DOCKETED	
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Project Title:	Vaca Dixon Power Center Project
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Document Title:	Project Description Redline Update
Description:	This document includes redline changes to the Project Description originally submitted in the Project Application.
Filer:	Adam Morrison
Organization:	Rincon Consultants, Inc.
Submitter Role:	Applicant Consultant
Submission Date:	10/13/2026 12:57:15 PM
Docketed Date:	10/13/2026

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2 Project Description

Vaca Dixon BESS LLC and Arges BESS LLC (Applicants), propose to construct and operate the Vaca Dixon Power Center Project (Project). The battery energy storage system (BESS) facilities are proposed to be installed on an approximately 10-acre site in the City of Vacaville in Solano County, California (Figure 2-1, Figure 2-2). The proposed BESS facilities are located on Assessor Parcel Number (APN) 0133-060-060. The Project would be capable of operating 7 days a week, 365 days a year, as grid conditions allow and require, with an up to 35-year[1] anticipated lifespan. The primary Project facility components at the approximately 10-acre combined BESS Project Area include:

- Vaca Dixon BESS (57 megawatts [MW], 1-hour duration, 57 MW hour [MWh]), including electrical switchyard
- Arges BESS (100 MW, 4-hour duration, 400 MWh), including electrical switchyard

The Project also includes transmission intertie (gen-tie) lines crossing Interstate 80 (I-80) to the north to connect the BESS facilities to the existing Pacific Gas & Electric (PG&E) Vaca-Dixon Substation located on a PG&E-owned parcel (APN 0133-060-070) in unincorporated Solano County. Both BESS components would interconnect to the existing PG&E Vaca-Dixon Substation at 115 kilovolts (kV). The Vaca Dixon 57 MWh BESS is proposed to connect to the existing 13.8/115 kV generation step up (GSU) transformer at the existing CalPeak Power - Vaca Dixon Peaker Plant (VDPP) on the PG&E parcel via a new overhead 13.8 kV line from the proposed BESS switchyard to the low side of the VDPP GSU transformer to the north. The existing GSU transformer in the VDPP switchyard is connected to the PG&E substation by an existing 115 kV line. The Arges 400 MWh BESS would interconnect directly to the PG&E substation via a new overhead 115 kV gen-tie to be constructed from the Arges 400 MWh BESS switchyard at the BESS Project Area south of I-80 to the PG&E substation to the north.

The proposed common gen-tie components for the Vaca Dixon 57 MWh and Arges 400 MWh BESS facilities would be co-located on shared transmission structures carrying both 13.8 kV and 115 kV conductors for approximately 1,500 feet of the gen-tie lengths, from the vicinity of the BESS switchyards across I-80 and up to the northwest corner of the VDPP facility site. As shown in Figure 2-1 and Figure 2-2, from that point, the 13.8 kV gen-tie component for the Vaca Dixon 57 MWh BESS would continue approximately 150 feet to the east for connection to the low side of the 13.8/115 kV GSU transformer at the VDPP. The Arges 400 MWh BESS 115 kV gen-tie route continues approximately 725 feet north and east to the connection point at the PG&E Vaca-Dixon Substation. The gen-tie crossing of I-80 would require an encroachment permit from the California Department of Transportation (Caltrans).

The Project location and related facilities were selected taking into consideration the Project objectives, engineering constraints, site geology, potential environmental impacts, water, waste and fuel constraints, and electric transmission constraints among other factors. A detailed discussion of the basis project objectives and the site selection is provided in this Section 2 and in Chapter 6, *Alternatives.*

[1] After 35 years, the Project would be repowered or decommissioned.

Figure 2-1 Regional Location

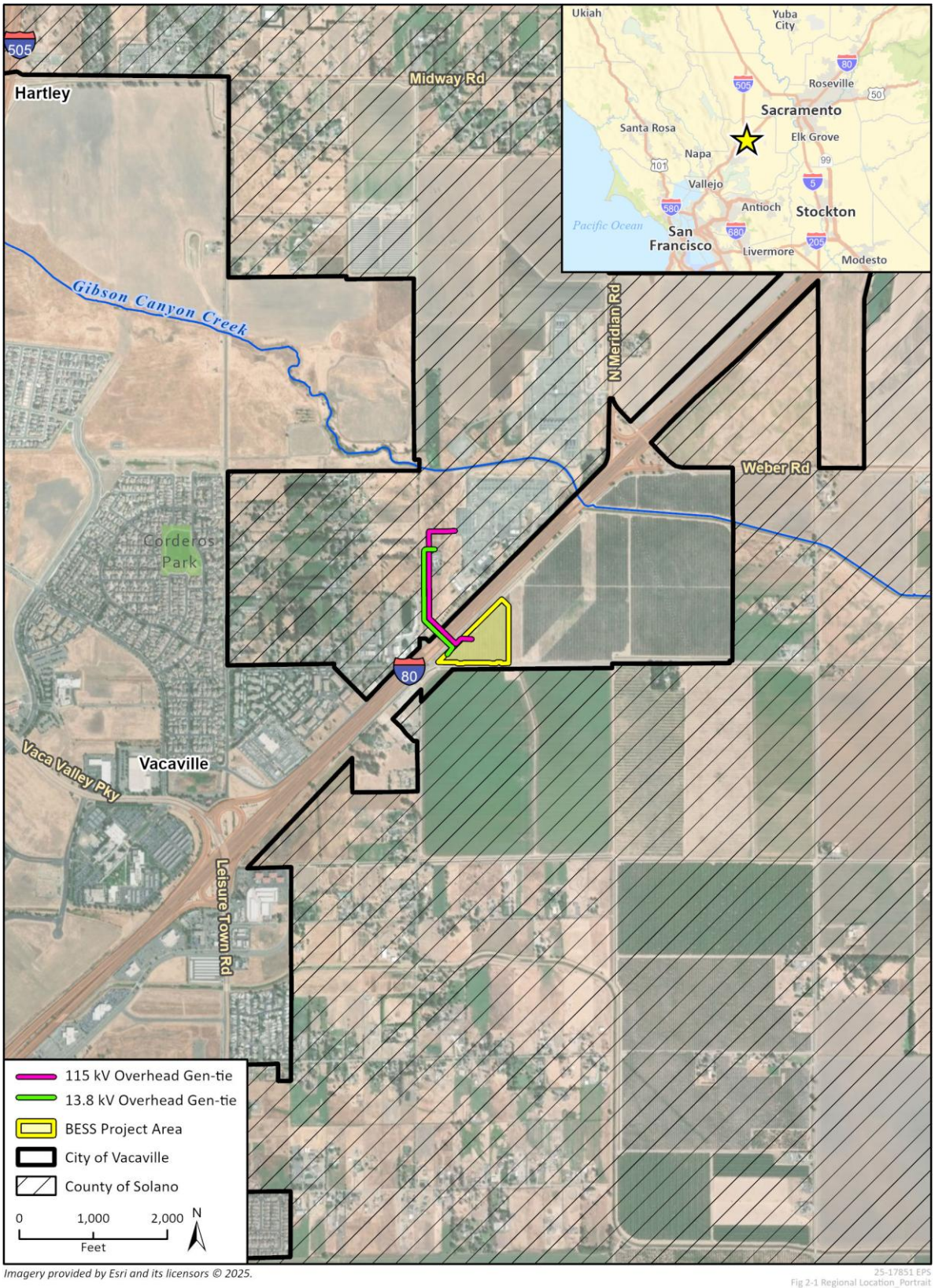
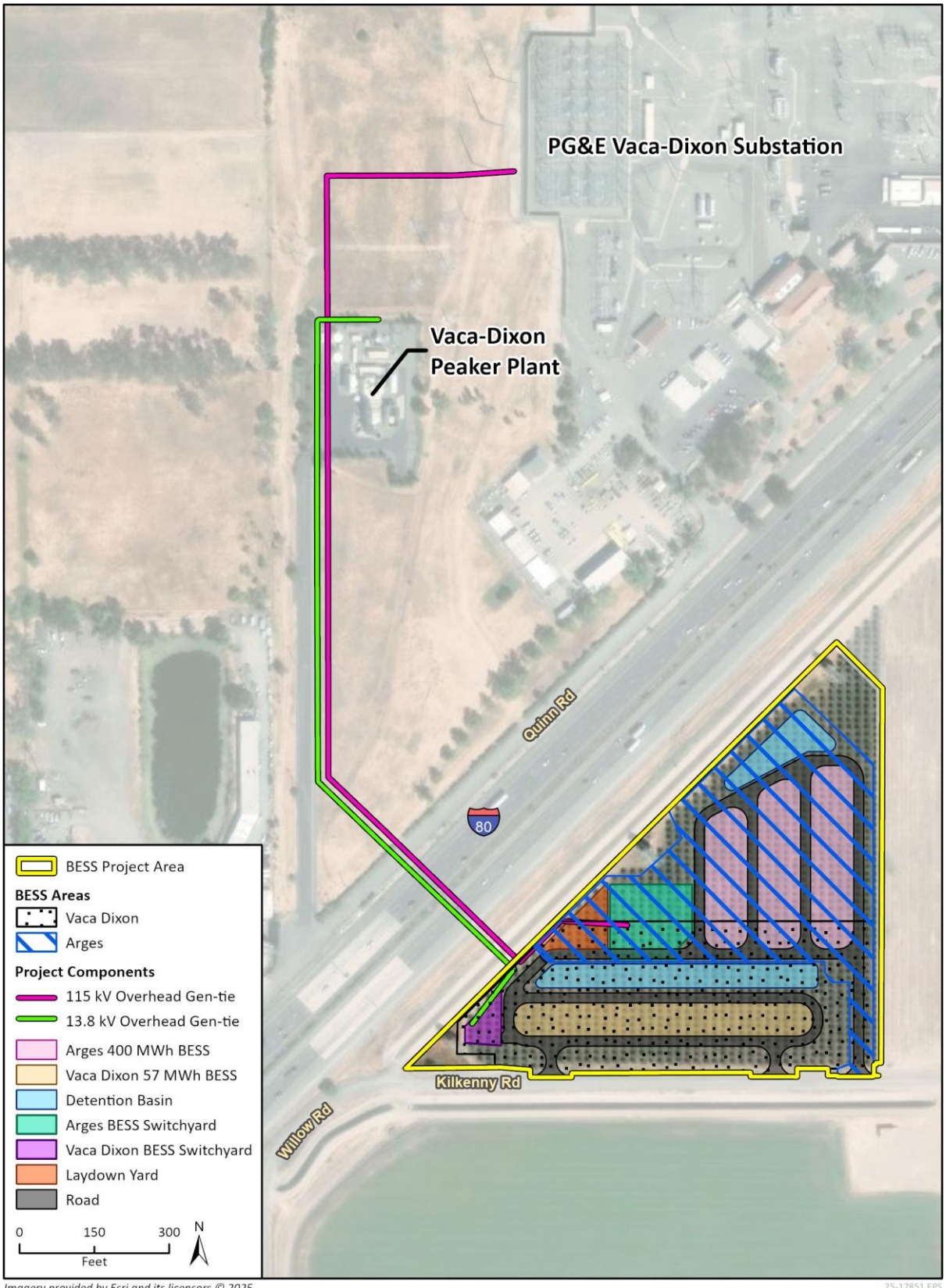


Figure 2-2 Project Area and Components



2.1 Facility Description, Design, and Operation

The Vaca Dixon Power Center Project has a capacity of 457 MWh and includes a 57 MWh BESS and a 400 MWh BESS, with appurtenant facilities. The Vaca Dixon 57 MWh BESS and the Arges 400 MWh BESS components would likely be constructed in succession starting with construction of the Vaca Dixon 57 MWh BESS.

2.1.1 Project Location

The BESS components of the proposed Project are located in the City of Vacaville, California. The combined BESS components footprint encompasses approximately 10 acres on APN 0133-060-060. The proposed Vaca Dixon 57 MWh BESS component would be located on approximately 4.25 acres in the southern portion of the 10 acres BESS Project Area. The proposed Arges 400 MWh BESS component would be located on approximately 5.75 acres of the Project Site.

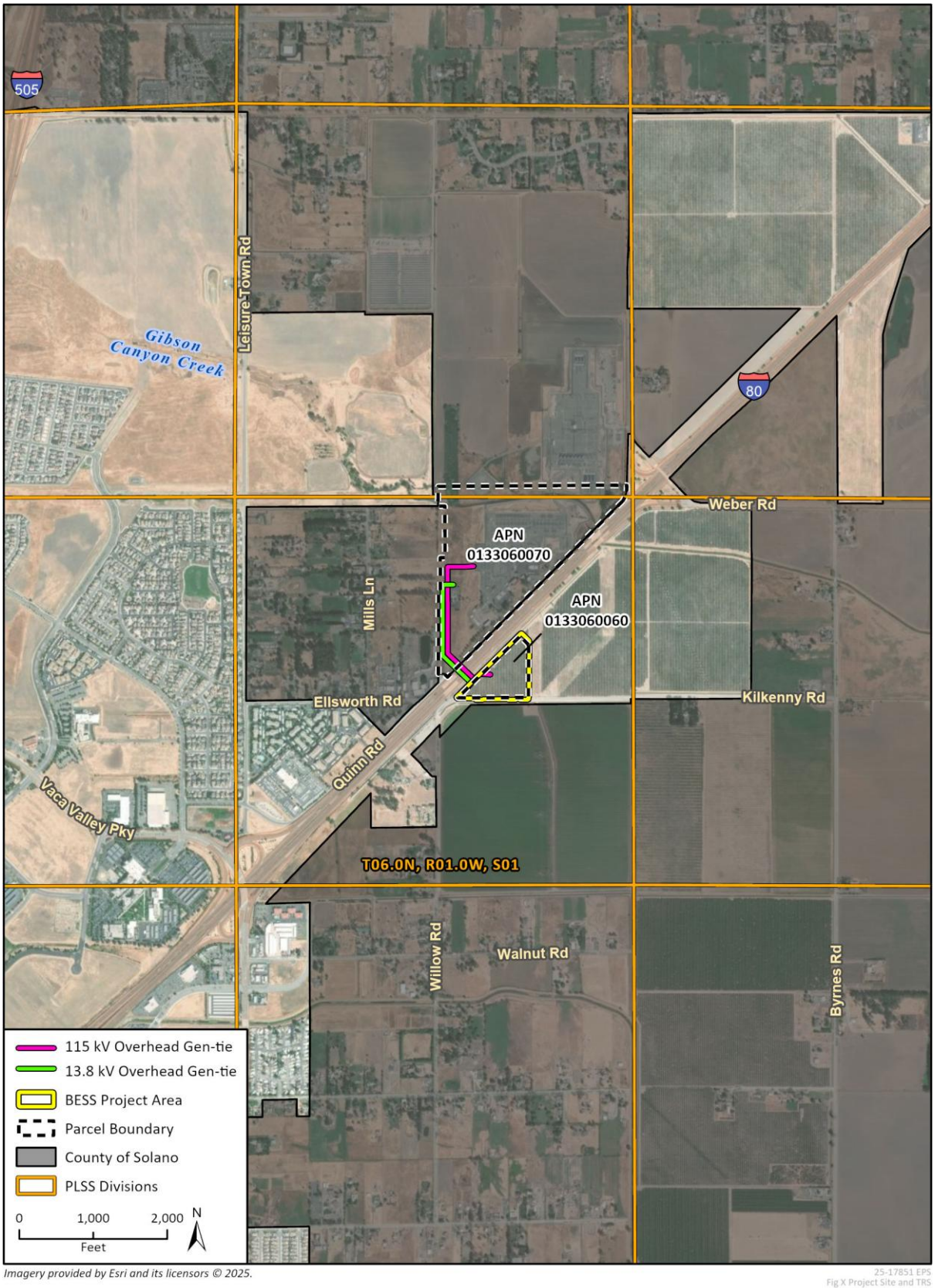
As detailed in Chapter 5.2, *Land Use,* the proposed BESS Project Area is designated by the City of Vacaville General Plan as Business Park and the BESS Project Area is located within the City's Northeast Growth Area. Pursuant to Vacaville General Plan Policy LU-P18.1, development within the Northeast Growth Area is intended for job generating uses such as high-quality offices, industrial uses, and technology campuses. The purpose of this overlay district is to guide temporary or interim development in a manner that preserves existing land for future development in the Northeast Growth Area. Permitted and Conditional Uses in the Northeast Growth Area do not include BESS projects. The CEC has exclusive approval authority over the Project through the AB 205 Opt-In process, and the CEC has the authority to approve the Project. Land uses surrounding the BESS Project Area include I-80 (Caltrans jurisdiction) to the north and west, a PG&E transmission line easement and agricultural land within the City of Vacaville to the east, and Kilkenny Road and agricultural land within Solano County to the south. The proposed gen-tie facility locations on the PG&E parcel (APN 0133-060-070) are designated by the Solano County General Plan as Public/Quasi-Public land, including existing PG&E facilities associated with the PG&E Vaca-Dixon Substation to the east. Adjacent land uses to the gen-tie routes on the PG&E parcel, which are all in Solano County, include a commercial auto body shop and pond to southwest, designated as Urban Commercial land; and undeveloped land and backyards of residential lots on Mills Lane to the west and northwest, designated as Urban Residential, Public Open Space, and Public/Institutional lands.

2.1.2 Site Arrangement and Layout

Figure 2-4 shows the overall Project layout and location of the BESS facilities including battery modules, inverters, access roads, stormwater detention basins, construction laydown areas, and electrical interconnection facilities which are discussed in further in this Chapter The Vaca Dixon 57 MWh and Arges 400 MWh BESS layouts are shown in Figure 2-5 and Figure 2-6, respectively.

The Project parcels, section, township, and range, as well as the proposed locations of the Project components is shown in Figure 2-3. Section 5.5, *Visual Resources*, includes photo simulations of the Project. In addition, Appendix C contains scale plan and elevation drawings depicting the relative size and location of all facilities that were used to create Project visual simulations.

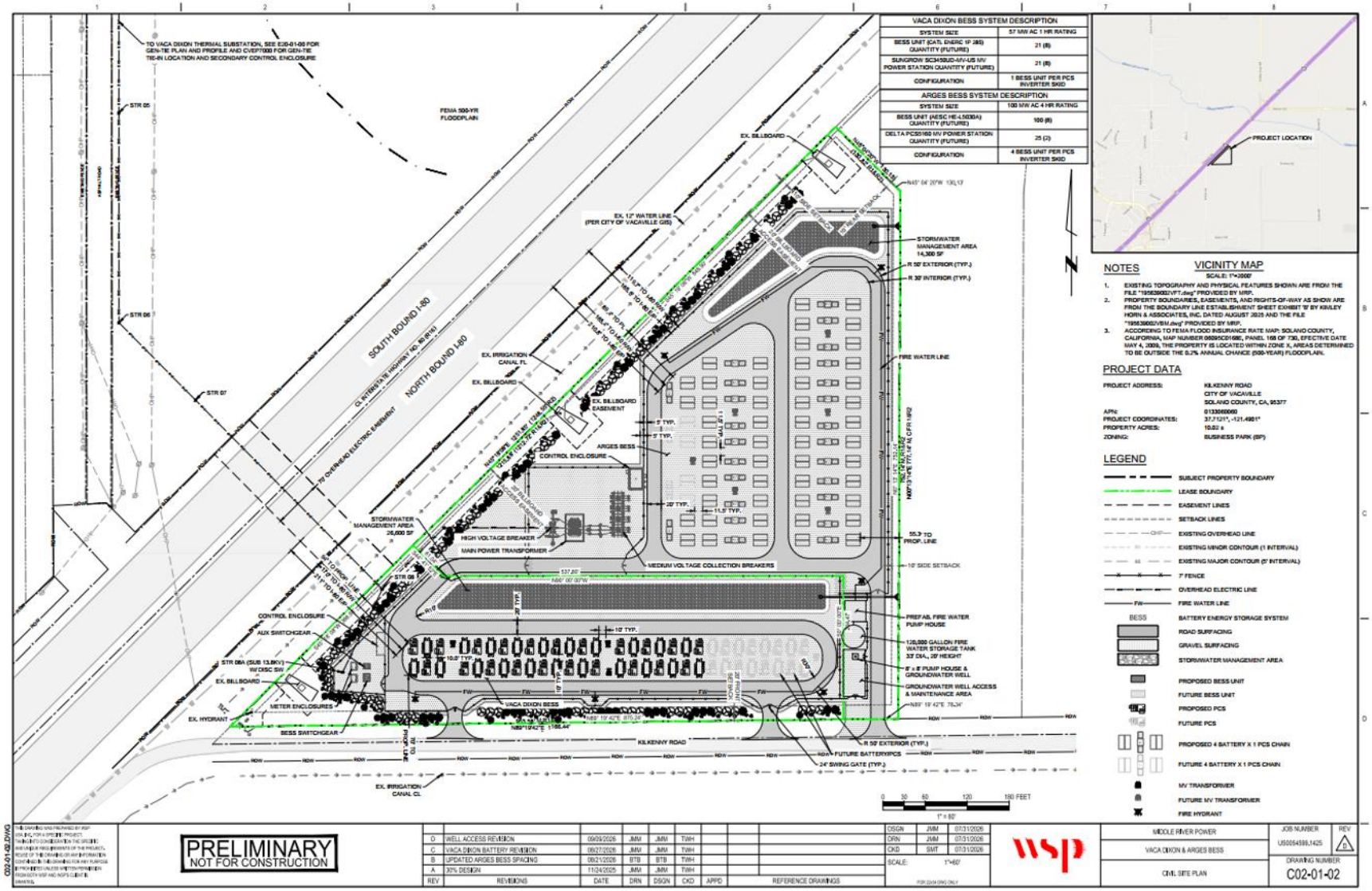
Figure 2-3 Project Parcels

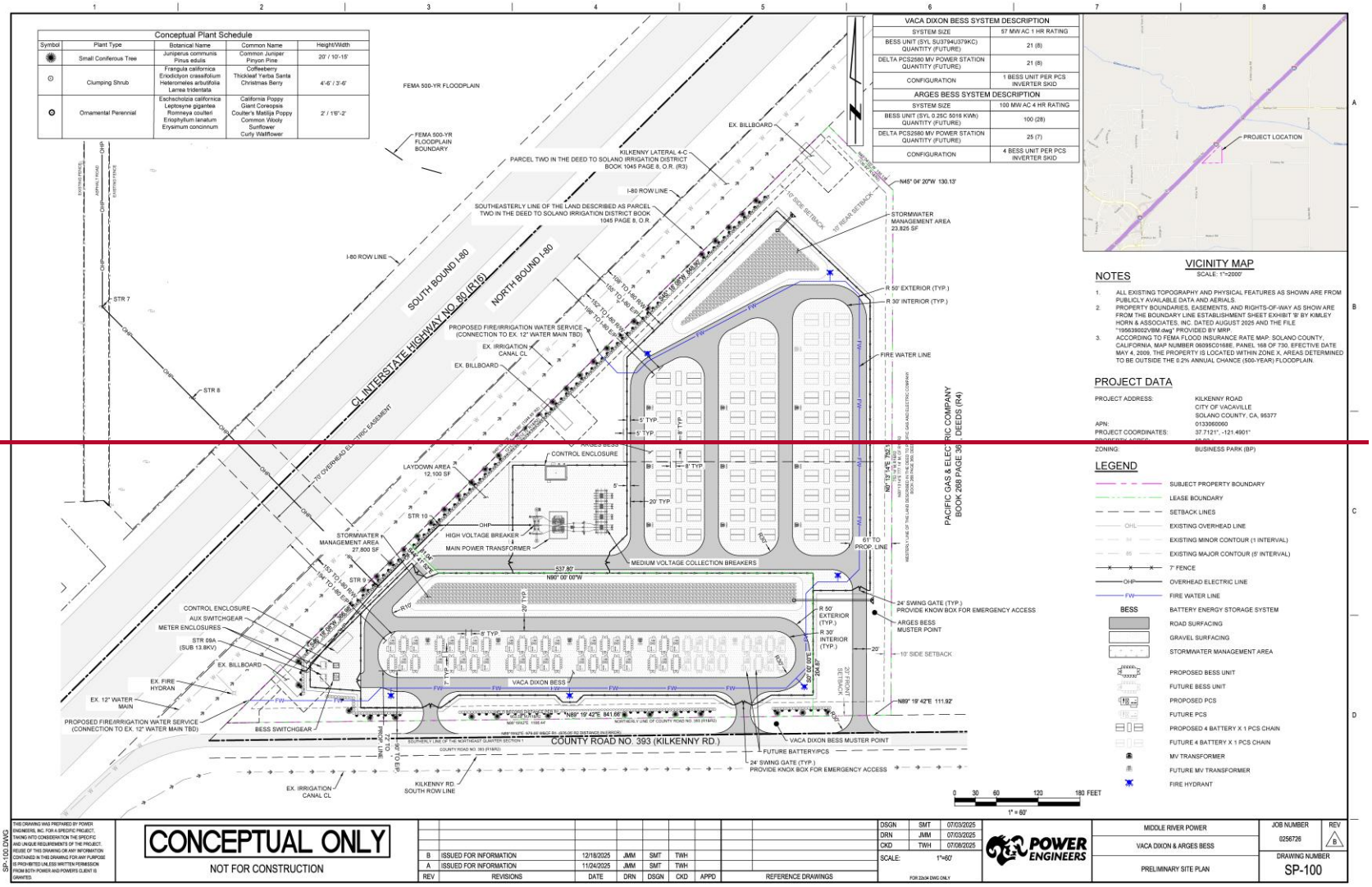


Imagery provided by Esri and its licensors © 2025.

25-17851 EPS
Fig X Project Site and TRS

Figure 2-4 Vaca Dixon Power Center Project Site Plan – Full Site




Conceptual Plant Schedule
Symbol | Plant Type | Botanical Name | Common Name | Height/Width
Small Coniferous Tree | Juniperus communis / Pinus edulis | Common Juniper / Pinyon Pine | 20' / 10'-15'
Clumping Shrub | Frangula californica / Ericodictyon crassifolium / Heteromeles arbutifolia / Larrea tridentata | Coffeeberry / Thickleaf Yerba Santa / Christmas Berry | 4'-6' / 3'-6'
Ornamental Perennial | Eschscholzia californica / Leptosyne gigantea / Romneya coulteri / Eriophyllum lanatum / Erysimum concinnum | California Poppy / Giant Coreopsis / Coulter's Matilija Poppy / Common Woolly Sunflower / Curly Wallflower | 2' / 1'6"-2'
VACA DIXON BESS SYSTEM DESCRIPTION
SYSTEM SIZE | 57 MW AC 1 HR RATING
BESS UNIT (SYL SU3794U379KC) QUANTITY (FUTURE) | 21 (8)
DELTA PCS2580 MV POWER STATION QUANTITY (FUTURE) | 21 (8)
CONFIGURATION | 1 BESS UNIT PER PCS INVERTER SKID
ARGES BESS SYSTEM DESCRIPTION
SYSTEM SIZE | 100 MW AC 4 HR RATING
BESS UNIT (SYL 0.25C 5016 KWh) QUANTITY (FUTURE) | 100 (28)
DELTA PCS2580 MV POWER STATION QUANTITY (FUTURE) | 25 (7)
CONFIGURATION | 4 BESS UNIT PER PCS INVERTER SKID
FEMA 500-YR FLOODPLAIN
FEMA 500-YR FLOODPLAIN BOUNDARY
PARCEL TWO IN THE DEED TO SOLANO IRRIGATION DISTRICT BOOK 1045 PAGE 8, O.R. (R3)
KILKENNY LATERAL 4-C
SOUTHEASTERLY LINE OF THE LAND DESCRIBED AS PARCEL TWO IN THE DEED TO SOLANO IRRIGATION DISTRICT BOOK 1045 PAGE 8, O.R.
I-80 ROW LINE
SOUTH BOUND I-80
NORTH BOUND I-80
CL INTERSTATE HIGHWAY NO. 80 (R16)
70' OVERHEAD ELECTRIC EASEMENT
EX. BILLBOARD
N45° 04' 20"W 130.13'
10' SIDE SETBACK
10' REAR SETBACK
STORMWATER MANAGEMENT AREA 23,825 SF
R 50' EXTERIOR (TYP.)
R 30' INTERIOR (TYP.)
FIRE WATER LINE
PROPOSED FIRE/IRRIGATION WATER SERVICE (CONNECTION TO EX. 12" WATER MAIN TBD)
EX. IRRIGATION CANAL CL
PACIFIC GAS & ELECTRIC COMPANY BOOK 268 PAGE 36 DEEDS (R4)
LAYDOWN AREA 12,100 SF
CONTROL ENCLOSURE
ARGES BESS
STORMWATER MANAGEMENT AREA 27,800 SF
HIGH VOLTAGE BREAKER
MAIN POWER TRANSFORMER
MEDIUM VOLTAGE COLLECTION BREAKERS
61' TO PROP. LINE
537.80'
N90° 00' 00"W
24' SWING GATE (TYP.) PROVIDE KNOX BOX FOR EMERGENCY ACCESS
ARGES BESS MUSTER POINT
AUX SWITCHGEAR
METER ENCLOSURES
STR 09A (SUB 13.8KV)
EX. FIRE HYDRAN
EX. 12" WATER MAIN
PROPOSED FIRE/IRRIGATION WATER SERVICE (CONNECTION TO EX. 12" WATER MAIN TBD)
BESS SWITCHGEAR
VACA DIXON BESS
N89° 19' 42"E 841.60'
N89° 19' 42"E 111.92'
COUNTY ROAD NO. 393 (KILKENNY RD.)
VACA DIXON BESS MUSTER POINT
FUTURE BATTERY/PCS
24' SWING GATE (TYP.) PROVIDE KNOX BOX FOR EMERGENCY ACCESS
EX. IRRIGATION CANAL CL
KILKENNY RD. SOUTH ROW LINE
0 30 60 120 180 FEET
1" = 60'
PROJECT LOCATION
VICINITY MAP
SCALE: 1"=2000'
NOTES
1. ALL EXISTING TOPOGRAPHY AND PHYSICAL FEATURES AS SHOWN ARE FROM PUBLICLY AVAILABLE DATA AND AERIALS.
2. PROPERTY BOUNDARIES, EASEMENTS, AND RIGHTS-OF-WAY AS SHOW ARE FROM THE BOUNDARY LINE ESTABLISHMENT SHEET EXHIBIT 'B' BY KIMLEY HORN & ASSOCIATES, INC. DATED AUGUST 2025 AND THE FILE "195639002VBM.dwg" PROVIDED BY MRP.
3. ACCORDING TO FEMA FLOOD INSURANCE RATE MAP: SOLANO COUNTY, CALIFORNIA, MAP NUMBER 06095C0168E, PANEL 168 OF 730, EFFECTIVE DATE MAY 4, 2009, THE PROPERTY IS LOCATED WITHIN ZONE X. AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE (500-YEAR) FLOODPLAIN.
PROJECT DATA
PROJECT ADDRESS: KILKENNY ROAD, CITY OF VACAVILLE, SOLANO COUNTY, CA, 95377
APN: 0133060060
PROJECT COORDINATES: 37.7121°, -121.4901°
ZONING: BUSINESS PARK (BP)
LEGEND
SUBJECT PROPERTY BOUNDARY
LEASE BOUNDARY
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1 INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
PROPOSED BESS UNIT
FUTURE BESS UNIT
PROPOSED PCS
FUTURE PCS
PROPOSED 4 BATTERY X 1 PCS CHAIN
FUTURE 4 BATTERY X 1 PCS CHAIN
MV TRANSFORMER
FUTURE MV TRANSFORMER
FIRE HYDRANT
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
B ISSUED FOR INFORMATION 12/18/2025 JMM SMT TWH
A ISSUED FOR INFORMATION 11/24/2025 JMM SMT TWH
REV REVISIONS DATE DRN DSGN CKD APPD
REFERENCE DRAWINGS
DSGN SMT 07/03/2025
DRN JMM 07/03/2025
CKD TWH 07/08/2025
SCALE: 1"=60'
FOR 22x34 DWG ONLY
POWER ENGINEERS
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
PRELIMINARY SITE PLAN
JOB NUMBER 0256726
REV B
DRAWING NUMBER SP-100
SP-100.DWG

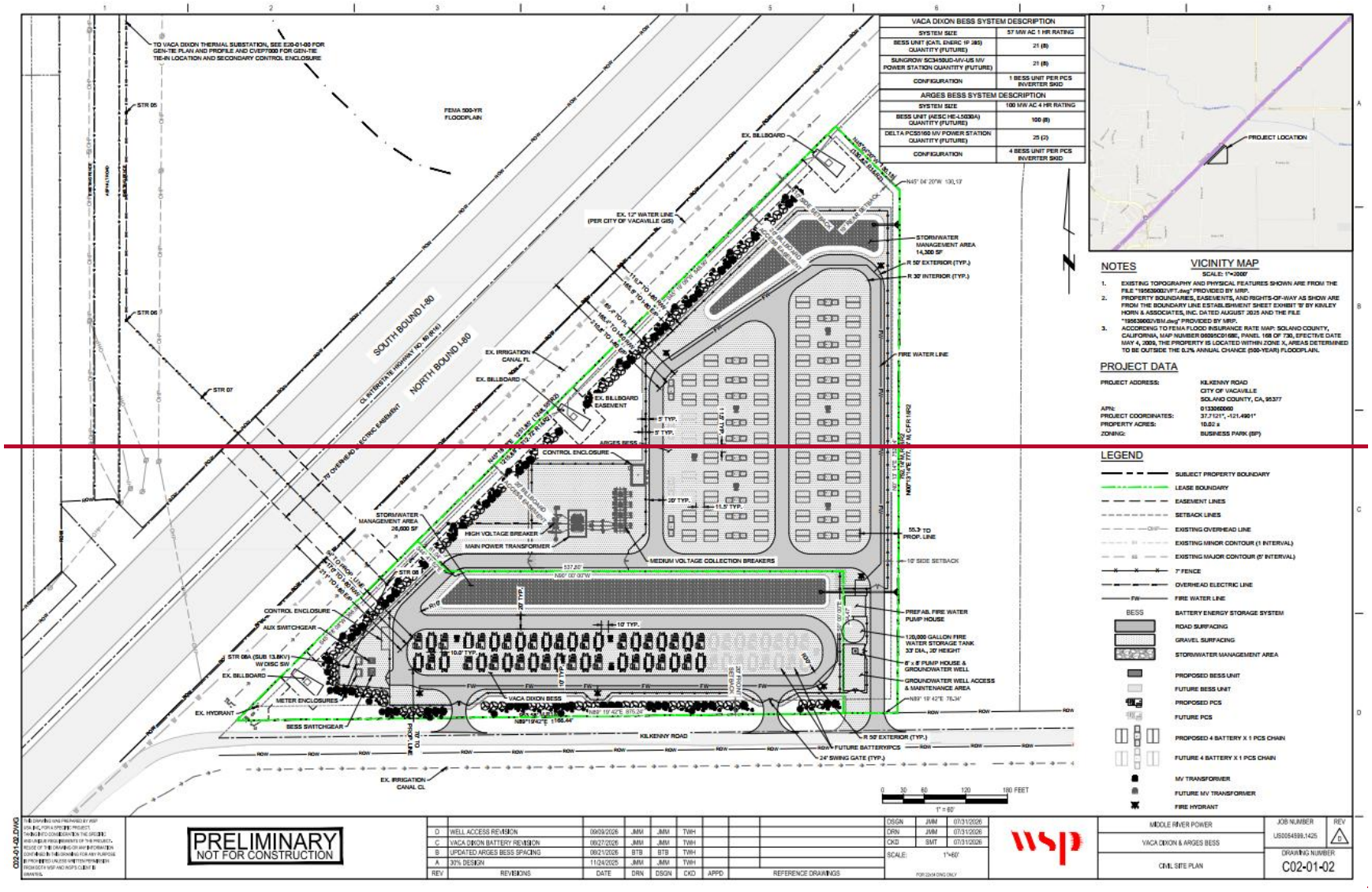
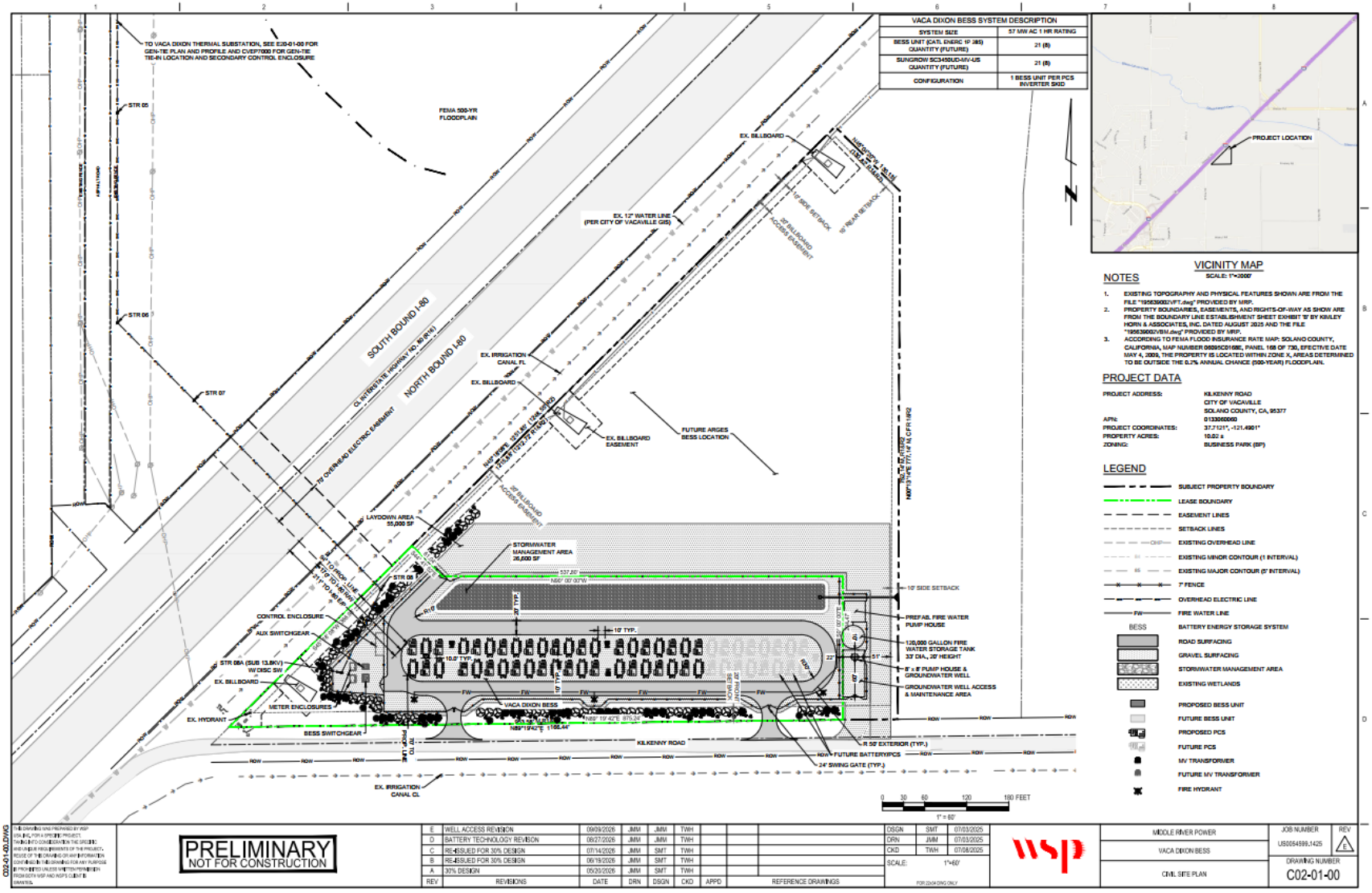
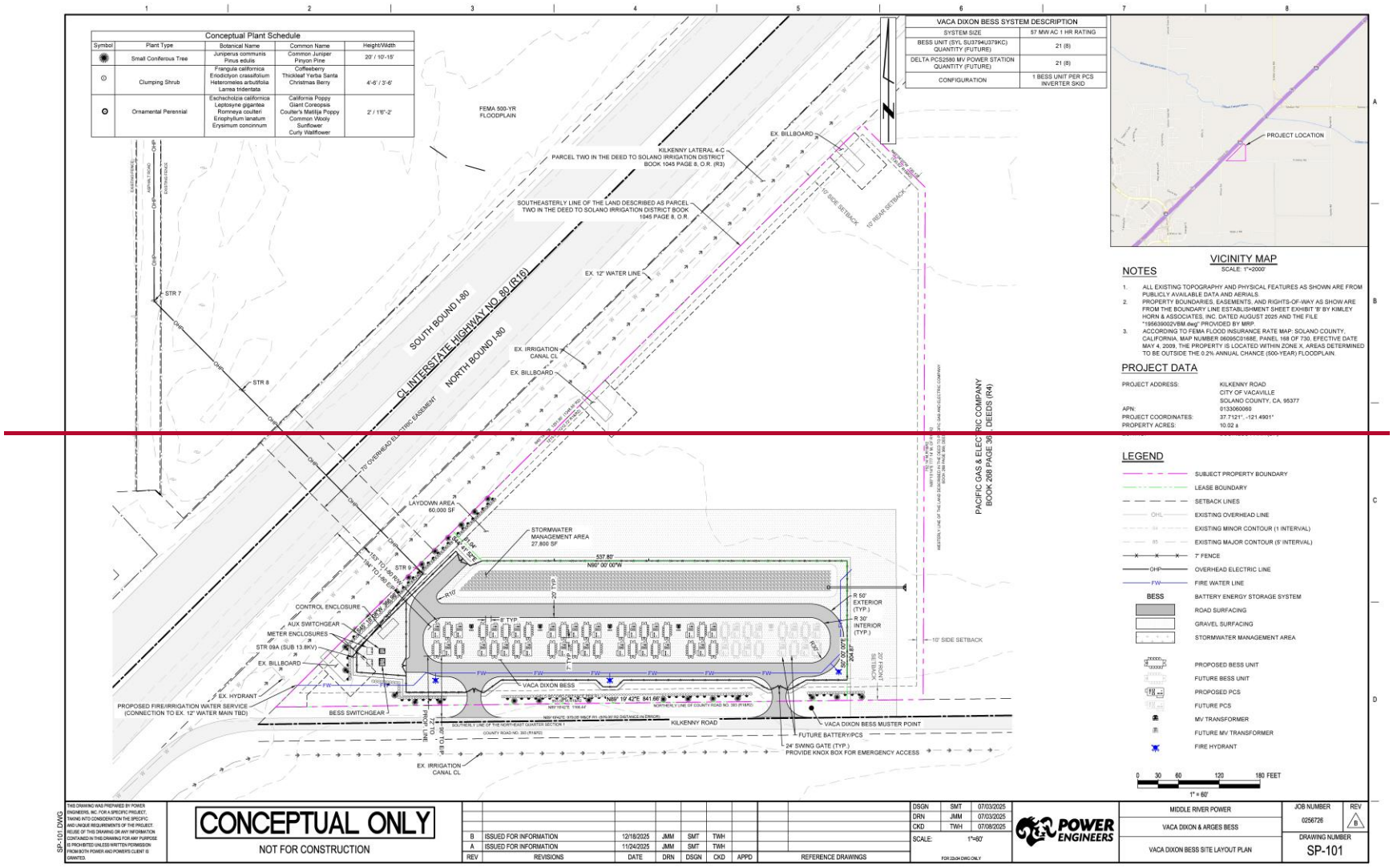

VACA DIXON BESS SYSTEM DESCRIPTION
SYSTEM SIZE
57 MW AC 1 HR RATING
BESS UNIT (CATL ENERC 1P 385) QUANTITY (FUTURE)
21 (0)
SUNGROW SC3450UD-MV-US MV POWER STATION QUANTITY (FUTURE)
21 (0)
CONFIGURATION
1 BESS UNIT PER PCS INVERTER SKID
ARGES BESS SYSTEM DESCRIPTION
SYSTEM SIZE
100 MW AC 4 HR RATING
BESS UNIT (AESC HE-4.5030A) QUANTITY (FUTURE)
100 (0)
DELTA PCS0160 MV POWER STATION QUANTITY (FUTURE)
25 (2)
CONFIGURATION
4 BESS UNIT PER PCS INVERTER SKID
VICINITY MAP
PROJECT LOCATION
NOTES
1. EXISTING TOPOGRAPHY AND PHYSICAL FEATURES SHOWN ARE FROM THE FILE "195630002VFT.dwg" PROVIDED BY MRP.
2. PROPERTY BOUNDARIES, EASEMENTS, AND RIGHTS-OF-WAY AS SHOW ARE FROM THE BOUNDARY LINE ESTABLISHMENT SHEET EXHIBIT 'B' BY KIMLEY HORN & ASSOCIATES, INC. DATED AUGUST 2025 AND THE FILE "195630002VBM.dwg" PROVIDED BY MRP.
3. ACCORDING TO FEMA FLOOD INSURANCE RATE MAP: SOLANO COUNTY, CALIFORNIA, MAP NUMBER 06095C0108E, PANEL 108 OF 730, EFECTIVE DATE MAY 4, 2009, THE PROPERTY IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE (500-YEAR) FLOODPLAIN.
PROJECT DATA
PROJECT ADDRESS: KILKENNY ROAD, CITY OF VACAVILLE, SOLANO COUNTY, CA, 95377
APN: 0133060060
PROJECT COORDINATES: 37.7121°, -121.4901°
PROPERTY ACRES: 10.02 ±
ZONING: BUSINESS PARK (BP)
LEGEND
SUBJECT PROPERTY BOUNDARY
LEASE BOUNDARY
EASEMENT LINES
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1 INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS
BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
PROPOSED BESS UNIT
FUTURE BESS UNIT
PROPOSED PCS
FUTURE PCS
PROPOSED 4 BATTERY X 1 PCS CHAIN
FUTURE 4 BATTERY X 1 PCS CHAIN
MV TRANSFORMER
FUTURE MV TRANSFORMER
FIRE HYDRANT
TO VACA DIXON THERMAL SUBSTATION, SEE E20-01-00 FOR GEN-TIE PLAN AND PROFILE AND CVEP7000 FOR GEN-TIE TIE-IN LOCATION AND SECONDARY CONTROL ENCLOSURE
FEMA 500-YR FLOODPLAIN
SOUTH BOUND I-80
NORTH BOUND I-80
CL INTERSTATE HIGHWAY NO. 80 (8-LN)
70' OVERHEAD ELECTRIC EASEMENT
EX. 12" WATER LINE (PER CITY OF VACAVILLE GIS)
EX. IRRIGATION CANAL FL
EX. BILLBOARD
EX. BILLBOARD EASEMENT
ARGES BESS
CONTROL ENCLOSURE
HIGH VOLTAGE BREAKER
MAIN POWER TRANSFORMER
MEDIUM VOLTAGE COLLECTION BREAKERS
STORMWATER MANAGEMENT AREA 14,300 SF
STORMWATER MANAGEMENT AREA 26,600 SF
R 50' EXTERIOR (TYP.)
R 30' INTERIOR (TYP.)
FIRE WATER LINE
55.3' TO PROP. LINE
10' SIDE SETBACK
PREFAB. FIRE WATER PUMP HOUSE
120,000 GALLON FIRE WATER STORAGE TANK 33' DIA., 20' HEIGHT
8' x 8' PUMP HOUSE & GROUNDWATER WELL
GROUNDWATER WELL ACCESS & MAINTENANCE AREA
VACA DIXON BESS
KILKENNY ROAD
FUTURE BATTERY/PCS
24' SWING GATE (TYP.)
EX. IRRIGATION CANAL CL
AUX SWITCHGEAR
STR 08A (SUB 13.8KV) W DISC SW
METER ENCLOSURES
EX. HYDRANT
BESS SWITCHGEAR
PRELIMINARY
NOT FOR CONSTRUCTION
REV REVISIONS DATE DRN DSGN CKD APPD REFERENCE DRAWINGS
C WELL ACCESS REVISION 09/03/2026 JMM JMM TWH
B UPDATED ARGES BESS SPACING 08/21/2026 BTB BTB TWH
A 30% DESIGN 11/24/2025 JMM JMM TWH
DSGN JMM 07/31/2026
DRN JMM 07/31/2026
CKD SMT 07/31/2026
SCALE: 1"=60'
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
CIVIL SITE PLAN
JOB NUMBER US0054598.1425
REV D
DRAWING NUMBER C02-01-02
C02-01-02.DWG

Figure 2-5 Vaca Dixon 57 MWh BESS Component




Conceptual Plant Schedule
Symbol | Plant Type | Botanical Name | Common Name | Height/Width
Small Coniferous Tree | Juniperus communis / Pinus edulis | Common Juniper / Pinyon Pine | 20' / 10'-15'
Clumping Shrub | Frangula californica / Erodictyon crassifolium / Heteromeles arbutifolia / Lamsa tridentata | Coffeeberry / Thickleaf Yerba Santa / Christmas Berry | 4'-6' / 3'-6'
Ornamental Perennial | Eschscholzia californica / Leptosyne gigantea / Romneya coulteri / Eriophyllum lanatum / Erysimum concinnum | California Poppy / Giant Coreopsis / Coulter's Matilija Poppy / Common Wooly Sunflower / Curly Wallflower | 2' / 1'6"-2'
VACA DIXON BESS SYSTEM DESCRIPTION
SYSTEM SIZE | 57 MW AC 1 HR RATING
BESS UNIT (SYL SU3794U379KC) QUANTITY (FUTURE) | 21 (6)
DELTA PCS2580 MV POWER STATION QUANTITY (FUTURE) | 21 (6)
CONFIGURATION | 1 BESS UNIT PER PCS INVERTER SKID
FEMA 500-YR FLOODPLAIN
KILKENNY LATERAL 4-C
PARCEL TWO IN THE DEED TO SOLANO IRRIGATION DISTRICT BOOK 1045 PAGE 8, O.R. (R3)
SOUTHEASTERLY LINE OF THE LAND DESCRIBED AS PARCEL TWO IN THE DEED TO SOLANO IRRIGATION DISTRICT BOOK 1045 PAGE 8, O.R.
EX. BILLBOARD
EX. 12" WATER LINE
EX. IRRIGATION CANAL CL
SOUTH BOUND I-80
CL INTERSTATE HIGHWAY NO. 80 (R16)
NORTH BOUND I-80
70' OVERHEAD ELECTRIC EASEMENT
PACIFIC GAS & ELECTRIC COMPANY BOOK 268 PAGE 36, (DEEDS (R4)
LAYDOWN AREA 60,000 SF
STORMWATER MANAGEMENT AREA 27,800 SF
537.80'
N89° 00' 00"W
CONTROL ENCLOSURE
AUX SWITCHGEAR
METER ENCLOSURES
STR 09A (SUB 13.8KV)
EX. BILLBOARD
EX. HYDRANT
PROPOSED FIRE/IRRIGATION WATER SERVICE (CONNECTION TO EX. 12" WATER MAIN TBD)
BESS SWITCHGEAR
VACA DIXON BESS
R 50' EXTERIOR (TYP.)
R 30' INTERIOR (TYP.)
10' SIDE SETBACK
S0° 00' 00"E
204.87'
N89° 19' 42"E 841.66'
KILKENNY ROAD
VACA DIXON BESS MUSTER POINT
FUTURE BATTERY/PCS
24' SWING GATE (TYP.) PROVIDE KNOX BOX FOR EMERGENCY ACCESS
EX. IRRIGATION CANAL CL
PROJECT LOCATION
VICINITY MAP
SCALE: 1"=2000'
NOTES
1. ALL EXISTING TOPOGRAPHY AND PHYSICAL FEATURES AS SHOWN ARE FROM PUBLICLY AVAILABLE DATA AND AERIALS.
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PROJECT DATA
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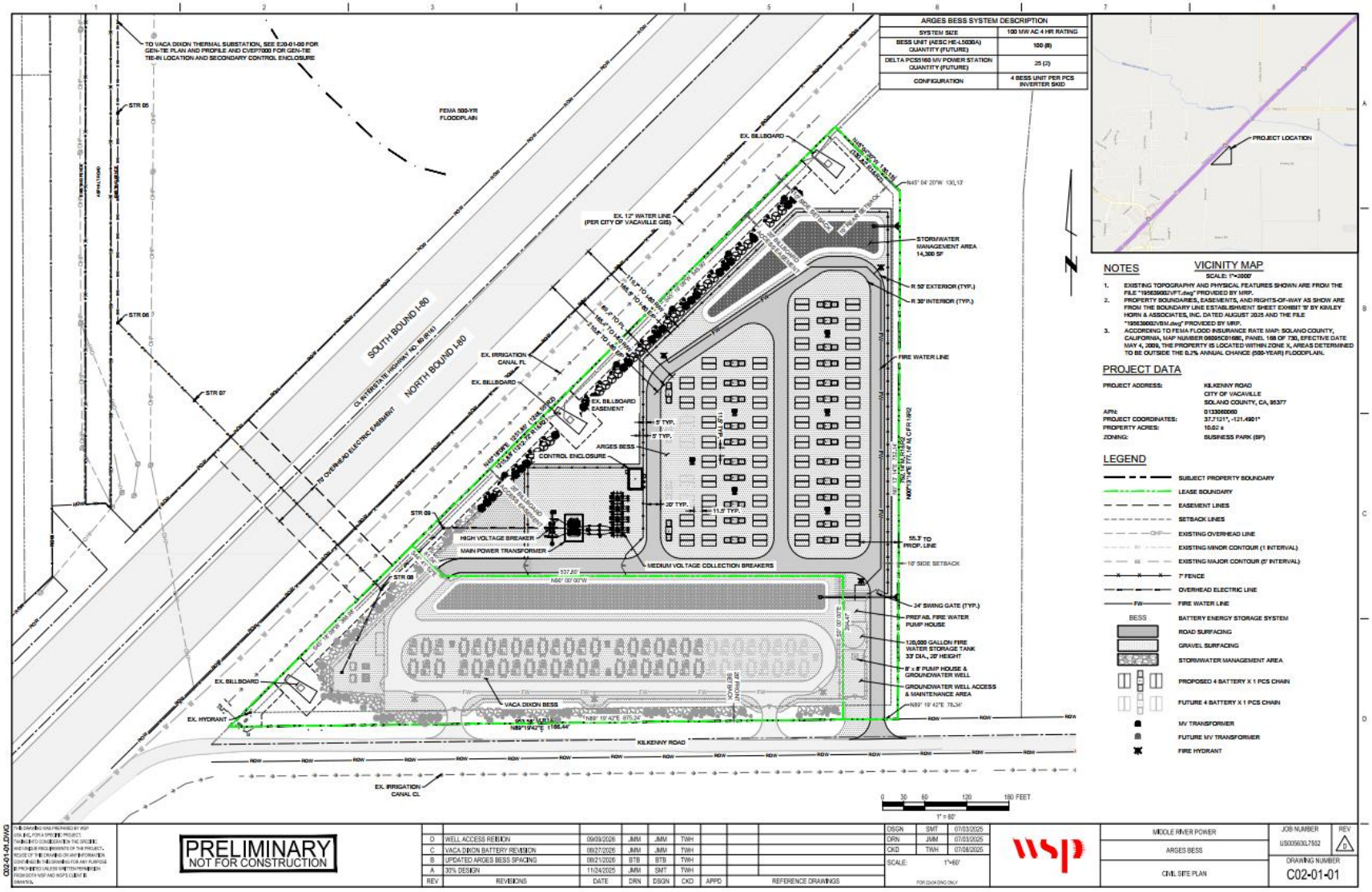
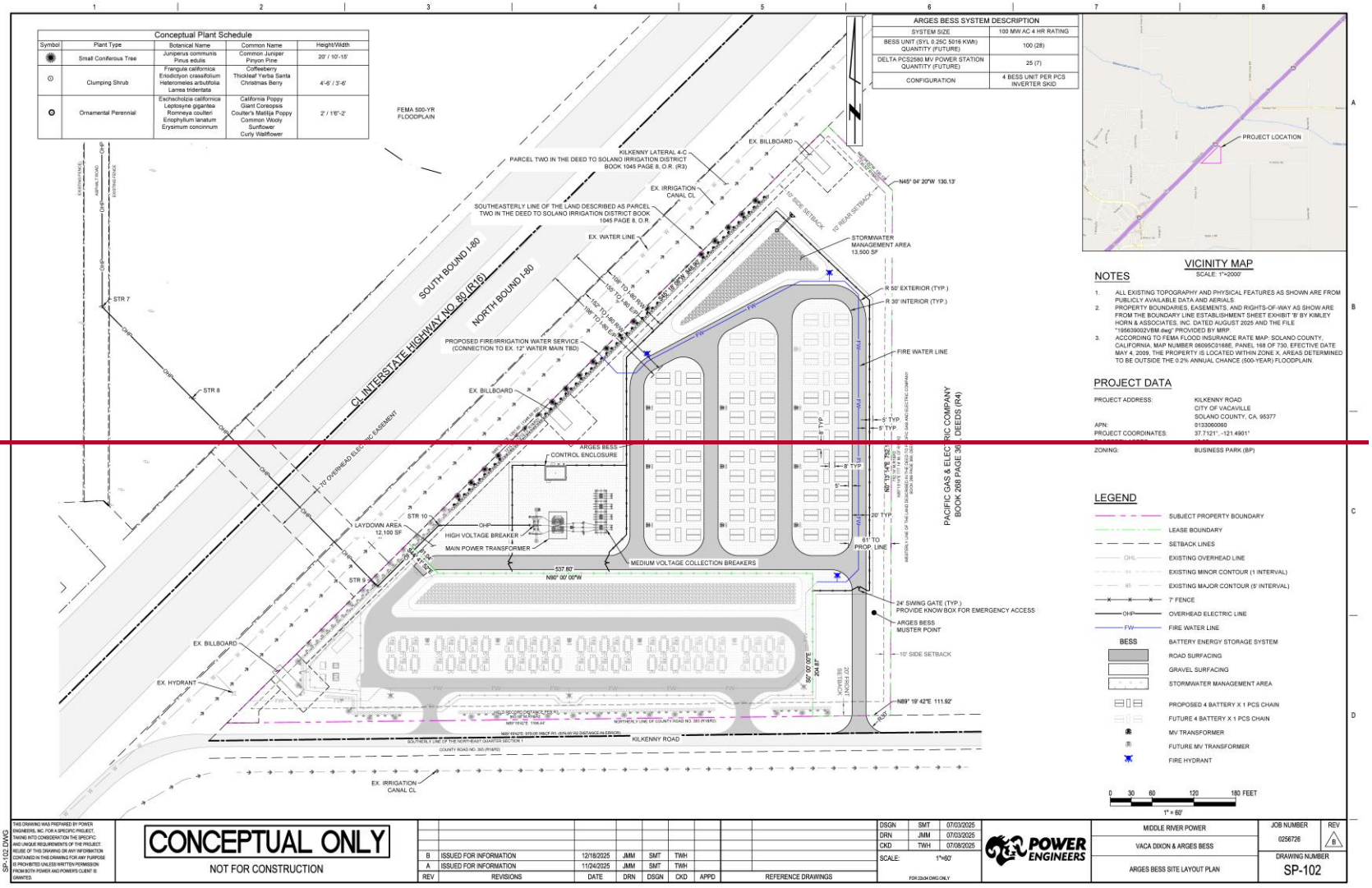
APN: 0133060060
PROJECT COORDINATES: 37.7121°, -121.4901°
PROPERTY ACRES: 10.02 ±
LEGEND
SUBJECT PROPERTY BOUNDARY
LEASE BOUNDARY
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1 INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
PROPOSED BESS UNIT
FUTURE BESS UNIT
PROPOSED PCS
FUTURE PCS
MV TRANSFORMER
FUTURE MV TRANSFORMER
FIRE HYDRANT
0 30 60 120 180 FEET
1" = 60'
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
B ISSUED FOR INFORMATION 12/18/2025 JMM SMT TWH
A ISSUED FOR INFORMATION 11/24/2025 JMM SMT TWH
REV REVISIONS DATE DRN DSGN CKD APPD
REFERENCE DRAWINGS
DSGN SMT 07/03/2025
DRN JMM 07/03/2025
CKD TWH 07/08/2025
SCALE: 1"=60'
FOR 22x34 DWG ONLY
POWER ENGINEERS
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
VACA DIXON BESS SITE LAYOUT PLAN
JOB NUMBER 0256726
REV B
DRAWING NUMBER SP-101
SP-101.DWG

Figure 2-6 Arges 400 MWh BESS Component




Conceptual Plant Schedule
ARGES BESS SYSTEM DESCRIPTION
SYSTEM SIZE 100 MW AC 4 HR RATING
BESS UNIT (SYL 0.25C 5016 KWh) QUANTITY (FUTURE) 100 (28)
DELTA PCS2580 MV POWER STATION QUANTITY (FUTURE) 25 (7)
CONFIGURATION 4 BESS UNIT PER PCS INVERTER SKID
FEMA 500-YR FLOODPLAIN
PARCEL TWO IN THE DEED TO SOLANO IRRIGATION DISTRICT BOOK 1045 PAGE 8, O.R. (R3)
KILKENNY LATERAL 4-C
EX. IRRIGATION CANAL CL
SOUTHEASTERLY LINE OF THE LAND DESCRIBED AS PARCEL TWO IN THE DEED TO SOLANO IRRIGATION DISTRICT BOOK 1045 PAGE 8, O.R.
EX. WATER LINE
EX. BILLBOARD
N45° 04' 20"W 130.13'
STORMWATER MANAGEMENT AREA 13,500 SF
SOUTH BOUND I-80
NORTH BOUND I-80
CL INTERSTATE HIGHWAY NO. 80 (R16)
PROPOSED FIRE/IRRIGATION WATER SERVICE (CONNECTION TO EX. 12" WATER MAIN TBD)
FIRE WATER LINE
R 50' EXTERIOR (TYP.)
R 30' INTERIOR (TYP.)
70' OVERHEAD ELECTRIC EASEMENT
ARGES BESS CONTROL ENCLOSURE
LAYDOWN AREA 12,100 SF
HIGH VOLTAGE BREAKER
MAIN POWER TRANSFORMER
MEDIUM VOLTAGE COLLECTION BREAKERS
537.80'
N90° 00' 00"W
PACIFIC GAS & ELECTRIC COMPANY BOOK 268 PAGE 36, (DEEDS (R4)
81' TO PROP. LINE
24' SWING GATE (TYP.) PROVIDE KNOX BOX FOR EMERGENCY ACCESS
ARGES BESS MUSTER POINT
10' SIDE SETBACK
EX. HYDRANT
N89° 19' 42"E 111.92'
KILKENNY ROAD
EX. IRRIGATION CANAL CL
PROJECT LOCATION
VICINITY MAP
SCALE: 1"=2000'
NOTES
1. ALL EXISTING TOPOGRAPHY AND PHYSICAL FEATURES AS SHOWN ARE FROM PUBLICLY AVAILABLE DATA AND AERIALS.
2. PROPERTY BOUNDARIES, EASEMENTS, AND RIGHTS-OF-WAY AS SHOW ARE FROM THE BOUNDARY LINE ESTABLISHMENT SHEET EXHIBIT 'B' BY KIMLEY HORN & ASSOCIATES, INC. DATED AUGUST 2025 AND THE FILE "195633002VBM.dwg" PROVIDED BY MRP.
3. ACCORDING TO FEMA FLOOD INSURANCE RATE MAP: SOLANO COUNTY, CALIFORNIA, MAP NUMBER 06095C0168E, PANEL 168 OF 730, EFFECTIVE DATE MAY 4, 2009, THE PROPERTY IS LOCATED WITHIN ZONE X, AREAS DETERMINED TO BE OUTSIDE THE 0.2% ANNUAL CHANCE (500-YEAR) FLOODPLAIN.
PROJECT DATA
PROJECT ADDRESS: KILKENNY ROAD, CITY OF VACAVILLE, SOLANO COUNTY, CA, 95377
APN: 0133090080
PROJECT COORDINATES: 37.7121°, -121.4901°
ZONING: BUSINESS PARK (BP)
LEGEND
SUBJECT PROPERTY BOUNDARY
LEASE BOUNDARY
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1 INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
PROPOSED 4 BATTERY X 1 PCS CHAIN
FUTURE 4 BATTERY X 1 PCS CHAIN
MV TRANSFORMER
FUTURE MV TRANSFORMER
FIRE HYDRANT
0 30 60 120 180 FEET
1" = 60'
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
B ISSUED FOR INFORMATION 12/18/2025 JMM SMT TWH
A ISSUED FOR INFORMATION 11/24/2025 JMM SMT TWH
REV REVISIONS DATE DRN DSGN CKD APPD
REFERENCE DRAWINGS
DSGN SMT 07/03/2025
DRN JMM 07/03/2025
CKD TWH 07/08/2025
SCALE: 1"=60'
POWER ENGINEERS
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
ARGES BESS SITE LAYOUT PLAN
JOB NUMBER 0256726
REV B
DRAWING NUMBER SP-102
SP-102.DWG

Site Access

Main access to the BESS Project Area would be provided from Kilkenny Road. The gen-tie routes on the PG&E parcel to the north would be accessed primarily from the existing VDPP access road located along the southwestern portion of the PG&E parcel. The existing VDPP access road connects to Quinn Road on the southern end. Internal asphalt access roads approximately 20 feet wide would be constructed to provide vehicular access within the BESS facilities south of I-80.

2.1.3 Battery Energy Storage System Description

2.1.3.1 Battery Energy Storage System Basic Project Objectives

The Project is designed with the following principle Basic Project Objectives:

- Construct and operate an economically viable, and commercially financeable BESS facilities totaling 457 MWh in Solano County.
- Obtain site control of a parcel at least 10 acres in size to provide adequate space and to allow design flexibility for the Project that includes batteries, switchyards, inverters, transformers, stormwater control, access routes, and fencing.
- Develop electricity storage facilities at energy facilities located on a dedicated parcel in the direct vicinity of the VDPP and the PG&E Vaca-Dixon Substation, to utilize existing infrastructure and assets while also minimizing potential environmental impacts, including the avoidance and minimization of potential impacts from new transmission lines.
- Offer energy storage to curtail dispatch and displace the need for additional fossil fuel based generating stations needed to serve peak demand periods when intermittent renewable sources may be inadequate or unavailable and allow for the deferral or avoidance of regional transmission facilities.
- Support California's current need for additional electrical supply capacity during peak load demand time periods and assist California in meeting its goal of reducing statewide annual greenhouse gas emissions from the electric sector to 25 million metric tons by 2035.
- Balance electricity generation from renewable sources, such as wind and solar, with electricity demand by storing excess generation and delivering it back to the grid when demand exceeds real-time generation supply.
- For the Vaca Dixon 57 MWh BESS, take advantage of existing interconnection capacity and integrate BESS operations with the natural gas-fueled VDPP to optimize project operations and afford the opportunity to avoid and minimize natural gas operations where feasible.
- For the Arges 400 MWh BESS, utilize the transmission interconnection capacity available to the BESS at the PG&E Vaca-Dixon Substation.
- Enhance electricity reliability without requiring the construction of new regional transmission infrastructure or substantial network upgrades.
- Locate site near existing roadways and related infrastructure where available and feasible for construction and O&M access.
- On a system-wide basis, reduce the need for additional fossil fuel-based generating stations required to serve peak demand periods when renewable sources may be inadequate or unavailable.

- Assist California electric utilities in meeting obligations under California's Renewable Portfolio Standard Program and Senate Bills 100 and 1020, which require renewable energy sources and zero-carbon resources to supply 60 percent of all retail sales of electricity to California end-use customers by December 31, 2030, 90 percent of all retail sales of electricity to California end-use customers by December 31, 2035, 95 percent of all retail sales of electricity to California end-use customers by December 31, 2040, and 100 percent of all retail sales of electricity to California end-use customers by December 31, 2045.
- Assist California utilities in meeting obligations under the California Public Utility Commission's (CPUC's) Mid-Term Reliability Procurement Requirements.
- Create prevailing wage construction jobs, facilitating local community benefits, and resulting in economic benefits to the City of Vacaville and Solano County through construction and operation of the Project.

2.1.3.2 Battery Energy Storage System Facility Components

The Project would include a battery storage system capable of storing up to 457 MWh of electricity, requiring approximately 10 acres, including ancillary facilities. As shown in Figure 2-2, the battery systems would be located near the existing VDPP and the existing PG&E Vaca-Dixon Substation to facilitate interconnection and metering. Operation of the proposed Vaca Dixon 57 MWh BESS component would be integrated with the existing VDPP, but the Project BESS facilities would be charged from the electrical grid and not the VDPP. The Vaca Dixon 57 MWh BESS component would charge/discharge electricity for one hour per day, and the Arges 400 MWh BESS component would charge/discharge electricity for four hours per day.

Battery Energy Storage System

The storage system would consist of battery banks housed in non-habitable electrical enclosures and buried electrical conduits, with approximately 80 battery modules per enclosure. The battery storage technologies being considered include lithium-iron-phosphate (lithium-ion) or other similar technologies that may become commercially available as the BESS component undergoes final design. A total of 121 BESS units within 71 enclosures measuring approximately 8 feet wide by 9.5 feet tall by 20 feet long would be installed on piers, piles, spread footings, and/or mat foundations during the initial Project installation. Enclosures would be spaced in compliance with UL Certification requirements. Battery modules would be added every 2 to 5 years and would be placed adjacent to Project BESS enclosures in areas designated for future battery/power conversion system (PCS) augmentation (see Figure 2-4).

The BESS enclosures would include internal heating, ventilation, and air conditioning (HVAC) and internal fire detection and fire suppression systems in each enclosure. The internal HVAC systems would allow the battery enclosures to function properly in temperatures ranging from approximately -13 degrees Fahrenheit to approximately 131 degrees Fahrenheit. These enclosures would also include a battery management system which monitors battery voltage, current, temperature, security, fault diagnosis and management, and external communication with the power conversion system. The PCS inverter skids would be connected to the BESS enclosures by underground electrical conductors. Each PCS inverter skid would be approximately 8 feet wide by 9.5 feet tall by 20 feet long. A total of 46 PCS inverter skids would be initially installed with each including an inverter, step up transformer, protection equipment, direct current and alternating current circuit breakers, and a connection cabling system. In addition, medium voltage transformers would be located adjacent to the inverter/PCS skids.

Vaca Dixon 57 MWh BESS Component

The Vaca Dixon 57 MWH BESS component would consist of an initial installation of 21 BESS enclosures sending/receiving power from 21 PCS inverter skids for charging and discharging from the grid. In addition, approximately eight BESS enclosures and eight PCS inverter skids would be installed over the course of the Project life cycle to account for the degradation of the initially installed equipment.

Arges 400 MWh BESS Component

The Arges 400 MWH BESS component would consist of an initial installation of 100 BESS units within 50 BESS enclosures sending/receiving power from 25 PCS inverter skids for charging and discharging from the grid. In addition, approximately 14 BESS enclosures and seven PCS inverter skids would be installed over the course of the Project life cycle to account for the degradation of the initially installed equipment.

Water Supply

~~The water supply requirements for the Project would be met by tapping on-site City of Vacaville water facilities.~~ Construction water would be supplied by connecting to a fire hydrant adjacent to the southwest corner of the BESS Project Area or from off-site sources. Operational phase water for fire water supply ~~the fire water loop shown on~~ would be obtained by the proposed on-site groundwater well and stored in an on-site water tank, further described in Section 2.1.5.2 Operational Water and Wastewater Requirements ~~tapping an existing 12-inch diameter City water main that parallels the northern site boundary~~. ~~The final design of the fire water loop would be in compliance with the California Fire Code (CFC).~~

Interconnection

The Vaca Dixon 57 MWh BESS would interconnect via the existing 13.8 kV/115 kV GSU transformer at the VDPP, which is already connected to the PG&E Vaca-Dixon Substation by an existing 115 kV line. The Arges 400 MWh BESS would interconnect directly to the PG&E Vaca-Dixon Substation at 115 kV.

Ancillary Facilities

A Project 115 kV collector switchyard, the Arges 400 MWh BESS switchyard, would be installed adjacent to the west side of the Arges 400 MWh BESS component that includes an outdoor rated 34.5 kV collection bus, the main power transformer to step up from 34.5 kV to 115 kV, and a 115 kV circuit breaker with gen-tie takeoff structure. The Arges 400 MWh BESS switchyard would connect to the PG&E Vaca-Dixon Substation switchyard by a 115 kV gen-tie with several transmission structures (monopoles) as shown in Figure 2-11. The Arges 400 MWh BESS switchyard would also include a control enclosure to house the Project protection and control equipment, SCADA and communications equipment, and station control power battery.

The Project would also include a switchyard located immediately west of the Vaca Dixon 57 MWh BESS component. The switchgears within the Project switchyard would be outdoor rated and collect the Project BESS circuits at 13.8 kV. The Project switchgears would also manage and control the electrical energy flow within the BESS system and would be able to isolate different parts of the BESS for safety during operation and maintenance activities. Additionally, the switchgear would ensure the BESS can connect to, and disconnect from, the energy grid to allow the BESS to provide

or absorb power when required and provide energy at peak demand times. The switchgear would also transfer energy stored in the BESS to and from the grid with an overhead gen-tie to the existing VDPP.

Landscaping

Landscaping would be installed along the northwestern and southern portions of the BESS Project Area perimeter as shown in Figure 2-4. Landscaping is anticipated to consist of small coniferous trees, clumping shrubs, and ornamental perennial plants.

2.1.4 Operations Methods and Activities

Upon commissioning, the Project would enter the operational phase. The Project would be capable of operating 24 hours a day, 7 days a week, 365 days a year. Operational activities at the Project facilities would include:

- Site security;
- Responding to automated electronic alerts based on monitored data, including actual versus expected tolerances for system output and other key performance metrics; and
- Communicating with PG&E, transmission grid system operators, and other entities involved in facility operations.

Each BESS component would have an operational life of 35 years. The Vaca Dixon 57 MWh BESS component is assumed to be operational from 2028 to 2062, and the Arges 400 MWh BESS component would be operational from ~~2029~~ 2030 to 2063.

The Project BESS components and the VDPP may be operated simultaneously in accordance with the market-optimized dispatch instructions received from the California Independent System Operator's (CAISO) Automated Dispatching System, but the combined output would be control-limited to not exceed the limit of the Generator Interconnection Agreements (Appendix E).

2.1.4.1 Operations and Maintenance Facility

The Project does not include a separate operations and maintenance facility area, as the Project would be unmanned and operated remotely using a Supervisory Control and Data Acquisition (SCADA) system, described in Section 2.1.11.1. Two uninhabitable control enclosures would accommodate the Project facility control power battery, relaying, and communication equipment. The control enclosures would be small, conditioned, factory-assembled enclosures without water or sewer facilities. The control enclosures would be approximately 15 feet at the tallest point and 20 feet by 30 feet (up to approximately 600 square feet) in size with a concrete foundation. Spare parts and other materials for ongoing facility operations and maintenance activities would be stored in two on-site shipping containers: one within the Vaca Dixon 57 MWh BESS area and one within the Arges 400 MWh BESS switchyard area. The containers would be approximately 60 feet long by 11 feet wide and up to 10 feet tall with a concrete foundation.

2.1.4.2 Operations and Maintenance Workforce

During operation of the Project, up to two staff would visit the Project up to two times a week on average for operations and maintenance activities. Off-site Project operators may be on call to respond to specific alerts generated by the monitoring equipment at the Project facility. Security

personnel would be on call. The control enclosure would house Project security monitoring equipment, including security camera feeds for monitoring the Project 24 hours per day.

2.1.4.3 Site Maintenance

The Project maintenance program would be largely conducted during daytime hours. Maintenance typically would include the following: maintenance of transformers, inverters, energy storage system, and other electrical equipment; road and fence repairs; vegetation and pest management; and detention basin maintenance. On-site vegetation would be managed to maintain access to all areas of the site, and to reduce fire risk.

Two stormwater management areas with detention basins are proposed, one in the northern portion of the BESS Project Area to the north of the Arges 400 MWh BESS facilities and one centrally located in the BESS Project Area, north of the Vaca Dixon 57 MWh BESS facilities. The stormwater basin would be regularly monitored and maintained to remove accumulated sediment and debris, and to repair any areas that have been damaged. As needed, grass within the basins would be mowed during the growing season, and woody vegetation would be removed. Drainage inlets would have clogs removed and damaged pipe replaced to limit ponding and soil saturation. A stormwater basin maintenance plan would be prepared prior to construction to include protocols for inspections and monitoring for sediment and debris buildup, erosion, and damage.

Operations and maintenance vehicles would include trucks (pickup and flatbed), forklifts, and loaders for routine and unscheduled maintenance. Large heavy-haul transport equipment may be brought to the Project facility infrequently for equipment repair or replacement.

A transmission line maintenance plan would be followed to keep transmission facilities clear of all incompatible trees, brush, and other vegetation that could grow too close to conductors or otherwise interfere with the safe operation and maintenance of the facility. Incompatible vegetation is defined as vegetation that at maximum mature height could encroach within maintained clearance distances. Routine maintenance includes tree felling, pruning, mowing and herbicide application.

2.1.5 Water Supply and Use

2.1.5.1 Construction Water and Wastewater

Construction of the Project would require an estimated 4.8 to 5.6 acre-feet[2] of water, as shown in Table 2-1. Water demand during construction would primarily be related to dust suppression required for site preparation. The proposed Project fire water supply source is the on-site groundwater well and associated water storage tank located on the southeastern ~~existing 12-inch diameter water main owned by the City of Vacaville located along the northwestern~~ edge of the BESS Project Area. Construction water would be obtained from an existing City of Vacaville fire hydrant located adjacent to the southwest corner of the BESS Project Area on the north side of Kilkenny Road or from off-site sources. Up to approximately 5,000 gallons of water per day would be required for the first 2 to 3 months (during site grading and leveling activities) and 2,000 to 3,000 gallons per day would be required for the balance of construction activities involving ground disturbance (such as trenching and other dust generating activities) during each of the approximately 12-month construction periods for the Vaca Dixon 57 MWh and Arges 400 MWh BESS project components. The Project would utilize portable restroom facilities during construction.

[2] One acre-foot is equivalent to 325,851 gallons.

An on-site water supply would not be required for project construction, and no wastewater discharges are anticipated.

Table 2-1 Total Estimated Construction Water Demands

Water Use	Daily Demand (gallons)	Total Demand (acre-feet)
Vaca Dixon 57 MWh BESS		
Site Grading and Leveling	5,000	1.5
Dust Suppression During Ground-Disturbing Activities	2,000 to 3,000	0.9 to 1.3
Total	**N/A**	**2.4 (min) to 2.8 (max)**
Arges 400 MWh BESS		
Site Grading and Leveling	5,000	1.5
Dust Suppression During Ground-Disturbing Activities	2,000 to 3,000	0.9 to 1.3
Total	**N/A**	**2.4 (min) to 2.8 (max)**
Total Across Both Construction Periods	**N/A**	**4.8 (min) to 5.6 (max)**

2.1.5.2 Operational Water and Wastewater Requirements

Water demand during operation of the Project would be primarily related to fire water and landscaping, as applicable. During operation, the total annual water demand for the Project would be approximately 1.45 acre-feet per year (AFY); however, the majority of this demand would be associated with landscaping and would be naturally met through rainfall. During average rainfall years, landscaping would only need to be watered during summer months and periods of low rainfall. An estimated 0.2 to 0.3 AFY of non-rainfall water demand would be anticipated to be needed during years of normal rainfall. This demand would be met through water sourced from the on-site water well or through existing off-site sources. The Project would utilize portable restroom facilities for which an on-site water supply would not be required. Section 5.13, *Water Resources*, provides additional details regarding the Project's water requirements. ~~The Project would utilize portable restroom facilities for which an on-site water supply would not be required.~~

Fire Water Supply

The Project would include a dedicated on-site fire water supply system independent of municipal water infrastructure. The system would include:

- A non-potable groundwater well with an associated supply pump and controls (pump skid)
- A 120,000-gallon fire water storage tank
- A fire water pump house with associated pumps and controls
- A fire water distribution loop surrounding the BESS facilities

Water withdrawn from the on-site groundwater well would be used to initially fill the 120,000-gallon fire water storage tank and the fire water distribution loop and to replenish stored water following fire suppression activities, periodic testing, maintenance, or other operational uses of the fire water system. The fire water storage tank and fire water loop would be dedicated exclusively to fire protection purposes. Because the fire water supply would be maintained in storage and only utilized during emergency response events or infrequent system testing and maintenance activities, ongoing operational fire water demand would be minimal.

~~In addition, the Project design includes installation of a fire water loop around the BESS facilities. Annual water usage associated with this system would include flow testing for the fire water system. Section 5.13, Water Resources, provides additional details regarding the Project's water requirements. The Project would utilize portable restroom facilities for which an on-site water supply would not be required.~~

Water Quality

Section 5.13, *Water Resources*, includes a discussion of water quality based on available testing data. Water to support ~~P~~project construction ~~water~~ would be supplied through ~~is proposed to be~~ City of Vacaville water~~, and would be obtained~~ via hookups to the existing fire hydrant and 12-inch water main or through off-site sources. The construction water is expected to be of municipal water supply quality. Fire water would be supplied by the proposed on-site non-potable groundwater well. Final well design would be based on site-specific hydrogeologic conditions and aquifer-zone testing conducted during well drilling. The on-site well would be non-potable.

2.1.5.3 Water Treatment

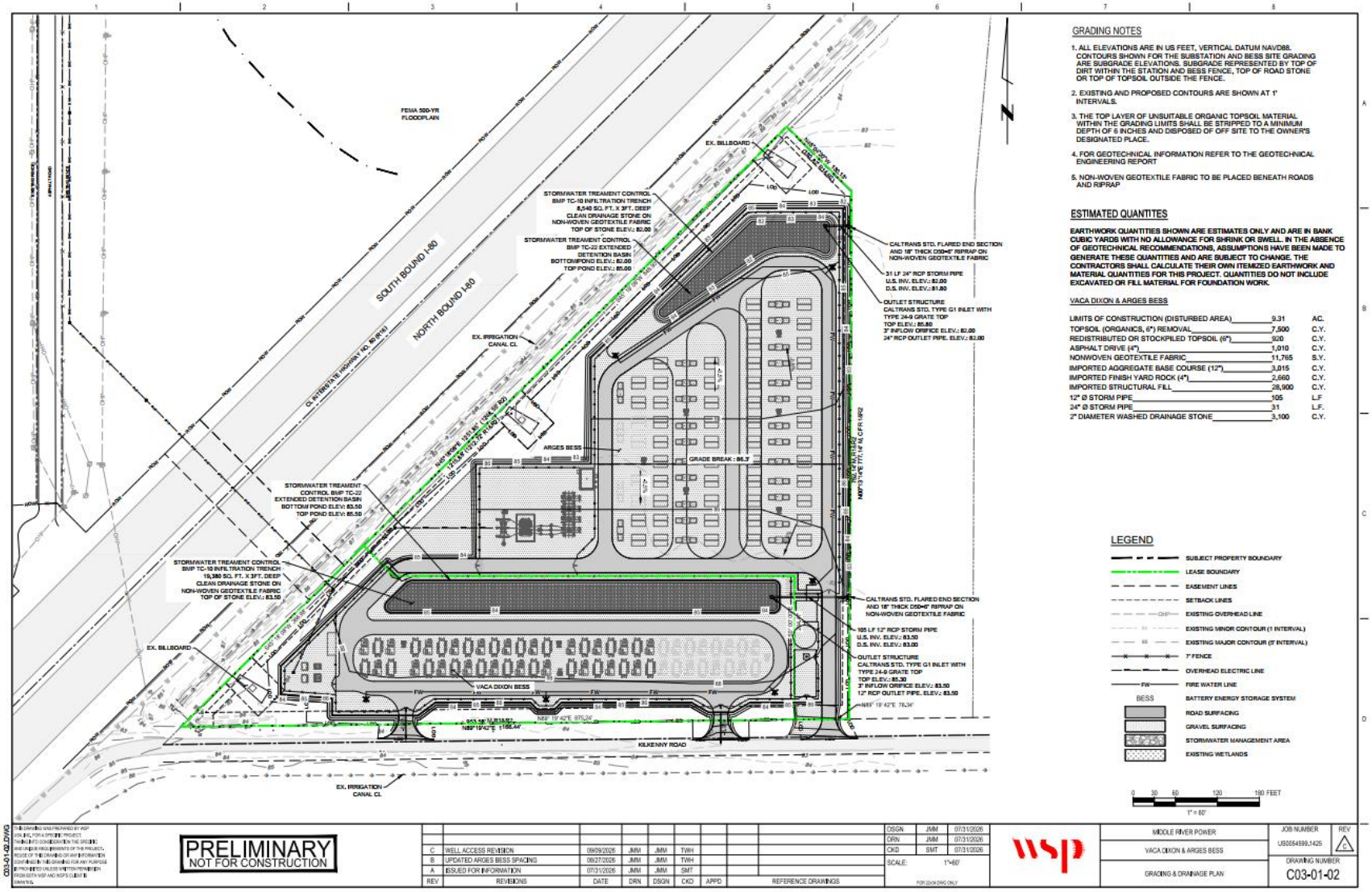
Section 5.13, *Water Resources*, includes a description of water facilities and infrastructure, including water quality treatment. No treatment of construction water or groundwater used for fire water supply is planned for the Project. ~~No water treatment is planned for the Project.~~

2.1.6 Grading, Stormwater, and Drainage

The grading and drainage plan for the Project is shown in Figure 2-7. Project construction would include the disturbance of approximately 10 acres at the BESS Project Area as well as minor disturbance at each of the gen-tie transmission structures to be installed. During construction of the Vaca Dixon 57 MWh BESS component, approximately 5.15 acres would be graded. The grading and drainage plan for the Vaca Dixon 57 MWh BESS component is shown in Figure 2-8. During construction of the Arges 400 MWh BESS component, approximately 5.3 acres would be graded to final grade, including regrading of a portion of the area disturbed for the Vaca Dixon 57 MWh BESS component. The grading and drainage plan for the Arges 400 MWh BESS component is shown in Figure 2-9.

Construction of the above-ground components of the Project (e.g. BESS facilities, access roads, fire water supply components, and related infrastructure) would introduce approximately 7.6 acres of impervious surfaces to the BESS Project Area. New impervious surfaces would be designed to drain to the stormwater management area for quality and quantity control. The stormwater detention basins would be designed with subsurface infiltration trenches to allow on-site percolation. Above the infiltration trench, the ponds would store additional runoff volume temporarily, releasing water slowly to mimic the pre-construction site runoff characteristics. A preliminary Hydrology and Stormwater Management Report for the Project was conducted by POWER Engineers (POWER) in June 2025 (Appendix D) and is described in more detail in Section 5.13, *Water Resources.*

Figure 2-7 Grading and Drainage Plan – BESS Project Area



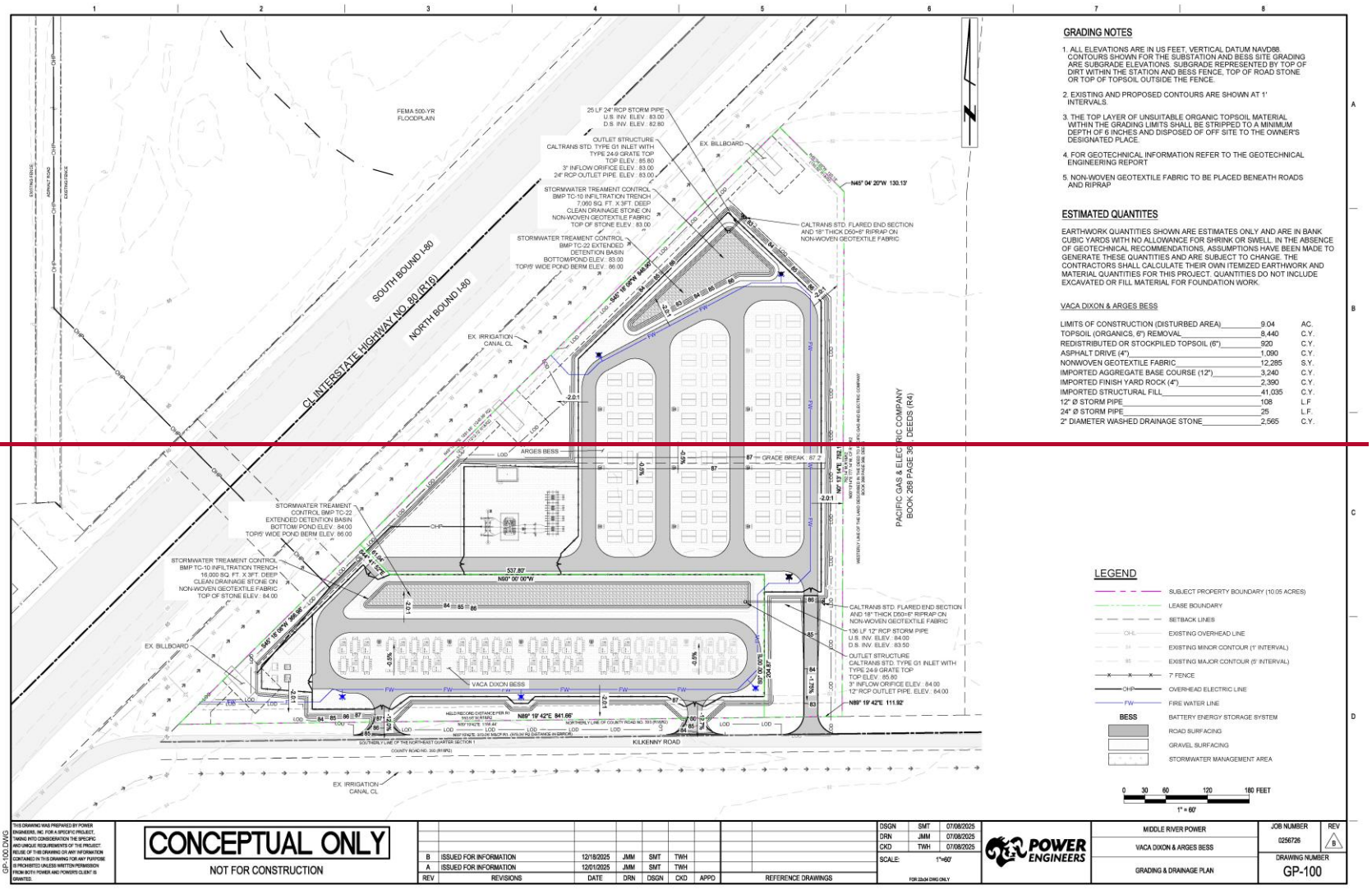
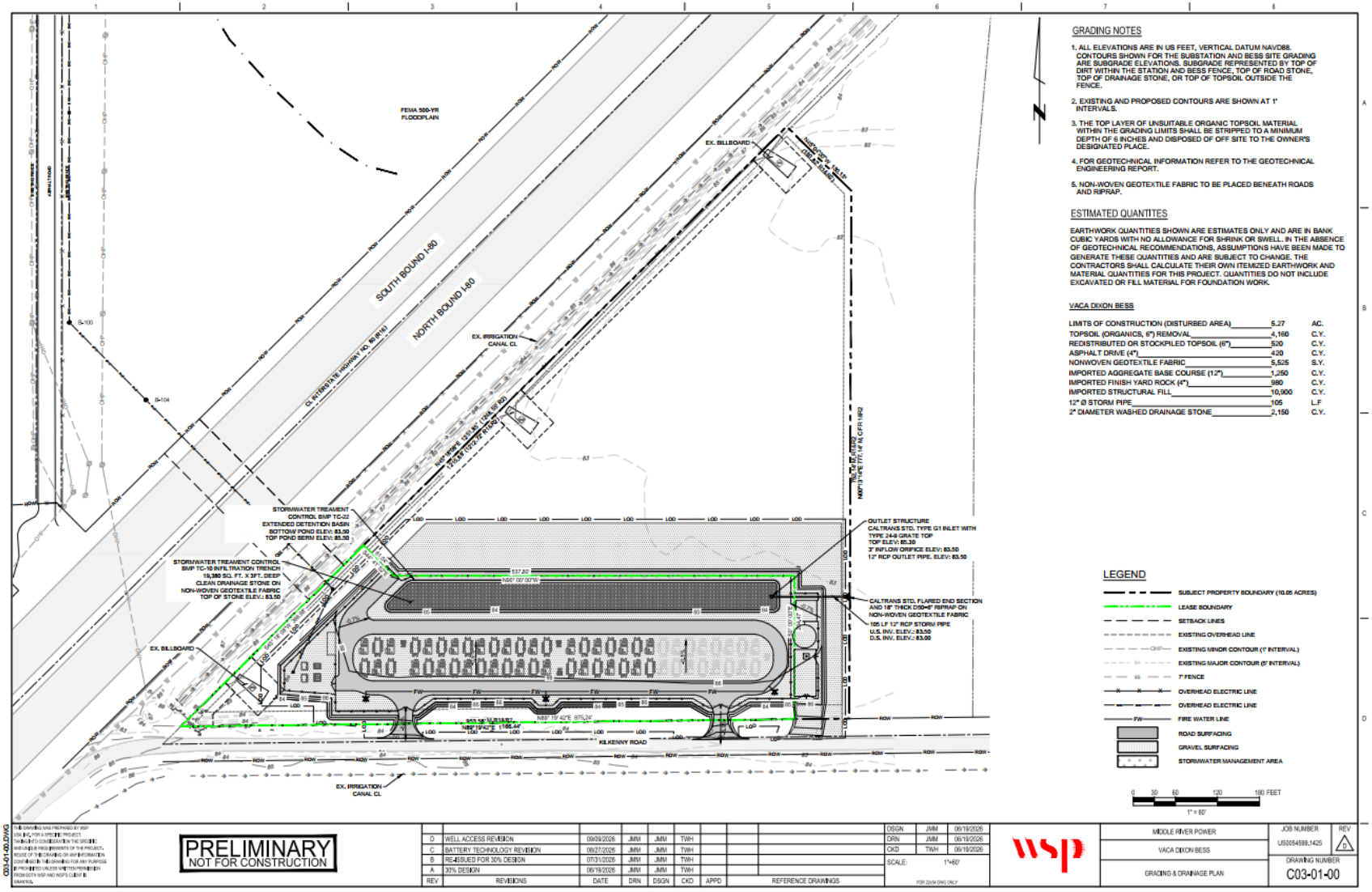

GRADING NOTES
1. ALL ELEVATIONS ARE IN US FEET, VERTICAL DATUM NAVD88. CONTOURS SHOWN FOR THE SUBSTATION AND BESS SITE GRADING ARE SUBGRADE ELEVATIONS. SUBGRADE REPRESENTED BY TOP OF DIRT WITHIN THE STATION AND BESS FENCE, TOP OF ROAD STONE OR TOP OF TOPSOIL OUTSIDE THE FENCE.
2. EXISTING AND PROPOSED CONTOURS ARE SHOWN AT 1' INTERVALS.
3. THE TOP LAYER OF UNSUITABLE ORGANIC TOPSOIL MATERIAL WITHIN THE GRADING LIMITS SHALL BE STRIPPED TO A MINIMUM DEPTH OF 6 INCHES AND DISPOSED OF OFF SITE TO THE OWNER'S DESIGNATED PLACE.
4. FOR GEOTECHNICAL INFORMATION REFER TO THE GEOTECHNICAL ENGINEERING REPORT
5. NON-WOVEN GEOTEXTILE FABRIC TO BE PLACED BENEATH ROADS AND RIPRAP
ESTIMATED QUANTITES
EARTHWORK QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE IN BANK CUBIC YARDS WITH NO ALLOWANCE FOR SHRINK OR SWELL. IN THE ABSENCE OF GEOTECHNICAL RECOMMENDATIONS, ASSUMPTIONS HAVE BEEN MADE TO GENERATE THESE QUANTITIES AND ARE SUBJECT TO CHANGE. THE CONTRACTORS SHALL CALCULATE THEIR OWN ITEMIZED EARTHWORK AND MATERIAL QUANTITIES FOR THIS PROJECT. QUANTITIES DO NOT INCLUDE EXCAVATED OR FILL MATERIAL FOR FOUNDATION WORK.
VACA DIXON & ARGES BESS
LIMITS OF CONSTRUCTION (DISTURBED AREA) 9.04 AC.
TOPSOIL (ORGANICS, 6") REMOVAL 8,440 C.Y.
REDISTRIBUTED OR STOCKPILED TOPSOIL (6") 920 C.Y.
ASPHALT DRIVE (4") 1,090 C.Y.
NONWOVEN GEOTEXTILE FABRIC 12,285 S.Y.
IMPORTED AGGREGATE BASE COURSE (12") 3,240 C.Y.
IMPORTED FINISH YARD ROCK (4") 2,390 C.Y.
IMPORTED STRUCTURAL FILL 41,035 C.Y.
12" Ø STORM PIPE 108 L.F.
24" Ø STORM PIPE 25 L.F.
2" DIAMETER WASHED DRAINAGE STONE 2,565 C.Y.
LEGEND
SUBJECT PROPERTY BOUNDARY (10.05 ACRES)
LEASE BOUNDARY
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1' INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
0 30 60 120 180 FEET
1" = 60'
CL INTERSTATE HIGHWAY NO. 80 (E/16)
SOUTH BOUND I-80
NORTH BOUND I-80
FEMA 500-YR FLOODPLAIN
25 LF 24" RCP STORM PIPE
U.S. INV. ELEV.: 83.00
D.S. INV. ELEV.: 82.80
OUTLET STRUCTURE
CALTRANS STD. TYPE G1 INLET WITH TYPE 24-9 GRATE TOP
TOP ELEV.: 85.60
3" INFLOW ORIFICE ELEV.: 83.00
24" RCP OUTLET PIPE. ELEV.: 83.00
STORMWATER TREAMENT CONTROL
BMP TC-10 INFILTRATION TRENCH
7,000 SQ. FT. X 3FT. DEEP
CLEAN DRAINAGE STONE ON NON-WOVEN GEOTEXTILE FABRIC
TOP OF STONE ELEV.: 83.00
STORMWATER TREAMENT CONTROL
BMP TC-22 EXTENDED DETENTION BASIN
BOTTOM POND ELEV.: 83.00
TOP/9' WIDE POND BERM ELEV.: 86.00
EX. BILLBOARD
EX. IRRIGATION CANAL CL
CALTRANS STD. FLARED END SECTION AND 18" THICK D50=6" RIPRAP ON NON-WOVEN GEOTEXTILE FABRIC
N45° 04' 20"W 130.13'
S45° 18' 05"W 346.97'
ARGES BESS
GRADE BREAK
PACIFIC GAS & ELECTRIC COMPANY
BOOK: 268 PAGE: 36 DEEDS (R4)
STORMWATER TREAMENT CONTROL
BMP TC-22 EXTENDED DETENTION BASIN
BOTTOM POND ELEV.: 84.00
TOP/9' WIDE POND BERM ELEV.: 86.00
STORMWATER TREAMENT CONTROL
BMP TC-10 INFILTRATION TRENCH
16,000 SQ. FT. X 3FT. DEEP
CLEAN DRAINAGE STONE ON NON-WOVEN GEOTEXTILE FABRIC
TOP OF STONE ELEV.: 84.00
S37.80'
N80° 00' 00"W
136 LF 12" RCP STORM PIPE
U.S. INV. ELEV.: 84.00
D.S. INV. ELEV.: 83.50
OUTLET STRUCTURE
CALTRANS STD. TYPE G1 INLET WITH TYPE 24-9 GRATE TOP
TOP ELEV.: 85.80
3" INFLOW ORIFICE ELEV.: 84.00
12" RCP OUTLET PIPE. ELEV.: 84.00
N89° 19' 42"E 111.92'
VACA DIXON BESS
N89° 19' 42"E 841.66'
KILKENNY ROAD
COUNTY ROAD NO. 30 (R1/R2)
EX. IRRIGATION CANAL CL
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
B ISSUED FOR INFORMATION 12/18/2025 JMM SMT TWH
A ISSUED FOR INFORMATION 12/01/2025 JMM SMT TWH
REV REVISIONS DATE DRN DSGN CKD APPD
REFERENCE DRAWINGS
DSGN SMT 07/08/2025
DRN JMM 07/08/2025
CKD TWH 07/08/2025
SCALE: 1"=60'
POWER ENGINEERS
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
GRADING & DRAINAGE PLAN
JOB NUMBER 0256726
REV B
DRAWING NUMBER GP-100
GP-100.DWG

Figure 2-8 Grading and Drainage Plan – Vaca Dixon 57 MWh BESS Component



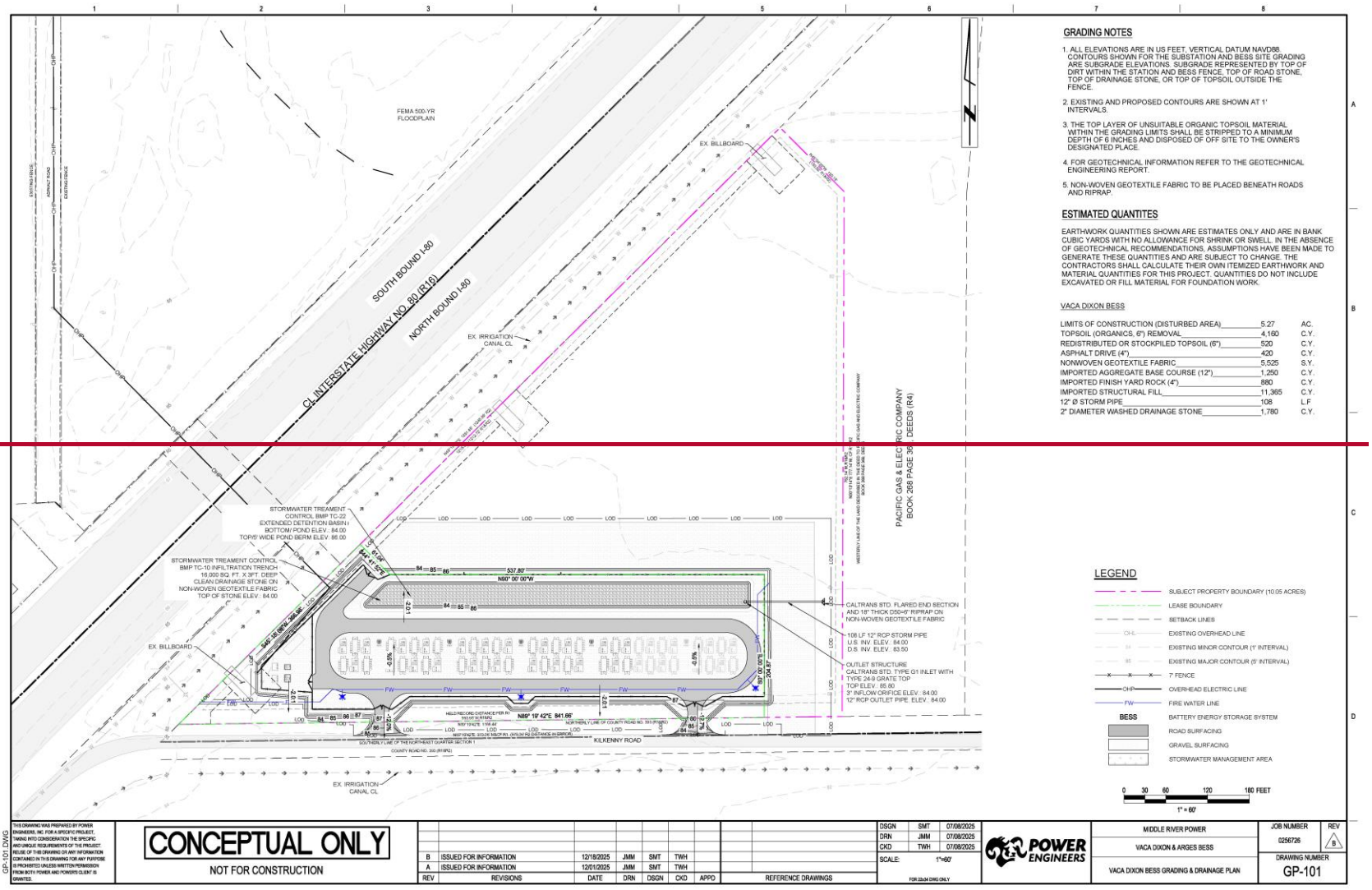
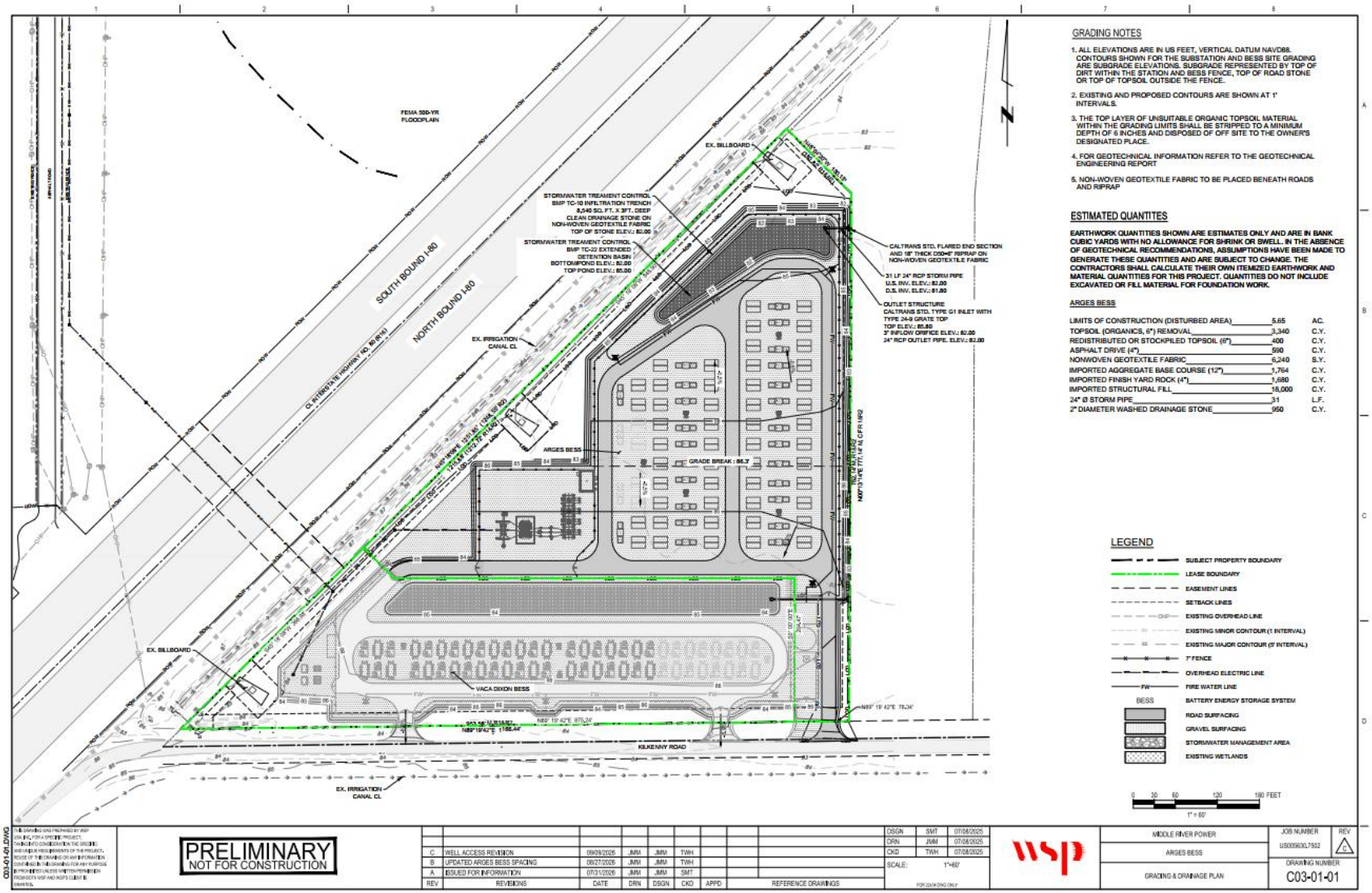
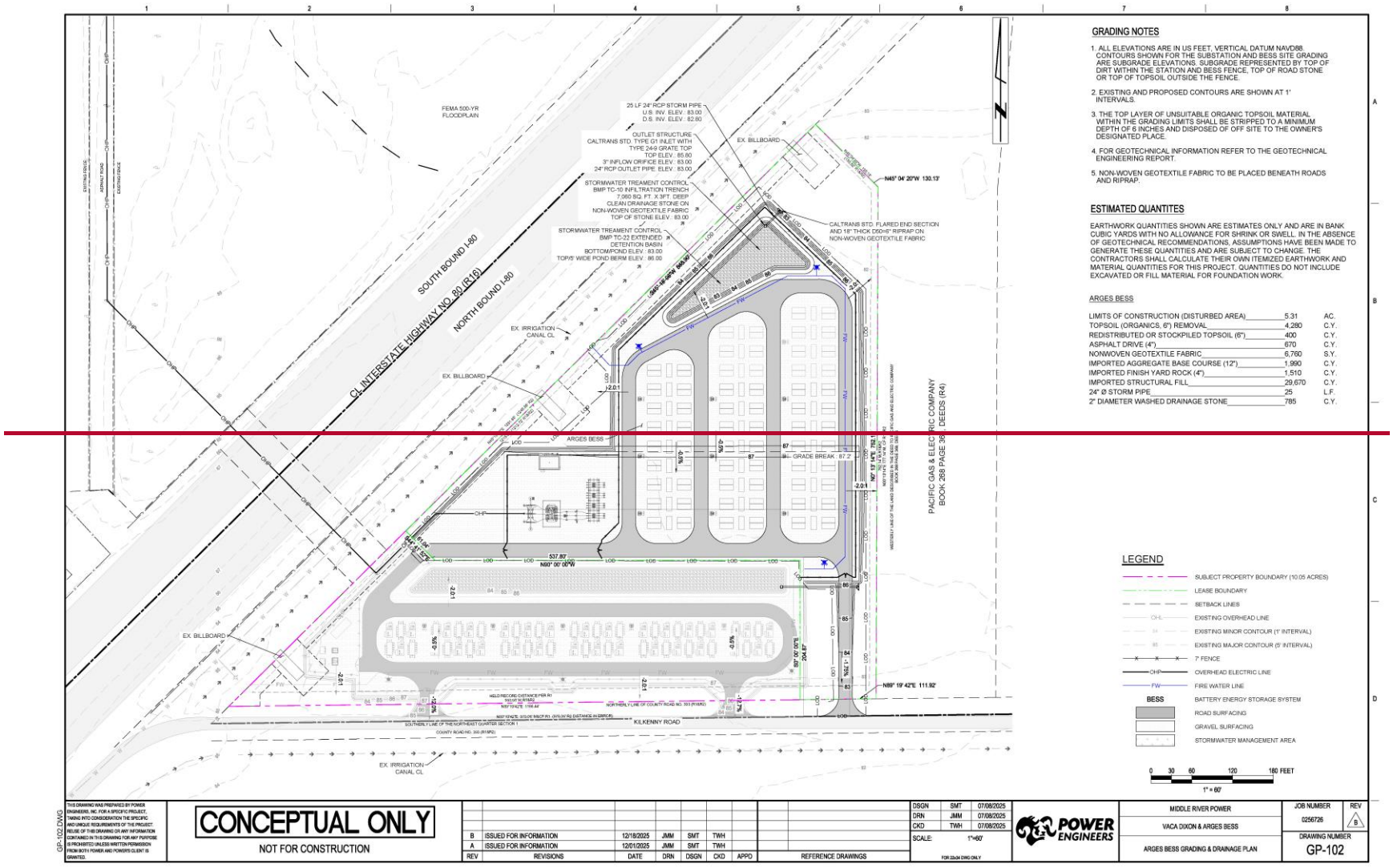

GRADING NOTES
1. ALL ELEVATIONS ARE IN US FEET, VERTICAL DATUM NAVD88. CONTOURS SHOWN FOR THE SUBSTATION AND BESS SITE GRADING ARE SUBGRADE ELEVATIONS. SUBGRADE REPRESENTED BY TOP OF DIRT WITHIN THE STATION AND BESS FENCE, TOP OF ROAD STONE, TOP OF DRAINAGE STONE, OR TOP OF TOPSOIL OUTSIDE THE FENCE.
2. EXISTING AND PROPOSED CONTOURS ARE SHOWN AT 1' INTERVALS.
3. THE TOP LAYER OF UNSUITABLE ORGANIC TOPSOIL MATERIAL WITHIN THE GRADING LIMITS SHALL BE STRIPPED TO A MINIMUM DEPTH OF 6 INCHES AND DISPOSED OF OFF SITE TO THE OWNER'S DESIGNATED PLACE.
4. FOR GEOTECHNICAL INFORMATION REFER TO THE GEOTECHNICAL ENGINEERING REPORT.
5. NON-WOVEN GEOTEXTILE FABRIC TO BE PLACED BENEATH ROADS AND RIPRAP.
ESTIMATED QUANTITES
EARTHWORK QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE IN BANK CUBIC YARDS WITH NO ALLOWANCE FOR SHRINK OR SWELL. IN THE ABSENCE OF GEOTECHNICAL RECOMMENDATIONS, ASSUMPTIONS HAVE BEEN MADE TO GENERATE THESE QUANTITIES AND ARE SUBJECT TO CHANGE. THE CONTRACTORS SHALL CALCULATE THEIR OWN ITEMIZED EARTHWORK AND MATERIAL QUANTITIES FOR THIS PROJECT. QUANTITIES DO NOT INCLUDE EXCAVATED OR FILL MATERIAL FOR FOUNDATION WORK.
VACA DIXON BESS
LIMITS OF CONSTRUCTION (DISTURBED AREA) 5.27 AC.
TOPSOIL (ORGANICS, 6") REMOVAL 4,160 C.Y.
REDISTRIBUTED OR STOCKPILED TOPSOIL (6") 520 C.Y.
ASPHALT DRIVE (4") 420 C.Y.
NONWOVEN GEOTEXTILE FABRIC 5,525 S.Y.
IMPORTED AGGREGATE BASE COURSE (12") 1,250 C.Y.
IMPORTED FINISH YARD ROCK (4") 880 C.Y.
IMPORTED STRUCTURAL FILL 11,365 C.Y.
12" Ø STORM PIPE 108 L.F.
2" DIAMETER WASHED DRAINAGE STONE 1,780 C.Y.
FEMA 500-YR FLOODPLAIN
EX. BILLBOARD
SOUTH BOUND I-80
CL INTERSTATE HIGHWAY NO. 80 (E16)
NORTH BOUND I-80
EX. IRRIGATION CANAL CL
PACIFIC GAS & ELECTRIC COMPANY BOOK: 268 PAGE: 36 DEEDS (R4)
STORMWATER TREAMENT CONTROL BMP TC-20 EXTENDED DETENTION BASIN I BOTTOM POND ELEV.: 84.00 TOP/5' WIDE POND BERM ELEV: 86.00
STORMWATER TREAMENT CONTROL BMP TC-10 INFILTRATION TRENCH 16,000 SQ. FT. X 3FT. DEEP CLEAN DRAINAGE STONE ON NON-WOVEN GEOTEXTILE FABRIC TOP OF STONE ELEV.: 84.00
N80° 00' 00"W
537.80'
N89° 19' 42"E 841.66'
CALTRANS STD. FLARED END SECTION AND 18" THICK D50=6" RIPRAP ON NON-WOVEN GEOTEXTILE FABRIC
108 LF 12" RCP STORM PIPE U.S. INV. ELEV.: 84.00 D.S. INV. ELEV.: 83.50
OUTLET STRUCTURE CALTRANS STD. TYPE G1 INLET WITH TYPE 24-9 GRATE TOP TOP ELEV.: 85.60 3" INFLOW ORIFICE ELEV.: 84.00 12" RCP OUTLET PIPE ELEV.: 84.00
KILKENNY ROAD
COUNTY ROAD NO. 30 (R1/R2)
EX. IRRIGATION CANAL CL
LEGEND
SUBJECT PROPERTY BOUNDARY (10.05 ACRES)
LEASE BOUNDARY
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1' INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS
BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
0 30 60 120 180 FEET
1" = 60'
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
B ISSUED FOR INFORMATION 12/18/2025 JMM SMT TWH
A ISSUED FOR INFORMATION 12/01/2025 JMM SMT TWH
REV REVISIONS DATE DRN DSGN CKD APPD
REFERENCE DRAWINGS
DSGN SMT 07/08/2025
DRN JMM 07/08/2025
CKD TWH 07/08/2025
SCALE: 1"=60'
POWER ENGINEERS
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
VACA DIXON BESS GRADING & DRAINAGE PLAN
JOB NUMBER 0256726
REV B
DRAWING NUMBER GP-101
GP-101.DWG

Figure 2-9 Grading and Drainage Plan – Arges 400 MWh BESS Component




GRADING NOTES
1. ALL ELEVATIONS ARE IN US FEET, VERTICAL DATUM NAVD88. CONTOURS SHOWN FOR THE SUBSTATION AND BESS SITE GRADING ARE SUBGRADE ELEVATIONS. SUBGRADE REPRESENTED BY TOP OF DIRT WITHIN THE STATION AND BESS FENCE, TOP OF ROAD STONE OR TOP OF TOPSOIL OUTSIDE THE FENCE.
2. EXISTING AND PROPOSED CONTOURS ARE SHOWN AT 1' INTERVALS.
3. THE TOP LAYER OF UNSUITABLE ORGANIC TOPSOIL MATERIAL WITHIN THE GRADING LIMITS SHALL BE STRIPPED TO A MINIMUM DEPTH OF 6 INCHES AND DISPOSED OF OFF SITE TO THE OWNER'S DESIGNATED PLACE.
4. FOR GEOTECHNICAL INFORMATION REFER TO THE GEOTECHNICAL ENGINEERING REPORT.
5. NON-WOVEN GEOTEXTILE FABRIC TO BE PLACED BENEATH ROADS AND RIPRAP.
ESTIMATED QUANTITES
EARTHWORK QUANTITIES SHOWN ARE ESTIMATES ONLY AND ARE IN BANK CUBIC YARDS WITH NO ALLOWANCE FOR SHRINK OR SWELL. IN THE ABSENCE OF GEOTECHNICAL RECOMMENDATIONS, ASSUMPTIONS HAVE BEEN MADE TO GENERATE THESE QUANTITIES AND ARE SUBJECT TO CHANGE. THE CONTRACTORS SHALL CALCULATE THEIR OWN ITEMIZED EARTHWORK AND MATERIAL QUANTITIES FOR THIS PROJECT. QUANTITIES DO NOT INCLUDE EXCAVATED OR FILL MATERIAL FOR FOUNDATION WORK.
ARGES BESS
LIMITS OF CONSTRUCTION (DISTURBED AREA) 5.31 AC.
TOPSOIL (ORGANICS, 6") REMOVAL 4,280 C.Y.
REDISTRIBUTED OR STOCKPILED TOPSOIL (6") 400 C.Y.
ASPHALT DRIVE (4") 670 C.Y.
NONWOVEN GEOTEXTILE FABRIC 6,760 S.Y.
IMPORTED AGGREGATE BASE COURSE (12") 1,990 C.Y.
IMPORTED FINISH YARD ROCK (4") 1,510 C.Y.
IMPORTED STRUCTURAL FILL 29,670 C.Y.
24" Ø STORM PIPE 25 L.F.
2" DIAMETER WASHED DRAINAGE STONE 785 C.Y.
LEGEND
SUBJECT PROPERTY BOUNDARY (10.05 ACRES)
LEASE BOUNDARY
SETBACK LINES
EXISTING OVERHEAD LINE
EXISTING MINOR CONTOUR (1' INTERVAL)
EXISTING MAJOR CONTOUR (5' INTERVAL)
7' FENCE
OVERHEAD ELECTRIC LINE
FIRE WATER LINE
BESS BATTERY ENERGY STORAGE SYSTEM
ROAD SURFACING
GRAVEL SURFACING
STORMWATER MANAGEMENT AREA
0 30 60 120 180 FEET
1" = 60'
SOUTH BOUND I-80
NORTH BOUND I-80
CL INTERSTATE HIGHWAY NO. 80 (R16)
FEMA 500-YR FLOODPLAIN
EX. BILLBOARD
EX. IRRIGATION CANAL CL
ARGES BESS
GRADE BREAK : 87.2'
PACIFIC GAS & ELECTRIC COMPANY BOOK 268 PAGE 36 , DEEDS (R4)
KILKENNY ROAD
N45° 04' 20"W 130.13'
N89° 19' 42"E 111.92'
CONCEPTUAL ONLY
NOT FOR CONSTRUCTION
B ISSUED FOR INFORMATION 12/18/2025 JMM SMT TWH
A ISSUED FOR INFORMATION 12/01/2025 JMM SMT TWH
REV REVISIONS DATE DRN DSGN CKD APPD
REFERENCE DRAWINGS
DSGN SMT 07/08/2025
DRN JMM 07/08/2025
CKD TWH 07/08/2025
SCALE: 1"=60'
POWER ENGINEERS
MIDDLE RIVER POWER
VACA DIXON & ARGES BESS
ARGES BESS GRADING & DRAINAGE PLAN
JOB NUMBER 0256726
REV B
DRAWING NUMBER GP-102
GP-102.DWG

2.1.7 Waste Management

Waste produced at Project facilities would be properly collected, treated if necessary, and disposed of. Waste would include nonhazardous waste and hazardous waste, both liquid and solid. Waste management is discussed below and in more detail in Section 5.11, *Waste Management*.

2.1.7.1 Wastewater Collection, Treatment, and Disposal

During Project construction and operation, sanitary facilities would consist of portable sinks and toilets that would be regularly maintained by a permitted provider. No wastewater generated through Project construction or operations would be disposed of through discharge to a sanitary sewer or directly to open waterbodies.

2.1.7.2 Solid Nonhazardous Waste

Solid nonhazardous waste would be produced during Project construction and operation. Nonhazardous construction waste would generally include soil, scrap wood, excess concrete, empty enclosures, scrap metal, insulation, and sanitary waste. Nonhazardous waste generated during Project operation would generally include scrap metal, spent battery and transformer components, sanitary waste, and typical refuse generated by workers.

Construction materials would be sorted on-site throughout construction and transported to appropriate waste management facilities. Recyclable materials would be separated from non-recyclable items and stored until they can be transported to a designated recycling facility. Recycling would be conducted in accordance with applicable California state requirements. Wooden construction waste (such as wood from wood pallets) would be sold, recycled, or chipped and composted. Other compostable materials, such as non-invasive vegetation, may also be composted off-site.

Non-hazardous construction materials that cannot be reused or recycled would be disposed of at a Class II/III landfill when feasible. All contractors and workers would be educated about waste sorting, appropriate recycling storage areas, and how to reduce landfill waste.

Waste management is discussed further in Section 5.11, *Waste Management.*

2.1.7.3 Hazardous Wastes

Hazardous waste would be produced during Project construction and operations. Hazardous construction waste would generally include small amounts of waste oil, solvents, detergents, fuels, oily rags/sorbents, and empty hazardous material containers. Hazardous waste generated during operations would generally include small amounts of used oil, solvents, fuels, oily rags/sorbents, and spent batteries.

Several methods would be used to properly manage and dispose of hazardous wastes. Hazardous waste would not be placed in a landfill, but rather would accumulate on-site to be transported to a treatment, storage, and/or disposal facility by a licensed hazardous waste transporter. Waste lubricating oil would be recovered and recycled by a waste oil recycling contractor. Spent lubrication oil filters would either be recycled or disposed of in a Class I landfill. Workers would be trained to handle hazardous wastes generated at the Project Site.

Hazardous materials management is further discussed in Section 5.9, *Hazardous Materials Handling*, and Section 5.11, *Waste Management.*

2.1.8 Management of Hazardous Materials

A variety of chemicals would be used during the construction and operation of the Project. The handling and use of all chemicals would be conducted in accordance with applicable laws, ordinances, regulations, and standards. However, no chemicals or hazardous materials would be stored on-site.

Personnel would use approved personal protective equipment during chemical spill containment and cleanup activities, would be properly trained in the handling of these chemicals, and would be instructed in the procedures to follow in case of a chemical spill or accidental release. Adequate supplies of emergency response equipment, such as absorbent material, would be stored on-site for spill cleanup. Worker safety and training is further discussed in Section 5.10, *Worker Safety*.

A list of the chemicals anticipated to be used at the Project facility is provided in Section 5.9, *Hazardous Materials Handling.*

2.1.9 Fire Protection

Fire protection would be provided to limit the risk of Project and emergency response personnel injury, property loss, and possible disruption of the electricity generated by the Project. A Fire Protection and Prevention Plan would be implemented during both Project construction and operations and is discussed in Section 5.10, *Worker Safety*. Additionally, a discussion on Project fire risks and prevention is included in Section 5.17, *Wildfire*. Individual Project component fire protection is discussed below.

Battery Energy Storage System Facilities

The Project would be designed in compliance with National Fire Protection Association (NFPA) Section 855. A hazard mitigation analysis developed by the BESS manufacturer would be provided to the local authorities and would comply with California Codes 1207.1.4.1 and 1207.1.4.2.

Each BESS enclosure would house approximately 80 battery modules. The battery banks would have ventilation systems to keep battery cores at optimal operating temperature, and the BESS enclosures would have a robust network of water cooling and associated chilling systems to maintain the modules in a safe operating temperature regime. Fire suppression systems in the BESS enclosures would include a gaseous fire suppressant agent (e.g., FirePro 200, 3M™ Novec™ 1230 Fire Protection Fluid, or similar) designed to flood the entire container in the event of a fire. The enclosure would be equipped with combustible gas detection, early smoke detection, alarms, emergency ventilation, and remote monitoring. A fire water loop would also be installed around the BESS facilities and would terminate at the fire hydrant, as shown in Figure 2-4.

Fire safety and suppression measures would be installed and available at the control enclosures, in accordance with current California Fore Code (CFC). Enclosures would be equipped with a fire and gas detection and alarm system.

Fire Water Supply

As described in Section 2.1.5 Water Supply and Use, the Project would include a dedicated on-site fire water supply consisting of a non-potable groundwater well and associated pump skid, a 120,000-gallon fire water storage tank, associated pump house, and a fire water distribution loop surrounding the BESS facilities. The system would support emergency response and fire suppression and would be secured within the Project's security fencing.

The 120,000-gallon fire water storage tank would be located east of the Vaca Dixon BESS site access road and accessible from Kilkenny Road, as shown in Figure 2-4. The approximately 33-foot-diameter, 20-foot-high galvanized-steel tank would be constructed on a poured concrete foundation and equipped with connections compatible with City of Vacaville Fire Department (VFD) fire engine pumping apparatus. Although direct application of water to BESS equipment is not recommended, VFD could use the stored water for wildfires or fires on nearby properties at its discretion.

The proposed on-site non-potable groundwater well and associated pump skid would be installed south of the fire water storage tank. During operation, the well would supply and replenish the fire water storage tank, which would remain filled and available for emergency use.

The approximately 200-square-foot fire water pump house would contain the pumps, controls, electrical equipment, piping, valves, and monitoring equipment required to maintain system pressure and convey water to fire hydrants, fire sprinklers, and other site fire suppression systems, as applicable. The electrically powered system would include a 100-horsepower fire water pump and a 10-horsepower pressure-maintenance pump and would provide approximately 1,000 gallons per minute at 125 pounds per square inch. The pump house would be constructed on a reinforced concrete foundation or equipment pad in accordance with applicable fire protection standards and local building requirements. It would be normally unmanned, require periodic inspection, testing, and preventative maintenance, and would not include routine water treatment or chemical storage.

2.1.10 Emergency Power

BESS enclosure designs would protect against deflagration[3] through approved NFPA Part 68 or NFPA Part 69 certified designs, as required. NFPA Part 68 designs would allow for venting via the release of the doors under pressure, preventing an explosive release. NFPA Part 69 designs would include a backup Uninterruptible Power Supply that would allow the gas detection and ventilation system to operate for up to 24 hours to minimize equipment down times from maintenance activities, unexpected events, or emergencies.

2.1.11 Auxiliary Systems

2.1.11.1 SCADA and Telecommunications Facilities

The facility would be designed with a comprehensive SCADA system to allow remote monitoring of facility operation and/or remote control of critical components. The fiber optic or other cabling required for the monitoring system would be installed in buried conduit within the access road or planned trenching leading to a SCADA system cabinet at the on-site switchyard for the Project facility, or a SCADA system cabinet within the control enclosure. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard-wired connections to locally available commercial service providers.

The Project's SCADA system would interconnect to an external fiber optic network or fixed wireless service at the on-site collector switchyard and would require installation of buried fiber optic cables or fixed wireless antennas. External telecommunications connections to the SCADA system cabinets could be provided through wireless or hard-wired connections to locally available commercial

[3] Deflagration is defined by NFPA as propagation of a combustion zone at a velocity less than the speed of sound in the unreacted medium.

service providers, so no additional disturbance associated with telecommunications is anticipated. As such, the Project would not require any substantial construction efforts regarding telecommunications facilities and structures. No relocation of existing telecommunication structures would occur.

2.1.12 Fuel Types, Handling, and Use Scenarios

A description of hazardous materials to be used during Project construction and operations and maintenance, handling, and use scenarios are included in Section 5.9, *Hazardous Materials Handling.*

2.1.13 Safety

The Project would be designed to maximize safe operation. Potential hazards could occur during both Project construction and operation. Facility operators would be trained in safe operation, maintenance, and emergency response procedures to minimize the risk of personal injury and damage to the facilities. The Project BESS components would comply with the current CFC, which governs the code requirements to minimize the risk of fire and life safety hazards specific to BESS used for load shedding, load sharing and other grid services (Chapter 12 Section 1206 of the 2019 CFC). In accordance with the CFC, the battery enclosure and site installation design are all required to be approved by the local or State Fire Marshal.

Section 5.10, *Worker Safety*, provides a hazards analysis and describes Project training and safety programs.

2.1.14 BESS Site and Facilities Selection

The Project Site was selected primarily due to its proximity to existing electrical interconnection infrastructure (e.g., the VDPP). The Project Site is located in an area of growing electrical demand and is adjacent to appropriate electrical infrastructure to operate and service demand efficiently. The Project Site is located in the direct vicinity of the existing VDPP and the CAISO-controlled grid at the PG&E-owned 115 kV Vaca-Dixon Substation. The proposed BESS facilities would be strategically located in the direct vicinity of their respective interconnection facilities, thereby minimizing the need for construction of lengthy electrical connection lines. In addition, the Vaca Dixon 57 MWh BESS component would interconnect to the PG&E Vaca-Dixon Substation through the existing VDPP switchyard, which would allow for hybridized operation of the Vaca Dixon 57 MWh BESS and the VDPP. The proposed Project would utilize the existing access road that connects the VDPP to Quinn Road to the south for gen-tie access, and the BESS Project Area and gen-tie routes would be strategically located near I-80 for convenient access during construction and operations. The area surrounding the Project also includes existing generation and transmission facilities that would be similar in form, function, and visual character to the proposed Project facilities.

2.2 Transmission Lines Description, Design, and Operation

The Project gen-tie lines would cross I-80 to connect the BESS facilities to the existing PG&E Vaca-Dixon Substation located on a PG&E-owned parcel (APN 0133-060-070). Both BESS components would interconnect to the existing PG&E Vaca-Dixon Substation at 115 kV. The Vaca Dixon 57 MWh BESS is proposed to connect to the existing 13.8/115 kV GSU transformer at the existing CalPeak

Power – VDPP on the PG&E parcel via a new overhead 13.8 kV line from the proposed BESS switchyard to the low side of the VDPP GSU transformer to the north. The existing GSU transformer in the VDPP switchyard is connected to the PG&E substation by an existing 115 kV line. The Arges 400 MWh BESS would interconnect to the PG&E substation via a new overhead 115 kV gen-tie to be constructed from the Arges 400 MWh BESS switchyard at the BESS Project Area south of I-80 to the PG&E substation to the north.

The proposed gen-tie components for the Vaca Dixon 57 MWh and Arges 400 MWh BESS facilities would be co-located on shared transmission structures carrying both 13.8 kV and 115 kV conductors for approximately 1,500 feet of the gen-tie lengths, from the vicinity of the BESS switchyards across I-80 and up to the northwest corner of the VDPP facility site. As shown in Figure 2-2, from that point, the 13.8 kV gen-tie component for the Vaca Dixon 57 MWh BESS would continue approximately 150 feet to the east for connection to the low side of the 13.8/115 kV GSU transformer at the VDPP. The Arges 400 MWh BESS 115 kV gen-tie route would continue approximately 725 feet north and east to the connection point at the PG&E Vaca-Dixon Substation. The gen-tie crossing of I-80 would require an encroachment permit Caltrans.

Figure 2-10 provides a map of the proposed gen-tie route, Vacaville city limits, and existing transmission lines within one mile of the Project. There are no parks, recreational areas, or scenic areas within one mile of the gen-tie route. Section 5.5, *Visual Resources*, provides photographic simulations of the Project. The design details upon which the photographic simulations are based are located in Appendix C.

The interconnecting Arges 400 MWh BESS 115 kV transmission circuit would consist of single-circuit, overhead configuration installed on steel monopoles. The Arges 400 MWh BESS gen-tie line would be constructed with approximately 12 steel monopoles, six of which would also carry 13.8 kV circuits for the Vaca Dixon 57 MWh BESS. The interconnecting Vaca Dixon 57 MWh BESS 13.8 kV gen-tie circuit would also consist of single-circuit, overhead configuration, steel monopoles. The Vaca Dixon 57 MWh BESS gen-tie line would be constructed with approximately eight steel monopoles, six of which would also carry the Arges 400 MWh BESS 115 kV circuits. The total number of gen-tie structures would be determined by final design. Detailed descriptions of the gen-tie structures are included below. All Project transmission facilities would be designed consistent with the *Suggested Practices for Avian Protection on Power Lines: The State of the Art in 2006* (Avian Power Line Interaction Committee [APLIC] 2006) where feasible. Transmission facilities would also be evaluated for potential collision reduction devices in accordance with *Reducing Avian Collisions with Power Lines: The State of Art in 2012* (APLIC 2012).

Vaca Dixon 57 MWh BESS

The Vaca Dixon 57 MWh BESS component, located in the southern portion of the BESS Project Area, would connect to the low side of the existing 13.8/115 kV GSU transformer at VDPP via a new 13.8 kV overhead line, approximately 1,815 feet in length, from the proposed BESS switchyard to the existing VDPP GSU transformer to the north (see Figure 2-2 and Figure 2-5). The VDPP GSU transformer is connected to the PG&E Vaca-Dixon Substation by an existing overhead 115 kV line. The Vaca Dixon 57 MWh BESS would be charged and discharged from the grid at 13.8 kV. The BESS facilities would be connected together utilizing underground cables in a duct bank. All Project underground 13.8 kV feeder cables would be collected in the Project distribution switchyard with a 13.8 kV switchgear. The Project 13.8 kV gen-tie line would share gen-tie steel monopole structures with the Arges 400 MWh BESS for the majority of the route. The 13.8 kV gen-tie line would be twin-bundled 1590 kcmil Falcon ACSR mounted under the 115 kV Arges gen-tie conductors for the shared

structures portion of its route. The Project gen-tie would terminate at the existing VDPP substation's main power transformer.

Arges 400 MWh BESS

As shown in Figure 2-2 and Figure 2-6, the Arges 400 MWh BESS switchyard would be interconnected to PG&E's Vaca-Dixon Substation by a new overhead 115 kV gen-tie line, approximately 2,350 feet in length.

The Arges 400 MWh BESS would be charged and discharged from the grid at 115 kV. The BESS facilities would be connected together and operate at 34.5 kV utilizing underground cables in a duct bank. All Project underground 34.5 kV feeder cables would be collected in the BESS yard step up/down 34.5 kV/115 kV switchyard. The Project voltage would be stepped up to 115 kV with a main power transformer before transmitting to PG&E's Vaca-Dixon Substation. The Project 115 kV gen-tie line would share gen-tie steel monopole structures with the Vaca Dixon 57 MWh BESS for the majority of the route. The 115 kV gen-tie line would be 477 kcmil Hawk ACSR mounted above the 13.8 kV Vaca Dixon gen-tie conductors for the shared structures portion of its route. The Project gen-tie would terminate at the existing PG&E's Vaca-Dixon Substation.

2.2.1 Transmission Facilities Selection

The selection process for transmission facilities also followed the process described in Section 2.2.1. Existing land use activities within the Project Site would be consistent with the overall region. In addition, the gen-tie route selected was the shortest possible distance connecting the Project BESS components to the Points of Interconnection at PG&E's VDPP Substation. Where possible, the proposed gen-tie abuts existing roads and parcel boundaries and circumvents existing landowner permanent infrastructure.

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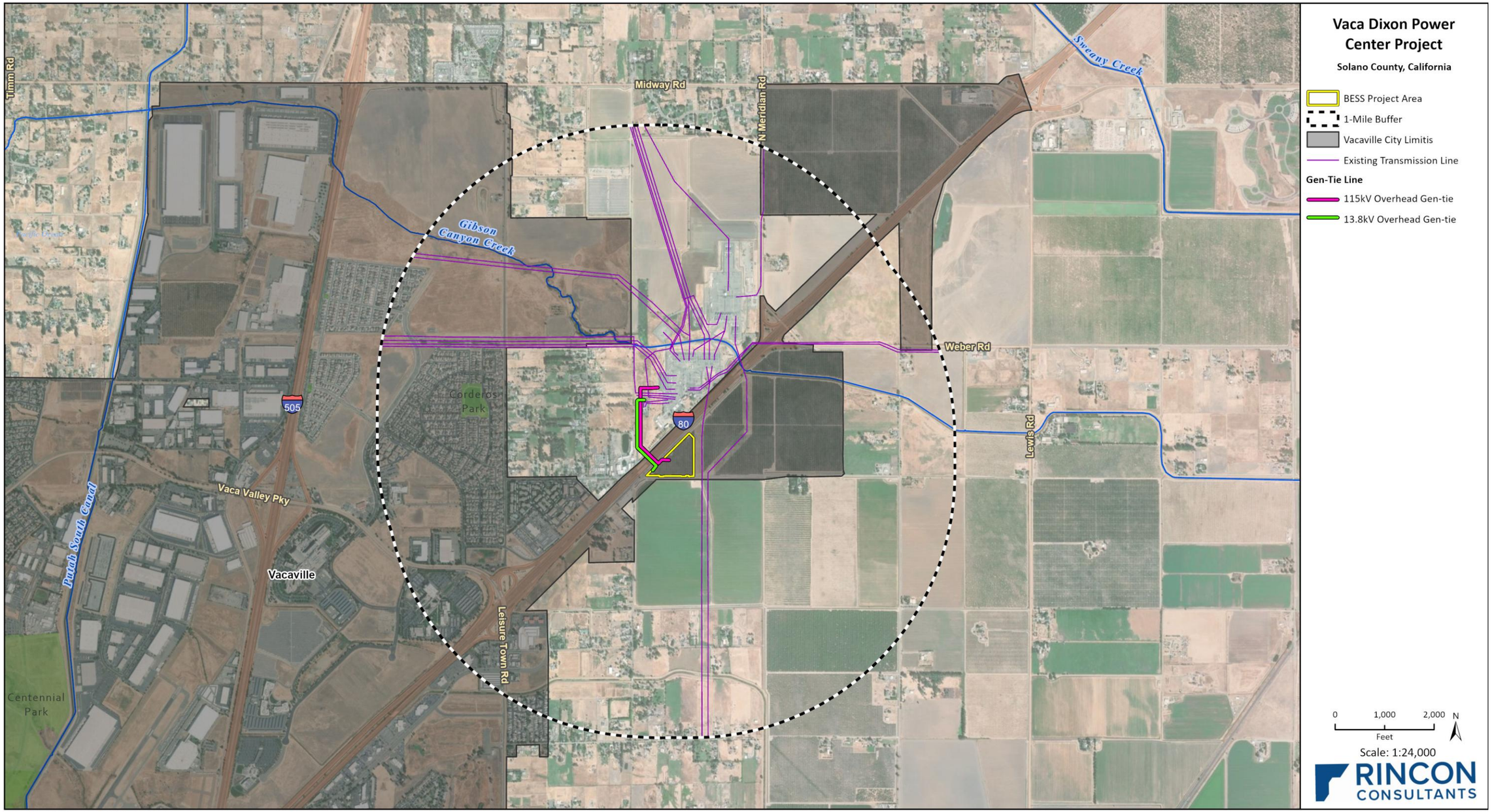
Figure 2-10 Existing Transmission Lines Within One Mile of the Project Site



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Additional by the California Energy Commission, 2025.

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2.3 Project Construction

This section describes the construction of the overall Project, including the BESS facility components and transmission components. Construction of the Project is anticipated to take approximately 24 months to complete, including approximately one year each for the Vaca Dixon 57 MWh and Arges 400 MWh BESS components. Construction of the Vaca Dixon 57 MWh BESS component would begin in ~~July~~ November of 2027 and would be operational by December~~July~~ 2028. Construction of the Arges 400 MWh BESS component would begin in ~~June~~ April of 202~~9~~8 and would be operational by ~~June 2029~~April 2030. The Vaca Dixon 57 MWh BESS would require a peak workforce of approximately 5~~8~~0 personnel and Arges 400 MWh BESS would require a peak workforce of approximately 6~~8~~0 personnel. In compliance with City of Vacaville noise regulations (City of Vacaville Municipal Code Chapter 8.10), construction would typically occur Monday through Saturday from 7:00 a.m. to 7:00 p.m.

Table 2-2 below includes the anticipated construction phases and dates for each of the construction scenarios.

Table 2-2 Preliminary Construction Schedule

	Duration		
Construction Activity	**Start Date**	**End Date**	**Days**
Vaca Dixon 57 MWh BESS			
Access Road	Q4~~3~~ 2027	Q4~~3~~ 2027	24
Site Preparation and Grading	Q4~~3~~ 2027	Q4 2027	72
Foundation and Equipment Installation	Q4 2027	Q1 2027	48
Groundwater Well Installation	Q4 2027	Q1 2027	48
Set Modules, Inverters, and Switchgear	Q1 2028	Q1 2028	48
Electrical Wire Installation and Finish Grading	Q1 2028	Q2 2028	48
Testing and Commissioning	Q3~~2~~ 2028	Q4~~3~~ 2028	72
Arges 400 MWh BESS	**Start Date**	**End Date**	**Days**
Access Road	Q2~~2~~ 202~~98~~	Q2 202~~98~~	24
Site Preparation and Grading	Q2 202~~98~~	Q3 202~~98~~	72
Foundation and Equipment Installation	Q3 202~~98~~	Q4 202~~98~~	48
Set Modules, Inverters, and Switchgear	Q4 202~~98~~	Q1 2030~~29~~	48
Electrical Wire Installation and Finish Grading	Q1 2030~~29~~	Q1 2030~~29~~	48
Testing and Commissioning	Q1 2030~~29~~	Q2 2030~~29~~	72

Prior to site grading, the existing agricultural irrigation system would be capped where it enters the BESS Project Area and the existing pipe and drip irrigation system within the BESS Project Area would be removed. During construction, construction equipment and construction worker vehicles would be staged at a temporary staging and laydown area. As shown in Figure 2-5, the temporary staging and laydown area for the Vaca Dixon 57 MWh BESS would be located along the northern and eastern boundary of the Vaca Dixon 57 MWh BESS component layout. As shown in Figure 2-6, the temporary staging and laydown area for the Arges 400 MWh BESS would be centrally located on the western Arges component layout boundary.

Construction equipment to be utilized would include the following: backhoes, bore/drill rigs, truck-mounted rotary drill rig, compactors, compressors, cranes, dozers, graders, excavators, forklifts, loaders (front-end, rubber-tired, and skid steer), pavers, portable electric generators, rough terrain forklifts, sweepers, welders, pump, pipe, water tank components, vacuum trucks, flatbed trucks, dump trucks, and water trucks[4].

The following sections describe the construction methods and activities for the major Project components.

2.3.1 Battery Energy Storage System Construction Methods and Activities

The Project BESS and switchyard facilities would be built on imported fill to elevate equipment, achieving positive surface drainage towards planned stormwater management areas as shown in Figure 2-8 and Figure 2-9. The new facilities are planned to be constructed on up to 4.5 feet of compacted fill material placed over prepared subgrade. Existing topsoil would be removed prior to placing the engineered fill material.

Foundation excavations for the Project BESS and switchyard facilities would be at a depth of up to two feet. Excavations for foundations to support heavy equipment inside the Project switchyard may require excavation extending to bedrock. Once the foundations are in place for the BESS, the batteries, inverters, and other electrical equipment would be mounted and installed. Equipment would be delivered to the site on trucks.

Site preparation would also include construction of drainage components to capture and direct stormwater flows around the BESS facilities to proposed stormwater basins. The proposed stormwater basins consist of open vegetated extended dry detention basins with subsurface infiltration trenches along the pond bottoms. The infiltration trench would be constructed by excavating up to two feet below existing grade, placing geotextile fabric, and backfilling with washed drainage stone. Above the infiltration trench, the ponds would store additional runoff volume temporarily, releasing water slowly to mimic the pre-construction site runoff characteristics.

Construction of the on-site fire water supply system would include drilling and constructing the non-potable groundwater well; installing the well pump skid, controls, and appurtenant equipment; constructing foundations for the 120,000-gallon fire water storage tank and approximately 200-square-foot fire water pump house; and installing associated piping and the fire water distribution loop. Well construction would require an approximately 100-foot by 100-foot area for drilling rig access, equipment staging, and construction activities. Final well siting and design would be determined during detailed design and permitting based on site-specific hydrogeologic conditions, aquifer-zone testing, and applicable regulatory requirements. A well construction permit would be obtained from the Solano County Department of Resource Management, Environmental Health Division. The expected groundwater production capacity was evaluated in the Groundwater Feasibility Study prepared for the Project (CEC Docket TN #271961).

Site preparation and grading would include exporting topsoil and importing fill material on trucks. It is anticipated that dump trucks with a 16 cubic yard capacity would be used for both soil export and fill import, representing approximately 3,700~~650~~ round trip-way truck trips. Delivery of other

[4] Light duty helicopter usage is anticipated very briefly during the Electrical Wire Installation/Finish Grading phase to string lines between the two poles at the I-80 crossing.

construction material (fire water supply system components, storm pipes, and geotextile fabric) ~~required for stormwater basins~~ would involve additional truck trips.

2.3.2 Gen-tie Construction Methods and Activities

2.3.2.1 Overhead

The Vaca Dixon 57 MWh BESS component and Arges 400 MWh BESS component would include the use of steel monopoles, approximately 45-100 feet tall, to support the 13.8 kV and 115 kV gen-tie lines. The two BESS facilities would share gen-tie structures for most of the route. The Vaca Dixon 57 MWh BESS component's 13.8 kV gen-tie line connection would be from the BESS switchyard to the existing VDPP GSU transformer. The Arges 400 MWh BESS component's 115 kV gen-tie line connection would be from the northern Arges 400 MWh BESS component to the PG&E Vaca-Dixon Substation. All structures would be made of steel. Tangent structures would be directly embedded at 10 percent of pole length plus four additional feet (10% + 4) and angle structures would be installed on concrete pier foundations. These foundations would be between 7-10 feet in diameter and 30-40 feet deep, depending on soil conditions and wire selection. Figure 2-11, Figure 2-12, Figure 2-13, and Figure 2-14 provide examples of each structure type for the gen-tie line. During the electrical wire installations, a single helicopter may be used to assist with pulling the gen-tie lines across I-80 to connect to the PG&E Vaca-Dixon Substation. The helicopter installation support would be required twice, once for the Vaca Dixon 57 MWh BESS component and again for the Arges 400 MWh BESS component. The helicopter would likely take off from Napa County Airport, located approximately 18 miles southwest of the Project Site. Helicopter use would include retrieval of the gen-tie cable from the Project Site, and transport of it across the highway to connect to the monopole on the PG&E parcel north of I-80.

2.3.3 Commissioning

As the last phase of the construction process after each BESS component is completely built (i.e. once after completion of the Vaca Dixon 57 MWh BESS component and once after completion of the Arges 400 MWh BESS component), the Project would go through a commissioning phase that entails energization and testing before full site operation. Commissioning of equipment would include testing, calibration of equipment, and troubleshooting prior to commencement of commercial operations. Upon completion of successful testing, the equipment would be energized. During commissioning, qualified personnel would conduct energization procedures and troubleshoot potential anomalies to ensure proper operation and safety of the Project BESS facilities. Typically, heavy equipment and large crews would not be needed at this point, unless repairs or part replacements are required.

Figure 2-11 Typical Co-located 13.8 kV and 115 kV Monopole Deadend Design

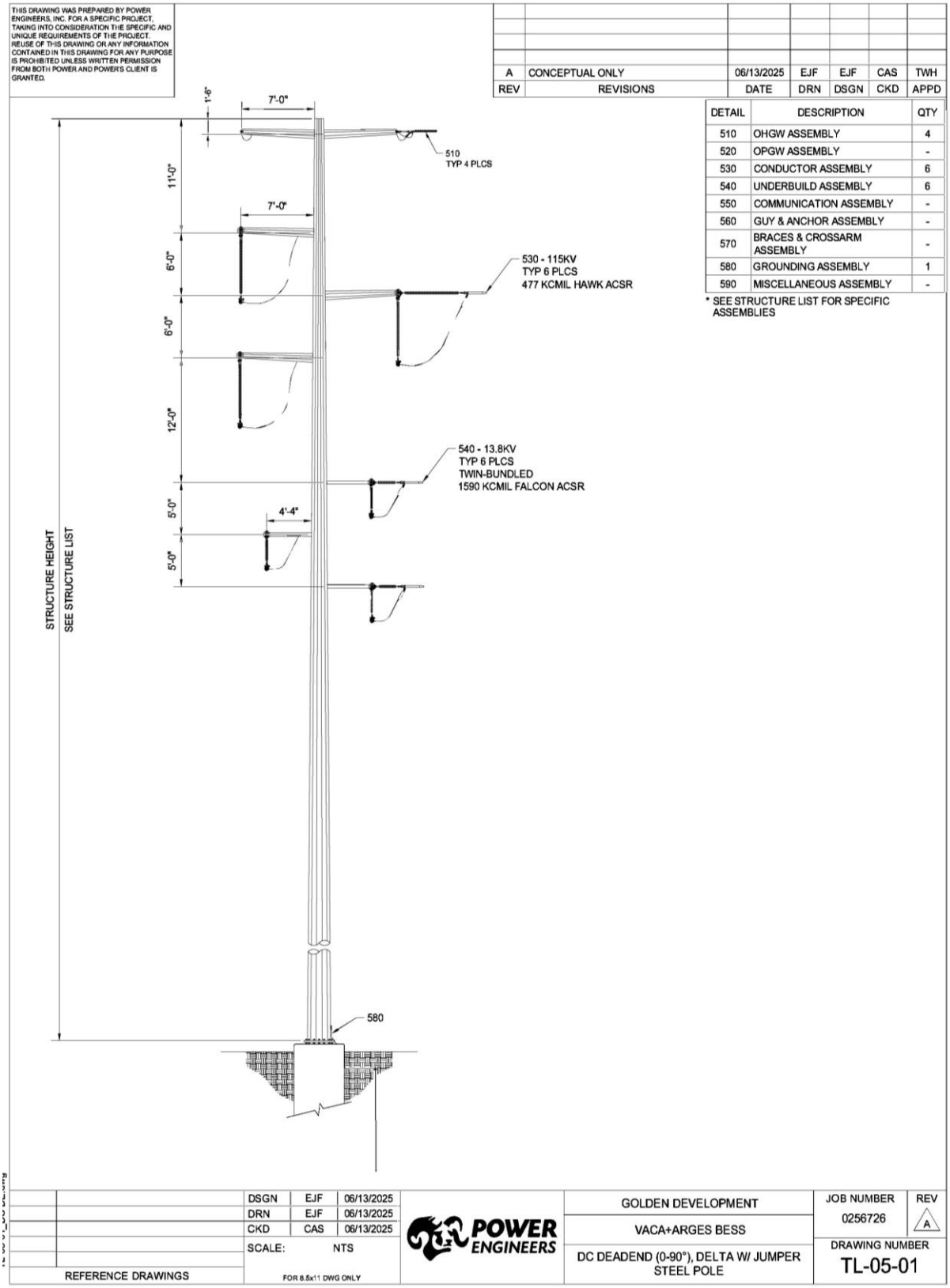


Figure 2-12 Typical Co-located 13.8 kV and 115 kV Monopole Suspension Design

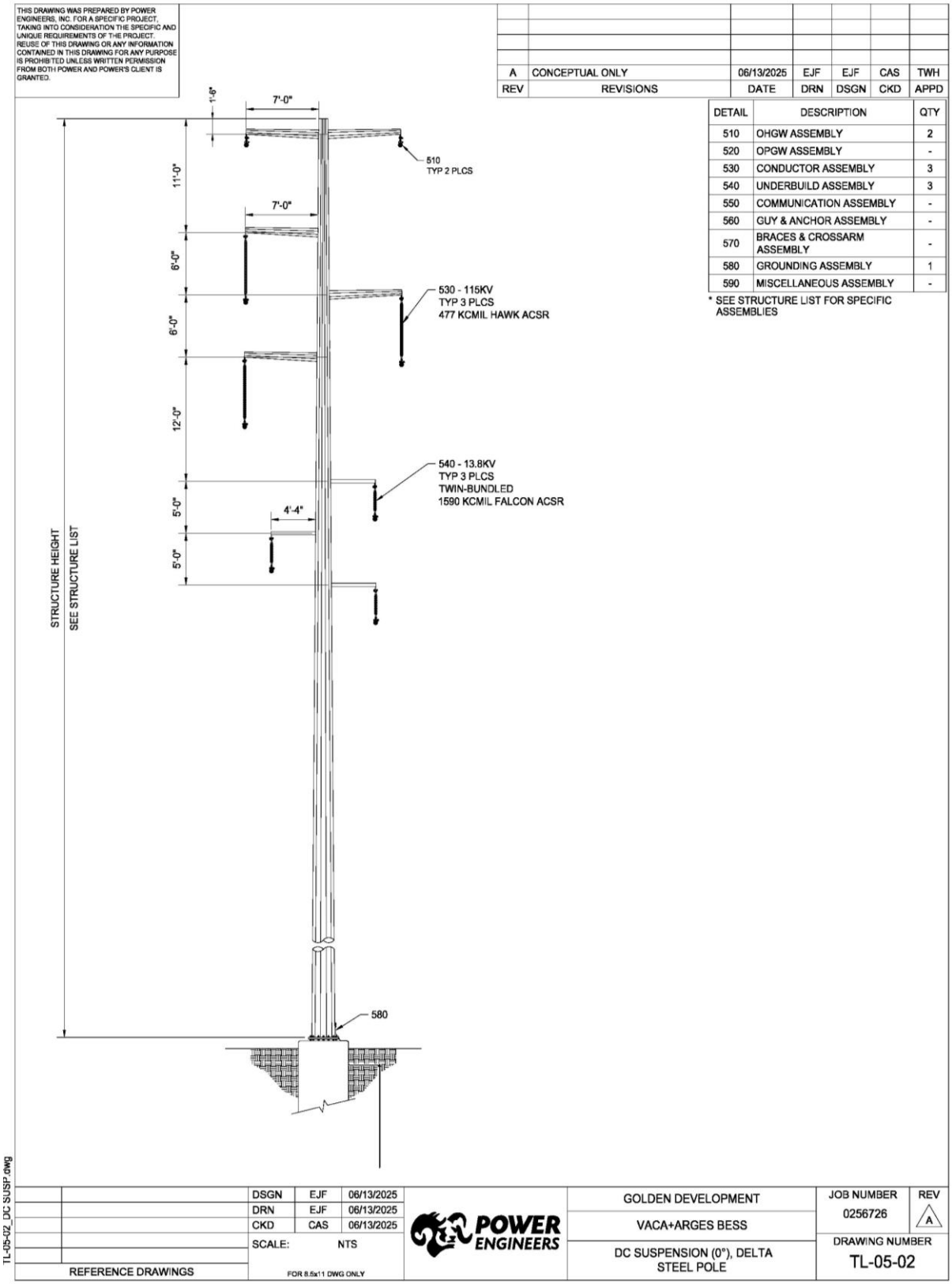


Figure 2-13 Typical 13.8 kV Monopole Design

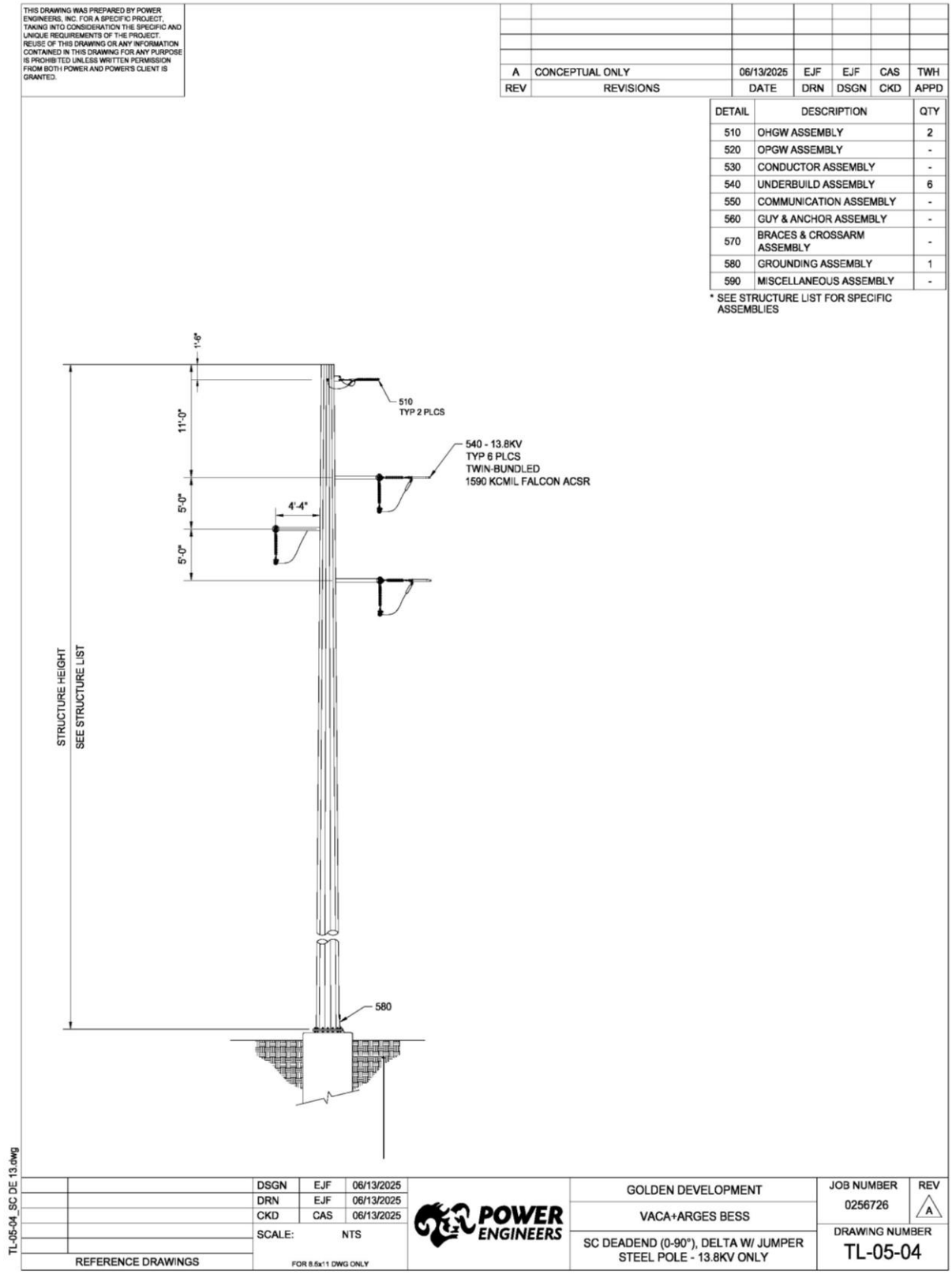
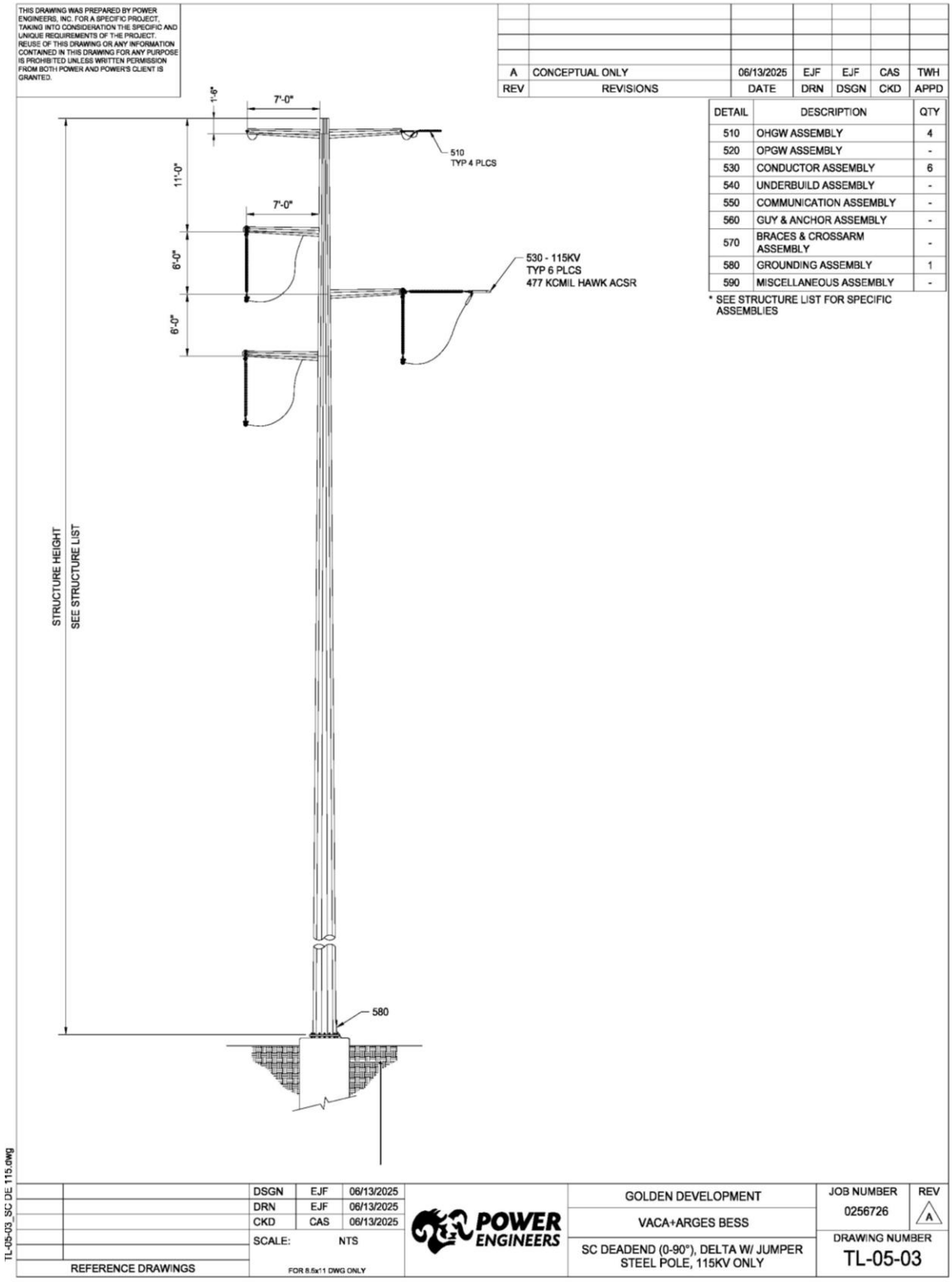


Figure 2-14 Typical 115 kV Monopole Design



2.4 Agency Contacts

Table 2-3 below lists the agency contacts for the Project. Additional contacts related to specific resource areas are included in the individual sections of Chapter 5, *Environmental Analysis*.

Table 2-3 Agency Contacts

Agency	Contact
United States Fish and Wildlife Services	Megan Cook, Sacramento Division Supervisor
California Energy Commission	Eric Knight, Manager, Siting & Environmental Branch Joseph Hughes, Supervisor, Air Resources Caroline Grey, Senior Advisor to Chair David Hochschild Ryan Young, Deputy Public Advisor Jimmy Qaqundah, Assistant Chief Counsel
City of Vacaville, Community Development Department	Erin Morris, Director Claudia Garcia, Assistant Director Albert Enault, Senior Planner
City of Vacaville Fire Department	Alex Nourot, Deputy Fire Chief Jill Childers, Fire Safety Coordinator
Solano County, Resource Management Department	Allan Calder, Planning Manager
California Department of Fish and Wildlife	Brenda Blinn, Senior Environmental Scientist (Supervisor) Crystal Sinclair, Senior Environment Scientist (Specialist)
Regional Water Quality Control Board	Stephanie Tadlock, Environmental Scientist (Senior))
Department of Toxic Substances Control	Rebecca De Pont, Supervising Environmental Planner
Yolo- Solano Air Quality Management District	Emmanuel Orozoco, Engineering Manager
Airspace, Utilities, Caltrans	Michael O'Callaghan, District Office Chief