EV Charger Permit Packet

Sample Residence, Oro Valley, AZ 85700 (fictional address)

JOB	CONTRACTOR	JURISDICTION
3,100 sq ft home, all-electric, pool Charger in detached garage Customer: Sample Homeowner	Sample Electric, LLC AZ ROC No. 000000 Oro Valley Business License No. 000000	Town of Oro Valley, AZ Community and Economic Development Full plan submittal

Town checklist

Required by the town	In this packet	Status
Completed permit application	Page 2: all fields ready for the town's form	**Ready**
Site plan with charger and main panel	Page 3: scaled plan with trench route	**Ready**
Charger design and UL listing information	Page 6: equipment data, add manufacturer sheets	**Attach**
One-line diagram with conductors, conduit and overcurrent protection	Page 4	**Ready**
Load calculation for a new 240 V circuit	Page 5	**Ready**
Venting details, if the charger needs them	Not needed: charger does not require ventilation	**N/A**
HOA or subdivision rules	Homeowner to confirm before work starts	**Open**

Engineering checks

Check	Result	Status
Service capacity	170.8 A computed on a 200 A service	**Pass**
Circuit	60 A breaker for a 48 A continuous load (48 A x 125%)	**Pass**
Conductors	#6 AWG Cu, rated 65 A at 75°C	**Pass**
Voltage drop	2.7 V, or 1.1%, over 58 ft	**Pass**

Flagged for your review

[ ] Service is at 85% of capacity. Check the existing load assumptions against the home.
[ ] Confirm the town's adopted code edition. Its checklist cites the 2017 NEC.
[ ] Call 811 before trenching and field verify the route.
[ ] Confirm requirements for a disconnect and grounding at the detached garage.

SAMPLE

Permit Application Data

Prepared for transfer to the town's permit application. This page is not the town's form.

Project address	Sample Residence, Oro Valley, AZ 85700
Parcel number	000-00-0000
Property owner	Sample Homeowner
Permit type	Electrical, residential EV charger
Valuation	Entered by contractor
Contractor	Sample Electric, LLC
AZ Registrar of Contractors No.	000000
Oro Valley Business License No.	000000
Contact	Sample Electrician, (000) 000-0000
Submission	PDF by email to the town's permitting division

Scope of work

Install one 48 A, 240 V Level 2 EV charger inside the existing detached garage. Add a 60 A, 2-pole breaker to the existing 200 A main panel. Trench about 55 ft and run a new dedicated branch circuit in 1 in. PVC conduit to a new 60 A disconnect at the garage, then to the charger. No service upgrade. Restore the trench and landscaping after inspection.

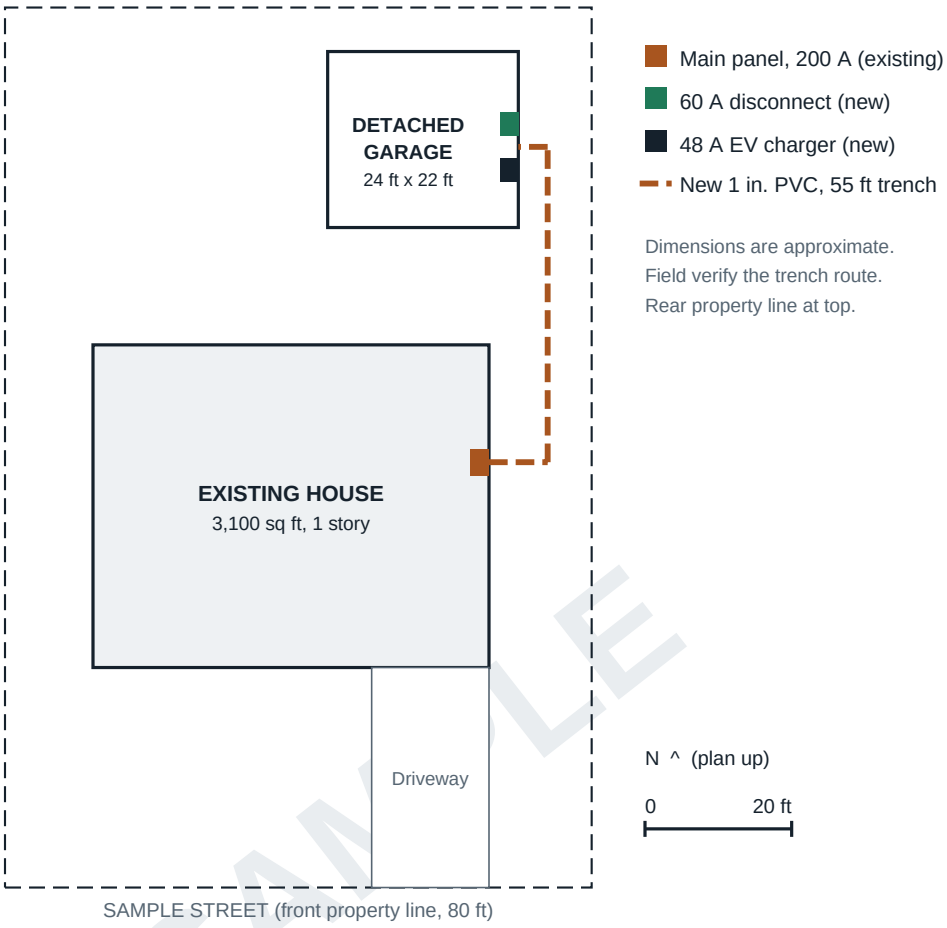
Inspection plan

Stage	What's inspected
Underground	Open trench, conduit, burial depth, before backfill
Final	Panel, breaker, disconnect, charger, labeling, and manufacturer instructions on site

SAMPLE

Site Plan

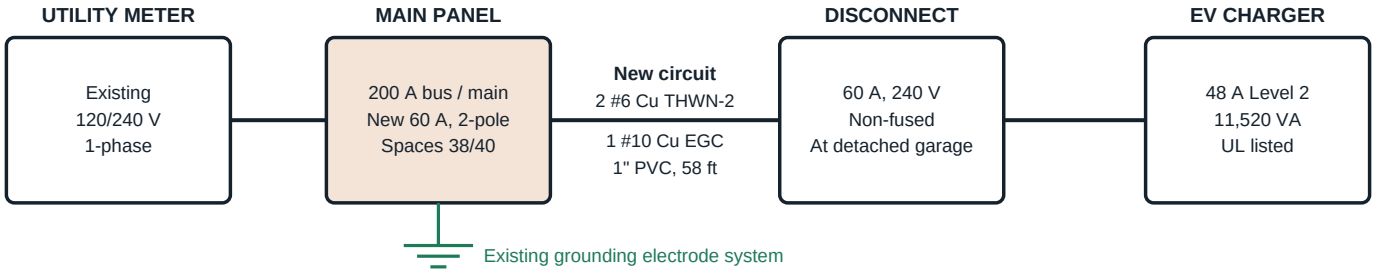
Shows the location of the charger, the main panel and the new underground circuit.



SAMPLE

One-Line Diagram

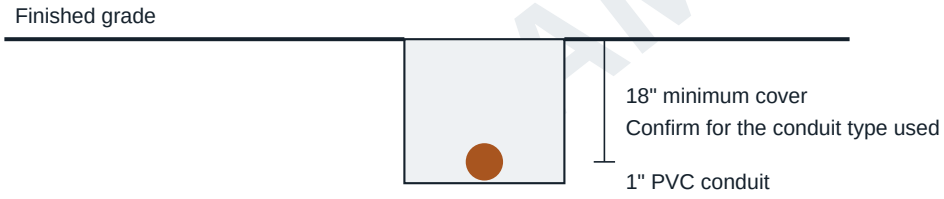
Conductors, conduit sizes and types, and overcurrent protection.



Conductor and conduit schedule

Segment	Conductors	Conduit	Protection
Main panel to disconnect	2 #6 Cu THWN-2, 1 #10 Cu EGC	1" PVC, 55 ft underground	60 A, 2-pole
Disconnect to charger	2 #6 Cu THWN-2, 1 #10 Cu EGC	3/4" EMT, 3 ft in garage	Same circuit

Trench detail



SAMPLE

Load Calculation

Optional dwelling method, NEC 220.82, with the EV charger added at 100% of nameplate. Confirm the method the town accepts.

Load	Basis	VA
General lighting	3,100 sq ft x 3 VA	9,300
Small appliance circuits	2 x 1,500 VA	3,000
Laundry circuit	1 x 1,500 VA	1,500
Range	Nameplate	12,000
Dryer	Nameplate	5,000
Water heater	Nameplate	4,500
Dishwasher	Nameplate	1,200
Disposal	Nameplate	900
Microwave	Nameplate	1,500
Pool pump	Nameplate	1,800
Subtotal		**40,700**
First 10,000 VA	100%	10,000
Remainder	30,700 VA x 40%	12,280
Air conditioning	30 A x 240 V, 100%	7,200
EV charger	48 A x 240 V, 100%	11,520
Total calculated load		**41,000**
Computed load	**41,000 VA / 240 V = 170.8 A**	
Existing service	200 A	
Spare capacity	29.2 A, so no upgrade is required	

Existing loads are example values for this fictional home.

SAMPLE

Equipment Data

Attach the manufacturer's data sheets and UL listing information behind this page.

Item	Specification	Listing
EV charger	Level 2, 48 A, 240 V, 11,520 VA, hardwired	UL listed, NEC Article 625
Breaker	60 A, 2-pole, matched to existing panel	Listed for the panel
Disconnect	60 A, 240 V, non-fused, lockable, NEMA rated for location	UL listed
Underground conduit	1" PVC	Listed
Interior raceway	3/4" EMT	Listed

Charger location

Garage east wall, protected from vehicle impact, with the cord reach confirmed to the parking space. Follow the manufacturer's mounting height.

SAMPLE

Pre-Submittal Review

Complete before sending this packet to the town.

Item	Reviewed by	Done
Existing loads match the home	Electrician	[ ]
Trench route and depth are confirmed	Electrician	[ ]
Panel has two open spaces	Electrician	[ ]
Breaker matches the panel listing	Electrician	[ ]
Disconnect requirement confirmed for the detached garage	Electrician	[ ]
Grounding at the garage confirmed	Electrician	[ ]
Charger data sheets attached	Electrician	[ ]
HOA approval received, if required	Electrician	[ ]
Code edition confirmed with the town	Electrician	[ ]

Approval

Reviewed by	Sample Electrician
Signature	Signed by the electrician after review
Date	Completed at signing

Submittal list taken from the Town of Oro Valley's Electric Vehicle Charger Station Basic Submittal Criteria Checklist.

SAMPLE