

ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM AND SEWER SYSTEM OVERFLOW (SSO) PREVENTION PROGRAM

Prepared exclusively to:

The University of Puerto Rico
Ponce, Campus

By:

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1. Illicit Discharge Detection and Elimination (IDDE) Program

The University of Puerto Rico, Ponce Campus, (UPR-Ponce), has developed and is immediately implementing and enforcing this program to prevent, detect, investigate and eliminate illicit discharge from and into the Ponce Campus stormwater drainage system under Small MS4.

- a. **Legal Authority** – The UPR-Ponce is a postsecondary public educational institution and lack the legal authority to enact an ordinance, by-law or any other regulatory mechanisms, such as to: prohibit and enforce compliance of this regulation; still less, to prosecute, civil o criminally, any entity or person who intentionally or negligently violates any statute of this Law. Thus, and supported in subsection 4.1.2, related to Small MS4 regulation, this Institution delegates all legal authority to the Federal Environmental Protection Agency, (EPA), the Puerto Rico Natural Resources and Environmental Department, the Puerto Rico Aqueducts and Sewers Authority, (PRASA) and the Municipality of Ponce. Even so, the UPR-Ponce will provide all possible collaboration, if required by any of the aforementioned government agencies.
- b. **Responsibilities** – The UPR-Ponce will accept full responsibility in case of an illicit discharge incident caused by any activity within its facilities and will take corrective action as soon as detected, as the IDDE established. This include the provision of information and supporting data to the pertinent legal agencies, whether for possible legal action, or for accepting from the agencies recommendations to improve this program to avoid future recurrences. If the illicit discharge occurred into Ponce Campus MS4 and was caused by an external entity, public or private, this institution will be identify and contacted immediately in order to notify the environmental threat to cease and desist the action that generate the threat and accept responsibility, meanwhile, the UPR-Ponce will start the first response and will take actions to minimize the discharge of pollutants. Concurrently, the corresponding regulatory agency will be contacted.
- c. **Assessment and Priority Ranking of Catchments** – An assessment has started in the Campus to rank by priority all the catchments in terms of their potentiality to have an illicit discharge or an SSO. It will be done in accordance with Section 2.4.4.6a.i. of the MS4 General Permit. Two new well-detailed drawings, detailing pluvial and sanitary systems, have been prepared to start compliance. Both drawings will be used in combination with six sampling points that are in planning and construction process and are expected to be completed by next year. Attachment 1 includes the stormwater drainage system and sewer system maps.

Since the Ponce-Campus interrupted sampling procedures to evaluate dry weather water quality, nor past discharge complaints and reports exist. For now, the priority rank catchment will be done based on infrastructure aging where catchment in and outside the premises are at least 40 years old. Based on this, and as can be seen in the drawings, all the catchments located in the northern part of the campus will be ranked as: *Problem Catchments*, while the rest will be ranked as *Low Priority Catchments*. Attachment 2 includes an Inspection Form for Stormwater Catchments and Manholes to determine their current priority status and, subsequently, update it according with the inspections results.

- 1) *Problem Catchments* for pluvial system includes: catch basins and manholes (MHP), from #1 to #5, #11 to #33, and #50.
- 2) *Low Priority Catchments* for pluvial system includes: from #6 to #10 and #34 to #49.

All the catchments will be labeled in the field according to their number in the drawings to facilitate inspection, maintenance or cleaning in case of an incident. For the catch basins, another sign will be posted or painted close to each one. The sign would say in Spanish: “No basura, No líquido” (No litter, No liquid), followed by a drawing of a small fish.

- d. **Identification of Possible Illicit Discharges** - The UPR-Ponce has identified two possible illicit discharge points into its premise. One consists of a concrete, 3 feet-diameter storm water pipe that crosses under grown and diagonally The Santiago De Los Caballeros Avenue and ends just before the wire fence that separates that avenue from the East side of the University campus. The storm water that runs through this pipe comes from catchment systems of The Ponce Judicial Center building and from El Fondo del Seguro del Estado Building. Since the elevation of the end of this pipe is two or three feet higher than the grown level of the Campus, in case of a wet weather event precede by a spill incident on the avenue or poor maintenance and housekeeping in the parking lots of those mentioned buildings, an illicit discharge into the Campus is possible. The natural contour of the terrain along the wire fence, inside the Campus, would cause the probable contaminated liquid to run inside the Campus and parallel to the fence for a span of 400 meters until it finally comes out at the southeast corner. Photos of the concrete 3 feet pipe, the two buildings and the mentioned avenue can be seen in the attachments section.

The other possible illicit discharge point into the Campus is the catch basin #50. This one receives the overflow waters that run during flooding events through the West Avenue that separates Plaza del Caribe Shopping Center from the UPR-Ponce.

The Campus Administration, already aware of both problems, has begun the budget allocation process to obtain the funds to resolve these issues. A four-hundred-meter long, reinforced concrete fence, sufficiently high, is projected to be constructed in the East side to resolve permanently the possible illicit discharge into the premise at that point. The fence in the North side is made of concrete and ornamental steel, while the one on the West has a six (6) inches base of concrete and the rest in galvanized tubes and Cyclone Fence wire. In both sections, the six (6) inches bases will be sealed with concrete up to thirty (30) inches. A progress report of this to projects will be included in the Small MS4 annual report, until completed.

Sanitary System Over Flow, (SSO) – Another possible illicit discharge is an overflow of one or more sanitary manholes. This type of incident may be due to surrounding, weather public, or internal, malfunctioning of the sanitary sewer system. Such an event is unpredictable and has not happened in the Campus, at least in the past two decades. The UPR-Ponce has prepared an excellent response action based on a combination of: written action procedure describing concise responsibilities, training and routine daily inspections. This strategy is aimed to contain and minimize this kind of discharge, and any other unauthorized fluid to the adjacent receiving water bodies.

- e. **Outfall and Interconnection Screening and Sampling** – The UPR-Ponce's Small MS4 permit has two authorized outfalls. They are close together and can be seen in the left upper corner of the stormwater drainage drawing. The number one, named in the drawing as "Desagüe No. 1", corresponds to the last visible point that receives storm water runoff from 47 of the 50 stormwater catchments of the University, prior to discharging to the DTOP MS4. The other outfall, "Desagüe no. 2", receives drainage from the three (3) catch basins located in the North parking lot and is also the last visible point prior to discharging to the DTOP MS4. Both of them are connected and preceded by an approximately one hundred (100) meters long, five (5) meters wide, open channel conveyance.

Starting as soon as possible, a total of six (6) sampling points are projected to be constructed in the UPR-Ponce campus premises. They will consist on small concrete basins, each with a normally closed small valve at the exit to

trap approximately ten (10) liters of storm water to collect five (5) liters, for the necessary required analysis, in a safety manner. The first two (2) basins correspond to, one just at the Outfall No. 1 and the other will be located between Catch Basin #3 and #4. The next two (2) will be, one just at the water entrance into Catch Basin #50 and the other at the Outfall No. 2. Safety access to the two sampling points at the outfalls will also be constructed, since they will be located at the end of the open channel conveyances.

To detect and evaluate the quality of storm water that may enter into the Small MS4 through the already mentioned drainage pipe out at the East adjoining wire fence, another two (2) sampling points will be constructed in that area. The first one (1) is to be located right at the pipe discharge location, but inside the Campus. The other one will be located at the end of that same fence through which those waters would run parallel for a section of four hundred (400) meters until it comes out of the premise. Attachment 3 includes the design drawings for the above-mentioned sampling points. If a storm event of sufficient intensity to produce stormwater discharged through the pipe, a stormwater sample can be collected in the first sampling point. If the storm event of mayor intensity generates enough runoff to reach from the first sampling point to the second sampling point, both samples will be taken for analysis. These samples it would reveal the quality of water entering into the Small MS4, and, or the possibility of pollutants, if any, that it would get when in contact with the Campus' soil. Attachment 4 includes an Inspection Form for Stormwater Areas of concern, specially sampling points and outfalls.

- f. **Sampling Methodology and Analysis** – UPR-Ponce will acquire the field instrumentation and equipment necessary to analyze the storm water collected for parameters that can be perform on site, such as: pH, Conductivity, Temperature, Turbidity, Chlorine and others. Also, two rain gauge will be acquired to be installed at North and South of the Campus. The rainfall readings will be essential to determine if the water collected at the sampling points could correspond for *Dry Season Analysis*, no more than 0.1 inches of rainfall in the previous 24 hours. If no rainfall readings are obtained during a *Dry Season Event*, the person in charge will record the condition at the outfall and will wait until next similar event.

Samples analyses for surfactants, total coliforms, fecal coliforms and others parameters required by Section 2.4.4.8.c-d, will be perform by a certified contracted laboratory. The contractor will provide the necessary sampling bottles with preservatives in order for the Institution's qualify personnel to take the samples. It is required in Puerto Rico that any person who deals or works with water, be it for treatment and/or analysis, obtain a water treatment license granted by the Puerto Rico Department of State's Board. To comply with this

Law and also to maintain a high level of professionalism on this matter, the UPR-Ponce is committed to certify two or three professionals with this license. Trainings by private instructors and official examination schedules are right now on hold due to the pandemic emergency situation.

Sampling procedures during *Wet Weather Events* will be done according to Section 2.4.4.8.d.iv, targeting to identify possible illicit discharges. This includes the same field tests and laboratory analysis required by *Dry Weather Events*.

- g. Catchment Investigation Procedure** – As noted on the stormwater drainage map, the Campus has three (3) branches of interconnected catchments. The first branch interconnects all the catchments at the East and South streets, (#27 to #45), while the second, interconnects all the central bunch of catchments, (#26 to #45). These two (2) branches discharges to Outfall No.1. The third one, interconnects the four catch basins at North parking lot, (#47 to #50) and discharges at Outfall No. 2.

In the event of an exceedance of any of the parameters of the storm water analysis at one of the two outfalls, the corresponding drainage area will be isolated and investigated diligently. The catchments will be opened, inspected and cleaned, if necessary, until finding the exceedance cause. The competent designee members of the Pollution Prevention Team in charge of this job will concurrently start the investigation, including any verbal communication and written reports to the concerned agencies. The isolation strategy could include the construction of a new downstream sampling point at the exit of the impacted catchments with the consequence evaluation and rank as High Priority Catchments, until recurrent sample analyses confirm that they are well cleaned.

In case of any exceedance in the bacteria parameters (Fecal Coliform and Enterococci), the University will review relevant mapping and historic plans to the available extend to storm drain drainage and sanitary sewer systems, including local PRASA and DTOP maps, searching for illicit connections and identifying *System Vulnerability Factors*, as required in Section 2.4.4.8.e.i and ii.

It is possible that even with all the MS4 system inspected and cleaned the day before sampling, the results can show bacteria exceedance. There exist on the Island two kind of plague that, so far, have not been controlled. One of them is a big green lizard, called iguanas. This reptile uses to build their nest on isolated placed, caves or undergrown piping, and leaved excrements on those places. The other one is a native black bird named officially as Mosambique, and commonly known as changas. Changan use to lives on

threes and expel excrements everywhere even on the grass or vegetated area when they are standing on the ground and searching for food. The University is in process of reforesting the campus due to the devastation caused by Hurricane Maria, so the problem could get aggravated.

The Administration is also in the process to identify the funds to install a synthetic grass liner on both open channel conveyances that precede each one of the two outfalls. These liners, in addition to minimize maintenance at those areas, will eliminate sediment carry over and would reduce flow velocity. Not to mention that animal excrements will be ease to detect and clean. Another great advantage of these synthetic grass is that it can be used as a containment area. In the eventuality of a possible sewer system overflow incident, if a bucket of soil is dumped just as the outfall entrance, the polluted liquid can be contained in the area until be suctioned by vacuum trucks.

- h. Removal, Confirmation and Follow Up Screening** – As soon as an illicit discharge or SSO is identified and confirmed, the UPR-Ponce will exercise its authority and will use all available resources required to correct the illicit discharge. For each confirmed source, a well detailed document will be included in the annual report: the location of the discharge and its source(s), description, the search methodology, the date and hour of the discovery, the date of discharge detection, mitigation action taken and estimate volume of flow.

Not later than one year of the incident, confirmatory outfall and interconnection screening will be conducted in dry weather. The UPR-Ponce reserves the right to speed up the process of screening and cleaning any suspected contaminated catchment. This would be performed by using water from fire hydrants discharged into the catchment. The discharged water would be collected through the use of a vacuum truck in the next catchment without allowing the fluid to reach the outfall. A sampling blank would be taken of the fire water system and another at the next catchment for comparison, and this would be done successively until the source of the contamination was found. Wet weather screening and sampling will be conducted if required by Section 2.4.4.8.e.ii(2). If confirmatory screening indicates evidence of additional illicit discharge, the catchment(s) will be scheduled for additional investigation.

Mass media will be used to keep public informed if any such an incident occur, including description of the event, parameters and pollutants exceeded, potential impacted bodies of water, applicable environmental regulation, corrective actions taken and the commitment of the Institution with the environmental protection. All of these actions are part of the public awareness and education program.

i. **Illicit Discharge Prevention Projects and Procedures** – The UPR-Ponce is in process of implementing: engineering control projects, (added to the already mentioned), equipment acquisition and administrative measures to prevent and avoid illicit discharges and SSOs.

1. The two diesel-powered emergency electric generators located close to buildings #2 and #16 will have concrete secondary containment and loading/unloading area by this fiscal year. Fuel capacity of these tanks are 90 and 150 gallons, respectively. A private company will be in charge of the fuel supplying using a small 500 gallons tank truck capacity. The secondary containment will be coated for imperviousness and with a normally closed and locked valve for water drainage. Total containment dike capacity will be no less than 550 gal. Diesel fuel transfer procedure will be supervised by a first or a second level trained member of the pollution prevention team. Spill kit will also accessible near the area to clean any possible oil stain or dripping in the loading/unloading area.
2. A warehouse with sufficient storage capacity is in process of construction and expected to be completed by this fiscal year. It will serve as the storage area for construction aggregates and maintenance heavy equipment, or any small dripping equipment with its dripping pan. Any aggregate in use and out of the warehouse will be protected with a plastic cover after working hours to avoid sediment carry out.
3. The University is looking for proposals for a contract to wash all official vehicles out of Campus. With the implementation of this alternative, surfactants pollutants that could adversely impact Small MS4 will be eliminated. In case that any heavy equipment required sludge removal, it will be done by using a high-pressure water machine out of the Campus.
4. Additional portable secondary plastic containers will promptly be acquired to safely storage 55 gallons drums, or smaller, containers of liquids or paints. They will be put in the warehouse or taken out for use.
5. The UPR-Ponce has, at least, three (3) security private guards for each of the three working shifts per day, 365 days of the year. Two of them make periodic surveillance inspections around the campus. All of the guards and their supervisors could be the first response by detecting and reporting to the Pollution Prevention Team any spill incident or SSO, particularly during non-working hours. Therefore, all will be trained as members of a second level pollution response team. Their duties will also include daily visual routing inspection of the Small MS4, emphasizing on visiting the outfalls at least once per working shift. The

guards will pay attention to detecting objectionable odors, noises, fluids or any strange object on the Small MS4. Any observation must be written in the log book. If a discharge incident or SSO occur and is detected by a guard during working hours, it is his/her responsibility to contact any member of the Pollution Prevention Team in the site for immediate response actions. If the incident happens during non-working hours, the group of guards on the shift will report, (site and hour detected), weather conditions and video of the incident, while concurrently one of them will called the supervisor of their company in order.

- j. **Response Procedure** – In the event of an SSO or if an illicit discharge occurs, such as a fuel truck overturned on East Avenue and leaking fluid onto the University grounds, the Pollution Prevention Team of the Institution will be activated immediately as a Pollution Response Team. Their duties will be:
1. **Chancellor** – The directing head of the Team. The competent person in charge of managing, authorizing mobilization of internal and external resources to give an immediate and efficient response to resolve or minimize, as much as possible, the impact of the incident. Responsible for the issuing press releases and attending to the media. In charge of assisting the security and environmental agencies that come to the site, as well as the media.
 2. **Administration Dean** – Responsible for planning the strategies to be followed to deal with the emergency. Will substitute the competent person in his/her absence or if it is decided to establish two twelve-hours shifts per day during the response period. Consult or keep the competent person informed of any important change in those strategies to resolve the incident. Summons response managers and supervisors to regular meetings to receive opinions and suggestions.
 3. **Finance Director and Purchasing Department Head** – As per the competent person instruction or his/her designee, these two managers will be in charge of identifying the accounts to be used and the materials purchase, equipment rental and external services contract to expeditiously address the incident.
 4. **Receipts and Deliveries Director** – Is the person responsible for receiving the materials, equipment purchased or rented and for attending and taking to the incident scene the employees for the emergency response. This person will maintain a log book to keep an inventory of what is receive, as well as the cost related with the inventory and operations. Responsible also to maintain the inventory and storage place well organized. Keeps the incident handling group up-to-date on the resource inventory.

5. Physical Resources Director – By instructions of the planning director, this employee will be in charge of the emergency response operations. Instruct supervisors or group leaders of the maintenance and construction brigades to perform the required tasks. Also, this position will instruct contractor supervisors to perform their duties in harmony with the internal employees and procedures. In charge of ensuring that the working groups have the necessary equipment and materials, otherwise will contact the concerned team managers to acquire them. Will always keep the planning director and the competent person well informed of the progress of the work or any inconvenience that may arise.
6. Environmental Safety and Health Officer – Will ensure that all work is done in accordance with OSHA required health and safety standards and that the employees wear appropriate personal protective equipment, (PPE). Provide the command center with a physical copy of the site's Small MS4 program, including maps, contact phones numbers and any Safety Data Sheet required. This employee will attend in the field any representative of the regulatory agencies that the competent person sent to keep them informed or answer any pertinent question. Finally, will be in charge of taking samples to analyze on site and to send to the external contracted laboratory.
7. University Guard Director and Guard Supervisor – These two managers will ensure that all important information or data taken at the entrance gate be sent to the command center as soon as possible. If the incident was detected by any guard, he/she will provide the competent person all the information obtained, including the video taken initially.

NOTES:

- i. If the incident is an SSO, qualified people from PRASA and the University, could determine the flow per minute and the total liquid spilled calculated since the incident was detected. This information will be very valuable for the environmental agencies and for the incident report.
- ii. If the incident is caused by a significant inflow of fuel into the campus, as soon as the assessment is made, the National Response Center (NRC) will be notified, and in parallel, the corrective actions will be implemented.
- iii. The command center will issue official periodic communication messages in the media to inform the public about the incident.
- iv. The UPR-Ponce commits to start the trainings immediately with the Prevention/Response Team. These trainings will continue in descending

steps according to responsibilities: second-level employees, security guards and administrative personnel. For each training, the most important aspects of the Small MS4 will be emphasized, as well as the responsibilities of the employees related to this program.

- v. The general public could be educated from another information perspective. The UPR-Ponce's students can also be educated and committed to the program via virtual mode at the beginning of each semester.

Program Implementation Milestones and Program Progress – The UPR-Ponce is implementing this IDDE Program immediately to meet the goals and milestones of dry weather screening and sampling for outfalls and possible interconnections no later than a year, starting at the date of construction of the sampling points. This project is expected to be completed this fiscal year.

The implementation of the Catchment Investigation Procedures in every Problem Catchment, even where dry weather screening does not indicate evidence of illicit discharges, will be completed, in accordance with Section 2.4.4.8.e., and expected to be finished within five years, as required in Section 2.4.4.9.i. Progress of this project will be included in the annual report.

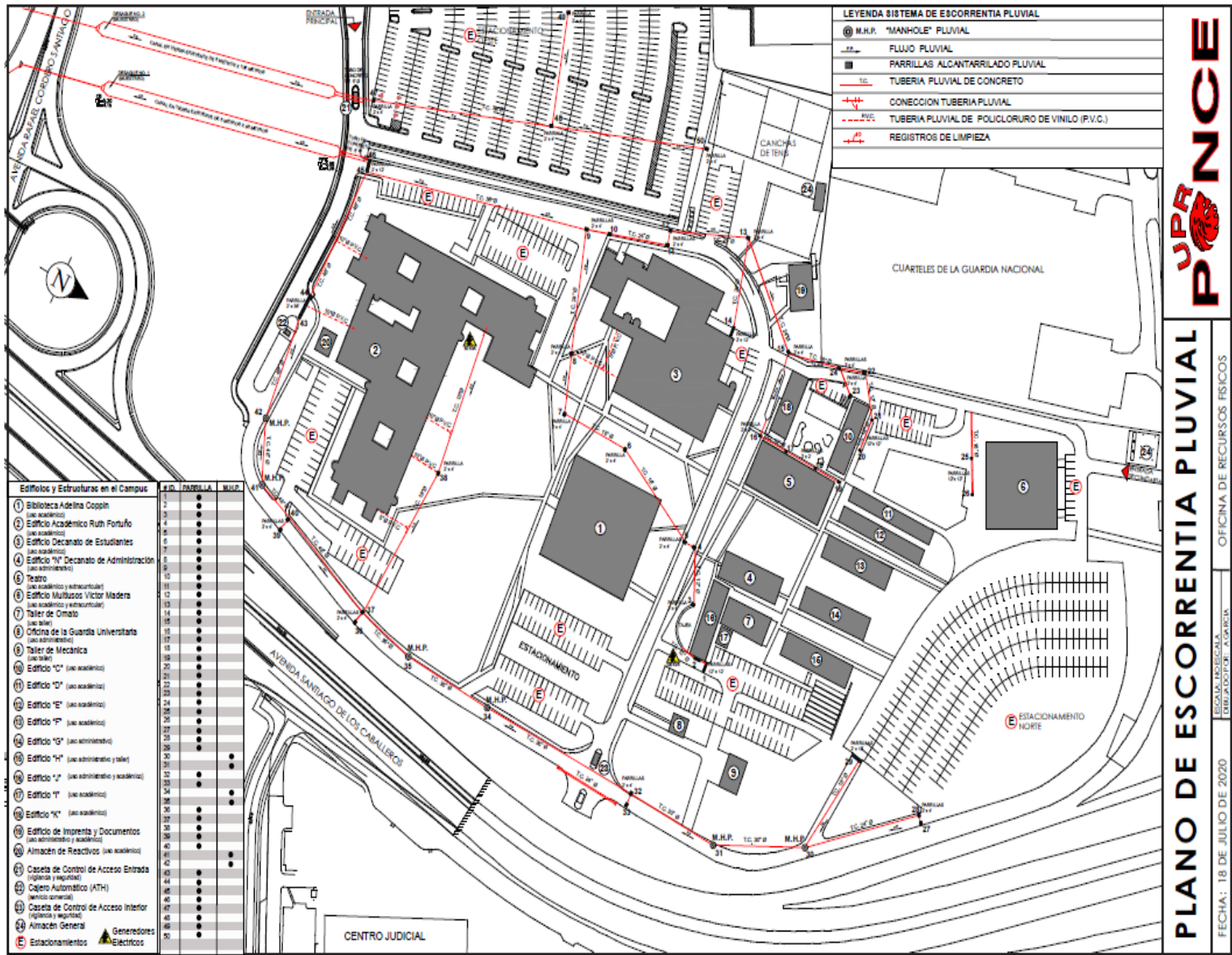
NOTE: It is important to mention that at the UPR-Ponce there will be no presential classes for this next 2020 first semester, therefore virtual classes will be implemented. This means that the University will not have the minimum population of 1,500 people per square mile within the Campus for the 2006 Small MS4 Regulation. Even so, the Institution is fully committed to complying with this federal environmental regulation. But, the pace of the work will be determined by the pandemic development.

CERTIFICATION

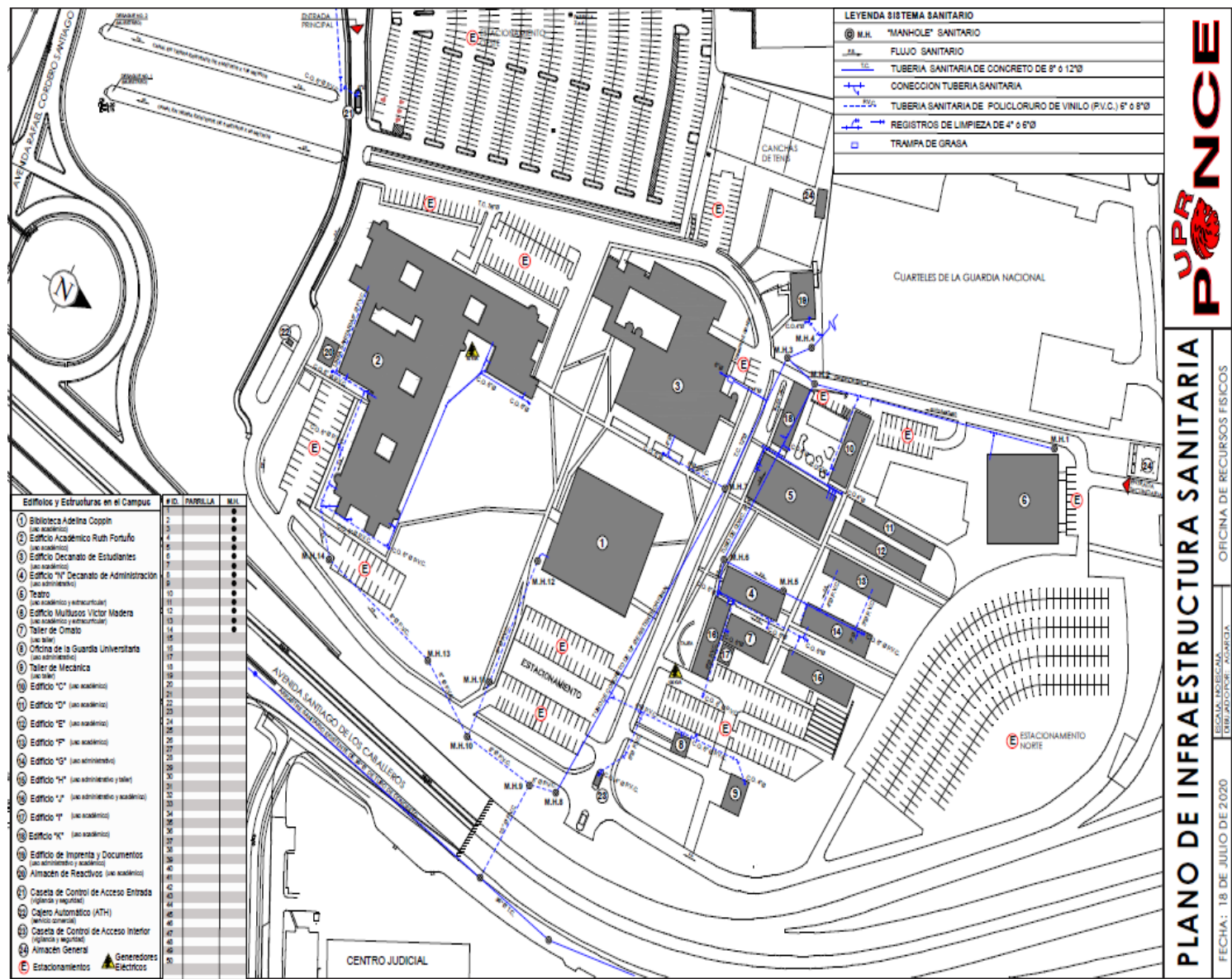
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, to the best of my knowledge and belief, the information submitted is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Tessie H. Cruz Rivera
Chancellor

Stormwater Drainage System Map



Sewer System Map





ATTACHMENT 2

HOJA DE INSPECCIÓN DE ESCOTILLAS (CB) Y MANHOLES (MH) PLUVIALES

FECHA: _____

HORA: _____

••• Condiciones del tiempo: _____

- 1. Haga un círculo alrededor de los CB Y MH pluviales que inspeccionó y encontró en buenas condiciones. (Son 50 en total.)**

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18
19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34
35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50

- 2.- Enumere y explique los CB y MH pluviales que encontró con deficiencias:**

Número de CB o MH

Observaciones:

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

- 3- Persona a quien le sometió las deficiencias para corrección:** _____

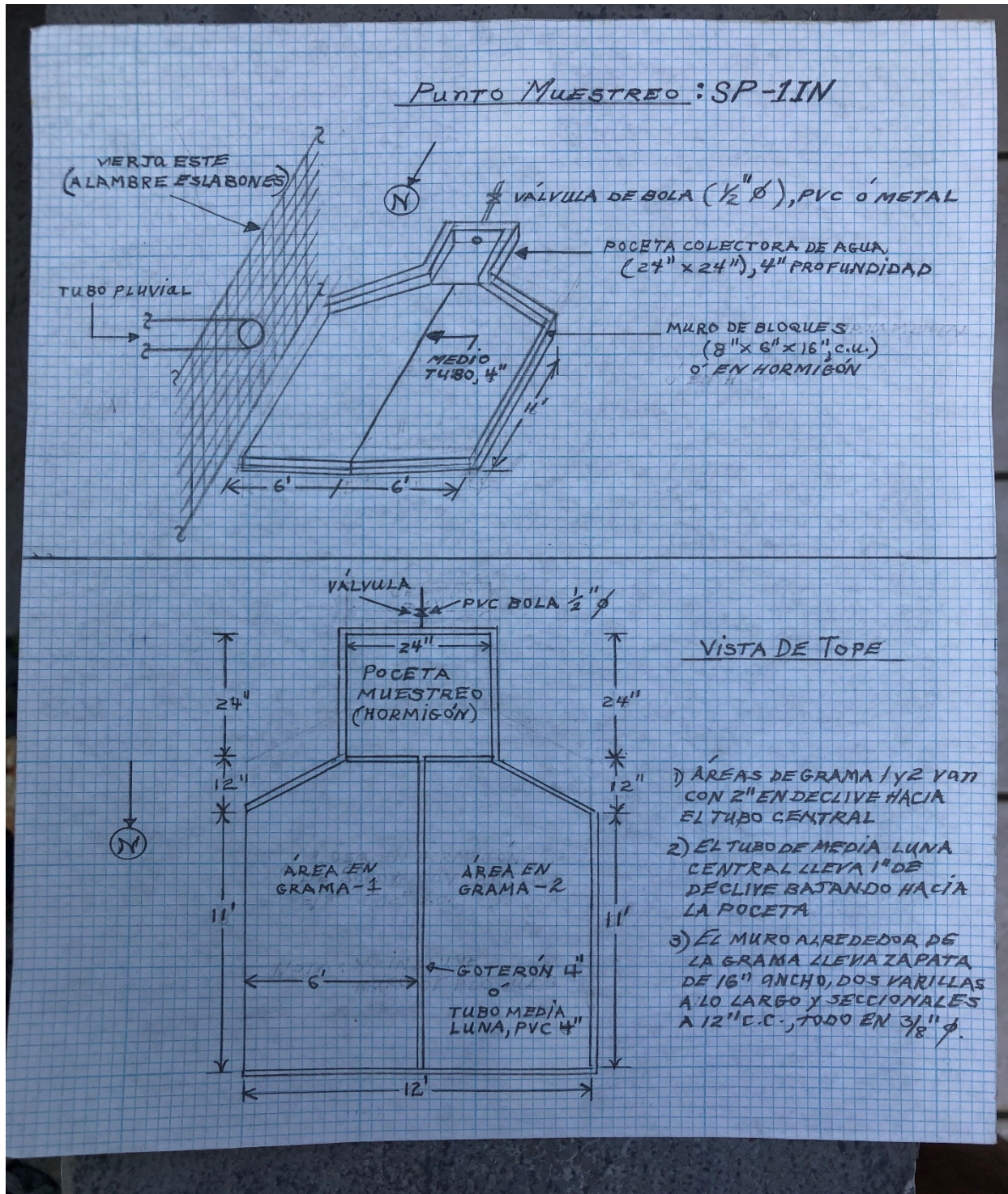
- 4- Persona a nivel superior a quien le envió copia de esta inspección:** _____

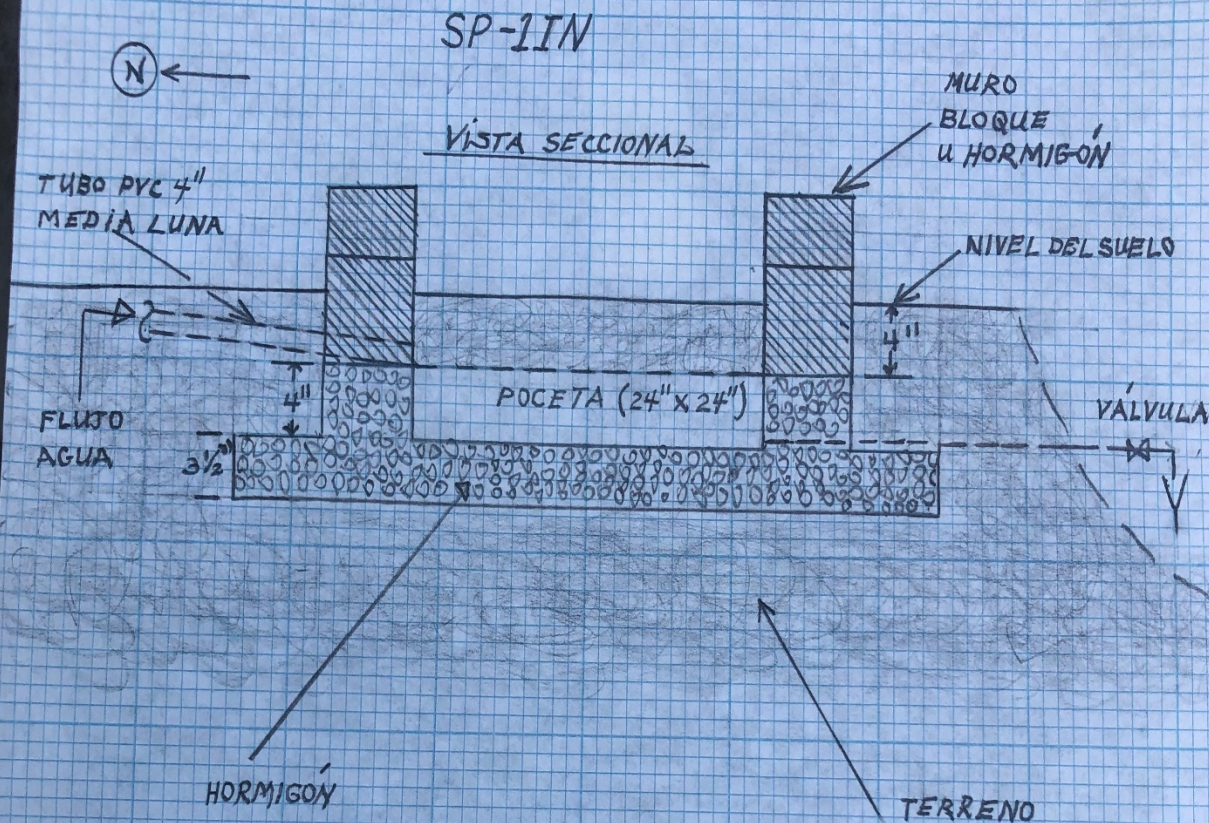
- 5- Nombre del Inspector:** _____

- 6- Firma del Inspector:** _____

ATTACHMENT 3

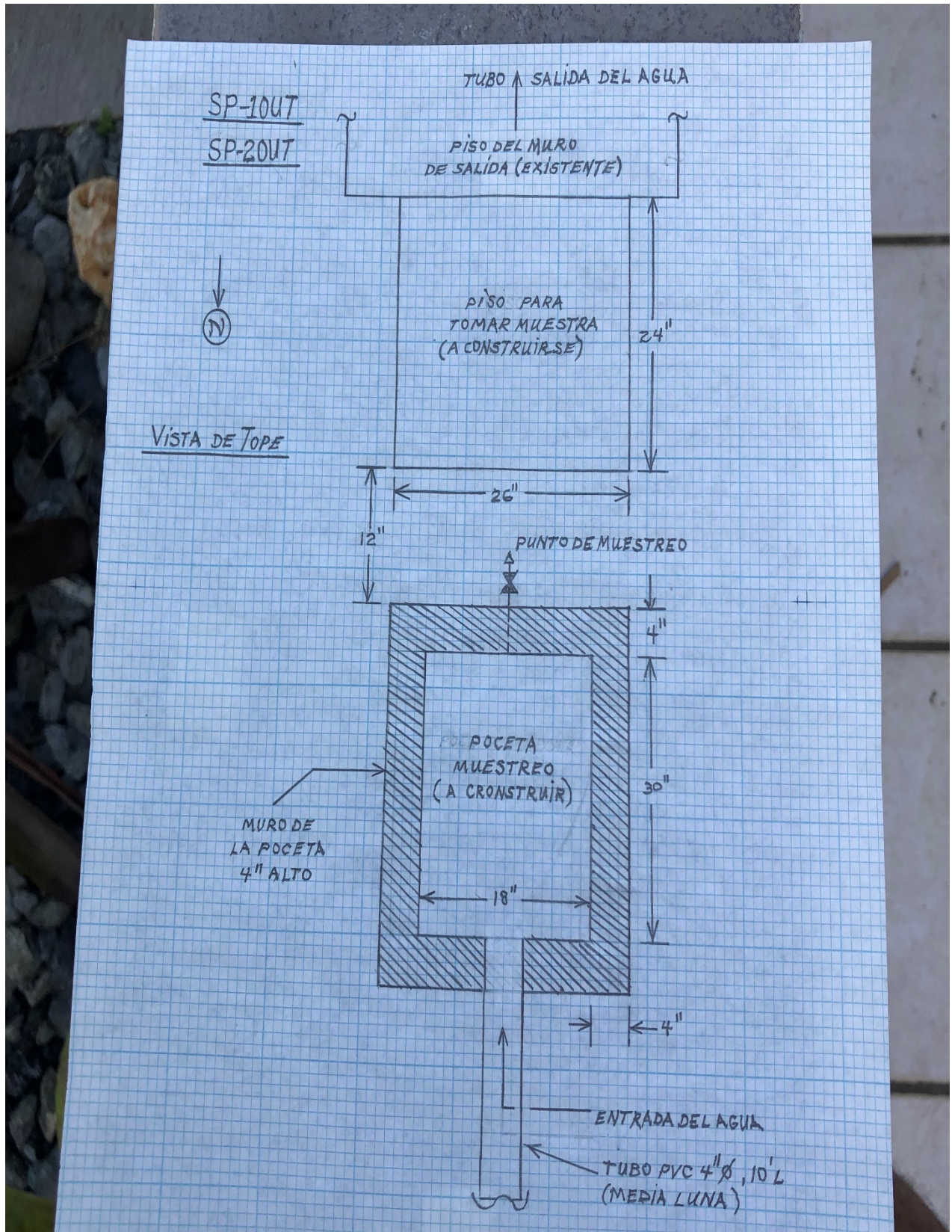
Design Drawings for Sampling Points

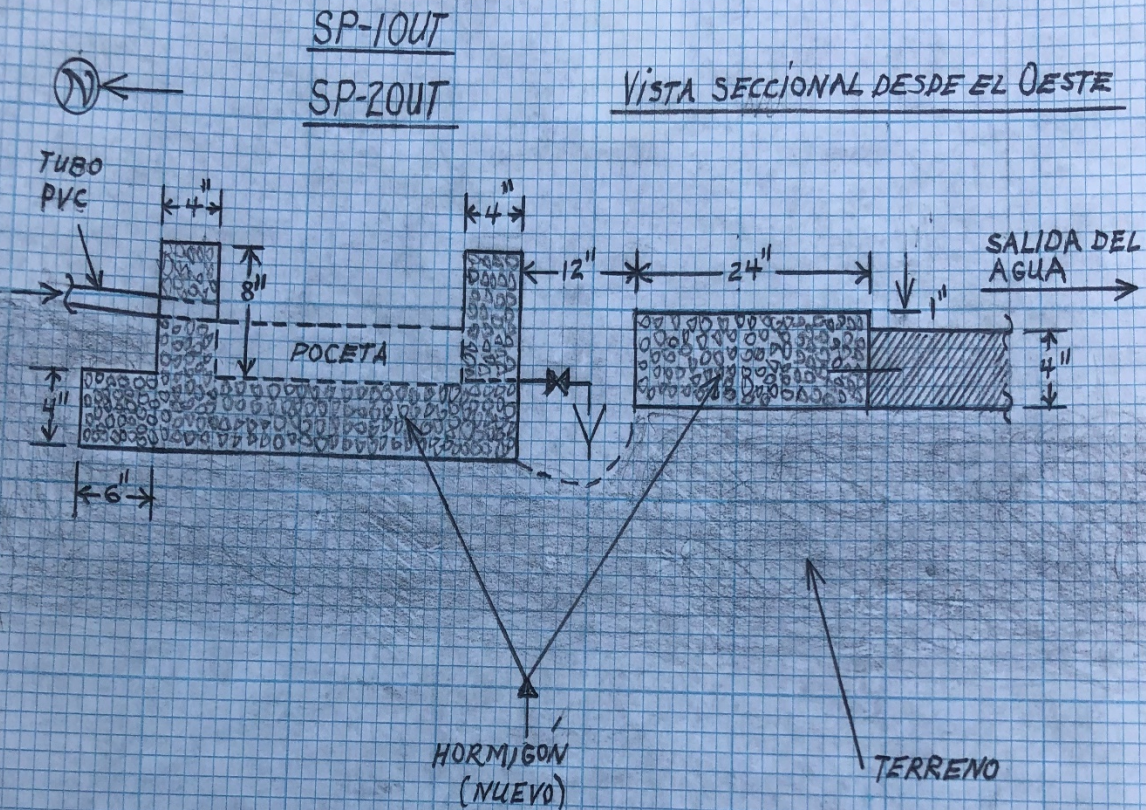




OBSERVACIONES:

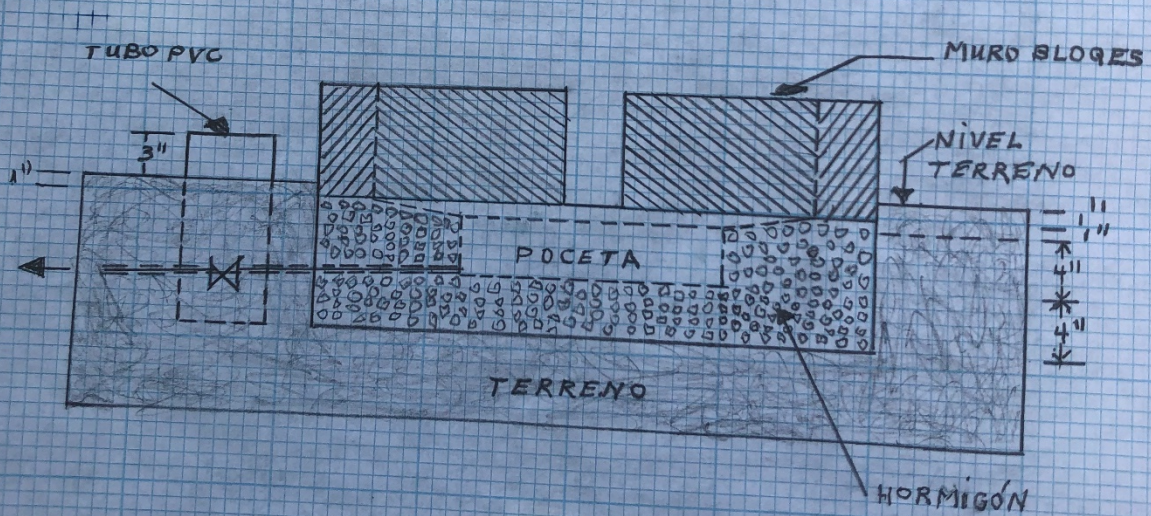
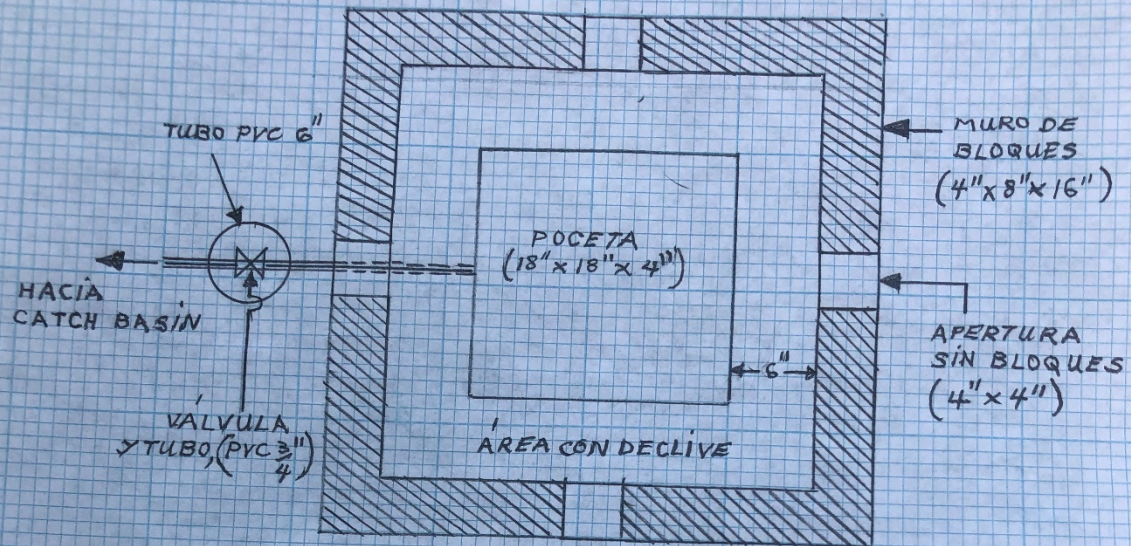
- 1) EL PISO ENTERO LLEVA VARILLAS DE $\frac{3}{8}$ " a 10" c.c.
- 2) SI EL MURO ES EN BLOQUES, LLEVARÁ 2 DOWELS DE $\frac{3}{8}$ " ϕ x 18" L, POR BLOQUE
- 3) EL TERRENO ALREDEDOR DE LA VÁLVULA SE REMOVERÁ Y SE LE COLOCARÁ GRAMA
- 4) PISO E INTERIO DE LA POCETA VA PULIDO, PERO SIN PINTAR
- 5) TOPE Y EXTERIOR DEL MURO SE PODRÁ PINTAR, SOLO PINTURA DE AGUA
- 6) SI EL MURO, QUE LLEVA 10" ALTO SE FABRICA EN HORMIGÓN, SE LE INSTALARÁN DOWELS DE $\frac{3}{8}$ " ϕ Y 18" LARGO UNIDOS CON VARILLA HORIZONTAL DE $\frac{3}{8}$ " ϕ .





NOTAS:

- 1) VARILLAS DEL PISO HORMIGÓN LLEVAN VARILLAS $\frac{3}{8}$ " A 8" C.C.
- 2) VARILLAS DEL MURO LLEVA DOWELS DE 18"L, $\frac{3}{8}$ " ϕ A 12" C.C. Y DOS VARILLAS HORIZONTALES A 6" C.C.
- 3) EL TUBO PVC DE 4", CORTADO A MITAD, SERÁ DE 10' LARGO Y TENDRÁ DECLIVE EN CAÍDA DE 1" HACIA EL SUR
- 4) EL PISO DE HORMIGÓN PARA TOMAR LAS MUESTRAS DE LA POCETA SE ANCLARÁN AL PISO EXISTENTE CON VARILLAS DE $\frac{3}{8}$ " A 6" DE PROFUNDIDAD.





ATTACHMENT 4

HOJA DE INSPECCIÓN DE OTRAS ÁREAS PLUVIALES

Fecha: _____

Hora: _____

••• Condiciones del tiempo: _____

1- CARRETERAS:

Entrada principal _____

Lado Este _____

Zona Oeste _____

2- ESTACIONAMIENTOS:

Zona Oeste _____

Zona Norte _____

3- PUNTOS DE MUESTREOS

Núm. de identificación

Observaciones

_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

4- DESCARGAS (*outfalls*)

Desagüe #1 _____

Desagüe #2 _____

5- ZANJAS DE SALIDA

Zanja #1 _____

Zanja #2 _____

6- Persona a quien se le somete la deficiencia: _____

7- Persona a nivel superior a quien se le envió copia: _____

Nombre del Inspector: _____

Firma Inspector: _____