestras se utilizó los métodos Standards en su versión del año 2012.

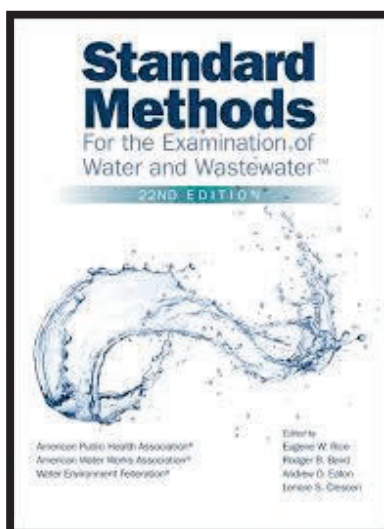


Foto 1.2- Edición 22 de los métodos Standard.


IV- ASPECTOS ORGANOLÉPTICOS

Al momento del monitoreo las aguas tomadas se encontraban de la siguiente forma:

Parámetros/Estado	Cañada	Arroyo
Turbidez	Media	Media
Color	Alto	Medio
Olor	Medio	Bajo
Solidos	Medios	Bajos

Tabla 1.1- Aspectos organolépticos al instante del monitoreo.

LAMENER SRL, Santo Domingo, R.D.	hespinosa@lamener.com
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V- EQUIPOS UTILIZADOS PARA LOS ANÁLISIS

Para el análisis fisicoquímico se utilizó el último espectrofotómetro de luz visible, el DR-3900 y el DR-900, etc.




Fotos 1.3 y 1.4- DR 3900 y DR 900 respectivamente.



Para el análisis bacteriológico se utilizaron los siguientes equipos:

- Incubadora marca Quincy.
- Baño de maría, marca *Presicion*
- Contador de colonia, marca *Presicion*
- Etc.

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Manzana B, No.15, Residencial Don Gregorio, Km 15 Aut. Duarte	Teléfono 809-372-5521


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	LM-IF-01					
	Revisión No. 2					
Documento Oficial	No. Servicio	LM-AA-4123	Fecha	10 agosto 2023	Página	8

VI- RESULTADOS

Parámetros	Localización	Unidades	Arroyo (P1)	Arroyo Arriba (P2)	Cañada (P3)	Norma	Metodos
Hora	-	-	10:20 AM	10:08 AM	10:15 AM	-	-
Coliformes Totales	-	(NMP/100 mL)	7,900	7,900	240,000	1,000	SM-9221 B
Coliformes Fecales	-	(NMP/100 mL)	4,900	3,300	240,000	1,000	SM-9221 E
Escherichia Coli	-	-	Presente	Presente	Presente	-	SM-9221-D
Pseudomona Aeruginosa	-	-	Presente	Presente	Presente	-	SM-9221-F
Estreptococos	-	UFC/ml	29	81	1 200	-	SM-9230-C
pH	-	-	8.44	8.30	8.26	6.5 - 8.5	SM-4500-H-B
Conductividad	-	µS/cm	803	772	4,530	-	SM-2510-B
Sólidos Totales Disueltos	-	mg/Litro	405	385	2,440	1000	SM-2540-C
Sólidos Suspendidos Totales	-	mg/Litro	2.0	1.0	6.0	-	SM-2540-D
Sólidos Sedimentables	-	mg/Litro	< 1.0	< 1.0	< 1.0	-	SM-2540-F
Oxígeno Disuelto	-	% Sat	102	102.9	92.8	> 70	SM-4500-O-G
Fósforo Total	-	mg/Litro	1.13	0.96	1.45	0.025	SM-4500-P-C
Demanda Química de Oxígeno	-	mg/Litro	16	10	68	-	SM-5220-D
Demanda Bioquímica de Oxígeno	-	mg/Litro	4.20	2.50	15.7	5.0	SM-5210-B
Color Verdadero	-	Pt.Co	8.0	2.0	17	50	SM-2120-C
Color Aparente	-	Pt.Co	19	6.0	65	-	SM-2120-C
Temperatura	-	oC	28.4	27.7	28.4	3.0	SM-2550-B
Turbidez	-	NTU	3.0	2.0	5.0	-	SM-2130-B
Fosfatos	-	mg/Litro	0.37	0.31	0.48	-	SM-4500-P
Nitrógeno Total	-	mg/Litro	1.5	0.7	2.2	-	SM-4500-N-C
Cianuro	-	mg/Litro	0.003	< 0.002	0.003	0.1	SM-4500-CN
Aceites y Grasas	-	mg/Litro	0.8	0.6	1.1	1.0	SM-5520-D
Nitrógeno de Nitrito + Nitrógeno de Nitrato	-	mg/Litro	0.304	0.203	0.608	10	SM-4500-NO ₂ ⁻ NO ₃ ⁻ -E
Nitrógeno Amoniacal	-	mg/Litro	0.69	0.42	1.49	0.5	SM-4500-NH ₃
METODOLOGÍA: Métodos adaptados desde Standard Methods for the Examination of Water and Wastewater, en su versión en inglés, (22 ^{va}), año 2012.							
Fecha Inicio Análisis:		Hora Inicio Análisis:		Fecha Fin Análisis:		Hora Fin Análisis:	
10/8/2023		3:24 PM		18/08/2023		11:54 AM	
Fecha Recepción:		Recibido en el lab. por:		Analistas:		Revisado:	
10/8/2023		Ing. Rosalba Castillo		Lic. Ramón Medina / Ing. Francisco Bona		Ing. Harvey Espinosa	

Tabla 1.2- Resultados microbiológicos y fisicoquímicos.

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	Código documento		CARACTERIZACIÓN AGUAS SUPERFICIALES TECNOAMBIENTE			
	LM-IF-01					
	Revisión No. 2					
Documento Oficial	No. Servicio	LM-AA-4123	Fecha	10 agosto 2023	Página	9

VII- CONCLUSIONES Y RECOMENDACIONES:

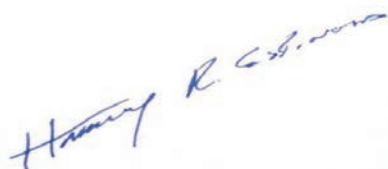
Los resultados obtenidos se compararon con la Norma Ambiental de Aguas Superficiales y Costeras del Ministerio de Medio Ambiente.

Todas las muestras analizadas presentaron valores de coliformes totales y coliformes fecales fuera de norma, también presentaron pseudomona, E. Coli y Estreptococos.

Desde el punto de vista fisicoquímico, la muestra de arroyo (P1) presentó niveles de nitrógeno amoniacal y fósforo total fuera de norma.

La muestra de cañada presentó niveles de solidos totales disueltos, oxígeno disuelto, DBO, aceites y grasas, fósforo total y nitrógeno amoniacal sobre los límites permisibles por la norma.

La muestra de arroyo (P2) presentó la mayoría de los parámetros fisicoquímicos analizados dentro de norma, solo presentó el nivel de fósforo total fuera de norma.



Ing. Harvey R. Espinosa Rivera
 Director Técnico
 Consultor ambiental número 13-582



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Regularization Plan format

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18.	Construction and/or repairing of perimeter and internal roads	14
19.	Emergency area	15
	Basic information	16
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Study

1. Geological study

Conduct the following study and attach the results

- soil stratigraphy
- bearing capacity
- permeability
- water table

【Evaluation criteria】

The purpose of the questions in this item is to confirm the distribution of soil types in planning the construction of the disposal site.

These items are not included in the evaluation of final disposal site.

2. Hydrogeological study

(1) Situation of groundwater

- There is groundwater less than 3 m from the bottom of a waste layer.
- There is groundwater more than 3 m and less than 40 m from the bottom of a waste layer.
- There is no groundwater less than 40 m from the bottom of a waste layer.

(2) Nearby water source

Within 500 m of the existing FDS, there is water source below.

- River (Number _____)
- Lake
- Well
- Others (_____)

- Figure_2-1 (Location and number of water source)

【Evaluation criteria】

The purpose of the questions in this item is to confirm the groundwater in planning the construction of the disposal site.

These items are not included in the evaluation of final disposal site.

3. Topographic study of the site

- (1) Location of the dumping site with UTM coordinates and photos.
- (2) Evidence of the legal status of the land, including: cadastral map, perimeter with coordinates, lease or purchase contract.

【Evaluation criteria】

Failure to prove rental or purchase of land will result in disapproval.

- (3) Land use regulations
 - Figure_3-1 (Location of illegally occupied land with no possibility of negotiation)
 - Figure_3-2 (Location of boundaries)
 - Figure_3-3 (Location of the protected areas of the country)

※Protected areas include the following areas

- 1) Forest reserves
- 2) National parks
- 3) Procted national areas
- 4) National monuments
- 5) Areas of high biodiversity
- 6) Areas of special ecological conditions

【Evaluation criteria】

The purpose is to verify land use. These items are not included in the evaluation of final disposal site.

- (4) Surrounding conditions and enviironment (location map)
 - Figure_3-4 (Location of nearby rivers)
 - Figure_3-5 (Location of the current facilities: infrastructure equipment, safety facilities, etc.)

【Evaluation criteria】

The purpose is to verify land use. These items are not included in the evaluation of final disposal site.

4. Environmental monitoring (biogas monitoring examination and groundwater monitoring wells)

(1) Identifying and measures for environmental and social impacts.

Item			Problem	Measures and effects	
Environment	Air	operatio n			
		close			
	Odor	operatio n			
		close			
	water	operatio n			
		close			
	soil	operatio n			
		close			
	waste	operatio n			
		close			
	Biotico	protected area	operatio n		
			close		
landscape		operatio n			
		close			
social	livelihood	operatio n			
		close			
	Working environmen t	operatio n			
		close			
	Community health & safty	operatio n			
		close			
Others	accident	operatio n			
		close			
	Climate change	operatio n			
		close			

Minimum requirements are stated in the technical and operations manuals based on sustainability, economics, etc. If it is not included some of minimum requirements, the promoter shall describe the reasons why.

【Evaluation criteria】

MA will confirm that the minimum requirements have been complied with.

Minimum requirements are mentioned in the technical & operations manuals based on sustainability, economics, etc.

Item		Criteria (MA)	
Environment	Air	operation	*It is described that soli cover will be implmented to prevent the release of anaerobic gases. *It is described that gas venting pipes will be installed to prevent the generation of anaerobic gases.
		close	It is described that the final soil cover will be implemented to promote stabilization of the disposal site.
	Odor	operation	*It is described that soil cover will be implemented to prevent the odor.
		close	*It is described that final soil cover will be implemented to prevent the odor.
	water	operation	*It is described that soil cover will be implmented to reduce infiltration of rainwater into the waste beds. *It is described that gas venting pipes will be installed to reduce the generation of anaerobic gases and improve water quality. *It is described that wastewater treatment facility will be installed and manament to improve water quality. *It is described that storm drainage facilities will be installed to reduce infiltration of storm water into the waste beds.
		close	*It is described that final soil cover will be implemented to reduce infiltration of storm water into the waste beds.
	soil	operation	*It is described that the waste scattering will be improved by implemantation of soil cover. *It is described that the waste scattering will be improved by landfill section management.
		close	—
	waste	operation	*It is described that the waste scattering will be improved by landfill section management.
		close	—
Biotico	protected area	operation	
		close	*It is described that ecological impacts will be minimized by final cover soil and greening.
	landscape	operation	*It is described that the landscape will be improved due to reduce waste scattaring by implemantation of soil cover. *It is described that the landscape will be improved due to reduce waste scattering by landfill section management.
close		*It is described that the landscape will be improved by final soil cover and Greening.	
social	livelihood	operation	*It is described that social inclusion program will be developed and implemented to improve the lives of Wastepickers and others. (Note: the planning and implementation of the program must start before the construction).
		close	—
	Working environment	operation	*It is described that Working environment will be improved by implementing occupational health and safety measures (protective equipment, safety training).
		close	—
	Community	operation	[local hygiene]

	health & safty		*It is described that the flies and other pests are not produced by implementaion of soil cover. [local Security] *it is described that Gates and fences will be installed to prevent trespassers and to preserve the local area.
		close	—
Others	accident	operation	[Accident/Fire] *It is described that adoption of preventive measures, measures, and emergency communication for accidents/ fire will be setup to reduce accidents/fire and implement appropriate measures will be implemented. [fire] *It is described that soil cover will be implemented to reduce the generation of flammable gases. *It is described that gas venting pipes will be installed to prevent the generation of flammable gases.
		close	—
	Climate change	operation	[greenhouse gases] *it is described that generation of GHG will be controlled by installing gas venting pipes. [Typhoon, etc.] *It is described that soil cover will be implemented to prevent waste scattering caused by typhoons, etc. *It is described that measures and emergency contact information will be setup for the typhoon or other natural disasterand and appropriate measures will be implemented.
		close	
Item		Monitoring Criteria (MA)	
Environment	Air	operation	*It is described that anaerobic gas conditions will be monitored indirectly through gas vent pipe condition monitoring. (minimum 6 months/time)
		close	*It is described that anaerobic gas conditions will be monitored indirectly through gas vent pipe condition monitoring. (minimum 6 months/time)
	Odor	operation	—
		close	—
	water	operation	*It is described that monitoring of discharge water quality will be conducted to monitor water quality conditions. (minimum 6 months/time)
		close	*It is described that monitoring of discharge water quality will be conducted to monitor water quality conditions. (minimum 6 months/time)
	soil	operation	—
		close	—
	waste	operation	—
		close	—
Biotico	protected area	operation	—
		close	—
	landscape	operation	—
		close	—
social	livelihood	operation	It is described that monitoring of social inclusion program will be conducted to checked progress, problems, measures and effective (monitoring frequency depends on the program).
		close	
	Working environment	operation	—
		close	—

	Community health & safty	operation	—
		close	—
Others	accident	operation	—
		close	—
	Climate change	operation	—
		close	—

Operation

5. Establish a surveillance program to prevent voluntary burning of waste and inform in time when the fire occurs naturally

(1) Emergency contact network (name and phone number)

1) Operator

Name: _____

Phone number: _____

2) Fire station

Name: _____

Phone number: _____

3) Mayor

Name: _____

Phone number: _____

4) Designated key person of the mayor

Name: _____

Phone number: _____

5) Nearby health center

Name: _____

Phone number: _____

6) MA provincial office

Name: _____

Phone number: _____

7) MA head office (main office) at Santo Domingo

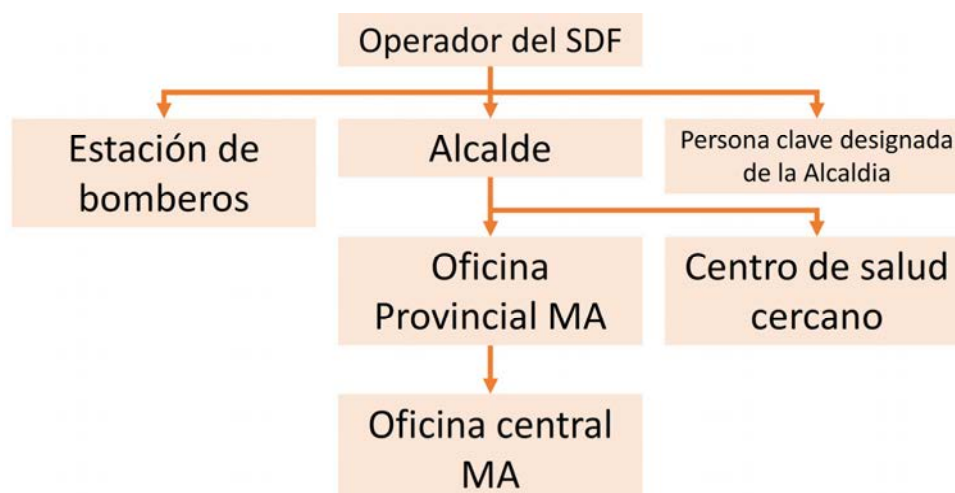
Name: _____

Phone number: _____

(2) Emergency contact system

■ Figure_5-1 (organization chart of contact network)

【Reference】



【Evaluation criteria】

The purpose is to confirm that the person in charge of the disposal site and other relevant persons can be contacted immediately. The FDS that cannot clearly indicate contact information will result in disapproval.

6. Training of the site workers

Trainings of following activities will be conducted at least twice a year.

- Inspect and maintenance major facilities
- Indicate landfilling area and necessary activities such as dumping, compacting and installing cover soil
- Inspect waste and identify unacceptable waste
- Emergency contact

To protect the site workers, following safety tools will be provided and instructed to utilize.

- Uniform
- Gloves
- Safety boots
- Reflective vests
- mask

【Evaluation criteria】

All training activities shall be implemented by the operator to site workers. If any deficiencies are found, the application will be rejected.

7. Waste coverage and compaction

- (1) Amount of cover soil required (Approximately 15% soil of collected waste is required)

_____ m³

- (2) Place(s) where soil can be secured, the distance to there, and the frequency of transportation.

Table_7-1

No.	Place(s)	Distance to there	Frequency	Remarks
1		km		
2		km		
3		km		
Ex	Point A	30.0 km	Once a week	

- (3) Day of the week to cover and compact (3 times or more)

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

【Evaluation criteria】

The purpose is to confirm that the FDS is planned to be used in a sanitary condition. The FDS found to have poor planning will be disapproved.

8. Control of the waste reception (Monitoring of observation and inspection record) and estimation of quantity

(1) Types of waste accepted

(2) Types of waste not accepted

(3) Method of check for unacceptable waste mixed in.

(4) Calculation of waste volume.

1) If some operators are already accepting waste.

a. Daily record of collected waste. At least one week of record keeping.

Table_8-1 Daily record

DAY		/ /			NAME	
No.	Vehicle number	Truck bed capacity			Volume / Capacity	Remarks
		Length	Width	Height		
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
Total volume of waste per day						

b. Weekly record of collected waste.

Table_8-2 Weekly record

Day of the week	Number of heavy equipment	Total volume of waste each day	Remarks
Monday			
Tuesday			
Wednesday			
Thursday			
Friday			
Saturday			
Sunday			
Total	(cars)	(m ³ /week)	

c. Daily waste volume ※Total of volume of waste (m³/week) ÷ 7(days)

(m³/day)

d. Monthly waste volume ※Daily waste volume × 30(days)
_____ (m³/month)

e. Annual volume of waste ※Monthly waste volume×12(month)
_____ (m³/year)

2) If no operator is available

a. Amount of waste accepted per day and per year

Table_8-3

No.	Municipalities	Population (people)	Expected amount of waste (t/day)	Expected amount of waste (t/year)
1				
2				
3				
4				
5				
Total				

※Expected amount of waste (t/day) = Population × Unit Waste Volume (0.775kg/capita/day)

※Expected amount of waste (t/year) = Expected amount of waste (t/day) × 365(days)

【Evaluation criteria】

The purpose is to confirm that the system is ready to accept waste. The FDS found to have poor planning will be disapproved.

9. Guard house and weighing

Indicate the location of the guard house for the reception of waste and for the operator.

- Figure_9-1 (Location and photos of guardhouse)

【Evaluation criteria】

The purpose is to confirm that a guard house is in place for the safety the operator. The FDS without Guard house will result in diisapproval.

10. Control and maintenance of heavy equipment

※No response required if the disposal site is to be closed immediately.

(1) Heavy equipment owned

Describe the number and car model of heavy equipment and date the heavy equipment was last and next car inspected day.

※Maintenance should follow the method recommended by the heavy equipment manufacturer.
If the manufacturer is not known, refer to maintenance instructions for similar products.

Table_10-1

No.	Heavy equipment (Control number)	Car model	Last regular maintenance	Frequency of maintenance	Remarks
1					
2					
3					
4					
5					

(2) Heavy equipment rented

Describe the type of heavy equipment to be rental fee, and the number of units rented.

Table_10-2

No.	Type of heavy equipment to be rentaled (Car model)	Price (DP)	Number of units rentaled	Subtotal
1				
2				
3				
4				
5				

Rental fees for heavy equipment _____ DP per month

※Attach a quotation as a reference

(3) Heavy equipment to be purchased.

Describe the type of heavy equipment, price and the number of units.

Table_10-3

No.	Type of heavy equipment to be purchased (Car model)	Price (DP)	Number of units purchased	Subtotal
1				
2				
3				
4				
5				

Heavy equipment purchased price _____ DP

※Attach a quotation as a reference

【Evaluation criteria】

The purpose is to confirm that some heavy ewuipment is well managed.Management of heavy Insufficient management plan for heavy equipment will result in disapproval.

Design

11. Stabilization of the slopes and reorganization of the waste within the landfill, adequacy of the land

※Recommended values are gives in parentheses. If special values are used, the reason should also be stated.

(1) Slope Gradient

1) Embankment _____ : _____ [ex. 1:3.0]

Reason _____

2) Cut _____ : _____ [ex. 1:3.0]

Reason _____

3) Waste layer _____ : _____ [ex. 1:3.0]

Reason _____

(2) Hight of waste layer

1) Each layer _____ m [ex. 5 m]

Reason _____

2) Total _____ m [ex. 15 m]

Reason _____

- Figure_11-1 (Typical section: Slope gradient and high of waste layer)

【Evaluation criteria】

The porpose is to confirm that it is a safe site plan. If it cannot be confirmed that the FDS is constructed at the recommended slope and elevation or, if special exception values are used, the appropriateness of the slope and elevation, then the FDS will result in disapproval.

12. Waterproofing of the land for the disposal of waste, in case of new cell

※Refer to the manual for New FDS for waterproofing measures.

(1) The new cell has a waterproofing facility below.

- Geomembrane
- Compaction 90-95%

(2) Case of choose "Gomembrane"

- Figure_12-1 (Compacted area)
※Attach the results of the compaction for reference

(3) Case of choose "Compaction 90-95%"

- Figure_12-2 (Installation position)
- Figure_12-3 (Material, thickness, etc.)

【Evaluation criteria】

The purpose is to confirm waterproofing measures. If a geomembrane cannot be installed or sufficient compactions is not possible, a new cell cannot be built.

13. Installation of gas ventilation pipes

※Answer (3) if gas ventilation are not installed.

(1) Position of gas ventilation pipes.

- Figure_12-4 (Plan of location of pipes.)

(2) Detail of gas ventilation pipes

- Figure_12-5 (Material, thickness, etc.)

(3) Reasons for not installing gas ventilation pipes.

【Evaluation criteria】

The purpose is to confirm waterproofing measures. If a geomembrane cannot be installed or sufficient compactions is not possible, a new cell cannot be built.

14. Installation of a leachate collection and storage system

※ Answer (3) if gas ventilation are not installed.

- (1) Position of installation of a leachate collection pipe and storage system
 - Figure_14-1 (General view of disposal site and their position.)

- (2) Detail of gas ventilation pipes
 - Figure_14-2 (Material, thickness, etc.)

- (3) Reasons for not installing gas ventilation pipes.

15. Storm drain installation

- (1) About storm drainage installation
 - Figure_15-1 (General view of disposal site and their position.)
 - Figure_15-2 (Material, thickness, etc.)

16. Perimeter fence installation

- (1) About perimeter fence
 - Figure_16-1 (Location of perimeter fence)
 - Figure_16-2 (Material and height etc.)
- ※ Refer to Technical Standards

17. Access door installation

- (1) About access gate
 - Figure_17-1 (Location of access gate)
 - Figure_17-2 (Material and height etc.)

- (2) Time to unlock

_____ :

- (3) Time to lock

_____ :

18. Construction and/or repairing of perimeter and internal roads

- Figure_18-1 (Plan of perimeter and internal roads)
- Figure_18-2 (Pavement composition)

19. Emergency area

An area is secured to receive waste in case of emergency such as after a typhoon or earthquake.

Yes

No (reason: _____)

【Evaluation criteria】

It is strongly recommended that an emergency area is secured. If it cannot be secured, the reason will be confirmed. And if the reason is not accepted, application will be rejected.

Basic information

20. Basic information

- (1) List of municipalities that use the dumping site. (At least 3 municipalities)

Table_4

No.	Municipalities
1	
2	
3	
Ex	City A

- (2) Location of disposal site

- Figure_20-1 (Showing the location of FDS and the municipalities that use them.)
- Figure_20-2 (Location of areas scattered with waste.)

- (3) Day of the week to receive waste

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

- (4) Time to receive waste

_____ : _____ ~ _____ : _____

- (5) Number of operators required when receiving waste.

_____ People

- (6) The FDS rehabilitation plan

- 1) Plan to close the FDS by 2030
 - 2) Cost for annual operations
 - 3) Cost for closing the disposal site
- ※ Attach basis for cost calculation

- (7) Signs shall be placed at the following below.

- Signs directing visitors from the entrance to of FDS to the dump area.
- Signs indicating hazardous or not entry areas.

Regularization Plan format

Example of Entry

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18.	Construction and/or repairing of perimeter and internal roads	19
19.	Emergency area	19
	Basic information	20
20.	Basic information	20

Study

1. Geological study

Conduct the following study and attach the results

- soil stratigraphy
- bearing capacity
- permeability
- water table

***Omitted as not implemented in the project.**

【Evaluation criteria】

The purpose of the questions in this item is to confirm the distribution of soil types in planning the construction of the disposal site.

These items are not included in the evaluation of final disposal site.

2. Hydrogeological study

(1) Situation of groundwater

- There is groundwater less than 3 m from the bottom of a waste layer.
- There is groundwater more than 3 m and less than 40 m from the bottom of a waste layer.
- There is no groundwater less than 40 m from the bottom of a waste layer.

***Omitted as not implemented in the project.**

(2) Nearby water source

Within 500 m of the existing FDS, there is water source below.

- River (Number
- Lake
- Well
- Others (_____)

■ Figure_2-1 (Location and number of water source)

***Omitted as not implemented in the project.**

【Evaluation criteria】

The purpose of the questions in this item is to confirm the groundwater in planning the construction of the disposal site.

These items are not included in the evaluation of final disposal site.

3. Topographic study of the site

(1) Location of the dumping site with UTM coordinates and photos.



(2) Evidence of the legal status of the land, including: cadastral map, perimeter with coordinates, lease or purchase contract.

From the survey results, no documentation of legal land ownership was found.

【Evaluation criteria】

Failure to prove rental or purchase of land will result in disapproval.

(3) Land use regulations

- Figure_3-1 (Location of illegally occupied land with no possibility of negotiation)

A text indicating public land ownership must be exchanged throughout the repository.

- Figure_3-2 (Location of boundaries)



- Figure_3-3 (Location of the protected areas of the country)

※ Protected areas include the following areas

- 1) Forest reserves
- 2) National parks
- 3) Protected national areas
- 4) National monuments
- 5) Areas of high biodiversity
- 6) Areas of special ecological conditions

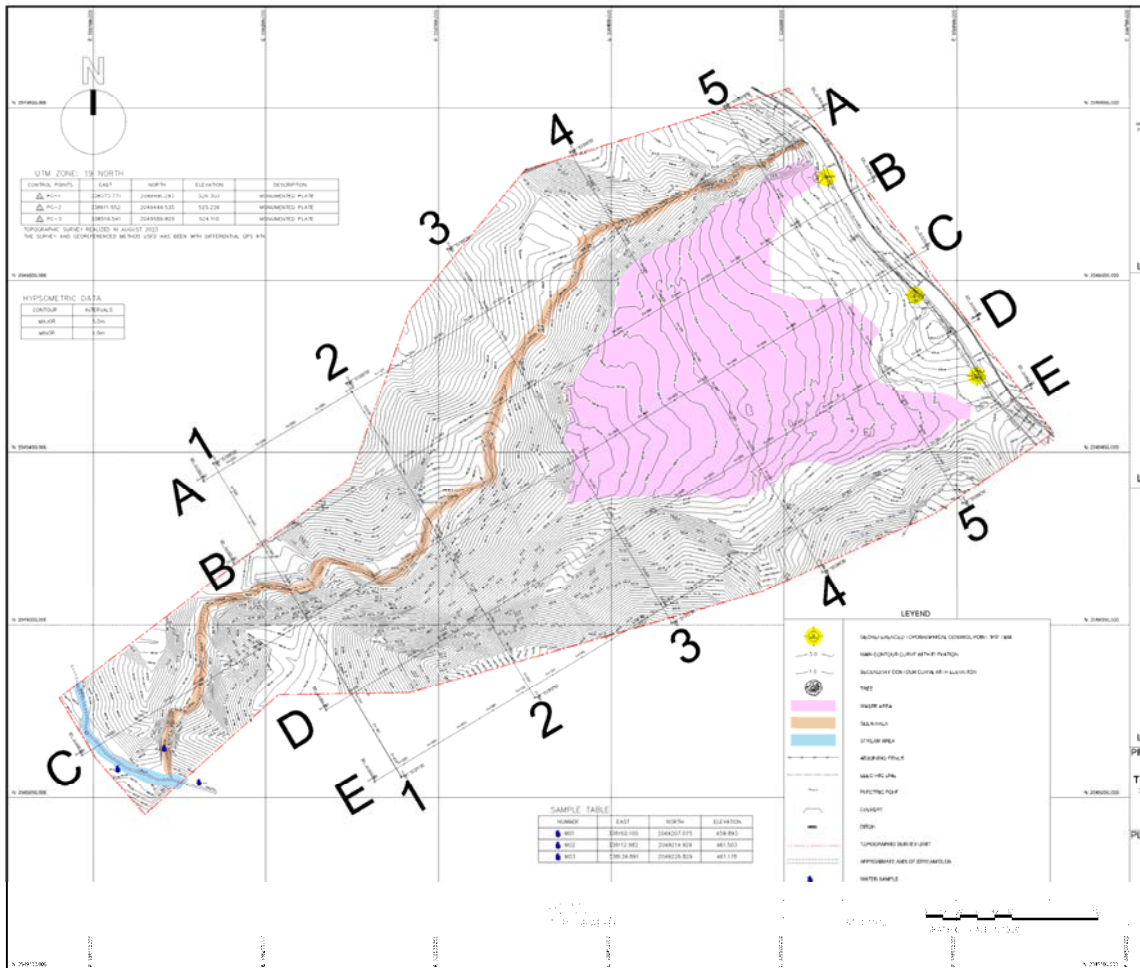
*Omitted as not implemented in the project.

【Evaluation criteria】

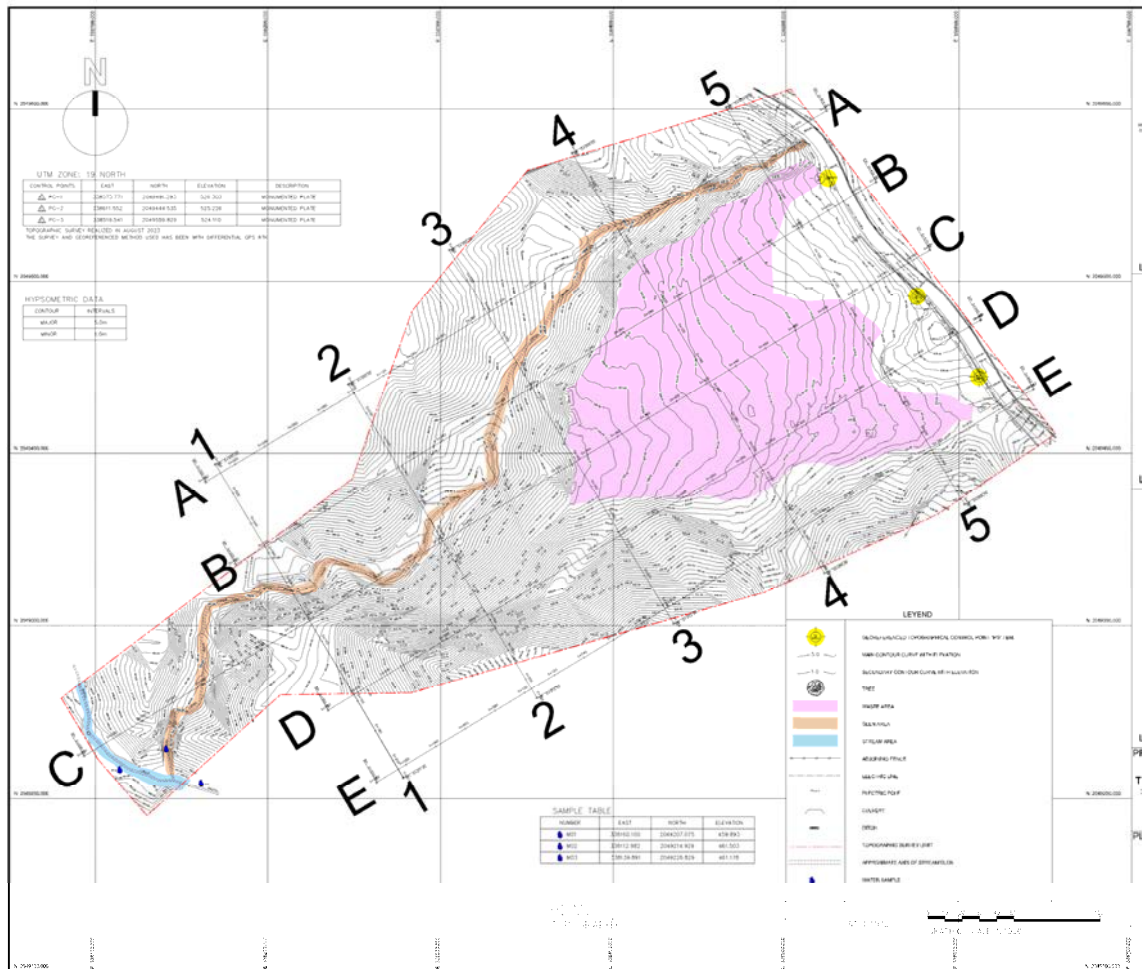
The purpose is to verify land use. These items are not included in the evaluation of final disposal site.

(4) Surrounding conditions and environment (location map)

■ Figure_3-4 (Location of nearby rivers)



■ Figure_3-5 (Location of the current facilities: infrastructure equipment, safety facilities, etc.)



【Evaluation criteria】

The purpose is to verify land use. These items are not included in the evaluation of final disposal site.

4. Environmental monitoring (biogas monitoring examination and groundwater monitoring wells)

(1) Identifying and measures for environmental and social impacts.

Item			Problem	Measures and effects
Environment	Air	operation		
		close		
	Odor	operation		
		close		
	water	operation		
		close		
	soil	operation		
		close		
	waste	operation		
		close		
Biotico	protected area	operation		
		close		
	landscape	operation		
		close		
social	livelihood	operation		
		close		
	Working environment	operation		
		close		
	Community health & safty	operation		
		close		
Others	accident	operation		
		close		
	Climate change	operation		
		close		

Minimum requirements are stated in the technical and operations manuals based on sustainability, economics, etc. If it is not included some of minimum requirements, the promoter shall describe the reasons why.

**Omitted as not implemented in the project.*

【Evaluation criteria】

MA will confirm that the minimum requirements have been complied with.

Minimum requirements are mentioned in the technical & operations manuals based on sustainability, economics, etc.

Item			Criteria (MA)
Environment	Air	operation	*It is described that soli cover will be implented to prevent the release of anaerobic gases. *It is described that gas venting pipes will be installed to prevent the generation of anaerobic gases.
		close	It is described that the final soil cover will be implemented to promote stabilization of the disposal site.
	Odor	operation	*It is described that soil cover will be implemented to prevent the odor.
		close	*It is described that final soil cover will be implemented to prevent the odor.
	water	operation	*It is described that soil cover will be implented to reduce

			<p>infiltration of rainwater into the waste beds.</p> <p>*It is described that gas venting pipes will be installed to reduce the generation of anaerobic gases and improve water quality.</p> <p>*It is described that wastewater treatment facility will be installed and manament to improve water quality.</p> <p>*It is described that storm drainage facilities will be installed to reduce infiltration of storm water into the waste beds.</p>
		close	*It is described that final soil cover will be implemented to reduce infiltration of storm water into the waste beds.
	soil	operation	<p>*It is described that the waste scattering will be improved by implementantion of soil cover.</p> <p>*It is described that the waste scattering will be improved by landfill section management.</p>
		close	—
	waste	operation	*It is described that the waste scattering will be improved by landfill section management.
		close	—
Biotico	protected area	operation	
		close	*It is described that ecological impacts will be minimized by final cover soil and greening.
	landscape	operation	<p>*It is described that the landscape will be improved due to reduce waste scattaring by implementantion of soil cover.</p> <p>*It is described that the landscape will be improved due to reduce waste scattering by landfill section management.</p>
		close	*It is described that the landscape will be improved by final soil cover and Greening.
social	livelihood	operation	*It is described that social inclusion program will be developed and implemented to improve the lives of Wastepickers and others. (Note: the planning and implementation of the program must start before the construction).
		close	—
	Working environment	operation	*It is described that Working environment will be improved by implementing occupational health and safety measures (protective equipment, safety training).
		close	—
	Community health & safty	operation	<p>[local hygiene]</p> <p>*It is described that the flies and other pests are not produced by implementaion of soil cover.</p> <p>[local Security]</p> <p>*it is described that Gates and fences will be installed to prevent trespassers and to preserve the local area.</p>
		close	—
Others	accident	operation	<p>[Accident/Fire] *It is described that adoption of preventive measures, measures, and emergency communication for accidents/ fire will be setup to reduce accidents/fire and implement appropriate measures will be implemented.</p> <p>[fire] *It is described that soil cover will be implemented to reduce the generation of flammable gases.</p> <p>*It is described that gas venting pipes will be installed to prevent the generation of flammable gases.</p>
		close	—
	Climate change	operation	[greenhouse gases] *it is described that generation of GHG will be controlled by installing gas venting pipes.

			[Typhoon, etc.] *It is described that soil cover will be implemented to prevent waste scattering caused by typhoons, etc. *It is described that measures and emergency contact information will be setup for the typhoon or other natural disaster and appropriate measures will be implemented.
		close	
	Item		Monitoring Criteria (MA)
Environment	Air	operation	*It is described that anaerobic gas conditions will be monitored indirectly through gas vent pipe condition monitoring. (minimum 6 months/time)
		close	*It is described that anaerobic gas conditions will be monitored indirectly through gas vent pipe condition monitoring. (minimum 6 months/time)
	Odor	operation	—
		close	—
	water	operation	*It is described that monitoring of discharge water quality will be conducted to monitor water quality conditions. (minimum 6 months/time)
		close	*It is described that monitoring of discharge water quality will be conducted to monitor water quality conditions. (minimum 6 months/time)
	soil	operation	—
		close	—
	waste	operation	—
		close	—
Biotico	protected area	operation	—
		close	—
	landscape	operation	—
		close	—
social	livelihood	operation	It is described that monitoring of social inclusion program will be conducted to checked progress, problems, measures and effective (monitoring frequency depends on the program).
		close	
	Working environment	operation	—
		close	—
	Community health & safty	operation	—
		close	—
Others	accident	operation	—
		close	—
	Climate change	operation	—
		close	—

Operation

5. Establish a surveillance program to prevent voluntary burning of waste and inform in time when the fire occurs naturally

*Fictitious Name and Phone Number

- (1) Emergency contact network (name and phone number)

1) Operator

Name: Rodriguez

Phone number: +1 123-456-7891

2) Fire station

Name: Perez

Phone number: +1 123-456-7891

3) Mayor

Name: Martinez

Phone number: +1 123-456-7891

4) Designated key person of the mayor

Name: Guzman

Phone number: +1 123-456-7891

5) Nearby health center

Name: Garcia

Phone number: +1 123-456-7891

6) MA provincial office

Name: Sanchez

Phone number: +1 123-456-7891

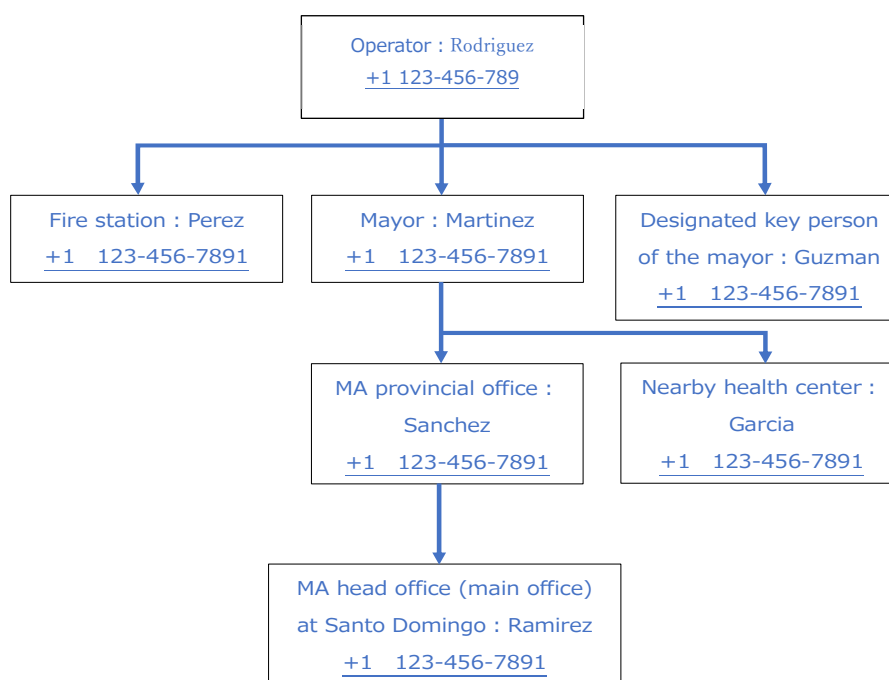
7) MA head office (main office) at Santo Domingo

Name: Ramirez

Phone number: +1 123-456-7891

(2) Emergency contact system

■ Figure_5-1 (organization chart of contact network)



【Evaluation criteria】

The purpose is to confirm that the person in charge of the disposal site and other relevant persons can be contacted immediately. The FDS that cannot clearly indicate contact information will result in disapproval.

6. Training of the site workers

*Example of entry

Trainings of following activities will be conducted at least twice a year.

- Inspect and maintenance major facilities
- Indicate landfilling area and necessary activities such as dumping, compacting and installing cover soil
- Inspect waste and identify unacceptable waste
- Emergency contact

To protect the site workers, following safety tools will be provided and instructed to utilize.

- Uniform
- Gloves
- Safety boots
- Reflective vests
- mask

【Evaluation criteria】

All training activities shall be implemented by the operator to site workers. If any deficiencies are found, the application will be rejected.

7. Waste coverage and compaction

*Example of entry

- (1) Amount of cover soil required (Approximately 15% soil of collected waste is required)

2,000 m³

- (2) Place(s) where soil can be secured, the distance to there, and the frequency of transportation.

Table_7-1

No.	Place(s)	Distance to there	Frequency	Remarks
1	Point A	3.00 km	Once a week	
2	Point B	5.00 km	Once a week	
3	Point C	7.00 km	Twice a month	

- (3) Day of the week to cover and compact (3 times or more)

- Monday
 Tuesday
 Wednesday
 Thursday
 Friday
 Saturday
 Sunday

【Evaluation criteria】

The purpose is to confirm that the FDS is planned to be used in a sanitary condition. The FDS found to have poor planning will be disapproved.

8. Control of the waste reception (Monitoring of observation and inspection record) and estimation of quantity

(1) Types of waste accepted

Domestic waste

(2) Types of waste not accepted

Medical waste, Dangerous waste

(3) Method of check for unacceptable waste mixed in.

Operators do a visual check

(4) Calculation of waste volume.

1) If some operators are already accepting waste.

a. Daily record of collected waste. At least one week of record keeping.

Table_8-1 Daily record

DAY		13 / Sep / 2025			NAME	Rodriguez
No.	Vehicle number	Truck bed capacity			Volume / Capacity	Remarks
		Length	Width	Height		
1	123456	5.0	1.7	2.0	17.0	
2	333333	7.0	2.0	2.0	28.0	
3	987654	6.0	1.9	1.8	20.5	
4	111222	8.0	3.0	4.0	96.0	
5	888333	4.6	2.3	2.1	22.2	
6	135791	9.6	2.65	3.5	89.0	
7	246810	3.0	1.7	2.0	10.2	
8						
9						
10						
Total volume of waste per day					282.9	

b. Weekly record of collected waste.

Table_8-2 Weekly record

Day of the week	Number of heavy equipment	Total volume of waste each day	Remarks
Monday	7	282.9	
Tuesday			
Wednesday	15	500.0	
Thursday			
Friday	10	230.9	
Saturday			
Sunday			
Total	32(cars)	1013.8(m³/week)	

c. Daily waste volume ※Total of volume of waste (m³/week) ÷ 7(days)

144.8 (m³/day)

d. Monthly waste volume ※Daily waste volume × 30(days)

4,344.0 (m³/month)

e. Annual volume of waste ※Monthly waste volume×12(month)

52,128 (m³/year)

2) If no operator is available

a. Amount of waste accepted per day and per year

Table_8-3

No.	Municipalities	Population (people)	Expected amount of waste (t/day)	Expected amount of waste (t/year)
1	San José de Ocoa	10,000	7.75(t/day)	2,829(t/year)
2	Nizao-Las Auyamas	10,000	7.75(t/day)	2,829(t/year)
3	El Pinar	5,000	3.88(t/day)	1,416(t/year)
4	El Naranjal	5,000	3.88(t/day)	1,416(t/year)
5				
Total	4 citys	30,000	23.26(t/day)	8,490(t/year)

※Expected amount of waste (t/day) = Population × Unit Waste Volume (**0.775**kg/capita/day)

※Expected amount of waste (t/year) = Expected amount of waste (t/day) × 365(days)

【Evaluation criteria】

The purpose is to confirm that the system is ready to accept waste. The FDS found to have poor planning will be disapproved.

9. Guard house and weighing

Indicate the location of the guard house for the reception of waste and for the operator.

■ Figure_9-1 (Location and photos of guardhouse)

**Omitted as not implemented in the project.*

【Evaluation criteria】

The purpose is to confirm that a guard house is in place for the safety the operator. The FDS without Guard house will result in diisapproval.

10. Control and maintenance of heavy equipment

※No response required if the disposal site is to be closed immediately.

*Example of entry

(1) Heavy equipment owned

Describe the number and car model of heavy equipment and date the heavy equipment was last and next car inspected day.

※Maintenance should follow the method recommended by the heavy equipment manufacturer.
If the manufacturer is not known, refer to maintenance instructions for similar products.

Table_10-1

No.	Heavy equipment (Control number)	Car model	Last regular maintenance	Frequency of maintenance	Remarks
1	No.1	Type A	11/8/2021	Annual	
2	No.2	Type B	30/11/2022	Annual	
3	No.3	Type A	4/5/2020	Annual	
4	No.4	Type C	18/9/2023	Annual	
5	No.5	Type C	30/10/1018	Annual	

(2) Heavy equipment rental

Describe the type of heavy equipment to be rental fee, and the number of units rented.

Table_10-2

No.	Type of heavy equipment to be rented (Car model)	Price (DP)	Number rentaled	of units	Subtotal
1	Model A	*****	2		*****
2	Model B	*****	1		*****
3	Model C	*****	1		*****
4					
5					

Rental fees for heavy equipment _____ ***** DP per month

※Attach a quotation as a reference

(3) Heavy equipment to be purchased.

Describe the type of heavy equipment, price and the number of units.

Table_10-3

No.	Type of heavy equipment to be purchased (Car model)	Price (DP)	Number of units purchased	Subtotal
1	Model A	*****	1	*****
2	Model B	*****	1	*****
3	Model C	*****	1	*****
4				
5				

Heavy equipment purchased price _____ ***** DP

※Attach a quotation as a reference

【Evaluation criteria】

The purpose is to confirm that some heavy equipment is well managed. Management of heavy
Insufficient management plan for heavy equipment will result in disapproval.

Design

11. Stabilization of the slopes and reorganization of the waste within the landfill, adequacy of the land

※Recommended values are gives in parentheses. If special values are used, the reason should also be stated.

***Omitted as not implemented in the project.**

(1) Slope Gradient

1) Embankment _____ : _____ [ex. 1:3.0]

Reason _____

2) Cut _____ : _____ [ex. 1:3.0]

Reason _____

3) Waste layer _____ : _____ [ex. 1:3.0]

Reason _____

(2) Hight of waste layer

1) Each layer _____ m [ex. 5 m]

Reason _____

2) Total _____ m [ex. 15 m]

Reason _____

■ Figure_11-1 (Typical section: Slope gradient and high of waste layer)

【Evaluation criteria】

The purpose is to confirm that it is a safe site plan. If it cannot be confirmed that the FDS is constructed at the recommended slope and elevation or, if special exception values are used, the appropriateness of the slope and elevation, then the FDS will result in disapproval.

12. Waterproofing of the land for the disposal of waste, in case of new cell

※Refer to the manual for New FDS for waterproofing measures.

*Omitted as not implemented in the project.

(1) The new cell has a waterproofing facility below.

- Geomembrane
- Compaction 90-95%

(2) Case of choose "Gomembrane"

- Figure_12-1 (Compacted area)

※Attach the results of the compaction for reference

(3) Case of choose "Compaction 90-95%"

- Figure_12-2 (Installation position)
- Figure_12-3 (Material, thickness, etc.)

【Evaluation criteria】

The purpose is to confirm waterproofing measures. If a geomembrane cannot be installed or sufficient compactions is not possible, a new cell cannot be built.

13. Installation of gas ventilation pipes

※Answer (3) if gas ventilation are not installed.

*Omitted as not implemented in the project.

(1) Position of gas ventilation pipes.

- Figure_12-4 (Plan of location of pipes.)

(2) Detail of gas ventilation pipes

- Figure_12-5 (Material, thickness, etc.)

(3) Reasons for not installing gas ventilation pipes.

【Evaluation criteria】

The purpose is to confirm waterproofing measures. If a geomembrane cannot be installed or sufficient compactions is not possible, a new cell cannot be built.

14. Installation of a leachate collection and storage system

※Answer (3) if gas ventilation are not installed.

***Omitted as not implemented in the project.**

(1) Position of installation of a leachate collection pipe and storage system

- Figure_14-1 (General view of disposal site and their position.)

(2) Detail of gas ventilation pipes

- Figure_14-2 (Material, thickness, etc.)

(3) Reasons for not installing gas ventilation pipes.

15. Storm drain installation

(1) About storm drainage installation

***Omitted as not implemented in the project.**

- Figure_15-1 (General view of disposal site and their position.)

- Figure_15-2 (Material, thickness, etc.)

16. Perimeter fence installation

(1) About perimeter fence

***Omitted as not implemented in the project.**

- Figure_16-1 (Location of perimeter fence)

- Figure_16-2 (Material and height etc.)

※Refer to Technical Standards

17. Access door installation

(1) About access gate

- Figure_17-1 (Location of access gate)

- Figure_17-2 (Material and height etc.)

(2) Time to unlock

8 : 00

(3) Time to lock

16 : 00

18. Construction and/or repairing of perimeter and internal roads

*Omitted as not implemented in the project.

- Figure_18-1 (Plan of perimeter and internal roads)

- Figure_18-2 (Pavement composition)

19. Emergency area

An area is secured to receive waste in case of emergency such as after a typhoon or earthquake.

- Yes
- No (reason: _____)

【Evaluation criteria】

It is strongly recommended that an emergency area is secured. If it cannot be secured, the reason will be confirmed. And if the reason is not accepted, application will be rejected.

Basic information

20. Basic information

- (1) List of municipalities that use the dumping site. (At least 3 municipalities)

Table_4

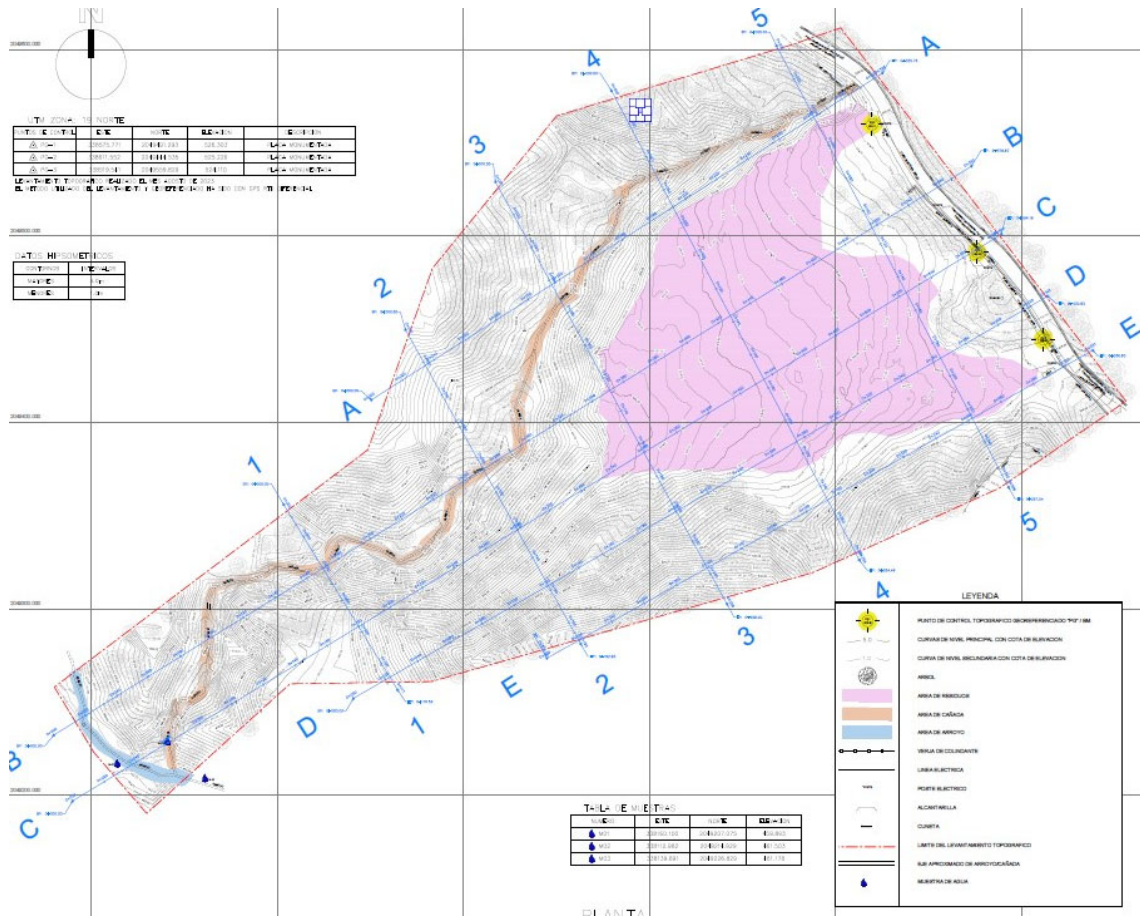
No.	Municipalities
1	San José de Ocoa
2	Nizao-Las Auyamas
3	El Pinar
4	El Naranjal

- (2) Location of disposal site

- Figure_20-1 (Showing the location of FDS and the municipalities that use them.)



■ Figure_20-2 (Location of areas scattered with waste.)



(3) Day of the week to receive waste

- Monday
- Tuesday
- Wednesday
- Thursday
- Friday
- Saturday
- Sunday

(4) Time to receive waste

8 : 00 ~ 16 : 00

(5) Number of operators required when receiving waste.

*Omitted as not implemented in the project.

_____ People

(6) The FDS rehabilitation plan

*Omitted as not implemented in the project.

- 1) Plan to close the FDS by 2030
- 2) Cost for annual operations
- 3) Cost for closing the disposal site
※Attach basis for cost calculation

(7) Signs shall be placed at the following below.

*Omitted as not implemented in the project.

- Signs directing visitors from the entrance to of FDS to the dump area.
- Signs indicating hazardous or not entry areas.