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Mojave Solar New Ponds Project- Segment 001

Additional submitted attachment is included below.

Atlantica
Sustainable Infrastructure

Petition To Amend

New Ponds Project

Mojave Solar Project

NO: 09-AFC-05
12-22-2023

Atlantica
Sustainable Infrastructure

Contents

1 Definitions

A-E	Alpha East Pond
A-W	Alpha West Pond
B-E	Beta East Pond
B-W	Beta West Pond
CCR	California Code of Regulations
CEC	California Energy Commission
CEQA	California Environmental Quality Act
COCs	Conditions of Certifications
GEN-1	General Condition
HAI	Hushmand Associates, Inc.
LORS	Laws, Ordinances, Regulations, and Standards
AMSP	Abengoa Mojave Solar Project
MDAQMD	Mojave Desert Air Quality Management District
MS	Mojave Solar
MSP	Mojave Solar Project
PTA	Petition to Amend
PTO	Permit To Operate
TAC	Toxic Air Contaminant

2 Summary

Mojave Solar LLC (MS) is submitting this petition for a post Certification Amendment of the Abengoa Mojave Solar Project (AMSP), Docket 09-AFC-5. The following changes are included in this petition:

In order to facilitate the pond's maintenance and enhance its storage capacity, MSP is proposing to construct one new evaporation pond at each plant (A-3 and B-3).

This Petition to Amend (PTA) is filed to make the changes necessary to final design approved by the California Energy Commission (CEC) in accordance with California Code of Regulations (CCR) title 20, section 1769 (a)(1).

3 Organization of the Petition

This petition for post certification license modification (Petition) is based on the requirements of Title 20, California Code of Regulations (CCR), section 1769(a), describing the contents of post certification amendments. The Petition provides the following:

- A complete description of the modifications, including new language for any conditions that will be affected.
- A discussion of the necessity of the proposed modification.
- An explanation that the modification was not known at the time of the certification.
- An explanation that the information was not known, and why the change should be permitted.
- An analysis of the impacts the modification may have on the environment and proposed measures to mitigate any significant adverse impacts, if appropriate.
- A discussion of how the modification may impact the facility's ability to comply with applicable laws and regulations.
- A discussion of how the modification affects the public.
- A list of property owners potentially affected by the modification; and
- A discussion of the potential effect on nearby property owners, the public and parties in the application proceedings.

This petition is based on MS's determination that environmental impact concerns of the Construction of New Ponds Project would not differ substantially from the original project approved in September 2010.

4 Project Location

Mojave Solar LLC (MS) owns Mojave Solar Project, an operating 250 megawatt (nominal MW) concentrated solar project at 42134 Harper Lake Road, Hinkley in San Bernardino County, California. The facility includes two (2) evaporation pond areas, Alpha Pond area located north of the site and Beta Pond area in the southern part of the site. Each pond area has two (2) ponds (east and west ponds) and four (4) sumps, two (2) in the east pond and two (2) in the west pond. The Alpha and Beta Pond systems are identical. There are three (3) pipe runs at each pond, each about 717 feet long. Thus, for the four (4) ponds at the Mojave Solar Project, there are twelve (12) pipe runs, approximately 8,604 feet in total length. These ponds were designed and constructed as part of the plant construction project in 2012 and 2013. Each pond excluding the slopes is 312 ft x 294 ft in the plan area. By adding the slopes, pond dimensions will increase by about 50 to 60 ft. The depth of the ponds is about

15 feet, but they are not full to the top. The ponds are currently in service and are partially filled with the Water Treatment Plant RO Waste Discharge.

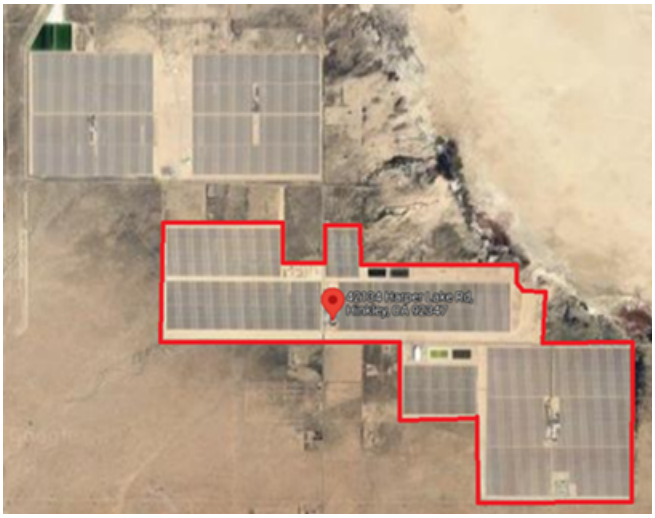

Figure 4-1: Aerial View of the Mojave Solar Project and Surrounding Area

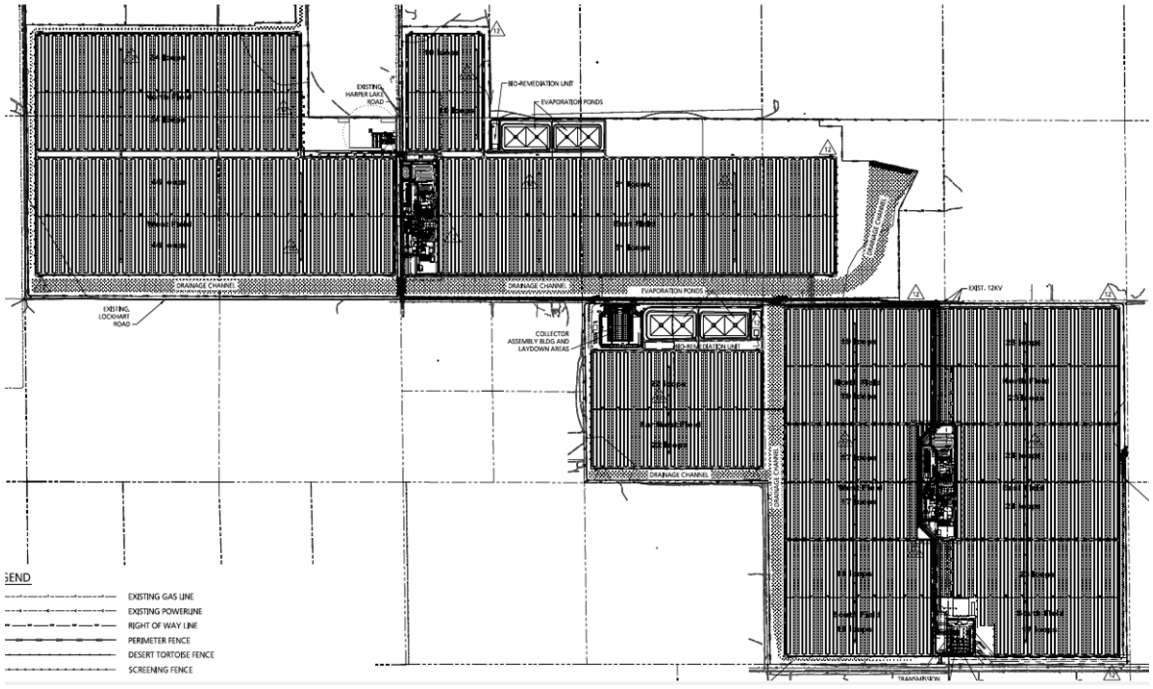

Figure 4-2: Site Plan

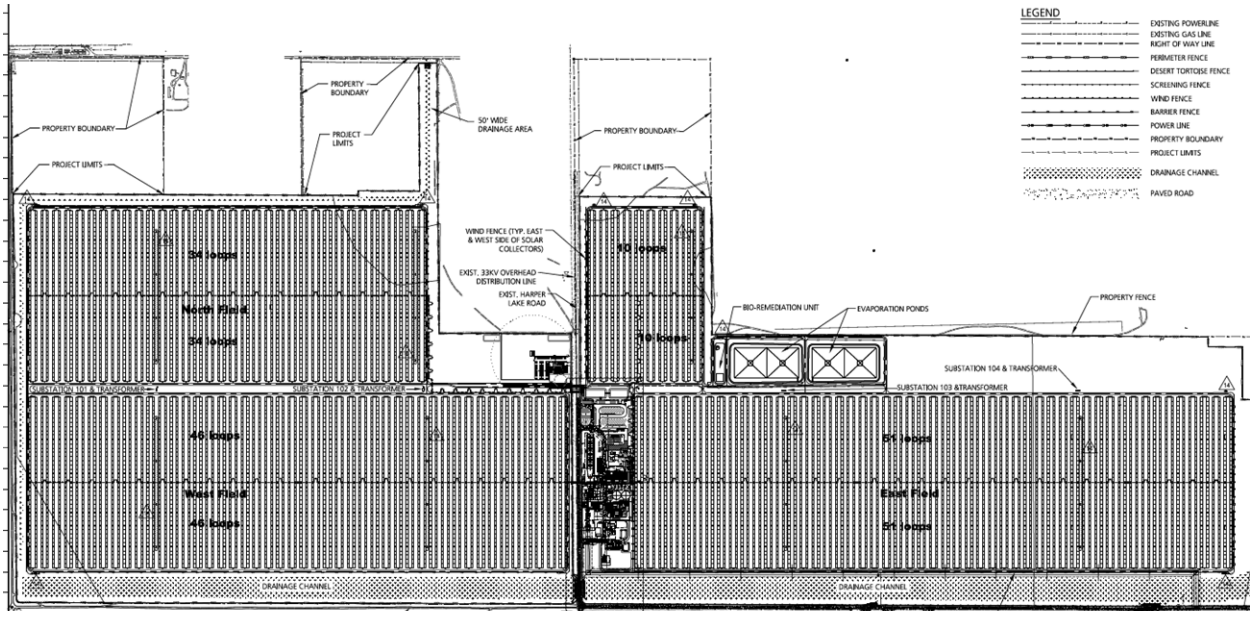

Figure 4-3: Alpha Plant Layout

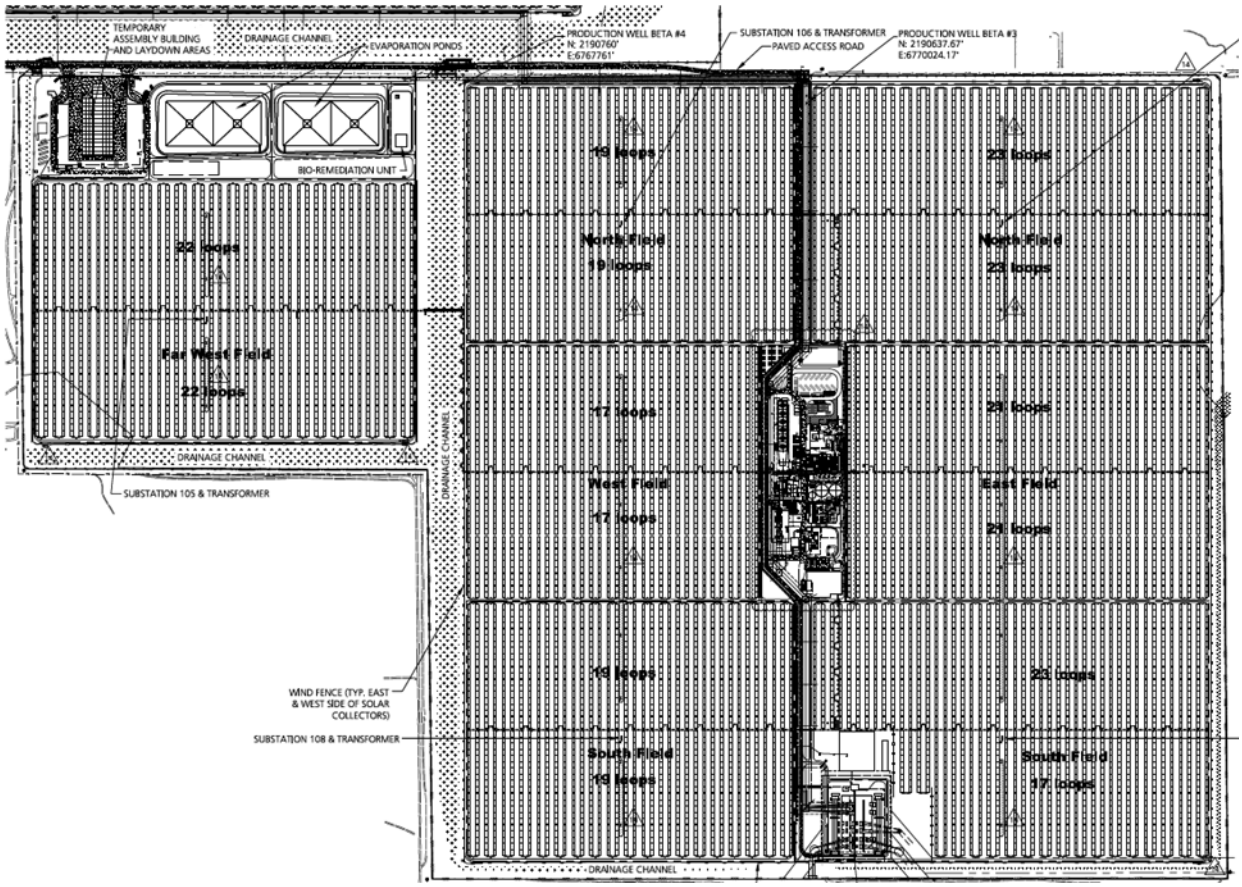

Figure 4-4: Beta Plant Layout

5 Facility Permitting Background

The MSP was certified by the CEC with a Final Decision on September 8, 2010, and began commercial operation on December 24, 2014. Some of the subsequent amendments made to the COCs in the Final Decision are described below:

- On June 27, 2016, MS proposed use of evaporators at Evaporation Ponds, SWAT02-15-00 and received approval for installation of the evaporators on March 2, 2017. (SWAT02-16-00)
- On February 13, 2020, MS submitted the proposal for Carbon Absorption System Improvement, upon CEC approval the modification was completed on February 26, 2021.
- On January 28, 2020, MS filed a petition (TN231771) for the construction of new warehouse building, which was approved on February 13, 2020, and the construction completed on September 24, 2020.
- On January 13, 2022, MS filed a petition for a post certification change (TN#241162) with the California Energy Commission (CEC) for the MSP to install a hydrogen generation system, including an electrolyzer that uses electricity from MSP to decompose demineralized water into hydrogen and oxygen. The change was approved on June 13,2022; Order No: 22-0608-4. This change is still on the construction phase and the unit has not been installed yet.
- On November 29, 2023, MSP filed a petition (PT 253380) to extend the existing pond's capacity. The petition is under review as of 12/22/2023.

6 Description of Proposed Change

6.1 Mojave Solar New Ponds Project Overview

The evaporation ponds have been receiving wastewater since August 2014 to date. The depth of the wastewater has tended to increase year over year and the evaporation rate has been decreased gradually due to the nature of the water evaporation which increases the salt concentration at the ponds and effects the evaporation rate. In addition to above, the netting installation over Beta West Pond (B-W) has shown a significant decrease of the natural evaporation as well as preventing MSP to utilize the use of the sprayers in the netted ponds resulting rapid increase of the B-W pond's level. Since all other ponds must be netted by April 2024, MSP foresees the need to build an additional evaporation pond per plant to secure its operation and to optimize the existing ponds maintenance plan.

6.2 Basis of Design for New Evaporation Ponds

The design's intent is to replicate the existing evaporation pond design to the extent practical and consistent with current pond liner systems, with the exception of perimeter fencing around the new ponds. Given that the new ponds will be netted, the installation of perimeter fencing would not be necessary. The existing Alpha and Beta Evaporation Ponds were constructed in 2012. HAI has prepared design plans for the construction of a new Alpha and new Beta Evaporation Pond. The ponds follow much of the same design as the original approach utilizing a containment system of a lower 40-mil HDPE geomembrane, geonet interstitial drainage layer, and upper 60-mil HDPE geomembrane. Review of the geotechnical information provided by Ninyo & Moore (2009) indicates that conventional earthmoving equipment will be able to excavate and process the materials for use in the construction of the earth fills and grading for the project. The ponds will include a leak detection system for detecting and collecting liquids between the liners that are essentially the same as the existing evaporation ponds. The design includes neutron probe monitoring pipes and perched groundwater monitoring wells for enhanced detection monitoring beyond the liner system. The basic design criteria included:
The size of each pond should be roughly 250,000 sf – similar to the existing ponds.

1- The depth of each pond should be nominally 10 feet, which includes the 2 feet of freeboard – this is also similar to the existing ponds.

2- The liner system shall include a lower 40 mil high-density polyethylene (HDPE) geomembrane, interstitial leak collection geonet, and upper 60 mil HDPE geomembrane. With the exception of using black conductive geomembrane (vs. white), the liner system is the same as existing ponds.

3- The leak detection sump, piping and manhole system is the same as existing ponds.

4- Neutron probe test pipes and ground water detection monitoring wells will be installed for enhanced monitoring for leaks, consistent with the existing ponds.

5- From a constructability perspective, the design of the ponds was graded in an attempt to balance the amount of cut and the amount of fill to reduce overall construction costs and exporting of material to a stockpile.

Refer to the design memorandum in Appendix 10.1.

6.3 Technical Specifications and CQA Plan

HAI has prepared Technical Specifications and a CQA Plan for the construction of the new ponds. The Technical Specifications, in conjunction with the execution of the CQA Plan, will ensure that the project is completed in accordance with the intent of the design plans and meets industry standards for the materials used in the construction. Appendix 10.2 and Appendix 10.3.

6.4 Construction Schedule

MSP plans to start the construction of Alpha A-3 pond in early 2024 and, Beta B-3 in January 2025.

6.5 Necessity of the modification

The modification is necessary to adapt to the decrease in evaporation rates in the ponds caused by the installation of netting over them. This adjustment will provide sufficient storage capacity, allowing MSP to continue operating the plant. Without the modification, electricity production at the plant may be interrupted during the summer of 2024.

6.6 Why the change should be permitted.

The proposed change should be permitted to allow MSP to continue providing electrical energy using clean, renewable energy. This change will enable MSP to maintain reliable operation and provide sufficient storage capacity for future pond maintenance. The proposed modification ensures the protection of environmental resources, striking a balance between the needs of both the human and natural environment. the needs of both the human and natural environment.

6.7 Proposed Changes to the Conditions of Certification

COMPIANCE-14 The project owner must petition the Energy Commission pursuant to Title 20, California Code of Regulations, section 1769, in order to modify the project (including linear facilities) design, operation or performance requirements, and to transfer ownership or operational control of the facility.

SOIL&WATER-2 Any changes to the design, construction, or operation of the ponds, treatment units, or storm water system shall be requested in writing to the CPM, with copies to the Lahontan RWQCB, and approved by the CPM, in consultation with the Lahontan RWQCB, prior to initiation of any changes.

7 Potential Environmental Impacts

7.1 Air Quality

The proposed change will generate short-term construction emissions, including fugitive dust and construction equipment combustion emissions. The project's construction duration will be 4 months per pond, with excavation of 31,000 cubic yards of soil for Alpha Pond and 38,000 cubic yards for Beta Pond. Dust suppression will be performed during the project using water trucks.

The estimated crew size is 10-15 employees, and common construction equipment will be used during the project; however, the equipment list is not currently available to MSP.

Any construction-related emissions will be temporary for the duration of the construction, and there will not be any significant impact after the project's completion.

7.2 Biological Resources

The proposed project components will be added within the existing facility footprint, with no conversion of habitat from its natural condition. Consequently, no direct impacts to biological resources or wetlands resulting from habitat changes have been identified.

7.3 Cultural Resources

The research conducted by MSP's consultant in August 2006 revealed, based on background research and field efforts, that the total cultural resources inventory for the project area includes 40 identified resources within the area of analysis. However, no CRHR-eligible resources were found within the AMS project area.

The potential impact of the project on cultural, paleontological, and historical resources was evaluated by the Commission and the applicant prior the plant construction and necessary mitigations were then implemented through Conditions of Certification to reduce these impacts to a less significant level.

The proposed project will be located within the existing facility. The new Alpha Pond site has not been disturbed previously, while the new Beta Pond will be constructed on the site of the Mirror Assembly Building. This building was temporarily used during construction as the construction shop.

The implementation of Conditions of Certification CUL-1 through CUL-7 will effectively reduce any potential excavation-related impacts to a level deemed less than significant.

7.4 Geological Hazards and Paleontology Resources

The geological study, conducted during the initial plant design, assessed the potential geologic hazards to the project were effectively mitigated by standard engineering design measures as specified in Conditions GEN-1, GEN-5, and CIVIL-1 of the Facility Design section of the Decision.

Gannet Fleming evaluated flood risks during the plant's initial design. As a preventive measure, the construction of retention basins was constructed to collect storm runoff near the evaporation ponds, thereby preventing runoff from reaching the ponds. At the Alpha Plant, an additional retention basin will be constructed on the east side of the new pond to collect stormwater from that side.

Furthermore, each pond will be excavated according to the grades shown in the plans, and the excavated soil will be used to create engineered fill around the pond. A berm will be constructed to prevent stormwater runoff from entering the evaporation pond. With the Conditions of Certification in place, the project adheres to applicable LORS related to geological resources.

The Paleontological Resources recommends at depths of 2 feet below the surface, mass grading, deep foundation excavation, and utility trenching that penetrates underlying undisturbed soils holds a high potential for exposure of paleontological resources, until determined otherwise by the project paleontological resource specialist. As the new ponds

necessitate excavation at the depth of 2 feet below the surface, paleontological monitoring, consistent with the Conditions of the Commission Decision, will be rigorously followed.

7.5 Efficiency and Reliability

The proposed project is anticipated to have a positive impact on the efficiency and reliability of MSP by providing additional storage capacity for water treatment discharge water.

7.6 Hazardous Materials Management

The proposed project will not impact the facility's Hazardous Materials Management, neither during the project nor after its completion. Consequently, there will be no change in the amount of stored hazardous materials.

7.7 Land Use

The proposed change does not affect the conditions of use presented in the Land Use analysis nor the Findings of the final commission Decision 2010-09. Therefore, impacts related to land use are not expected. The proposed change will occur within the MSP facility and the existing Conditions of Certification are adequate to protect land use resources.

7.8 Noises and Vibration

Construction noise is a temporary phenomenon and, in this case, is expected to occur over a period of about 2 months. The closest and only noise-sensitive noise receptors within several miles are six to eight residential homes at four widely separated locations between approximately 460 feet and 3,510 feet from the plant. Noisy construction is limited to daytime hours so that potential impacts of affected residents are mitigated to a level of insignificance.

Because of the distance of the nearest residents no vibration effects would be likely during the construction.

With the implementation of the Conditions of Certification, the project conforms to applicable LORS related to noise and all potential noise and vibration impacts will be mitigated to insignificance.

7.9 Public Health

This Petition does not affect any of the findings, conclusions, or conditions of certification in the Public Health section of the Final Decision.

7.10 Socioeconomic Resources

The proposed project would not cause a significant adverse direct or cumulative impact on housing, employment, schools, public services, or utilities. The project conforms to applicable LORS related to socioeconomic matters and all potential socioeconomic impacts will be insignificant.

7.11 Soil and Water Resources

The proposed change will impact the Soil and Water Resources by increasing the quantity of Surface Impoundments and the total capacity of wastewater storage. However, the design's intent is to replicate the existing evaporation pond design to the extent practical and consistent with current pond liner systems. The new ponds will adhere to the approved plan design, and the implementation of Conditions Soil&Water-2, Soil&Water-6, and Soil&Water-7 will ensure the plant continues to operate without adverse impact on the environment. The existing conditions will be implemented adequately to prevent adverse impacts from waste-generation effects.

7.12 Traffic and Transportation

The proposed project does not necessitate any changes in the workforce for plant operation; therefore, there will be no traffic or transportation impact resulting from the workers' commute.

7.13 Transmission Line Safety & Nuisance and System Engineering

The proposed project does not impact the transmission systems.

7.14 Visual Resources

The California Environmental Quality Act (CEQA) Guidelines define a "significant effect" on the environment to mean a substantial, or potentially substantial, adverse change in any of the physical conditions in the area affected by the project including…objects of historic or aesthetic significance (Cal. Code Regs., tit. 14, subsection 15382).
The proposed change will occur inside the facility and does not affect any of the findings, conclusions, or conditions of certification in the visual resources section of the Final Decision.

7.15 Waste Management

The proposed change will not impact the level of solid waste production from the MSP; therefore, there will be less than a significant impact.

7.16 Worker Safety and Fire Protection

As a result of the safety procedures in place, the proposed project will have a less than significant impact on worker safety and fire protection.

8 Potential Compliance Impacts and Landowner Impacts

8.1 Impacts the Modification May Have on the Facilities' Ability to Comply with Applicable Laws, Ordinances, Regulations and Standards

The project modification, as proposed, would have no adverse effect on the ability of the certified facility to comply with applicable LORS. The project would allow the MSP facility to continue to run efficiently, and to meet environmental goals and the current demand for electricity. The project would continue to operate in compliance with all applicable LORS.

8.2 How the Modification Affects the Public

With implementation of the modification as proposed, the construction of the new ponds would have no immediately detectable effect on the public.

8.3 Property Owners Potentially Affected by the Modification

No impacts to any proximate or distant property owners could be identified. The closest properties are between 460 feet and 3,510 feet from the plant.

9 References

Final Commission Decision, September 2010, CEC-800-2010-008-CMF, Docket Number 09-AFC-5

10 Appendix

10.1 Design Memorandum

10.2 Design Plans

10.3 Technical Specifications

10.4 Construction Quality Assurance Plan (CQA)

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10.1 Design Memorandum

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10.2 Design Plans

10.3 Technical Specifications

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10.4 Construction Quality Assurance Plan (CQA)

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10.1 Design Memorandum

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November 22, 2023

Ms. Mahnaz Ghamati
Quality, Environmental & Compliance Manager
ATLANTICA Sustainable Infrastructure
Mojave Solar LLC
42134 Harper Lake Road
Hinkley, California 92347

SUBJECT: Basis of Design Memorandum – New Alpha and Beta Ponds
Mojave Solar Project Evaporation Ponds, Hinkley, CA
HAI Project No. ASI-23-004

Dear Ms. Ghamati,

Mojave Solar Project (MSP) has retained Hushmand Associates, Inc. (HAI) to evaluate options for the existing and potential future evaporation ponds at the Mojave Solar Project located in Hinkley, California. The purpose of this Design Memorandum is to present the design basis for the proposed new Alpha Pond A-3 and Beta Pond B-3.

Given that the regulatory agencies have previously reviewed and permitted the existing evaporation ponds, the design for the proposed new ponds was largely maintained to be consistent with the previous design concepts. HAI has prepared the design plans, Technical Specifications, and Construction Quality Assurance (CQA) plan for use in permitting and contracting the associated construction.

HAI was also retained to evaluate potential modifications to the existing Alpha and Beta ponds to extend the service life, prior to construction of new ponds. The recommendations for the existing ponds were presented in a separate Design Memorandum from HAI dated October 17, 2023.

Status of the Existing Evaporation Ponds

MSP currently has 4 evaporation ponds where wastewater generated by the water treatment facility is discharged to the evaporation ponds. The evaporation ponds were constructed per the

design plans prepared by Gannett Fleming (2012a, 2012b, 2012c). The ponds have been constructed with a liner system comprised of a lower 40 mil high-density polyethylene (HDPE) geomembrane, interstitial leak collection geonet, and upper 60 mil HDPE geomembrane.

The ponds have been receiving wastewater since August 2014. As of June 2023, the wastewater depth in the evaporation ponds was 6.50 feet in Alpha East, 7.00 feet in Alpha West, 5.40 feet in Beta East and 9.6 feet in Beta West (Ninyo & Moore, 2023). The depth of the wastewater has tended to increase year over year, which has necessitated the need for this evaluation as the currently permitted capacity would be reached within the next few years.

MSP is also in the process of adding netting over the evaporation ponds to limit birds from entering the pond. It is expected that the addition of the netting will further reduce the rate of evaporation due to less air flow across that pond surface.

HAI Basis of Design for New Evaporation Ponds

HAI performed site visits on August 23, 2023, and on October 12, 2023, to observe the evaporation ponds and discuss the site conditions and goals for adding new evaporation ponds. As discussed with MSP site personnel, a new Alpha Pond and a new Beta Pond were to be designed. The intent of the design was to replicate the existing evaporation pond design to the extent practical and consistent with current pond liner systems.

The basic design criteria included:

1. The size of each pond should be roughly 250,000 sf – similar to the existing ponds.
2. The depth of each pond should be nominally 10 feet, which includes the 2 feet of freeboard – this is also similar to the existing ponds.
3. The liner system shall include a lower 40 mil high-density polyethylene (HDPE) geomembrane, interstitial leak collection geonet, and upper 60 mil HDPE geomembrane. With the exception of using black conductive geomembrane (vs. white), the liner system is the same as existing ponds.
4. The leak detection sump, piping and manhole system is the same as existing ponds.
5. Neutron probe test pipes and ground water detection monitoring wells will be installed for enhanced monitoring for leaks, consistent with the existing ponds.
6. From a constructability perspective, the design of the ponds was graded in an attempt to balance the amount of cut and the amount of fill to reduce overall construction costs and exporting of material to a stockpile.

In summary, the proposed new ponds are nearly identical to the existing ponds in terms of containment system design, leak detection monitoring, and external detection monitoring systems. The design plans for the proposed ponds are included as Attachment A, Technical Specifications are included as Attachment B, and the Construction Quality Assurance Plan is included as Attachment C.

Existing Site Conditions

The MSP project site is located east and west of Harper Lake Road and north and south of Lockhart Road near the town of Lockhart, in San Bernardino County, California. The property includes Section 33 and portions of Sections 28, 29, 30, and 32 within Township 11N – Range 4W, San Bernardino Base Meridian (SBBM). The site is relatively flat with a gentle downward slope toward Harper Lake to the northeast. The site currently includes the Alpha and Beta solar power generation plants and associated facilities. Elevations on the main solar project site range from approximately 2,020 feet above mean sea level (MSL) near the northeastern end of the site on Harper Lake, to approximately 2,105 feet MSL at the southwest corners of Sections 30 and 33. Vegetation generally consists of a sparse to moderate growth of weeds and brush.

In the immediate area of the proposed Alpha A-3 Evaporation Pond, the elevation ranges from 2,041 feet MSL in the southwest corner to 2,037 feet MSL in the northeast corner. The average grade is approximately 0.5%. The Alpha A-3 site has very sparce vegetation of weeds and brush.

The proposed Beta B-3 Evaporation Pond is also very flat with elevations ranging from 2,063 feet MSL in the southwest corner to 2,057 feet MSL in the northeast corner. The Beta Pond B-3 site is the location of the former Assembly Building. The building structure has been removed; however, the building's concrete slab and surrounding asphalt pavement remain. Since the site is paved, there is little to no vegetation. The concrete slab and asphalt paving will have to be removed prior to construction of the pond.

Geotechnical / Soil Conditions

The geotechnical conditions for the overall site were evaluated by Ninyo & Moore (2009). Ninyo & Moore evaluations were generally performed to provide recommendations for the buildings and infrastructure for the solar facility. Ninyo & Moore performed six percolation tests within the proposed evaporation pond and land farm areas at the subject site. The percolation test borings were advanced on April 3, 2009, with a truck mounted, 8-inch diameter, continuous flight auger drill. The materials encountered in the borings consisted of old alluvium. As encountered, the alluvial materials generally consisted of light brown to brown, dry to damp, loose to medium dense, silty fine to coarse sand. The depth to the regional groundwater table at the site is anticipated to be on the order of 150 feet. Perched groundwater, however, was encountered in several of their borings at a depth of approximately 28 to 32 feet. Groundwater levels at the site may fluctuate due to seasonal variations, groundwater withdrawal or injection, or other factors.

As concluded by Ninyo & Moore (2009), "In general, excavation of the alluvial material and lake deposits should be achievable with earthmoving equipment in good operating condition. Variations of in-place moisture content will be encountered; therefore, aeration or moisture conditioning during compaction should be anticipated. If encountered, cemented caliche deposits will necessitate heavy ripping during grading."

Given that the depth of excavation for the proposed ponds is typically less than 6 feet and maximum depth of excavation for manholes and neutron probes is 15 feet, HAI draws the same conclusion that the excavation should be achievable with earthmoving equipment in good operating condition. To further support this conclusion, it is HAI's understanding that there were no significant excavation/construction issues during construction of the existing evaporation ponds. Groundwater or perched water are not expected to be encountered.

Evaporation Pond Liner Design Plans

HAI has prepared design plans for the construction of the proposed Alpha A-3 and Beta B-3 Evaporation Ponds (Attachment A). Each of the ponds was designed to be consistent with past design and construction practices at the stie. Each of the ponds will be excavated to the grades shown in the plans. Excavated soil will be used to construct an engineered fill around the pond. The berm will prevent stormwater runoff from entering the evaporation pond. The grading plans were developed to limit the need for exportation of materials to other parts of the site. However, the Beta B-3 Evaporation Pond was limited in space by existing access roads and the existing Beta West Pond as well as the need to remove the existing asphalt pavement and concrete slab. It should be noted that the topographic mapping used for the design of the ponds was the same as the original evaporation pond design used by Gannett Fleming (2012c). Based on the site visits by HAI, the ground conditions at Alpha A-3 Evaporation Pond have changed very little. Beta Pond B-3 Evaporation Pond site did have the Assembly Building constructed after the topographic survey was completed, however, HAI does not believe the grades were significantly altered during the building construction. HAI recommends that a current site survey be completed prior to construction to confirm construction quantities and design considerations.

The containment and leak detection system are the same as the existing evaporation ponds as designed by Gannett Fleming (2012c). The liner system includes a lower 40 mil high-density polyethylene (HDPE) geomembrane, interstitial leak collection geonet, and upper 60 mil HDPE geomembrane. If a leak were to occur in the upper 60 mil HDPE geomembrane, the liquids would flow through the geonet to the sump located in the center of the pond. Accumulated liquids would then flow through the leak detection pipe to the leak collection manhole. Liquid volumes are monitored to confirm the liner system is performing as designed.

Each pond will receive wastewater through a forcemain pipeline. The existing forcemain (Gannett Fleming, 2012a) is a 4-inch diameter Schedule 80 PVC pipe. Additional 4-inch Schedule 80 PVC pipe and control valves (similar to the existing control valves) will be installed to allow MSP to direct the wastewater to the proposed evaporation ponds.

Based on the design plans, Alpha A-3 Evaporation Pond has a maximum storage capacity of 13.1 million gallons and Beta B-3 Evaporation Pond has a maximum storage capacity of 13.2 million gallons. The maximum storage capacity is computed as the volume stored when there is 2 feet of freeboard remaining (i.e., the water surface is 2 feet below the crest of the pond).

Technical Specifications and CQA Plan

HAI has prepared Technical Specifications (Attachment B) and CQA Plan (Attachment C) for the construction of the proposed evaporation ponds. The Technical Specifications in combination with execution of the CQA Plan will ensure the project is completed in accordance with the intent of the design plans and meets industry standards for the materials used in the construction of the project. Both the Technical Specifications and CQA Plan were compared to the Gannett Fleming 2012 documents for construction of the existing evaporation ponds. In general, the documents are similar in the requirements for the materials, and testing during construction are the same or more stringent for the proposed evaporation ponds.

Detection Monitoring

In addition to the geonet leak detection system that underlies the entire upper 60-mil HDPE geomembrane, each of the ponds will have three neutron probe access pipes below the liner system to monitor for changes in the vadose zone moisture conditions. The neutron probe access pipes and neutron probe monitoring program were included with the existing evaporation pond construction. The neutron probe monitoring is performed on a simi-annual basis. To date there has been no evidence of a release from the evaporation ponds (Ninyo & Moore, 2023).

The proposed evaporation ponds would also install, similar to the existing evaporation ponds, perched groundwater monitoring wells. Based on the groundwater gradient presented in the Annual Report by Ninyo & Moore (2023), the proposed perched groundwater monitoring wells have been located in a similar, downgradient manner as the existing ponds. The locations of the proposed perched groundwater monitoring wells are shown on Sheet 3 of the respective construction plans in Attachment A.

Construction Quantities

HAI has estimated the following will be required for construction of the proposed evaporation ponds:

Alpha Pond A-3

- Excavation – 31,000 cy
- Engineered Fill – 31,000 cy
- Neutron Probes – 6 access boxes and 2,250 feet of 4-inch HDPE Pipe SDR 11
- Perched Groundwater Monitoring Wells – 2 each
- 4-inch Schedule 80 Forcemain – 1,200 ft and associated valves and boxes
- 40 mil HDPE Geomembrane – 275,000 sf
- Geonet Drainage Layer – 275,000 sf
- 60 mil HDPE Geomembrane – 275,000 sf
- Leak Detection Manhole and Piping – 2 each

Beta Pond B-3

- Demolition of Existing 8-inch-thick concrete slab – 90,000 sf
- Demolition of Existing asphalt paving – 100,000 sf
- Excavation – 38,000 cy
- Engineered Fill – 11,000 cy
- Neutron Probes – 6 access boxes and 1,800 feet of 4-inch HDPE Pipe SDR 11
- Perched Groundwater Monitoring Wells – 2 each
- 4-inch Schedule 80 Forcemain – 820 ft and associated valves and boxes
- 40 mil HDPE Geomembrane – 290,000 sf
- Geonet Drainage Layer – 290,000 sf
- 60 mil HDPE Geomembrane – 290,000 sf
- Leak Detection Manhole and Piping – 2 each

Summary

The existing Alpha and Beta Evaporation Ponds were constructed in 2012. Since their construction the liner system has performed well, however, the ponds are accumulating liquids/solids and additional capacity is needed. HAI has prepared design plans for the construction of a new Alpha and new Beta Evaporation Pond. The ponds follow much of the same design as the original approach utilizing a containment system of a lower 40-mil HDPE geomembrane, geonet interstitial drainage layer, and upper 60-mil HDPE geomembrane. Review of the geotechnical information provided by Ninyo & Moore (2009) indicates that conventional earthmoving equipment will be able to excavate and process the materials for use in the

construction of the earth fills and grading for the project. The ponds will include a leak detection system for detecting and collecting liquids between the liners that are essentially the same as the existing evaporation ponds. The design includes neutron probe monitoring pipes and perched groundwater monitoring wells for enhanced detection monitoring beyond the liner system.

Construction of the evaporation ponds will follow the Technical Specifications, Construction Quality Assurance Plan, and Design Plans. The documents were prepared to follow general industry standards and are consistent with the construction methods and standards used for the original evaporation ponds.

Reference Documents

Gannett Fleming Drainage, Erosion & Sediment Control Plan Report, May 13, 2011.

Gannett Fleming, Construction Drawings – Raw Water Pipe and Evaporation Pond Force Main, Mojave Solar Project, March 1, 2012a.

Gannett Fleming, Mojave Solar Project, Process Wastewater Evaporation Ponds and Bioremediation Facilities, Supplemental Technical Specifications, May 1, 2012b.

Gannett Fleming, Construction Plans – Process Wastewater Evaporation Ponds and Bioremediation Facilities, Mojave Solar Project, Revision 3 dated December 12, 2012c.

Ninyo & Moore, Geotechnical Evaluation, Mojave Solar Project, Lockhart, California, May 15, 2009, Project Number 105879004.

Ninyo & Moore, Annual Report – July 2023 Detection Monitoring Program/Groundwater Monitoring Plan Report, California Energy Commission, Mojave Solar Project, July 30, 2023

Attachment A – Evaporation Ponds Design Drawings
Attachment B – Technical Specifications
Attachment C – Construction Quality Assurance Plan

Atlantica
Sustainable Infrastructure

10.2 Design Plans

PERMIT PLANS

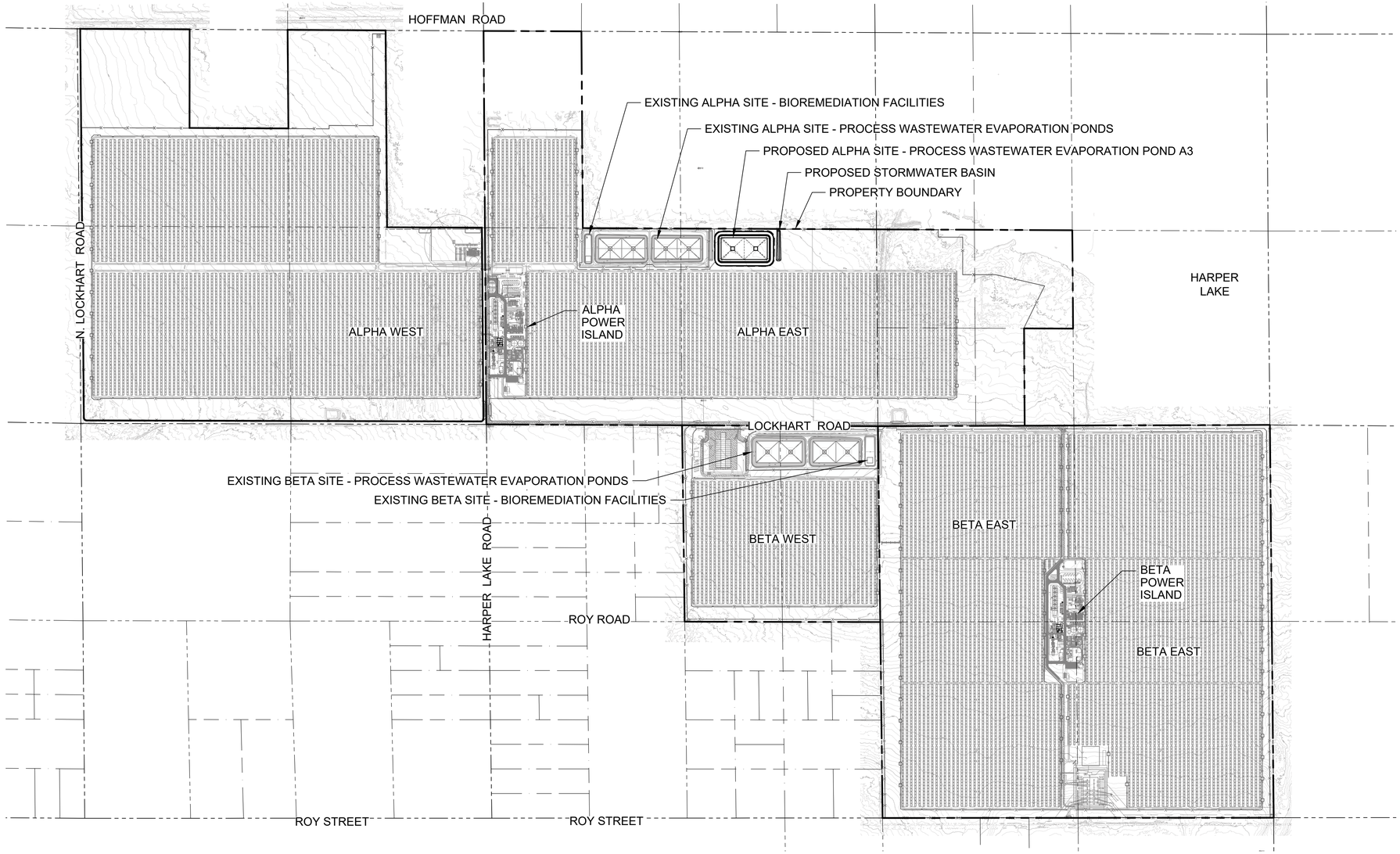
PROCESS WASTEWATER EVAPORATION POND - ALPHA POND A3

For

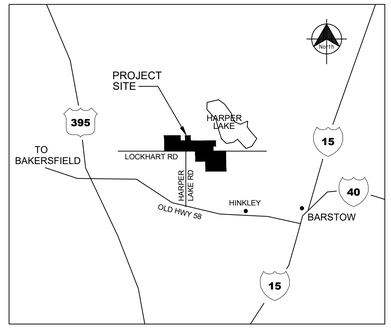
MOJAVE SOLAR PROJECT

PORTIONS OF SECTIONS 28, 29, 32, AND 33, TOWNSHIP 11 NORTH, RANGE 4 WEST AND PARCEL 4 OF PARCEL MAP NO. 12194, IN THE CITY OF HINKLEY, SAN BERNARDINO BASE AND MERIDIAN, SAN BERNARDINO COUNTY, CALIFORNIA

SHEET INDEX:



SITE MAP



VICINITY MAP

NTS

BASIS OF BEARINGS:

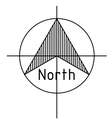
CALIFORNIA STATE PLANE COORDINATE SYSTEM NAD 83, ZONE 5

BENCHMARK:

NGS BENCHMARK NO. 2260-25-LC:

SURVEY DISK, STAMPED "25 LC 1958 EL=2260". 19.4 MI SOUTH-EAST FROM BORON. 19.35 MI SOUTH-EAST ALONG THE AT&SF RAILWAY FROM THE STATION AT BORON, 0.05 MI WEST OF THE CROSSING OF HARPER LAKE ROAD, 44.9 FEET SOUTH OF THE SOUTH RAIL, 1.8 FEET WEST OF A WITNESS POST, ABOUT 1 1/2 FEET LOWER THAN THE TRACK, AND SET IN THE TOP OF A CONCRETE POST PROJECTING 0.3 FEET ABOVE THE GROUND. SEC. 19, T1N, R4W CITY OF HINKLEY, SAN BERNARDINO BASE AND MERIDIAN

ELEVATION = 2262.77 FEET (NAVD 88)



GRAPHIC SCALE

800 0 400 800

(IN FEET)

811

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REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/14/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

COVER SHEET

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C001

SHEETS: 7 SHEET NO: 1

SCALE: 1"= 800'

ANSI D

GENERAL NOTES

1. ALL WORK SHOWN HEREON SHALL BE DONE IN ACCORDANCE WITH THESE CONSTRUCTION DRAWINGS, SPECIFICATIONS, THE SAN BERNARDINO SPECIAL DISTRICTS DEPARTMENT STANDARDS FOR SANITARY SEWER DIVISIONS C, D AND E, DATED AUGUST 2009, THE LATEST CALIFORNIA BUILDING CODE (UNIFORM BUILDING CODE) AND UNIFORM PLUMBING CODE.
2. IT SHALL BE THE RESPONSIBILITY OF THE BIDDER TO VERIFY, AND CORRECT, ALL QUANTITIES INCLUDING EXCAVATION, BORROW, EMBANKMENT, SHRINK OR SWELL, GROUND COMPACTION, HAUL AND ANY OTHER ITEMS AFFECTING HIS BID TO COMPLETE THE WORK SHOWN ON THE PLANS AND TO BASE HIS BID SOLELY UPON HIS OWN VERIFIED QUANTITIES IRRESPECTIVE OF THE ESTIMATES FURNISHED. IT SHALL BE THE BIDDER'S RESPONSIBILITY TO NOTIFY THE ABENER / TEYMA, DURING THE BIDDING PROCESS, OF ANY MAJOR DISCREPANCIES. THE BIDDER AGREES WITH THE QUANTITIES SHOWN ON THESES PLANS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY ESTIMATES, BIDS, CONSTRUCTION, OR OTHER ACTIONS OR DECISIONS MADE WHICH HAVE BEEN BASED ON PRELIMINARY OR UNAPPROVED PLANS.
4. IT IS THE CONTRACTOR'S RESPONSIBILITY TO PROVIDE, VERIFY, AND ACCEPT ALL CONSTRUCTION STAKES PRIOR TO STARTING ANY CONSTRUCTION.
5. ANY AND ALL ITEMS EXISTING SHALL BE PROTECTED BY CONTRACTOR AND IF ANY ITEM(S) MUST BE REMOVED IN ORDER TO FACILITATE CONSTRUCTION, CONTRACTOR SHALL REPLACE THE ITEM(S) TO THE SAME OR BETTER CONDITION THAN IT WAS BEFORE REMOVAL.
6. ANY ALTERATIONS OR ADDITIONS TO THESE PLANS MUST BE APPROVED BY ENGINEER-OF-RECORD, AND ABENER / TEYMA.
7. AN APPROVED SET OF PLANS SHALL BE ON THE JOB SITE AT ALL TIMES. DEVIATIONS FROM THE PLAN MUST BE PRECEDED BY AN APPROVED PLAN REVISION.
8. THE LOCATION AND PROTECTION OF ALL UTILITIES IS THE RESPONSIBILITY OF THE CONTRACTOR.
9. THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL NECESSARY REGULATIONS AND REQUESTS BY THE STATE AND/OR COUNTY REGARDING DUST CONTROL.
10. CONTRACTOR IS RESPONSIBLE FOR LOCATING AND CONFIRMING DEPTHS OF ALL EXISTING UTILITIES.
11. OBSTRUCTIONS TO PROPOSED IMPROVEMENTS IN THE RIGHT-OF-WAY SHALL BE REMOVED OR RELOCATED BEFORE BEGINNING CONSTRUCTION OF THE PROPOSED IMPROVEMENTS.
12. IF APPLICABLE, SUBMIT SHORING PLANS AND CALCULATIONS TO THE ENGINEER FOR REVIEW.
13. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING NECESSARY PERMITS PRIOR TO CONSTRUCTION.
14. PERMITTING AGENCY ACCEPTANCE OF PLANS DOES NOT RELIEVE THE OWNER OR CONTRACTOR FROM RESPONSIBILITIES FOR THE CORRECTION OF ERROR AND OMISSION DISCOVERED DURING CONSTRUCTION. UPON REQUEST OF THE BUILDING INSPECTOR, THE REQUIRED PLAN AND REVISIONS SHALL BE PROMPTLY SUBMITTED TO THE BUILDING AND SAFETY OFFICIAL FOR REVIEW.
15. PRIOR TO THE START OF GRADING ALL EXISTING VEGETATION AND DEBRIS, INCLUDING EXISTING STRUCTURES, FOOTING, FOUNDATION, RUBBLE, TREES AND ROOT SYSTEMS SHALL BE REMOVED FROM THE SITE.
16. THE GEOTECHNICAL ENGINEER SHALL INSPECT THE EXPOSED SOILS, AND ANY ADDITIONAL OVER EXCAVATION SHALL THEN BE MADE IN ACCORDANCE WITH THE GEOTECHNICAL ENGINEER'S RECOMMENDATION AND AS CONTAINED IN THE SOILS REPORT.
17. EXPOSED SOILS SHALL BE SCARIFIED TO A MINIMUM DEPTH OF 12 INCHES, BROUGHT TO PROPER MOISTURE CONTENT AND COMPACTED TO AT LEAST 90% OF THE MAXIMUM DENSITY, AS DETERMINED BY APPENDIX SECTION 3305 OF THE LATEST CALIFORNIA BUILDING CODE OR EQUIVALENT. COMPACTION SHALL BE OBTAINED BY METHODS SPECIFIED BY THE GEOTECHNICAL ENGINEER.
18. IF ANY UNFORESEEN SUBSURFACE STRUCTURES ARE ENCOUNTERED DURING CONSTRUCTION THEY SHALL BE IMMEDIATELY BROUGHT TO THE ATTENTION OF THE GEOTECHNICAL ENGINEER AND RESIDENT ENGINEER BEFORE PROCEEDING FURTHER.
19. THE CONTRACTOR SHALL TAKE PROTECTIVE MEASURES SO AS NOT TO CAUSE ANY MUD, SILT OR DEBRIS TO BE DEPOSITED ONTO PUBLIC OR ADJACENT PROPERTY AT ALL TIMES DURING CONSTRUCTION. ANY MUD OR DEBRIS ON PUBLIC PROPERTY SHALL BE REMOVED IMMEDIATELY.
20. NO GRADING SHALL COMMENCE WITHOUT OBTAINING GRADING PERMIT AND NOTIFYING RESIDENT ENGINEER 24 HOURS PRIOR TO START OF WORK.
21. RESPONSIBILITY FOR GRADING AND INSPECTION SHALL BE ASSUMED BY THE RESIDENT ENGINEER IN ACCORDANCE WITH APPENDIX SECTION 3317 OF THE LATEST CALIFORNIA BUILDING CODE.
22. THE GEOTECHNICAL ENGINEER SHALL ALSO BE RESPONSIBLE TO VERIFY AND REPORT THAT PROPER COMPACTION HAS BEEN OBTAINED BY CONTRACTOR CONCERNING UTILITY BACKFILL INCLUDING, BUT NOT LIMITED TO EVAPORATION PONDS, SEWER LINES, WATER LINES, ELECTRICAL, GAS AND LANDSCAPE IRRIGATION LINES.
23. NO ADJUSTMENT OF ELEVATION SHALL BE MADE WITHOUT PRIOR WRITTEN APPROVAL OF THE BUILDING AND SAFETY OFFICIAL AND THE CIVIL ENGINEER OF RECORD.
24. TO THE EXTENT PRACTICAL, THE DESIGN OF THE NEW EVAPORATION PONDS FOLLOW THE ORIGINAL DESIGN PLANS PREPARED BY GANNETT FLEMING (2012), INCLUDING CALLOUTS AND GENERAL LAYOUT OF THE POND COMPONENTS FOR CONSISTENCY.

EVAPORATION PONDS

1. PRIOR TO CONSTRUCTION, CONTRACTOR SHALL PROVIDE A QUALITY ASSURANCE/QUALITY CONTROL PROGRAM FOR LINER INSTALLATION. DURING INSTALLATION, THE CONSTRUCTION ACTIVITIES SHALL BE CONDUCTED IN A MANNER THAT MINIMIZES POTENTIAL FOR DAMAGE TO THE LINER. ANY DAMAGE TO THE LINER SHALL BE IMMEDIATELY REPAIRED.
2. CONTRACTOR TO PERFORM PRE-CONSTRUCTION NEST SURVEYS IF CONSTRUCTION ACTIVITIES WILL OCCUR FROM FEBRUARY 1 THROUGH AUGUST 1 [CONDITION OF CERTIFICATION (COC) BIO-8].
3. CONTRACTOR SHALL CONFIRM THAT OWNER HAS COMPLETED THE BIOLOGICAL OPINION PRIOR TO SITE MOBILIZATION (COC BIO-21).
4. CONTRACTOR SHALL CONFIRM THAT OWNER HAS THE FINAL EVAPORATION POND MONITORING AND ADAPTIVE MANAGEMENT PLAN (COC BIO-19) PRIOR TO BEGINNING OPERATION OF THE EVAPORATION PONDS.
5. CONTRACTOR TO SUBMIT, FOR APPROVAL, SHOP DRAWINGS AND/OR CATALOG CUTS FOR ALL MATERIALS AND EQUIPMENT PRIOR TO ORDERING ANY MATERIALS OR EQUIPMENT. CONTRACTOR TO PROVIDE CERTIFICATION AND OTHER DOCUMENTATION AS REQUESTED TO CONFIRM THAT HDPE LINER AND OTHER MATERIALS WILL MEET THE POTENTIAL OPERATING CONDITIONS PROPOSED IN THIS PROJECT.
6. ALL WIRING TO CONFORM TO THE NATIONAL ELECTRIC CODE.
7. ALL SEAMS ON ALL HDPE LINERS WILL BE TESTED FOR LEAKAGE. ANY LEAKS WILL BE REPAIRED AND THE LINER RETESTED UNTIL IT PASSES.
8. CONTRACTOR TO PROVIDE OPERATION AND MAINTENANCE MANUALS AND TRAINING FOR ALL EQUIPMENT. O&M MANUALS TO BE THREE RING, HEAVY DUTY D-TYPE, AND INCLUDE COVER AND SIDE TITLE SHEETS, INSIDE TITLE SHEET, TABLE OF CONTENTS, MANUALS FOR EACH PIECE OF EQUIPMENT DESCRIBING NORMAL O&M, TEST PROCEDURES, TROUBLESHOOTING PROCEDURES, SPARE PARTS LIST, LUBRICATION SCHEDULE WITH LIST OF LUBRICANTS, SUPPLIER CONTACT AND MANUFACTURER CONTACT INFORMATION AS A MINIMUM.
9. THE ESTIMATED ACTION LEAKAGE RATE (ALR) FOR THE EVAPORATION PONDS, AS DOCUMENTED IN THE APRIL 2010 ROWD, IS 2,750 GALLONS PER ACRE PER DAY. THIS IS BASED ON ONE STANDARD HOLE PER ACRE, A DRAINAGE LAYER GEONET WITH HYDRAULIC CONDUCTIVITY OF 0.06 METERS PER SECOND AND A 50% SAFETY FACTOR. BASED ON A 5.0-ACRE POND, EACH EVAPORATION POND WOULD HAVE AN ALR OF 13,750 GALLONS PER DAY. THE CONTRACTOR SHALL PROVIDE CALCULATIONS PRIOR TO CONSTRUCTION SHOWING THE GEONET AND LINER SYSTEM PROPOSED BY THE CONTRACTOR WILL MEET THESE FLOW REQUIREMENTS. AT THE COMPLETION OF CONSTRUCTION, PRIOR TO DISCHARGE TO THE PONDS, THE CONTRACTOR SHALL PERFORM FIELD TESTS TO VERIFY THE ACTUAL HYDRAULIC CONDUCTIVITY OF THE GEONET. THE RESULTS OF THE FIELD TESTS SHALL BE SUBMITTED TO THE OWNER. THE OWNER WILL PROVIDE THE CALCULATIONS TO THE CALIFORNIA ENERGY COMMISSION FOR REVIEW. IF THE CONSTRUCTED LINER/GEONET SYSTEM DOES NOT PROVIDE ACCEPTABLE FLOWS AS DETERMINED BY THE CALIFORNIA ENERGY COMMISSION, THE CONTRACTOR WILL BE RESPONSIBLE FOR COORDINATING WITH THE CALIFORNIA ENERGY COMMISSION TO REVISE THE ALR AND ANY OTHER DOCUMENTS OR MATERIALS AND INSTALLATION TO ALLOW THE EVAPORATION PONDS TO BE PERMITTED AND USED.
10. CONTRACTOR TO COORDINATE THE CONSTRUCTION OF THE EVAPORATION PONDS WITH THE INSTALLATION OF THE MONITORING WELLS.
11. THERE SHALL BE NO DISCHARGE, BYPASS, OR DIVERSION OF WASTEWATER FROM THE COLLECTION, CONVEYANCE, OR DISPOSAL FACILITIES TO ADJACENT LAND AREAS OR SURFACE WATERS.
12. BIRD DETERRENT SYSTEMS AS REQUIRED BY THE CEC SHALL BE PROVIDED BY OTHERS.

EVAPORATION POND UTILITY NOTES

1. POND FORCE MAIN MINIMUM DEPTH OF BURY SHALL BE 4 FEET BELOW FINISHED GRADE.
2. ABOVE GROUND 3-INCH AND SMALLER VALVES SHALL BE AS MANUFACTURED BY NIBCO OR EQUAL, WITH HANDWHEEL OPERATORS. BURIED 4-INCH AND LARGER GATE VALVES TO BE RESILIENT SEAT VALVES AS MANUFACTURED BY MUELLER AND CO. , KEYSTONE OR EQUAL. BURIED VALVES SHALL HAVE MJXMJ CONNECTIONS, HAVE CONCRETE BASE, 2" SQUARE OPERATING NUTS, VALVE CAN AND COVER, AND 2-FOOT SQUARE CONCRETE PAD, UNLESS OTHERWISE NOTED.
3. INSTALL MECHANICAL RESTRAINT ON ALL UNRESTRAINED PIPE, FITTINGS AND VALVES AS RECOMMENDED BY MECHANICAL RESTRAINT SUPPLIER. MECHANICAL RESTRAINT SHALL BE AS MANUFACTURED BY EBAA IRON OR EQUAL. CONTRACTOR SHALL PROVIDE TABLE OF TYPICAL DISTANCES FOR JOINT RESTRAINT WITH SHOP DRAWINGS FOR APPROVAL.
4. ALL ABOVE GROUND PIPING, FITTINGS, VALVES AND APPURTENANCES SHALL BE INSULATED USING ALUMINUM WRAPPED FIBERGLASS OR EQUAL. INSULATION SHALL BE SEALED TO PREVENT MOISTURE FROM ENTERING THE JACKETING.
5. FORCE MAIN PIPE AND FITTINGS (NOTE 22) SHALL BE WHITE SCHEDULE 80 PVC. ALL PVC SCHEDULE 80 PIPE SHALL BE MANUFACTURED FROM A TYPE I, GRADE I POLYVINYL CHLORIDE (PVC) COMPOUND WITH A CELL CLASSIFICATION OF 12454 PER ASTM D1784. THE PIPE SHALL BE MANUFACTURED IN STRICT COMPLIANCE TO ASTM D1785, CONSISTENTLY MEETING AND/OR EXCEEDING THE QUALITY ASSURANCE TEST REQUIREMENTS OF THIS STANDARD WITH REGARD TO MATERIAL, WORKMANSHIP, BURST PRESSURE, FLATTENING AND EXTRUSION QUALITY. THE PIPE SHALL BE MANUFACTURED IN THE USA, USING DOMESTIC MATERIALS, BY AN ISO 9001 CERTIFIED MANUFACTURER. STANDARD LENGTHS OF PIPE SIZES 6" AND LARGER SHALL BE BEVELED EACH END BY THE PIPE MANUFACTURER. ALL PIPE SHALL BE STORED INDOORS AFTER PRODUCTION AT THE MANUFACTURING SITE UNTIL SHIPPED FROM FACTORY. THIS PIPE SHALL CARRY THE NATIONAL SANITATION FOUNDATION (NSF) SEAL OF APPROVAL FOR POTABLE WATER APPLICATIONS. CONTRACTOR TO CONFIRM MAXIMUM FORCE MAIN PRESSURE RATING IS SUFFICIENT TO ACCOMMODATE MAXIMUM PUMP PRESSURE WITH OWNER PRIOR TO CONSTRUCTION.
6. FORCE MAIN PIPE AND FITTINGS (NOTE 22A) SHALL BE LINED DUCTILE IRON, CLASS 350, CONFORMING TO AWWA C151, C104 AND C111.
7. WASTEWATER AIR RELEASE VALVES (ARV) SHALL BE INSTALLED AT HIGH POINTS ON THE EVAPORATION POND FORCE MAIN. ARV's SHALL BE 2", 150 PSI AS MANUFACTURED BY APCO SERIES 400 OR VALMATIC SEERIES 48A, OR EQUAL, FOR INSTALLATION IN WASTEWATER FORCE MAINS. THE ARV's SHALL BE INSTALLED AS SHOWN ON THE AIR RELEAVE VALVVE DETAIL. CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING WASTEWATER FORCE MAIN AT A UNIFORM SLOPE TO MAINTAIN THE NEED FOR FOR THE ARV's AND FOR LOCATIONG THE ARV's AT HIGH POINTS IN THE PIPE AS NEEDED.

LEGEND AND ABBREVIATIONS

PROPERTY LINE
CENTER LINE
SECTION LINE
MATCH LINE
GRADE BREAK
UNDERGROUND PIPE
xxx — 4' HIGH, CHAIN LINK FENCE
15' HIGH, CHAIN LINK WIND FENCE
VEHICLE GATE
TORTOISE FENCE
INDICATES NEW TOP OF EMBANKMENT
00.00 — FINISHED GRADE ELEVATION
IE=00.00 — INVERT ELEVATION
DIRECTION OF DRAINAGE FLOW
H.V.9028 724.23 — INDICATES SITE BENCHMARK
PRECAST CONCRETE MANHOLE
WATER VALVE
FC — WATER FLOW CONTROL VALVE
M — WATER METER
SURVEY MONUMENT
RETENTION BASINS
SOLAR COLLECTOR ASSEMBLY
GROUND
GATE VALVE W/ 2" SQ. OPERATING NUT
GATE VALVE W/ HANDWHEEL OPERATOR
GATE VALVE W/ HANDWHEEL OPERATOR

AASHTO	AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
ASTM	AMERICAN SOCIETY FOR TESTING AND MATERIALS
ABC	ASPHALT BASE COURSE
@	AT
BM	BENCHMARK
CL	CENTERLINE
CLR	CLEAR
CF	CUBIC FEET
CMH	COLLECTION MANHOLE
CO	SEWER CLEANOUT
CONC	CONCRETE
CONT.	CONTOURS
COMP	COMPACTED
DIA	DIAMETER
DTL	DETAIL
DWLS	DOWELS
E	EASTING COORDINATE
EW	EACH WAY
E-W	EAST-WEST
EWEF	EACH WAY + EDGE OF FACE
FG	FINISH GRADE
FIN	FINISH
FT	FEET
FL	FLOW LINE
FM	EVAPORATION POND FORCE MAIN
HDPE	HIGH DENSITY POLYETHYLENE
HG	HIGH
HTF	HEAT TRANSFER FLUID
HWL	HIGH WATER LEVEL
H	HORIZONTAL
IE	INVERT ELEVATION
IN	INCHES
LBS	POUNDS
LCRS	LEACHATE COLLECTION REMOVAL SYSTEM
LF	LINEAL FEET
LTU	LAND TREATMENT UNIT
MAX	MAXIMUM
N	NORTHING COORDINATE
N-S	NORTH-SOUTH
NPAP	NEUTRON PROBE ACCESS PORT
NPTM	NEUTRON PROBE TEST MAIN
N.T.S.	NOT TO SCALE
PC	POINT OF CURVATURE
PT	POINT OF TANGENCY
P/L	PROPERTY LINE
QTY	QUANTITY
RD	ROAD
SAN	SANITARY SEWER
SEC	SECTION
SPEC	SPECIFICATION
SPCC	SPILL PREVENTION CONTROL + COUNTERMEASURE
STA	STATION
STD	STANDARD
T+B	TOP AND BOTTOM
TYP	TYPICAL
VLV	VALVE
WD	WIDE

SEQUENCE OF OPERATIONS

1. BEFORE ANY CONSTRUCTION, DEMOLITION, OR DEVELOPMENT ACTIVITY, A PRE CONSTRUCTION MEETING MUST BE HELD BETWEEN THE FEDERAL, STATE, AND LOCAL OFFICIALS HAVING JURISDICTION OVER THE PARTICULAR OPERATION IN QUESTION, AND THE ENGINEER, THE OWNER, OR OWNERS REPRESENTATIVE AND THE CONTRACTOR.
2. VERIFY VERTICAL AND HORIZONTAL LOCATIONS OF ALL EXISTING UNDERGROUND UTILITIES. CONTACT ALL UTILITY COMPANIES THAT MAY BE AFFECTED BY THE PROPOSED CONSTRUCTION AND / OR DEMOLITION.
3. EXISTING UTILITY SERVICES TO REMAIN IN SERVICE DURING CONSTRUCTION.
4. VERIFY GRADES PRIOR TO CONSTRUCTION. FLAG CLEARING LIMITS.
5. ENSURE ALL STORM WATER POLLUTION PREVENTION MEASURES ARE IN PLACE PRIOR TO COMMENCEMENT OF WORK SHOWN ON THESE PLANS.
6. ENSURE ALL DEMOLITION WORK HAS BEEN COMPLETED PRIOR TO COMMENCEMENT OF WORK SHOWN ON THESE PLANS.
7. CLEAR AND GRUB AREAS OF THE SITE TO BE ROUGH GRADED OR FILLED.

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At least two days before you dig

REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/14/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

GENERAL NOTES, LEGEND AND ABBREVIATIONS

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C002
SHEETS: 7 SHEET NO: 2
SCALE:

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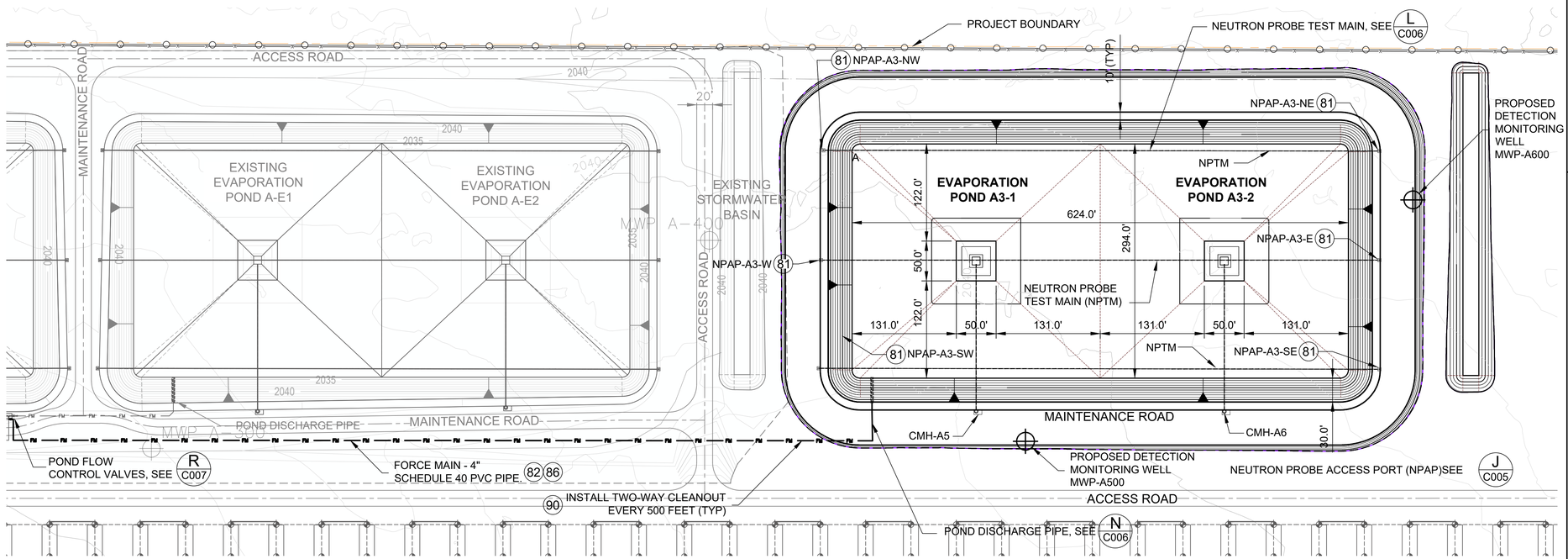
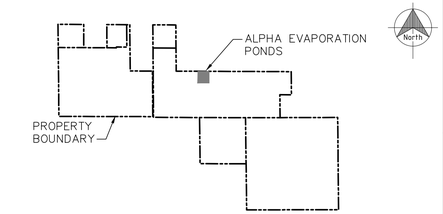




CONSTRUCTION NOTES

81 CONSTRUCT NEUTRON PROBE ACCESS PORTS AT CURVE RETURNS AND POND CENTERLINE AT OUTSIDE EDGE OF BERM. SEE DETAIL J, SHEET C005.

82 INSTALL 4–INCH DIAM. WHITE SCHEDULE 80 PVC FORCE MAIN INCLUDING TRENCHING, BEDDING, PIPE FITTINGS, RESTRAINT, BACKFILL, COMPACTION AND TESTING. TESTING SHALL CONFORM TO TESTING FOR POTABLE WATER MAINS.

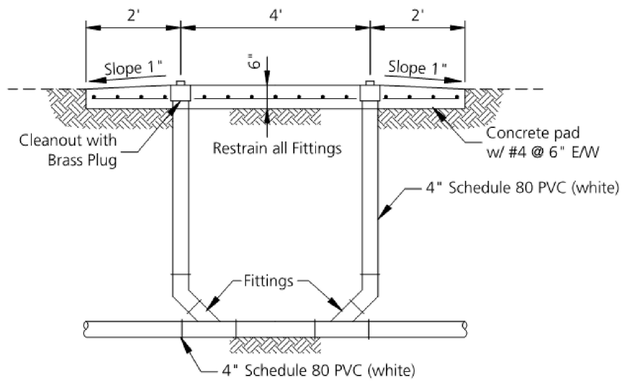
86 INSTALL AIR RELEASE VALVES AT HIGH POINTS IN FORCE MAIN. INSTALL FORCE MAIN AT UNIFORM GRADE TO MINIMIZE THE NEED OF AIR RELEASE VALVES.

90 INSTALL 4–INCH DIAM. SINGLE OR TWO–WAY CLEANOUT PER DETAIL 1 INCLUDING, SANITARY WYE, 45° BEND, FITTINGS, CAST IRON CLEANOUT CAP AND THREADED COVER AND 2–FOOT SQUARE CONCRETE PAD AROUND EACH CLEANOUT.

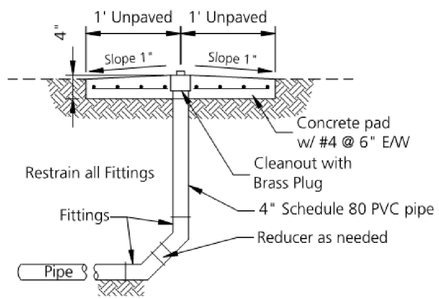
ALPHA POND A-3

TABLE 1
COLLECTION MANHOLE COORDINATES

POND	MH#	NORTHING	EASTING
A-3	CMH-A5	2193060.5	6765520.9
A-3	CMH-A6	2193060.5	6765832.9



Two Way



Single

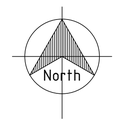
Notes:

1. Construct cleanout to withstand a pressure of 150 psi.
2. Compact soil to 95% maximum density as per ASTM D-698.

Cleanout Details 1
N.T.S. -

NEUTRON PROBE NOTES

1. CONTRACTOR SHALL INSTALL A LEAK DETECTION SYSTEM FOR NEUTRON PROBES CONSISTING OF CONTINUOUS CARRIER PIPES INSTALLED AT THE SIDES AND LOW POINT OF EACH EVAPORATION POND. PIPES WILL BE INSTALLED AT A DEPTH OF APPROXIMATELY FIVE FEET BELOW THE SECONDARY LINER AS SHOWN ON THE DRAWINGS.
2. PRIOR TO BEGINNING CONSTRUCTION OF THE EVAPORATION PONDS AND NEUTRON PROBE LEAK DETECTION SYSTEM, CONTRACTOR SHALL EVALUATE THE OWNER'S NUETRON PROBE FOR SIZE AND DIMENSIONS. CONTRACTOR SHALL INSTALL TO ALLOW OWNER'S NUETRON PROBE TO BE PULLED THROUG THE CARRIER PIPES.
3. AFTER CONSTRUCTION OF THE PONDS BUT BEFORE FILLING THE PONDS, CONTRACTOR SHALL WORK WITH THE OWNER'S CONSULTANT TO PULL THE NEUTRON PROBE THROUGH THE PIPES TO ASSESS THE BACKGROUND MOISTURE CONTENT OF THE VADOSE ZONE SOILS UNDER THE PONDS AND TO ESTABLISH A CALIBRATION LEVEL AGAINST WHICH THE FUTURE SOIL WATER CONTENT BELOW THE PONDS WILL BE BASED.
4. THE NEUTRON SAMPLING METHOD SHALL BE UNDERTAKEN BY THE TRAINED, CERTIFIED AND LICENSED TECHNICIAN.
5. THE OWNER'S CONSULTANT SHALL TAKE NEUTRON PROBE MEASUREMENTS BENEATH EACH POND, THROUGH EACH PIPE, A MINIMUM OF FOUR TIMES TO OBTAIN A VALUE THAT IS STATISTICALLY REPRESENTATIVE OF BACKGROUND MOISTURE CONDITIONS AS REQUIRED IN THE PROJECT DETECTION MONITORING PROGRAM.
6. THE OWNER'S CONSULTANT SHALL PERFORM A STATISTICAL ANALYSIS TO DEVELOP THE BACKGROUND SOIL MOISTURE CONTENT AS PER THE PROJECT DETECTION MONITORING PROGRAM.
7. THE OWNER'S CONSULTANT WILL PROVIDE THE DRAFT RESULTS OF THE INITIAL MONITORING IN HARD COPY (THREE COPIES) AND DIGITAL COPY (THREE COPIES) TO THE OWNER FOR THEIR REVIEW.



GRAPHIC SCALE
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(IN FEET)

811
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REV.	DATE	DESCRIPTION	DRAWN BY	CHECKED BY	PASSED BY
A	11/14/2023	ISSUED FOR PERMITTING	KJK	SGS	BH

MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

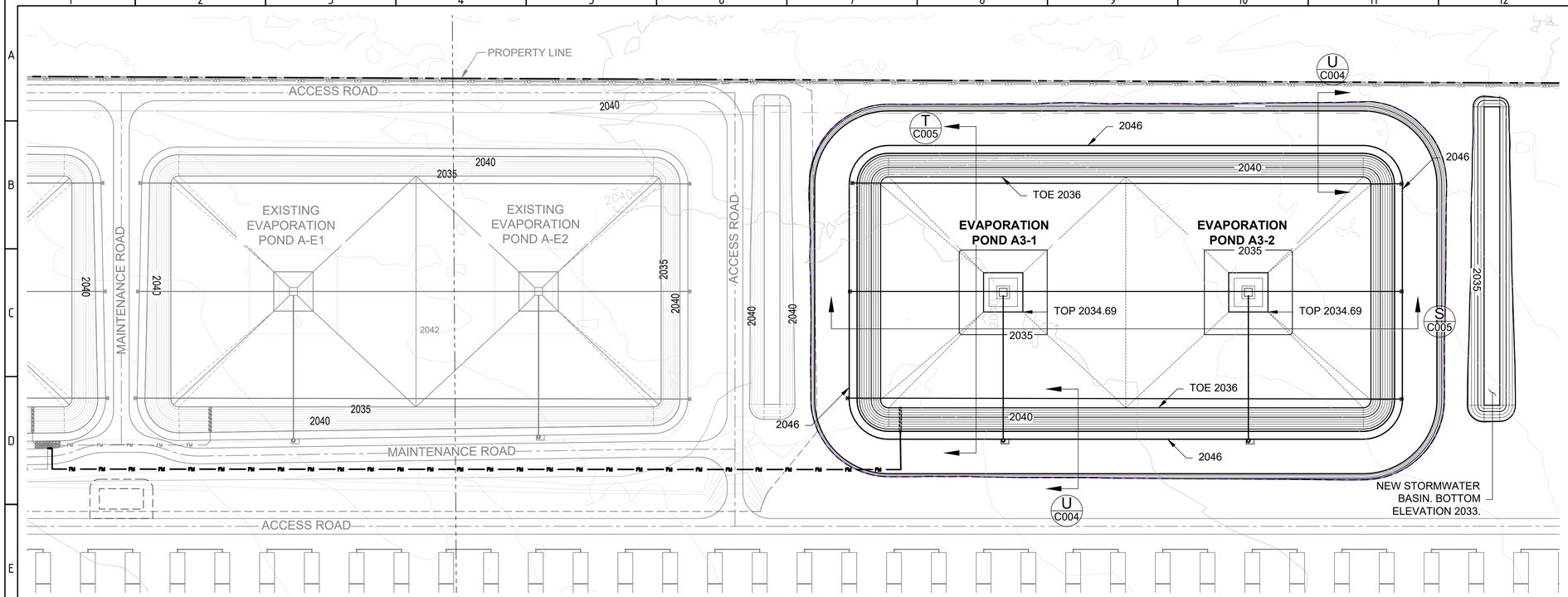
ALPHA SITE PLAN

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

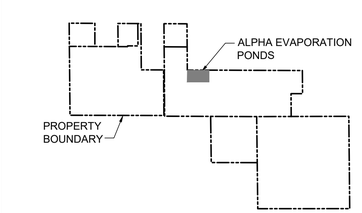
Atlantica SUSTAINABLE INFRASTRUCTURE

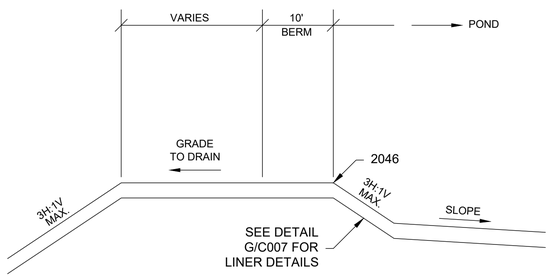
PLAN NO: C003
SHEETS: 7 SHEET NO: 3
SCALE: 1"= 80'

ANSI D



ALPHA A3 EVAPORATION POND GRADING

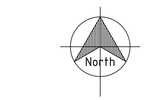




PERIMETER ROAD SECTION

N.T.S.

U C004



GRAPHIC SCALE

80 0 40 80

(IN FEET)

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MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

ALPHA SITE GRADING AND DRAINAGE PLAN

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

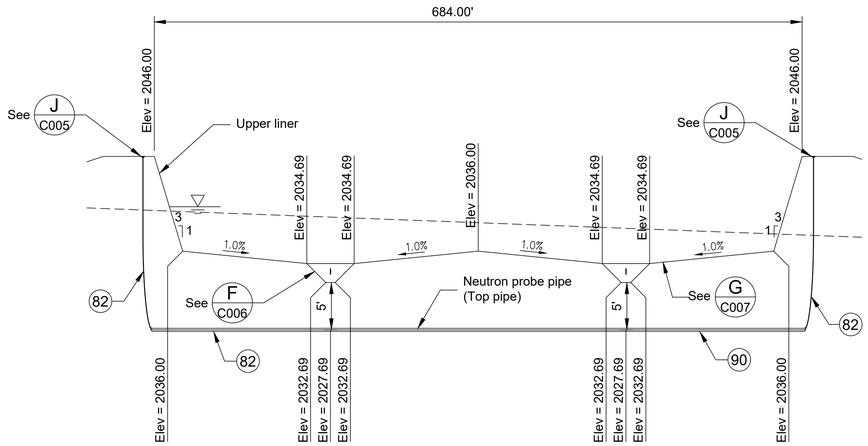
Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C004

SHEETS: 7 SHEET NO: 4

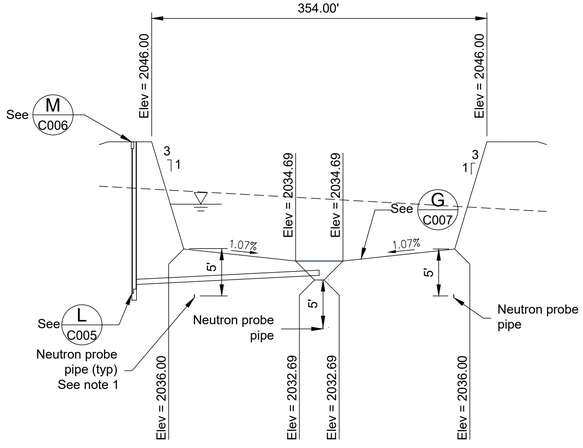
SCALE: 1"= 80'

ANSI D



Pond East-West Cross-section S

Scale:1" = 80' Horiz
1H:10V

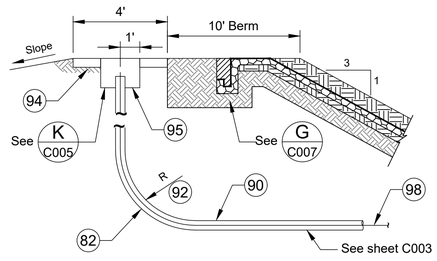


Pond North-South Cross-section T

Scale:1" = 80' Horiz
1H:10V

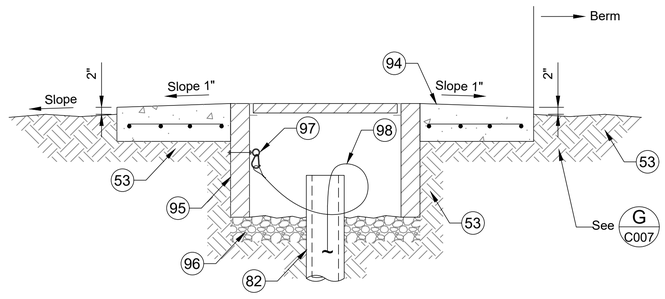
Note 1: Neutron Probe center pipe is 5' below collection area.
Pipes on north and south sides of ponds are 5' below pond toe.

See L C006



Neutron Probe Port Section

NTS — J C005



Neutron Probe Port Detail

NTS — K C005

CONSTRUCTION NOTES

(53) COMPACT TO 95% OF MAXIMUM DRY DENSITY PER ASTM D698.

(82) INSTALL 4–INCH HDPE DR 11 PIPE CONFORMING TO AWWA C–906 INCLUDING TRENCHING, BEDDING, PIPE, BACKFILL, COMPACTION AND TESTING. CONTRACTOR TO CONFIRM HDPE PIPE MATERIAL AND DIAMETER ARE COMPATIBLE WITH THE PROPOSED NEUTRON PROBE.

(90) SEE GENERAL NOTES FOR REQUIREMENTS TO CONFIRM COMPATIBILITY OF NEUTRON PROBE AND PIPE SYSTEM.

(92) INSTALL HDPE PIPE WITH A 20 FOOT MINIMUM RADIUS.

(94) CONSTRUCT 4'LX4'WX6"H 4000 PSI CONCRETE SLAB REINFORCED WITH #4@6" E/W. SLOPE CONCRETE 1" AS NOTED ON DETAIL.

(95) CAST 24"X18" WATER METER TYPE CAST IRON BOX WITH CAST IRON COVER IN CONCRETE SLAB.

(96) INSTALL 3" OF ¾ INCH DIAMETER ROCK UNDER CAST IRON BOX FOR DRAINAGE.

(97) INSTALL A 2" DIAMETER STAINLESS STEEL EYE BOLT IN THE SIDE OF THE CAST IRON BOX. SECURE A 3" LONG STAINLESS STEEL CARABINER TO THE EYE BOLT.

(98) PROVIDE 800 FEET OF 1/16" DIAMETER STRANDED 304 STAINLESS STEEL CABLE IN EACH NEUTRON INSPECTION PIPE. PROVIDE A 2' LOOP ON EACH END OF THE CABLE. LOOP THE CABLE IN THE MANHOLE AND SECURE ONE END OF THE CABLE TO THE CARABINER ON THE MANHOLE WALL. LOOP THE REMAINING CABLE IN THE CAST IRON BOX AND SECURE THE END OF THE CABLE TO THE CARABINER ON THE BOX WALL.

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MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

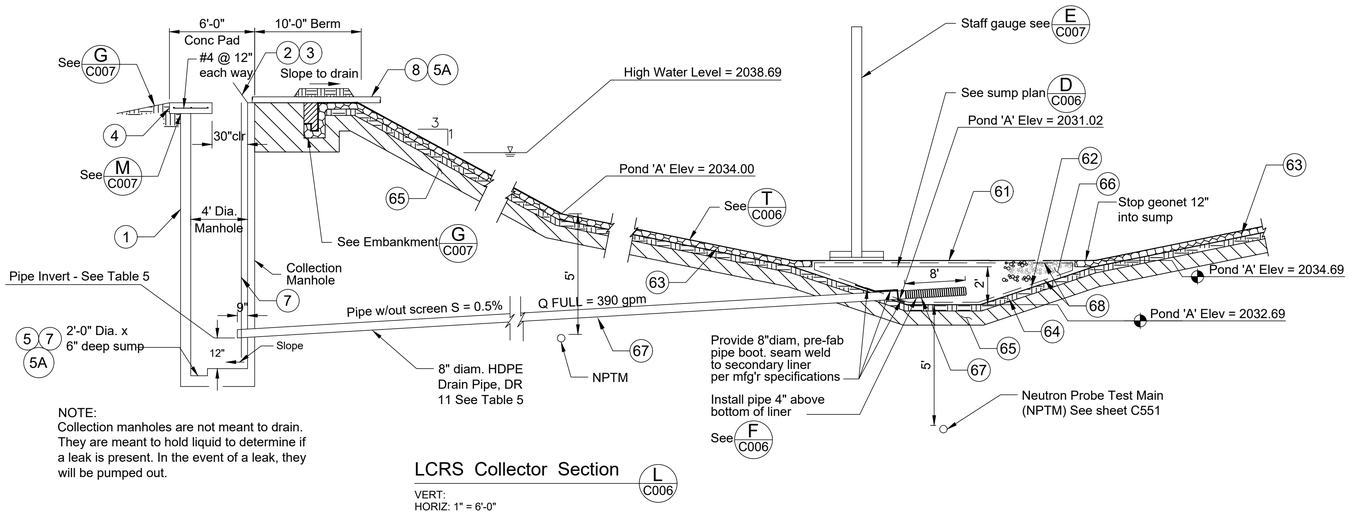
ALPHA SITE POND SECTIONS

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C005
SHEETS: 7 SHEET NO: 5
SCALE:

ANSI D



NOTE:
Collection manholes are not meant to drain. They are meant to hold liquid to determine if a leak is present. In the event of a leak, they will be pumped out.

LCRS Collector Section L C006

VERT:
HORIZ: 1" = 6'-0"

CONSTRUCTION NOTES

61 INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) UPPER LINER. UPPER LINER TO BE 60 MIL, TEXTURED UPPER SURFACE AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

62 INSTALL A HIGH DENSITY POLYETHYLENE (HDPE) LOWER LINER. LOWER LINER TO BE 40 MIL AND CONDUCTIVE. LINER TO BE AS MANUFACTURED BY GSE OR EQUAL. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

63 INSTALL AN INTERSTITIAL LEAK COLLECTION GEONET MATERIAL BETWEEN THE UPPER AND LOWER LINERS. THE GEONET WILL BE A MINIMUM OF 200 MIL WITH A MINIMUM HYDRAULIC CONDUCTIVITY OF 0.06 METERS PER SECOND AT A SLOPE OF 1% UNDER A HEAD OF 1 FOOT. GEONET SHALL BE HYPERNET AS MANUFACTURED BY GSE OR EQUIVALENT. SEE POND AND RESERVOIR LINER SPECIFICATIONS.

64 INSTALL A BASE LAYER CONSISTING OF 12–INCHES OF ONSITE SOIL BELOW THE LOWER LINER. THE BASE LAYER WILL BE CONSTRUCTED TO CONTAIN NO PARTICLES LARGER THAN ONE INCH. BASE LAYER SHALL BE COMPACTED TO 90% OF THE MAXIMUM DRY DENSITY PER ASTM D1557. PROOFROLL THE BASE TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT MATERIAL AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND REPLACING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND FILL AS NOTED HERE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

AFTER ROUGH GRADE HAS BEEN ACHIEVED, AND PRIOR TO PLACEMENT OF THE BASE MATERIAL, PROOFROLL AND PREPARE THE EXPOSED SUBRADE BY DISCING AND MOISTURE CONDITIONING SOIL TO OPTIMUM MOISTURE CONTENT. PERFORM PROOFROLLING TO LOCATE AREAS OF UNSUITABLY LOOSE OR SOFT SUBGRADE AND ADDRESS THE UNSUITABLE AREAS TO ACHIEVE A UNIFORMLY COMPACTED SURFACE. THE CONTRACTOR SHALL STABILIZE AREAS THAT EXHIBIT EXCESSIVE PUMPING OR YIELDING BY AERATION AND COMPACTION, OR BY REMOVING AND

65 REPLACEING THE YIELDING MATERIAL WITH SCREENED SOIL OR SAND AS NOTED HERE. REMOVE CALICHE OR CEMENTED LAYERS TO 8" BELOW SUBGRADE SURFACE. IN GRANULAR SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A HEAVY (MINIMUM 30 TON) SELF–PROPELLED VIBRATORY ROLLER. IN CLAY SOILS, PROOFROLLING SHOULD BE PERFORMED WITH A LOADED TANDEM AXLE DUMP TRUCK, RUBBER TIRED LOADER OR OTHER SUITABLE PIECE OF PNEUMATIC–TIRED CONSTRUCTION EQUIPMENT. PROOFROLL THE SOIL UNIT UNTIL IT DOES NOT PUMP OR RUT BETWEEN SUCCESSIVE PASSES OF THE ROLLER.

66 INSTALL A COLLECTION AREA IN THE LOW AREA OF EACH POND. COLLECTION AREA SHALL BE PLACED BETWEEN THE UPPER AND LOWER LINERS AND SHALL BE FILLED WITH 1/2–INCH WASHED GRAVEL TO A HEIGHT OF 1–INCH ABOVE THE GEONET.

INSTALL COLLECTION PIPE FROM THE COLLECTION AREA TO THE LEAK DETECTION SUMP. COLLECTION PIPE TO BE 8–INCH DIAMETER HDPE SDR 11 INSTALLED AT THE GRADE NOTED ON THE DRAWINGS. PERFORATED

67 SECTION OF HDPE PIPE SHALL HAVE 1/4–INCH DRILL HOLES SPACED AT 4 INCHES ALONG THE PIPE AND 8 ROWS OF PERFORATIONS EQUALLY SPACED AROUND THE PIPE. PIPE SHALL HAVE AN END CAP IN THE SUMP. BOOTS SHALL BE WELDED TO HDPE PIPE. COLLECTION PIPE TO BE CONNECTED TO THE LEAK DETECTION MANHOLE USING WATER TIGHT CONNECTION.

68 THE GRAVEL WITHIN THE SUMP SHALL BE UNDERLAIN BY 16OZ/SY NON–WOVEN GEOTEXTILE. THE SUMP GRAVEL SHALL ALSO BE OVERLAIN WITH A 16 OZ/SY NON–WOVEN GEOTEXTILE.

CONSTRUCTION NOTES

1 CONSTRUCT 4' DIA. PRECAST CONCRETE MANHOLE PER ASTM C478. MANHOLE INVERT TO HAVE A 6" DEEP SUMP. CONSTRUCT FLOOR TO SLOPE TO SUMP.

2 IMBED A HALLIDAY SERIES WIR 3030 ALUMINUM, 30" X 30" CLEAR OPENING SINGLE DOOR ACCESS HATCH IN THE FLAT CONCRETE TOP. PROVIDE DRAIN FROM CHANNEL FRAME TO SIDE OF CONCRETE PAD. INSTALL DOOR SO IT OPENS TOWARD THE POND AS NOTED ON SECTION L.

3 PROVIDE AND INSTALL A HALLIDAY PROTECTIVE GRATING PANEL ACCESS HATCH.

4 CONSTRUCT A 6'–0" X 10'–0" X 6" CONCRETE PAD AROUND THE MANHOLE. INSTALL #4 @ 12" EACH WAY IN CONCRETE PAD. COMPACT NATIVE SOIL UNDER COLLECTION MANHOLE SLAB TO 95% MAXIMUM DENSITY AS PER ASTM D698.

5 INSTALL LEACHATE PUMP, PIPING, POWER AND CONTROLS AS REQUIRED TO PUMP LEACHATE BACK TO POND. PUMP AND APPURTENANCES TO BE SIZED FOR ALERT LEVEL 2 (AL2) AS DETERMINED BY LINER TESTS AND THE CEC. SIZE PUMP FOR A MINIMUM FLOW OF 25 GPM PENDING RESULTS OF LINER TESTS. PUMP TO BE HARD WIRED TO CONTROL PANEL ADJACENT TO THE CONCRETE SLAB. CONTROLS TO HAVE MAIN POWER ON/OFF SWITCH, BREAKER, AUTO/ON/OFF, RUNNING TIME METER, AND OVERLOAD RED LIGHT. CONTROLS TO BE MOUNTED IN POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB.

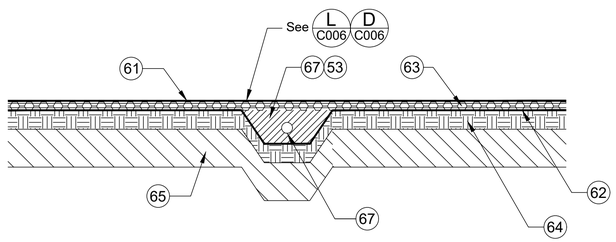
5A DO NOT INSTALL CHECK VALVE AT PUMP. SLOPE PIPE SO THAT IT DRAINS BACK TO MANHOLE OR TO POND SO WATER WILL NOT STAND IN PIPE.

7 INSTALL AN ELECTRIC LEAK SENSOR TO SENSE WATER IN THE COLLECTION MANHOLE AND TO START THE PUMP. SENSOR TO ALSO START A GREEN BLINKING LIGHT TO SIGNAL TO OPERATORS THAT THE COLLECTION MANHOLE HAS WATER AND THE PUMP HAS STARTED. WHEN PUMP STOPS, WATER SENSOR TO SEND A SIGNAL TO STOP GREEN LIGHT FROM BLINKING. LIGHT AND SENSOR CONTROLS TO BE MOUNTED ON POST NEXT TO THE COLLECTION MANHOLE CONCRETE SLAB. SENSOR LOCATION TO BE VERTICALLY ADJUSTABLE.

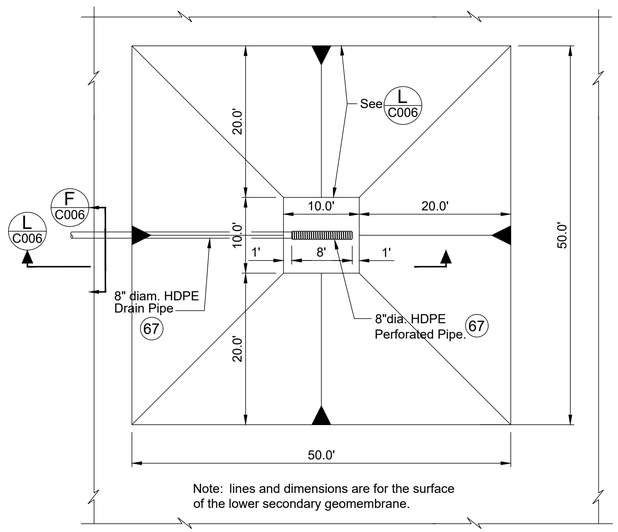
8 INSTALL 2" DISCHARGE PIPE FROM THE PUMP TO THE POND. THE PUMP SHALL BE PIPED AND VALVED TO DISCHARGE BACK INTO THE SURFACE IMPOUNDMENT OR TO A TANKER TRUCK. THE DISCHARGE PIPE SHALL BE EQUIPPED WITH A RECORDING FLOW METER SHOWING THE PUMP TOTAL FLOW IN GALLONS AND INSTANTANEOUS FLOW RATES IN GPM.

9 INSTALL POND DISCHARGE AT DISCHARGE PIPE AS PER POND DISCHARGE PIPE DETAIL.

22A DISTRIBUTION PIPE TO BE 4" DIP. ALL FITTINGS TO BE DIP. ALL PIPES TO BE RESTRAINED.

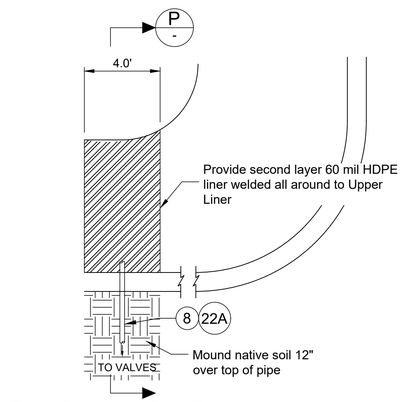


Sump Section F C006
SCALE: NTS



Note: lines and dimensions are for the surface of the lower secondary geomembrane.

Sump Detail D C006
N.T.S.



Pond Discharge Pipe Detail N C006
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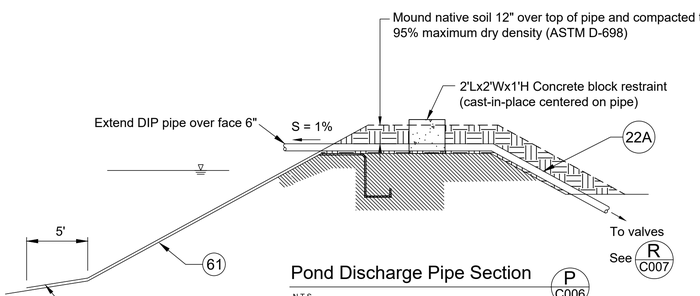

Pond Discharge Pipe Section P C006
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MOJAVE SOLAR PROJECT

EVAPORATION POND - ALPHA POND A3

ALPHA SITE DETAILS (1 OF 2)

HUSHMAND ASSOCIATES, INC. Geotechnical and Earthquake Engineers

Atlantica SUSTAINABLE INFRASTRUCTURE

PLAN NO: C006
SHEETS: 7 SHEET NO: 6
SCALE:

ANSI D