Service Upgrade Permit Packet

123 Sample St

JOB	CONTRACTOR	CHECKLIST
2,400 sq ft home Parcel 000-00-000-000 100 A to 200 A, overhead Customer: Sample Homeowner	Sample Electric, LLC License ROC 000000	Oro Valley, AZ General checklist, city rules added in setup

Checklist

Required	In this packet	Status
Permit application	Page 2: fields ready for the city's form	**Ready**
Site plan showing the meter and main panel	Page 3: to scale, 1 in = 40 ft	**Ready**
Riser diagram with service conductors, grounding and bonding	Page 4	**Ready**
Load calculation	Page 5	**Ready**
Panel and meter equipment specifications and listing	Page 7: add manufacturer sheets	**Attach**
Utility service request	Page 6: send to the utility	**Send**

Engineering checks

Check	Result	Status
Service capacity	158.3 A computed on the new 200 A service	**Pass**
Service conductors	#2/0 Cu THWN-2, 175 A at 75°C, for 200 A x 83% = 166.0 A (310.12)	**Pass**
Panel rating	200 A bus, 200 A main	**Pass**
Grounding electrode conductor	Rods: #6 Cu; Water pipe: #4 Cu	**Pass**
Conduit fill	3 #2/0 in 1-1/2" PVC, 40% fill	**Pass**

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Flagged for your review

[ ] Check the existing loads against the home. They drive the service result.

[ ] Submit the utility service request (page 6). The utility sets the disconnect and reconnect.

[ ] Confirm mast, weatherhead and drip-loop clearances against the utility's service requirements.

[ ] Confirm the available fault current with the utility and the new equipment's short-circuit rating (110.9, 110.24).

[ ] Keep the working space in front of the panel clear: 30 in wide, 36 in deep (110.26).

[ ] Extended or modified branch circuits may need AFCI protection (210.12(D)). Confirm the city's position.

[ ] Confirm the adopted code edition.

Permit Application Data

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

Project address	123 Sample St
Parcel number	000-00-000-000
Jurisdiction	Oro Valley, AZ
Property owner	Sample Homeowner
Permit type	Electrical, residential service upgrade
Service	100 A to 200 A, 120/240 V single-phase
Equipment	Add make and model
Contractor	Sample Electric, LLC
License number	ROC 000000

Scope of work

Upgrade the existing 100 A, 120/240 V single-phase service to 200 A. Install a meter-main combination with a 200 A main breaker. Run new service entrance conductors, 3 #2/0 Cu THWN-2 in 1-1/2" PVC conduit, 8 ft from the meter to the main, from an overhead service. Ground the service with ground rods (#6 Cu) and metal water pipe (#4 Cu). Bond the water pipe and the gas pipe. Transfer the existing branch circuits to the new panel. Coordinate the disconnect and reconnect with the utility.

Inspection plan

Stage	What's inspected
Service	New equipment, grounding and bonding, before the utility reconnects
Final	Panel, breakers, labeling, and working space on site

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Site Plan

123 Sample St. Parcel 000-00-000-000.



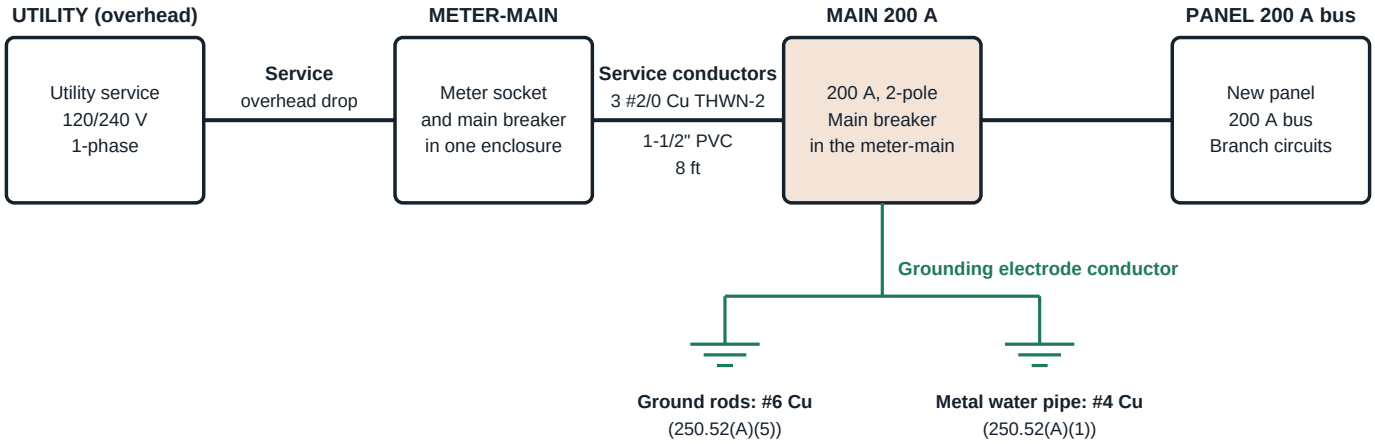
M Meter
P Main panel, 200 A (new)
Meter to panel, 10 ft measured on plan
Dashed yellow: lot line

Service conductors: 8 ft
Panel to nearest lot line: 39 ft
Scale 1 in = 40 ft when printed at 100%
Not a survey. Field verify all dimensions.

Lot lines: Pima County GIS. Map services and data available from U.S. Geological Survey, National Geospatial Program.

Riser Diagram

Service conductors, conduit, grounding electrode conductors and bonding.



Bond: water pipe, gas pipe

Conductor and conduit schedule

Segment	Conductors	Conduit	Protection
Service conductors	3 #2/0 Cu THWN-2, 175 A at 75°C	1-1/2" PVC	200 A, 2-pole main
GEC to ground rods	1 #6 Cu	Per 250.64(B)	Listed clamp or weld (250.70)
GEC to metal water pipe	1 #4 Cu	Per 250.64(B)	Listed clamp or weld (250.70)

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Load Calculation

Optional dwelling method, NEC 220.82, with planned loads added at 100% of nameplate, on the new 200 A service. Confirm the method the city accepts.

Load	Basis	VA
General lighting	2,400 sq ft x 3 VA	7,200
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
Subtotal		**33,200**
First 10,000 VA	100%	10,000
Remainder	23,200 VA x 40%	9,280
Air conditioning	Larger of heating or cooling, 100%	7,200
EV charger	Planned, 100% of nameplate	11,520
Total calculated load		**38,000**

Computed load	**38,000 VA / 240 V = 158.3 A**
New service	200 A
Existing service	100 A, 158% used by this load
Spare capacity	41.7 A on the new service

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Utility Service Request Data

Prepared for transfer to the utility's service request. This page is not the utility's form.

Utility	Add the utility
Service address	123 Sample St
Customer	Sample Homeowner
Meter number	Add from the meter
Existing service	100 A
New service	200 A, 120/240 V single-phase
Service type	Overhead
Meter location	Same location
Contractor and license	Sample Electric, LLC, license ROC 000000
Requested disconnect	Date and time: _____
Requested reconnect	Date and time: _____

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Equipment Data

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

Item	Specification	Listing
New service equipment	Add make and model, 200 A bus, 200 A main, meter-main combo	Attach manufacturer data and NRTL listing
Service conductors	3 #2/0 Cu THWN-2, 1-1/2" PVC, 8 ft	Listed, NEC 310.12
Grounding	Ground rods, #6 Cu; Metal water pipe, #4 Cu	NEC 250.66

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Pre-Submittal Review

Complete before sending this packet to the city.

Item	Reviewed by	Done
Existing loads match the home	Electrician	[ ]
Utility service request submitted	Electrician	[ ]
Service conductor size and material confirmed	Electrician	[ ]
Grounding electrodes verified on site	Electrician	[ ]
Water and gas bonds in place	Electrician	[ ]
Working space at the panel	Electrician	[ ]
Equipment data attached	Electrician	[ ]
Code edition confirmed with the city	Electrician	[ ]

Approval

Reviewed by	
Signature	
Date	

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