

CITY OF ALBUQUERQUE



August 22, 2011

Philip W. Clark, P.E.
Clark Consulting Engineers
19 Ryan Road
Edgewood, NM 87015

**Re: Fraunhofer Solar Testing Facility
Grading and Drainage Plan
Engineer's Stamp dated 8-2-11 (R15/D001)**

Dear Mr. Clark,

Based upon the information provided in your submittal received 8-15-11, the above referenced plan is approved for Building Permit and Grading Permit.

This project requires a National Pollutant Discharge Elimination System (NPDES) permit for storm water discharge and a Topsoil Disturbance Permit since it is disturbing $\frac{3}{4}$ of an acre or more.

Please attach a copy of this approved plan to the construction sets prior to sign-off by Hydrology.

Prior to Certificate of Occupancy release, Engineer Certification per the DPM checklist will be required and the following comments addressed.

- Show the WSE, Volume Required, Volume Provided for each pond.
- Show the top of Berm at the NW corner pond at 5309 throughout.
- Show the FP for the portable building.

If you have any questions, you can contact me at 924-3986 or Rudy Rael at 924-3977.

Sincerely,

Curtis Cherne, P.E., CFM
Principal Engineer, Planning Department.
Development and Building Services

C: RER/CAC
File
Kathy Verhage, DMD

DRAINAGE AND TRANSPORTATION INFORMATION SHEET

(REV 12/2005)

R-15/0001

PROJECT TITLE: Fraunhofer Solar Testg' Fac. ZONE MAP: R.15
 DRB#: _____ EPC#: _____ WORK ORDER#: _____

LEGAL DESCRIPTION: Portion of Tr. 13, Mesa del Sol
 CITY ADDRESS: _____

ENGINEERING FIRM: Clark Consulting Eng'rs. CONTACT: Phil
 ADDRESS: 19 Ryan Rd PHONE: 281-2444
 CITY, STATE: Edgewood NM ZIP CODE: 87015

OWNER: City/COA CONTACT: Catalina L.
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

ARCHITECT: 1 CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

SURVEYOR: Alpha Pro. Surveying Inc CONTACT: Gary
 ADDRESS: _____ PHONE: _____
 CITY, STATE: Rio Rancho ZIP CODE: _____

CONTRACTOR: TBD CONTACT: _____
 ADDRESS: _____ PHONE: _____
 CITY, STATE: _____ ZIP CODE: _____

TYPE OF SUBMITTAL:

- ☒ DRAINAGE REPORT
☒ DRAINAGE PLAN 1st SUBMITTAL
☒ DRAINAGE PLAN RESUBMITTAL
☒ CONCEPTUAL G & D PLAN
☐ GRADING PLAN
☐ EROSION CONTROL PLAN
☐ ENGINEER'S CERT (HYDROLOGY)
☐ CLOMR/LOMR
☐ TRAFFIC CIRCULATION LAYOUT
☐ ENGINEER'S CERT (TCL)
☐ ENGINEER'S CERT (DRB SITE PLAN)
☐ OTHER (SPECIFY) _____

CHECK TYPE OF APPROVAL SOUGHT:

- ☐ SIA/FINANCIAL GUARANTEE RELEASE
☐ PRELIMINARY PLAT APPROVAL
☒ S. DEV. PLAN FOR SUB'D APPROVAL
☒ S. DEV. FOR BLDG. PERMIT APPROVAL AA
☐ SECTOR PLAN APPROVAL
☐ FINAL PLAT APPROVAL
☐ FOUNDATION PERMIT APPROVAL
☒ BUILDING PERMIT APPROVAL
☐ CERTIFICATE OF OCCUPANCY (PERM)
☐ CERTIFICATE OF OCCUPANCY (TEMP)
☐ GRADING PERMIT APPROVAL
☐ PAVING PERMIT APPROVAL
☐ WORK ORDER APPROVAL
☐ OTHER (SPECIFY) _____

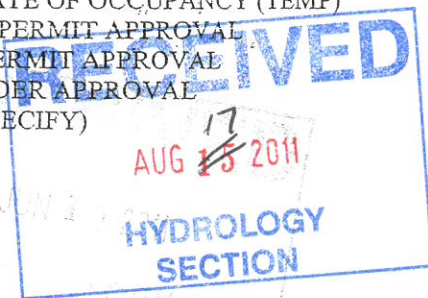
WAS A PRE-DESIGN CONFERENCE ATTENDED:

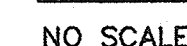
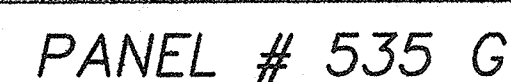
- ☒ YES
☐ NO
☐ COPY PROVIDED

DATE SUBMITTED: PWC BY: 6/10/11

Requests for approvals of Site Development Plans and/or Subdivision Plats shall be accompanied by a drainage submittal. The particular nature, location, and scope to the proposed development defines the degree of drainage detail. One or more of the following levels of submittal may be required based on the following:

1. **Conceptual Grading and Drainage Plan:** Required for approval of Site Development Plans greater than five (5) acres and Sector Plans.
2. **Drainage Plans:** Required for building permits, grading permits, paving permits and site plans less than five (5) acres.
3. **Drainage Report:** Required for subdivision containing more than ten (10) lots or constituting five (5) acres or more.





CALCULATIONS

DESIGN CRITERIA

HYDROLOGIC METHODS PER SECTION 22.2, HYDROLOGY OF THE DEVELOPMENT PROCESS MANUAL (DPM)
REVISED JANUARY 1993 FOR CITY OF ALBUQUERQUE ADOPTED BY THE COUNTY OF BERNALILLO
DISCHARGE RATE: $Q = \text{PQPEAK} \times \text{AREA}$, "Peak Discharge Rates For Small Watersheds"
VOLUMETRIC DISCHARGE: $\text{VOLUME} = E \times \text{Weighted} \times \text{AREA}$
 $P100 = 2.35 \text{ inches, Zone 2}$ Time of Concentration, $TC = 10 \text{ Minutes}$
DESIGN STORM: $100\text{-YEAR}/6\text{-HOUR}$, $10\text{-YEAR}/6\text{-HOUR}$ [] = 10 YEAR VALUES

EXISTING CONDITIONS

TOTAL AREA = 5 ACRES, WHERE EXCESS PRECIP. 'B' = 0.78 in. [0.28]
PEAK DISCHARGE, Q100 = 11.5 CFS [4.8], WHERE UNIT PEAK DISCHARGE 'B' = 2.28CFS/AC. [0.95]
THEREFORE: VOLUME 100 = 14157 CF [5082]

DEVELOPED CONDITIONS - WITH SITE REVEGETATED

	AREA	LAND TREATMENT	Q Peak
UNDEVELOPED	--- Ac.	A	1.56[0.38]
LANDSCAPING	1.88 Ac.(38%)	B	2.28[0.95]
GRAVEL & COMPACTED SOIL	3.00 Ac.(60%)	C	3.14[1.71]
ROOF - PAVEMENT	0.12 Ac.(2%)	D	4.70[3.14]
	5.0 Ac.		

THEREFORE: $E_{\text{Weighted}} = 1.02 \ln.[0.45]$ & 52778^0
 $Q_{100} = 14.25 \text{ CFS}$ VOLUME 100 = 18513 CF \pm
 $Q_{10} = 7.3 \text{ CFS}$ VOLUME 10 = 8168 CF

RECOMMEND : MINIMAL INCREASE, THEREFORE ENSURE THAT HIGH VELOCITY FLOWS ARE NOT ALLOWED AT THE BOUNDARY, AND NO CONCENTRATION OF FLOWS CROSS BOUNDARY. AND POND DIFFERENCE BETWEEN DEVELOPED AND HISTORIC 6-HR. VOLUMES (RETENTION)

RETENTION POND(S) = 18513 CF - 14157 CF = 4356 CF...SPLIT 30-70%

GRADING & DRAINAGE PLAN

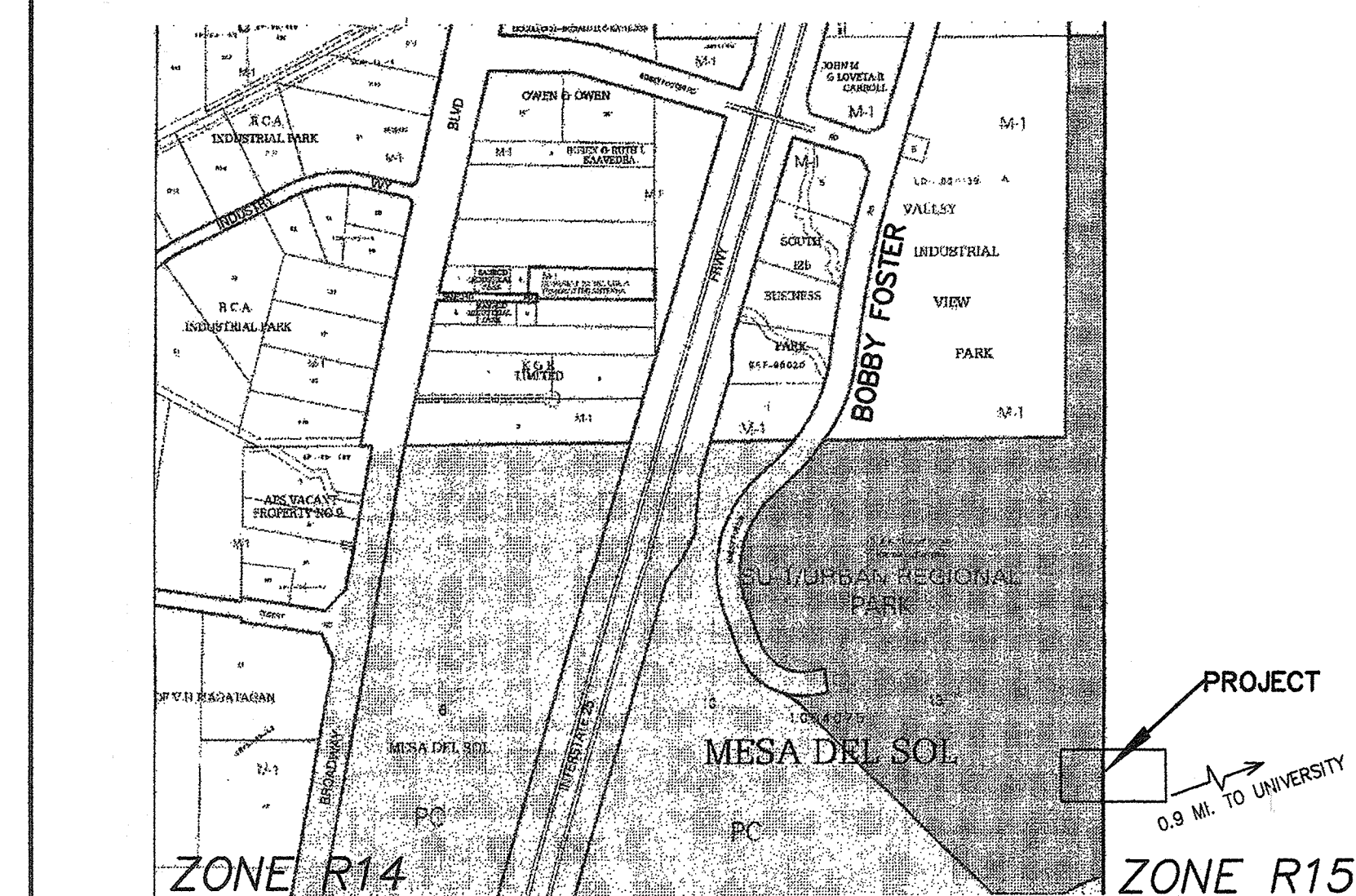
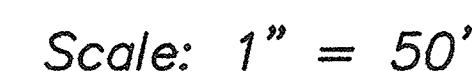
THE EDUCATIONAL & RESEARCH AND DEVELOPMENT PROJECT IS LOCATED IN THE MESA DEL SOL REGIONAL RECREATIONAL COMPLEX, APPROX. 6 MILES SOUTH OF THE TOWN OF ALBUQUERQUE, NM. THE GRADING AND DRAINAGE SCHEMES HEREON IS IN COMPLIANCE WITH THE BERNALILLO COUNTY FLOOD HAZARD ORDINANCE, NO.88-46, AND THE CITY STORM DRAINAGE ORDINANCE. THE PLAN IS REQUIRED IN ORDER TO FACILITATE THE OWNER'S REQUEST FOR BUILDING PERMIT. THE PLAN SHOWS:

1. EXISTING CONTOURS, AND SPOT ELEVATIONS AND EXISTING DRAINAGE PATTERNS AND EXISTING IMPROVEMENTS: INCLUDING EXISTING FLATWORK AND FACILITY
2. PROPOSED IMPROVEMENTS: APPROX. 5-ACRE PHOTOVOLTAIC ARRAY, NEW CONCRETE FLATWORK, NEW GRADE ELEVATIONS, FENCING AND REVEGETATION;
PHASE 1 CONSTRUCTION WILL CONSIST OF THE PERIMETER FENCE, PORTION OF DRIVEWAY, 20 ITEM SOLAR ARRAY, PORTABLE BUILDING, INCLUDING THE TWO (2) RETENTION PONDS.
3. CONTINUITY BETWEEN EXISTING AND PROPOSED ELEVATIONS.
4. QUANTIFICATION AND RECOGNANCE OF UPLANDS, OFF-SITE FLOWS, WHICH CONTRIBUTE TO THE DEVELOPED FLOWS GENERATED BY THE IMPROVEMENTS.

THE PURPOSE OF THE PLAN IS TO ESTABLISH CRITERIA FOR CONTROLLING STORM RUNOFF, AND EROSION, AND ESSENTIALLY ALLOWING HISTORIC FLOWS TO BE DRAINED THROUGH THE PROPERTY. PRESENTLY, THE SITE IS BOUNDED ON EAST SIDES BY UNDEVELOPED PROPERTY. THE IMPROVED ASPHALT DRIVEWAY TO THE SOUTH IS WITHIN THE ALIGNMENT OF FUTURE EXTENSION OF BOBBY FOSTER LOOP TO UNIVERSITY, AND MAINTAINED BY BERNALILLO COUNTY. THE SITE CURRENTLY DRAINS AT 1% TO 2% BOTH EAST AND TO THE WEST.

HISTORICAL SITE RUNOFF OUTFALL LOCATIONS WILL REMAIN UNCHANGED.
THE SITE IS NOT IMPACTED ADVERSELY BY ANY OFF-SITE DRAINAGE FLOWS.

FREE DISCHARGE OF DEVELOPED FLOW IS UNACCEPTABLE SINCE THE SITE LIES WITHIN THE OVERALL MASTERPLAN FOR THE MESA DEL SOL URBAN REGIONAL PARK. RUNOFF WILL NOT BE ALLOWED TO CONCENTRATE AT THE PROPERTY BOUNDARIES. RETENTION PONDING OF THE DIFFERENCE BETWEEN THE DEVELOPED AND HISTORIC RUNOFF IS REQUIRED.



VICINITY MAP

NOTES

1. ALL WORK WITHIN THE RIGHT-OF-WAY SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE CITY OF ALBUQUERQUE STANDARD SPECS. FOR PUBLIC WORKS CONSTRUCTION, 8TH EDITION W/ UPDATES.
2. AN EXCAVATION/CONSTRUCTION PERMIT IS REQUIRED BEFORE BEGINNING ANY WORK WITHIN CITY R.O.W. AN APPROVED COPY OF THIS PLAN MUST BE SUBMITTED AT THE TIME OF APPLICATION.
3. ALL WORK ON THIS PROJECT SHALL BE PERFORMED IN ACCORDANCE WITH APPLICABLE FEDERAL, STATE AND LOCAL LAWS, RULES, AND REGULATIONS CONCERNING CONSTRUCTION SAFETY AND HEALTH.
4. CONTRACTOR SHALL ENSURE THAT NO SITE SOILS/SEDIMENT OR SILT ENTER THE RIGHT-OF-WAYS DURING CONSTRUCTION.
5. REVEGETATE ALL AREAS DISTURBED DUE TO CONSTRUCTION PER CITY OF ALBUQ. SPEC. 1011, NATIVE SEED MIX.
6. MAXIMUM SITE GRADING WITHOUT EROSION PROTECTION:
3 HORIZONTAL TO 1 VERTICAL, 3:1.

LEGEND

EXIST. SPOT ELEVATION
EXIST. CONTOUR
NEW SPOT ELEVATION
NEW CONTOUR
NEW SWALE
DRAINAGE DIRECTION, EXISTING
NEW P.C.C., CONCRETE
FLOWLINE
PROPERTY/LEASE CORNER
WATER BLOCK

PROJECT DATA

LEGAL DESCRIPTION


A Portion of TRACT 13, MESA DEL SOL SUBDIVISION
ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO

PROJECT BENCHMARK

TOP OF REBAR/CAP AT THE PROJECT SOUTHEAST CORNER MSL
ELEVATION = 5308.63, AS TIED FROM COA 3-1/4" DIAMETER ALUM
DISK SET IN CONCRETE, 4_R15, MSL, NAVD 88, 5315.68, LOCATED 33'
NORTH OF ASPHALT DRIVEWAY, 1668' EAST OF SITE.

TOPOGRAPHIC DESIGN SURVEY

PROVIDED BY ALPHA PROFESSIONAL SURVEYING, INC., DATED
APRIL 2011, GARY E. GRITSKO, PS, ESQ.

 Clark Consulting Engineers 19 Ryan Road Edgewood, New Mexico 87015 Tel: (505) 281-2444 Fax: (505) 281-2444			
DATE	REVISION	PORTION OF TRACT 13, MESA DEL SOL ALBUQUERQUE, BERNALILLO COUNTY, NEW MEXICO FRAUNHOFER SOLAR TEST FACILITY <h2 style="text-align: center;">Grading & Drainage Plan</h2>	
DESIGNED BY: PWC	DRAWN BY: CCE	JOB No: Fraunhofer	<div style="font-size: 2em; font-weight: bold;">4 OF 6</div>
CHECKED BY: PWC	DATE: 5/04/11	PLT # G/D	

I, PHILIP W. CLARK, A PROFESSIONAL ENGINEER LICENSED IN ACCORDANCE WITH THE LAWS OF THE STATE OF NEW MEXICO, DO HEREBY CERTIFY THAT I HAVE VISITED THE SITE SHOWN HEREON, AND THAT THE CONTOURS SHOWN REPRESENT THE EXISTING GROUND CONDITIONS, AND DO FURTHER CERTIFY THAT NO EARTHWORK OF ANY KIND, NOR ANY DISTURBANCE OF THE EXISTING GROUND HAS OCCURRED ON THIS SITE SINCE THE CONTOURS WERE DETERMINED.

Phil

PHILIP W. CLARK NMPE #10265

RECEIVED
AUG 15 2011
HYDROLOGY
SECTION

PHILIP W. CLARK
NEW MEXICO
10286
PROFESSIONAL ENGINEER
8-2

04/11 FILE #: G/D
R15D001