CH2M HILL
2485 Natomas Park Drive
Suite 600
Sacramento, CA 95833-2937
Tel 916.920.0300
Fax 916.920.8463

CH2MHILL

April 29, 2010

Mr. John Kessler
Siting Project Manager
California Energy Commission
1516 Ninth Street
Sacramento, CA 95814

Subject: Rice Solar Energy Project (09-AFC-10)
Response to CEC Workshop Query 12

Dear Mr. Kessler:

Attached please find one hardcopy and one CD of Rice Solar Energy, LLC's responses to California Energy Commission Staff Workshop Query 12 for the Application for Certification for the Rice Solar Energy Project (09-AFC-10).

If you have any questions about this matter, please contact me at (916) 286-0278 or Sarah Madams at (916) 286-0249.

Sincerely,

CH2M HILL

Douglas M. Davy, Ph.D.
AFC Project Manager

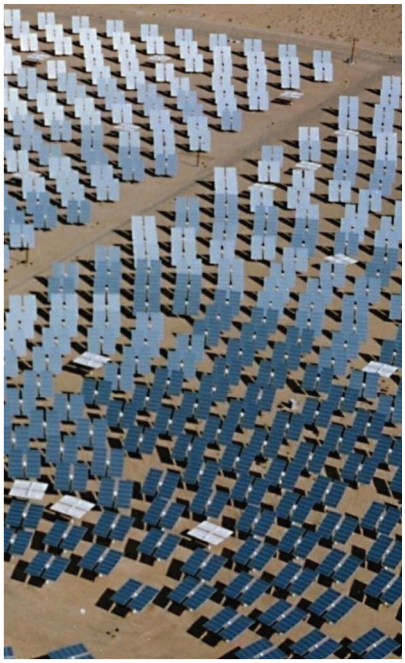
cc: POS List
Project File

Supplemental Filing

Application for Certification

Response to CEC Staff Workshop Query 12

Rice Solar Energy Project



Submitted by
SOLARRESERVE

Submitted to
California Energy Commission

With Technical Assistance by
CH2MHILL

EY072009005SAC

April 2010

Supplemental Filing

Response to CEC Staff Workshop Query 12

In support of the

Application for Certification

for the

Rice Solar Energy Project

(09-AFC-10)

Submitted to the:

California Energy Commission

Submitted by:

SOLARRESERVE

With Technical Assistance by:

CH2MHILL

Sacramento, California

April 2010

Contents

Section **Page**

Introduction.....1

Water Resources 2

Figures

WSQ12-1 Overall Site Plan and Conceptual General Arrangement
WSQ12-2a Conceptual Grading and Drainage Plan
WSQ12-2b Conceptual Grading and Drainage Plan Cross Sections
WSQ12-2c Conceptual Grading and Drainage Plan Cross Sections

Introduction

Attached is Rice Solar Energy, LLC's (RSE's) response to California Energy Commission (CEC) Staff Workshop Query 12, submitted in support of RSE's Application for Certification (AFC) for the Rice Solar Energy Project (RSEP) (09-AFC-10). The Workshop Queries are informal requests for additional information that Staff raised during the Data Request Response and Issue Resolution Workshop that was held on March 19, 2010, and for which RSE has agreed to provide a response or additional information to assist Staff in preparing their environmental and engineering assessment of the RSEP. Workshop Query 12 has to do with soil and water resources.

Water Resources

Elimination of the Stormwater Detention Basin

WSQ 12 Please provide a revised General Arrangement and associated drawings that depict the elimination of the stormwater detention pond, and provide a discussion of whether this is a feasible design.

Response: At the request of CEC Staff, the following information is provided to examine an alternate project stormwater design that would eliminate a stormwater detention basin at the southern edge of the project site.

The project as proposed in the AFC includes an elevated loop road around the entire heliostat field, and a stormwater detention basin at the southern edge of the heliostat field. In the southern half of the heliostat field, the elevated loop road acts to direct onsite stormwater flows toward the detention basin. The detention basin is proposed to be designed with outlet pipes that will mitigate any increase in storm flows by holding back stormwater for slower releases to the drainage features flowing south.

The following figures have been updated to depict the elimination of the stormwater detention pond:

- AFC Figure 2.2-1, Overall Site Plan and Conceptual General Arrangement (Figure WSQ12-1)
- Figure DR68-1a, Conceptual Grading and Drainage Plan (sheet 4, Figure WSQ12-2a)
- Figure DR68-1b, Conceptual Grading and Drainage Plan Cross Sections (sheet 5, Figure WSQ12-2b)
- Figure DR68-1c, Conceptual Grading and Drainage Plan Cross Sections (sheet 6, Figure WSQ12-2c)

It would be feasible to eliminate the stormwater detention basin and construct the southern perimeter loop road at grade. As shown on the drawings, the heliostat perimeter road would be constructed at grade under this alternative, and the detention pond would be eliminated. Under this alternative, onsite stormwater flow would not be directed to a detention basin and the onsite storm flows would tend to follow their current drainage pathways across the heliostat field loop road offsite to the south. Using this design, increases in stormwater flows would not be mitigated by detention and slow release, as with the detention pond design.

As stated above, this alternate stormwater design (Alternate Design) differs from the design proposed in the AFC (AFC Design). Each design is feasible and each design has its own attributes. In the AFC Design, onsite stormwater flow will be captured, controlled, and diverted to the stormwater detention basin. Discharge from the detention basin will occur at designed locations through discharge pipes where sediment capture and control can occur. Sediment capture and control will occur throughout the heliostat field, but the onsite

stormwater detention basin provides an additional central location for this to occur prior to stormwater being released from the site. In the Alternate Design, onsite stormwater flow would generally follow the existing drainage patterns, flow over the heliostat perimeter road, and be discharged to the south. These small drainage courses could meander over time, and would require additional maintenance along the heliostat perimeter road beyond that expected from the AFC Design. In the Alternate Design, these storm flows would flow through the perimeter security fence (including the tortoise fence). This would occur at numerous locations, and each location would be a potential location for undermining of the perimeter security fence and tortoise fence, requiring additional monitoring and maintenance.

Another difference between the AFC Design and the Alternate Design has to do with the distribution of stormwater flows as these flows leave the site. In the AFC Design, distribution will be through two to four distinct and designed locations near the east and west ends of the evaporation ponds. In the Alternate Design, the flows would be spread out, and would randomly leave the site, generally along the southern perimeter of the heliostat field.

Figure 4 of the "Preliminary Jurisdictional Delineated Report," by Sycamore Environmental Inc. docketed as part of Attachment DR60-1 to the response to Data Request #60 provides an excellent illustration of the AFC Design. When the runways for Rice Army Air Field were constructed, a small ditch and berm were constructed along the north edges of the runways to prevent erosion/rivulets from cutting through the landing strips. These channels captured the flows along the north side of the runways and released the stormwater near the base of the runways and to the south, much like the design proposed in the AFC. This figure also illustrates how this method of controlling the stormwater impacted the channels near the runways.

As discussed, each design has different attributes. The project as proposed in the AFC is the preferred design because it provides for some control of the stormwater. Rather than having stormwater discharge occur at numerous random, potentially moving locations, the stormwater will be controlled along the inside of the heliostat perimeter road and discharged from the site at designated locations. In the Alternate Design, the heliostat perimeter road would be at a constant gradient and at the existing grade. As such, the road would not be able to dip at each existing channel and would "cut off' many of the numerous small channels that exist. It is likely that the flows from these small channels would concentrate at these cut-off locations until gaining enough volume to jump over the perimeter road. Where this would occur, a new channel location/rivulet would be created that will necessitate additional maintenance and monitoring effort and expenses.

LEGEND

CHAIN LINK FENCING

E ELECTRICAL TRANSMISSION LINE

OWNERSHIP BOUNDARY

NOTES

1. NORTHING AND EASTING COORDINATES BASED ON CALIFORNIA NAD83 ZONE VI COORDINATE SYSTEM.

EXISTING BERMS

TEMPORARY CONSTRUCTION PARKING

MAIN ENTRANCE

SECONDARY ACCESS (NOT PAVED)

EXISTING ARIZONA–CALIFORNIA RAILWAY

CA STATE ROUTE 62

ADMIN/SHOP

WORKFORCE RV/TRAILER PARKING

TEMPORARY LAYDOWN/CONSTRUCTION AREA AND CONSTRUCTION TRAILERS

EXISTING 12KV POLE

TEMP. CONST. POWER

HELIOSTAT BLDG/AREA

RICE WELLS NO. 1 & 2

Y=2337378.29

PERIMETER ACCESS ROAD, FENCE, AND PROJECT SITE BOUNDARY

HELIOSTAT FIELD

EXISTING CONCRETE PAD

Y=2334878.29

Y=2334472.18

℄ COLLECTOR FIELD

Y=2333708.09

℄ POWER BLOCK

ACCESS ROAD

POWER BLOCK/RECEIVER ACCESS ROAD

Y=2332378.29

PERIMETER ACCESS ROAD, FENCE, AND PROJECT SITE BOUNDARY

PARCEL BOUNDARY

SEE SHEET SRRC–1–SK–111–002–001 FOR POWER BLOCK GENERAL ARRANGEMENT

30 AC–FT DETENTION BASIN AREA

OWNERSHIP BOUNDARY

Y=2329878.29

EVAPORATION PONDS 3 AT APPROXIMATELY 5 ACRES EACH

ELECTRICAL TRANSMISSION LINE

X=6994779.92

X=6997279.92

X=6998542.40 ℄ POWER BLOCK

X=6999779.92

X=7002279.92

N

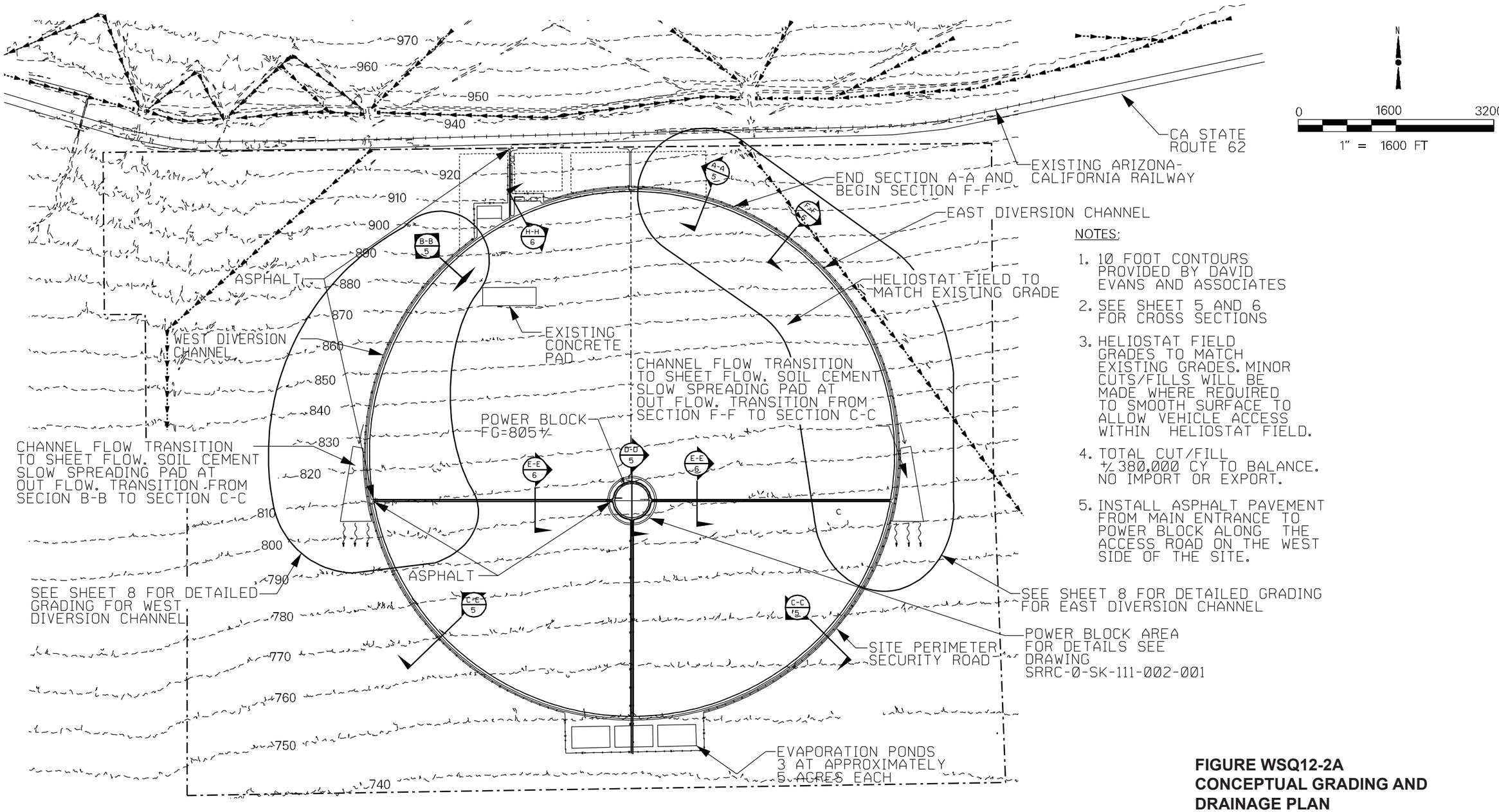
0 1600 3200

1" = 1600 FT

PRELIMINARY NOT FOR CONSTRUCTION

FIGURE WSQ12-1
OVERALL SITE PLAN AND CONCEPTUAL GENERAL ARRANGEMENT
Rice Solar Energy Project
Riverside County, California

Source: WorleyParsons, Ltd., Drawing SRRC-0-SK-112-111-001 Rev. G.

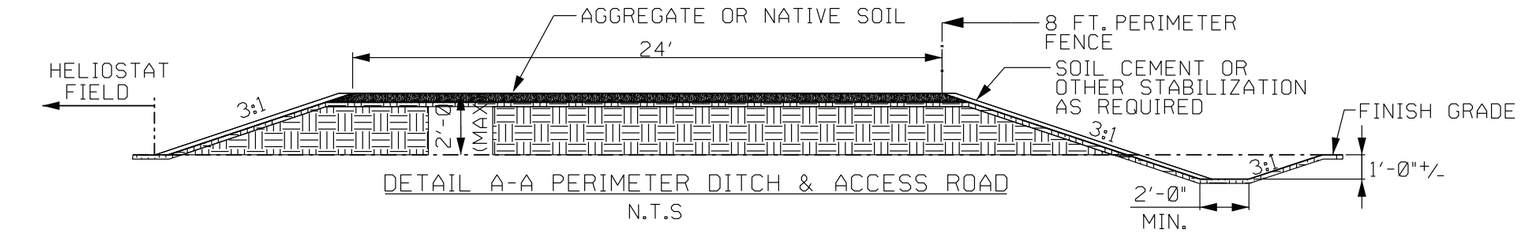


NOTES:

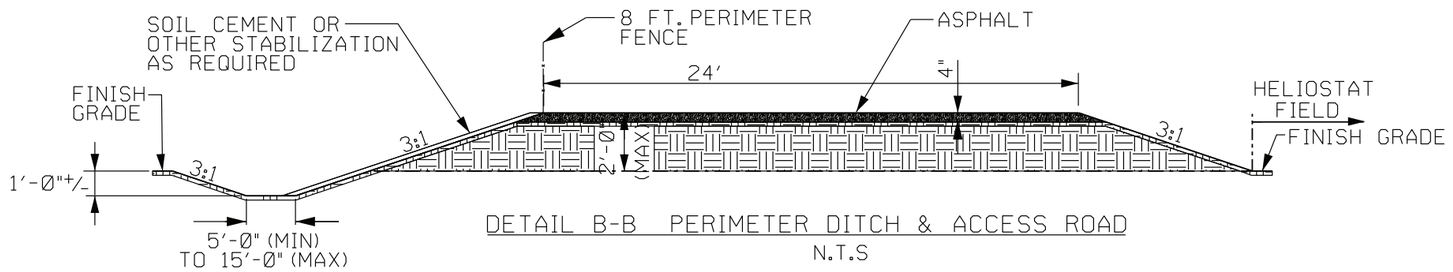
1. 10 FOOT CONTOURS PROVIDED BY DAVID EVANS AND ASSOCIATES
2. SEE SHEET 5 AND 6 FOR CROSS SECTIONS
3. HELIOSTAT FIELD GRADES TO MATCH EXISTING GRADES. MINOR CUTS/FILLS WILL BE MADE WHERE REQUIRED TO SMOOTH SURFACE TO ALLOW VEHICLE ACCESS WITHIN HELIOSTAT FIELD.
4. TOTAL CUT/FILL +/- 380,000 CY TO BALANCE. NO IMPORT OR EXPORT.
5. INSTALL ASPHALT PAVEMENT FROM MAIN ENTRANCE TO POWER BLOCK ALONG THE ACCESS ROAD ON THE WEST SIDE OF THE SITE.

FIGURE WSQ12-2A
CONCEPTUAL GRADING AND DRAINAGE PLAN
Rice Solar Energy Project
Riverside County, California

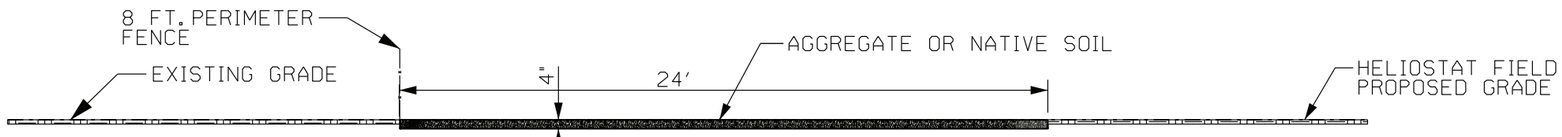
Source: WorleyParsons, Ltd., Drawing SRRC-0-SK-112-735-004 Rev. F.



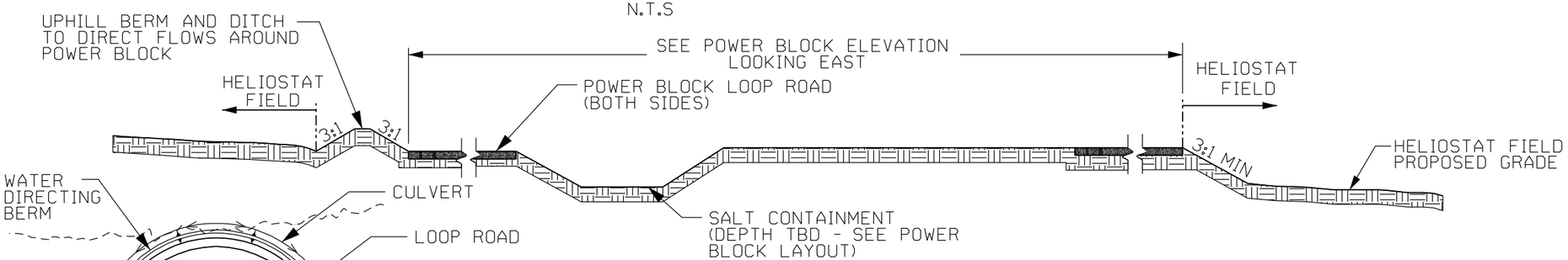
DETAIL A-A PERIMETER DITCH & ACCESS ROAD
N.T.S



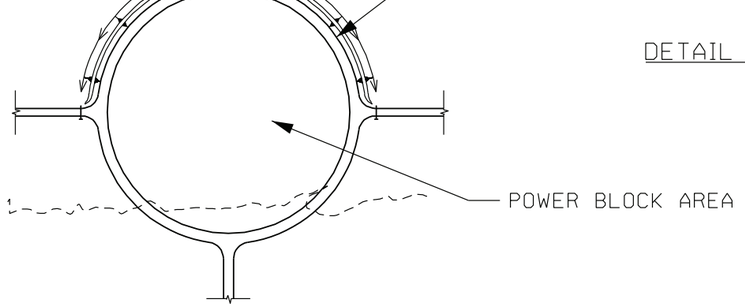
DETAIL B-B PERIMETER DITCH & ACCESS ROAD
N.T.S



DETAIL C-C SOLAR FIELD AGGREGATE OR NATIVE SOIL ROAD AT GRADE
N.T.S



DETAIL D-D POWER BLOCK CROSS SECTION
N.T.S



POWER BLOCK DRAINAGE PLAN VIEW
N.T.S

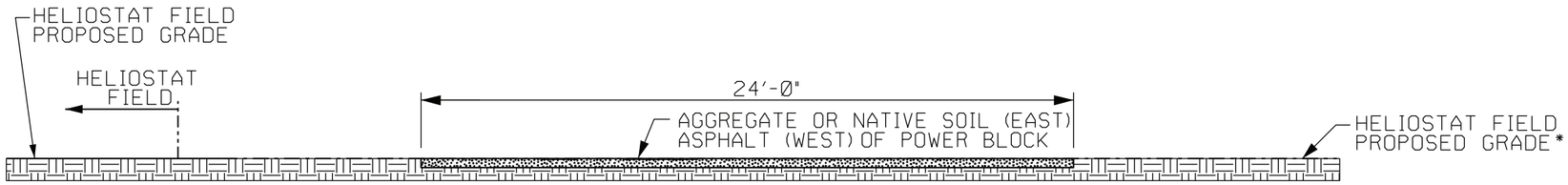
NOTES:

1. "HELIOSTAT FIELD PROPOSED GRADE" IS AT EXISTING SURFACE GRADE, EXCEPT WHERE MINOR RUTS / DEPRESSIONS MUST BE GRADED TO ALLOW VEHICLE ACCESS WITHIN HELIOSTAT FIELD.
2. DROP STRUCTURES MAY BE INSTALLED IN DITCHES TO LIMIT DITCH SLOPE AND VELOCITY WITHIN THE PERIMETER DITCHES. SEE DROP STRUCTURE DETAIL ON SHEET SRRC-0-SK-112-735-007.
3. IF ACCESS ROADS ARE TO BE CONSTRUCTED WITH NATIVE SOILS, THEN THEY WILL BE TREATED WITH DUST PALLATIVES.

PRELIMINARY
NOT FOR CONSTRUCTION

Source: WorleyParsons, Ltd., Drawing SRRC-0-SK-112-735-005 Rev. F.

FIGURE WSQ12-2B
CONCEPTUAL GRADING AND DRAINAGE PLAN CROSS SECTIONS
Rice Solar Energy Project
Riverside County, California

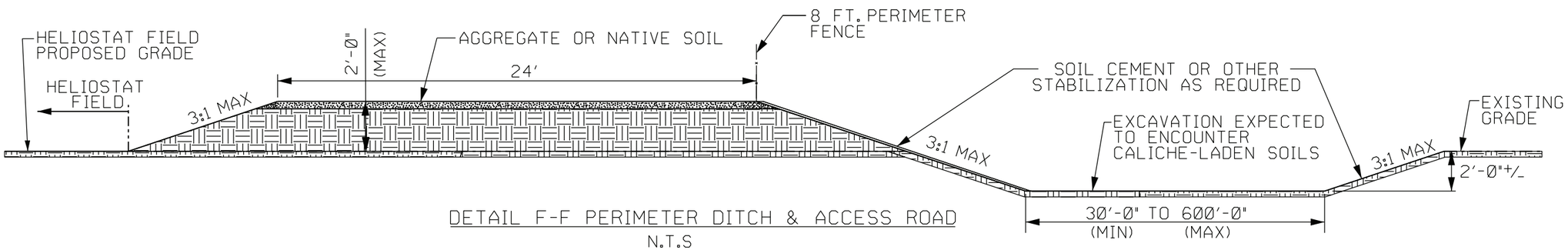


DETAIL E-E SOLAR FIELD AGGREGATE BASE OR ASPHALT ACCESS ROAD WITHOUT DITCH - AT GRADE

N.T.S

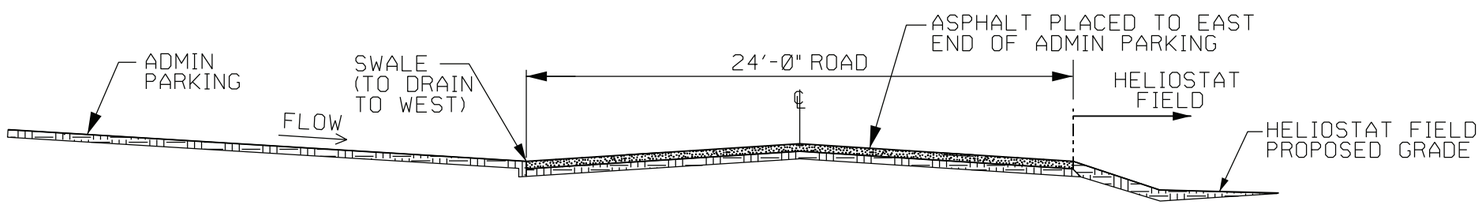
NOTES:

1. *"HELIOSTAT FIELD PROPOSED GRADE" IS AT EXISTING SURFACE GRADE, EXCEPT WHERE MINOR RUTS / DEPRESSIONS MUST BE GRADED TO ALLOW VEHICLE ACCESS WITHIN HELIOSTAT FIELD.
2. DROP STRUCTURES MAY BE INSTALLED IN DITCHES (SECTION B-B AND F-F) TO LIMIT DITCH SLOPE AND VELOCITY WITHIN THE PERIMETER DITCHES. SEE DROP STRUCTURE DETAIL ON SHEET SRRC-Ø-SK-112-735-007.
3. IF ACCESS ROADS ARE TO BE CONSTRUCTED WITH NATIVE SOILS, THEN THEY WILL BE TREATED WITH DUST PALLATIVES.



DETAIL F-F PERIMETER DITCH & ACCESS ROAD

N.T.S



DETAIL H-H ACCESS ROAD

N.T.S

PRELIMINARY
NOT FOR CONSTRUCTION

FIGURE WSQ12-2C
CONCEPTUAL GRADING AND DRAINAGE PLAN CROSS SECTIONS
Rice Solar Energy Project
Riverside County, California

Source: WorleyParsons, Ltd., Drawing SRRC-0-SK-112-735-006 Rev. F.