

**BEFORE THE
ENERGY FACILITY SITING COUNCIL
OF THE STATE OF OREGON**

In the Matter of Request for Amendment 1 of the
Carty Generating Station Site Certificate

)
) FINAL ORDER ON
) AMENDMENT 1 OF THE SITE
) CERTIFICATE

December 2018

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1 **I. INTRODUCTION**

2
3 The Energy Facility Siting Council (EFSC or Council) issues this final order in accordance with
4 Oregon Revised Statute (ORS) 469.405 and Oregon Administrative Rule (OAR) 345-027-0070 in
5 effect prior to October 24, 2017 for the request by Portland General Electric Company (PGE or
6 certificate holder) for Amendment 1 of the Carty Generating Station site certificate.¹

7
8 The certificate holder requests approval from Council to amend the site certificate to authorize
9 the following modifications:

- 10
11 • Construction and operation of a 50 megawatt (MW) photovoltaic solar unit;
12 • Construction and operation of a 2.25 to 3-mile 34.5 kilovolt (kV) interconnection
13 transmission line;
14 • Approval for five interconnection transmission line routing options and three
15 interconnection options;
16 • Use of temporary construction laydown and parking areas;
17 • Removal of site certificate references and conditions related to previously approved but
18 not constructed Unit 2 natural gas power plant, Unit 2 associated components, and Unit 2
19 related and supporting facilities;
20 • Amendment of the site boundary to include the perimeter of proposed components and to
21 allow flexibility during final design; and,
22 • Amendment and removal of several site certificate conditions.

23
24 Based upon review of this request for amendment (RFA) and the comments and recommendations
25 received by state agencies, local governments, and tribal organizations, Council approves the
26 request and grants an amendment of the Carty Generating Station site certificate subject to the
27 existing, new and amended conditions set forth in this final order.
28

¹ As further described in Section II.D. *Amendment Review Process*, while the certificate holder submitted revised RFA1 in February 2018, the initial amendment request was first submitted in August 2016. Therefore, the amendment review process is based on the Oregon Administrative Rules in effect at the time the amendment was initially submitted to the Department. References to the procedural rules in this final order are those in effect at that time regarding the review process in Division 27. Rules not related to the review process, including Council standards, are those rules in effect at the time Council makes a decision on the RFA.

1 **I.A. Name and Address of Certificate Holder**

2
3 Portland General Electric Company
4 121 SW Salmon Street
5 3WTC-0403
6 Portland, OR 97204

7
8 Individual responsible for submitting this amendment request:

9
10 Arya Behbehani
11 General Manager Environmental & Licensing Services
12 Portland General Electric Company
13 121 SW Salmon Street, 3WTC0403
14 Portland, OR 97204
15 503-464-8141
16 Arya.Behbehani@pgn.com
17

18 **I.B. Description of the Approved Facility**

19
20 The approved, operating facility includes a 450 MW natural gas fueled combined-cycle electric
21 generating turbine (Unit 1) and its associated components including a heat recovery steam
22 generator, steam turbine generator, natural-gas fueled auxiliary boiler, and cooling tower cell.
23 Related and supporting facilities include the Grassland Switchyard, onsite 500 kV interconnection
24 transmission line (Unit 1 to Grassland Switchyard), interconnecting water pipelines, sewer lines,
25 liquid storage facilities, accessory buildings, utility lines, roads and temporary laydown areas.
26

27 The facility shares several components with the existing Boardman Coal Plant, including portable
28 water and sanitary waste infrastructure, and the Carty Reservoir for water withdrawal and water
29 discharge purposes. While these facilities are shared, they are not currently included in the Carty
30 Generating Station site certificate. In the event Boardman Coal Plant ceases operations in the
31 future, PGE would request a site certificate amendment to incorporate the shared facilities into its
32 site certificate as related and supporting facilities.
33

34 As described above, the operating facility is a 450 MW energy facility; the site certificate, as issued
35 by Council in July 2012, authorized construction and operation of a 900 MW energy facility
36 including an additional 450 MW natural gas fueled combined cycle electric generating turbine
37 (Unit 2) and its associated components. The facility site certificate also authorized construction
38 and operation of up to 18-miles of a 500 kV transmission line to extend from the Grassland
39 Switchyard to Bonneville Power Authority's (BPA) Slatt Substation, and evaporation ponds. None
40 of these components were constructed; the construction commencement deadline for Unit 2, Unit
41 2 associated components, evaporation ponds, and 18-mile transmission line expired in July 2017.

1 The certificate holder has not included a request to extend the construction commencement
2 deadline in the amendment request; therefore, the certificate holder no longer maintains the
3 authority to construct and operate Unit 2, Unit 2 associated components, or the previously
4 approved but not constructed related and supporting facilities.

5
6 *Facility Changes Approved through Change Request*

7
8 The certificate holder requested Department review of a backup transmission line constructed
9 outside the site boundary to determine whether a site certificate amendment was required.
10 Following review, on June 14, 2017 the Department determined that a site certificate amendment
11 would not be necessary to accommodate for the constructed 34.5 kV backup transmission line.²
12 This line is, therefore, incorporated into the site certificate through Department's review of the
13 Change Request documentation submitted on April 20, 2017.

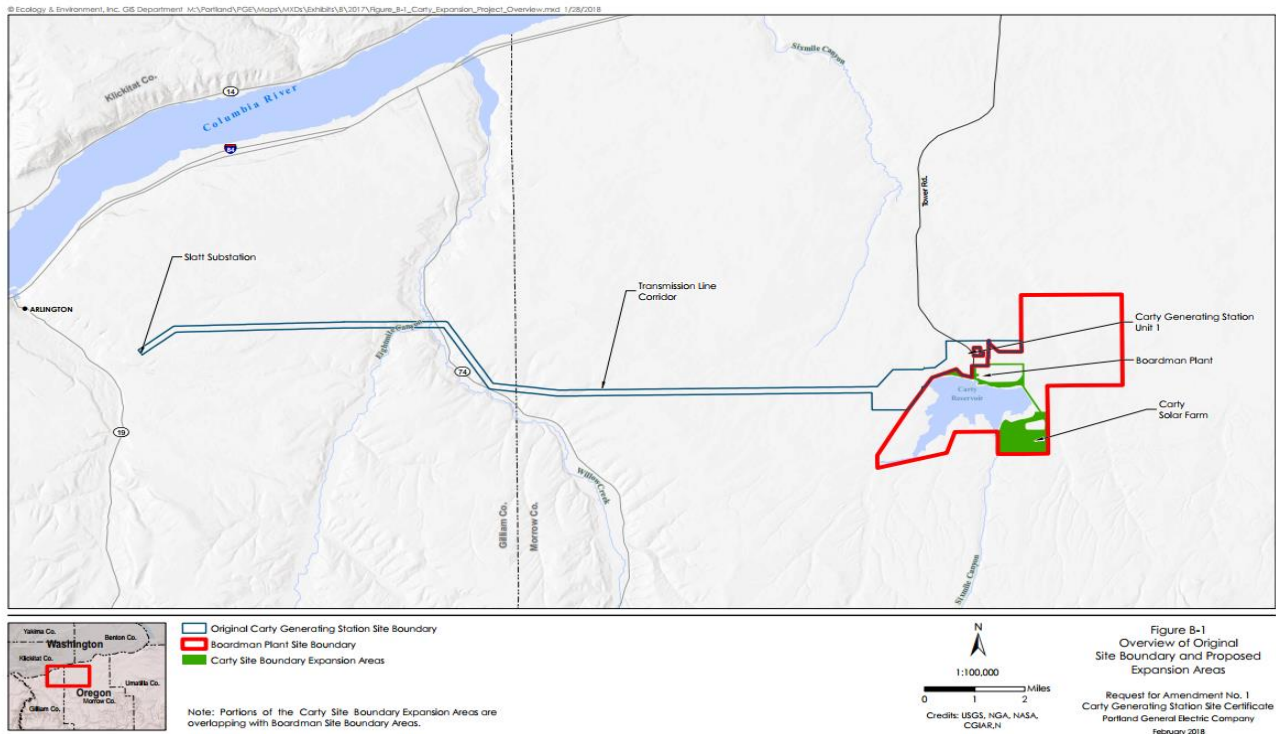
14
15 **I.C. Description of the Approved Facility Location and Site Boundary**

16
17 The approved, operating facility is located in Morrow County, Oregon, southwest of the City of
18 Boardman and adjacent to the Carty Reservoir.

19
20 As presented in Figure 1, *Approved Facility Location*, the approved site boundary (represented in
21 light blue) encompasses 2,400 acres and includes the perimeter of the area of the approved
22 energy facility and its related or supporting facilities, temporary laydown and staging areas, and
23 18-mile transmission line corridor.

² The Change Request was previously evaluated and is not evaluated within this Amendment. The Department's analysis included discussion related to PGE's compliance with existing Site Certificate conditions. As noted in its *Written Report for Determination Pursuant to OAR 345-027-0050(5) for Change to Carty Generating Station*, PGE adhered to the NPDES Stormwater Discharge General Permit #1200-C requirements, which included erosion control and soil preservation requirements. The Department agreed with PGE in its determination that the transmission line was a "utility necessary for public service," as sanctioned by ORS 215.275, finding that the construction of the service line did not result in a significant adverse impact to land use. The Department noted in its analysis that the service line, as built, did not negatively affect wildlife habitat and PGE's mitigation offsets were sufficient to compensate for any additional mitigation required from the service line. The Department also found that PGE's ability to comply with site certificate conditions was not impaired, and that the existence of the service line did not necessitate any new conditions or alteration of conditions to the site certificate.

Figure 1: Approved Facility Location



I.D. Procedural History

The Council issued its *Final Order on the Application for Site Certificate for the Carty Generating Station (Final Order on ASC)* on June 29, 2012. The site certificate became effective on July 2, 2012.

II. AMENDMENT PROCESS

II.A. Components included in Initial Amendment Request

In its initial amendment request, the certificate holder requested Council approval for the following:

- Increase the area within the site boundary from 2,400 to 2,918 acres
- Extend the construction start deadline for the second 450 MW natural-gas fired combined cycle combustion turbine generator (Unit 2) and its related or supporting facilities by two years
- Increase the nominal capacity of Unit 2 from 450 to 530 MW and total nominal capacity of the facility from 900 to 1,360 MW

- Construct and operate a 330-MW natural gas-fired, simple-cycle combustion turbine generator (Unit 3) and associated plant additions
- Construct and operate a 50-MW photovoltaic solar unit
- Construct and operate proposed related or supporting facilities including a 500 kV substation; interconnecting transmission lines and associated lattice steel structures; and, depending on final design, could include additional water pipelines, utility power lines, control and communication systems, and other support systems
- Amend Water Pollution Control Facilities Permit, as issued by Oregon Department of Environmental Quality but governed by site certificate, to allow disposal of solar panel washwater
- Submit application for a Permit to Use Surface Water, as issued by Oregon Department of Water Resources but governed by site certificate, to increase the amount of water used by Carty Generating Station
- Amendment and removal of several site certificate conditions

As described above, the certificate holder no longer seeks approval of a site certificate amendment for most of these components. The components currently under review are outlined in Section II.B *Components Included in Revised Amendment Request*.

II.B. Components Included in Revised Amendment Request

The certificate holder requests Council approval to amend the site certificate to allow for:

- Construction and operation of a 50 megawatt (MW) photovoltaic solar unit on approximately 315 acres;
- Construction and operation of a 2.25 to 3-mile 34.5 kilovolt (kV) interconnection transmission line;
- Approval for five interconnection transmission line routing options and three interconnection options;
- Use of temporary construction laydown and parking areas;
- Removal of reference to previously approved but not yet constructed Unit 2, Unit 2 associated components, and Unit 2 related and supporting facilities;
- Amendment of the site boundary (from 3,800 to 1,581 acres) to include the perimeter of proposed components and to allow flexibility during final design
- Amend Water Pollution Control Facilities Permit, as issued by Oregon Department of Environmental Quality but governed by site certificate, to allow disposal of solar panel washwater; and,
- Amendment and removal of several site certificate conditions.

The proposed components are described in further detail below.

1 *Proposed Solar Unit*

2
3 The proposed 50 MW photovoltaic solar unit would include module arrays; each array would
4 generate approximately 2.0 MW of electricity under standard conditions. Each array would consist
5 of multiple components including solar modules, trackers, racks, posts, cabling, as well as inverter
6 stations. The area under and around each solar module installation would have a gravel or other
7 non-combustible base.
8

9 *Electrical Collection System and 34.5 kV Transmission Line*

10
11 The proposed electrical collection system would be installed underground. Solar modules would
12 be interconnected through “series strings.” Such strings would be routed to direct current (DC)
13 combiners at the end of module array rows. The combined DC electricity would then be routed
14 underground to inverter stations, and from the switchgear to the northeast corner of the
15 property. At this point, conductors would transition from underground to overhead.
16

17 This aboveground transmission line would continue along the east side of the Carty Reservoir to
18 one of the three potential interconnection points; this line would be a 34.5 kV line designed to
19 carry a maximum of 840 amperes at the summer emergency temperature of 212 degrees
20 Fahrenheit. The transmission line would be constructed on buried wood poles with polymer post
21 insulators in a delta (or triangle) configuration, with spacing clearances in accordance with PGE’s
22 standard for 115 kV sub-transmission lines.
23

24 *Point of Interconnection Options*

25
26 The certificate holder proposes three potential points of interconnection (POI); the (1) Grassland
27 500 kV Interconnect; (2) Carty Unit 1 Isophase Interconnect; and (3) Boardman Coal Plant
28 Interconnect.
29

- 30
- 31 • **Grassland 500 kV Interconnect:** This proposed POI would buildout the existing Grassland
32 Switchyard, including extending the existing fenceline to the perimeter of the 15-acre area.
33 A ring bus position would be added, and a new 500/35 kV 50 mega volt ampere (MVA)
34 transformer would connect to the new bus position. Additional equipment includes but is
35 not limited to: circuit breakers (500 kV and 35 kV), disconnect switches, a voltage
36 transformer, and protective relay panels. PGE proposes Route 1 to connect to the
37 Grassland switchyard, which is contained in the applicant’s Figure B-4.
 - 38 • **Carty Unit 1 Isophase Interconnect:** This proposed POI would modify the existing Unit 1
39 isophase bus duct to allow for a new connection tap. Additional equipment includes but is
40 not limited to: circuit breakers (35 kV), disconnect switches, and protective relay panels.

PGE proposes two routes to connect to the Carty Unit 1; Routes 2a and 2b, which is contained the in the applicant's Figure B-4.

- **Boardman Coal Plant Interconnect:** This proposed POI would consist of adding a new 500 kV substation in a straight bus arrangement. The new substation would be located to the northwest of the existing Boardman Coal Plant. A 500/35 kV 50 MVA transformer would be connected to the new bus. Additional equipment includes but is not limited to: circuit breakers (500 kV and 35 kV), disconnect switches, a voltage transformer, and protective relays. PGE anticipates that the new substation could require an area of approximately 265 by 280 feet. PGE proposes two routes to connect with the Boardman Coal Plant; 3a and 3b, which is contained in the applicant's Figure B-4.

Additional Temporary Construction Yards

Additional temporary construction yards would be located north and south of the existing Grassland Switchyard; north, east and south of the existing Unit 1; and, along the northeast perimeter of the Carty Reservoir as represented in RFA Exhibit B, Figure B-3.

II.C. Amended Site Certificate and Condition Format

The amended site certificate includes existing, new and amended conditions. Some of the conditions apply to the facility, with proposed changes, some conditions apply only to existing operational facility components, and some conditions apply only to the proposed facility components.

Previously imposed conditions that are not recommended to be amended through new or deleted language would apply to both existing and proposed facility components. Previously imposed conditions that are amended through this amendment request, but that include differing requirements for existing operational components and proposed components include a delineation format, where a roman numeral "i" indicates the requirements of the condition apply to operating components, or Unit 1 and its related or supporting facilities; and, roman numeral "ii" indicates that requirements of the amended condition apply to proposed components, or Carty Solar Farm and its related or supporting facilities.

Conditions removed from the site certificate related specifically to facility components originally approved but no longer authorized within the site certificate due to the expiration of the construction commencement deadline are not presented in this order, for brevity, but are presented in Attachment A (in red-line format) of this order. And conditions deleted would remain in the site certificate but would be presented in strikeout format, and demarcated as "deleted."

II.D. Amendment Review Process

The certificate holder submitted Request for Amendment 1 (RFA1) in August of 2016. On September 22, 2016, the certificate holder formally requested a temporary suspension of processing the amendment request. The certificate holder requested, on December 14, 2016, that the Department re-initiate review of the amendment request, as submitted in August 2016. On December 22, 2016, the Department posted the RFA to its project website and sent notice of the RFA to all persons on the Council's mailing list, to the special list established for the facility, and to an updated list of property owners supplied by the certificate holder. The public notice clarified that any comments previously submitted during the September 2016 comment period need not be re-submitted. The Department notified the certificate holder that the anticipated issuance date of the proposed order would be no later than June 20, 2017.

On May 12, 2017, the certificate holder again requested that the Department suspend its review of the amendment request. On October 27, 2017, the certificate holder notified the Department of its intent to modify the amendment request by removing all previously proposed components, except for those associated with the Carty Solar Farm. Previously proposed components included a request to extend the construction commencement and completion deadlines for Unit 2 and its supporting facilities, and the 18 mile 500 kV transmission line; Unit 2 upgrade; and, 330 MW natural gas-fired simple cycle combustion turbine generator (Unit 3) and its associated facilities.

The certificate holder submitted revised RFA1 in February of 2018. Because the original amendment request was submitted in August 2016, the amendment review process is based on OAR 345, Division 27 in effect at the time that the amendment was initially submitted to the Department. For reference, a copy of the applicable OAR Chapter 345 Division 27 rules is provided in Attachment G of this order. All other applicable rules, such as Council standards, are those rules in effect at the time the Council decides on the merits of the RFA.

Reviewing Agency Comments on Revised Request for Amendment 1

As presented in Attachment B of the final order, the Department received comments from the following reviewing agencies and SAGs:

- Confederated Tribes of the Umatilla Indian Reservation (CTUIR)
- Morrow County Board of Commissioners (Special Advisory Group)
- Oregon Department of Environmental Quality (DEQ)
- Oregon Department of Fish and Wildlife (ODFW)
- Oregon Department of Land Conservation and Development (DLCD)
- Oregon Department of State Lands (DSL)
- Oregon Water Resources Department

1 Issues raised by reviewing agencies regarding compliance with an applicable Council standard are
2 addressed in Section III.A, *Applicable Division 27 Rule Requirements* of this final order.

3
4 *Public Comments on Revised Request for Amendment 1*
5

6 As presented in Attachment B of the final order, the Department received 5 public comments
7 during the comment period for the revised amendment request.³ Public comments received on
8 the revised amendment request, which raise issues of compliance with an applicable EFSC
9 standard, are addressed in Section III, *Review of Requested Amendment* of the final order.

10
11 *Comments on the Proposed Order*
12

13 The Department received seven comments on the proposed order. Comments were received from
14 Oregon Department of Environmental Quality (two comment letters); Oregon Department of
15 Geology and Mineral Industries; Oregon Department of State Lands; Oregon Department of
16 Aviation; Confederated Tribes of Warm Springs Reservation of Oregon; and, the certificate holder.

17
18 Oregon Department of Environmental Quality (ODEQ) commented on the proposed order and
19 requested that Conditions 10.33 and 10.34, which apply to facility wastewater and evaporation
20 ponds, not be removed from the site certificate, as they are substantially similar to conditions in
21 the Water Pollution Control Facilities Permit (WPCF) – a permit governed by the site certificate.
22 Subsequent to these comments, ODEQ confirmed that because Condition 10.28 requires
23 compliance with the WPCF, that the agency had no objection with removal of Conditions 10.33
24 and 10.34.

25
26 Oregon Department of State Lands commented on the proposed order and confirmed that a
27 wetland delineation concurrence had been issued for the amended site boundary area.

28
29 Oregon Department of Geology and Mineral Industries commented on the proposed order and
30 confirmed concurrence with the characterization of seismic and non-seismic risks of the site and
31 the certificate holder's demonstrated ability to design, construct and operate the
32 proposed facility modifications to avoid such hazards.

³ The Department received over 6,700 public comments on the initial RFA, which as described above included a proposed 330 MW natural gas-fired simple cycle combustion turbine generator, upgrade of Unit 2, and a construction deadline extension request for Unit 2 and its supporting facilities. The majority of these comments raised concerns related to Unit 2 and Unit 3, the natural-gas fired components no longer included in the amendment request. Comments related to components no longer proposed in the amendment request are not addressed further in this order; comments related to the proposed Carty Solar Farm and its supporting facilities are addressed in Section III. *Review of Requested Amendment* of this order.

Oregon Department of Aviation commented on the proposed order and requested that the proposed 34.5 kV transmission line be marked as it would be located in an aviation corridor. The Council notes that the proposed transmission line structures would be 70 feet in height, and would not require evaluation under the Federal Aviation Administration (FAA) Notice of Proposed Construction or Alteration (7460 review process) nor marking and lighting. Therefore, this comment is not addressed further in this order.

Confederated Tribes of Warm Springs Reservation of Oregon commented on the proposed order and requested that any new site boundary areas be surveyed for potential tribal resources. As described in Section III.K. *Historic, Cultural and Archeological Resources*, the certificate holder's consultant conducted a desktop review and conducted a field-based survey of the expanded site boundary for the proposed solar farm and related or supporting facilities. The results of those surveys were included in the revised RFA1 and are addressed in the final order. Therefore, this comment is not addressed further in this order.

The certificate holder commented on the proposed order and provided 15 comments. These comments are not presented here for brevity but are incorporated by reference to the December 12, 2018 staff report to Council, where comments and recommended responses to comments were provided. Responses to certificate holder comments are incorporated into this final order.

II.E. Council Review Process

On March 5, 2018, the Department sent notice of the amendment request to all persons on the Council's general mailing list, to the special list established for the facility, to an updated list of property owners supplied by the certificate holder, and to a list of reviewing agencies as defined in OAR 345-001-0010(52). The notice included a request for public comments and established a comment deadline of April 6, 2018. In addition to issuing the notice, the Department posted the public notice and RFA1 materials on the agency website.

The Department also sent electronic copies of RFA1 to a distribution list, which included reviewing agencies, with a memorandum requesting agency comments by April 6, 2018. Public and reviewing agency comments received on RFA1 are described below, and in Section III. *Review of Requested Amendment* under the applicable standards.

The Department requested additional information on April 6, 2018 and received a response from the certificate holder on September 24, 2018 (see Attachment C). On November 9, 2018, the Department issued the proposed order and a notice of both a comment period and opportunity to request a contested case proceeding on the proposed order, specifying December 10, 2018 as the deadline for public comments and contested case requests. The notice was distributed to all persons on the Council's general mailing list, to the special mailing list established for the facility, to an updated list of property owners as verified by the Department, and to a list of reviewing agencies as defined in OAR 345-001-0010(52).

1 The Department received seven comments on the proposed order; there were no requests for a
2 contested case received. The Department provided each of the Council members a copy of the
3 comments as an attachment to the staff report dated November 30 and December 12, 2018.
4

5 The Council considered the proposed order and public and agency comments at the December 14,
6 2018 Council meeting held at The Discovery Center in The Dalles, Oregon. At the December 14,
7 2018 Council meeting, the Council voted to approve the proposed order, with modifications, and
8 grant an amended site certificate.
9

10 **II.F. Applicable Division 27 Rule Requirements**

11

12 Under ORS 469.405, “a site certificate may be amended with the approval of the Energy Facility
13 Siting Council.” The Council has adopted rules for determining when a site certificate amendment
14 is necessary (OAR 345-027-0050 and -0070).
15

16 Pursuant to OAR 345-027-0011, the procedural requirements imposed under OAR 345-027-0050
17 through -0100, as of October 24, 2017, do not apply to requests for amendment received prior to
18 October 24, 2017, including this amendment request, which, as noted, was first received in 2016.
19

20 **III. REVIEW OF REQUESTED AMENDMENT**

21

22 Under ORS 469.310, the Council is charged with ensuring that the “siting, construction and
23 operation of energy facilities shall be accomplished in a manner consistent with protection of the
24 public health and safety.” ORS 469.401(2) further provides that the Council must include in the
25 amended site certificate “conditions for the protection of the public health and safety, for the time
26 for completion of construction, and to ensure compliance with the standards, statutes and rules
27 described in ORS 469.501 and ORS 469.503.”⁴ The Council implements this statutory framework by
28 adopting findings of fact, conclusions of law, and conditions of approval concerning the ability of
29 the certificate holder to maintain compliance with the Council’s Standards for Siting Facilities at
30 OAR 345, Divisions 22, 24, 26, and 27.

31 **III.A. General Standard of Review: OAR 345-022-0000**

32

33 *(1) To issue a site certificate for a proposed facility or to amend a site certificate, the*
34 *Council shall determine that the preponderance of evidence on the record supports the*
35 *following conclusions:*
36

⁴ ORS 469.401(2).
Carty Generating Station
Final Order on Request for Amendment 1
December 2018

1 (a) The facility complies with the requirements of the Oregon Energy Facility Siting
2 statutes, ORS 469.300 to ORS 469.570 and 469.590 to 469.619, and the standards
3 adopted by the Council pursuant to ORS 469.501 or the overall public benefits of the
4 facility outweigh the damage to the resources protected by the standards the facility
5 does not meet as described in section (2);

6
7 (b) Except as provided in OAR 345-022-0030 for land use compliance and except for
8 those statutes and rules for which the decision on compliance has been delegated by
9 the federal government to a state agency other than the Council, the facility complies
10 with all other Oregon statutes and administrative rules identified in the project order, as
11 amended, as applicable to the issuance of a site certificate for the proposed facility. If
12 the Council finds that applicable Oregon statutes and rules, other than those involving
13 federally delegated programs, would impose conflicting requirements, the Council shall
14 resolve the conflict consistent with the public interest. In resolving the conflict, the
15 Council cannot waive any applicable state statute.

16 ***5

17 (4) In making determinations regarding compliance with statutes, rules and ordinances
18 normally administered by other agencies or compliance with requirements of the Council
19 statutes if other agencies have special expertise, the Department of Energy shall consult
20 with such other agencies during the notice of intent, site certificate application, and site
21 certificate amendment processes. Nothing in these rules is intended to interfere with the
22 state's implementation of programs delegated to it by the federal government.

23 24 **Findings of Fact**

25
26 OAR 345-022-0000 provides the Council's General Standard of Review and requires the Council to
27 make findings, on the record, based on the preponderance of evidence standard. These findings
28 must support the conclusion that the facility, with proposed changes, complies with the
29 requirements of Council statutes, the siting standards adopted by the Council, and all other
30 Oregon Statutes and administrative rules identified in the project order and as applicable to the
31 issuance of an amended site certificate for proposed facility modifications.

⁵ OAR 345-022-0000(2) and (3) apply to amendment requests where a certificate holder has shown that the amended facility cannot meet Council standards or has shown that there is no reasonable way to meet the Council standards through mitigation or avoidance of the damage to protected resources; and, for those instances, establish criteria for the Council to evaluate in making a balancing determination. The certificate holder does not assert that the amended facility cannot meet an applicable Council standard. Therefore, OAR 345-022-0000(2) and (3) do not apply to this review.

1 As discussed in Section II.D., *Amendment Review Process* the Department consulted with other
2 agencies during the site certificate amendment process to seek aid in the evaluation of the
3 proposal against the relevant statutes, rules, and ordinances administered by these agencies.
4 Additionally, the Department relied upon reviewing agencies' special expertise in evaluating the
5 facility's compliance with the requirements of the Council's standards. The Council finds that the
6 existing, new and amended site certificate conditions would ensure that the facility, with proposed
7 changes, would maintain compliance with all applicable statutes, administrative rules, and
8 ordinances under Council jurisdiction.

9
10 *Certificate Expiration [OAR 345-027-0013]*
11

12 A site certificate, or amended site certificate, becomes effective upon execution by the Council
13 Chair and the certificate holder. A site certificate, or amended site certificate, expires if
14 construction has not commenced on or before the construction commencement deadline, as
15 established in the site certificate and statutorily required under ORS 469.401(2).
16

17 The Council's imposition of construction deadlines in the amended site certificate should reflect a
18 balance between the Council's concern regarding potential circumstantial changes (regulatory and
19 environmental) and the individual circumstances of the amendment request. In addition, the
20 Council acknowledges that there are a number of unforeseen factors that can delay a certificate
21 holder's commencement of construction and completion, including but not limited to financial,
22 economic, or technological changes. The Council also notes that while each amendment request is
23 evaluated on its own facts, historic Council decisions on construction and commencement
24 deadlines were reviewed to inform this analysis. In most instances of decisions on ASCs, Council
25 has required construction commencement and completion of wind and solar energy facilities
26 within three and six years, respectively, after the effective date of the site certificate and in some
27 instances the completion deadline is established based on date of construction commencement
28 and not effective date of site certificate.
29

30 In RFA Exhibit B, the certificate holder requests up to three years to commence construction and
31 up to two years, upon construction commencement, to complete construction. The certificate
32 holder explains that based upon an anticipated nine month construction duration, the requested
33 completion deadline would allow flexibility in the event of construction or weather delays. The
34 Council grants the commencement deadline, as requested, because it would provide sufficient
35 time for satisfying pre-construction condition requirements established in the amended site
36 certificate, allow sufficient time to obtain required permits not governed by the site certificate,

1 and would be consistent with past Council requirements.⁶ The Council, however, grants a
2 construction completion deadline based upon three years following the date of construction
3 commencement, providing one additional year beyond the timeframe requested. This timeframe
4 would be consistent with historic Council decisions and represents a reasonable timeframe where
5 minimal changes on the ground would be expected.

6
7 Accordingly, and in compliance with OAR 345-025-0006(4), the Council adopts the following
8 conditions or condition amendments:⁷

9
10 **Condition 4.1, as amended:** The certificate holder shall:

- 11 i. Begin construction of the facility Unit 1 within three years after the effective date
12 of the site certificate. Under OAR 345-015-0085(9), a site certificate is effective
13 upon execution by the Council Chair and the applicant. The Council may grant an
14 extension of the deadline to begin construction in accordance with OAR 345-027-
15 0030 or any successor rule in effect at the time the request for extension is
16 submitted.
17 [Mandatory Condition OAR 345-027-0020(4); Final Order III.D.3]
- 18 ii. Begin construction of the Carty Solar Farm within three years after the effective
19 date of the amended site certificate, or February 4, 2022. The certificate holder
20 shall notify the Department when construction of the Carty Solar Farm commences.
21 Under OAR 345-015-0085(8), the site certificate is effective upon execution by the
22 Council Chair and the certificate holder.
23 [AMD1]

24
25 **Condition 4.2, as amended:** The certificate holder must:

- 26 i. Complete construction of Block 1 of the facility Unit 1 within three years of beginning
27 construction of Block 1 Unit 1. Construction is complete when: 1) the facility Unit 1 is
28 substantially complete as defined by the certificate holder's construction contract
29 documents; 2) acceptance testing has been satisfactorily completed; and 3) the energy
30 facility is ready to begin continuous operation consistent with the site certificate. The
31 certificate holder shall promptly notify the Department of the date of completion of
32 construction of Block Unit 1. The Council may grant an extension of the deadline for
33 completing construction in accordance with OAR 345-027-0030 or any successor rule in
34 effect at the time the request for extension is submitted.

⁶ CGSAMD1. RFA1 Exhibit E. 2018-02-20. RFA Exhibit E identifies that federal approval from Federal Aviation Administration (7460-1; 7460-2) and Federal Communications Commission (Coordination License) would be required; and, a federally delegated permit (National Pollutant Discharge Elimination System Stormwater Permit) from the Oregon Department of Environmental Quality (DEQ) would be required.

⁷ The Council removes Condition 4.3 because it is specific to Unit 2, which the certificate holder no longer maintains authority to construct or operate.

1 [Final Order III.D.4] [Mandatory Condition OAR 345-027-0020(4)]

- 2 ii. Complete construction of the Carty Solar Farm within six years of the effective date of the
3 amended site certificate, or February 4, 2025. The certificate holder shall promptly notify
4 the Department of the date of completion of construction of the Carty Solar Farm.

5 [AMD1]

6
7 *Mandatory and Site-Specific Conditions in Site Certificates [OAR 345-025-0006 and OAR 345-025-*
8 *0010]*

9
10 OAR 345-025-0006 lists certain mandatory conditions that the Council must adopt in every site
11 certificate. The Council's October 2017 rule changes moved the mandatory conditions from
12 Division 27 to Division 25. As such, Council administratively amends the rule citations included in
13 the previously imposed mandatory and site-specific conditions, as presented in Attachment A of
14 this order.

15
16 Additionally, the Council adopts the following site specific condition, pursuant to OAR 345-025-
17 0010(5), applicable to transmission lines:

18
19 **Condition 6.26:** The certificate holder is authorized to construct approximately 3 miles of a
20 34.5 kV transmission line anywhere within the approved corridors, subject to the
21 conditions of the site certificate. The approved corridors are approximately 160-feet in
22 width and extend between 2.25 and 3 miles of three routes as described in RFA1 Exhibit B
23 and as presented on Figure 1 of the site certificate.

24 [Site Specific Condition OAR 345-025-0010(5)] [AMD1]

25
26 *Construction and Operation Rules for Facilities [OAR Chapter 345, Division 26]*

27
28 The Council has also adopted rules at OAR Chapter 345, Division 26 to ensure that construction,
29 operation, and retirement of facilities are accomplished in a manner consistent with the
30 protection of the public health, safety, and welfare and protection of the environment. These rules
31 include requirements for compliance plans, inspections, reporting and notification of incidents.
32 The certificate holder must construct the facility substantially as described in the site certificate
33 and the certificate holder must construct, operate, and retire the facility, with proposed changes,
34 in accordance with all applicable rules adopted by the Council in OAR Chapter 345, Division 26.⁸

35
36
37

⁸ Applicable rule requirements established in OAR Chapter 345, Division 26 include OAR 345-026-0048, OAR 345-026-0080, OAR 345-026-0105, and OAR 345-026-0170.

1 **Conclusions of Law**

2
3 Based on the foregoing findings of fact and conclusions of law, and subject to compliance with the
4 amended mandatory and site-specific conditions, the Council finds that the facility, with proposed
5 changes, would satisfy the requirements of OAR 345-022-0000.

6 **III.B. Organizational Expertise: OAR 345-022-0010**

7
8 *(1) To issue a site certificate, the Council must find that the applicant has the organizational*
9 *expertise to construct, operate and retire the proposed facility in compliance with Council*
10 *standards and conditions of the site certificate. To conclude that the applicant has this*
11 *expertise, the Council must find that the applicant has demonstrated the ability to design,*
12 *construct and operate the proposed facility in compliance with site certificate conditions*
13 *and in a manner that protects public health and safety and has demonstrated the ability to*
14 *restore the site to a useful, non-hazardous condition. The Council may consider the*
15 *applicant's experience, the applicant's access to technical expertise and the applicant's past*
16 *performance in constructing, operating and retiring other facilities, including, but not*
17 *limited to, the number and severity of regulatory citations issued to the applicant.*
18

19 *(2) The Council may base its findings under section (1) on a rebuttable presumption that an*
20 *applicant has organizational, managerial and technical expertise, if the applicant has an*
21 *ISO 9000 or ISO 14000 certified program and proposes to design, construct and operate the*
22 *facility according to that program.*
23

24 *(3) If the applicant does not itself obtain a state or local government permit or approval for*
25 *which the Council would ordinarily determine compliance but instead relies on a permit or*
26 *approval issued to a third party, the Council, to issue a site certificate, must find that the*
27 *third party has, or has a reasonable likelihood of obtaining, the necessary permit or*
28 *approval, and that the applicant has, or has a reasonable likelihood of entering into, a*
29 *contractual or other arrangement with the third party for access to the resource or service*
30 *secured by that permit or approval.*
31

32 *(4) If the applicant relies on a permit or approval issued to a third party and the third party*
33 *does not have the necessary permit or approval at the time the Council issues the site*
34 *certificate, the Council may issue the site certificate subject to the condition that the*
35 *certificate holder shall not commence construction or operation as appropriate until the*
36 *third party has obtained the necessary permit or approval and the applicant has a contract*
37 *or other arrangement for access to the resource or service secured by that permit or*
38 *approval.*
39
40

1 **Findings of Fact**

2 Subsections (1) and (2) of the Council's Organizational Expertise standard require that the
3 certificate holder demonstrate its ability to design, construct and operate the facility, with
4 proposed changes, in compliance with Council standards and all site certificate conditions, and in a
5 manner that protects public health and safety, as well as its ability to restore the site to a useful,
6 non-hazardous condition. The Council may consider the certificate holder's experience and past
7 performance in constructing, operating and retiring other facilities in determining compliance with
8 the Council's Organizational Expertise standard. Subsections (3) and (4) address third party
9 permits.

10
11 *Compliance with Council Standards and Site Certificate Conditions*

12
13 The Council may consider a certificate holder's past performance, including but not limited to the
14 quantity or severity of any regulatory citations in the construction or operation a facility, type of
15 equipment, or process similar to the facility, in evaluating whether a proposed change may impact
16 the certificate holder's ability to design, construct and operate a facility in compliance with Council
17 standards and site certificate conditions.⁹ To evaluate whether construction and operation of the
18 proposed Carty Solar Farm and its supporting facilities would impact the certificate holder's ability
19 to comply with Council standards and site certificate conditions, the Council evaluates the
20 certificate holder's relevant experience constructing and operating solar facilities and whether any
21 regulatory citations have been received for its facilities.

22
23 PGE has demonstrated, through construction of previous energy facilities, that it is capable of
24 designing and constructing a solar facility that complies with EFSC site certificate conditions and
25 has previously demonstrated an ability to restore a facility to a useful, non-hazardous condition.
26 Portland General Electric Company is a vertically integrated utility, which has operated for 129
27 years and serves 863,000 customers in 51 cities. PGE currently operates six natural gas facilities,
28 one coal facility, seven hydro-electric facilities, two wind facilities, and five solar facilities. The
29 nameplate capacity of its combined solar facilities is approximately 9 MW and these facilities are
30 composed of both crystalline and thin film technologies.¹⁰

31
32 In RFA Exhibit D, the certificate holder lists violations and citations for various PGE facilities that
33 have occurred between 2010 through 2015 and were related to water pollution and air
34 contaminants. None of the listed violations or citations were issued by the Council or issued to the
35 Carty Generating Station. PGE indicated that all citations and violations had been corrected. PGE
36 described that most of the citations or violations were identified by the facility, and were

⁹ OAR 345-021-0010(1)(d)(D)

¹⁰ CGSAMD1. Request for Amendment 1 Exhibit W, p. D-4. 2018-02-20.

1 immediately resolved. For these reasons, the Council considers PGE's ability to identify and
2 respond to compliance issues to be representative of their reasonable ability to construct and
3 operate the proposed Carty Solar Farm in compliance with existing and recommended new or
4 amended site certificate conditions.

5
6 *Ability to Restore the Site to a Useful, Non-Hazardous Condition*

7
8 The certificate holder's ability to restore the facility site to a useful, non-hazardous condition is
9 evaluated in Section III.G, *Retirement and Financial Assurance* of this order, in which the Council
10 finds that the certificate holder would continue to be able to comply with the Retirement and
11 Financial Assurance standard. In addition, the certificate holder's ability to construct and operate
12 the proposed Carty Solar Farm in a manner that protects public health and safety is addressed in
13 Section III.C., *Structural Standard*; Section III.M, *Public Services*; and Section III.P.1, *Siting*
14 *Standards for Transmission Lines*, of this order.

15
16 *ISO 900 or ISO 14000 Certified Program*

17
18 OAR 345-022-0010(2) is not applicable because the certificate holder has not proposed to design,
19 construct or operate the facility, with proposed changes, according to an ISO 9000 or ISO 14000
20 certified program.

21
22 *Third-Party Permits*

23
24 OAR 345-022-0010(3) addresses the requirements for potential third party permits, and for third
25 party permits Council would ordinarily determine compliance, Council must find that the
26 certificate holder has a reasonable likelihood of entering into a contract or other agreement with
27 the third-party for access to the resource secured by that permit, and that the third party has a
28 reasonable likelihood of obtaining the necessary permit.

29
30 In the amendment request, the certificate holder describes that water needed during construction
31 of the proposed Carty Solar Farm and its supporting facilities would be obtained from Carty
32 Reservoir, of which PGE maintains a water right, through a third-party limited water use license
33 from Oregon Department of Water Quality, a permit for which the Council would ordinarily
34 determine compliance. Because the certificate holder has not selected its third-party contractor,
35 the necessary permit or approval has not yet been obtained. Therefore, Council adopts the
36 following condition, which prohibits the certificate holder from commencing construction until the
37 third party permit is issued:

38
39 **Recommended Condition 2.14: The certificate holder must:**

- 1 a. Prior to construction of the Carty Solar Farm, provide evidence to the Department that
2 a limited water use license from Oregon Department of Water Quality has been
3 obtained by its third-party contractor.
4 b. During construction of the Carty Solar Farm, provide to the Department in semi-annual
5 reports, pursuant to OAR 345-026-0080, documentation of the record of all water use,
6 as required by the third-party's limited water use license, demonstrating that the
7 allowable total and per minute water use (total gallons and gallons per minute) have
8 not been exceeded.
9 [AMD1]

10 11 **Conclusions of Law**

12
13 Based on the evidence presented in the RFA, the Council finds that with existing and new site
14 certificate conditions, the certificate holder has the ability to design, construct, and operate the
15 facility, with proposed changes, in compliance with all Council standards and conditions, as
16 required by the Organizational Expertise standard.

17 **III.C. Structural Standard: OAR 345-022-0020**

18
19 *(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the*
20 *Council must find that:*

21
22 *(a) The applicant, through appropriate site-specific study, has adequately characterized*
23 *the site as to the Maximum Considered Earthquake Ground Motion as shown for the*
24 *site in the 2009 International Building Code and maximum probable ground motion,*
25 *taking into account ground failure and amplification for the site specific soil profile*
26 *under the maximum credible and maximum probable seismic events; and*

27
28 *(b) The applicant can design, engineer, and construct the facility to avoid dangers to*
29 *human safety presented by seismic hazards affecting the site that are expected to result*
30 *from maximum probable ground motion events. As used in this rule "seismic hazard"*
31 *includes ground shaking, ground failure, landslide, liquefaction, lateral spreading,*
32 *tsunami inundation, fault displacement, and subsidence;*

33
34 *(c) The applicant, through appropriate site-specific study, has adequately characterized*
35 *the potential geological and soils hazards of the site and its vicinity that could, in the*
36 *absence of a seismic event, adversely affect, or be aggravated by, the construction and*
37 *operation of the proposed facility; and*

38
39 *(d) The applicant can design, engineer and construct the facility to avoid dangers to*
40 *human safety presented by the hazards identified in subsection (c).*
41

1 (2) The Council may issue a site certificate for a facility that would produce power from
2 wind, solar or geothermal energy without making the findings described in section (1).
3 However, the Council may apply the requirements of section (1) to impose conditions on a
4 site certificate issued for such a facility.

5
6 (3) The Council may issue a site certificate for a special criteria facility under OAR 345-015-
7 0310 without making findings described in section (1). However, the Council may apply the
8 requirements of section (1) to impose conditions on a site certificate issued for such a
9 facility.

10 11 **Findings of Fact**

12
13 As provided in section (1) above, the Structural Standard generally requires the Council to evaluate
14 whether the applicant (certificate holder) has adequately characterized the potential seismic,
15 geological and soil hazards of the site, and whether the applicant (certificate holder) can design,
16 engineer and construct the facility to avoid dangers to human safety and the environment from
17 these hazards.¹¹ Pursuant to OAR 345-022-0020(2), the Council may issue a site certificate for a
18 wind energy facility without making findings regarding compliance with the Structural Standard;
19 however, the Council may apply the requirements of the standard to impose site certificate
20 conditions.

21
22 The analysis area for the Structural Standard is the area within the site boundary.

23
24 The certificate holder's geotechnical consultant, Cornforth Consultants, Inc., of Portland, Oregon
25 prepared a geotechnical/geologic investigations report for this amendment request. The report,
26 dated May 27, 2016, meets the general guidelines in DOGAMI Open File Report 00-04 and the
27 Oregon State Board of Geologist Examiners' Guidelines for Preparing Engineering Geologic Reports
28 (Second Edition, May 30, 2014).

29
30 The certificate holder completed consultation with the Oregon Department of Geology and
31 Mineral Industries (DOGAMI) across several communication exchanges. The certificate holder
32 conducted a telephone conference with DOGAMI on March 28, 2016 in which information was
33 provided related to the PGE's intent to prepare a Site Certificate Amendment Request for the
34 Carty Solar Farm. The telephone conversation occurred between Mr. Bill Burns of DOGAMI and
35 Mr. Darren Beckstrand, Senior Associate Geologist with Cornforth Consultants, Inc. Mr. Beckstrand
36 informed Mr. Burns during the conversation of Cornforth's intent to complete preliminary site
37 investigations consisting of a geologic site reconnaissance (completed March 30, 2016), drilling of

¹¹ OAR 345-022-0020(3) does not apply to this facility because the facility, with proposed changes, is not a special
criteria facility under OAR 345-015-0310.

1 preliminary site exploratory borings (completed March 29 through 31, 2016), field electrical
2 resistivity testing (completed April 8, 2016) and laboratory testing (completed in April 2016).
3 Subsequent email communications (Beckstrand/Burns) confirmed this consultation with DOGAMI
4 and highlighted several suggestions by DOGAMI for Cornforth to consider during the site
5 evaluations. In his email response, Mr. Burns pointed-out that the latest version of the OAR 345-
6 021-0010 regulations at the time did not reference the latest building codes/guidelines. At the
7 time, he suggested that any analyses that refers to or relies on the International Building Code
8 (IBC) or the Oregon Structural Specialty Code (OSSC) consider both the codes/guidelines referred
9 to in the current OAR regulations (outdated code references, 2009 IBC and 2010 OSSC) and also
10 the updated codes (IBC 2015 and OSSC 2014). Mr. Beckstrand confirmed that these updated codes
11 would be considered, although potentially not included, in the assessments.

12
13 Preliminary geologic and geotechnical site investigations were completed at the proposed Carty
14 Solar Farm site during the period of March 29 through April 8, 2016. The preliminary site work
15 included a geologic reconnaissance of the area, drilling of four exploratory borings to depths of 50
16 feet below the existing ground surface, and field electrical resistivity measurements (one location)
17 to evaluate on-site soil conductivity. The certificate holder describes that additional site
18 investigations will be performed along the final route selected for the proposed 34.5 kV
19 interconnection transmission line.

20 21 *Potential Seismic, Geological and Soil Hazards*

22
23 OAR 345-022-0020(1)(a) requires the certificate holder to adequately characterize the seismic
24 hazard risk of the site. The potential seismic hazards in the vicinity of the facility site result from
25 two principal types of earthquake sources: Cascadia Subduction Zone (CSZ) interface and local
26 crustal faults.

27
28 The proposed Carty Solar Farm and its supporting facilities should be designed for the maximum
29 considered earthquake (MCE), according to the 2015 IBC. The MCE has a 2-percent probability of
30 exceedance in 50 years (or an approximately 2,475-year return period) and would have a peak
31 ground acceleration (PGA) of 0.24g at the bedrock surface in the analysis area, based on a random
32 crustal event. The peak acceleration estimated for the CSZ interface event was calculated using
33 the averaged, mean plus one standard deviation ground motions from Addo, et al (2012), Atkinson
34 and Boore (2003), Atkinson and Macias (2009), and Zhao, et al. (2006) attenuation relationships.

35
36 Based on the preliminary geotechnical studies, the certificate holder asserts that there are no
37 significant seismic hazards expected at the site. Due to the gently sloping topography of the site,
38 the likelihood of seismically-induced landsliding is low. Additionally, the site is not located near a
39 body of water large enough to develop a significant tsunami wave. Therefore, the risk of tsunami
40 inundation at the site is extremely low to non-existent. Earthquake induced waves (seiche) from
41 the impoundment reservoir are not expected to exceed the height of the embankments or to

1 travel very far landward of the shorelines. There are no mapped active crustal faults located within
2 6 miles of the site and therefore the certificate holder asserts that the risk of fault rupture is low.

3 *Seismic Disaster Resilience*

4
5 The proposed solar facility is located over 200 miles from the CSZ and is in the light damage zone
6 as defined in the Oregon Resiliency Plan (2013), making it inherently resilient to region-wide
7 seismic disaster. The certificate holder describes that local seismic resiliency would be provided by
8 adhering to current seismic building codes, which incorporate the latest, widely-accepted
9 earthquake data and science.

10
11 Ground shaking hazards would be addressed by the use of seismic ground response spectra in the
12 design, in general accordance with applicable International Building Code and Oregon Structural
13 Specialty Code requirements to design project structural support elements to avoid failure of the
14 panel support systems. The structural engineer would design the facilities to resist lateral base
15 shear based on the spectral values and the seismic design category of the structure. If the spectral
16 values are significantly lower than the OSSC values, the code values would be utilized. Seismic
17 activity monitoring would be accomplished by monitoring public seismic data when needed, such
18 as that provided by the United States Geologic Survey or the Pacific Northwest Seismic Network.
19 The certificate holder indicates that on-site seismic monitoring is not warranted.

20
21 In addition, in the unlikely event of a failure of a solar panel support system (i.e. the racking
22 support system for the solar panels), the risk that would pose to human safety is considered to be
23 low. This is considered low since the presence of operational staff being beneath failing racks that
24 had been designed to seismic codes during a significant seismic event is considered to be remote.
25 Based on the preliminary geotechnical investigations, the proposed Carty Solar Farm site does not
26 appear to possess any significant, non-seismic geologic hazards. As discussed in the preliminary
27 geotechnical/geological report (RFA1 Exhibit H Appendix H-1), there is an upper, surficial layer of
28 dry silt/fine sand that may present minor geotechnical concerns relating to wind erosion or soil-
29 structure collapse; however, it is anticipated that these concerns could be mitigated during the
30 final design and construction phases of the proposed Carty Solar Farm.

31
32 The risk of landslide occurrences at the site is very low due to: i) gently sloping or flat topography
33 all across the site; ii) relatively strong soils at depth; and iii) apparent low groundwater levels. In
34 addition, the risk of flood damage is low due to the flat terrain and lack of upslope drainage areas
35 that could direct water into the project site. The certificate holder found no indications following
36 the geologic reconnaissance of any significant surficial flood drainage ways or flood-eroded
37 ravines.

38
39 The two key geotechnical and geologic issues for the proposed Carty Solar Farm appear to be the
40 potential for erosion of loose surficial soils, and a low potential for collapse of the relatively loose,
41 near-surface wind-blown soils. Council previously imposed Condition 5.4 requiring that the

certificate holder complete a pre-construction site-specific geotechnical investigation to further assess, and ensure avoidance of, potential seismic, geologic, and soil hazards of the proposed Carty Solar Farm site at the time when final location of facility components is understood. The Council amends Condition 5.4 requiring that the pre-construction site-specific geotechnical investigation completed for the proposed Carty Solar Farm be based upon a protocol reviewed and approved by the Department in consultation with DOGAMI, and include geotechnical work as proposed by the certificate holder.

Condition 5.4, as amended: Before beginning construction, the certificate holder must:

- i. Complete an investigation...
[Final Order IV.C.2.1]
- ii. Complete an investigation of subsurface soil and geologic conditions, based upon a protocol reviewed and approved by the Department in consultation with DOGAMI, to identify geological or geotechnical hazards and obtain Department approval of the investigation report per Condition 5.4.i.b.
 - a. The investigation must include at least the following activities:
 1. Drilling of additional borings at scattered locations across the Carty Solar Farm and associated transmission lines and access roads, up to a depth of 50 feet.
[AMD1]

Integration of Disaster Resilience Design

The proposed Carty Solar Farm would be founded upon strong soils and would have comprehensive engineering design efforts to ensure renewed operation as soon as practicable after a major disaster. The location of the proposed Carty Solar Farm in the Eastern Cascadia Scenario Impact Zone anticipates light damage from a CSZ earthquake (Oregon Resilience Plan, 2013), improving the electricity grid's ability to recover from a regional disaster originating to the west. Solar facilities are inherently resilient to disasters due to less complex generation systems and fewer moving parts or ignition sources that could be damaged during shaking.

Following significant, regional storms that may impact other regional facilities, solar and other facilities outside the high-rainfall areas of the Pacific Northwest improves extreme-storm resilience.

The certificate holder identified potential climate change impacts within the region as including (Dalton et al, 2017):

- More common extreme heat events
- Small increases in drought frequency
- Longer fire seasons
- More common storm events

- Altered precipitation patterns influencing rangeland vegetation
- Shifting streamflow seasonality

Potential climate change impacts would either not affect the solar facilities (i.e. more heat, more drought) or are mitigated through site development, such as wildfire potential being reduced by site vegetation control. Local vegetation changes could increase eolian (wind-driven) sand transport, though site maintenance would control for this. Other factors, such as shifting streamflow seasonality, forest transformation and disturbance, and challenges to fish would not apply to the proposed Carty Solar Farm due to the surrounding grasslands and absence of streams traversing the site. Site drainage from strong storms would be controlled by site grading and surface water control systems engineering using site-specific hydraulic analyses.

Future climate conditions that impact the region are not expected to negatively affect the proposed Carty Solar Farm.

Based upon the evidence provided, and subject to compliance with the conditions referenced above, the Council finds that the certificate holder has adequately characterized the potential geologic and soil hazards of the proposed Carty Solar Farm site and its vicinity that could, in the absence of a seismic event, adversely affect or be aggravated by the construction and operation of the facility, and that the certificate holder can design, engineer, and construct the proposed Carty Solar Farm to avoid dangers to human safety and the environment presented by the identified hazards.

Conclusions of Law

Based on the evidence presented in the amendment request, and in accordance with OAR 345-022-0020(2), the Council finds that with existing and amended site certificate conditions, the certificate holder has the ability to design and construct the proposed Carty Solar Farm to avoid dangers to human safety presented by the non-seismic hazards identified at the site.

III.D. Soil Protection: OAR 345-022-0022

To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in a significant adverse impact to soils including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.

1 **Findings of Fact**

2
3 The Soil Protection standard requires the Council to find that the design, construction, and
4 operation of the facility are not likely to result in significant adverse impacts to soil.
5

6 The analysis area for the Soil Protection standard is the area within the site boundary. The
7 proposed amended site boundary includes 1,581 acres and the proposed Carty Solar Farm would
8 permanently disturb approximately 321.5 acres.¹²
9

10 **Existing Soil Conditions and Land Use**

11
12 Existing soil conditions within the analysis area are described and shown in RFA1 Exhibit I, and
13 specifically discussed within Table I-1 and Figure I-1. Exhibit I, Table I-1 describes soils units,
14 including erosion potential by soil type. The certificate holder classified soil types using the Natural
15 Resources Conservation Service (NRCS) Soil Survey Geographic Database. As stated in Figure I-1,
16 the majority of land proposed for solar arrays is classified as sagehill fine sandy loam, but also
17 includes dune land. These soil classifications are described in further detail below.
18

19 In addition to the land proposed for the Carty Solar Farm, the certificate holder proposes to build a
20 transmission line from the solar farm to one of three interconnection points. If PGE determines
21 that an interconnection point at the Grassland Switchyard is necessary, then it proposes to expand
22 the size of the Grassland Switchyard by 6.5 acres. The interconnection routes are described in the
23 Certificate Holder's Exhibits B, C, and K. According to Figure I-1, the various transmission routes
24 and Grassland Switchyard expansion would all be sited on land classified as sagehill fine sandy
25 loam soil, the predominant soil type within the proposed amended site boundary.
26

27 Sagehill fine sandy loam soils are considered to be "very deep, well-drained soil formed in wind-
28 laid material and calcareous lacustrine sediment." Sagehill fine sandy loam soils are considered to
29 be between classes IVE to VI as "dryland" and are considered to be between classes IIe to VIe
30 irrigated. Erosion risks to sagehill fine sandy loam are "slight" and the risk from "soil blowing" is
31 "moderate." As noted throughout the RFA1 and this final order, the land proposed for the solar
32 farm is not currently irrigated, and there is no record that the land has been previously used for
33 either agricultural or grazing purposes.
34

35 Dune land soils are considered to be "excessively drained sand eolian soil. Permeability is very
36 rapid." This soil is considered to be class VIIIe if it is dryland and is not rated for irrigated land. This
37 soil is not suitable for grazing or agricultural purposes. The risk of wind erosion is "high," while the
38 risk from water erosion is "slight."

¹² CGSAMD1. Request for Amendment 1 Exhibit C, p. C-2. 2018-02-20.
Carty Generating Station
Final Order on Request for Amendment 1
December 2018

1 Potential Significant Adverse Impacts to Soil

2
3 RFA1 Exhibit I includes the certificate holder's assessment of potential soil impacts, which may
4 arise from the construction or operation of the solar farm.

5
6 Potential impacts to soils within the analysis area (proposed amended site boundary) could
7 occur during construction of the proposed Carty Solar Farm from: soil erosion from wind or
8 rain; spills or leakage from power-driven equipment; soil compaction; or other damage arising
9 from construction debris and other construction pollutants. Potential soil impacts during
10 construction-related activities also includes risk from introduction or spreading of invasive
11 weeds, within the site boundary, through the use of transportation equipment.¹³ Potential
12 impacts to soils within the analysis area could occur during operations, although impacts are
13 expected to be minimal given the nature of operational activities. Potential operational impacts
14 to soils include soil erosion resulting from construction-related activities, but in areas not yet
15 stabilized at the time of operations, spills or leakage from power driven equipment, and
16 disposal of solar panel washwater.

17
18 Impacts related to soil compaction and introduction of noxious weeds is discussed in Section
19 III.E. *Land Use* of this order. The evaluation of potential impacts to soils during construction and
20 operation focuses on erosion, spills, and disposal or discharge of solar panel washwater. Council
21 previously imposed several conditions that would minimize these potential impacts. Erosion
22 control measures would be implemented during construction in accordance with Condition 9.1
23 and 9.4. Conditions 9.1 and 9.4 require the certificate holder to, during construction,
24 implement and conduct monthly inspections of erosion and sediment control measures and
25 best management practices in accordance with the DEQ-approved National Pollutant Discharge
26 Elimination System Construction Stormwater Discharge General Permit (NPDES) 1200-C.
27 Measures and best management practices to be implemented during facility construction, as
28 required under the NPDES 1200-C permit, are provided in the draft Erosion and Sediment
29 Control Plan provided in Attachment F of this order.¹⁴ Erosion control measures would be
30 maintained during operations until conditions are stabilized, and as confirmed by DEQ, per the
31 NPDES 1200-C. Condition 9.4 and 9.5 require the certificate holder to, during operations,

¹³ CGSAMD1. RFA1 Exhibit I, p. I-5. 2018-02-20.

¹⁴ CGSAMD1. RFA1 Exhibit I. 2018-02-20. The certificate holder notes that the ESCP, as provided in Attachment G of this order, includes measures that would apply to Unit 2 and Unit 3, which are no longer requested for approval under this amendment request. The Department confirmed that, based upon confirmation from the certificate holder that Unit 2 and Unit 3 were no longer proposed, the plans would not need to be revised to reflect the removal of these components, but that measures specific to these components would be considered inapplicable.

1 monitor, inspect and maintain areas of disturbance and ensure that sediment control measures
2 are sufficient for erosion control.

3
4 In RFA1, the certificate holder requests Condition 9.4 be amended to remove subparts (a)
5 through (d), which include specific requirements of the NPDES 1200-C applicable during
6 construction of Unit 1. The NPDES 1200-C permit has not yet been terminated, and soil
7 stabilization measures required for impacts resulting from construction of Unit 1 continue.¹⁵
8 However, because (a) through (d) apply to Unit 1 construction, which was completed in 2016
9 and therefore no longer apply, the Council amends Condition 9.4, as presented in Attachment A
10 of this order.

11
12 The Council finds that based upon compliance with existing conditions, potential soil erosion
13 impacts during construction and operation would not likely be significant or adverse.

14
15 Potential adverse impacts to soils could occur during construction and operation from leakage
16 or spills from power driven equipment or from oil-containing equipment (transformers).
17 Council previously imposed Condition 5.9 and 10.36 requiring the certificate holder to, during
18 construction and operation, develop and implement a Spill Prevention Control and
19 Countermeasures (SPCC) Plan.¹⁶ The certificate holder describes that the SPCC plans require oil-
20 containing equipment or containers with a volume of 55 gallons or greater to be maintained
21 within secondary containment, and require containment structures to be kept empty of liquids
22 and other material to provide maximum containment capacity. In addition, the certificate
23 holder has developed and maintains Oil Spill Response Procedures, which are included with the
24 SPCC plan. The Council finds that development and implementation of a construction and
25 operational SPCC Plan, as required through existing site certificate conditions, would minimize
26 potential adverse impacts to soils during a spill event.

¹⁵ CGSOPSDoc2. 2017 Annual Report. 2018-04-30.

¹⁶ Federal SPCC regulations do not require SPCC plans during construction; therefore, the construction plan would not be submitted to DEQ or the United States Environmental Protection Agency. An SPCC plan is required for operation of a facility if the total aboveground storage capacity of oil and oil products exceeds 1,320 gallons, and if, because of its location, the facility could reasonably be expected to discharge oil into navigable waters of the United States. The oil storage locations at the Carty Generating Station are located a considerable distance from navigable waters; therefore, it is not reasonably expected that a potential oil spill would reach navigable waters of the United States. Accordingly, the SPCC rule under 40 Code of Federal Regulations 112 would not apply. However, Site Certificate Condition 5.9 requires PGE to develop an SPCC plan for the Carty Generating Station; PGE therefore would be required to update the SPCC plan to reflect new amounts and locations of oil-containing equipment or containers; the additional amounts and locations of oil will not result in any new or modified measures to avoid or mitigate adverse impacts to soils.

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Potential adverse impacts to soils could occur during disposal or discharge of solar panel washwater during solar panel washing. The certificate holder included a request to modify its Water Pollution Control Facility (WPCF) permit application to allow disposal through onsite evaporation and seepage.

The certificate holder maintains a WPCF permit (100189), issued by DEQ but governed by the site certificate. The WPCF currently includes conditions applicable to the disposal of wastewater from washing equipment and vehicles, as well as washing concrete truck chutes and exteriors. Disposal of solar panel washwater is not addressed in the WPCF permit and therefore requires a permit amendment.

Solar panel washing will be conducted on an as-needed basis and may not occur every year. Each time panel washing is deemed necessary, the certificate holder expects to use 0.65 to 1.6 million gallons (MG) of demineralized water or municipal water, which will be obtained from Carty Reservoir or hauled to the site from a municipal sources. Chemicals, soaps, detergents and heat will not be added to the water. Water would be sprayed onto the panels and allowed to run off the panels directly onto the ground. Based on the area of the proposed Carty Solar Farm, washwater application rate would be 0.08 to 0.19 inches of water per acre per event. Erosion impacts are not expected due to the low application rate and the presence of sandy soils at the site, which promote seepage.

The Department received DEQ's technical analysis and draft amended WPCF in June 2018, which includes a condition that allows disposal of solar panel washwater on the ground at the point of application. It prohibits the use of chemicals, soaps, detergents and heated water. Pressure washing is allowed so long as it does not remove paint or other finishes. Soil erosion and runoff are prohibited and any soil erosion must be repaired within 30 days of occurrence. Environmental monitoring is required during panel washing operations. Council previously imposed Condition 10.28 requiring that the certificate holder comply with the requirements of the WPCF. Based on the proposed WPCF permit modification and DEQ's recommended condition, the Council amends Condition 10.28 as follows:

Condition 10.28, as amended: Before beginning operation of the facility, the certificate holder shall demonstrate that the Oregon Department of Environmental Quality has issued to the certificate holder:

- i. A Water Pollution Control Facilities Permit substantially in the form of Exhibit 4 of the *Final Order on the Application*, allowing for wastewater discharge from the Carty Generating Station.
[Final Order V.E.2.1]
- ii. A modified Water Pollution Control Facilities Permit with the following additional condition, allowing discharge of solar panel washwater:
 - a. Solar panel wash water is permitted to be discharged through evaporation or infiltration into the ground at the point of application. The use of chemicals, soaps, detergents and heated water is prohibited. Pressure washing is

1 allowed, so long as it does not remove paint or other finishes. Soil erosion
2 and runoff from the Carty Solar Farm is prohibited. Soil erosion must be
3 repaired within 30 days of occurrence.
4 [AMD1]

6 **Conclusions of Law**

8 Based on the reasoning discussed above, and subject to continued compliance with the existing
9 and amended condition, the Council finds that the facility, with proposed changes, would
10 comply with the Council's Soil Protection standard.

11 **III.E. Land Use: OAR 345-022-0030**

13 *(1) To issue a site certificate, the Council must find that the proposed facility complies with*
14 *the statewide planning goals adopted by the Land Conservation and Development*
15 *Commission.*

17 *(2) The Council shall find that a proposed facility complies with section (1) if:*

18 ***

19 *(b) The applicant elects to obtain a Council determination under ORS 469.504(1)(b) and*
20 *the Council determines that:*

22 *(A) The proposed facility complies with applicable substantive criteria as described in*
23 *section (3) and the facility complies with any Land Conservation and Development*
24 *Commission administrative rules and goals and any land use statutes directly*
25 *applicable to the facility under ORS 197.646(3);*

27 *(B) For a proposed facility that does not comply with one or more of the applicable*
28 *substantive criteria as described in section (3), the facility otherwise complies with*
29 *the statewide planning goals or an exception to any applicable statewide planning*
30 *goal is justified under section (4); or*

32 *(C) For a proposed facility that the Council decides, under sections (3) or (6), to*
33 *evaluate against the statewide planning goals, the proposed facility complies with*
34 *the applicable statewide planning goals or that an exception to any applicable*
35 *statewide planning goal is justified under section (4).*

37 *(3) As used in this rule, the "applicable substantive criteria" are criteria from the affected*
38 *local government's acknowledged comprehensive plan and land use ordinances that are*
39 *required by the statewide planning goals and that are in effect on the date the applicant*
40 *submits the application. If the special advisory group recommends applicable*
41 *substantive criteria, as described under OAR 345-021-0050, the Council shall apply them.*
42 *If the special advisory group does not recommend applicable substantive criteria, the*

Council shall decide either to make its own determination of the applicable substantive criteria and apply them or to evaluate the proposed facility against the statewide planning goals.

(4) The Council may find goal compliance for a proposed facility that does not otherwise comply with one or more statewide planning goals by taking an exception to the applicable goal. Notwithstanding the requirements of ORS 197.732, the statewide planning goal pertaining to the exception process or any rules of the Land Conservation and Development Commission pertaining to the exception process, the Council may take an exception to a goal if the Council finds:

(a) The land subject to the exception is physically developed to the extent that the land is no longer available for uses allowed by the applicable goal;

(b) The land subject to the exception is irrevocably committed as described by the rules of the Land Conservation and Development Commission to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or

(c) The following standards are met:

(A) Reasons justify why the state policy embodied in the applicable goal should not apply;

(B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the Council applicable to the siting of the proposed facility; and

(C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

Findings of Fact

The Council must apply the Land Use standard in conformance with the requirements of ORS 469.504. Under ORS 469.504(1)(b)(A), the Council may find compliance with statewide planning goals if the Council finds that the amendment request “complies with applicable substantive criteria from the affected local government’s acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted” (the initial amendment request was received on August 29, 2016).

The analysis area for potential land use impacts, as defined in the project order, is the area within and extending ½-mile from the site boundary, as amended.

As described in Section II.B. *Components Included in Reviewed Amendment Request* of this order, the amendment request includes: a 50 MW solar photovoltaic unit, 5 interconnection options, and temporary construction laydown and parking areas (Carty Solar Farm); 34.5 kV

1 transmission line with 5 routing options; and, site boundary changes. The components
2 proposed in the amendment request would be located entirely within Morrow County;
3 therefore, Morrow County is the affected local governments for purposes of the evaluation
4 necessary for compliance with the Council's Land Use standard. The Council appointed the
5 Morrow County Court, the governing body for Morrow County, as a Special Advisory Group
6 (SAG), during the application phase, on November 19, 2009. On January 9, 2017, the Morrow
7 County Court became known as the Morrow County Board of Commissioners. Because the
8 change in governing body did not result in a substantial change in scope of authority, the 2009
9 appointment remains in effect for subsequent amendment proceedings with proposed
10 components located within Morrow County. The Department provided notice of this
11 amendment request to the Morrow County SAG on September 1, 2016 and March 5, 2018. The
12 applicable substantive criteria include provisions from Morrow County Zoning Ordinance
13 (MCZO) and the acknowledged 2016 Morrow County Comprehensive Plan.

14
15 Previously approved but not yet constructed facility components, including the 18-mile 500 kV
16 transmission line, would have been located within Gilliam County. As described in Section II.A.
17 *Requested Amendment* of this order, the certificate holder no longer maintains authorization
18 for the construction and operation of facility components associated with Unit 2, as the site
19 certificate authorization for these facility components expired in June 2017. Conditions
20 previously imposed under the Council's Land Use standard based on potential impacts that
21 would have occurred within Gilliam County are recommended, in this section of the order, for
22 removal from the site certificate, as there are no facility components or components proposed
23 in the amendment request that would occur within Gilliam County.

24
25 The components proposed in the amendment request would be located within land zoned
26 Exclusive Farm Use (EFU) and General Industrial (MG), as presented in RFA1 Exhibit K, Figure K--
27 1. Therefore, the applicable substantive criteria for which the certificate holder must comply
28 are presented in Table 1, *Applicable Substantive Criteria* below.

Table 1: Morrow County Applicable Substantive Criteria

Morrow County Zoning Ordinance (MCZO)	
<i>Article 1 – Introductory Provisions</i>	
Section 1.050	Zoning Permit
<i>Article 3 – Use Zones</i>	
Section 3.010	Exclusive Farm Use, EFU Zone
Section B	Uses Permitted Outright
Section C	Conditional Uses
Section D	Use Standards
Section K	Photovoltaic Solar Power Generation Facility
Section M	Yards
Section N	Transportation Impacts
Section 3.070	General Industrial Zone
Section A	Uses Permitted Outright
Section D	Dimension Requirements
Section E	Transportation Impacts
<i>Article 4 – Supplementary Provisions</i>	
Section 4.165	Site Plan Review
<i>Article 6 – Conditional Uses</i>	
Section 6.015	Requirements Under a State Energy Facility Site Certificate
Section 6.020	General Criteria
Section 6.025	Resource Zone Standards for Approval
Section 6.030	General Conditions
Section 6.040	Permit and Improvements Assurance
Section 6.050	Standards Governing Conditional Uses
Morrow County Comprehensive Plan	
Agricultural Policy 1 and 4	
Energy Policies 3 and 9	
Economic Element Policy 2A, 3A, 5A and 6C	

- 1
2 The land use approvals and development permits required from Morrow County for the
3 amendment request are presented in Table 2, *Requested Land Use Approvals and Permits*.

Table 2: Requested Land Use Approvals and Permits

Permit or Approval	Relevant Criteria	Applicable to:
Zoning, Building, and Conditional Use Permits (Exclusive Farm use)	MCZO 3.010	Carty Solar Farm, Points of Interconnection
Zoning and Building Permits (General Industrial)	MCZO 3.070	34.5 kV Transmission Line (Five Routing Options)
Note that the conditional use permit would be one document, which would govern two separate land use permits.		

As presented in the following section, the Council finds that the certificate holder demonstrates that the components of the amendment request would comply with all of the applicable substantive criteria in Morrow County. However, because the proposed Carty Solar Farm would “preclude more than 12 acres of high-value farmland or 20 acres of other land from commercial farm use” within Morrow County, the applicable substantive criteria of MCZO Section 3.010(K)(3)(f) would not be met. Based upon non-compliance with MCZO Section 3.010(K)(3)(f), the certificate holder requests an exception to Statewide Planning Goal 3 which, if Council finds is justified pursuant to ORS 469.504(1)(b)(B), would authorize the use of more than 12 acres of high-value farmland and more than 20 acres of other land within Morrow County. An evaluation of the certificate holder’s requested goal exception is presented in this section (see Section III.E.2).

III.E.1. Morrow County Zoning Ordinance (MCZO)

The certificate holder assessed the segments of the proposed 34.5 kV intraconnection transmission line and Grassland Switchyard buildout within Morrow County’s Exclusive Farm Use (EFU) zone under the “associated transmission line” and “utility facilities necessary for public service” land use categories, respectively.¹⁷ The certificate holder assessed the proposed 50 MW solar unit within Morrow County’s EFU zone, including PV solar arrays, PV panels and racking system, connector lines and collection system, inverter stations, switchgear, conductors, access roads, and laydown areas under the “photovoltaic solar power generation facility” land use category.

As described below, MCZO Section 3.010(K)(3)(e), which mirrors the requirements of DLCD’s OAR 660-030-0130(38)(e), defines a photovoltaic solar power generation facility as including, but not limited to:

¹⁷ ORS 469.300(3) defines an “associated transmission line” as “new transmission lines constructed to connect an energy facility to the first point of junction of such transmission line or lines with either a power distribution system or an interconnected primary transmission system or both or to the Northwest Power Grid.”

1 “..an assembly of equipment that converts sunlight into electricity and then stores,
2 transfers, or both, that electricity. This includes photovoltaic modules, mounting and solar
3 tracking equipment, foundations, inverters, wiring, storage devices and other components.
4 Photovoltaic solar power generation facilities also include electrical cable collection systems
5 connecting the photovoltaic solar generation facility to a transmission line, **all necessary**
6 **grid integration equipment**, new or expanded private roads constructed to serve the
7 photovoltaic solar power generation facility, office, operation and maintenance buildings,
8 staging areas **and all other necessary appurtenances**. For purposes of applying the acreage
9 standards of this section, a photovoltaic solar power generation facility includes all existing
10 and proposed facilities on a single tract, as well as any existing and proposed facilities
11 determined to be under common ownership on lands with fewer than 1320 feet of
12 separation from the tract on which the new facility is proposed to be sited. Projects
13 connected to the same parent company or individuals shall be considered to be in common
14 ownership, regardless of the operating business structure. A photovoltaic solar power
15 generation facility does not include a net metering project established consistent with ORS
16 757.300 and OAR chapter 860, division 39 or a Feed-in-Tariff project established consistent
17 with ORS 757.365 and OAR chapter 860, division 84.”
18

19 Based on the regulatory definition referenced above, the Council agrees with the evaluation of
20 the proposed 34.5 kV intraconnection transmission line as an “associated transmission line.”
21 The Council finds that the proposed Grassland Switchyard buildout, because it includes
22 equipment for the specific purpose of interconnecting the proposed Carty Solar Farm to the
23 grid (i.e. considered necessary grid interconnection equipment), that it and its associated
24 impacts be considered as part of the “photovoltaic solar power generation facility” and not as a
25 “utility facilities necessary for public service.” The land use category would be consistent with
26 historic Council decisions and evaluation of facility components within EFU-zoned land.¹⁸
27

28 The following analysis addresses the applicable substantive criteria identified in the MCZO.
29

30 MCZO Section 1.050 Introductory Provisions, Zoning Permit 31

32 *Prior to the construction, reconstruction, alteration, or change of use of any structure*
33 *larger than 100 square feet or use for which a zoning permit is required, a zoning permit*
34 *for such construction, reconstruction, alteration, or change of use or uses shall be*
35 *obtained from the Planning Director or authorized agent thereof. A zoning permit shall*
36 *become void after 1 year unless the development action has commenced. A 12-month*
37 *extension may be granted when submitted to the Planning Department prior to the*
38 *expiration of the approval period.*
39

¹⁸ BSEAPDoc92. Final Order on ASC. 2018-02-23.
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MCZO Section 1.050 requires projects larger than 100 square feet, including the construction, reconstruction, alteration or change of use of any structure, or use for which a zoning permit is required, to obtain a zoning permit. A zoning permit, as described in Article 1, is issued prior to a building permit, or prior to commencement of a use subject to administrative review, and states that the proposed use is in accordance with requirements of the corresponding land use zone.

The construction and operation of the amendment request would alter or change the existing land use by more than 100 square feet. Therefore, the certificate holder would be required to obtain a zoning permit, which would be subject to administrative review under the provisions of MCZO Article 4.165. As described below, existing Condition 4.6 requires that the certificate holder obtain all necessary local permits, including the zoning permit; this condition would apply to the proposed Carty Solar Farm. Moreover, the Council presents its evaluation of the certificate holder's MCZO Section 4.165 compliance assessment below. Based upon compliance with existing Condition 4.6 and consistency with MCZO Section 4.165 provisions, the Council finds that the components proposed in the amendment request would satisfy the MCZO Section 1.050 provision.

MCZO Section 3.010 Exclusive Farm Use, EFU Zone

MCZO 3.010(B) Uses Permitted Outright

In the EFU zone, the following uses and activities and their accessory buildings and uses are permitted subject to the general provisions set forth by this ordinance:

24. Utility facilities necessary for public service, including associated transmission lines as defined in Article 1 and wetland waste treatment systems, but not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height as provided in Subsection D.10.

MCZO 3.010(D)(10) establishes the following standards for a "utility facilities necessary for public services" that is an associated transmission line:

b. An associated transmission line is necessary for public service upon demonstration that the associated transmission line meets either the following requirements of Subsection (1) or Subsection (2) of this Subsection.

2. After an evaluation of reasonable alternatives, an applicant demonstrates that the entire route of the associated transmission line meets, subject to Subsections D.10.b(3) and (4), two or more of the following criteria:

(a) Technical and engineering feasibility;

(b) The associated transmission line is locationally-dependent because the associated transmission line must cross high-value farmland, as defined in

- 1 *ORS 195.300, or arable land to achieve a reasonably direct route or to meet*
2 *unique geographical needs that cannot be satisfied on other lands;*
3 (c) *Lack of an available existing right of way for a linear facility, such as a*
4 *transmission line, road or railroad, that is located above the surface of the*
5 *ground;*
6 (d) *Public health and safety; or*
7 (e) *Other requirements of state or federal agencies.*
8

9 MCZO Section 3.010(D)(10) adopts ORS 215.283(1)(c), which establishes that “utility facilities
10 necessary for public service” and their accessory buildings and uses within an EFU zone are
11 permitted outright. If a utility facility necessary for public service is an associated transmission
12 line, the use may be established in EFU-zoned land as provided in MCZO 3.010(D)(10)(b), as
13 long as the use meets the requirements of either subsection (1) or subsection (2).¹⁹ The
14 certificate holder evaluated the proposed interconnection options against the requirements of
15 subsection (2), which first requires a demonstration that reasonable alternatives have been
16 considered, and then that the associated transmission line must be sited in an EFU zone due to
17 one or more of the factors identified in MCZO 3.010(D)(10)(b)(2)(a) – (e). The certificate holder
18 evaluated the proposed interconnection options against the requirements of MCZO
19 3.010(D)(10)(b)(2)(b), (c) and (d).
20

21 *Evaluation of Reasonable Alternatives* 22

23 The evaluation of reasonable alternatives pursuant to MCZO 3.010(D)(10)(b)(2) requires that
24 the certificate holder consider whether there are reasonable routing alternatives on non-high
25 value or non-arable land.
26

27 The proposed routing options are presented in RFA1 Exhibit C, Figure C-1. As presented in the
28 figure, the proposed transmission line routing options would be reasonably direct routes from
29 the proposed Carty Solar Farm to each of the proposed interconnection options, while avoiding
30 the Boardman Coal Plant and routing around Carty Reservoir. The certificate holder did not
31 describe whether additional alternatives that would route to the east or due west (and then
32 north) of the proposed Carty Solar Farm were considered. However, based on the Council’s
33 review, such alternatives would cross the South Farm Conservation Area, which is protected by
34 a conservation easement pursuant to the MSCCAA (Attachment D Figure 1). Based on review of
35 aerial imagery, the Council notes that any route west (and then north) would also cross
36 cultivated lands. Because alternatives that would route east or west (and then north) would
37 impact conservation lands, cultivated land, or both, the Council finds that the certificate
38 holder’s evaluation of five north-northwesterly interconnection transmission line routes
39 demonstrates that reasonable alternatives have been considered.

¹⁹ MCZO 3.010(D)(10)(b) mirrors ORS 215.274.
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1 *Locationally Dependent*

2
3 The evaluation under MCZO 3.010(D)(10)(b)(2)(b) requires that the certificate holder show that
4 the proposed 34.5 kV transmission line routing options must be sited on high value farmland or
5 arable land in order to achieve a reasonably direct route or meet unique geographical needs
6 (referred to as “locationally dependent”).

7
8 Each of the proposed 34.5 kV transmission line routing options cross some high-value farmland
9 due to the Columbia Valley American Viticultural Area designation and certain elevation, slope,
10 and aspect criteria (see ORS 195.300(10)(f)). Based upon the distribution of high-value farmland
11 in the site boundary and surrounding areas, as shown in Figure K-3 (see Attachment C of this
12 order), it is likely that any associated transmission line that would connect the proposed Carty
13 Solar Farm to one of the three potential interconnection points must cross high-value farmland
14 in order to achieve a reasonably direct route. Therefore, the Council finds that the proposed
15 interconnection transmission line options would satisfy MCZO 3.010(D)(10)(b)(2)(b).

16
17 *Availability of Existing Linear Facility Right-of-Way*

18
19 The evaluation under MCZO 3.010(D)(10)(b)(2)(c) requires that the certificate holder
20 demonstrate that the proposed 34.5 kV transmission line routing options must be sited on high
21 value farmland or arable land because there is a lack of available existing aboveground linear
22 facility rights-of-way. In the amendment request, the certificate holder describes that the
23 routing options parallel an unimproved road from the north of the proposed Carty Solar Farm,
24 following along the eastern edge of the Carty Reservoir, through the Boardman Plant train loop.

25
26 The certificate holder explains, however, that there are no existing rights-of-way, or
27 combination of rights-of-way, that exist along the entire route of the proposed interconnection
28 transmission line options. Therefore, the Council finds that the proposed interconnection
29 transmission line options would satisfy MCZO 3.010(D)(10)(b)(2)(c).

30
31 *Other Requirements of State or Federal Agencies*

32
33 MCZO 3.010(D)(10)(b)(2)(e) would be satisfied if, in order to comply with other requirements of
34 state or federal agencies, the associated transmission line was located on high-value farmland
35 or arable land. In this case, the associated transmission line route options are not located on
36 high value farmland or arable land due to requirements of state or federal agencies, and as
37 such, the Council finds that the proposed interconnection transmission line options would not
38 satisfy MCZO 3.010(D)(10)(b)(2)(e).

39
40 MCZO 3.010(D)(10)(b)(2) requires that two of the five listed criteria be met. As presented
41 above, the Council finds that each of the five interconnection transmission line options would
42 meet criteria (2)(b) and (2)(c); therefore, the Council finds that the interconnection
43 transmission line options would comply with the requirements of MCZO 3.010(D)(10)(b)(2).

1
2 *(3) As pertains to Subsection (2), the applicant shall demonstrate how the applicant will*
3 *mitigate and minimize the impacts, if any, of the associated transmission line on*
4 *surrounding lands devoted to farm use in order to prevent a significant change in accepted*
5 *farm practices or a significant increase in the cost of farm practices on the surrounding*
6 *farmland.*
7

8 The evaluation under MCZO 3.010(D)(10)(b)(3) requires that the certificate holder demonstrate
9 that potential impacts from construction and operation of the proposed 34.5 kV
10 interconnection transmission line routing options, located on EFU-zoned land, would not result
11 in a significant change in accepted farm practices or significantly increase the cost of farming
12 practices on surrounding lands.
13

14 Farming practices on surrounding lands is conducted by Threemile Canyon Farm, which utilizes
15 approximately 35,000 acres for cultivation, using center pivot with primary crops being
16 potatoes, onions and specialty wheat. Threemile Canyon Farms, at the closest point to the
17 proposed amended site boundary is located 375 feet north and 700 feet west of the Grassland
18 Switchyard. The proposed 34.5 kV interconnection transmission line routing options would not
19 cross any cultivated land, would not alter or reduce the area under cultivation on surrounding
20 lands, would not necessitate relocating any access routes or farm infrastructure, and would not
21 result in changes to the practices for planting, irrigating, fertilizing or harvesting circles
22 operated by Threemile Canyon Farms.²⁰
23

24 For these reasons, the Council finds that the certificate holder has selected a transmission line
25 alignment that avoids impacts to accepted farming practices and would not result in a
26 significant increase in the cost of farm practices on the surrounding farmland.
27

28 *(4) The county may consider costs associated with any of the factors listed in Subsection (2),*
29 *but consideration of cost may not be the only consideration in determining whether the*
30 *associated transmission line is necessary for public service.*
31

32 The evaluation under MCZO 3.010(D)(10)(b)(4) allows the applicable regulatory entity to
33 consider the financial implication of factors evaluated under MCZO 3.010(D)(10)(b)(2). The
34 certificate holder did not substantively consider the cost of land in the evaluation of potential
35 transmission line routes. However, the Council notes that the majority of land within the
36 analysis area is zoned EFU, which would result in increased cost from any potential alternatives
37 requiring significantly longer routes. The Council therefore finds that because cost was not
38 substantively considered in the evaluation, the proposed 34.5 kV intraconnection transmission
39 line routing options are necessary for public service pursuant to the factors set forth in MCZO
40 3.010(D)(10)(b)(2).

²⁰ CGSAMD1. RFA1 Exhibit K, Section K.5.2. 2018-02-20
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1
2 *MCZO 3.010(C) Conditional Uses*

3 *In the EFU zone, the following uses are permitted subject to county review, any*
4 *specific standards for the use set forth in Section D, Article 6, the general standards*
5 *for the zone, and any other applicable standards and review process in the*
6 *ordinance:*

7
8 *(24) Photovoltaic solar power generation facilities as commercial utility facilities for*
9 *the purpose of generating power for public use by sale subject to Subsection K.3.*

10
11 *MCZO 3.010(K)(3) – Photovoltaic Solar Power Generation Facility*

12 *3. Photovoltaic Solar Power Generation Facility. A proposal to site a photovoltaic solar*
13 *power generation facility shall be subject to the following definitions and provisions:*

14
15 With the exception of the proposed 34.5 kV intraconnection transmission line, which is
16 addressed and allowed under MCZO Section 3.010(B)(24), all components of the proposed
17 Carty Solar Farm, including the proposed POIs and Grassland Switchyard buildout would be part
18 of the “photovoltaic solar power generation facility.” This use is permitted in the EFU Zone
19 subject to demonstration of compliance with the requirements of MCZO Article 6 Section D, as
20 addressed below.

21
22 MCZO 3.010(C)(24) identifies “photovoltaic solar power generation facilities as commercial
23 utility facilities for the purpose of generating power for public use by sale subject to Subsection
24 K.3” as a conditional use in EFU-zoned land and establishes limits of 12 acres for high value
25 farmland, 20 acres for arable lands, and 320 acres from nonarable lands depending upon the
26 soil capability of the land. The certificate holder’s analysis presented in RFA1 Exhibit K relies
27 upon this land use category for evaluating compliance with the local code and a demonstration
28 of compliance with the Council’s Land Use standard. The components proposed in the
29 amendment request would preclude more than 12 acres of high-value farmland and more than
30 20 acres of non-arable land from commercial farm use and therefore under the MCZO a Goal 3
31 exception would be needed.

32
33 The Oregon Land Conservation and Development Commission (LCDCC) adopted specific rules at
34 OAR 660-033-0130(38) for photovoltaic solar power generation facilities to address the specific
35 impacts of these facilities on agricultural lands. OAR 660-033-0130(38) is incorporated within
36 the Morrow County Zoning Ordinance as MCZO 3.010(K)(3). LCDCC’s solar rules, and therefore
37 MCZO 3.010(K)(3), establish specific requirements for facilities that would preclude 12 or more
38 acres of high-value farmland, or 20 acres of arable land, from use as a commercial agricultural
39 enterprise. For such facilities to receive land use approval, an exception must first be taken
40 pursuant to ORS 197.732 and OAR Chapter 660, division 4.

41
42 As explained in RFA1 Exhibit K, the proposed Carty Solar Farm and its related or supporting
43 facilities would be located on soils meeting the definition of “arable land” and, based on its

1 location within the Columbia Valley AVA, and meeting certain requirements for elevation,
2 slope, and aspect, portions of the proposed facility components would also be located on “high-
3 value farmland” pursuant to ORS 195.300(10)(f)(C).²¹ The evaluation required under MCZO
4 3.010(K)(3) for proposed solar power generation facilities located on high-value farmland and
5 arable land is presented below.

6
7 *f. For high-value farmland described at ORS 195.300(10), a photovoltaic solar power*
8 *generation facility shall not preclude more than 12 acres from use as a commercial*
9 *agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR*
10 *chapter 660, division 4. The governing body or its designate must find that:*

11
12 MCZO 3.010(K)(3)(f) establishes that for projects that would be sited on 12 acres or more of
13 high-value farmland, an exception is required pursuant to ORS 197.732 and OAR Chapter 660,
14 division 4. The proposed Carty Solar Farm and its related or supporting facilities would be sited
15 on approximately 57 acres of high-value farmland; therefore, the certificate holder has
16 requested a Goal 3 exception.²² The Council’s assessment of the certificate holder’s Goal 3
17 exception request is evaluated in Section III.E.4 below and recommends that the Council find
18 that an exception to Goal 3 is justified under ORS 469.504(2)(c) and OAR 345-022-0030(4).
19 MCZO 3.010(K)(3)(f) also requires a demonstration that the proposed photovoltaic solar power
20 generation facility would not create unnecessary negative impacts on agricultural operations,
21 unnecessary soil erosion or loss, unnecessary soil compaction, unabated introduction or spread
22 of noxious weeds, and provide an evaluation of the availability of non high-value farmland on
23 the subject tract.²³

24
25 *(1) The proposed photovoltaic solar power generation facility will not create*
26 *unnecessary negative impacts on agricultural operations conducted on any*

²¹ MCZO 3.010(K)(3)(a) defines “arable land” as “land in a tract that is predominantly cultivated or, if not currently cultivated, predominantly comprised of arable soils.” MCZO 3.010(K)(3)(b) defines “arable soils” as “soils that are suitable for cultivation as determined by the governing body or its designate based on substantial evidence in the record of a local land use application, but “arable soils” does not include high-value farmland soils described at ORS 195.300(10) unless otherwise stated.”

²²CGSAMD1 Request for Additional Information Responses. 2018-09-24. In RFA Exhibit K the certificate holder stated that the entire site is “high-value farmland” due to its location within the 11-million acre Columbia Valley American Viticulture Area (AVA). The Department notes that pursuant to ORS 195.300(10)(f)(C), land that is within an exclusive farm use zone within the Columbia Valley AVA is not considered high-value farmland solely because it is within the Columbia Valley AVA. ORS 195.300(10)(f)(C) includes the following five specific criteria that apply for determining whether the land is considered “high-value farmland:” 1) land zoned exclusive farm use; 2) within Columbia Valley viticultural areas as described in 27 C.F.R. 9.74 within the State of Oregon; 3) no more than 3,000 feet above mean sea level; 4) with an aspect between 67.5 and 292.5 degrees; and, 5) slope between zero and 15 percent. In response to the Department’s information request, the certificate holder concluded that a total of 57 acres of the site meet the criteria of ORS 195.300(10)(f)(C) for high-value farmland.

²³ “Tract” is defined in LCDC rule as “one or more contiguous lots or parcels under the same ownership.” OAR 660-033-0020(14).

1 *portion of the subject property not occupied by project components. Negative*
2 *impacts could include, but are not limited to, the unnecessary construction of*
3 *roads dividing a field or multiple fields in such a way that creates small or*
4 *isolated pieces of property that are more difficult to farm, and placing*
5 *photovoltaic solar power generation facility project components on lands in a*
6 *manner that could disrupt common and accepted farming practices;*
7

8 MCZO 3.010(K)(3)(f)(1) requires the certificate holder to demonstrate that the proposed
9 photovoltaic solar power generation facility would not “create unnecessary negative impacts on
10 agricultural operations conducted on any portion of the subject property not occupied by
11 project components.”
12

13 The subject property does not contain irrigation infrastructure or maintain water rights, both of
14 which would reasonably be necessary to produce crops in the arid climate of Morrow County.
15 The certificate holder describes that the subject property is not currently, nor has it historically,
16 been utilized for agricultural operations; and, is isolated from cultivated farmland by Carty
17 Reservoir and conservation lands protected under the MSCCAA. As described above, farming
18 practices on surrounding lands is conducted by Threemile Canyon Farm, which utilizes
19 approximately 35,000 acres for cultivation, using center pivot with primary crops being
20 potatoes, onions and specialty wheat. Threemile Canyon Farms, at the closest point to the
21 proposed amended site boundary is located 375 feet north and 700 feet west of the Grassland
22 Switchyard. The proposed components associated with the photovoltaic solar power
23 generation facility would not alter or reduce the area under cultivation on surrounding lands,
24 would not necessitate relocating any access routes or farm infrastructure, and would not result
25 in changes to the practices for planting, irrigating, fertilizing or harvesting circles operated by
26 Threemile Canyon Farms.²⁴
27

28 Based on the existing use of the subject property, the Council agrees with the certificate
29 holder’s analysis and concludes that the proposed photovoltaic power generation facility would
30 not create unnecessary negative impacts on agricultural operations conducted on any portion
31 of the subject property not occupied by facility components and therefore would satisfy the
32 requirements under MCZO 3.010(K)(3)(f)(1).
33

34 *(2) The presence of a photovoltaic solar power generation facility will not result in*
35 *unnecessary soil erosion or loss that could limit agricultural productivity on the*
36 *subject property. This provision may be satisfied by the submittal and county*
37 *approval of a soil and erosion control plan prepared by an adequately qualified*
38 *individual, showing how unnecessary soil erosion will be avoided or remedied and*

²⁴ CGSAMD1. RFA Exhibit K, Section K.5.2. 2018-02-20.
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1 *how topsoil will be stripped, stockpiled and clearly marked. The approved plan*
2 *shall be attached to the decision as a condition of approval;*

3
4 MCZO 3.010(K)(3)(f)(2) requires the certificate holder to demonstrate that the proposed
5 photovoltaic solar power generation facility would not “result in unnecessary soil erosion or
6 loss that could limit agricultural productivity on the subject property” and states that the
7 “provision may be satisfied by submittal and county approval of a soil and erosion control plan
8 prepared by an adequately qualified individual, showing how unnecessary soil erosion will be
9 avoided or remedied and how topsoil will be stripped, stockpiled and clearly marked.”

10
11 Existing Condition 9.1 requires that the certificate holder, during operation, implement a DEQ-
12 approved Erosion and Sediment Control Plan. Existing Condition 5.5 requires that the certificate
13 holder, during construction and operation, implement a Revegetation and Noxious Weed
14 Control Plan. These plans include best management practices to be implemented during
15 construction and operation designed to reduce and minimize unnecessary soil erosion or loss
16 that could limit agricultural productivity within the subject property and on adjacent EFU zoned
17 land. The certificate holder’s Revegetation and Noxious Weed Control Plan (Attachment E to
18 this final order) addresses topsoil management, and describes a monitoring program (and
19 remedial measures) for evaluating (and addressing impacts to) long-term soil stability.
20 Consistent with the recommendations included for satisfying MCZO 3.010(K)(3)(f)(2), existing
21 Condition 5.5 also requires the certificate holder to, prior to construction, submit the
22 Revegetation and Noxious Weed Control Plan to the Department and Morrow County Weed
23 Control Supervisor for review and approval. Based upon compliance with the existing
24 conditions, the Council concludes that the proposed photovoltaic solar power generation
25 facility would satisfy the requirements under MCZO 3.010(K)(3)(f)(2).

26
27 *(3) Construction or maintenance activities will not result in unnecessary soil*
28 *compaction that reduces the productivity of soil for crop production. This*
29 *provision may be satisfied by the submittal and county approval of a plan*
30 *prepared by an adequately qualified individual, showing how unnecessary soil*
31 *compaction will be avoided or remedied in a timely manner through deep soil*
32 *decompaction or other appropriate practices. The approved plan shall be*
33 *attached to the decision as a condition of approval;*

34
35 MCZO 3.010(K)(3)(f)(3) requires the certificate holder to demonstrate that the proposed
36 photovoltaic solar power generation facility would not “result in unnecessary soil compaction
37 that reduces the productivity of soil for crop production.” While RFA1 Exhibit K does not
38 specifically address how unnecessary soil compaction would be avoided, in RFA1 Exhibit B the
39 certificate holder describes that access roads would be constructed along the interior of the
40 array field for maintenance access and that site access would be provided through an existing
41 gravel road from the northeast corner. Therefore, unnecessary soil compaction from vehicle
42 and equipment transport on non-road areas would not be expected.

1 Soil decompaction measures would be implemented, as necessary, including scarification,
2 ripping compacted soils to a depth of 12 inches, and roughening the soil to provide maximum
3 seed-soil contact. These measures are reflected in the draft Revegetation and Noxious Weed
4 Control Plan (Attachment E of this order). As stated previously, existing site certificate condition
5 5.5 requires the certificate holder to implement this plan and, prior to construction, to submit
6 the plan to the Department, Morrow County Weed Control Supervisor, and the Gilliam County
7 Weed Control Officer for review and approval. Based upon compliance with the existing
8 condition, the Council concludes that the proposed Carty Solar Farm would not result in
9 unnecessary soil compaction and would satisfy the requirements under MCZO 3.010.K.3.f(3).

10
11 *(4) Construction or maintenance activities will not result in the unabated*
12 *introduction or spread of noxious weeds and other undesirable weed species. This*
13 *provision may be satisfied by the submittal and county approval of a weed*
14 *control plan prepared by an adequately qualified individual that includes a long-*
15 *term maintenance agreement. The approved plan shall be attached to the*
16 *decision as a condition of approval;*

17
18 MCZO 3.010.K.3.f(4) requires the certificate holder to demonstrate that the proposed energy
19 facility would not result in the “unabated introduction or spread of noxious weeds and other
20 undesirable weed species.” The certificate holder would minimize the likelihood of unabated
21 introduction or spread of noxious weeds through implementation of the Revegetation and
22 Noxious Weed Control Plan. Existing site certificate condition 5.5 requires the certificate holder
23 to implement this plan and, prior to construction, to submit the plan to the Department,
24 Morrow County Weed Control Supervisor, and the Gilliam County Weed Control Officer for
25 review and approval. Based upon compliance with the existing condition, the Council
26 concludes that the proposed Carty Solar Farm would not result in unabated introduction or
27 spread of noxious weeds and other undesirable weed species and would satisfy the
28 requirements under MCZO 3.010.K.3.f(4).

29
30 *(5) The project is not located on high-value farmland soils unless it can be*
31 *demonstrated that:*

- 32 *(a) Non high-value farmland soils are not available on the subject tract;*
33 *(b) Siting the project on non high-value farmland soils present on the subject*
34 *tract would significantly reduce the project’s ability to operate*
35 *successfully; or*
36 *(c) The proposed site is better suited to allow continuation of an existing*
37 *commercial farm or ranching operation on the subject tract than other*
38 *possible sites also located on the subject tract, including those comprised*
39 *of non high value farmland soils; and*

40
41 MCZO 3.010.K.3.f(5) requires the certificate holder to demonstrate that: a) non high-value
42 farmland soils are not available on the subject tract; b) siting the project on non high-value
43 farmland soils, if present, would significantly impact the project’s ability to operate

1 successfully; or c) the site is better suited than other possible sites (including those comprised
2 of non high-value farmland soils) because it would allow continued operation of an existing
3 commercial farm or ranching operation on the subject tract.
4

5 As shown on Figure K-1 (Attachment C of this order), non high-value farmland soils are
6 available on the subject tract; therefore, the Council finds that the facility would not meet
7 criterion (a). Because there is not an existing commercial farm or ranching operation on the
8 subject tract, it is not possible to find that the site is better suited than other possible sites on
9 the tract to allow continued operation of an existing commercial farm or ranching operation.
10 Therefore, the Council finds that the facility would not meet criterion (c). However, MCZO
11 3.010.K.3.f(5) only requires that one of the three listed criteria be met [see the use of the word
12 “or” between MCZO 3.010.K.3.f(5)(b) and (c)]. Based on the reasoning below, the Council finds
13 that the facility would comply with MCZO 3.010.K.3.f(5)(b) and therefore would comply with
14 the requirements of MCZO 3.010.K.3.f(5).
15

16 MCZO 3.010.K.3.f(5)(b) requires the certificate holder to demonstrate that siting the proposed
17 Carty Solar Farm on non high-value farmland soils, if present, would significantly impact the
18 project’s ability to operate successfully. “Tract” is defined in LCD rule (OAR 660-033-
19 0020(14).) as “one or more contiguous lots or parcels under the same ownership.” The
20 certificate holder’s Figure K-1 (Attachment C of this order), depicts parcels owned or co-owned
21 by PGE within the site boundary and the surrounding area. The area within the site boundary
22 appears to encompass more or less half of the size of the larger tract of contiguous lots co-
23 owned by PGE and Idaho Power Company.²⁵ Parcels of the same ownership are located north
24 and west of the subject tract. However, these parcels are not considered part of the subject
25 tract because they are neither continuous with the lot on which the site boundary would be
26 located nor the adjacent lot under the same ownership.
27

28 As shown on Figure K-2 (Attachment C of this order), the 315 acres of land within the site
29 boundary are comprised of primarily non high-value farmland and but contain approximately
30 57 acres of high-value farmland. As noted elsewhere in this section, the high-value farmland
31 designation in the site boundary is due to its location within the Columbia Valley AVA and
32 certain elevation, slope, and aspect criteria. The high-value farmland forms a “checkerboard”
33 pattern on the landscape. Several limitations appear to constrain PGE’s ability to site the
34 project on non high-value farmland soils outside of the site boundary but within the subject
35 tract. As shown on Figure K-2 (Attachment C of this order), areas of non high-value farmland
36 west of the site boundary and within the subject tract are limited in size and fragmented by
37 larger areas of high-value farmland. The Boardman Ash Disposal Area is located on the subject
38 tract north and east of the site boundary, but is used for disposal of coal ash and is therefore
39 not a suitable site for solar energy generation components. The adjacent tax lot on the subject

²⁵ As shown in RFA Exhibit F, Figure F-1, the relevant tax lot identification numbers for the subject tract are 02n24-00105 and 02n24-00102. CGSAMD1 Revised Request for Amendment 2018-02-20, Exhibit F.
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1 tract appears to consist entirely or primarily of submerged and partially submerged lands at
2 the Carty Reservoir and therefore would not be suitable for development of an energy
3 generation facility. Therefore, the Council concludes that siting the project on non high-value
4 farmland soils present on the subject tract outside of the site boundary would significantly
5 impact the project's ability to operate successfully, and that therefore the requirements MCZO
6 3.010.K.3.f(5)(b) have been satisfied.

7
8 *(6) A study area consisting of lands zoned for exclusive farm use located within one
9 mile measured from the center of the proposed project shall be established and:*

10 *(a) If fewer than 48 acres of photovoltaic solar power generation facilities
11 have been constructed or received land use approvals and obtained
12 building permits within the study area, no further action is necessary.*

13 *(b) When at least 48 acres of photovoltaic solar power generation have
14 been constructed or received land use approvals and obtained building
15 permits, either as a single project or as multiple facilities within the
16 study area, the local government or its designate must find that the
17 photovoltaic solar energy generation facility will not materially alter the
18 stability of the overall land use pattern of the area. The stability of the
19 land use pattern will be materially altered if the overall effect of existing
20 and potential photovoltaic solar energy generation facilities will make it
21 more difficult for the existing farms and ranches in the area to continue
22 operation due to diminished opportunities to expand, purchase or lease
23 farmland or acquire water rights, or will reduce the number of tracts or
24 acreage in farm use in a manner that will destabilize the overall
25 character of the study area.*

26
27 MCZO 3.010.K.3.f(6) requires the certificate holder to establish a 1-mile study area and
28 evaluate the presence of other approved and developed solar facilities, and identifies specific
29 evaluation criteria in circumstances where at least 48 acres of land within the study area have
30 been developed for solar facilities. The certificate holder asserts that there are no other solar
31 facilities within the study area that have either been constructed or that have received land
32 use approvals/building permits and therefore under MCZO 3.010.K.3.f(6)(a), no further action
33 is necessary. The Council agrees with the certificate holder's assessment and concludes that
34 the requirements under MCZO 3.010.K.3.f(6) would be satisfied.

35
36 Provisions (i) and (j) under MCZO 3.010.K.3 are also relevant to the proposed Carty Solar Farm
37 and provide that:

38 *i. The project owner shall sign and record in the deed records for the county a document
39 binding the project owner and the project owner's successors in interest, prohibiting them
40 from pursuing a claim for relief or cause of action alleging injury from farming or forest
41 practices as defined in ORS 30.930(2) and (4).*

1 *j. Nothing in this Section shall prevent the county from requiring a bond or other security*
2 *from a developer or otherwise imposing on a developer the responsibility for retiring the*
3 *photovoltaic solar power generation facility.*

4 MCZO 3.010.K.3(i) requires that the certificate holder sign and record in the deed records for
5 the county a document binding the project owner and the project owner's successors in
6 interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury
7 from farming. The certificate holder has proposed a new site certificate condition that would
8 require compliance with MCZO 3.010.K.3(i). To satisfy this provision, the Council imposes
9 Condition 6.28 as follows:

10
11 **Condition 6.28, as amended:** Prior to construction, the certificate holder shall record in
12 the real property records of Morrow County a Covenant Not to Sue with regard to
13 generally accepted farming practices on adjacent farmland consistent with MCZO
14 3.010.K.3(i).
15 [AMD1]

16
17 MCZO 3.010.K.3(j) allows for the county to require a bond or letter of credit for the amount
18 necessary to retire the facility during decommissioning. Council previously imposed several
19 conditions of compliance requiring the certificate holder to maintain a bond or letter of credit
20 in amount and form satisfactory to the Council to restore the facility site following cessation of
21 operation. Therefore, based upon compliance with previously imposed, Council concludes that
22 the requirements under MCZO 3.010.K.3(j) would be satisfied.

23
24 *MCZO Section 3.010(M) Yards. In an EFU Zone, the minimum yard setback requirements*
25 *shall be as follows:*

- 26 1. *The front yard setback from the property line shall be 20 feet for property*
27 *fronting on a local minor collector or marginal access street ROW, 30 feet from a*
28 *property line fronting on a major collector ROW, and 80 feet from an arterial*
29 *ROW unless other provisions for combining accesses are provided and approved*
30 *by the County.*
31 2. *Each side yard shall be a minimum of 20 feet except that on corner lots or parcels*
32 *the side yard on the street side shall be a minimum of 30 feet.*
33 3. *Rear yards shall be a minimum of 25 feet.*
34 4. *Stream Setback. All sewage disposal installations such as outhouses, septic tank*
35 *and drainfield systems shall be set back from the high-water line or mark along*
36 *all streams and lakes a minimum of 100 feet, measured at right angles to the*
37 *high-water line or mark. All structures, buildings, or similar permanent fixtures*
38 *shall be set back from the high-water line or mark along all streams or lakes a*
39 *minimum of 100 feet measured at right angles to the high-water line or mark.*
40

41 The EFU Yard Setback Requirements under MCZO Section 3.010(M)(1-3) apply to “open spaces
42 on a lot” (i.e., “yards”) and establish minimum setback distances from the front, side and rear

yards to road rights-of-way and intensive agricultural use. The EFU Yard Setback Requirements under MCZO Section 3.010(M)(4) apply to sewage disposal installation and establish minimum setback distances from streams and lakes. The amendment request does not include proposed sewage installations; therefore, MCZO Section 3.010(M)(4) does not apply. However, Council previously imposed Condition 6.22(b), which mirrors the requirements of MCZO Section 3.010(M)(1-4). The certificate holder affirms that the proposed Carty Solar Farm would be designed to satisfy the setback requirements established in Condition 6.22(b). Based upon compliance with Condition 6.22(b), the Council finds that the facility, with proposed changes, would satisfy the provisions of MCZO Section 3.010(M).

MCZO Section 3.010(N) Transportation Impacts

1. *Traffic Impact Analysis (TIA). In addition to the other standards and conditions set forth in this section, a TIA will be required for all projects generating more than 400 passenger car equivalent trips per day. Heavy vehicles – trucks, recreational vehicles and buses – will be defined as 2.2 passenger car equivalents. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and, mitigation of the impacts. If the corridor is a State Highway, use ODOT standards. (MC-C-8-98)*

The EFU Transportation Impact Analysis (TIA) under MCZO Section 3.010(N) applies to projects that would generate more than 400 passenger equivalent trips per day. Based on the estimated peak daily vehicle and truck trip generation during construction, less than 350 passenger car equivalents per day are expected and therefore a TIA is not required to satisfy the requirements of Section 3.010(N).²⁶

Potential traffic-related impacts on surrounding roadways would be limited to Tower Road. The certificate holder proposes measures expected to reduce passenger car equivalent trips per day including carpooling, staggering worker start times, installation of temporary traffic controls, funding for overtime to provide additional traffic patrols along Tower Road, coordination of random patrols along Tower Road, and/or frequency coordination with the Morrow County Sheriff's office to inform them of periods of increased traffic to the site. Council previously imposed Condition 6.17 under the Public Services standard requiring implementation of traffic control measures during construction. As presented in Section III.M. *Public Services*, the Council amends Condition 6.17 requiring that the certificate holder, during construction, implement a Construction Related Traffic Management Plan including the certificate holder's proposed

²⁶ CGSAMD1. RFA Exhibit U. 2018-02-20. The certificate holder estimates peak construction related traffic based on 104 worker trips per day, which includes a 1.25 carpool factor, and 28 two-way truck trips per day. The Department evaluates whether a TIA is necessary based on maximum vehicle trips per day, without adjusting for carpooling and the passenger car equivalent factor of 2.2 for heavy trucks, as follows: 130 workers per day x 2 trips per day + 28 2-way truck trips per day x 2.2 passenger car equivalent = 322 trips per day.

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1 measures and recordkeeping demonstrating that passenger car equivalents during construction
2 are maintained below 400.

3
4 The Council imposes Condition 6.27, as presented in Section III.M. *Public Services* of this order,
5 requiring that the certificate holder develop a Construction Traffic Management Plan, to be
6 reviewed and approved by the Department in consultation with Morrow County prior to
7 construction. The recommended new condition requires that the certificate holder, prior to
8 construction, re-assess peak passenger car equivalent anticipated during construction activities
9 to confirm whether a TIA is required. The new condition specifies that if a TIA is required, the
10 certificate holder shall prepare and submit a TIA to the Department and Morrow County
11 Planning Department, for review and approval; and, requires that the certificate holder provide
12 documentation to the Department pursuant to OAR 345-027-0057 to evaluate whether the
13 proposed change in construction-related traffic would trigger a site certificate amendment.

14
15 Condition 6.27 includes a requirement that the Construction Traffic Management Plain include
16 traffic management measures or other recommendations based upon pre-construction
17 consultation with the Morrow County Public Works Department and Morrow County Sheriff's
18 Department. The Council finds that compliance with existing Condition 6.17 and recommended
19 Condition 6.27 would minimize construction traffic related impacts.

20
21 Long-term operational traffic would generate approximately 2 passenger car or pickup truck
22 trips per day, with infrequent heavy vehicle trips and would not trigger the requirements of
23 Section 3.010(N). Based on estimated operational traffic, the Council concludes that the
24 certificate holder is not required to satisfy the requirements of Section 3.010(N).

25
26 MCZO Section 3.070 General Industrial, MG

27
28 Facility components to be located within General Industrial (MG) zoned land include portions of
29 the proposed 34.5 kV interconnection transmission line and the proposed point of
30 interconnection at Boardman Coal Plant (Interconnection Option 3). Therefore, the applicable
31 code provisions within MG-zoned land are evaluated below.

32
33 *The General Industrial Zone is intended to provide, protect and recognize areas well*
34 *suited for medium and heavy industrial development and uses free from conflict with*
35 *commercial, residential and other incompatible land uses. This district is intended to*
36 *be applied generally only to those areas which have available excellent highway, rail*
37 *or other transportation.*

38
39 *A. Uses Permitted Outright. In an M-G Zone, the following uses and their accessory*
40 *uses are permitted outright; except as limited by subsection C of this section. A*
41 *Zoning Permit is required and projects larger than 100 acres are subject to Site*
42 *Development Review (Article 4 Supplementary Provisions Section 4.170 Site*
43 *Development Review).*

1
2 15. *Utility, transmission and communications towers less than 200 feet in*
3 *height.*
4

5 MCZO Section 3.070(A)(15) establishes that components that are a “utility, transmission and
6 communications towers less than 200 feet in height” within a general industrial (MG) zone are
7 permitted outright, but require a zoning permit and Site Development Review for project larger
8 than 100 acres.
9

10 Components within MG-zoned land include portions of the proposed 34.5 kV interconnection
11 transmission line, which would utilize approximately 70-foot tall structures and therefore would
12 be a use permitted outright. The certificate holder describes that the footprint of proposed
13 components, and even proposed and existing components (Unit 1), within MG-zoned land
14 would not exceed 100 acres and therefore would not require Site Development Review under
15 MCZO Section 4.170. A zoning permit, as presented in Table 2, *Requested Land Use Approvals*
16 *and Permits* of this order, would be required prior to construction. Council previously imposed
17 Condition 4.6 requiring the certificate holder to obtain a zoning permit, which would continue
18 to apply to the components included in the amendment request. Therefore, the Council finds
19 that the certificate holder would comply with MCZO Section 3.070(A).
20

21 *MCZO Section 3.070(D) Dimension Requirements*

22 *The following Dimensional requirements apply to all buildings and structures*
23 *constructed, placed or otherwise established in the MG zone.*
24

- 25 1. *Lot size and frontage: A minimum lot size has not been determined for this zone*
26 *although the lot must be of a size necessary to accommodate the proposed use,*
27 *however, it is anticipated that most, if not all uses will be sited on lots of at least*
28 *two acres. The determination of lot size will be driven by the carrying capacity of*
29 *the land given the proposed use. Minimum lot frontage shall be 300 feet on an*
30 *arterial or collector; 200 feet on a local street.*
31
32 2. *Setbacks: No specific side or rear yard setbacks are identified within this zone,*
33 *but may be dictated by provisions of the Building Code or other siting*
34 *requirements. The minimum setback between a structure and the right-of-way of*
35 *an arterial shall be 50 feet. The minimum setback of a structure from the right-of-*
36 *way of a collector shall be 30 feet, and from all lower class streets the minimum*
37 *setback shall be 20 feet. There shall be no setback requirement where a property*
38 *abuts a railroad siding or spur if the siding or spur will be utilized by the*
39 *permitted use.*
40
41 3. *Stream Setback: All sewage disposal installations such as outhouses, septic tank*
42 *and drainfield systems shall be set back from the high-water line or mark along*
43 *all streams and lakes a minimum of 100 feet, measured at right angles to the*

1 *high-water line or mark. All structures, buildings, or similar permanent fixtures*
2 *shall be set back from the high-water line or mark along all streams or lakes a*
3 *minimum of 10 feet measured at right angles to the high-water line or mark.*
4

- 5 4. *Uses adjacent to residential uses. A sight-obscuring fence shall be installed to*
6 *buffer uses permitted in the General Commercial Zone from residential uses.*
7 *Additional landscaping or buffering such as diking, screening, landscaping or an*
8 *evergreen hedge may be required as deemed necessary to preserve the values of*
9 *nearby properties or to protect the aesthetic character of the neighborhood or*
10 *vicinity.*
11

12 MCZO Section 3.070(D) establishes dimensional requirements including lot size and frontage;
13 setbacks from streams, road rights-of-way and structures; and installation of a sight-obscuring
14 fence from uses adjacent residential uses.
15

16 MCZO Section 3.070(D)(1) requires the lot used by facility components within MG-zoned land
17 to be adequate to accommodate the proposed use and include minimum lot frontage of 300
18 feet from arterial or collector roads and 200 feet from local streets. The certificate holder
19 asserts that the area within MG-zoned land to be utilized for siting of proposed facility
20 components are adequate in size for the proposed use. The certificate holder also confirms
21 that the frontage distance from the nearest road is 5,000 feet, which satisfies the minimum
22 frontage requirements. Therefore, the Council finds that the proposed components within
23 MG-zoned land would satisfy the MCZO Section 3.070(D)(1) provision.
24

25 MCZO Section 3.070(D)(2) and (3) require proposed uses within MG-zoned land to comply
26 with setback distances from proposed structures to arterial road rights-of-way; and, to
27 streams and lakes when the proposed use includes a sewage disposal installation. The
28 certificate holder describes that, in MG-zoned land, the nearest road is located a distance of
29 2.27 from proposed structures and is a private segment of Tower Road, of which the
30 provisions do not apply. The certificate holder is not proposing sewage disposal installations.
31 Therefore, the Council finds that the proposed components within MG-zoned land would
32 satisfy the provisions of MCZO Section 3.070(D)(2), and find that MCZO Section 3.070(D)(3)
33 would not apply.
34

35 MCZO Section 3.070(D)(4) requires installation of a sight-obscuring fence when a proposed
36 use would be adjacent to residences. The certificate holder affirms that there are no
37 residential uses within proximity of the site. Therefore, the Council finds MCZO Section
38 3.070(D)(4) does not apply.
39

40 **MCZO Section 3.070(E) Transportation Impacts**

- 41 1. *Traffic Impact Analysis (TIA). In addition to the other standards and conditions*
42 *set forth in this section, a TIA will be required for all projects generating more*
43 *than 400 passenger car equivalent trips per day. Heavy vehicles B trucks,*

1 *recreational vehicles and buses B will be defined as 2.2 passenger car*
2 *equivalents. A TIA will include: trips generated by the project, trip distribution for*
3 *the project, identification of intersections for which the project adds 30 or more*
4 *peak hour passenger car equivalent trips, and level of service assessment,*
5 *impacts of the project, and, mitigation of the impacts. If the corridor is a State*
6 *Highway, use ODOT standards. (MC-C-8-98)*
7

8 The MG Transportation Impact Analysis (TIA) under MCZO Section 3.070(E) applies to projects
9 that would generate more than 400 passenger equivalent trips per day, mirroring the
10 requirements of MCZO Section 3.010(N). Based on the estimated peak daily vehicle and truck
11 trip generation during construction, less than 350 passenger car equivalents per day are
12 expected and therefore a TIA is not required to satisfy the requirements of Section 3.070(E).²⁷
13

14 However, as described above for the evaluation of MCZO Section 3.010(N), potential traffic-
15 related impacts on surrounding roadways would be limited to Tower Road. The certificate
16 holder proposes measures expected to reduce passenger car equivalent trips per day including
17 carpooling, staggering worker start times, installation of temporary traffic controls, funding for
18 overtime to provide additional traffic patrols along Tower road, coordination of random patrols
19 along Tower Road, and/or frequency coordination with the Morrow County Sheriff's office to
20 inform them of periods of increased traffic to the site. Council previously imposed Condition
21 6.17 under the Public Services standard requiring implementation of traffic control measures
22 during construction. As presented in Section III.M. *Public Services*, Council amends Condition
23 6.17 requiring that the certificate holder, during construction, implement a Construction
24 Related Traffic Management Plan including the certificate holder's proposed measures and
25 recordkeeping demonstrating that passenger car equivalents during construction are
26 maintained below 400.
27

28 The Council imposes Condition 6.27, as presented in Section III.M. *Public Services* of this order,
29 requiring that the certificate holder develop a Construction Traffic Management Plan, to be
30 reviewed and approved by the Department prior to construction. The new condition requires
31 that the certificate holder, prior to construction, re-assess peak passenger car equivalent
32 anticipated during construction activities to confirm whether a TIA is required. The new
33 condition specifies that if a TIA is required, the certificate holder shall prepare and submit a TIA
34 to the Department and Morrow County Planning Department, for review and approval; and,
35 requires that the certificate holder provide documentation to the Department pursuant to OAR

²⁷ CGSAMD1. RFA Exhibit U. 2018-02-20. The certificate holder estimates peak construction related traffic based on 104 worker trips per day, which includes a 1.25 carpool factor, and 28 two-way truck trips per day. The Department evaluates whether a TIA is necessary based on maximum vehicle trips per day, without adjusting for carpooling and the passenger car equivalent factor of 2.2 for heavy trucks, as follows: 130 workers per day x 2 trips per day + 28 2-way truck trips per day x 2.2 passenger car equivalent = 322 trips per day.

1 345-027-0057 to evaluate whether the proposed change in construction-related traffic would
2 trigger a site certificate amendment.

3
4 Condition 6.27 includes a requirement that the Construction Traffic Management Plain include
5 traffic management measures or other recommendations based upon pre-construction
6 consultation with the Morrow County Public Works Department and Morrow County Sheriff's
7 Department. The Council finds that compliance with existing Condition 6.17 and new Condition
8 6.27 would minimize construction traffic related impacts.

9
10 Long-term operational traffic would generate approximately 2 passenger car or pickup truck
11 trips per day, with infrequent heavy vehicle trips and would not trigger the requirements of
12 Section 3.010(N). Based on estimated operational traffic, the Council concludes that the
13 certificate holder is not required to satisfy the requirements of Section 3.070(E).

14
15 MCZO Section 4.165 Site Plan Review

16 *Site Plan Review is a non-discretionary or "ministerial" review conducted without a*
17 *public hearing by the County Planning Director or designee. Site Plan Review is for*
18 *less complex developments and land uses that do not require site development or*
19 *conditional use review and approval through a public hearing.*

20
21 *A. Purpose. The purpose of Site Plan Review (ministerial review) is based on clear*
22 *and objective standards and ensures compliance with the basic development*
23 *standards of the land use district, such as building setbacks, lot coverage,*
24 *maximum building height, and similar provisions. Site Plan review also addresses*
25 *conformity to floodplain regulations, consistency with the Transportation System*
26 *Plan, and other standards identified below.*

27
28 *C. Applicability. Site Plan Review shall be required for all land use actions requiring*
29 *a Zoning Permit as defined in Section 1.050 of this Ordinance. The approval shall*
30 *lapse, and a new application shall be required, if a building permit has not been*
31 *issued within one year of Site Review approval, or if development of the site is in*
32 *violation of the approved plan or other applicable codes.*

33
34 The Site Plan Review is the county's ministerial review conducted prior to issuance of a zoning
35 permit, defined under MCZO Section 1.050 as "an authorization issued prior to a building
36 permit, or commencement of a use subject to administrative review, stating that the proposed
37 use is in accordance with the requirements of the corresponding land use zone." As required
38 by Condition 4.6, previously imposed by Council, the certificate holder is required to secure

1 zoning, building and Conditional Use permits from Morrow County prior to construction of the
2 energy facility.²⁸

3
4 *D. Review Criteria.*

5
6 *1. The lot area shall be adequate to meet the needs of the establishment.*

7
8 The proposed amended site boundary encompasses approximately 1,581 acres within Morrow
9 County, which the certificate holder asserts would provide adequate space to meet the needs
10 of the proposed facility components. Based on the certificate holder's representations, the
11 Council finds that the certificate holder has secured a site adequate to meet the needs of the
12 proposed use and would satisfy MCZO Section 4.165(D)(1).

13
14 *2. The proposed land use is permitted by the underlying land use district.*

15
16 The certificate holder asserts that the land uses of the proposed facility components would be
17 permissible within Morrow County. Based on the analysis provided above related to MCZO
18 Section 3.010(D)(10) and 3.010(K)(3) and recommended findings in this section, the Council
19 finds that the certificate holder has demonstrated that the proposed facility components
20 would be permissible within Morrow County.

21
22 *3. The land use, building/yard setback, lot area, lot dimension, density, lot*
23 *coverage, building height and other applicable standards of the underlying*
24 *land use district and any sub-district(s) are met.*

25
26 The certificate holder proposes to design and construct the proposed Carty Solar Farm in
27 accordance with applicable substantive criteria identified by Morrow County, including the
28 yard setback requirements at Section 3.010(M). Based on the certificate holder's
29 representations, the Council finds that the certificate holder could design and construct the
30 proposed Carty Solar Farm in accordance with applicable substantive criteria identified by
31 Morrow County.

32
33 *4. Development in flood plains shall comply with Section 3.100 Flood Hazard*
34 *Overlay Zone of the Ordinance.*

35
36 The certificate holder asserts that the area within the proposed amended site boundary
37 would not be located in a flood hazard overlay zone. Therefore, the Council finds that the

²⁸ Pursuant to ORS 469.401(3), the county must issue a zoning permit upon submittal of the proper applications and fees, but without hearings or other proceedings and subject only to conditions set forth in the site certificate.
Carty Generating Station
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December 2018

1 review criteria under MCZO Section 4.165(D)(4) and flood hazard overlay zone requirements
2 per MCZO Section 3.100 would not apply.

- 3
4 *5. Development in hazard areas identified in the Morrow County Comprehensive*
5 *Plan shall safely accommodate and not exacerbate the hazard and shall not*
6 *create new hazards.*

7
8 The Natural Hazards Element of the Morrow County Comprehensive Plan, and the Morrow
9 County Natural Hazard Mitigation Plan updated in 2016, identify eight natural hazards of
10 concern within some or all of Morrow County: drought; earthquake; flood; landslide; volcano;
11 wildfire; windstorm; and winter storm. The Natural Hazard Element indicates that only some
12 natural hazards, “such as flooding and landslide hazard areas,” can be mitigated through
13 development standards, whereas “for other, more widespread or random hazards such as
14 drought, wildfire, winter storm, or windstorms, effective mitigation must come in the form of
15 public awareness, preparedness and participation.”

16
17 As indicated in response to MCZO Section 4.165(D)(4), the area within the proposed amended
18 site boundary would not be located within a flood hazard area. Other potential geological
19 hazards are evaluation in Section III.C. *Structural Standard* and III.D. *Soil Protection* of this order.
20 In addition, previously imposed conditions would ensure that the certificate holder designs the
21 proposed Carty Solar Farm to minimize risks from potential geological hazards. Condition 6.8
22 requires the certificate holder to “design, engineer and construct the facility to avoid dangers to
23 human safety presented by non-seismic hazards,” including “settlement, landslides, flooding
24 and erosion.” Condition 6.7 requires the certificate holder to “design, engineer and construct
25 the facility to avoid danger to human safety presented by seismic hazards affecting the area
26 that are expected to result from all maximum probable seismic events.” Other conditions (6.10
27 and 6.11) require notification to the Oregon Department of Energy, Department of Geology and
28 Mineral Industries and the State Building Codes Division if previously unknown conditions are
29 identified at the energy facility site.

- 30
31 *6. Off-street parking and loading-unloading facilities shall be provided as*
32 *required in Section 4.040 and 4.050 of the Morrow County Zoning Ordinance.*
33 *Safe and convenient pedestrian access to off-street parking areas also shall*
34 *be provided as applicable.*

35
36 Any permanent employees associated with the Carty Solar Farm would be based at Unit
37 1 of the Carty Generating Station, which is developed with parking facilities.

- 38
39 *7. County transportation facilities shall be located, designed and constructed in*
40 *accordance with the design and access standards in the Morrow County*
41 *Transportation System Plan.*
42

1 The proposed facility components would not involve or require the development of new
2 county transportation facilities or new access to existing country transportation
3 facilities.

- 4
5 *8. Site planning, including the siting of structures, roadways and utility*
6 *easements, shall provide, wherever practicable, for the protection of trees*
7 *eight inch caliper or greater measured four feet from ground level, with the*
8 *exception of noxious or invasive species, such as Russian olive trees.*
9

10 Development and operation of the proposed 34.5 kV transmission line and Grassland
11 Switchyard buildout are not expected to require the removal of any trees 8 inches or
12 more in diameter. There are scattered juniper trees over 8 inches in diameter on the
13 Carty Solar Farm generation facility, however, that would have to be removed. As part
14 of wildlife habitat mitigation discussed in Exhibit P, PGE will consult with the Oregon
15 Department of Fish and Wildlife (ODFW) regarding mitigation for trees removed.

- 16
17 *9. Development shall comply with Section 3.200 Significant Resources Overlay*
18 *Zone or 3.300 Historic Buildings and Sites protecting inventoried significant*
19 *natural and historic resources.*
20

21 There are no inventoried historic buildings or sites on the site. The Significant Resources
22 Overlay Zone applies to certain inventoried resources: aggregate and mineral sites; sensitive
23 bird nesting sites; riparian vegetation/wetlands; big game range; and wildlife habitat zone.
24 There are no inventoried "Goal 5 significant" aggregate and mineral sites on Site, as shown on
25 the Morrow County Comprehensive Plan Map of Aggregate and Mineral Resources, adopted
26 September 4, 2013.

27
28 "Sensitive bird nesting sites" are limited to "bald and golden eagle nest sites and communal
29 roost sites," pursuant to MCZO 3.200.C.2.a. The closest identified nest is a bald eagle nest 0.57
30 mile west of the Carty Solar Farm generation facility. There are no nests on the site inventoried
31 on Morrow County's 1986 Significant Resource Overlay Map.

32
33 Requirements for protection of riparian vegetation and wetlands in MCZO 3.200.C.3 limit road
34 construction, in riparian zones, require setbacks of dwellings and non-water-dependent
35 structures from the high water level of a stream or water body, require that any permanent
36 vegetation removal must retain 75 percent of "all layers or stratas of vegetation." This RFA does
37 not propose any road construction in riparian areas, dwellings or structures within the required
38 100-foot minimum setback from any stream or water body, or permanent removal of any
39 riparian vegetation.

40
41 The site also is not within "big game range." Although MCZO 3.200.C.5 also lists "wildlife habitat
42 zone," there are no use or development restrictions identified. Exhibits P and Q specifically

1 address impacts to and mitigation for fish and wildlife habitat and threatened and endangered
2 species in accordance with the Council's standards.

3
4 *10. The applicant shall determine if compliance is required with Oregon Water
5 Resources Department water quantity and/or Oregon Department of
6 Environmental Quality water quality designations.*

7
8 Water use and wastewater disposal are addressed in Exhibit O and Exhibit V,
9 respectively.

10
11 *11. The applicant shall determine if previous Code Enforcement violations have
12 been cleared as applicable.*

13
14 The certificate holder is not aware of any prior Code Enforcement violations.

15
16 *12. The applicant shall determine the method of disposal for solid waste, with
17 staff providing information to the applicant about recycling opportunities.*

18
19 Condition 6.3 requires the implementation of a waste management plan during
20 construction, and Condition 10.22 requires a waste management plan during operation.

21
22 *13. The applicant shall obtain the necessary access permit through the Public
23 Works Department as required by Morrow County Resolution R-29-2000.*

24
25 The certificate holder does not anticipate needing new access to county roads. If access
26 is needed, Condition 4.5 of the Site Certificate requires that the certificate holder obtain
27 the permit.

28
29 Based on the certificate holder's representations and analysis presented above for MCZO
30 Section 4.165, the Council finds that the proposed Carty Solar Farm would be consistent with
31 MCZO Section 4.165 Site Plan Review and requirements and therefore would satisfy the
32 MCZO Section 1.050 provision.

33
34 *MCZO Section 6.015 Requirements Under a State Energy Facility Site Certificate*

35
36 *If a holder of a Site Certificate issued by the Oregon Energy Facility Siting Council
37 requests a conditional use permit for an energy facility as outlined under ORS
38 469.401(3) and pays the requisite fee, the Planning Director shall issue such
39 conditional use permit. The conditional use permit shall incorporate only the
40 standards and conditions in Morrow County's land use and other ordinances as
41 contained in the site certificate. Issuance of the Conditional Use Permit shall be done
42 promptly, not taking more than four weeks once it has been determined that a valid*

1 *Site Certificate has been issued, the applicant has submitted a complete application*
2 *and the fee has been received.*

3
4 Council previously imposed Condition 4.6, requiring that the certificate holder to obtain all
5 local permits, including a conditional use permit for the portion of the facility on EFU land.
6 That condition would also apply to the proposed Carty Solar Farm. Based on the certificate
7 holder's analysis, the Council finds that the proposed Carty Solar Farm would be consistent
8 with MCZO Section 6.015.

9
10 *MCZO Section 6.020 General Criteria*

11 *In judging whether or not a conditional use proposal shall be approved or denied, the*
12 *Commission shall weigh the proposal's appropriateness and desirability, or the public*
13 *convenience or necessity to be served against any adverse conditions that would*
14 *result from authorizing the particular development at the location proposed and, to*
15 *approve such use, shall find that the following criteria are either met or can be met*
16 *by observance of conditions.*

17 *A. The proposal will be consistent with the Comprehensive Plan and the objectives*
18 *of the Zoning Ordinance and other applicable policies and regulations of the*
19 *County.*

20 *B. If located within the Urban Growth Boundary of a city, that said city has had an*
21 *opportunity to review and comment on the subject proposal.*

22 *C. The proposal will not exceed carrying capacities of natural resources or public*
23 *facilities.*

24
25 The Carty Solar Farm generation facility, as a "photovoltaic solar power generation facility," is a
26 listed conditional use in the EFU zone pursuant to MCZO 3.010.C.24 and therefore is subject to
27 these General Criteria. The Grassland Switchyard buildout and associated transmission lines are
28 listed as permitted uses in the EFU zone under MCZO 3.010.B.24 ("utility facilities necessary for
29 public service, including associated transmission lines") and are not subject to the General
30 Criteria of MCZO 6.020.

31
32 The Carty Solar Farm's compliance with applicable zoning regulations and the Morrow County
33 Comprehensive Plan is addressed herein. The design, construction and operation of the Carty
34 Solar Farm would comply with the land use conditions of the Site Certificate, including
35 Condition 4.6 (requirement to obtain all local permits), Condition 6.22 (compliance with
36 setbacks), and Condition 6.23 (limitations on signage).

37
38 *B. If located within the Urban Growth Boundary of a city, that said city has had*
39 *an opportunity to review and comment on the subject proposal.*

40
41 The Carty Solar Farm generation facility would not be located within the Urban Growth
42 Boundary of a city.

1 *C. The proposal will not exceed carrying capacities of natural resources or public*
2 *facilities.*

3
4 Exhibits I, J, P, Q, S, and U of this RFA demonstrate that the carrying capacities of natural
5 resources or public facilities would not be exceeded.

6
7 Based on the certificate holder's analysis, the Council finds that the proposed Carty Solar Farm
8 would be consistent with MCZO Section 6.020.

9
10 *MCZO Section 6.025 Resource Zone Standards for Approval*

11 *A. In the Exclusive Farm Use zone a conditional use may be approved only when the*
12 *County finds that the use will not:*

- 13 1. *Force a significant change in accepted farm or forest practices on surrounding*
14 *lands devoted to farm or forest use; or*
15 2. *Significantly increase the cost of accepted farm or forest practices on*
16 *surrounding lands devoted to farm or forest use.*

17
18 The Carty Solar Farm generation facility site is not adjacent to any lands in forest use or any
19 lands cultivated for farm use. The closest cultivated agricultural land is approximately 1.7 miles
20 west of the western edge of the Carty Solar Farm generation facility site and is separated from
21 the Carty Solar Farm generation facility site by uncultivated land and the Carty Reservoir. That
22 farming is conducted by Threemile Canyon Farms, which has approximately 35,000 acres under
23 cultivation, all using center pivot irrigation. Construction and maintenance of solar panels and
24 associated equipment at the Carty Solar Farm generation facility would not alter or reduce the
25 area under cultivation by Threemile Canyon Farms, would not necessitate relocating any access
26 routes or farm infrastructure, and would not result in changes to the practices for planting,
27 irrigating, fertilizing, or harvesting the circles.

28
29 Based on the certificate holder's analysis, the Council finds that the proposed Carty Solar Farm
30 would be consistent with MCZO Section 6.025.

31
32 *MCZO Section 6.030 General Conditions*

33 *In addition to the standards and conditions set forth in a specific zone, this article, and other*
34 *applicable regulations; in permitting a new conditional use or the alteration of an existing*
35 *conditional use, the Commission may impose conditions which it finds necessary to avoid a*
36 *detrimental impact and to otherwise protect the best interests of the surrounding area or*
37 *the County as a whole. These conditions may include the following:*

- 38
39 *A. Limiting the manner in which the use is conducted including restricting the time an*
40 *activity may take place and restraints to minimize such environmental effects as noise,*
41 *vibration, air pollution, glare and odor.*
42

Noise is addressed in Exhibit X. Noise associated with the Carty Solar Farm would be minimal. The Carty Solar Farm generation facility would not include equipment that would create noticeable vibration, emit air pollution, or create odor. With respect to glare, the Federal Aviation Administration has issued a determination of no hazard, included in this RFA as Appendix E-2 in Exhibit E.

B. Establishing a special yard or other open space or lot area or dimension.

This RFA does not propose the creation or reconfiguration of any lots. Condition 6.22 of the Site Certificate requires compliance with the yard and setback requirements of the MG zone and the EFU zone.

C. Limiting the height, size or location of a building or other structure.

This RFA does not propose any buildings. Although the Carty Solar Farm generation facility would occupy approximately 315 acres, as described in Exhibit B, Section B.3, the maximum height of any elements of the Carty Solar Farm generation facility would generally not exceed 10.5 feet. The 34.5-kV transmission line would be mounted on wooden poles approximately 70 feet high, depending on location and span length.

D. Designating the size, number, location and nature of vehicle access points.

1. *Where access to a county road is needed, a permit from Morrow County Public Works department is required. Where access to a state highway is needed, a permit from ODOT is required.*

No new vehicle access to a county road or a state highway is proposed in this RFA or needed to construct, operate, and retire the facilities proposed.

2. *In addition to the other standards and conditions set forth in this section, a Traffic Impact Analysis (TIA) will be required for all projects generating more than 400 passenger car equivalent trips per day. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and mitigation of the impacts. If the corridor is a State Highway, use ODOT standards. (MC-C-8-98)*

Exhibit U includes estimates of potential traffic associated with the Carty Solar Farm. The “400 passenger car equivalent trips per day” might be reached during construction of the Carty Solar Farm, but not during operation. PGE would consult with Morrow County prior to the start of construction, when staging and workforce issues are better known, and will prepare a Traffic Impact Analysis if the 400 trips per day threshold would be exceeded. In addition, Condition

1 6.17 requires the certificate holder to implement specified measures to reduce traffic impacts
2 during construction.

3
4 *E. Increasing the amount of street dedication, roadway width or improvements within the*
5 *street right-of-way.*

6 *1. It is the responsibility of the land owner to provide appropriate access for emergency*
7 *vehicles at the time of development. (MC-C-8-98)*

8
9 Tower Road provides access to the site. No new access or street dedication is necessary.

10
11 *F. Designating the size, location, screening, drainage, surfacing or other improvement of a*
12 *parking area or loading area.*

13
14 No new permanent parking or loading areas are proposed in this RFA.

15
16 *G. Limiting or otherwise designating the number, size, location, height, and lighting of*
17 *signs.*

18
19 Condition 6.23 of the Site Certificate limits signage associated with the facility.

20
21 *H. Limiting the location and intensity of outdoor lighting and requiring its shielding.*

22
23 Condition 6.14 of the Site Certificate limits exterior nighttime lighting at the facility.

24
25 *I. Requiring diking, screening, landscaping or another facility to protect adjacent or nearby*
26 *property and designating standards for its installation and maintenance.*

27
28 The facilities proposed in this RFA are not in close proximity to uses requiring protection by
29 diking, screening, or landscaping.

30
31 *J. Designating the size, height, location and materials for a fence.*

32
33 Condition 7.2 of the Site Certificate requires the certificate holder to enclose the Grassland
34 Switchyard "with appropriate fencing and locked gates." PGE would enclose the expanded
35 Grassland Switchyard and the Carty Solar Farm generation facility site with chain-link security
36 fence; the exact dimensions will be determined during facility design, but it is expected to be
37 approximately 8 feet in height, with an additional foot of barbed wire.

38
39 *K. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or*
40 *other significant natural resources.*

1 Protection of these resources in accordance with Council standards is addressed in Exhibits I, J,
2 P, Q, and V. In addition, the Site Certificate includes extensive conditions for protection of
3 natural resources, including 38 conditions in Section 10 of the Site Certificate.

4
5 *L. Other conditions necessary to permit the development of the County in conformity with*
6 *the intent and purpose of this Ordinance and the policies of the Comprehensive Plan.*
7

8 Additional and modified conditions are proposed in PGE's markup of the Site Certificate,
9 submitted with this RFA. Based on the certificate holder's analysis, the Council finds that the
10 proposed Carty Solar Farm would be consistent with MCZO Section 6.030.

11
12 *MCZO Section 6.040 Permit and Improvements Assurance*

13 *The Commission may require an applicant to furnish the County with a performance bond or*
14 *such other form of assurance that the Commission deems necessary to guarantee*
15 *development in accordance with the standards established and the conditions attached in*
16 *granting a conditional use permit.*
17

18 This provision does not establish approval standards. Financial assurance for facilities
19 constructed and operated as proposed in this RFA will be in accordance with the Council's
20 Retirement and Financial Assurance standard, OAR 345-022-0050.

21
22 *MCZO Section 6.050 Standards Governing Conditional Uses*

23 *A conditional use shall comply with the standards of the zone in which it is located and with*
24 *the standards set forth in this subsection.*
25

26 This section of the MCZO provides additional approval standards for certain conditional uses.
27 Although MCZO 6.050.O sets forth standards for "radio, television tower, utility station or
28 substation," those standards do not apply to the Grassland Switchyard buildout. The Grassland
29 Switchyard buildout is a permitted use as a "utility facility necessary for public service" under
30 MCZO 3.010.B.24 and is not subject to conditional use standards.

31
32 *F. Designating the size, location, screening, drainage, surfacing or other improvement of a*
33 *parking area or loading area.*
34

35 No new permanent parking or loading areas are proposed in this RFA.

36
37 *G. Limiting or otherwise designating the number, size, location, height, and lighting of*
38 *signs.*
39

40 Condition 6.23 of the Site Certificate limits signage associated with the facility.

41
42 *H. Limiting the location and intensity of outdoor lighting and requiring its shielding.*
43

1 Condition 6.14 of the Site Certificate limits exterior nighttime lighting at the facility.

- 2
3 *I. Requiring diking, screening, landscaping or another facility to protect adjacent or nearby*
4 *property and designating standards for its installation and maintenance.*
5

6 The facilities proposed in this RFA are not in close proximity to uses requiring protection by
7 diking, screening, or landscaping.
8

- 9 *J. Designating the size, height, location and materials for a fence.*
10

11 Condition 7.2 of the Site Certificate requires the certificate holder to enclose the Grassland
12 Switchyard “with appropriate fencing and locked gates.” PGE would enclose the expanded
13 Grassland Switchyard and the Carty Solar Farm generation facility site with chain-link security
14 fence; the exact dimensions will be determined during facility design, but it is expected to be
15 approximately 8 feet in height, with an additional foot of barbed wire.
16

- 17 *K. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or*
18 *other significant natural resources.*
19

20 Protection of these resources in accordance with Council standards is addressed in Exhibits I, J,
21 P, Q, and V. In addition, the Site Certificate includes extensive conditions for protection of
22 natural resources, including 38 conditions in Section 10 of the Site Certificate.
23

- 24 *L. Other conditions necessary to permit the development of the County in conformity with*
25 *the intent and purpose of this Ordinance and the policies of the Comprehensive Plan.*
26

27 Recommended additional and modified conditions are included in the draft amended site
28 certificate included as Attachment A to this final order. Based on the certificate holder’s
29 analysis, the Council finds that the proposed Carty Solar Farm would be consistent with MCZO
30 Section 6.050.
31

32 III.E.4. Goal 3 Exception 33

34 The proposed Carty Solar Farm would preclude more than 12 acres of high value farmland and
35 more than 20 acres of arable land from use as a commercial agricultural enterprise. Therefore,
36 the proposed Carty Solar Farm would not comply with MCZO 3.010(K)(3)(f) and LCDC’s OAR
37 660-033-0130(38)(f) and (38)(g) unless a goal exception is taken. Pursuant to ORS
38 469.504(1)(b)(B), non-compliance with a statewide planning goal requires a determination by
39 Council that an exception to Goal 3 is warranted under ORS 469.504(2) and the implementing
40 EFSC rule at OAR 345-022-0030(4).
41

42 Goal 2, under LCDC’s OAR 660-004-0020(2)(Part II), permits an “exception” to the requirement
43 of a goal for “specific properties or situations.” The text of Goal 2, part II, pertaining to

exceptions is codified in ORS 197.732; however, for EFSC-jurisdictional facilities, ORS 469.504(2) establishes the requirements that must be met for the Council to take an exception to a land use planning goal, not the LCDC rule or statute. The requirements of ORS 469.504(2) are implemented through the Council's Land Use standard at OAR 345-022-0030(4), which states:

OAR 345-022-0030:

*(4) The Council may find goal compliance for a proposed facility that does not otherwise comply with one or more statewide planning goals by taking an exception to the applicable goal. **Notwithstanding the requirements of ORS 197.732 (emphasis added)**, the statewide planning goal pertaining to the exception process or any rules of the Land Conservation and Development Commission pertaining to the exception process goal, the Council may take an exception to a goal if the Council finds:*

- (a) The land subject to the exception is physically developed to the extent that the land is no longer available for uses allowed by the applicable goal;*
- (b) The land subject to the exception is irrevocably committed as described by the rules of the Land Conservation and Development Commission to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or*
- (c) The following standards are met:*
 - (A) Reasons justify why the state policy embodied in the applicable goal should not apply;*
 - (B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with rules of the Council applicable to the siting of the proposed facility; and*
 - (C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.*

The provisions of OAR 345-022-0030(4)(a) and (b) are not applicable to the proposed Carty Solar Farm. The certificate holder submitted an assessment as to why a goal exception under OAR 345-022-0030(4)(c) is appropriate; the Council agrees that a goal exception under OAR 345-022-0030(4)(c) is appropriate and provides an analysis of the certificate holder's OAR 345-022-0030(4)(c) evaluation below.

Reasons Supporting an Exception

Under OAR 345-022-0030(4)(c)(A) (and ORS 469.504(2)(c)(A)), in order for the Council to determine whether to grant an exception to a statewide planning goal, the certificate holder must provide reasons justifying why the state policy embodied in the applicable goal should not apply. The state policy embodied in Goal 3 is the preservation and maintenance of agricultural land for farm use. The certificate holder's justification, as presented below, is based on the

standards pursuant to LCDC's OAR 660-004-0022, which establish the types of reasons that may be used to justify certain types of uses not allowed on resource lands. OAR 660-004-0022(3)(a) through (c) identifies a list of appropriate reasons and facts that may be considered. The certificate holder relies upon the criteria under OAR 660-004-0022(3)(c) to frame its reasons justification:²⁹

OAR 660-004-0022(3) Rural Industrial Development: For the siting of industrial development on resource land outside an urban growth boundary, appropriate reasons and facts may include, but are not limited to, the following:

c. The use would have a significant comparative advantage due to its location (e.g., near existing industrial activity, an energy facility, or products available from other rural activities), which would benefit the county economy and cause only minimal loss of productive resource lands. Reasons for such a decision should include a discussion of the lost resource productivity and values in relation to the county's gain from the industrial use, and the specific transportation and resource advantages that support the decision.

The Council notes that Division 4 of OAR 660 provides an interpretation of the Goal 2 exception process. However, as noted above, because OAR 345-022-0030(4) (and ORS 469.504(2)(c)) applies notwithstanding ORS 197.732 (the statewide planning goal pertaining to the exception process) or any of the LCDC goal exception process rules, OAR 660-004-0022 is not directly applicable to the evaluation of the certificate holder's reasons justification.

In other words, LCDC's exceptions process rules do not specifically apply under the Council's Land Use standard and associated statutory authority. The Council has not established in rule, and the legislature has not established in statute, specific criteria used by the Council in deciding upon a goal exception under OAR 345-022-0030(4)(c). The certificate holder's assessment utilizes the criteria established by LCDC at OAR 660-004-0022(3)(c). However, the Council is not limited to a strict evaluation of compliance with LCDC's exceptions process rules, and can base the assessment on a number factors and reasons that justify the Goal 3 exception under the Council's Land Use standard and OAR 345-022-0030(4)(c).

The certificate holder's reasons justification describes that the use of EFU-zoned land for the proposed Carty Solar Farm would have a significant comparative advantage for several reasons

²⁹ The Department takes no position on whether the proposed photovoltaic solar power generation facility qualifies as a "rural industrial development" for the purposes of a Goal 3 exception under LCDC's exceptions process. In *Department of Land Conservation and Development v. Or Solar LLC* (2018), the Oregon Court of Appeals reversed the portion of the LUBA order in *1000 Friends of Oregon v. Jackson County* (2017) that concluded that the facility proposed by Or Solar LLC was rural industrial development under OAR 660-004-0022(3)(c). [The Court of Appeals decision has been appealed to the Oregon Supreme Court.]

1 including the minimal loss to productive agricultural operations, presence of existing energy
2 facility infrastructure, topography and natural resources, benefits to the local economy, and
3 proximity to existing transportation resources. Each of these advantages are further evaluated
4 below.

6 *Minimal Loss to Productive Agriculture*

8 The certificate holder's reasons justification describes that the use of EFU-zoned land for the
9 proposed Carty Solar Farm site is advantageous due to the minimal loss to productive resource
10 lands from the proposed use. While the proposed site contains high value farmland (based on
11 the ORS 195.300(10)(f) definition) and arable land, the site is not currently cultivated nor is
12 there a known history of cultivation. The site does not contain irrigation infrastructure nor
13 maintain irrigation water rights, which are typically necessary to cultivate land in Morrow
14 County's climate.

15 PGE asserts that transferring water rights to the site would require drying up land that is more
16 suitable for farming than the land within the site. Irrigation could not occur unless the
17 infrastructure necessary to bring irrigation water to the site were extended from existing
18 irrigated lands. Given the distance of the closest irrigated lands to the site (1.7 miles), and the
19 existence of the Carty Reservoir between the proposed site and these irrigated lands, PGE
20 asserts that irrigation infrastructure could not be readily and efficiently extended to the site.

21 Furthermore, the site is isolated from existing cultivated lands by the South Farm Conservation
22 Area protected by a conservation easement pursuant to the MSCCAA, and the Carty Reservoir.
23 Farm equipment would have to traverse either the conservation area or the Boardman Coal
24 Plant site in order to reach the proposed site for the purposes of planting, harvesting and
25 tending to any crops. The distance of the site from land currently under cultivation to the west
26 and north (and the presence of Carty Reservoir in between) not only limits the potential to
27 cultivate the Carty Solar Farm site, but also eliminates potential impacts to farming practices on
28 those cultivated lands. PGE states that the Carty Solar Farm would not affect infrastructure,
29 including road access, to or within Threemile Canyon Farms and would not affect the ability to
30 plant, irrigate, fertilize or harvest the center pivot circles in question. Finally, the Boardman Ash
31 Disposal Area, located just north of the site, and the presence of an area of dune land running
32 approximately east to west along the northern portion of the site, physically constrain the
33 potential dimensions of any potential future center pivot circles.³⁰

34 Tower Road, a well-maintained paved county road, would be used to access the site, and is
35 primarily used for industrial/agricultural traffic. Traffic on this road associated with the
36 potential two additional permanent staff for operation of the proposed Carty Solar Farm would
37 create a negligible impact to other users of Tower Road.³¹

³⁰ *Id.*

³¹ CGSAMD1. 2018-02-20; 2018-09-23. Request for Amendment, Exhibit K, Section K.5.2 (evaluation of compliance with MCZO 3.010.K.3) and RAI responses.

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1 As explained in more detail under the evaluation of compliance with MCZO 3.010(K)(3), the
2 potential for construction-related impacts to soils (i.e. erosion, unnecessary compaction) and
3 the unabated introduction or spread of noxious weeds would be minimized through
4 implementation of PGE's Erosion and Sediment Control Plan and Revegetation and Noxious
5 Weed Control Plan.

6 7 *Presence of Existing Energy Facility Infrastructure*

8
9 The certificate holder's reasons justification describes that the use of EFU-zoned land for the
10 proposed Carty Solar Farm site is advantageous due to the presence of existing energy facility
11 infrastructure. Existing infrastructure, owned and operated by the certificate holder, to be
12 utilized by the Carty Solar Farm includes three options for points of interconnect, grid
13 integration, and grid transmission. Specifically, this infrastructure includes the existing Carty
14 Generation Station components including Unit 1 and Grassland Switchyard, Boardman Coal
15 Plant, and the 500 kV transmission line extending from Grassland Switchyard to BPA's Slatt
16 Substation. In addition, because the Carty Generating Station and the Boardman Coal Plant are
17 already staffed on a 24-hour basis, locating the proposed Carty Solar Farm in close proximity to
18 these existing facilities would enable personnel to respond quickly should any maintenance or
19 operational issues arise at the Carty Solar Farm.³²

20 21 *Topography and Natural Resources*

22
23 The certificate holder's reasons justification describes that the use of EFU-zoned land for the
24 proposed Carty Solar Farm site is advantageous because the site does not contain topography
25 or structures that would create shading, and because the area receives some of the highest
26 available solar energy resource throughout the state, as modeled by NREL.

27 28 *Local Economic Benefits*

29
30 The certificate holder's reasons justification describes that the use of EFU-zoned land for the
31 proposed Carty Solar Farm site is advantageous because it would provide direct and indirect
32 local economic benefits. Construction, during peak activity, is expected to provide up to 130
33 jobs for local workers; and, would add to the local property tax base over the operational life.
34 Ongoing service and maintenance of the Carty Solar Farm could utilize local vendors, if
35 available, for services such as landscaping, panel washing, and other miscellaneous services.
36 Indirect benefits include the increased demand for short term rental property and hotel
37 services, food service, and other commodities or service industries during construction.

38
39
³² CGSAMD1. RFA1 Exhibit K, Section K.6.3. 2018-02-20.
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Transportation Benefits

The certificate holder's reasons justification describes that the use of EFU-zoned land for the proposed Carty Solar Farm site is advantageous because of transportation related advantages. The proposed site is within 18 travel miles of the Port of Morrow County allowing for the delivery of materials via barge, if necessary, with minimal additional over land travel required once materials are off loaded at the Port. The site is accessed from a federal highway (I-84) by a well maintained paved county road (Tower Road). Only a small portion of the traffic on Tower Road is associated with residential travel and the road is primarily already used for industrial/agricultural uses. Since the additional permanent staff will be between zero and two staff; there is negligible impact to transportation during normal operations. In addition to the transportation benefits associated with the access roads; if deemed economical, the Carty Solar Farm could receive construction materials via the existing Boardman rail spur and then transport the materials the short remaining distance to the solar farm unit.

While the certificate holder provided its reasons justification in the context of OAR 660-004-0022(3)(c), because this rule is not directly applicable to facility components under EFSC review, Council makes findings based on the "reasons" standard under the Land Use standard [OAR 345-022-0030(4)(c)(A)] for a Goal 3 exception. Based upon the above analysis, the Council finds that the proposed Carty Solar Farm site would meet the goal exception "reasons" standard in OAR 345-022-0030(4)(c)(A) due to the site's limited impacts to non-irrigated, non-productive agriculture lands; limited impacts to adjacent farmland operations; access to I-84 and other transportation systems include existing access roads and the Port of Morrow; access to local energy infrastructure including the existing Carty Natural Gas Power Plant, Boardman Coal Plant, and Grasslands Switchyard; regional electric transmission grid-system including the existing 500 kV transmission line from Grassland to the BPA Slatt substation; and benefits to the regional and county economy.

While the location also includes access to solar resources; and appropriate topographic and geographic conditions for establishing a solar PV energy facility; these features are not necessarily unique to the proposed site. While appropriate solar resources and topographic and geographic conditions are necessary prerequisites for the development of a utility-scale solar PV energy facility, because these features are generally available at other locations in the region, the Council does not base its Goal 3 exception decision on these reasons.

Significant Environmental, Economic, Social and Energy Consequences

Under OAR 345-022-0030(4)(c)(B) and ORS 469.504(2)(c)(B), in order for the Council to determine whether to grant an exception to a statewide planning goal, the certificate holder must show that "the significant environmental, economic, social and energy consequences" of the proposed Carty Solar Farm have been identified and adverse impacts mitigated in accordance with applicable Council standards.

1 *Environmental Consequences*

2
3 The proposed Carty Solar Farm must satisfy the requirements of all applicable EFSC standards,
4 rules and statutes. Applicable environmental EFSC standards include: General Standard of
5 Review; Soil Protection standard; Protected Areas standard; Recreation Standard; Scenic
6 Resources standard; Fish and Wildlife Habitat standard; and the Threatened and Endangered
7 Species standard. The site where the solar energy generating components would be located
8 does not contain any wetlands, streams, or other waterbodies.³³ Development of the Carty
9 Solar Farm would impact habitats in categories 2, 3, 4, and 6. Of these categories, impacts to
10 Category 2, 3 and 4 habitat must be mitigated in accordance with the Fish and Wildlife Habitat
11 standard and ODFW's Habitat Mitigation Policy, and would be mitigated as described in the
12 Wildlife and Habitat Monitoring and Mitigation Plan (Attachment D to this final order). The
13 potential for construction-related impacts to soils and the unabated introduction or spread of
14 noxious weeds would be minimized through implementation of PGE's Erosion and Sediment
15 Control Plan and Revegetation and Noxious Weed Control Plan (Attachment E to this final
16 order). Based on the Council's findings of fact, conclusions of law, and conditions of approval
17 presented in the final order related to environmental EFSC standards, the Council finds that the
18 proposed Carty Solar Farm, including mitigation, would not cause significant adverse
19 environmental consequences or impacts.
20

21 *Economic Consequences*

22
23 The certificate holder explains that the proposed Carty Solar Farm would benefit the county
24 economy by increasing local area employment during the construction phase and adding to
25 the local property tax base over the estimated 30 year life of the facility. In addition,
26 construction of the facility could result in expenditures on local services (e.g., short-term
27 property rental, hotel services, food service, and other commodities or service industries),
28 and PGE may utilize local vendors, if available, for services such as landscaping, panel
29 washing, and other miscellaneous services during the facility operations and maintenance
30 phase. While existing area within the site boundary contains high value farmland and arable
31 land, the land is not irrigated and does not possess a water-right, is not used for productive
32 agricultural crops, and does not produce significant economic benefits. Therefore, based on
33 the certificate holder's characterization of existing agricultural production and use, the
34 Council concludes that the proposed Carty Solar Farm would result in a net economic benefit
35 compared to the site's existing uses and economic value.
36
37
38
39

³³ CGSAMD1.RFA1 Exhibit P, Section P.2.3. 2018-02-20.
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1 *Social Consequences*

2
3 The certificate holder represents that the proposed Carty Solar Farm would not result in
4 significant adverse social consequences. The Council considers social consequences as impacts
5 on a community from a proposed facility, such as impacts from facility visibility, noise, traffic or
6 demand on providers of public services. Based on distance, the certificate holder explains that
7 the proposed Carty Solar Farm would not be expected to result in significant adverse visual or
8 noise impacts on any scenic resource, protected areas, or important recreational opportunity
9 within the analysis areas. As demonstrated in the applicable sections of this final order, the
10 Council agrees that impacts to scenic resources, protected areas, or recreational opportunities
11 would, considering the recommended conditions, not result in significant adverse impacts and
12 would comply with the appropriate Council standards. The Council addresses potential adverse
13 impacts to public services (including traffic impacts) in Section III.M, *Public Services*. As
14 discussed in that section, the Council relies on previously imposed conditions that would
15 minimize potential adverse impacts. The certificate holder states that no known historic,
16 cultural, or archaeological resources are located at the proposed location of the Carty Solar
17 Farm, but that PGE would follow the Inadvertent Discovery Plan in the event that such
18 resources are discovered during construction.³⁴

19
20 Based on the Council's findings of fact and conclusions of law, and new conditions of
21 compliance, as presented in the final order under the Council's Scenic Resources standard;
22 Historic, Cultural and Archeological standard; Public Services standard; and Recreation
23 standard, the proposed Carty Solar Farm would not cause significant adverse social
24 consequences.

25
26 *Energy Consequences*

27
28 The certificate holder represents that because the proposed Carty Solar Farm would produce
29 up to 50 MW of renewable, emissions-free energy, the energy consequences would be
30 beneficial. Because the proposed Carty Solar Farm would provide a source of renewable
31 energy, the Council concludes that the proposed Carty Solar Farm would not cause significant
32 adverse energy consequences, and would provide a positive energy consequence by producing
33 clean, renewable electricity.

34
35 Based upon the above analysis, the Council finds that the facility would meet the goal exception
36 standard in OAR 345-022-0030(4)(c)(B).
37

³⁴ CGSAMD1 Revised Request for Amendment 2018-02-20, Exhibit K, Section K.6.3.

1
2
3 Compatibility with Adjacent Land Uses³⁵
4

5 Under OAR 345-022-0030(4)(c)(C) (and ORS 469.504(2)(c)(C)), in order for the Council to
6 determine whether to grant an exception to a statewide planning goal, the certificate holder
7 must show that the proposed Carty Solar Farm is compatible with other adjacent land uses or
8 will be made compatible through mitigation measures. The certificate holder explains that
9 adjacent land uses include: water storage and supply at the Carty Reservoir, electricity
10 generation at Carty Generation Station Unit 1 and the Boardman Coal Plant, disposal of coal ash
11 at the Boardman Ash Disposal Area, conservation management at the South Farm Conservation
12 Area, military training activities at the Naval Weapons Systems Training Facility (NWSTF)
13 Boardman, and agricultural operations at Threemile Canyon Farms. The Council evaluates
14 compatibility with adjacent land uses be based on both adjacent land use zone designations
15 and land uses. As represented in RFA Exhibit K, Figure K-1, land use zone designations within
16 the analysis area include EFU and general industrial. Based upon the evaluation of impacts
17 under Council standards, including noise, visual, traffic and transportation impacts, as
18 presented in this final order, the proposed land use (photovoltaic solar power generation
19 facility) would not be expected to be incompatible with adjacent land uses zoned general
20 industrial and EFU.

21
22 The Carty Solar Farm would be separated from the Carty Generation Station Unit 1 and the
23 Boardman Coal Plant by the Carty Reservoir. Operation of the proposed facility would generate
24 no air emissions and therefore would not affect the ability of either of these power plants to
25 meet air quality requirements. In addition, at a distance of over one mile away, operational
26 noise from the Carty Solar Farm would have a negligible effect on noise levels at Carty
27 Generation Station Unit 1 and the Boardman Coal Plant. Therefore, the Carty Solar Farm would
28 be compatible with electricity generation at these two power plants. In addition, the Boardman
29 Coal Plant and Carty Generation Station Unit 1 offer multiple potential points of
30 interconnection for the Carty Solar Farm.

31
32 PGE currently disposes of coal ash from the Boardman Coal Plant at the Boardman Ash
33 Disposal. This use will end after the Boardman Coal Plant ceases using coal (no later than the
34 end of the year 2020) and the site will be permanently closed and revegetated. PGE states that
35 the Carty Solar Farm would not impact the disposal of ash at this site or the closure of the
36 Boardman Ash Disposal Area.

37
38 The Nature Conservancy (TNC) manages the South Farm Conservation Area (also known as the
39 Boardman Conservation Area) to maintain and improve habitat for the Washington ground

³⁵ CGSAMD1 Revised Request for Amendment 2018-02-20, Exhibit K, Section K.6.3.
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squirrel, ferruginous hawk, loggerhead shrike, and sage sparrow. The proposed Carty Solar Farm would be located outside of the conservation area. PGE represents that the proposed facility would not interfere with TNC's ability to manage vegetation or to control activities such as hunting and soil disturbance within the conservation area, and the certificate holder would minimize the likelihood of unabated introduction or spread of noxious weeds to the conservation area through implementation of the Revegetation and Noxious Weed Control Plan (Attachment E to this final order).

The NWSTF Boardman is located more than a mile east of the proposed Carty Solar Farm site and would therefore not create any physical obstruction to use of the training facility. The U.S. Navy and PGE discussed the potential for glare from the Carty Solar Farm to impact flight paths to the NWSTF Boardman. Following that discussion, PGE filed a Notice of Proposed Construction (Form 7460-1) with the Federal Aviation Administration (FAA) on July 13, 2016 and the FAA subsequently issued a determination of no hazard.³⁶

Finally, for adjacent and nearby farmland (Threemile Canyon Farms land generally to the north and west of the proposed facility), as described above [under the MCZO 6.025 analysis], the Council concludes that the facility, with proposed changes, would not cause a significant change to accepted farm practices nor significantly increase the cost of accepted farm practices within the surrounding area. Therefore, the Council concludes that the facility, with proposed changes, would be compatible with other adjacent land uses and land use zones and that the facility would meet the goal exception standard in OAR 345-022-0030(4)(c)(C).

Conclusions of Law

Based on the foregoing findings and the evidence in the record, and subject to compliance with the recommended conditions, the Council finds an exception to Goal 3 is justified under OAR 345-022-0030(4)(c) and ORS 469.504(2)(c); and that therefore the Council find that the proposed Carty Solar Farm and its supporting facilities complies with MCZO 3.010.K.3 and complies with the applicable statewide planning goal (Goal 3). As such, subject to the existing, new and amended conditions, Council finds that the proposed Carty Solar Farm and its supporting facilities complies with the Council's Land Use standard.

III.F. Protected Areas: OAR 345-022-0040

(1) Except as provided in sections (2) and (3), the Council shall not issue a site certificate for a proposed facility located in the areas listed below. To issue a site certificate for a proposed facility located outside the areas listed below, the Council must find that, taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed below.

³⁶ CGSAMD1 Revised Request for Amendment 2018-02-20, Exhibit E, Section E.2.2 and Appendix E-2.
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1 *References in this rule to protected areas designated under federal or state statutes*
2 *or regulations are to the designations in effect as of May 11, 2007:*

3
4 *(a) National parks, including but not limited to Crater Lake National Park and Fort*
5 *Clatsop National Memorial;*

6
7 *(b) National monuments, including but not limited to John Day Fossil Bed National*
8 *Monument, Newberry National Volcanic Monument and Oregon Caves National*
9 *Monument;*

10
11 *(c) Wilderness areas established pursuant to The Wilderness Act, 16 U.S.C. 1131 et*
12 *seq. and areas recommended for designation as wilderness areas pursuant to 43*
13 *U.S.C. 1782;*

14
15 *(d) National and state wildlife refuges, including but not limited to Ankeny, Bandon*
16 *Marsh, Baskett Slough, Bear Valley, Cape Meares, Cold Springs, Deer Flat, Hart*
17 *Mountain, Julia Butler Hansen, Klamath Forest, Lewis and Clark, Lower Klamath,*
18 *Malheur, McKay Creek, Oregon Islands, Sheldon, Three Arch Rocks, Umatilla, Upper*
19 *Klamath, and William L. Finley;*

20
21 *(e) National coordination areas, including but not limited to Government Island,*
22 *Ochoco and Summer Lake;*

23
24 *(f) National and state fish hatcheries, including but not limited to Eagle Creek and*
25 *Warm Springs;*

26
27 *(g) National recreation and scenic areas, including but not limited to Oregon Dunes*
28 *National Recreation Area, Hell's Canyon National Recreation Area, and the Oregon*
29 *Cascades Recreation Area, and Columbia River Gorge National Scenic Area;*

30
31 *(h) State parks and waysides as listed by the Oregon Department of Parks and*
32 *Recreation and the Willamette River Greenway;*

33
34 *(i) State natural heritage areas listed in the Oregon Register of Natural Heritage*
35 *Areas pursuant to ORS 273.581;*

36
37 *(j) State estuarine sanctuaries, including but not limited to South Slough Estuarine*
38 *Sanctuary, OAR Chapter 142;*

39
40 *(k) Scenic waterways designated pursuant to ORS 390.826, wild or scenic rivers*
41 *designated pursuant to 16 U.S.C. 1271 et seq., and those waterways and rivers listed*
42 *as potentials for designation;*
43

1 *(l) Experimental areas established by the Rangeland Resources Program, College of*
2 *Agriculture, Oregon State University: the Prineville site, the Burns (Squaw Butte) site,*
3 *the Starkey site and the Union site;*

4
5 *(m) Agricultural experimental stations established by the College of Agriculture,*
6 *Oregon State University, including but not limited to: Coastal Oregon Marine*
7 *Experiment Station, Astoria Mid-Columbia Agriculture Research and Extension*
8 *Center, Hood River Agriculture Research and Extension Center, Hermiston Columbia*
9 *Basin Agriculture Research Center, Pendleton Columbia Basin Agriculture Research*
10 *Center, Moro North Willamette Research and Extension Center, Aurora East Oregon*
11 *Agriculture Research Center, Union Malheur Experiment Station, Ontario Eastern*
12 *Oregon Agriculture Research Center, Burns Eastern Oregon Agriculture Research*
13 *Center, Squaw Butte Central Oregon Experiment Station, Madras Central Oregon*
14 *Experiment Station, Powell Butte Central Oregon Experiment Station, Redmond*
15 *Central Station, Corvallis Coastal Oregon Marine Experiment Station, Newport*
16 *Southern Oregon Experiment Station, Medford Klamath Experiment Station, Klamath*
17 *Falls;*

18
19 *(n) Research forests established by the College of Forestry, Oregon State University,*
20 *including but not limited to McDonald Forest, Paul M. Dunn Forest, the Blodgett*
21 *Tract in Columbia County, the Spaulding Tract in the Mary's Peak area and the*
22 *Marchel Tract;*

23
24 *(o) Bureau of Land Management areas of critical environmental concern,*
25 *outstanding natural areas and research natural areas;*

26
27 *(p) State wildlife areas and management areas identified in OAR chapter 635,*
28 *Division 8.*

29
30 **Findings of Fact**

31 The Protected Areas standard requires the Council to find that, taking into account mitigation,
32 the design, construction, and operation of a facility are not likely to result in significant adverse
33 impacts to any protected area as defined by OAR 345-022-0040. Impacts to protected areas are
34 evaluated based on identification of protected areas, pursuant to OAR 345-022-0040, within
35 the analysis area and an evaluation of the following potential impacts during facility
36 construction and operation: excessive noise, increased traffic, water use, wastewater disposal,
37 visual impacts of facility structures or plumes, and visual impacts from air emissions.

38
39 In accordance with OAR 345-001-0010(59)(e) and consistent with the study area boundary, the
40 analysis area for protected areas is the area within and extending 20 miles from the site
41 boundary.

The certificate holder identified nine protected areas within the analysis area. These protected areas are presented in Table 3, *Protected Areas within the Analysis Area and Distance from Site Boundary* below.

Table 3: Protected Areas within the Analysis Area and Distance from Site Boundary

Name	Distance and Direction from the Amended Site Boundary	Basis for Protection
Boardman Research Natural Area	2.7 miles east	OAR 345-022-0040(l)(o)
Horn Butte Area of Critical Environmental Concern	7.1 miles west	OAR 345-022-0040(l)(o)
Lindsay Prairie Preserve	7.8 miles southeast	OAR 345-022-0040(l)(o)
Umatilla National Wildlife Refuge	9.1 miles north	OAR 345-022-0040(l)(d)
Willow Creek Wildlife Area	10.0 miles northwest	OAR 345-022-0040(l)(p)
Coyote Springs Wildlife Area	11.7 miles northeast	OAR 345-022-0040(l)(p)
Irrigon Wildlife Area	18.4 miles northeast	OAR 345-022-0040(l)(p)
Irrigon Hatchery	19.2 miles northeast	OAR 345-022-0040(l)(f)
Umatilla Fish Hatchery	19.2 miles northeast	OAR 345-022-0040(l)(f)

As presented in Table 3, *Protected Areas within the Analysis Area and Distance from Site Boundary*, the majority of the listed protected areas are located at least 7 miles from the proposed amended site boundary. The protected area closest to the proposed amended site boundary is the Boardman Research Natural Area (2.7 miles east). Potential adverse impacts to protected areas during construction and operation of the facility, with proposed changes, from noise, traffic, water use and wastewater disposal, and visual are discussed below.

Potential Noise Impacts

The significance of potential noise impacts to identified protected areas is based on the magnitude and likelihood of the impact on the affected human population or natural resource that uses the protected area.³⁷ The nearest protected area, Boardman Research Natural Area, is

³⁷ The Protected Areas standard requires the Council to find that, taking into account mitigation, the design, construction and operation of a facility are not likely to result in significant adverse impacts to any protected area as defined by OAR 345-022-0040. OAR 345-001-0010(53) defines “significant” as: “having an important consequence, either alone or in combination with other factors, based upon the magnitude and likelihood of the

1 a site managed for scientific and educational uses associated with scheduled military use of the
2 Boardman Bombing Range, and for preservation of grasslands and wildlife habitat. Based on
3 this function and purpose, the Boardman Research Natural Area could be affected if adverse
4 noise levels from the facility, with proposed changes, were audible. Potential noise impacts at
5 the Boardman Research Natural Area from construction and operation of the facility, with
6 proposed changes, are evaluated below.

7 8 *Construction* 9

10 The proposed Carty Solar Farm would generate construction-related noise. Construction related
11 noise would be short-term and intermittent and would result from site clearing, excavation,
12 foundation work, and equipment installation. Construction equipment noise levels are
13 estimated to be less than 50 A-weighted decibels [dBA] at a distance of 5-miles, which is
14 equivalent to noise levels of light traffic. The Boardman Research Natural Area is located 2.7
15 miles from the proposed amended site boundary; therefore, anticipated construction-related
16 noise levels would be expected to be greater than 50 dBA.

17
18 Existing Condition 13.1 would reduce noise impacts during construction by requiring the use of
19 exhaust mufflers on combustion engine-powered equipment; and requires that the certificate
20 holder establish a noise complaint response system, and provide, upon request, noise
21 complaint records to the Department. Based on the distance of construction-related noise, and
22 short-term, intermittent nature of construction activities, and relatively quiet noise levels, the
23 Council continues to find that construction of the facility, with proposed changes, would not be
24 likely to result in significant adverse noise impacts at the Boardman Research Natural Area.
25 Because the other protected areas within the analysis area are located at greater distances
26 from the proposed amended facility site boundary than the Boardman Research Natural Area,
27 the Council concludes that potential construction-related noise impacts from the facility, with
28 proposed changes, at these protected areas would also not likely be potentially significant or
29 adverse.

30 31 *Operation* 32

33 The proposed Carty Solar Farm would result in potential maximum overall A-weighted sound
34 power level output of 44 dBA at 400 feet. In RFA1, the certificate holder provides a noise
35 analysis of the proposed Carty Solar Farm including the following sources:
36
37

impact on the affected human population or natural resources, or on the importance of the natural resources
affected, considering the context of the action or impact, its intensity and the degree to which possible impacts are
caused by the proposed action. Nothing in this definition is intended to require a statistical analysis of the
magnitude or likelihood of a particular impact.”

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- 25 inverters at 87 dBA
- 25 Step-up transformers at 94 dBA

As presented in RFA1 Exhibit X, the noise modeling analysis for operational noise demonstrates that noise generated by the proposed Carty Solar Farm would be less than 30 dBA, equivalent to the noise level of a soft whisper, at the Boardman Research Natural Area. Therefore, based on the certificate holder's noise modeling assessment, the Council finds that operation of the proposed Carty Solar Farm would not be likely to result in significant adverse noise impacts to any protected areas within the analysis area.

Potential Traffic Impacts

Construction

The proposed Carty Solar Farm would generate construction-related traffic, not expected to exceed 400 trips per day. The certificate holder describes that construction-related traffic would utilize I-84 and Tower Road. While each of the nine protected areas may be accessed via I-84, based on the distance from the protected areas to Tower Road, the Council finds that construction-related traffic would not be expected to result in significant adverse impacts to any protected area within the analysis area.

While not related to impacts under the Council's Protected Areas standard, as described in Section III.M. Public Services, the Council amends Condition 6.17 and impose Condition 6.27. These conditions would require that the certificate holder, prior to and during construction, evaluate construction related traffic to confirm whether a Traffic Impact Assessment (TIA) is required in accordance with MCZO Section 3.010(N)(1); the conditions also require that the certificate holder develop and implement a Construction Traffic Management Plan to minimize traffic impacts on Tower Road.

Because access roads to protected areas would not be used or impacted, the Council finds that construction-related traffic impacts would not be likely to result in a significant adverse traffic impact to protected areas within the analysis area.

Operation

The proposed Carty Solar Farm would generate operational-related traffic. However, the certificate holder asserts that operational traffic would result in up to 2 additional vehicle trips per day and would not utilize roads providing access to any of the identified protected areas, other than Tower Road. Because operation of the proposed Carty Solar Farm would not substantially increase trip generation on Tower Road, the Council finds that operational-traffic impacts would not be likely to result in a significant adverse impact to protected areas within the analysis area.

Potential Water Use and Wastewater Disposal Impacts

Construction and Operation

Construction and operation of the proposed Carty Solar Farm would utilize water and generate wastewater for disposal. Construction would use approximately 8 million gallons of water primarily for dust suppression, equipment and vehicle washing, and fire suppression obtained from Carty Reservoir, of which PGE maintains a water right, through a third-party limited water use license from Oregon Department of Water Quality. During operation, the proposed Carty Solar Farm would have minimal water needs, 2 to 5 acre-feet of water per year, for solar panel washing obtained from Carty Reservoir.

Construction and operation of the proposed Carty Solar Farm would generate wastewater for disposal. During construction, wastewater would be generated from washing equipment and vehicles, washing concrete trucks after delivery of concrete loads, and fire suppression. The certificate holder maintains an existing Water Pollution Control Facilities (WPCF) permit, issued by Oregon Department of Environmental Quality but governed and incorporated into the site certificate. The existing WPCF authorizes wastewater disposal through evaporation and seepage from construction-related wastewater. During operations, wastewater would be generated from solar panel washing, which is not currently authorized by the WPCF permit. Therefore, through the EFSC amendment process, the certificate holder requests to modify its WPCF to allow disposal of solar panel wash water through evaporation and seepage. Based on DEQ's review of the WPCF permit amendment request, a new condition would be imposed to prohibit the use of soaps and chemicals, as described in Section III.D. *Soil Protection* of this order. Any potential wastewater generated from stormwater runoff during construction would be managed in accordance with the BMPs described in the NPDES 1200-C / Erosion and Sediment Control Plan until that permit is terminated. Condition 9.5 requires the applicant to monitoring and repair any erosion concerns during operations.

As described, water use and wastewater disposal during both construction and operation of the proposed Carty Solar Farm would not result in water withdrawal from a protected area of wastewater disposal to a protected area within the analysis area. Therefore, the Council finds that the proposed Carty Solar Farm would avoid all impacts from water use and wastewater disposal to protected area within the analysis area.

Visual Impacts of Facility Structures

The proposed Carty Solar Farm and its supporting facilities would result in visible facility structures including solar modules with a maximum height of 10 feet; inverters with a maximum height of 11 feet; and, a 34.5 kV transmission line with 70-foot-tall wooden poles.

1 To support its evaluation of potential visual impacts of the proposed Carty Solar Farm and its
2 supporting facilities, the certificate holder completed a zone of visual influence (ZVI) analysis.³⁸
3 A ZVI analysis identifies visibility based on topography but does not account for screening from
4 vegetation or structures.
5

6 Based on the ZVI analysis, as presented in Figure L-2, the proposed Carty Solar Farm and its
7 supporting facilities would be visible from small areas within Boardman Research Natural Area
8 and Horn Butte ACEC located 2.7 and 7.1 miles, respectively, from the proposed amended site
9 boundary. The certificate holder argues that because public access to the Boardman Research
10 Natural Area is restricted, visual impacts would be limited because there are limited users that
11 could be impacted. Based on the primary uses of the Boardman Research Natural Area,
12 restricted public access, and minimal areas from which the proposed Carty Solar Farm would be
13 visible, the Council finds that visual impacts would not likely result in a significant adverse
14 impact to this protected area. Similarly, based on the distance of over 7 miles to the next
15 closest protected area (Horn Butte ACEC), and minimal areas from which the proposed Carty
16 Solar Farm would be visible, the Council finds that visual impacts would not likely result in a
17 significant adverse impact to this protected area.
18

19 *Visual Impacts from Air Emissions*

20

21 There would be no air emissions from the proposed Carty Solar Farm and therefore no related
22 visual impacts.
23

24 **Conclusions of Law**

25

26 Based on the foregoing recommended findings, the Council finds that the design, construction
27 and operation of the proposed Carty Solar Farm would not be likely to result in significant
28 adverse impacts to any protected areas, in compliance with the Council's Protected Area
29 standard.

30 **III.G. Retirement and Financial Assurance: OAR 345-022-0050**

31

32 *To issue a site certificate, the Council must find that:*
33

- 34 (1) *The site, taking into account mitigation, can be restored adequately to a useful, non-*
35 *hazardous condition following permanent cessation of construction or operation of*
36 *the facility.*
37 (2) *The applicant has a reasonable likelihood of obtaining a bond or letter of credit in a*
38 *form and amount satisfactory to the Council to restore the site to a useful, non-*
39 *hazardous condition.*

³⁸ CGSAMD1. Request for Additional Information Responses. 2018-09-24.
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Findings of Fact

The Retirement and Financial Assurance standard requires a finding that the facility site can be restored to a useful, non-hazardous condition at the end of the facility's useful life, should either the certificate holder stop construction or should the facility cease to operate.³⁹ In addition, it requires a demonstration that the certificate holder can obtain a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.

Restoration of the Site Following Cessation of Construction or Operation

OAR 345-022-0050(1) requires the Council to find that the site of the facility, with proposed changes, can be restored to a useful non-hazardous condition at the end of the facility's useful life.

In RFA1, the certificate holder describes the tasks and actions necessary to restore the site of the proposed Carty Solar Farm and its supporting facilities to a useful, nonhazardous condition. The tasks and actions would include removal of solar arrays; demolition of racking structure, piles, electrical equipment (which includes conductors, transformers, inverters, switchgear, lines, and poles), as well as fencing and concrete pads. Concrete foundations and cables, located within 3 feet of the surface, would be removed. Cables located three feet or more below ground would be abandoned in accordance with applicable Oregon laws and regulations, and left in place. Gravel would be removed from access roads; and disturbed areas would be regraded and reseeded to be consistent with the surrounding areas.

Council previously imposed several conditions to ensure the certificate holder could satisfy the Retirement and Financial Assurance standard, as summarized below:

- Condition 15.3, which mirrors the OAR 345-025-0060(7) Mandatory Condition, requires that the certificate holder prevent the development of any condition on the site that would preclude restoration of the site to a useful, non-hazardous condition
- Condition 15.4, which mirrors the OAR 345-025-0060(9) Mandatory Condition, requires the certificate holder to retire the facility in accordance with a Council-approved retirement plan
- Condition 15.5, which mirrors the OAR 345-025-0060(16) Mandatory Condition, provides the Department the authority to develop a retirement plan, for Council approval, in the event the certificate holder ceases operation of its facility and does not retire the facility in accordance with a Council approved retirement plan

³⁹ OAR 345-022-0050(1).
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In Section III.B., *Organizational Expertise* of this order, the Council finds that the certificate holder has the organizational expertise to construct, operate, and retire the facility in compliance with that Council standard. In addition, the Council finds that the certificate holder would continue to satisfy the requirements of the Soil Protection, Fish and Wildlife Habitat, and Waste Minimization standards (Sections III.D., III.H. and III.N. of this order, respectively). Each of those sections describes existing and amended conditions designed to minimize adverse impacts on the surrounding land from construction and operation of the components proposed in the amendment request.

Subject to compliance with existing conditions identified above, the Council finds that the site of the facility, with proposed changes, could be restored adequately to a useful, non-hazardous condition following permanent cessation of construction or operation.

Estimated Cost of Site Restoration

OAR 345-022-0050(2) requires the Council to find that the certificate holder continues to have a reasonable likelihood of obtaining a bond or letter of credit in a form and amount necessary to restore the site of the facility, with proposed changes, to a useful non-hazardous condition.

In RFA1, the certificate holder provides a site restoration cost estimate for the proposed Carty Solar Farm and its supporting facilities of approximately \$2.4 million (Q3 2016 dollars). The site restoration cost estimate was prepared by Blue Oak Energy, the certificate holder's consultant. Blue Oak Energy is a leading solar energy company that has constructed over 700 MW of utility scale solar projects. Blue Oak Energy evaluated labor requirements, equipment needs and duration for each of the tasks and actions identified for site restoration. Labor and equipment rates were based on US Department of Labor wage determinations. Typical industry standards were applied for contingency, overhead and fee.

Based on this information, the Council concludes that the certificate holder's consultant, Blue Oak Energy, has the experience necessary to adequately and accurately prepare a cost estimate for decommissioning and restoration of the site of the proposed Carty Solar Farm and its supporting facilities (including interconnection transmission line and interconnection equipment).

**Table 4: Proposed Carty Solar Farm and Supporting Facilities
Site Restoration Cost Estimate**

Restoration Activity	Estimated Cost
<i>Carty Solar Farm and Supporting Facilities</i>	
Mobilization and Management	\$597,200
Module and Rack Disassembly	\$380,450
Pile Removal	\$66,250
Electrical Demolition	\$289,172

**Table 4: Proposed Carty Solar Farm and Supporting Facilities
Site Restoration Cost Estimate**

Restoration Activity	Estimated Cost
Civil Site Reclamation	\$183,700
Materials Transportation and Disposal	\$379,300
Subtotal =	1,896,072
<i>Applied Contingencies*</i>	
1% Performance Bond ¹	\$18,960
10% Administration and Project Management ²	\$189,607
20% Future Development Contingency ³	\$379,214
10% Profit Margin for Decommissioning Entity ⁴	\$189,607
2.1% Permitting and Insurance ⁴	\$39,817
Subtotal =	\$817,205
Carty Solar Farm and Supporting Facilities, Total (Q3 2016 dollars) =	\$2,713,277
<p>*Notes: Council applies additional contingencies, consistent with those applied to the approved facility, as follows:</p> <ol style="list-style-type: none"> 1% to account for the cost of a performance bond that would be posted by the contractor as assurance that the work will be completed as agreed. 10% for the Department's administrative and management expenses. 20% for future uncertainties such as changes in environmental standards or other legal requirements, availability of disposal sites, and the cost of labor and equipment. Contingencies as represented in RFA1 Exhibit W. 	

As presented in Table 4, *Proposed Carty Solar Farm and Supporting Facilities Site Restoration Cost Estimate*, the Council adds contingency costs for future development, administration and project management cost, and cost for maintaining a performance bond. The 20 percent future development contingency accounts for uncertainty in the decommissioning estimate. If site restoration becomes necessary, it might be many years in the future where there is uncertainty of continued adequacy of the retirement cost estimate. Uncertainty factors include different environmental standards or other legal requirements; and, changes in cost of labor and equipment that increase at a rate exceeding the standard inflation adjustment. The 10 percent contingency for administrative and management expenses are the anticipated direct costs borne by the State in the course of managing site restoration and would include the preparation and approval of a final retirement plan, obtaining legal permission to proceed with demolition of the facility, legal expenses for protecting the State's interest, preparing specification bid documents and contracts for demolition work, managing the bidding process, negotiations of contracts, and other tasks. Based on the adjustments from contingencies, the Council finds that \$2.7 million (Q3 2016 dollars) is a reasonable estimate of an amount satisfactory to restore the site to a useful, nonhazardous condition. The Council, therefore, amends Condition 15.1 as follows:

Condition 15.1, as amended: Before beginning construction of each generating block, the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The initial bond or letter of credit amount for Unit 1 is \$7.884 million (in 3rd Quarter 2011 dollars), to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (a) of this condition. The initial bond or letter of credit amount for the Carty Solar Farm and its supporting facilities, Block 2 is ~~\$6.670~~ 2.7 million (in 3rd Quarter 2016 dollars) to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (a) of this condition.

- a. The certificate holder may adjust the amount of the bond or letter of credit based on the final design configuration of the facility and turbine types selected. Any revision to the restoration costs should be adjusted to the date of issuance as described in (b), and is subject to review and approval by the Department.
- b. The certificate holder shall adjust the amount of the bond or letter of credit, using the following calculation and subject to approval by the Department.
 - i. Adjust the amount of the bond or letter of credit amount for Unit 1 (expressed in 3rd Quarter 2011) and Carty Solar Farm (expressed in 3rd Quarter 2016 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency (the "Index") and using the index value and the quarterly index value applicable for Unit 1 and Carty Solar Farm for the date of issuance of the new bond or letter of credit. If at any time the Index is no longer published, the Council shall select a comparable calculation to adjust the bond or letter of credit to present value.
 - ii. Round the resulting total to the nearest \$1,000 to determine the financial assurance amount.
- c. The certificate holder shall use a form of bond or letter of credit approved by the Council.
- d. The certificate holder shall use an issuer of the bond or letter of credit approved by the Council.
- e. The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under Condition VI.4.
- f. The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site.

[Final Order IV.G.2.9] [Mandatory Condition OAR 345-0257-0020(8)] [AMD1]

Based on compliance with recommended amended Condition 15.1, the Council finds that the retirement cost estimate, with applied contingencies, is a reasonable estimate of an amount satisfactory to restore the site of the proposed Carty Solar Farm and its supporting facilities to a useful, non-hazardous condition.

1 *Ability of the Certificate Holder to Obtain a Bond or Letter of Credit*

2
3 OAR 345-022-0050(2) requires the Council to find that the certificate holder has a reasonable
4 likelihood of obtaining a bond or letter of credit in a *form* and amount necessary to restore the
5 site of the proposed Carty Solar Farm and its supporting facilities to a useful non-hazardous
6 condition [Emphasis added]. A bond or letter of credit provides a site restoration remedy to
7 protect the state of Oregon and its citizens if the certificate holder fails to perform its obligation
8 to restore the site. The bond or letter of credit must remain in force until the certificate holder
9 has fully restored the site. OAR 345-025-0010(8) establishes a mandatory condition, imposed as
10 Condition 15.1, which ensures compliance with this requirement.

11
12 Based on the estimate shown in Table 4, *Proposed Carty Solar Farm and Supporting Facilities*
13 *Site Restoration Cost Estimate*, the value of the financial assurance bond or letter of credit for
14 restoring the site of the proposed Carty Solar Farm and its supporting facilities would be
15 approximately \$2.7 million (Q3 2016 dollars), adjusted annually as described in the
16 recommended amended condition above. To demonstrate its ability to receive an adequate
17 bond or letter of credit, the certificate holder provides a January 31, 2018 letter from JPMorgan
18 Chase Bank, N.A., stating that it would be willing to issue a letter of credit to the certificate
19 holder in an amount up to \$12 million, which exceeds the \$2.7 million retirement cost estimate.
20 The bank letter is intended solely to demonstrate, for Council's review of the amendment
21 request and the certificate holder's ability to satisfy the requirements of the Retirement and
22 Financial Assurance standard, that the certificate holder has a reasonable likelihood of
23 obtaining a bond or letter of credit, prior to construction, in the amount necessary for site
24 restoration.

25
26 The Council considers the bank letter sufficient for representing a reasonable likelihood of
27 obtaining a bond or letter of credit in the amount necessary for site restoration. Additionally, as
28 described above and in accordance with Condition 15.1, construction cannot begin until the
29 Department receives a satisfactory bond or letter of credit.

30
31 Subject to compliance with existing and amended conditions, the Council finds that the site of
32 the proposed Carty Solar Farm and its supporting facilities can be restored adequately to a
33 useful, non-hazardous condition following permanent cessation of construction or operation.
34 Additionally, Council finds that the certificate holder has a reasonable likelihood of obtaining a
35 bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a
36 useful, non-hazardous condition.

37
38 **Conclusions of Law**

39 For the reasons describe above, and subject to the existing and amended site certificate
40 conditions, the Council finds that the facility, with proposed changes, would comply with the
41 Council's Retirement and Financial Assurance standard.

1 **III.H. Fish and Wildlife Habitat: OAR 345-022-0060**

2
3 *To issue a site certificate, the Council must find that the design, construction and operation of*
4 *the facility, taking into account mitigation, are consistent with:*

5
6 *(1) The general fish and wildlife habitat mitigation goals and standards of OAR 635-415-*
7 *0025(1) through (6) in effect as of February 24, 2017*

8 ***
9

10 **Findings of Fact**

11 The EFSC Fish and Wildlife Habitat standard requires the Council to find that the design,
12 construction, and operation of a facility is consistent with the Oregon Department of Fish and
13 Wildlife's (ODFW) habitat mitigation goals and standards, as set forth in OAR 635-415-0025.
14 This rule creates requirements for mitigating impacts to fish and wildlife habitat, based on the
15 functional quantity and quality of the habitat impacted as well as the nature, extent, and
16 duration of the impact. The rule also establishes a habitat classification system based on the
17 function and value of the habitat it would provide to a species or group of species likely to use
18 it. ODFW policy identifies six habitat categories, with Category 1 being the most valuable, and
19 Category 6 the least valuable.
20

21 The analysis area for potential fish and wildlife habitat impacts, as defined in the project order,
22 is the area within and extending ½-mile from the site boundary.⁴⁰ To inform the evaluation of
23 impacts under the Council's Fish and Wildlife Habitat standard, three types of biological surveys
24 were conducted including habitat mapping, wetland and waterbody delineations, and protocol-
25 level Washington ground squirrel (WGS) surveys, as further described below.
26

27 *Habitat Types and Categories in the Analysis Area*

28
29 To identify potential habitat category and types within the analysis area, the certificate holder's
30 consultant Ecology and Environment, Inc. (E&E) conducted both field and desktop surveys. The
31 field survey, conducted during the week of April 4, 2016, included ten survey plots with 15-foot
32 radii established at representative locations in distinct habitat types within the proposed site
33 boundary expansion areas.⁴¹ To evaluate habitat within the ½-mile analysis area, E&E

⁴⁰ CGSNOIDoc17. Project Order, p.18. 2009-11-03.

⁴¹ As explained in RFA1 Exhibit P, while the survey area for habitat mapping relied upon ten survey plots, all grassland and shrub steppe habitats within the proposed site boundary expansion areas and new or modified features within the original site boundary, plus an additional 1,000 feet beyond such areas were included in the WGS survey area.

1 conducted a desktop review of aerial photography, Oregon Gap Analysis Program, and data
2 collected during the 2016 field survey.⁴²

3
4 Habitat category and subtypes identified within the analysis area include the following:

- 5
6 • Category 1
 - 7 ○ Washington Ground Squirrel (WGS) Occupied: areas with suitable habitat that
 - 8 are within a 785-foot buffer of active WGS burrow
 - 9 • Category 2
 - 10 ○ WGS Potential Seasonal Home Range Shift and Dispersal Areas: 1500-meter
 - 11 buffer from active WGS burrow
 - 12 • Category 3
 - 13 ○ Sagebrush steppe
 - 14 ○ Riparian forest
 - 15 ○ Riparian scrub wetland
 - 16 • Category 4
 - 17 ○ Sagebrush steppe (disturbed)
 - 18 ○ Grasslands (degraded)
 - 19 ○ Grasslands (post-burn)
 - 20 ○ Cheatgrass savannah
 - 21 ○ Broom snakeweed shrublands
 - 22 • Category 5
 - 23 ○ Riparian meadow (disturbed)
 - 24 • Category 6
 - 25 ○ Agriculture Cropland
 - 26 ○ Artificial Pond⁴³
 - 27 ○ Developed
- 28

29 In RFA1 Exhibit P, Category 2 habitat (WGS Potential Seasonal Home Range Shift) is described as
30 including suitable WGS habitat within 300-meters of Category 1 WGS habitat, and Category 3
31 habitat (WGS Potential Seasonal Dispersal Areas) is described as including suitable WGS habitat
32 within 1,200-meters of Category 2 WGS habitat. In an April 6, 2018 comment letter, ODFW
33 recommended that Category 2 WGS habitat include any suitable WGS habitat within 1,500-
34 meters of an active WGS burrow unless there is a break in the habitat that would pose as a
35 barrier to WGS movements. The certificate holder argues that ODFW's recommendation does
36 not adequately consider the spatial and habitat quality context of a particular site, and
37 expresses that the basis of potential species dispersal into adjacent habitat does not on its own

⁴² CGSAMD1DocXX. Exhibit P, Appendix P-1, p-1. 2018-02-14.

⁴³ ODFW concurred that the artificial pond habitat categorization in this case, they also noted that not all artificial water bodies are considered Category 6 habitat because many man-made water bodies serve as important wildlife habitat for many wildlife species.

1 make the habitat “essential.” However, as represented in supplemental information provided
2 by the certificate holder, included as Attachment D to this order, the certificate holder revised
3 its habitat mapping and impact tables based on ODFW’s recommendation. Because ODFW
4 considers WGS movement to be an “essential” part of their life history for genetic interchange
5 among colonies, and because available habitat within the Columbia Basin for dispersal is
6 limited, the habitat categories presented above are based on ODFW’s recommendation (i.e.
7 RFA1 Exhibit P identifies WGS Potential Seasonal Dispersal Areas as Category 3 habitat;
8 however, based on ODFW’s comments, WGS Potential Seasonal Dispersal Areas is identified as
9 Category 2 habitat). The Council concurs with ODFW’s recommendations regarding habitat
10 categorization for Washington ground squirrel habitat and evaluates habitat impacts and
11 mitigation based on ODFW’s recommendations.

12 *Potential Impacts to Fish and Wildlife Habitat*

14
15 Construction and operation of the proposed Carty Solar Farm and its supporting facilities would
16 result in temporary, temporal and permanent habitat impacts to Category 2 (WGS Potential
17 Seasonal Home Range Shift); Category 3 (Sagebrush steppe; Riparian forest); Category 4
18 (Sagebrush steppe, disturbed; Broom snakeweed shrublands; grasslands, post-burn; grasslands,
19 degraded; Cheatgrass savannah); and Category 6 (agricultural cropland and developed areas).⁴⁴
20 Impacts to Category 6 habitat do not require compensatory mitigation under the Council’s Fish
21 and Wildlife Habitat standard.

22
23 As presented in Table 5, *Estimated Temporary and Permanent Habitat Impacts, by Category, for*
24 *Facility with Proposed Changes*, the proposed Carty Solar Farm and its supporting facilities
25 would temporarily disturb approximately 6.39, 7.66 and 90.57 acres of Category 2, 3 and 4
26 habitat, respectively, resulting in temporary and temporal habitat impacts.⁴⁵ The proposed
27 Carty Solar Farm and its supporting facilities would permanently disturb approximately 259.32,
28 42.84 and 18.79 acres of Category 2, 3 and 4 habitat, respectively.⁴⁶

⁴⁴ Temporal loss refers to loss of habitat function and values from the time an impact occurs to the time when the restored habitat provides a pre-impact level of habitat function. Habitat subtypes identified within the site boundary, based on pre-construction estimates, including sagebrush steppe and broom snakeweed shrublands are reasonably expected to require a longer restoration timeframe (5+ years) and therefore would be expected to result in temporal loss requiring compensatory mitigation beyond the certificate holder’s revegetation obligation.

⁴⁵ While temporal loss applies to habitat subtypes expected to require a longer restoration timeframe, and therefore would apply to impacted sagebrush steppe but not grasslands, the certificate holder did not delineate between habitat subtypes to be temporarily impacted and provides mitigation for temporal loss for Category 2, 3 and 4 regardless of habitat subtype.

⁴⁶ See Revised Table P-3, provided in Attachment B of this order.

Table 5: Estimated Temporary and Permanent Habitat Impacts, by Category, for Facility, with Proposed Changes

Habitat Category	Temporary Impacts ¹	Permanent Impact ²	Calculated Mitigation Area (Temporal and Permanent Impacts) ^{1,2}
	Acres		
Facility, as Approved/Operating: Unit 1 and Supporting Facilities ³			
Category 4			
Total Area =	55.40	45.00	72.7
Proposed Changes: Carty Solar Farm and Supporting Facilities ⁴			
Category 2	6.39	259.32	525.03
Category 3	7.66	42.84	46.67
Category 4	90.57	18.79	64.08
Category 6	2.81	0.19	0.00
Total Area =	107.43	321.14	635.78
Estimated Size of Habitat Mitigation Area Summary			
Size of Habitat Mitigation Area for Facility, as Approved/Operating =			72.7
Size of Habitat Mitigation Area for Proposed Changes =			635.78
Size of Habitat Mitigation Area for Facility, with Proposed Changes =			708.53

Notes:

In all cases impacts in a given area would only be mitigated once.

- Temporal impact mitigation is based on a 1:1 ratio for Category 2, a 0.5:1 acre ratio of Category 3 and 4 and zero for Category 6.
- Permanent impact mitigation is based on a 2:1 ratio for Category 2, a 1:1 acre ratio of Category 3 and 4 and zero for Category 6.
- Facility, as approved and operating, includes Unit 1 and its related or supporting facilities.
- The proposed Carty Solar Farm and Supporting Facilities includes areas of disturbance within the proposed site boundary expansion areas, the potential route for the Carty Solar Farm interconnection transmission line that would require the most mitigation acres (Route 1), the Grassland Switchyard buildout area if interconnection Option 1 is selected (along with potential interconnection Route 1), and temporary construction laydown and parking areas.

Proposed Habitat Mitigation

The mitigation goal for Category 2 habitat is no net loss of either habitat quantity or quality and provision of a net benefit of habitat quantity or quality. To achieve this goal, impacts must be avoided or unavoidable impacts must be mitigated through “reliable in-kind, in-proximity” habitat mitigation to achieve no net loss; and a net benefit of habitat quantity or quality must be provided. The mitigation goal for Category 3 habitat is no net loss of either habitat quantity or quality. The goal is achieved by avoidance of impacts or by mitigation of unavoidable impacts through “reliable in-kind, in-proximity” habitat mitigation. The mitigation goal for Category 4 habitat, similar to the mitigation goal for Category 3 habitat impacts, is no net loss of either habitat quantity or quality. The Category 4 mitigation goal differs from the Category 3

1 mitigation goal in that achievement may be reached through avoidance of impacts or by
2 mitigation of unavoidable impacts through “reliable in-kind or out-of kind,” and “in- or off-of
3 proximity” habitat mitigation.⁴⁷
4

5 The certificate holder proposes to mitigate temporary habitat impacts through revegetation
6 and noxious weed control, in accordance with the draft amended Revegetation and Weed
7 Control Plan provided in Attachment E of this order. The draft amended plan includes
8 substantive changes from the version of the plan as approved for implementation during
9 construction and operation of Unit 1 and its supporting facilities. Substantive changes, based
10 upon review by the Department in consultation with ODFW, include the following additional
11 pre-construction requirements: pre-construction agency consultation to discuss pre-
12 disturbance conditions and adequacy of revegetation measures; identify monitoring and
13 reference sites within areas of distinct habitat; and, conduct a pre-disturbance vegetation and
14 weed survey of the selected monitoring and reference sites. The draft amended plan also
15 includes revised success criteria, as recommended by ODFW as better suited in the evaluation
16 of successful revegetation of temporarily disturbed habitat. Based on the draft amended
17 Revegetation and Weed Control Plan provided as Attachment E of this order, the Council finds
18 that the certificate holder would meet the habitat mitigation goals for temporary habitat
19 impacts.
20

21 Council previously imposed Condition 5.5 requiring that the certificate holder, during
22 construction and operation, implement a Revegetation and Weed Control Plan, consult with
23 county weed control supervisors, and comply with county weed control ordinance provisions.
24 Because this amendment request includes removal of previously approved but not constructed
25 facility components that would have been located in Gilliam County, the amends Condition 5.5
26 removing references to Gilliam County as follows:
27

28 **Condition 5.5, as amended:** During construction and operation of the facility, the certificate
29 holder must implement a revegetation and weed control plan. The certificate holder must
30 comply with the applicable provisions of the Morrow County ~~and Gilliam County~~ Weed
31 Control Ordinances, as determined by the Morrow County Weed Control Supervisor, ~~and~~
32 ~~Gilliam County Weed Officer, respectively.~~ Prior to beginning construction the certificate
33 holder must consult with the Morrow County Weed Control Supervisor ~~and the Gilliam~~
34 ~~County Weed Control Officer~~ and obtain approval of a Revegetation and Noxious Weed
35 Control Plan. The final Revegetation and Noxious Weed Control Plan must be submitted to
36 the Department of Energy, based upon the draft amended plan provided in Attachment E of
37 the Final Order on Amendment 1, for approval prior to the start of construction.
38 [Final Order IV.D.2.6] [AMD1]

⁴⁷ OAR 635-415-0025(5)(b)
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1 The certificate holder proposes to mitigate temporal (i.e. loss of habitat function and values
2 from the time an impact occurs to the time when the restored habitat provides a pre-impact
3 level of habitat function) and permanent habitat impacts in the form of a permanent
4 conservation easement on a habitat mitigation area (HMA) in-proximity to the proposed
5 amended site boundary, which contains similar habitat quality and quantity as the habitat to be
6 impacted. Specifically, for temporal habitat impacts, the certificate holder proposes to include
7 in its HMA 1 acre for every 1 acre of Category 2 habitat temporarily disturbed (a 1:1 ratio), and
8 0.5 acres for every 1 acre of Category 3 and 4 habitat temporarily disturbed (a 0.5:1 ratio).
9 Based on this proposed methodology, the HMA would include 6.4, 3.8, and 45.2 acres, or
10 approximately 55.5 acres, of Category 2, 3 and 4 habitat, respectively, as mitigation for
11 temporal habitat loss.

12
13 The certificate holder proposes to include in its HMA 2 acres for every 1 acre of Category 2
14 habitat permanently impacted (a 2:1 ratio to provide no net loss and a net benefit of habitat
15 quantity). The certificate holder proposes to mitigate impacts to Categories 3 and 4 habitat by
16 including 1 acre for every 1 acre permanently impacted within its HMA (a 1:1 ratio to provide
17 no net loss). Based on this proposed methodology, the HMA would include 518.6, 42.8, and
18 18.8 acres, or approximately 580.3 acres, of Category 2, 3 and 4 habitat, respectively, as
19 mitigation for permanent habitat loss. In total, to mitigate temporal and permanent habitat
20 impacts from construction and operation of the proposed Carty Solar Farm and its supporting
21 facilities, the certificate holder requires an HMA containing 635 total acres. Within the 635
22 acres, the site or sites must include approximately: 525 acres of Category 2 or better habitat; 47
23 acres of Category 3 or better habitat and 64 acres of Category 4 or better habitat.

24
25 In RFA1, the certificate holder describes that the HMA would be located within a portion of the
26 PGE Multi-Species Candidate Conservation Agreement with Assurances (MSCCAA) Conservation
27 Area. The MSCCAA is a 25-year voluntary conservation agreement between Threemile Canyon
28 Farms, PGE, TNC, ODFW and USFWS which includes over 23,000 acres consisting primarily of
29 shrub-steppe habitat. The HMA for the previously approved and operating facility (as presented
30 in Figure of the draft amended WHMMP, see last page of Attachment D), includes 78-acres
31 adjacent to PGE's MSCCAA Conservation Area, located northeast of PGE's adjacent Boardman
32 Coal Plant. The HMA for the proposed Carty Solar Farm and its supporting facilities would be
33 located within PGE's MSCCAA Conservation Area, and would border the HMA established for
34 the facility, as approved and operating. The certificate holder states that while PGE has
35 voluntarily committed to protecting an 880-acre area as part of the MSCCAA, the area proposed
36 as the HMA for the proposed Carty Solar Farm and its supporting facilities is not protected by a
37 conservation easement. In other words, the proposed HMA for the Carty Solar Farm and its
38 supporting facilities is not already being used as mitigation for other facility impacts – an
39 easement would be secured, as required per Condition 10.2, obligating that area to be used as
40 a habitat mitigation area for the impacts associated with construction and operation of the
41 components requested for approval in the amendment request.

As presented in Figure 1 of the draft amended WHMMP (see Attachment D), the certificate holder provided a habitat assessment of the proposed HMA; however, the quantity of available habitat category and subtype within the proposed HMA was not provided. The certificate holder, though, describes that vegetation within the proposed HMA includes: Sandberg's bluegrass (*Poa secunda*); bluebunch wheatgrass (*Pseudoroegneria spicata*); cheatgrass; intermittent areas of needle-and-thread grass (*Hesperostipa comata*); occasional green rabbitbrush (*Chrysothamnus viscidiflorus*); gray rabbitbrush (*Ericameria nauseaosa*); big sagebrush, fiddleneck (*Amsinckia menziesii*); yarrow (*Achillea millefolium*), and isolated junipers. Because the proposed HMA is within an existing conservation area, and includes the vegetation similar to vegetation impacted, Council considers that that proposed HMA would satisfy ODFW's habitat mitigation goals and Council's Fish and Wildlife Habitat standard. However, the Council amends Condition 10.2 requiring that the certificate holder, prior to construction, provide a habitat assessment including habitat (in acres) by habitat category and subtype of the proposed HMA along with the easement. This condition is amended to allow the Department, in consultation with ODFW, the opportunity to evaluate habitat changes over time within the HMA and provide informed recommendations on future enhancement action or amendments of the WHMMP. The Council amends Condition 10.2 as follows:

Condition 10.2, as amended: The certificate holder shall:

- a. Prior to construction, acquire the legal right to create, enhance, maintain and protect a habitat mitigation area as long as the facility is in operation and the site certificate is in effect by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the Department.
- b. Prior to construction of the Carty Solar Farm and its supporting facilities, the certificate holder shall provide a habitat assessment of the habitat mitigation area, based on a protocol approved by the Department in consultation with ODFW, which includes methodology, habitat map, and available acres by habitat category and subtype in tabular format.
- c. During operations, ~~Within the habitat mitigation area (HMA)~~ the certificate holder shall improve and monitor the habitat quality within the habitat mitigation area, in accordance with the Wildlife and Habitat Monitoring and Mitigation Plan approved by the Department per Condition 10.1.

[Final Order IV.H.2.2] [AMD1]

In addition to proposing compensatory mitigation, as specified in the draft amended WHMMP (see Attachment D of this order), the certificate holder proposes to implement and monitor specific enhancement actions within the HMA. Habitat enhancement actions are proposed to further satisfy the Category 2 "net-benefit" mitigation goal including weed monitoring and control; seeding and planting sagebrush and juniper (e.g. planting 450 plants per acre); implementation of a fire control plan; wildfire suppression; and grazing restriction. Council previously imposed Condition 10.1 requiring that the certificate holder, prior to construction, prepare and submit a final WHMMP, as approved by the Department. The

1 certificate holder would then be required to comply with the final approved plan. The Council
2 amends Condition 10.1 with similar requirements but specific to recommended changes
3 incorporated into the draft amended plan provided in Attachment D of this order. The draft
4 amended plans includes administrative changes that apply to habitat mitigation requirements.
5 Finalization of the plan is limited to an assessment of temporary and permanent habitat
6 impacts, based on final design and any potential changes in habitat quality or quantity since the
7 2016 evaluation.

8
9 **Condition 10.1, as amended:** Prior to construction, the certificate holder shall:

- 10 i. Consult with the Oregon Department of Fish and Wildlife and prepare a final
11 Wildlife and Habitat Monitoring Mitigation Plan and submit the plan to the
12 Department for review and approval. The certificate holder must conduct all wildlife
13 and habitat monitoring as described in the approved Wildlife and Habitat
14 Monitoring and Mitigation Plan, as amended from time to time.
15 [Final Order IV.H.2.1] [Mandatory Condition OAR 345-027-0020(6)]
- 16 ii. Submit for review and approval by the Department, in consultation with the Oregon
17 Department of Fish and Wildlife, a final Wildlife and Habitat Monitoring Mitigation
18 Plan based upon the mitigation methodology and enhancement actions in the draft
19 amended plan provided as Attachment D of the Final Order on Amendment 1. The
20 certificate holder must conduct all wildlife and habitat monitoring as described in
21 the approved Wildlife and Habitat Monitoring and Mitigation Plan, as amended from
22 time to time.
23 [AMD1] [OAR 345-025-0016]

24
25 Council previously imposed Condition 10.7 requiring that the certificate holder, prior to
26 construction, conduct a pre-construction investigation for sensitive plant and wildlife species
27 within areas of disturbance not previously surveyed. Based on the 2016 evaluation conducted
28 to inform the amendment request, and based on the certificate holder's reliance on ten survey
29 plots to inform its habitat assessment and the fact that habitats can change over time from fire
30 or other environmental events, the Council amends Condition 10.7. The amendments are
31 imposed under Roman numeral "ii" of the condition, requiring that the certificate holder, in its
32 evaluation of final design habitat impacts, conduct a pre-construction habitat assessment in all
33 areas to be disturbed during construction and operation of the proposed Carty Solar Farm and
34 its supporting facilities.

Condition 10.7, as amended: The certificate holder must:

- i. ~~Implement measures to avoid or minimize temporary and permanent impacts to high quality native habitat and to retain habitat cover in the general landscape, where practicable...~~⁴⁸
- ii. Implement measures to avoid or minimize temporary and permanent impacts to high quality native habitat and to retain habitat cover in the general landscape, where practicable.
 - a. The certificate holder shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat.
 - b. Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility and the areas that would be disturbed during construction and identifying the survey areas for all plant and wildlife surveys conducted prior to construction. The certificate holder shall use a qualified professional biologist to conduct a pre-construction habitat assessment of all areas that would be disturbed during construction. The certificate holder shall provide a written report of the habitat assessment to the Department and to the Oregon Department of Fish and Wildlife. Based on consultation with the Department and ODFW, the certificate holder shall implement appropriate measures to avoid impacts to any Category 1 habitat, to any State-listed threatened or endangered plant or wildlife species, and to any State Candidate plant species.
[AMD1]

State Sensitive Species within Analysis Area

The certificate holder conducted a desktop review to identify State Sensitive species with the potential to occur within the analysis area based on species range and existing habitat. The desktop review evaluated ODFW's 2017 Sensitive Species List, the Oregon Biodiversity Information Center (ORBIC 2016), eBird (2017), NatureServe (2017), Oregon Wildlife Explorer (OSU Libraries and Press and Institute for Natural Resources 2014), Birds of Oregon (Marshall et al. 2006), and Birds of North America (Rodewald 2015). Based on this desktop review, the certificate holder identified suitable habitat within the analysis area for: 13 State-sensitive species (including 2 reptiles, 9 birds, and 2 bat species). Of these State-sensitive species, only 1 – the Northern Sagebrush lizard was observed during 2016 surveys.

⁴⁸ As described in Section II.C. *Recommended Amended Site Certificate Condition Format*, conditions recommended to be amended are presented in a format where the original condition language is maintained under Roman numeral "i" of the condition; amended condition language that would apply to the proposed facility components are presented in Roman number "ii" of the condition. Therefore, for recommended amended conditions, for brevity, original condition language under "i" that would not be amended is not presented in the order but is presented in Attachment A.

Potential Impacts to State Sensitive Species

Potential impacts to State Sensitive species during construction and operation of the proposed Carty Solar Farm and its supporting facilities include sensory disturbance (i.e., noise, vibration, and visual) from the presence of personnel, vehicles, and equipment during construction, operation, and retirement; as well as permanent impacts from habitat loss/modification; collision with equipment and facilities; increased predation risk from transmission lines used for perching, and transmission line electrocution and collision. The certificate holder also describes potential indirect impacts to the Carty Reservoir, a riparian habitat where fish species and raptor nests were identified, from construction-related runoff and sediment.

The certificate holder proposes to minimize impacts to avian species through compliance with its Avian Protection Plan, including adhering to specific design standards, implementation of avian mortality and nest management procedures, and compliance with internal and agency reporting procedures. The certificate holder also agrees to implement a post-construction Avian and Bat Mortality Monitoring program. The duration of the program aligns with ODFW's recommendation to include a full year of post construction monitoring to support future evaluation of impact correlation. Within the monitoring year, the mortality monitoring program would include 21 surveys designed to estimate bird and bat fatality rates associated with solar panel collision. The requirements of the Avian Protection Plan and Avian and Bat Mortality Monitoring Program are included in the draft amended WHMMP, as described above. Council previously imposed conditions under the Fish and Wildlife Habitat standard that would apply during construction and operation of the proposed Carty Solar Farm and its supporting facilities requiring that the certificate holder implement measures and practices to avoid and minimize potential impacts to State Sensitive species. Previously imposed conditions are summarized below:

- Condition 10.8 requires that, prior to and during each year of construction, the certificate holder conduct raptor nest surveys to confirm presence of active nests, and if identified, impose a buffer distance from the nest to the location of construction activities during sensitive nesting/breeding seasons
- Condition 10.9 requires that, during construction, the certificate holder prepare constraint maps demonstrating approved and surveyed areas where construction activities are allowed, and sensitive species locations to avoid during construction; and implement measures to avoid disturbance outside of approved and surveyed construction areas
- Condition 10.10 requires that, during transmission line design and construction, the certificate holder adhere to current suggested practices for avian protection on power lines as published by the Avian Power Line Interaction Committee
- Condition 10.11 requires that, during operation, the certificate holder conduct long-term sensitive raptor nest monitoring
- Condition 10.12 requires that, during construction and operation, the certificate holder provide its personnel environmental training on presence of sensitive species,

precautions to avoid injuring or destroying habitat and species, permit requirements, exclusion areas, and other environmental issues

- Condition 10.13 requires that, during construction, the certificate holder not place structures within, and avoid new impacts to, Sixmile Canyon
- Condition 10.15 requires that, during construction and operation, the certificate holder impose a 20 mile per hour speed limit and a 10 mile per hour speed limit during the active Washington ground squirrel season (February 1 to June 30), during vehicular use of internal facility roads

Additional conditions imposed under the Council's Soil Protection and Threatened and Endangered Species standards, as described in Section III.D., *Soil Protection* and III.I. *Threatened and Endangered Species* of this order, would also minimize potential impacts to State Sensitive species during construction and operation of the proposed Carty Solar Farm and its supporting facilities.

In the amendment request, the certificate holder requests to amend Condition 10.8 to remove reference to the Horn Butte Area of Critical Concern (ACEC), update the sensitive period for Ferruginous hawk, and add bald eagle to the list of species for which the condition would apply. The reference in Condition 10.8 to Horn Butte ACEC resulted from its proximity to the 18-mile 500 kV transmission line, that was previously approved but not constructed by the established deadline, and therefore is no longer an approved facility component. The sensitive period for Ferruginous hawk and bald eagle, as presented in the amended condition below, is consistent with current ODFW recommendations.⁴⁹ Because the 18-mile 500 kV transmission line was not constructed by the established deadline and is no longer part of the approved facility, the Council amends the condition as requested by the certificate holder, as follows:

Condition 10.8, as amended: During construction, the certificate holder shall avoid all construction activities within one mile of golden eagle nests, ~~0.5 miles of the Horn Butte Area of Critical Environmental Concern (ACEC),~~ and 0.6 miles of ferruginous hawk nests, and 1,300 feet of other potentially active sensitive raptor species nest sites for the following species during the sensitive period, as provided in this condition:

<u>Species</u>	<u>Sensitive Period</u>	<u>Early Release Date</u>
Swainson's hawk	April 1 to August 15	May 31
Ferruginous hawk	March 15 to July August 15	May 31
<u>Bald eagle</u>	<u>January 1 to August 15</u>	<u>May 31</u>

⁴⁹ The Council acknowledges that the Bald eagle is not a State Sensitive species; however, because the certificate holder requests the condition amendment, the Department recommends Council amend the condition to impose the buffer distance during sensitive Bald eagle nesting/breeding season as a certificate holder representation and binding commitment.

<u>Species</u>	<u>Sensitive Period</u>	<u>Early Release Date</u>
Golden eagle	January 1 to July 15	May 31
Burrowing owl	April 1 to August 15	July 15
Long-billed curlew	March 8 to June 15	May 31

During all years in which construction occurs, the certificate holder shall use a protocol approved by the Oregon Department of Fish and Wildlife (ODFW) to determine whether there are any active nests of these species within 1,300 feet ~~(or 0.5 miles for the Horn Butte ACEC)~~ of any areas that would be disturbed during construction. Surveys shall be extended to one mile for golden eagle nests and 0.6 miles for ferruginous hawk nests. This construction buffer distance may be decreased with approval by ODFW and USFWS depending on the intensity of construction activity and whether there is an adequate physical barrier (i.e., vegetation, topography, etc.) between the nest site and the construction impacts or if consultation determines a lesser distance is feasible and appropriate. The certificate holder shall begin monitoring potential nest sites by the beginning of the sensitive period, as listed above, and shall continue monitoring until at least May 31 (July 15 for golden eagle nests) to determine whether any potentially-active nest sites become active during the sensitive period.

If any nest site is determined to be unoccupied by the early release date, then unrestricted construction activities may occur within 0.6 miles ~~(0.5 miles for the Horn Butte ACEC)~~ and one mile for golden eagle nests) of the nest site after that date. If a nest is occupied by any of these species after the beginning of the sensitive period, the certificate holder will flag the boundaries of a 1,300 foot (or 0.6 miles for ferruginous hawk nests, ~~0.5 miles for the Horn Butte ACEC~~, or one mile for golden eagle nests) buffer area around the nest site and shall instruct construction personnel to avoid disturbance of the buffer area. During the sensitive period, the certificate holder shall not engage in high-impact construction activities (activities that involve blasting, grading or other major ground disturbance) within the buffer area. The certificate holder shall restrict construction traffic within the buffer, except on public roads, to vehicles essential to the limited construction activities allowed within the buffer. If a golden eagle nest is identified, construction and maintenance activities between February 1 and July 15 (courtship and nesting period) will be avoided within one mile of the active nest (or 0.5 miles if the active nest is not in line-of-sight of activities).

The certificate holder must use a qualified independent professional biologist to observe the active nest sites during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with this condition. If the biologist observes nest site abandonment or other adverse impact to nesting activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW

1 and subject to the approval of the Department, unless the adverse impact is clearly
2 shown to have a cause other than construction activity.

3
4 The certificate holder may begin or resume construction activities within the buffer
5 area before the ending day of the sensitive period with the approval of ODFW, after
6 the young are fledged. The certificate holder shall use a protocol approved by ODFW
7 to determine when the young are fledged (the young are independent of the core nest
8 site).

9 [Final Order IV.H.2.10] [AMD1]

10
11 The certificate holder requests to administratively amend Condition 10.3, 10.4, 10.11, 10.13,
12 10.14, as presented in Attachment 1 of this order. Based on the administrative nature of the
13 condition amendments, the proposed changes are not presented in this section. The Council
14 finds that the requested condition amendments would not substantively change the intent of
15 the previously imposed conditions and amend the conditions as requested.

16 17 **Conclusions of Law**

18 Based on the foregoing findings of fact and conclusions, and subject to compliance with existing
19 and amended site certificate conditions, the Council finds that the facility, with proposed
20 changes, would comply with the Council's Fish and Wildlife Habitat standard.

21 **III.I. Threatened and Endangered Species: OAR 345-022-0070**

22
23 *To issue a site certificate, the Council, after consultation with appropriate state agencies,*
24 *must find that:*

25
26 *(1) For plant species that the Oregon Department of Agriculture has listed as*
27 *threatened or endangered under ORS 564.105(2), the design, construction and*
28 *operation of the proposed facility, taking into account mitigation:*

29
30 *(a) Are consistent with the protection and conservation program, if any, that the*
31 *Oregon Department of Agriculture has adopted under ORS 564.105(3); or*

32
33 *(b) If the Oregon Department of Agriculture has not adopted a protection and*
34 *conservation program, are not likely to cause a significant reduction in the*
35 *likelihood of survival or recovery of the species; and*

36
37 *(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as*
38 *threatened or endangered under ORS 496.172(2), the design, construction and*
39 *operation of the proposed facility, taking into account mitigation, are not likely to*
40 *cause a significant reduction in the likelihood of survival or recovery of the species.*
41

Findings of Fact

The Threatened and Endangered Species standard requires the Council to find that the design, construction, and operation of the facility, with proposed changes, are not likely to cause a significant reduction in the likelihood of survival or recovery of a fish, wildlife, or plant species listed as threatened or endangered by Oregon Department of Fish and Wildlife (ODFW) or Oregon Department of Agriculture (ODA). For threatened and endangered plant species, the Council must also find that the facility, with proposed changes, is consistent with an adopted protection and conservation program from ODA. Threatened and endangered species are those listed under ORS 564.105(2) for plant species and ORS 496.172(2) for fish and wildlife species. For the purposes of this standard, threatened and endangered species are those identified as such by either the Oregon Department of Agriculture or the Oregon Fish and Wildlife Commission.⁵⁰

The analysis area for threatened or endangered plant and wildlife species, as established in the project order, is the area within and extending five miles from the site boundary, as amended.⁵¹

Potential Impacts to Identified Threatened and Endangered Species

Wildlife

In order to identify threatened and endangered wildlife species that might occur within the analysis area, the certificate holder conducted a literature review and field surveys. The literature review for threatened and endangered wildlife species evaluated U.S. Fish and Wildlife Service's Information for Planning and Conservation (IPaC), Oregon Biodiversity Information Center (ORBIC 2016) database, ODFW's 2017 list of "Threatened, Endangered, and Candidate Fish and Wildlife Species," and the Oregon Wildlife Explorer (Oregon State University Libraries and Press and Institute for Natural Resources 2014). Based on results of the literature review, one state listed threatened wildlife species - Washington ground squirrel (WGS) – was identified as having the potential to occur within the analysis area. Therefore, the certificate holder's consultant, E&E, conducted two rounds of protocol-level WGS surveys during the weeks of March 7 and April 18, 2016.

The survey area consisted of all suitable WGS habitat within the proposed amended site boundary areas and areas within the previously approved site boundary where proposed related or supporting facilities would be located (i.e. grassland and shrub steppe habitats), plus an additional 1,000 feet beyond such areas.⁵² During the 2016 protocol-level surveys, active

⁵⁰ Although the Council's standard does not address federally-listed threatened or endangered species, certificate holders must comply with all applicable federal laws, including laws protecting those species, independent of the site certificate.

⁵¹ CGSNOIDoc17 Final Carty Generating Station Project Order, p.18, 2009-11-03.

⁵² CGSAMD1 Exhibit P, Appendix P-1, p.5.

WGS colonies were not observed; however, signs of inactive colonies were observed within the survey area but not within the proposed amended site boundary area. During separate survey efforts conducted by the certificate holder in 2017, active WGS colonies were detected within the proposed amended site boundary area. The certificate holder asserts, though, that while active colonies were detected within the proposed amended site boundary area, none were detected within the proposed disturbance areas of the Carty Solar Farm or its supporting facilities.

WGS habitat is Category 1 habitat and includes the area within a 785-foot buffer of an active colony. ODFW's mitigation goal for Category 1 habitat requires avoidance of all impacts. Therefore, the certificate holder is restricted from directly impacting WGS habitat. The previously approved site boundary and analysis area similarly identified suitable WGS habitat, and as such, Council previously imposed numerous conditions to avoid and minimize potential direct and indirect impacts to Category 1 WGS habitat and to WGS, as summarized below. These conditions remain applicable to the construction and operation of the solar farm and supporting facility components. Potential indirect impacts from construction and operation of the proposed Carty Solar Farm and its supporting facilities includes loss of suitable, but currently unoccupied, WGS habitat; increased predation risk from transmission lines providing perch structures; and vehicular collision fatality.

- Condition 10.1, as amended, requires that the certificate holder, prior to construction, receive approval from the Department in consultation with ODFW of a final WHMMP, which includes HMA monitoring requirements. The proposed HMA which the certificate holder represents it would maintain as part of its mitigation approach, includes Category 1 habitat. The WHMMP also requires that the certificate holder comply with its Avian Protection Plan, which includes design standards for installation of perch guards and installation of alternative perch locations
- Condition 10.7, as amended, requires the certificate holder to avoid permanent and temporary disturbance within Category 1 habitat
- Condition 10.14, as amended, requires that, prior to construction, the certificate holder conduct WGS surveys in areas of suitable WGS habitat to identify, and mark with high-visibility flagging or markers, boundaries of Category 1 WGS habitat to restrict construction-related disturbance impacts
- Condition 10.15 requires that, during construction and operation, the certificate holder impose a 20 mile per hour speed limit and a 10 mile per hour speed limit during the active WGS season, during vehicular use of internal facility roads, to minimize risk from vehicular collision fatality risk
- Condition 10.17 requires that, during construction, the certificate holder ensure personnel and construction contractors receive environmental awareness training related to WGS issues, including reporting procedures
- Condition 10.18, as amended, allows the certificate holder to, during construction, disc or till a minimum 800-foot buffer within the perimeter of the site boundary to discourage WGS's from moving into planned construction areas

- Condition 10.20, as amended, requires that, at any time, the certificate holder immediately report to ODFW if any new active burrows are identified within 785 feet of the site boundary throughout the life of the facility
- Condition 10.21, as amended, requires that, during operations, the certificate holder conduct long-term WGS surveys within areas where known colonies were identified within the site boundary and the HMA. The draft amended WHMMP (Condition 10.1) establishes that long-term monitoring for the proposed Carty Solar Farm and its supporting facilities would include surveys in operational year 1, 3 and 5 and then every 5–years, in years divisible by five, for the life of the facility, as approved, and with proposed changes

The certificate holder requests to administratively amend Condition 10.18, 10.19, 10.20 and 10.21, as presented in Attachment 1 of this order. Based on the administrative nature of the condition amendments, the proposed changes are not presented in this section. The Council finds that the requested condition amendments would not substantively change the intent of the previously imposed conditions and amend the conditions as requested.

The Council finds that based upon compliance with previously imposed and amended conditions, the facility with proposed changes would not be likely to cause a significant reduction in the likelihood of survival of any wildlife species listed as threatened or endangered.

Plants

In order to identify threatened and endangered plant species that might occur within the analysis area, the certificate holder conducted a literature review and field survey. The literature review for threatened and endangered plant species evaluated Oregon Department of Agriculture’s 2016 threatened, endangered, and candidate plants list and the ranges and habitat requirements for these species (NatureServe Explorer 2015; ODA 2016; ORBIC 2016; USDA 2016). Based on results of the literature review, one ODA-listed plant species – Lawrence’s milkvetch – was identified as having the potential to occur with the analysis area. The certificate holder’s consultant, E&E, conducted habitat/vegetation community surveys within the proposed Carty Solar Farm area in 2016 that were used to support the identification of potential presence of Lawrence’s milkvetch.⁵³ During this field survey, evidence of the occurrence of the plant species was not found. The certificate holder describes that the current habitat condition within the amended site boundary does not include bluebunch wheatgrass, Lawrence’s milkvetch preferred habitat. In a comment on RFA1, however, ODA states that the site boundary is within the known geographic range of Lawrence’s milkvetch.

⁵³ CGSAMD1 Exhibit P, Appendix P-1, p.5.
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1 The certificate holder represents that pre-construction WGS surveys would include a search for
2 Lawrence's milkvetch, as a secondary objective, if the timing of the survey coincides with the
3 appropriate survey period for the plant species (May through August). The certificate holder
4 also describes that if Lawrence's milkvetch is identified during pre-construction surveys, the
5 certificate holder would report its findings to ODA and develop appropriate mitigation for the
6 species. The certificate holder argues that because surveys conducted within the proposed
7 amended site boundary area have shown no detection of the plant species to date and based
8 on the general absence of preferred habitats for this subspecies in the amended site boundary
9 area, direct and indirect impacts are unlikely. However, based on ODA's comments and because
10 targeted Lawrence's milkvetch surveys have not been conducted within the proposed amended
11 site boundary area, the Council amends Condition 10.14, to require the certificate holder to
12 conduct a pre-construction survey targeted for Lawrence's milkvetch. Because the survey area
13 for WGS is limited to WGS suitable habitat, the Council finds that if the surveys are conducted
14 simultaneously, the surveys meet protocol requirements for both species, and not limited to
15 secondary observations achieved during the WGS surveys. The Council amends Condition 10.14
16 as follows:

17
18 **Condition 10.14, as amended:** Prior to construction, the certificate holder shall
19 conduct surveys for Washington ground squirrel (WGS) and Lawrence's milkvetch.
20

- 21 i. The certificate holder shall determine the boundaries of Category 1 Washington
22 ground squirrel (WGS) habitat based on the locations where the squirrels were
23 found to be active in the most recent WGS surveys prior to the beginning of
24 construction in habitat suitable for WGS foraging or burrow establishment
25 ("suitable habitat"). The certificate holder shall use a qualified professional
26 biologist who has experience in detection of WGS to conduct surveys within the
27 site boundary using appropriate search protocols. Except as provided in (a), the
28 biologist shall conduct surveys in the active squirrel season (February 1 to June 30)
29 in 2012 and in the active squirrel seasons at least once every three years until the
30 beginning of construction in suitable habitat. The biologist shall survey all areas of
31 suitable habitat where permanent facility components would be located or where
32 construction disturbance could occur. The certificate holder shall provide written
33 reports of the surveys to the Department and to the Oregon Department of Fish
34 and Wildlife (ODFW) and shall identify the boundaries of Category 1 WGS habitat.
35 During each year in which construction will occur, the boundaries of Category 1
36 WGS habitat shall be marked by the biologist with high-visibility flagging or
37 markers. The certificate holder shall not begin construction until the identified
38 boundaries of Category 1 WGS habitat have been approved by the Department.
39 Category 1 WGS habitat includes the areas described in (b) and (c) below.
40 a. The certificate holder may omit the WGS survey in any year if the certificate
41 holder avoids all permanent and temporary disturbance within suitable habitat
42 until a WGS survey has been completed in the following year and the

boundaries of Category 1 habitat have been determined and approved based on that survey.

b. Category 1 WGS habitat includes the area within the perimeter of multiple active WGS burrows plus a 785-foot buffer, excluding areas of habitat types not suitable for WGS foraging or burrow establishment. If the multiple-burrow area was active in a prior survey year, and active burrows are still present, then Category 1 habitat includes the largest extent of the active burrow area ever recorded (in the current or any prior-year survey), plus a 785-foot buffer. If no active burrows are still present, then it is no longer Category 1 habitat for WGS.

c. Category 1 WGS habitat includes the area containing single active burrow detections plus a 785-foot buffer, excluding areas of habitat types not suitable for WGS foraging or burrow establishment. Category 1 habitat does not include single-burrow areas that were found active in a prior survey year but that are not active in the current survey year.

ii. The certificate holder shall use a qualified professional biologist who has experience in detection of Lawrence's milkvetch to conduct plant surveys within the site boundary, using appropriate survey protocols, during the blooming season (May through August).

a. If the species is found to occur, the certificate holder must install protection flagging around the plant population and avoid any ground disturbance within this zone; and its location shall be presented on construction constraint maps showing restricted work areas.

[Final Order IV.I.2.1; AMD1]

Conclusions of Law

Based on the foregoing findings of fact and conclusions, and subject to compliance with the existing and amended conditions, the Council finds that the facility, with proposed changes, complies with the Council's Threatened and Endangered Species standard.

III.J. Scenic Resources: OAR 345-022-0080

(1) Except for facilities described in section (2), to issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic resources and values identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area described in the project order.

Findings of Fact

OAR 345-022-0080 requires the Council to determine that the design, construction and operation of the proposed facility are not likely to have a "significant adverse impact" to any

1 significant or important scenic resources and values in the analysis area. In applying the
2 standard set forth in OAR 345-022-0080(1), the Council assesses the visual impacts of facility
3 structures on significant or important scenic resources described in “local land use plans, tribal
4 land management plans and federal land management plans for any lands located within the
5 analysis area described in the project order.” For purposes of this rule, the Council considers
6 “local land use plans” includes applicable state land use and management plans.
7

8 The analysis area for the Scenic Resources standard is the area within and extending 10-miles
9 from the amended site boundary.
10

11 Applicable Land Use Plans

12

13 The analysis area includes parts of two Oregon counties (Morrow and Gilliam), one Oregon
14 municipality (Boardman), land administered by the Oregon Department of Transportation
15 (ODOT), and land administered by the Bureau of Land Management and U.S. Fish & Wildlife
16 Service. The certificate holder evaluated the following land use and management plans to
17 determine whether scenic resources were identified as significant or important:
18

- 19 • Gilliam County Comprehensive Plan (Gilliam County 2017)
- 20 • Morrow County Comprehensive Plan (Morrow County 2013)
- 21 • Bureau of Land Management John Day Basin Resource Management Plan (BLM 2015)
- 22 • Umatilla National Wildlife Refuge Comprehensive Conservation Plan (USFWS 2008)
- 23 • Oregon Department of Transportation 1999 Highway Plan (ODOT 2015)
- 24 • City of Boardman’s Comprehensive Plan
- 25 • Columbia Basin Wildlife Area Management Plan (ODFW 2008)
- 26 • Oregon Trail Comprehensive Management and Use Plan (U.S. National Park Service
27 1999)

28

29 Based on review of the above-referenced plans, the certificate holder identified Blue Mountain
30 Scenic Byway and a site and segment of the Oregon National Historic Trail (the Boardman
31 segment and Well Springs site) as potentially significant or important scenic resources within
32 the analysis area.
33

34 The Blue Mountain Scenic Byway is an approximately 130-mile designation along State Route
35 74 that traverses through the Blue Mountains of Northeastern Oregon, and was designated in
36 1997 as a “scenic byway” by Oregon Department of Transportation. At the closest point, the
37 Blue Mountain Scenic Byway is approximately 7 miles to the west of the proposed amended
38 site boundary. The Council is unaware of any management plan for the Blue Mountain Scenic
39 Byway that would direct or manage development with the specific intent to preserve scenic
40 resources or values along the 130-mile designated route. The US Forest Service has developed
41 an interpretive guide for the Blue Mountain Scenic Byway; this guide identifies National Forest

1 land along the Byway as a scenic corridor, however, the Carty Solar farm would not be located
2 in or near National Forest land along the Byway.

3
4 The Boardman segment and Well Springs site of the Oregon National Historic Trail are
5 designated by the National Trails System Act as a high-potential segment and high-potential
6 site. High-potential segments are those meeting a criteria of a “high quality recreation
7 experience in a portion of the route having greater than average scenic values or affording an
8 opportunity to vicariously share the experience of the users of a historic route.” High-potential
9 sites are those meeting the criteria of “historic significance, the presence of visible historic
10 remnants, scenic quality, and relative freedom from intrusion.” The Boardman segment is
11 located approximately 2 miles south of the proposed amended site boundary; the Well Springs
12 site is located approximately 4.2 miles southeast of the proposed amended site boundary.

13
14 Based on review of the referenced plans, the Council finds that the Blue Mountain Scenic
15 Byway is not identified in a land use plan as a significant or important scenic resource, and
16 further not specifically managed for its scenic qualities. Therefore, the Council does not need to
17 make findings related to potential significant adverse impacts to this resource as it is not
18 protected under Council’s Scenic Resources standard. As noted above, “high potential
19 segments” of the trail are considering those that may have “greater than average scenic
20 values.” However, the Boardman segment of the Oregon National Historic Trail and Well
21 Springs site of the Oregon National Historic Trail do not have a specific management plan that
22 manages for scenic resources or values and as such, the Council also does not need to make
23 findings related to potential significant adverse impacts from the proposed amended facility to
24 the resources as they are not protected under the Council’s Scenic Resources standard.
25 Nonetheless, due to uncertainty if the resources would be protected by the Council standard,
26 the certificate holder provides an assessment of potential visual impacts of the proposed Carty
27 Solar Farm and its supporting facilities to the identified scenic resources in the RFA, and the
28 Council presents its analysis below.

29 30 Visual Impacts

31
32 Under the Scenic Resources standard, pursuant to OAR 345-021-0010(r)(C), potential visual
33 impacts at identified resources from loss of vegetation or alteration of landscape and from
34 facility structures or plumes during facility-related construction and operations are evaluated.

35
36 The proposed Carty Solar Farm and its supporting facilities would include solar modules with a
37 maximum height of 10 feet; inverters with a maximum height of 11 feet; and, a 34.5 kV
38 transmission line with 70-foot-tall wooden poles.

39 40 *Loss of Vegetation*

41
42 The proposed Carty Solar Farm and its supporting facilities would result in temporary and
43 permanent vegetation loss. Temporary vegetation loss would be restored through the

1 certificate holder's implementation of a final Revegetation and Weed Plan, to be reviewed and
2 approved by the Department prior to construction, in accordance with Condition 5.5. Operation
3 of the proposed Carty Solar Farm and its supporting facilities would result in permanent
4 vegetation loss from the footprint of facility components. The Boardman Segment of the
5 Oregon National Historic Trail is the closest of the resources identified to the proposed
6 amended site boundary, at 2 miles. Based on this distance, visibility of temporary and
7 permanent vegetation loss would not be expected.

8 9 *Facility Structures*

10
11 The proposed Carty Solar Farm and its supporting facilities would result in visible facility
12 structures. To support its evaluation of potential visual impacts of the proposed Carty Solar
13 Farm and its supporting facilities, the certificate holder completed a zone of visual influence
14 (ZVI) analysis.⁵⁴ A ZVI analysis identifies visibility based on topography but does not account for
15 screening from vegetation or structures.

16
17 Based on the ZVI analysis, as presented in Figure R-1, the proposed Carty Solar Farm and its
18 supporting facilities would not be visible from the Blue Mountain Scenic Byway nor Well Springs
19 site of the Oregon National Historic Trail, and therefore would not visually impact these
20 resources. The proposed Carty Solar Farm and its supporting facilities, however, would be
21 visible from a small portion of the Boardman segment of the Oregon National Historic Trail. The
22 certificate holder describes that the portion of the Boardman segment that would be visually
23 impacted is located within the Boardman Bombing range with restricted access, thereby
24 minimizing impacts because there are limited users that could be impacted by visibility of the
25 proposed components.

26 27 **Conclusion of Law**

28
29 Based on the foregoing findings, the Council finds that the design, construction, and operation
30 of the proposed Carty Solar Farm and its supporting facilities would comply with the Council's
31 Scenic Resources standard.

32 **III.K. Historic, Cultural, and Archaeological Resources: OAR 345-022-0090**

33
34 *(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the*
35 *Council must find that the construction and operation of the facility, taking into account*
36 *mitigation, are not likely to result in significant adverse impacts to:*

37
38 *(a) Historic, cultural or archaeological resources that have been listed on, or would*
39 *likely be listed on the National Register of Historic Places;*

⁵⁴ CGSAMD1. Request for Additional Information Responses. 2018-09-24.
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1
2 (b) For a facility on private land, archaeological objects, as defined in ORS
3 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c); and
4

5 (c) For a facility on public land, archaeological sites, as defined in ORS 358.905(1)(c).
6

7 (2) The Council may issue a site certificate for a facility that would produce power from
8 wind, solar or geothermal energy without making the findings described in section (1).
9 However, the Council may apply the requirements of section (1) to impose conditions on
10 a site certificate issued for such a facility.
11

12 **Findings of Fact**

13

14 Section (1) of the Historic, Cultural and Archaeological Resources standard generally requires
15 the Council to find that a proposed facility or facility, with proposed changes, is not likely to
16 result in significant adverse impacts to identified historic, cultural, or archaeological resources.
17 Under Section (2), the Council may issue a site certificate for a solar power facility without
18 making findings of compliance with this section. However, the Council may impose site
19 certificate conditions based on the requirements of this standard.⁵⁵
20

21 The analysis area for the evaluation of potential impacts to identified historic, cultural or
22 archeological resources, as defined in the project order, is the area within the site boundary.
23

24 In 2016, PGE's cultural resource consultant Willamette Cultural Resources Associates, Ltd.
25 (WillametteCRA) conducted a records review of the Oregon State Historic Preservation Office
26 (SHPO) online database to identify previously recorded cultural resources within the analysis
27 area and its vicinity. The review also included regional and local environmental histories,
28 ethnographic studies, and documents pertaining to local European American history. The
29 results showed there is one previously recorded archaeological site noted in records as being
30 present within the analysis area. Site 35MW19, also known as "The Northwestern Outlet Site,"
31 was described as a prehistoric lithic scatter consisting of flakes and a knife. There is another
32 archaeological site, 35MW15, identified as being located adjacent to, but outside, the proposed
33 amended site boundary. Site 35MW15 is a prehistoric debris scatter consisting of lithic flakes
34 and formed tools⁵⁶.
35

⁵⁵ Furthermore, in accordance with ORS 469.501(4), the Council may not impose the Historic, Cultural, and Archaeological Resources standard to approve or deny an application for an energy facility producing power from solar energy. However, to the extent it determines appropriate, the Council may apply the standard to impose conditions on a site certificate.

⁵⁶ CGSAMD1. RFA1 Exhibit S, confidential material. 2018-02-20.

1 Following the records review, WillametteCRA conducted a pedestrian field survey and shovel
2 testing in accordance with the SHPO standards and guidelines (Oregon SHPO 2007) within the
3 site boundary expansion areas between April 5 and 9, 2016.

4
5 Site 35MW19 was originally recorded during archaeological work conducted in the 1970's for
6 the Carty and Pebble Springs Reservoir Areas. In 2009, Archaeological Investigations Northwest,
7 Inc. (AINW), contracted by PGE conducted a series of field investigations to relocate site
8 35MW19. PGE reports that no artifacts were found during the pedestrian survey of the
9 recorded 35MW19 archaeological site area. Shovel tests were excavated outside of the
10 recorded site 35MW19 area at least 30 m from the edge of the recorded site boundaries.
11 Eighteen shovel tests were excavated around the site periphery to verify the absence of
12 archaeological deposits in the surrounding area. No artifacts were found in these shovel tests.

13
14 Most recently, eleven additional shovel tests were excavated near the area that was not
15 previously excavated to support road maintenance work associated with the Boardman Plant.
16 No archaeological materials were found on the surface or in the thirty 50 cm² units excavated.
17 On behalf of the certificate holder, WillametteCRA concludes that no evidence of archaeological
18 site 35MW19 was found during the current pedestrian survey or shovel testing of the analysis
19 area.⁵⁷ On June 13, 2016, Oregon SHPO issued a concurrence letter to PGE, stating that PGE
20 demonstrated a good faith effort in relocating the site 35MW19, and considering that no
21 evidence of the site has been found in recent surveys, SHPO agreed that the site is not eligible
22 for listing in the NRHP and indicated that the Boardman Plant road work would have no effect
23 on any significant archaeological objects or sites.⁵⁸ On December 2, 2016 Oregon SHPO issued a
24 concurrence letter to PGE stating that the proposed Carty Solar Farm will have no effect on any
25 significant archaeological objects or sites. Based on the survey results and concurrence letter
26 that SHPO provided, the Council delete Condition 11.1 as presented below:

27
28 ~~Condition 11.1. [Deleted]-Before beginning construction, the certificate holder shall label~~
29 ~~Oregon State Historic Preservation Office (SHPO) archaeological resource site 35MW19 and~~
30 ~~a 100-foot buffer around site 35MW19 on construction maps and drawings as a "no entry"~~
31 ~~area. Site 35MW19 and its 100-foot buffer shall be marked with temporary fencing or~~
32 ~~stakes with rope and/or flagging to prevent inadvertent entry].~~

33 [Final Order IV.K.2.1] [AMD1]

34
35 The second site 35MW15 is located outside of but adjacent to the site boundary and analysis
36 area. It consists of lithic flakes and formed tools. The shovel probing survey by PGE's contractor
37 investigated the area outside of the defined site boundary for 35MW15 but within the analysis
38 area.⁵⁹ Eighteen shovel tests were excavated around the site to verify the presence or absence

⁵⁷ CGSADM1. RFA1 Exhibit S, Page 5. 2018-02-20.

⁵⁸ CGSAMD1. RFA1 Exhibit S. Attachment S-1. 2018-02-20.

⁵⁹ CGSAMD1. RFA Exhibit S, p. S-3. 2018-02-20.

1 of archaeological deposits in the surrounding area. No artifacts were found in these shovel
2 tests. Therefore, WillametteCRA concludes that the site 35MW15 does not extend into the
3 analysis area.

4
5 It is possible that construction activities could uncover previously unrecorded historic, cultural
6 or archaeological resources. The certificate holder commits to implementing the Inadvertent
7 Discovery Procedure in the event of discovery of any previously unidentified cultural resource.
8 The plan includes ceasing construction, operations, or retirement activities within the
9 immediate vicinity of the newly identified cultural resource pending evaluation by a qualified
10 archeologist, and notifying the appropriate tribal and state authorities.

11
12 During review of the amendment request, Confederated Tribes of the Umatilla Indian
13 Reservation (CTUIR) provided comments indicating that the proposed Carty Solar Farm would
14 be located within the ceded lands boundaries of the CTUIR. As described in the letter, the
15 project area is within a historic travel corridor used by the CTUIR peoples, and has a high
16 possibility to encounter unmarked burials.⁶⁰ CTUIR expressed concern about inadvertent
17 discovery due to the ground disturbance activities. In RFA1 Exhibit S, the certificate holder
18 voluntarily agreed to coordinate with CTUIR on monitoring during ground disturbing activities.
19 Based on these comments, the Council amends Condition 11.6, related to the certificate
20 holder's Inadvertent Discovery Plan, to address CTUIR's comment, and ensure coordination to
21 reduce potential adverse impacts on historic, cultural, and archaeological resources, as follows:

22
23 **Condition 11.6.** The certificate holder shall:

- 24 i. ~~Prepare and implement an Archaeological Monitoring Plan for construction activities~~
25 ~~to address and mitigate impacts from exposure of unanticipated or previously~~
26 ~~unidentified cultural resources that may be exposed during construction of the facility. A~~
27 ~~current copy of the plan must be maintained at the administration/control building and~~
28 ~~made available to authorized representatives of the Department upon request. The~~
29 ~~Archaeological Monitoring Plan, as proposed by the certificate holder, shall include the~~
30 ~~following requirements:~~
31 ~~a. [Deleted] The certificate holder will be responsible for providing a qualified~~
32 ~~archaeological monitor for any ground-disturbing project construction activity that~~
33 ~~occurs within the area between the shovel tests excavated in 2009 and the~~
34 ~~delineated 100-foot buffer around 35MW19. No ground disturbance is permitting~~
35 ~~within the site boundaries or the 100-foot buffer around the archaeological site~~
36 ~~[AMD1].~~
37 b. A qualified archaeological monitor is a person who meets the "qualified
38 archaeologist" standards defined by ORS 390.235(6)(b)...
- 39 [Final Order IV.K.2.6, Condition 11.6]

⁶⁰ CGSAMD1 RFA Comment Tribal Government CTUIR. 2018-04-02.
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- 1 ii. At least 45-days prior to construction of the Carty Solar Farm, provide to the
2 Department for review and approval, in consultation with SHPO and the Confederated
3 Tribes of the Umatilla Indian Reservation (CTUIR), an amended Archaeological
4 Monitoring Plan for construction activities to address and mitigate impacts from
5 exposure of unanticipated or previously unidentified cultural resources that may be
6 exposed during construction of the Carty Solar Farm. The amended Archaeological
7 Monitoring Plan shall include the following requirements:
8 a. The certificate holder shall coordinate with CTUIR prior to and during ground
9 disturbing activities to determine if a tribal monitor should be onsite.
10 b. A qualified archeologist, as defined in 11.6(i)(b) of this condition, shall be mobilized
11 to the site if unanticipated resources are discovered; in this event, Condition
12 11.6.ii(c) through (f) would then be applicable.
13 c. The archeological monitor will keep a daily log of construction and monitoring
14 activities. If intact archaeological materials are encountered during the monitoring,
15 the monitor will initiate procedures for inadvertent discovery of archaeological
16 resources, as specified in ORS 358.920.
17 d. Artifacts will be examined and documented in the field and will not be collected
18 unless authorized under the provisions of a SHPO permit, if one is obtained in the
19 inadvertent discovery of archaeological resources process.
20 e. If human remains are identified during the course of construction monitoring, the
21 monitor will initiate the procedures for Inadvertent Discovery of Human Remains, as
22 specified in ORS 97.740-97.760.
23 f. The certificate holder is responsible for providing an archaeological monitoring
24 report to the Department and SHPO after construction work is completed. The
25 report must detail the activities of the monitor and any inadvertent discoveries
26 encountered, along with actions taken to address them.
27 [AMD1]

28 **Conclusions of Law**

29
30 Based on the foregoing analysis, and subject to compliance with existing and amended
31 conditions, the Council finds that the facility, with proposed changes, would continue to comply
32 with the Council's Historic, Cultural, and Archaeological Resources Standard.

33 **III.L. Recreation: OAR 345-022-0100**

34
35 *(1) Except for facilities described in section (2), to issue a site certificate, the Council must*
36 *find that the design, construction and operation of a facility, taking into account*
37 *mitigation, are not likely to result in a significant adverse impact to important*
38 *recreational opportunities in the analysis area as described in the project order. The*
39 *Council shall consider the following factors in judging the importance of a recreational*
40 *opportunity:*

- 1
2 (a) Any special designation or management of the location;
3 (b) The degree of demand;
4 (c) Outstanding or unusual qualities;
5 (d) Availability or rareness;
6 (e) Irreplaceability or irretrievability of the opportunity.

7 ***61

8 **Findings of Fact**

9 The Recreation standard requires the Council to find that the design, construction, and
10 operation of a facility would not likely result in significant adverse impacts to “important”
11 recreational opportunities. Therefore, the Council’s Recreation standard applies only to those
12 recreation areas that the Council finds to be “important,” utilizing the factors listed in the sub-
13 paragraphs of section (1) of the standard. The importance of recreational opportunities is
14 assessed based on five factors outlined in the standard: special designation or management,
15 degree of demand, outstanding or unusual qualities, availability or rareness, and irreplaceability
16 or irretrievability of the recreational opportunity. The certificate holder evaluates impacts to
17 important recreational opportunities based on the potential of construction or operation of the
18 facility, with proposed changes, to result in any of the following: direct or indirect loss of an
19 important recreational opportunity, excessive noise, increased traffic, and visual impacts of
20 facility structures or plumes.

21
22 In accordance with OAR 345-001-0010(59)(d) and consistent with the study area boundary, the
23 analysis area for recreational opportunities is the area within and extending 5 miles from the
24 site boundary.

25
26 **Recreational Opportunities within the Analysis Area**

27
28 The single important recreational opportunity within the 5-mile analysis area is the Oregon
29 National Historic Trail, which runs east-west approximately 2.1 miles south of the proposed
30 Carty Solar Farm.

31
32 **Evaluation of Potential Impacts to Important Recreation Opportunities**

33
34 Under the Council’s Recreation standard, the Council must find that, taking into account
35 mitigation, the facility, with proposed changes, is not likely to result in a significant adverse
36 impact to those identified important recreational opportunities. The Council presents its
37 evaluation of potential impacts below.

61 The facility is not a special criteria facility under OAR 345-0015-0310; therefore, OAR 345-022-0100(2) is not applicable.

1 *Potential Direct or Indirect Loss of Recreational Opportunity*

2
3 The proposed Carty Solar Farm would not be located on or within the segment of Oregon
4 National Historic Trail that is within the analysis area. Therefore, the proposed Carty Solar Farm
5 would not physically disturb, or result in ground disturbance, to the important recreational
6 opportunities identified within the analysis area. The proposed Carty Solar Farm would also not
7 require any temporary or permanent closure or removal of the Oregon National Historic Trail to
8 public use. Therefore, the Council finds that the proposed Carty Solar Farm would not be
9 expected to result in direct or indirect loss to important recreational opportunities within the
10 analysis area.

11
12 *Potential Noise Impacts*

13
14 *Construction*

15
16 The proposed Carty Solar Farm would generate construction-related noise. Construction related
17 noise would be short-term and intermittent and would result from site clearing, excavation,
18 foundation work, and equipment installation. Construction equipment noise levels are
19 estimated to be less than 50 A-weighted decibels [dBA] at a distance of 5-miles, which is
20 equivalent to noise levels of light traffic. The Oregon National Historic Trail is located
21 approximately 2.1-miles from the proposed amended site boundary; therefore, anticipated
22 construction-related noise levels would be expected to be greater than 50 dBA.

23
24 Existing Condition 13.1 would reduce noise impacts during construction by requiring the use of
25 exhaust mufflers on combustion engine-powered equipment; and requires that the certificate
26 holder establish a noise complaint response system, and provide, upon request, noise
27 complaint records to the Department. Based on the distance of construction-related noise, and
28 short-term, intermittent nature of construction activities, and relatively quiet noise levels, the
29 Council finds that construction of the proposed Carty Generating Station would not be likely to
30 result in significant adverse noise impacts at the Oregon National Historic Trail segment within
31 the analysis area.

32
33 *Operation*

34
35 The proposed Carty Solar Farm would result in potential maximum overall A-weighted sound
36 power level output of 44 dBA at 400 feet. In RFA1, the certificate holder provides a noise
37 analysis of the proposed Carty Solar Farm including the following sources:

- 38
39
 - 25 inverters at 87 dBA
 - 25 Step-up transformers at 94 dBA40

41
42 As presented in RFA1 Exhibit X, the noise modeling analysis for operational noise demonstrates
43 that noise generated by the proposed Carty Solar Farm would be less than 30 dBA, equivalent

1 to the noise level of a soft whisper, at the Oregon National Historic Trail.⁶² Therefore, based on
2 the certificate holder's noise modeling assessment, the Council finds that operation of the
3 proposed Carty Solar Farm would not be likely to result in significant adverse noise impacts to
4 the important recreational opportunity within the analysis area.

5 *Potential Traffic Impacts*

7 *Construction*

9 The proposed Carty Solar Farm would generate construction-related traffic, not expected to
10 exceed 400 trips per day. The certificate holder describes that construction-related traffic
11 would utilize I-84 and Tower Road. The nearest segments of the Oregon National Historic Trail
12 are accessed from State Route 74, 9 miles west of Tower Road on Interstate 84, or from
13 Bombing Range Road, 8 miles to the east of Tower Road on Interstate 84.⁶³ Based on the
14 distance from Oregon National Historic Trail access roads to Tower Road, Council finds that
15 construction-related traffic would not to result in significant adverse impacts to the important
16 recreational opportunity within the analysis area.

18 While not related to impacts under the Council's Recreation standard, as described in Section
19 III.M. *Public Services*, the Council amends Condition 6.17 and imposes Condition 6.27. These
20 conditions would require that the certificate holder, prior to and during construction, evaluate
21 construction related traffic to confirm whether a Traffic Impact Assessment (TIA) is required in
22 accordance with MCZO Section 3.010(N)(1); the conditions also require that the certificate
23 holder develop and implement a Construction Traffic Management Plan to minimize traffic
24 impacts on Tower Road.

26 *Operation*

28 The proposed Carty Solar Farm would generate operational-related traffic. However, the
29 certificate holder asserts that operational traffic would result in up to 2 additional vehicle trips
30 per day and would not utilize roads providing access to the Oregon National Historic Trail
31 segment within the analysis area, other than Tower Road. Because operation of the proposed
32 Carty Solar Farm would not substantially increase trip generation on Tower Road, the Council
33 finds that operational-traffic impacts would not be likely to result in a significant adverse
34 impact to the important recreational opportunity within the analysis area.

⁶² CGSAMD1. RFA1 Exhibit X. 2018-02-23.

⁶³ CSGAMD1. RFA1 Exhibit T, p. T-2. 2018-02-20.

1 Potential *Visual Impacts*

2
3 The proposed Carty Solar Farm and its supporting facilities would result in visible facility
4 structures including solar modules with a maximum height of 10 feet; inverters with a
5 maximum height of 11 feet; and, a 34.5 kV transmission line with 70-foot-tall wooden poles.
6 To support its evaluation of potential visual impacts of the proposed Carty Solar Farm and its
7 supporting facilities, the certificate holder completed a zone of visual influence (ZVI) analysis.⁶⁴
8 A ZVI analysis identifies visibility based on topography but does not account for screening from
9 vegetation or structures.

10
11 Based on the ZVI analysis, as presented in Figure R-1, the proposed Carty Solar Farm and its
12 supporting facilities would be visible from several small areas along the Oregon National
13 Historic Trail segment within the analysis area. However, given the distance of over 2 miles
14 from the proposed amended site boundary to the nearest point of the Oregon National Historic
15 Trail, and the overall height of proposed structures, the Council finds that visual impacts of the
16 proposed Carty Solar Farm would not likely result in a significant adverse impact to this
17 important recreational opportunity.

18
19 **Conclusions of Law**

20
21 Based on the foregoing findings of fact and conclusions, and subject to compliance with existing
22 site certificate conditions, the Council finds that the facility, with proposed changes, would
23 continue to comply with the Council's Recreation standard.

24 **III.M. Public Services: OAR 345-022-0110**

25
26 *(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the*
27 *Council must find that the construction and operation of the facility, taking into account*
28 *mitigation, are not likely to result in significant adverse impact to the ability of public*
29 *and private providers within the analysis area described in the project order to provide:*
30 *sewers and sewage treatment, water, storm water drainage, solid waste management,*
31 *housing, traffic safety, police and fire protection, health care and schools.*

32
33 *(2)The Council may issue a site certificate for a facility that would produce power from*
34 *wind, solar or geothermal energy without making the findings described in section (1).*
35 *However, the Council may apply the requirements of section (1) to impose conditions on*
36 *a site certificate issued for such a facility.*

37 ***
38

⁶⁴ CGSAMD1. Request for Additional Information Responses. 2018-09-24.
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Findings of Fact

The Council's Public Services standard requires the Council to evaluate the likelihood of a facility or facilities, with proposed changes, to result in significant adverse impacts to the ability of public and private service providers to supply sewer and sewage treatment, water, stormwater drainage, solid waste management, housing, traffic safety, police and fire protection, health care, and schools. The evaluation provided below is based on the maximum number of workers during construction (100 to 130 workers) and operation (1 to 2 workers).

In accordance with OAR 345-001-0010(59)(b) and consistent with the study area boundary, the analysis area for potential impacts to public services from construction and operation of the facility, with proposed changes, is defined as the area within and extending 10-miles from the site boundary.

Sewer and Sewage Treatment; Stormwater Drainage

The proposed Carty Solar Farm and its supporting facilities would generate sewage during construction and operation. During construction, portable toilets managed by a licensed third-party contractor would be utilized for sewage treatment. During operation, Boardman Coal Plant's sanitary waste treatment system, and onsite sewage lagoons, would be utilized for sewage treatment. Therefore, construction and operation of the proposed Carty Solar Farm and its supporting facilities would not result in use or impacts to public or private sewage treatment providers.

The proposed Carty Solar Farm and its supporting facilities would generate stormwater during rain events. During construction, stormwater runoff would be minimized through implementation of best management practices in accordance with a 1200-C National Pollutant Discharge Permit to be obtained from Oregon Department of Environmental Quality prior to construction, as required per Condition 9.1. During operation, stormwater would be minimized through site grading that would allow stormwater infiltration into the ground. The proposed Carty Solar Farm and its supporting facilities would not result in use of or impacts to public or private stormwater drainage facilities.

Water

Construction and operation of the proposed Carty Solar Farm and its supporting facilities would result in water use. Approximately 8 million gallons of water would be used primarily for dust abatement, but would also be used for equipment and vehicle washing, washing concrete trucks and fire suppression. Water used for construction would be obtained by a third-party contractor through a limited water use license, obtained prior to construction. PGE's proposed source of water for the limited water use is the Carty Reservoir under PGE's existing water

1 right.⁶⁵ Based on the certificate holder’s proposed source of temporary water, the Council finds
2 that construction of the proposed Carty Solar Farm and its supporting facilities would not result
3 in use of or impacts to the ability of public or private providers of water to deliver services.
4

5 Water used during operations of the proposed Carty Solar Farm would primarily result from
6 panel washing. Panel wash water would be obtained from Carty Reservoir or a municipal
7 source. Potable water used during operations would be obtained from Boardman/Carty potable
8 water system sourced from an existing onsite well, hauled in from nearby water systems, or a
9 private provider. Operational water withdrawn from Carty Reservoir and facility-specific wells
10 would not result in impacts on the ability of public or private providers of water to deliver
11 services.
12

13 *Solid Waste Management*

14 *Construction*

15
16 As explained in RFA1 Exhibit V, construction activities are anticipated to result in approximately
17 5 tons per week of waste including domestic refuse, office waste, packaging materials, steel
18 cut-offs, and construction materials. Construction materials include concrete waste, wood,
19 plastic, glass, and erosion control materials. The certificate holder also notes that waste could
20 include hazardous materials, including oil rags, depleted batteries, as well as vehicle
21 maintenance solvents and oils. The certificate holder represents in RFA1 Exhibit U that 5 tons of
22 solid waste is “well within the handling capacities” of the Sanitary Disposal Inc. and other waste
23 management providers listed in Table U-1.
24
25

26 During operation, the certificate holder expects to generate “negligible” solid waste, consisting
27 primarily of office and maintenance waste. Waste generated during operations would be
28 disposed through its existing Carty Generating Station plant services building. The certificate
29 holder anticipates to be a “Conditionally Exempt Generator,” which is a classification reserved
30 for organizations that generate less than 220 pounds of hazardous waste per month.
31

32 Council previously imposed Condition 6.3 and 10.22 requiring that the certificate holder, during
33 construction and operation, develop Waste Management Plans that would implement waste
34 reducing measures including training employees to segregate and recycle recyclable materials.
35 These conditions would continue to apply to the facility, with proposed changes. Therefore, the
36 Council finds that waste generating during construction and operation of the proposed Carty
37 Solar Farm would not result in significant adverse impacts on the ability of public or private
38 providers to provide solid waste management services.

⁶⁵ CGSAMD1 Request for Additional Information Responses. 2018-09-24.
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1 *Housing, Health Care and Schools*

2
3 Construction and operation of the proposed Carty Solar Farm would not contribute substantial
4 numbers of additional workers to the analysis area. Based on its experience during Unit 1
5 construction, the certificate holder assumes that many construction personnel will be either
6 permanent residents of the Boardman area or temporary residents who commute from the Tri-
7 Cities area in Washington.

8
9 The certificate holder describes that approximately 4.5% of rental units in Morrow County are
10 vacant and there are approximately fourteen hotels or motels within Boardman and
11 Hermiston.⁶⁶ If necessary, individuals would receive healthcare for Trauma III Level services in
12 Hermiston. Individuals would receive Trauma I Level services in Portland. Emergency medical
13 transport would be provided by the Morrow County Health District Emergency Medical
14 Services, which maintains ambulances in Boardman and Irrigon. Council previously imposed
15 Conditions 8.2 and 8.3 requiring that the certificate holder implement a site health and safety
16 plan, which would minimize potential onsite risks resulting in use of local health care providers.
17 Based on the short-term duration of construction, relatively low number of workers, and
18 existing availability of housing, health care facilities and schools, the Council finds that
19 construction of the proposed Carty Solar Farm would not be likely to result in a significant
20 adverse impact on the ability of public and private providers of housing, schools, and health
21 care to deliver services.

22
23 Based on the fact that the proposed Carty Solar Farm would result in up to 2 permanent
24 employees during operations, there are no expected significant adverse impacts to the housing,
25 health care and school providers within the analysis area.

26
27 *Traffic Safety*

28
29 During the approximately 9 to 24 month construction period, the certificate holder anticipates
30 employing, on average, 50 to 60 workers and an estimated maximum of 130 workers employed
31 during peak construction. In RFA1 Exhibit U, the certificate holder estimates that peak
32 construction traffic would include up to 28 truck trips per day (round trip). The certificate
33 holder estimates that combining truck trips and workforce trips, and applying a 1.25 carpooling
34 factor, up to 150 construction vehicles (or 300 round trips) per day would be added to the
35 background traffic patterns along the primary transportation route, I-84, which would not be
36 expected to significantly impact traffic safety service providers.

37
38 Potential traffic-related impacts on surrounding roadways would be limited to Tower Road. The
39 certificate holder proposes measures expected to reduce passenger car equivalent trips per day

⁶⁶ CGSRFA1. Exhibit U, p. U-3. 2018-02-20.
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1 including carpooling, staggering worker start times, installation of temporary traffic controls,
2 funding for overtime to provide additional traffic patrols along Tower Road, coordination of
3 random patrols along Tower Road, and/or frequency coordination with the Morrow County
4 Sheriff's office to inform them of periods of increased traffic to the site. Council previously
5 imposed Condition 6.17 under the Public Services standard requiring implementation of traffic
6 control measures during construction. The Council amends Condition 6.17 requiring that the
7 certificate holder, during construction, implement a Construction Related Traffic Management
8 Plan including the certificate holder's proposed measures and recordkeeping demonstrating
9 that passenger car equivalents during construction are maintained below 400.

10
11 **Condition 6.17, as amended:** During construction of the facility;~~the certificate holder shall~~
12 ~~implement measures to reduce traffic impacts, as follows:~~

- 13 i. The certificate holder shall implement measures to reduce traffic impacts, as
14 follows:
15 a. The certificate holder shall reduce peak hour volumes during construction by
16 staggering shift start times or implementing other measures that would
17 significantly reduce the total number of construction worker vehicle trips
18 through the westbound I-84/Tower Road ramp terminal; or
19 b. The certificate holder shall install temporary traffic controls during peak
20 construction to prioritize westbound left-turning vehicles at the westbound
21 Tower Road ramp terminal during the weekday a.m. peak hour.

22 [Final Order IV.M.2.9]

- 23 ii. The certificate holder shall:
24 a. Implement a final Construction Traffic Management Plan, as approved by the
25 Department per Condition 6.26.
26 b. Include the requirements of the Construction Traffic Management Plan in
27 contract specifications for construction contractors, as applicable.
28 c. Maintain a monthly log, to be submitted monthly to the Department for review
29 and confirmation of compliance with the components of the Construction Traffic
30 Management Plan.
31 d. The Department, in consultation with the Morrow County Public Works
32 Department, may require implementation of additional traffic management
33 measures including a Traffic Impact Assessment per MCZO Section 3.010(N)(1) if
34 any requirement of the Construction Traffic Management Plan is determined not
35 adequately implemented, or if additional measures are deemed necessary based
36 on actual passenger car equivalent trips per day during facility construction.
37 Within 30-days of submittal of the monthly compliance report required under
38 sub(c), the certificate holder shall obtain written confirmation from the
39 Department on any additional construction traffic management measures
40 required to be implemented.
41 [AMD1]
42

1 The Council imposes Condition 6.27, requiring that the certificate holder develop a
2 Construction Traffic Management Plan, to be reviewed and approved by the Department in
3 consultation with Morrow County prior to construction. The recommended new condition
4 requires that the certificate holder, prior to construction, re-assess peak passenger car
5 equivalent anticipated during construction activities to confirm whether a TIA is required. The
6 new condition specifies that if a TIA is required, the certificate holder shall prepare and submit
7 a TIA to the Department and Morrow County Planning Department, for review and approval;
8 and, requires that the certificate holder provide documentation to the Department pursuant to
9 OAR 345-027-0057 to evaluate whether the proposed change in construction-related traffic
10 would trigger a site certificate amendment.

11
12 Condition 6.27, as amended: Prior to beginning construction of the Carty Solar Farm, the
13 certificate holder shall:

- 14 a. Confirm whether, based on anticipated construction activities, peak construction traffic
15 is anticipated to exceed 400 passenger car equivalent trips per day. If more than 400
16 passenger car equivalent trips per day is anticipated, the certificate holder shall prepare
17 and submit to the Department and Morrow County Planning Department a Traffic
18 Impact Assessment per MCZO Section 3.010(N) Transportation Impacts for review and
19 approval. If a TIA is required, the certificate holder shall submit documentation to the
20 Department in accordance with OAR 345-027-0057.
- 21 b. Prepare and submit to the Department a Construction Traffic Management Plan for
22 review and approval. The certificate holder shall demonstrate that the Construction
23 Traffic Management Plan, at a minimum, includes:
- 24 1. Traffic management measures or other recommendations to minimize traffic
25 impacts on Tower Road, as applicable, based upon consultation with Morrow County
26 Public Works Department and Morrow County Sheriff's Office.
 - 27 2. Staggering shift start times or other measures that would significantly reduce the
28 total number of construction worker vehicle trips through the westbound I-
29 84/Tower Road ramp terminal; or
 - 30 3. Installation of temporary traffic controls during peak construction to prioritize
31 westbound left-turning vehicles at the westbound Tower Road ramp terminal during
32 the weekday a.m. peak hour.

33 [AMD1]

34
35 Long-term operational traffic would generate approximately 2 passenger car or pickup truck
36 trips per day, with infrequent heavy vehicle trips. Based on compliance with the above-
37 described recommended amended and new conditions, the Council finds that construction and
38 operational-traffic impacts (i.e. vehicle trip generation) from the proposed Carty Solar Farm
39 would not be likely to result in a significant adverse impact to the ability of public or private
40 providers of traffic safety.

1 *Fire Services*

2
3 Boardman Rural Fire Protection District provide fire protection services in the analysis area.

4
5 As shown in RFA1 Exhibit U Attachment U-1, the certificate holder contacted the Boardman
6 Rural Fire Protection District with information about the proposed Carty Solar Farm. The District
7 commented that the proposed Carty Solar Farm is located in an area that is subject to high
8 indices of large and rapid spreading wildfires. However the Fire Protection District also noted
9 that “the facility is not anticipated to cause any substantial increase to the impacts upon the
10 fire district.” The certificate holder is required to comply with Oregon Fire Code 605.12.2
11 provisions, which includes a requirement that the area under the installation will either be
12 graveled or otherwise covered in a noncombustible base. Council previously imposed Condition
13 8.7 requiring that the certificate holder, during construction and operation, develop and
14 implement fire safety plans in consultation with the District. This condition applies to the
15 proposed Carty Solar Farm and would require that the certificate holder demonstrate whether
16 the existing plan covers fire safety requirements of the proposed Carty Solar Farm, or whether
17 the plans needs to be revised. Based on compliance with existing condition, the Council finds
18 that construction and operation of the proposed Carty Solar Farm would not to be likely to
19 result in a significant adverse impact to the ability of public or private fire service providers to
20 provide services.

21
22 *Police Protection*

23
24 Law enforcement services in the analysis area are provided by Morrow County Sherriff’s Office.
25 Based on the relatively small number of new temporary and permanent residents associated
26 with the proposed Carty Solar Farm, construction and operation activities would not be
27 anticipated to place significant demands on the providers of police protection in the analysis
28 area. Council previously imposed condition 8.1 requiring that the certificate holder provide on-
29 site security and establish good communication with Morrow County Sheriff’s Office. This
30 condition would apply during construction and operation of the proposed Carty Solar Farm.
31 Based on compliance with existing condition, the Council finds that construction and operation
32 of the proposed Carty Solar Farm would not to be likely to result in a significant adverse impact
33 to the ability of public or private police protection service providers to provide services.

34
35 **Conclusions of Law**

36 Based on the foregoing analysis, and subject to the existing, and amended conditions, the
37 Council finds that the facility, with proposed changes, would continue to comply with the
38 Council’s Public Services standard.
39

1 **III.N. Waste Minimization: OAR 345-022-0120**

2
3 *(1) Except for facilities described in sections (2) and (3), to issue a site certificate, the*
4 *Council must find that, to the extent reasonably practicable:*

5
6 *(a) The applicant's solid waste and wastewater plans are likely to minimize*
7 *generation of solid waste and wastewater in the construction and operation of the*
8 *facility, and when solid waste or wastewater is generated, to result in recycling and*
9 *reuse of such wastes;*

10
11 *(b) The applicant's plans to manage the accumulation, storage, disposal and*
12 *transportation of waste generated by the construction and operation of the facility*
13 *are likely to result in minimal adverse impact on surrounding and adjacent areas.*

14
15 *(2) The Council may issue a site certificate for a facility that would produce power from*
16 *wind, solar or geothermal energy without making the findings described in section (1).*
17 *However, the Council may apply the requirements of section (1) to impose conditions on*
18 *a site certificate issued for such a facility.*

19 ***

20 **Findings of Fact**

21
22 The Waste Minimization standard requires the Council to find that the certificate holder will
23 minimize the generation of solid waste and wastewater, and that the waste generated would
24 be managed to minimally impact surrounding and adjacent areas. Pursuant to OAR 345-022-
25 0120(2), the Council may issue a site certificate for a solar facility without making findings
26 regarding the Waste Minimization standard; however, the Council may impose site certificate
27 conditions based upon the requirements of the standard.

28
29 *Solid Waste*

30
31 As explained in RFA Exhibit V, construction activities are anticipated to result in approximately 5
32 tons per week of waste including domestic refuse, office waste, packaging materials, steel cut-
33 offs, and construction materials. Construction materials include concrete waste, wood, plastic,
34 glass, and erosion control materials. The certificate holder also notes that waste could include
35 hazardous materials, including oil rags, depleted batteries, as well as vehicle maintenance
36 solvents and oils. The certificate holder represents in RFA1 Exhibit U that 5 tons of solid waste is
37 "well within the handling capacities" of the Sanitary Disposal Inc. and other waste management
38 providers listed in Table U-1.

39
40 During operation, the certificate holder expects to generate "negligible" solid waste, consisting
41 primarily of office and maintenance waste. Waste generated during operations would be
42 disposed through its existing Carty Generating Station plant services building. The certificate

holder anticipates to be a “Conditionally Exempt Generator,” which is a classification reserved for organizations that generate less than 220 pounds of hazardous waste per month.

Council previously imposed Condition 6.3 and 10.22 requiring that the certificate holder, during construction and operation, develop Waste Management Plans that would implement waste reducing measures including training employees to segregate and recycle recyclable materials. These conditions would continue to apply to the facility, with proposed changes. Therefore, the Council finds that the facility, with proposed changes, would continue to minimize and manage solid waste, resulting in minimal adverse impacts on surrounding and adjacent areas from construction of the proposed Carty Solar Farm.

Wastewater

Construction and operation of the proposed Carty Solar Farm would generate wastewater for disposal. During construction, wastewater would be generated from washing equipment and vehicles, washing concrete trucks after delivery of concrete loads, and fire suppression. The certificate holder maintains an existing Water Pollution Control Facilities (WPCF) permit, issued by Oregon Department of Environmental Quality but governed and incorporated into the site certificate. The existing WPCF authorizes wastewater disposal through evaporation and seepage from construction-related wastewater. During operations, wastewater would be generated from solar panel washing, which is not currently authorized by the WPCF permit. Therefore, through the EFSC amendment process, the certificate holder requests to modify its WPCF to allow disposal of solar panel wash water through evaporation and seepage. Based on DEQ’s review of the WPCF permit amendment request, a new condition would be imposed to prohibit the use of soaps and chemicals, as described in Section III.D. *Soil Protection* of this order. Any potential wastewater generated from stormwater runoff during construction would be managed in accordance with the BMPs described in the NPDES 1200-C / Erosion and Sediment Control Plan until that permit is terminated. Condition 9.5 requires the certificate holder to monitor and repair any erosion concerns during operations.

Therefore, based on compliance with the WPCF, as amended, the Council finds that the facility, with proposed changes, would continue to minimize and manage wastewater, resulting in minimal adverse impacts on surrounding and adjacent areas from construction of the proposed Carty Solar Farm.

Conclusions of Law

Based on the foregoing analysis, and subject to existing and r amended conditions, the Council finds that that facility, with proposed changes, would continue to comply with the Council’s Waste Minimization standard.

III.O. Division 23 Standards

The Division 23 standards apply only to “nongenerating facilities” as defined in ORS 469.503(2)(e)(K), except nongenerating facilities that are related or supporting facilities. The facility is not a nongenerating facility as defined in statute, and therefore Division 23 is inapplicable to the requested amendment.

III.P. Division 24 Standards

The Council’s Division 24 standards include specific standards for siting facilities including wind, underground gas storage reservoirs, transmission lines, and facilities that emit carbon dioxide. The only applicable Division 24 specific standard to the components included in the amendment request is Siting Standards for Transmission Lines (OAR 345-024-0090).

It is noted that OAR 345-024-0550 through -0600 applies to the Carty Generating Station, for which the certificate holder has complied. The facility components included in the amendment request would not emit carbon dioxide emissions regulated under the Council’s standard. Therefore, the proposed facility components are not required to demonstrate compliance with the Council’s Carbon Dioxide Standard and is not evaluated in this order.

III.P.1. Siting Standards for Transmission Lines: OAR 345-024-0090

To issue a site certificate for a facility that includes any transmission line under Council jurisdiction, the Council must find that the applicant:

(1) Can design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public;

(2) Can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable

Findings of Fact

The Siting Standards for Transmission Lines address issues associated with alternating current electric fields and induced currents generated by high-voltage transmission lines. OAR 345-024-0090(1) sets a limit for electric fields from transmission lines of not more than 9 kV per meter at one meter above the ground surface in areas that are accessible to the public. Section (2) requires the certificate holder design, construct and operate the line in a manner that reduces the risk posed by induced current.

Electric Fields

Electric fields around transmission lines are produced by the presence of an electric charge, measured as voltage, on the energized conductor. Electric field strength is directly proportional to the line's voltage; increased voltage produces a stronger electric field.

The certificate holder modeled electric fields, magnetic fields, radio interference and television interference within the boundaries of the study area. The model utilizes a methodology developed by the Bonneville Power Administration and the EMF estimates are computed for a height of 1 meter aboveground. The outputs used for calculating the EMF strengths are assumed to be typical peak-load outputs from the generators and are therefore higher than the nominal outputs.⁶⁷ As shown in Table AA-1 and Figure AA-1 of RFA1 Exhibit AA, modeled electric fields for the proposed 34.5 kV interconnection transmission line options range from 0.01 to 8.83 kV/m. While the maximum modeled electric field is 8.83-kV per meter, it remains below the 9-kV per meter threshold set forth in OAR 345-024-0090(1). Therefore, based on the certificate holder's modeling, the Council finds that the proposed 34.5 kV interconnection transmission line would not exceed 9-kV per meter at one meter above ground level.

Induced Voltage and Current

The Siting Standards for Transmission Lines requires the Council to find that the certificate holder "can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable."

As presented in RFA1 Exhibit AA, the certificate holder describes that induced currents from the proposed 34.5 kV interconnection transmission line would be as low as reasonably achievable. Council previously imposed Condition 6.5, requiring that the certificate holder design, construct and operate transmission lines in accordance with requirements of the National Electrical Safety Code. Council previously imposed Condition 7.9, requiring that the certificate holder develop and implement a program during operations to ensure structures that could become inadvertently charged are grounded or bonded throughout the life of the facility. These conditions would apply to the proposed 34.5 kV interconnection transmission line and would minimize potential impacts from induced voltage and current.

Conclusions of Law

For the reasons discussed above, and subject to compliance with the existing conditions, the Council finds that the facility, with proposed changes, would comply with the Council's Siting Standards for Transmission Lines.

⁶⁷ CGSAMD1. RFA1 Exhibit AA, p. AA-5. 2018-02-20.
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III.Q. Other Applicable Regulatory Requirements Under Council Jurisdiction

Under ORS 469.503(3) and under the Council’s General Standard of Review (OAR 345-022-0000), the Council must determine whether the components proposed in the amendment request would comply with “all other Oregon statutes and administrative rules...,” as applicable to the issuance of an amended site certificate. This section addresses the applicable Oregon statutes and administrative rules that are not otherwise addressed in Council standards, including noise control regulations, regulations for removal or fill of material affecting waters of the state, and regulations for appropriating ground water.

III.Q.1. Noise Control Regulations: OAR 340-035-0035

(1) Standards and Regulations:

(b) New Noise Sources:

(A) New Sources Located on Previously Used Sites. No person owning or controlling a new industrial or commercial noise source located on a previously used industrial or commercial site shall cause or permit the operation of that noise source if the statistical noise levels generated by that new source and measured at an appropriate measurement point, specified in subsection (3)(b) of this rule, exceed the levels specified in Table 8, except as otherwise provided in these rules. For noise levels generated by a wind energy facility including wind turbines of any size and any associated equipment or machinery, subparagraph (1)(b)(B)(iii) applies.

Findings of Fact

The Department of Environmental Quality (DEQ) noise control regulations at OAR 340-035-0035 have been adopted by Council as the compliance requirements for EFSC-jurisdiction energy facilities. OAR 340-035-0035 provides the DEQ noise regulations for industry and commerce. The DEQ noise rules set noise limits for new industrial or commercial noise sources based upon whether those sources would be developed on a previously used or previously unused site.⁶⁸

The proposed Carty Solar Farm and its supporting facilities would be located on approximately 400 acres, within an approximately 1,581-acre proposed amended site boundary. Historically, the land has been used for rangeland and industrial use by Boardman Coal Plant and Carty Generating Station. The proposed amended site boundary is in proximity to Interstate 84, a highly traveled highway. This location would be considered a “previously used industrial or

⁶⁸ A “previously unused industrial or commercial site” is defined in OAR 340-035-0015(47) as property which has not been used by any industrial or commercial noise source during the 20 years immediately preceding commencement of construction of a new industrial or commercial source on that property.

commercial site,” because under OAR 340-035-0015(47) the property has been used by an industrial noise source within the last 20 years. Therefore, OAR 340-035-0035(1)(b)(A) noise control regulations for new industrial or commercial noise sources located on a previously used site apply to noise generated by the proposed Carty Solar Farm.

Under the regulations, the proposed Carty Solar Farm must comply with the statistical noise limits contained in “Table 8” under OAR 340-035-0035(1)(b)(A). Table 6, *Statistical Noise Limits for Industrial and Commercial Noise Sources* below provides the information contained in “Table 8.”

Table 6: Statistical Noise Limits for Industrial and Commercial Noise Sources

Statistical Descriptor ¹	Maximum Permissible Hourly Statistical Noise Levels (dBA)	
	Daytime (7:00 AM - 10:00 PM)	Nighttime (10:00 PM - 7:00 AM)
L50	55	50
L10	60	55
L1	75	60
Notes:		
1. The hourly L50, L10 and L1 noise levels are defined as the noise levels equaled or exceeded 50 percent, 10 percent, and 1 percent of the hour, respectively.		
Source: OAR 340-035-0035, Table 8		

Potential Construction Noise

OAR 340-035-0035(5) outlines exemptions to the DEQ noise rules including exemptions for emergency equipment, warning devices not operating continuously for more than 5 minutes, and sounds created in construction or maintenance of capital equipment. OAR 340-035-0035(5)(g) specifically exempts noise that originates on construction sites. Therefore, construction related noise is not required to be evaluated to demonstrate compliance with this rule.

Potential Operational Noise

The primary noise generating components associated with the proposed Carty Solar Farm include inverters and transformers. Inverters are employed to convert direct current generated from the solar modules to alternating current power, so the power may be sent to the grid. Transformers increase, or step up, the voltage to ensure the power is efficiently transmitted to the grid, and this process creates noise emissions.

The certificate holder conducted an acoustic modeling assessment using the Computer Aided Noise Abatement (CadnaA) software program to make predictions of peak noise levels at noise-sensitive properties within the analysis area. RFA1 Figure X-1, Noise Contours illustrates the locations of the noise-sensitive properties in the vicinity of the proposed amended site

1 boundary. As represented and described, there are no noise sensitive properties within 1-mile
2 of the proposed amended site boundary, with the closest residential receptor (a noise-sensitive
3 property) to the proposed Carty Solar Farm located more than two miles away.⁶⁹

4
5 The CadnaA software program utilizes sound propagation factors adopted from International
6 Organization for Standardization (ISO) 9613-2 *Acoustics—Sound Attenuation During*
7 *Propagation Outdoors*. Atmospheric absorption was estimated for conditions of 10 degrees
8 Celsius and 70 percent relative humidity (conditions that favor propagation) and computed in
9 accordance with ISO 9613-1. The model divides the proposed Carty Solar Farm into a list of
10 individual point, line, and area noise sources (including inverters, each with a maximum sound
11 power level estimated at 87 dBA and step-up transformers, each with a maximum sound power
12 level of 94 dBA) representing each piece of equipment that produces a significant amount of
13 noise. Using these sound power levels as a basis, the model calculates the sound pressure level
14 that would occur at each noise sensitive receptor from each source after losses from distance,
15 air absorption, blockages, and other factors are considered. The sum of all these individual
16 levels is the total level from the Carty Solar Farm at the modeling point.

17
18 Based on the acoustic noise modeling assessment, the proposed Carty Solar Farm would result
19 in potential maximum overall A-weighted sound power level output of 44 dBA at 400 feet. The
20 predicted sound levels from the proposed Carty Solar Farm at the closest residence
21 (approximately 2.3 miles away) would be less than 30 dBA. Therefore, Council finds that
22 operational noise generated from the proposed Carty Solar Farm would comply with OAR 340-
23 035-0035.

24 25 **Conclusions of Law**

26
27 Based on the foregoing findings, the Council finds that the proposed Carty Solar Farm would
28 comply with the Noise Control Regulations in OAR 340-035-0035(1)(b)(A).

29 30 **III.Q.2. Removal-Fill**

31
32 The Oregon Removal-Fill Law (ORS 196.795 through 196.990) and Department of State Lands
33 (DSL) regulations (OAR 141-085-0500 through 141-085-0785) require a removal-fill permit if 50
34 cubic yards or more of material is removed, filled, or altered within any “waters of the state.”⁷⁰
35 The Council, in consultation with DSL, must determine whether a removal-fill permit is needed
36 and if so, whether a removal-fill permit should be issued. The analysis area for wetlands and
37 other waters of the state is the area within the site boundary.

⁶⁹ CGSAMD1. RFA1 Exhibit X, p. X-7. 2018-02-20.

⁷⁰ ORS 196.800(15) defines “Waters of this state.” The term includes wetlands and certain other waterbodies.
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Findings of Fact

The certificate holder states that a removal-fill permit is not required because construction and operation of the proposed Carty Solar Farm would not require removal of materials from or placement of materials in any wetland or waterbody features. Information regarding wetlands and other waters of the state is provided in RFA1 Exhibit J, including a revised wetland delineation report for the new site boundary areas (RFA1 Exhibit J, Attachment J-1) and DSL's 2013 concurrence letter for the original Carty Generating Station facility (RFA1 Exhibit J Attachment J-2).

The wetland delineation report and fieldwork were completed by the certificate holder's environmental consultant, Ecology and Environment, Inc. (E &E). Fieldwork was conducted in 2016; surveys in areas within the original site boundary were initially conducted in 2009, 2012 and 2013. The analysis area is referred to in RFA1 Exhibit J as the amended site boundary, consistent with the wetland delineation report. The exhibit addresses the potentially jurisdictional wetlands and waterbodies in proximity to the proposed Carty Solar Farm.

The results of the wetland delineation studies are presented in RFA1 Exhibit J. Overall, there are eight wetlands, two streams and one artificial pond (sewage lagoon) within the amended site boundary.⁷¹ The eight wetlands and two streams are located in the area north of the northern dam embankment for the Carty Reservoir, and also west and northwest of Unit 1. However, the artificial pond is the only water identified in the analysis area.⁷² The sewage lagoon is located 2100 feet east of Unit 1, within the Boardman Plant railroad loop. The southern portion of the sewage lagoon is adjacent to one of the potential routes for the proposed 34.5 kV interconnection transmission line as showed in RFA1 Exhibit J Figure J-1. The certificate holder states the construction and operation of proposed Carty Solar Farm would not cause any impact to jurisdictional wetland or waterbodies, therefore would not need a removal-fill permit. DSL reviewed the revised wetland delineation report and provided the concurrence letter on September 18, 2018, in which DSL concurred with the wetland delineation and classifications.⁷³

Based on proposed facility component locations and DSL's concurrence, the Council concludes that a removal-fill permit would not be required for this amendment request. Council previously imposed Condition 10.26 and 10.13 requiring that the certificate holder provide final design maps to the Department demonstrating that proposed facility components would be sited to avoid jurisdictional waters, and requiring that the certificate holder avoid disturbance to delineated wetlands during construction, respectively.

⁷¹ CGSAMD1. Request for Amendment, Exhibit J. J-2. 2018-02-20.

⁷² *Id.*

⁷³ CGSAMD1. DSL Concurrence of WD 2018-0158. 2018-09-18.

1 **Conclusions of Law**

2 Based on the foregoing analysis, and in accordance with Oregon Removal-Fill Law (ORS 196.795
3 through 196.990) and regulations (OAR 141-085-0500 through 141-085-0785), the Council finds
4 that a removal-fill permit is not needed for the proposed Carty Solar Farm.

5
6 **III.Q.3. Water Rights**

7
8 Under ORS Chapters 537 and 540 and OAR Chapter 690, the Oregon Water Resources
9 Department (OWRD) administers water rights for appropriation and use of the water resources
10 of the state. Under OAR 345-022-0000(1)(b), the Council must determine whether the facility,
11 with proposed changes, would comply with the statutes and administrative rules identified in
12 the project order. The project order identifies OAR 690, Divisions 310 and 380 (Water
13 Resources Department permitting requirements) as the administrative rules governing use of
14 water resources and water rights as applicable to the facility.

15
16 **Findings of Fact**

17
18 OAR 690 establishes the procedures and standards which shall be applied by the OWRD in the
19 evaluation of applications for a permit to appropriate surface water, ground water, to construct
20 a reservoir and store water, to use reserved water, or to use water stored in a reservoir. The
21 certificate holder is not requesting a groundwater permit, a surface water permit, or a water
22 rights transfer during the construction and operation of the proposed Carty Solar Farm

23
24 Construction and operation of the proposed Carty Solar Farm and its supporting facilities would
25 result in water use. Approximately 8 million gallons of water would be used primarily for dust
26 abatement, but would also be used for equipment and vehicle washing, washing concrete
27 trucks and fire suppression. Water used for construction would be obtained by a third-party
28 contractor through a limited water use license, obtained prior to construction. PGE's proposed
29 source of water for the limited water use is the Carty Reservoir under PGE's existing water
30 right.⁷⁴

31
32 Water used during operations of the proposed Carty Solar Farm would primarily result from
33 panel washing. The certificate holder describes approximately 0.65 to 1.65 million gallons of
34 water would be needed per panel washing event. Panel wash water would be obtained from
35 Carty Reservoir or a municipal source. Potable water used during operations would be obtained
36 from Boardman/Carty potable water system sourced from an existing onsite well, hauled in
37 from nearby water systems, or a private provider.

74 CGSAMD1 Request for Additional Information Responses. 2018-09-24.
Carty Generating Station
Final Order on Request for Amendment 1
December 2018

Based on the certificate holder's assessment, the Council concurs that it can obtain adequate water for construction and operation of the proposed Carty Solar Farm and does not need a groundwater permit, surface water permit, or water right transfer. If such a permit is required at a later time, a site certificate amendment would be required to review and consider such a permit application.

Conclusions of Law

Based on the foregoing findings of fact, the Council concludes that the facility, with proposed changes, does not need a groundwater permit, surface water permit, or water right transfer.

1 **IV. FINAL CONCLUSIONS AND ORDER**

2
3 Based on the findings and conclusions included in this order, the Council makes the following
4 findings:

- 5
6 1. The proposed facility modifications included in Request for Amendment 1 of the
7 Carty Generating Station site certificate complies with the requirements of the
8 Oregon Energy Facility Siting Statutes, ORS 469.300 to 469.520.
9
10 2. The proposed facility modifications included in Request for Amendment 1 of the
11 Carty Generating Station site certificate complies with the standards adopted by the
12 Council pursuant to ORS 469.501.
13
14 3. The proposed facility modifications included in Request for Amendment 1 of the
15 Carty Generating Station site certificate complies with all other Oregon statutes and
16 administrative rules identified in the project order as applicable to the issuance of a
17 site certificate for the proposed facility.
18

19 Accordingly, the Council finds that the proposed facility modifications included in Request for
20 Amendment 1 of the Carty Generating Station site certificate complies with the General
21 Standard of Review (OAR 345-022-0000). The Council finds, based on a preponderance of the
22 evidence on the record, that the site certificate may be amended as requested.
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1 **Final Order**

2
3 The Council approves Amendment 1 of the Carty Generating Station site certificate.

4
5 Issued this 14th day of December, 2018

6
7 The Oregon Department of Energy

8
9 By: 

10 Barry Beyeler, Chair

11 Oregon Energy Facility Siting Council

12 Attachments:

13 Attachment A: Amended Site Certificate

14 Attachment B: Index of Comments Received on Revised Request for Amendment 1

15 Attachment C: Responses to Department's Request for Additional Information
16 (RFA1 Supplement)

17 Attachment D: Draft Amended Wildlife and Habitat Monitoring and Mitigation Plan

18 Attachment E: Draft Amended Revegetation and Noxious Weed Control Plan

19 Attachment F: Draft Erosion and Sediment Control Plan

20 Attachment G: Amendment Rules at OAR 345-027-0050 thru -0070, prior to October 2017

Attachment A: Amended Site Certificate

ENERGY FACILITY SITING COUNCIL

OF THE

STATE OF OREGON

**First Amended
Site Certificate
for the
Carty Generating Station**

ISSUE DATE

December 14, 2018

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CARTY GENERATING STATION SITE CERTIFICATE

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Acronyms and Abbreviations

ACEC	Area of Critical Environmental Concern
ADA	Americans with Disabilities Act
Btu	British Thermal Unit
Carty	Carty Generating Station
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
Council	Oregon Energy Facility Siting Council
CTG	Combustion Turbine Generator
Department	Oregon Department of Energy
DEQ	Oregon Department of Environmental Quality
DOGAMI	Oregon Department of Geology and Mineral Industries
DPO	Draft Proposed Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESCP	Erosion and Sediment Control Plan
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission
GTN	Gas Transmission Northwest LLC
HMA	Habitat Mitigation Area
HRSG	Heat Recovery Steam Generator
kV	Kilovolt
MCZO	Morrow County Zoning Ordinance
NPDES	National Pollutant Discharge Elimination System
O&M	Operations and Maintenance
OAR	Oregon Administrative Rule
ODFW	Oregon Department of Fish and Wildlife
ORS	Oregon Revised Statutes
OSSC	Oregon Structural Specialty Code
PGE	Portland General Electric Company

SHPO	Oregon State Historic Preservation Office
STG	Steam Turbine Generator
USFWS	United States Fish and Wildlife Service
WGS	Washington Ground Squirrel
WPCF	Water Pollution Control Facilities

1.0 INTRODUCTION

The Oregon Energy Facility Siting Council (Council) issues this site certificate for the Carty Generating Station (Carty) in the manner authorized under the Oregon Revised Statutes (ORS) Chapter 469. This site certificate is a binding agreement between the State of Oregon (State), acting through the Council, and Portland General Electric Company (certificate holder) authorizing the certificate holder to construct and operate the facility in Morrow County, Oregon.

The findings of fact, reasoning, and conclusions of law underlying the terms and conditions of this site certificate are set forth in the following documents, which by this reference are incorporated herein: (a) the Council's *Final Order in the Matter of the Application for a Site Certificate for the Carty Generating Station* (Final Order on the Application) issued on June 29, 2012 and (b) the Council's *Final Order in the Matter of the Site Certificate for the Carty Generating Station Request for Amendment No. 1* (Final Order on Amendment No. 1). In interpreting this site certificate, any ambiguity will be clarified by reference to the following, in order of priority: (1) this Site Certificate, (2) the Final Order on Amendment No. 1, (3) the record of the proceedings that led to the Final Order on Amendment No. 1, (4) the Final Order on the Application, and (5) the record of the proceedings that led to the Final Order on the Application.

This Site Certificate does not address, and is not binding with respect to, matters that were not addressed in the Council's Final Order on the Application or Final Order on Amendment No. 1. Such matters include, but are not limited to: building code compliance; wage; hour; and other labor regulations; local government fees and charges; other design or operational issues that do not relate to siting the facility [ORS 469.401(4)]; and permits issued under statutes and rules for which the decision on compliance has been delegated by the federal government to a state agency other than the Council. ORS 469.503(3).

The obligation of the certificate holder to report information to the Department or the Council under the conditions listed in this site certificate is subject to the provisions of ORS 192.502 *et seq.* and ORS 469.560. To the extent permitted by law, the Department and the Council will not publicly disclose information that may be exempt from public disclosure if the certificate holder has clearly labeled such information and stated the basis for the exemption at the time of submitting the information to the Department or the Council. If the Council or the Department receives a request for the disclosure of the information, the Council or the Department, as appropriate, will make a reasonable attempt to notify the certificate holder and will refer the matter to the Attorney General for a determination of whether the exemption is applicable, pursuant to ORS 192.450.

The Council recognizes that many specific tasks related to the design, construction, operation and retirement of the facility will be undertaken by the certificate holder's agents or contractors. Nevertheless, the certificate holder is responsible for ensuring compliance with all provisions of the site certificate. The definitions in ORS 469.300 and Oregon Administrative Rule (OAR) 345-001-0010 apply to terms used in this site certificate, except where otherwise stated, or where the context clearly indicates otherwise.

2.0 SITE CERTIFICATION

- 2.1 To the extent authorized by state law and subject to the conditions set forth herein, the State authorizes the certificate holder to construct, operate, and retire a facility that includes a natural gas-fueled electrical generating unit and a photovoltaic (PV) solar electrical generating unit, together with certain related or supporting facilities, at the site in Morrow County, Oregon, as described in Section 3.0 of this site certificate.
[ORS 469.401(1)][AMD1]
- 2.2 This site certificate is effective until 1) it is terminated under OAR 345-027-0110 or the rules in effect on the date that termination is sought; or 2) until the site certificate is revoked under ORS 469.440 and OAR 345-029-0100 or the statutes and rules in effect on the date that revocation is ordered.
[ORS 469.401(1)]
- 2.3 Both the State and the certificate holder shall abide by local ordinances, state law, and the rules of the Council in effect on the date this site certificate is executed. ORS 469.401(2). In addition, upon a clear showing of a significant threat to public health, safety, or the environment that requires application of later-adopted laws or rules, the Council may require compliance with such later-adopted laws or rules.
[ORS 469.401(2)]
- 2.4 For a permit, license, or other approval addressed in and governed by this site certificate, the certificate holder shall comply with applicable state and federal laws adopted in the future to the extent that such compliance is required under the respective state agency statutes and rules.
[ORS 469.401(2)]
- 2.5 Subject to the conditions herein, this site certificate binds the State and all counties, cities, and political subdivisions in Oregon as to the approval of the site and the construction, operation, and retirement of the facility as to matters that are addressed in and governed by this site certificate.
[ORS 469.401(3)]

- 2.6 Each affected state agency, county, city, and political subdivision in Oregon with authority to issue a permit, license, or other approval addressed in or governed by this site certificate shall, upon submission of the proper application and payment of the proper fees, but without hearings or other proceedings, issue such permit, license, or other approval subject only to conditions set forth in this site certificate.
[ORS 469.401(3)]
- 2.7 After issuance of this site certificate, each state agency or local government agency that issues a permit, license, or other approval for the facility shall continue to exercise enforcement authority over such permit, license, or other approval.
[ORS 469.401(3)]
- 2.8 After issuance of this site certificate, the Council shall have continuing authority over the site and may inspect, or direct the Oregon Department of Energy (Department) to inspect, or request another state agency or local government to inspect, the site at any time in order to ensure that the facility is being operated consistently with the terms and conditions of this site certificate.
[ORS 469.430]
- 2.9 The certificate holder shall design, construct, operate and retire the facility:
- a. Substantially as described in the site certificate;
 - b. In compliance with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances in effect at the time the site certificate is issued; and
 - c. In compliance with all applicable permit requirements of other state agencies.
- [Final Order III.D.2] [Mandatory Condition OAR 345-027-0020(3)]
- 2.10 Before any transfer of ownership of any unit of the facility or ownership of the site certificate holder, the certificate holder shall inform the Department of the proposed new owners. The requirements of OAR 345-027-0100 apply to any transfer of ownership that requires a transfer of the site certificate.
[Final Order IV.B.2.8] [Mandatory Condition OAR 345-027-0020(15)] [AMD1]
- 2.11 Any matter of non-compliance under the site certificate shall be the responsibility of the certificate holder. Any notice of violation issued under the site certificate shall be issued to the certificate holder. Any civil penalties assessed under the site certificate shall be levied on the certificate holder.
[Final Order IV.B.2.5]
- 2.12 Within 72 hours after discovery of conditions or circumstances that may violate the terms or conditions of the site certificate, the certificate holder shall report the conditions or circumstances to the Department.
[Final Order IV.B.2.7]

- 2.13 The Council shall not change the conditions of this site certificate except as provided for in OAR Chapter 345, Division 27.

[Final Order VI.1] [Mandatory Condition OAR 345-027-0020(1)]

- 2.14 The certificate holder must:

- a. Prior to construction of the Carty Solar Farm, provide evidence to the Department that a limited water use license from Oregon Department of Water Quality has been obtained by its third-party-contractor.
- b. During construction of the Carty Solar Farm, provide to the Department in semi-annual reports, pursuant to OAR 345-026-0080, documentation of the record of all water use, as required by the third-party's limited water use license, demonstrating that the allowable total and per minute water use (total gallons and gallons per minute) have not been exceeded.

[AMD1]

3.0 DESCRIPTION OF FACILITY

LOCATION AND SITE BOUNDARY

The Carty Generating Station is located in Morrow County, Oregon, southwest of the City of Boardman and adjacent to the Carty Reservoir. This location is also adjacent to the existing Boardman Coal Plant.

As defined by OAR 345-001-0010, the "site boundary" is the perimeter of the site of the energy facility, its related or supporting facilities, all temporary staging areas, and all corridors. The site boundary for the Carty Generating Station encompasses approximately 1,581 acres.

THE ENERGY FACILITY

The Carty Generating Station includes a natural gas-fueled combined-cycle unit and a solar PV electric power generating unit. The Carty Generating Station is capable of generating up to 500 MW of electrical power.

The Carty Generating Station has one natural-gas-fueled generating unit consisting of one high efficiency combustion turbine generator (CTG), heat recovery steam generator (HRSG), and a steam turbine generator (STG). Within this unit, the natural gas CTG produces electricity, with the exhaust gases from the CTG supplying heat to the HRSG. Steam produced in the HRSG is used to power the STG to produce additional electricity. Duct burners fueled by natural gas in the HRSG allow for production of additional steam and additional electricity from the STG. Steam exhausted from the STG is condensed in a water-cooled condenser, with the resultant condensate returned to the HRSG to produce additional steam. Water used for cooling in the water-cooled condenser is routed to a cooling tower, where the water is cooled and then pumped back through the condenser. If required for starting the CTG or to maintain the plant

in a ready-to-start condition, a natural gas-fueled auxiliary boiler will be used to supply steam when none is available from the HRSG. The CTG and STG are located within a generating building to control noise during operation and to allow a controlled atmosphere for maintenance activities. A separate water treatment building houses the equipment necessary to purify raw water, producing de-mineralized water for use in the steam cycle of the unit.

Generator transformers step up the voltage produced by the gas-fueled unit to 500 kilovolts (kV). A 500-kV transmission line connects the generator transformers to a 500-kV switchyard, the Grassland Switchyard. From the switchyard, PGE utilizes the existing 500-kV Boardman to Slatt transmission line to connect to the Slatt Substation.

The Carty Generating Station will consume about 75 million cubic feet of natural gas per day during operation of the gas-fired generating unit. Natural gas is supplied to the facility through a lateral pipeline operated by Gas Transmission Northwest LLC (GTN). This lateral pipeline is owned and operated by GTN and is outside the jurisdiction of the Council. This natural gas pipeline was permitted by the Federal Energy Regulatory Commission (FERC).

Carty is interconnected with the Boardman Coal Plant to obtain potable water and to utilize the existing sanitary waste infrastructure. The Carty Generating Station is also connected to the Carty Reservoir for water withdrawal and water discharge purposes. Under the Agreement for Construction, Ownership, and Operation of the Number One Boardman Station on Carty Reservoir dated as of October 15, 1976, between PGE, Idaho Power Company, and Pacific Northwest Generating Company, PGE has the right to construct and operate additional generating units on Carty Reservoir and to utilize facilities of the Boardman plant that may be used in common with such new generating units, including, but not limited to, the reservoir, pumping facilities, pipelines from the Columbia river, roads, railroad spurs, docks, parking lots, fencing and transmission facilities.

The Carty Generating Station includes a 50MW PV solar power generating unit, the Carty Solar Farm, which consists of multiple solar modules mounted on racking systems, connected in series strings, to produce direct current (DC) electricity from sunlight. The DC electricity is then routed to inverters and step-up transformers to be converted to alternating current (AC) electricity and voltage increased to the appropriate collector circuit potential. Ultimately, the collector circuits are combined at the solar farm substation and transmitted to the grid via the transmission line.

A control and administrative building provides space for plant controls and offices for plant personnel for all units. The Carty Generating Station includes the following related or supporting facilities:

- On-site 500-kV transmission line
- On-site 34.5-kV transmission line
- Grassland Switchyard
- Interconnecting water pipelines
- Cooling tower
- Liquid storage facilities
- Accessory buildings
- Utility and communication lines
- Roads
- Additional temporary construction areas

Transmission Lines

On-Site

A 500-kV transmission line connects the step-up transformers located at the gas-fueled generating unit to the Grassland Switchyard. One transmission line serves this unit, and is approximately 0.75 miles long and requires four transmission support towers. These towers are between 100 and 150 feet tall and are spaced approximately between 800 feet and 1,700 feet apart.

A 34.5-kV transmission line from the Carty Solar Farm will route around the eastern end of Carty Reservoir and then follow one of five potential routes to the point of interconnection at the Grassland Switchyard, Unit 1, or the Boardman Plant.

Connecting

To access the grid, PGE utilizes the existing 500-kV Boardman to Slatt transmission line, a 500-kV single circuit transmission line, to connect the Grassland Switchyard to the existing Slatt Substation. The transmission line is approximately 17 miles long from Grassland Switchyard to Slatt Substation.

Grassland Switchyard

A 500-kV, alternating current, open-air switchyard is located west of the Carty Generating Station. The switchyard consists of a leveled and graveled area up to approximately 15 acres in size, surrounded by a security fence. The switchyard includes 500-kV circuit breakers and disconnect switches to allow for clearing faults on the connected transmission lines and for maintenance of the circuit breakers and transmission lines. Steel take-off towers terminate

500-kV overhead transmission lines that connect the switchyard with the plant generator step-up transformers and outgoing transmission lines. An additional small building provides a controlled environment for the protective relaying and communication equipment.

Interconnecting Water Pipelines

Water pipelines connect the Carty Generating Station with the Boardman Coal Plant to access the raw Carty Reservoir water intake structure, wastewater discharge structure for discharge to Carty Reservoir, potable water system, and sanitary sewer. The pipes are installed either below grade, or above grade with trenches under road and railroad crossings.

Water from the Carty Reservoir passes into the existing intake structure and enters one of two separate water systems serving the Boardman Plant; a circulation water system and a service water system. This circulating water system is a 180,000-gpm withdrawal, supplied from a 96-inch pipe. The Boardman Plant service water system is a 14,000-gpm withdrawal supplied from a 48-inch pipe. The service water connection for the Carty Generating Station is connected to the intake structure at this 48-inch pipe. No changes were made to the in-water portion of the intake structure. From the intake structure, water passes through a 14 to 16-inch pipe approximately 5,000 feet to the Carty facility.

Cooling Tower

The cooling tower at the Carty Generating Station exhausts excess heat from the power generation process. The cooling tower consists of a structure to contain a water-cooling medium, with exhaust fans located within an open-top, bell-shaped housing which pulls air under and through the water-cooling medium. The cooling tower is approximately 50 feet in height. The mechanical-draft wet cooling tower serves the combined cycle unit of the Carty facility.

Liquid Storage Facilities

Liquid fuel is not stored on the Carty facility site. Chemicals used for emissions control are stored in steel horizontal sealed storage tanks with secondary containment. Other chemicals such as anhydrous ammonia, sulfuric acid (used for pH control) and sodium hypochlorite and sodium bromide (used as biocides in cooling tower water) are stored in tanks or totes with secondary containment. Small-quantity chemicals such as cleaners and lubricants are stored within on-site accessory buildings.

Accessory Buildings

Accessory buildings on the Carty site house boiler feed pumps, chemical feed equipment, water treatment equipment, and other equipment requiring protection from weather or noise containment. Accessory buildings common to the gas-fired generating unit and solar unit include warehouse and administration areas.

Utility Lines

An electrical raceway connects the Carty Generating Station to the Boardman Plant. The raceway contains communication cables to connect the Carty phone and data highway systems into the Boardman Plant communication and data highway systems. In addition, the raceway contains electric power cables that allow for transmission of auxiliary power from the existing Boardman Plant to the Carty Generating Station in emergency operating conditions. The raceway is installed in areas already disturbed by the Boardman Plant or areas within the Carty site. The Carty Generating Station also includes electric power cables that provide power from Carty Generating Station to Grassland Switchyard, and electric power cables that allow for auxiliary power from an existing 34.5 kV transmission line to Grassland Switchyard.

Roads

A paved loop road, approximately 24 feet wide and 2,100 feet long, connects with Tower Road at both ends of the loop to serve normal truck and operator vehicle traffic for Unit 1. This loop road has spur roads leading to individual buildings and areas that require access. An existing paved and graveled road provides access to the Carty Solar Farm. The Carty Solar Farm contains unpaved on-site access roads.

Additional Temporary Construction Areas

Additional areas in the vicinity of the proposed Carty Generating Station are provided for construction offices, construction parking, construction staging, and temporary storage of soil displaced during the construction process. Similar temporary construction areas are provided in the vicinity of the Grassland Switchyard.

4.0 GENERAL ADMINISTRATIVE CONDITIONS

4.1. The certificate holder shall:

- i. Begin construction of Unit 1 within three years after the effective date of the site certificate. Under OAR 345-015-0085(9), a site certificate is effective upon execution by the Council Chair and the applicant. The Council may grant an extension of the deadline to begin construction in accordance with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted.

[Final Order III.D.3; Mandatory Condition OAR 345-027-0020(4)]

- ii. Begin construction of the Carty Solar Farm within three years after the effective date of the amended site certificate, or February 4, 2022. Under OAR 345-015-0085(8), the site certificate is effective upon execution by the Council Chair and the certificate holder.

[AMD1]

4.2. The certificate holder must:

- i. Complete construction of Unit 1 of the facility within three years of beginning construction of Unit 1. Construction is complete when: 1) the facility is substantially complete as defined by the certificate holder's construction contract documents; 2) acceptance testing has been satisfactorily completed; and 3) the energy facility is ready to begin continuous operation consistent with the site certificate. The certificate holder shall promptly notify the Department of the date of completion of construction of Unit 1. The Council may grant an extension of the deadline for completing construction in accordance with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted.

[Final Order III.D.4] [Mandatory Condition OAR 345-027-0020(4)] [AMD1]

- ii. Complete construction of the Carty Solar Farm within six years of the effective date of the amended site certificate, or February 4, 2025. The certificate holder shall promptly notify the Department of the date of completion of construction of the Carty Solar Farm and its supporting facilities.

[AMD1]

- 4.3. ~~[DELETED] The certificate holder must begin construction of Block 2 no later than five years after the effective date of the site certificate. The certificate holder shall complete construction of the facility within three years of beginning construction of Block 2. Construction is complete when: 1) Block 2 is substantially complete as defined by the certificate holder's construction contract documents; 2) acceptance testing has been satisfactorily completed; and 3) Block 2 is ready to begin continuous operation consistent with the site certificate. The certificate holder shall notify the Department when the construction of Block 2 begins, and notify the Department of the date of completion of Block 2 construction. The Council may grant an extension of the deadline for completing construction in accordance with OAR 345-027-0030 or any successor rule in effect at the time the request for extension is submitted [AMD1]~~
- 4.4. The certificate holder shall submit a legal description of the site to the Department of Energy within 90 days after beginning operation of the facility. The legal description required by this rule means a description of metes and bounds or a description of the site by reference to a map and geographic data that clearly and specifically identifies the outer boundaries that contain all parts of the facility.
[Final Order III.D.1] [Mandatory Condition OAR 345-027-0020(2)] [AMD1]
- 4.5 The certificate holder shall obtain all necessary federal, state, and local permits or approvals required for construction, operation, and retirement of the facility or ensure that its contractors obtain the necessary federal, state, and local permits or approvals.
[Final Order IV.B.2.4]
- 4.6 The certificate holder must obtain, as required by ORS 469.401(3), all local permits, to include a Conditional Use Permit for the portion of the Carty facility located on land zoned Exclusive Farm Use and a Zoning Permit for the entire facility located within Morrow County.
[Final Order IV.E.4.6]

5.0 PRE-CONSTRUCTION REQUIREMENTS

In addition to pre-construction requirements contained elsewhere in this site certificate, the certificate holder must meet the following requirements:

- 5.1. Before beginning construction of each unit, the certificate holder must notify the Department of the identity and qualifications of the major design, engineering, and construction contractor(s) for the facility. The certificate holder must select contractors that have substantial experience in the design, engineering, and construction of similar facilities. The certificate holder must report to the Department any change of major contractors.
[Final Order IV.B.2.1] [AMD1]
- 5.2. The certificate holder must contractually require all construction contractors and subcontractors involved in the construction of the facility to comply with all applicable laws and regulations and with the terms and conditions of the site certificate. Such contractual provisions do not relieve the certificate holder of responsibility under the site certificate.
[Final Order IV.B.2.3] [AMD1]
- 5.3. Before beginning construction of the energy facility, the certificate holder shall submit a final parking lot plan to Morrow County for approval as part of the certificate holder's building permit application for the energy facility. This parking lot plan shall comply with Section 4.040 and 4.060 of the Morrow County Zoning Ordinance and with Americans with Disabilities Act (ADA) requirements. This plan shall provide a minimum of 22 parking spaces and one ADA-accessible space, or the minimum number of parking spaces required by MCZO Section 4.040 based on the number of employees on the largest shift, whichever is greater. The certificate holder shall construct on-site parking in conformance with the approved parking lot plan.
[Final Order IV.E.4.2] [MCZO Section 4.040-4.060]
- 5.4. Before beginning construction, the certificate holder must:
 - i. Complete an investigation of subsurface soil and geologic conditions to identify geological or geotechnical hazards per Condition 5.4.a and obtain Department approval of the investigation report per Condition 5.4.b.
 - a. The investigation must include at least the following activities:
 1. Drilling of six to eight exploratory borings up to a depth of 75 feet under proposed critical structure locations, including the gas turbine units, cooling tower, transmission structures, and switchyard. Standard penetration tests should be conducted at 2.5-foot and 5-foot intervals. Drilling of exploratory borings along transmission line corridor is not

necessary if such information is available from the construction of the existing transmission line.

2. Digging of test pits to assess the extent and thickness of any loose, surficial soil layers at the site. Key focus areas should include planned locations of critical structures, roadways, and landscaped areas where irrigation would occur.
3. Performing laboratory testing to evaluate the engineering properties of soils, including natural water contents on all samples collected, mechanical and hydrometer gradations, Atterberg limits, and collapsibility and consolidation tests on selected samples.
- b. The certificate holder must prepare a geotechnical report with final facility design recommendations based on the investigation conducted per the requirements of Condition 5.4.a. The geotechnical report must be submitted to the Oregon Department of Geology & Mineral Industries (DOGAMI) and the Department. The certificate holder may not commence construction of the facility prior to Department approval of this report.

[Final Order IV.C.2.1]

- ii. Complete an investigation of subsurface soil and geologic conditions, based upon a protocol reviewed and approved by the Department in consultation with DOGAMI, to identify geological or geotechnical hazards per Condition 5.4.a and obtain Department approval of the investigation report per Condition 5.4.b.

- a. The investigation must include at least the following activities:

1. Drilling of additional borings at scattered locations across the Carty Solar Farm and associated transmission lines and access roads, up to a depth of 50 feet.

[AMD1]

- 5.5. During construction and operation of the facility, the certificate holder must implement a revegetation and weed control plan. The certificate holder must comply with the applicable provisions of the Morrow County Weed Control Ordinances, as determined by the Morrow County Weed Control Supervisor. Prior to beginning construction the certificate holder must consult with the Morrow County Weed Control Supervisor and obtain approval of a Revegetation and Noxious Weed Control Plan. The final Revegetation and Noxious Weed Control Plan must be submitted to the Department of Energy, based upon the draft amended plan provided in Attachment E of the Final Order on Amendment 1, for approval prior to the start of construction.

[Final Order IV.D.2.6] [AMD1]

- 5.6. Before beginning construction, the certificate holder must submit a Notice of Proposed Construction or Alteration to the Federal Aviation Administration (FAA) and the Oregon Department of Aviation identifying the final location of the facility exhaust

stack. The certificate holder must promptly notify the Department of the responses from the FAA and the Oregon Department of Aviation. [Final Order V.D.2.5]

- 5.7. Except as necessary for the initial survey or as otherwise allowed for wind energy facilities, transmission lines or pipelines under OAR 345-027-0020, the certificate holder shall not begin construction, as defined in OAR 345-001-0010, or create a clearing on any part of the site until the certificate holder has construction rights on all parts of the site. For the purpose of this rule, “construction rights” means the legal right to engage in construction activities.

[Final Order III.D.6] [Mandatory Condition OAR 345-027-0020(5)]

- 5.8. Before beginning construction, the certificate holder must notify the Department in advance of any work on the site that does not meet the definition of “construction” in ORS 469.300 (excluding surveying, exploration, or other activities to define or characterize the site) and must provide to the Department a description of the work and evidence that its value is less than \$250,000.

[Final Order IV.B.2.6]

- 5.9. The certificate holder shall develop and implement a Spill Prevention, Control and Countermeasure (SPCC) Plan in accordance with 40 CFR 112. A copy of this plan shall be provided to the Department prior to the commencement of operation of Carty Generating Station, and shall be updated according to the timelines provided in 40 CFR 112.

[Final Order IV.G.2.1] [AMD1]

- 5.10. Before beginning construction of the Carty Solar Farm, the certificate holder shall record in the deed records of Morrow County a document binding the certificate holder and its successors in interest, prohibiting them from pursuing a claim for relief or cause of action alleging injury from farming or forest practices as defined in ORS 30.930(2) and (4).

6.0 DESIGN, CONSTRUCTION AND OPERATIONS

- 6.1. During construction, the certificate holder must have a full-time, on-site manager who is qualified in environmental compliance to ensure compliance with all site certificate conditions. The certificate holder must notify the Department of the name, telephone number, and e-mail address of this person prior to the start of construction and immediately upon any change in the contact information.

[Final Order IV.B.2.2]

- 6.2. The certificate holder shall provide portable toilets for on-site sewage handling during construction and shall ensure that they are pumped and cleaned regularly by a licensed contractor who is qualified to pump and clean portable toilet facilities.

[Final Order IV.N.2.3]

- 6.3. The certificate holder shall implement a waste management plan during construction that includes but is not limited to the following measures:

- a. Recycling steel and other metal scrap.
- b. Recycling wood waste.
- c. Recycling packaging wastes such as paper and cardboard.
- d. Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler.
- e. Segregating all hazardous wastes such as used oil, oily rags and oil-absorbent materials, mercury-containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.
- f. Confining concrete delivery truck rinse-out to a designated wash-out area and burying other concrete waste as part of backfilling.

[Final Order IV.N.2.1]

- 6.4. In advance of, and during, preparation of detailed design drawings and specifications for the 500-kV transmission line, the certificate holder shall consult with the Utility Safety and Reliability Section of the Oregon Public Utility Commission to ensure that the designs and specifications are consistent with applicable codes and standards.

[Final Order V.D.2.3]

- 6.5. The certificate holder must design, construct and operate the transmission line in accordance with the requirements of the National Electrical Safety Code (American National Standards Institute, Section C2, 1997 Edition, or its successor document).

[Final Order IV.O.2.1] [Mandatory Condition OAR 345-027-0023(4)]A]

- 6.6. The certificate holder must design and construct the facility in accordance with requirements of the current Oregon Structural Specialty Code and the International Building Code in effect at the time of the start of construction for each unit.
[Final Order IV.C.2.4] [AMD1]
- 6.7. The certificate holder shall design, engineer and construct the facility to avoid dangers to human safety presented by seismic hazards affecting the site that are expected to result from all maximum probable seismic events. "Seismic hazard" includes ground shaking, landslide, liquefaction, lateral spreading, tsunami inundation, fault displacement and subsidence.

[Final Order IV.C.2.5] [Mandatory Condition OAR 345-027-0020(12)]
- 6.8. The certificate holder must design, engineer and construct the facility to avoid dangers to human safety presented by non-seismic hazards. As used in this condition, "non-seismic hazards" include settlement, landslides, flooding and erosion.
[Final Order IV.C.2.6]
- 6.9. The certificate holder shall design and construct the facility using the minimum land area necessary for safe construction and operation. The certificate holder shall locate access roads and temporary construction laydown and staging areas to minimize disturbance of farming practices.
[Final Order IV.E.4.1] [MCZO Section 3.010.D]
- 6.10. The certificate holder must notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if site investigations or trenching reveal that conditions in the foundation rocks differ significantly from those described in the application for a site certificate or requests for amendment. After the Department receives the notice, the Council may require the certificate holder to consult with the DOGAMI and the Building Codes Division and to propose mitigation actions.
[Final Order IV.C.2.2] [Mandatory Condition OAR 345-027-0020(13)] [AMD1]
- 6.11. The certificate holder must notify the Department, the State Building Codes Division and the Department of Geology and Mineral Industries promptly if shear zones, artesian aquifers, deformations or clastic dikes are found at or in the vicinity of the site.
[Final Order IV.C.2.3] [Mandatory Condition OAR 345-027-0020(14)]

- 6.12. During construction of the facility, the certificate holder shall ensure that contractors move equipment out of the construction area when it is no longer expected to be used. To the extent practical, contractors shall lower equipment with long arms, such as cranes, bucket trucks, and backhoes when not in use, in order to minimize visibility.
[Final Order IV.J.2.1]
- 6.13. To reduce the visual impact of the facility, the certificate holder shall paint the buildings and structures in low-reflectivity neutral colors to blend with the surrounding landscape.
[Final Order IV.J.2.2]
- 6.14. The certificate holder shall not use exterior nighttime lighting except:
- a. The minimum exhaust stack lighting required or recommended by the Federal Aviation Administration.
 - b. Safety and security lighting at the Carty Generating Station, provided that such lighting is shielded or downward-directed to reduce offsite glare.
 - c. Minimum lighting necessary for repairs or emergencies.
 - d. As required during construction.
- [Final Order IV.J.2.3] [AMD1]
- 6.17. During construction of the facility:
- i. The certificate holder shall implement measures to reduce traffic impacts, as follows:
 - a. The certificate holder shall reduce peak hour volumes during construction by staggering shift start times or implementing other measures that would significantly reduce the total number of construction worker vehicle trips through the westbound I-84/Tower Road ramp terminal; or
 - b. The certificate holder shall install temporary traffic controls during peak construction to prioritize westbound left-turning vehicles at the westbound Tower Road ramp terminal during the weekday a.m. peak hour.
[Final Order IV.M.2.9]
 - ii. The certificate holder shall:
 - a. Implement a final Construction Traffic Management Plan, as approved by the Department per Condition 6.26.
 - b. Include the requirements of the Construction Traffic Management Plan in contract specifications for construction contractors, as applicable.
 - c. Maintain a monthly log, to be submitted monthly to the Department for review and confirmation of compliance with the components of the Construction Traffic Management Plan.

- d. The Department, in consultation with the Morrow County Public Works Department, may require implementation of additional traffic management measures including a Traffic Impact Assessment per MCZO Section 3.010(N)(1) if any requirement of the Construction Traffic Management Plan is determined not adequately implemented, or if additional measures are deemed necessary based on actual passenger car equivalent trips per day during facility construction. Within 30-days of submittal of the monthly compliance report required under sub(c), the certificate holder shall obtain written confirmation from the Department on any additional construction traffic management measures required to be implemented.

[AMD1]

- 6.18. Unless legally permissible, the certificate holder shall ensure that no equipment or machinery associated with the construction is parked or stored on any public road within Morrow County. The certificate holder may temporarily park equipment off the road but within County rights-of-way with the approval of the County Roadmaster.

[Final Order IV.M.2.10] [AMD1]

- 6.19. The certificate holder shall cooperate with the Morrow County Public Works Department to ensure that any unusual damage or wear to county roads that is caused by construction of the facility is repaired by the certificate holder. Upon completion of construction, the certificate holder shall restore public roads to pre-construction condition or better to the satisfaction of applicable county departments.

[Final Order IV.M.2.11] [AMD1]

- 6.20. ~~[Deleted]If improvements are needed to the I-84/Tower Road interchange to safely accommodate turning movements by a WB-67 design vehicle, the certificate holder shall work with The Oregon Department of Transportation and Morrow County to identify needed improvements and shall construct or install needed improvements prior to commencement of construction of the Carty facility.~~

[Final Order IV.M.2.12] [AMD1]

- 6.21. Oversize and overweight deliveries shall be made by rail and barge when feasible, to limit impacts to the I-84/Tower Road interchange.

[Final Order IV.M.2.13]

- 6.22. The certificate holder shall construct all facility components in compliance with the following setback requirements. The transmission lines connecting the Carty Generating Station and the Grassland Switchyard are exempt from this condition.
- a. For portions of the facility located in the Morrow County General Industrial Zoning District:
 - i. The minimum setback between a structure and the right-of-way of an arterial street shall be 50 feet. The minimum setback of a structure from the right-of-way of a collector shall be 30 feet, and from all lower class streets the minimum setback shall be 20 feet.
 - ii. Any sewage disposal installations such as outhouses, septic tank and drainfield systems shall be set back from the high-water line or mark along all streams and lakes a minimum of 100 feet, measured at right angles to the high-water line or mark. All structures, buildings, or similar permanent fixtures shall be set back from the high-water line or mark along all streams or lakes a minimum of 100 feet measured at right angles to the high-water line or mark.
 - b. For portions of the facility located in the Morrow County Exclusive Farm Use Zoning District:
 - i. The front yard setback from the property line shall be a minimum of 100 feet if the property line is adjacent to an intensive agricultural use; otherwise, front yards shall be 20 feet for property fronting on a local minor collector or marginal access street right-of-way, 30 feet from a property line fronting on a major collector right-of-way, and 80 feet from an arterial right-of-way.
 - ii. Each side yard shall be a minimum of 20 feet except that for parcels or lots with side yards adjacent to an intensive agricultural use the adjacent side yard shall be a minimum of 100 feet.
 - iii. Rear yards shall be a minimum of 25 feet, except for parcels or lots with rear yards adjacent to an intensive agricultural use, where rear yards shall be a minimum of 100 feet.
 - iv. Any sewage disposal installations such as outhouses, septic tank and drainfield systems shall be set back from the high-water line or mark along all streams and lakes a minimum of 100 feet, measured at right angles to the high-water line or mark. All structures, buildings, or similar permanent fixtures shall be set back from the high-water line or mark along all streams

or lakes a minimum of 100 feet measured at right angles to the high-water line or mark.

[Final Order IV.E.4.3] [MCZO Section 3.010(H)] [AMD1]

- 6.23. The certificate holder must limit signage to directional signs necessary for deliveries and general site circulation. No sign may be placed so as to interfere with visibility or effectiveness of any permanent traffic control device. No sign may be placed so as to impede the sight distance triangle at any access point or intersection as specified in Section 4.020 of the Morrow County Zoning Code. No sign shall cause glare, distraction or other driving hazards within a street or road right-of-way.

[Final Order IV.E.4.5] [MCZO Sections 4.020 and 4.070]

- 6.24. The certificate holder shall comply with Section 5, Public Responsibilities, of the Morrow County Solid Waste Management Ordinance. Any hauling of solid waste from the Carty facility during construction, operation, or retirement shall be performed by a franchised solid waste hauler or otherwise comply with the Morrow County Solid Waste Management Ordinance.

[Final Order IV.E.4.7] [Morrow County Waste Management Ordinance Section 5.000]

- 6.25. Recycling by the certificate holder and certificate holder's contractors during construction, operation, and retirement of the Carty facility shall be done in accordance with Oregon Department of Environmental Quality regulations and shall be reported as part of the Morrow County watershed.

[Final Order IV.E.4.7]

- 6.26. The certificate holder is authorized to construct approximately 3 miles of 34.5 kV transmission line anywhere within the approved corridors, subject to the conditions of the site certificate. The approved corridors are approximately 160-feet in width and extend between 2.25 and 3 miles of three routes as described in RFA1 Exhibit B and as presented on Figure 1o the site certificate.

[Site Specific Condition OAR 345-025-0010(5); AMD1]

- 6.27 Prior to beginning construction of the Carty Solar Farm, the certificate holder shall:
- a. Confirm whether, based on anticipated construction activities, peak construction traffic is anticipated to exceed 400 passenger car equivalent trips per day. If more than 400 passenger car equivalent trips per day is anticipated, the certificate holder shall prepare and submit to the Department and Morrow County Planning Department a Traffic Impact Assessment per MCZO Section 3.010(N) Transportation Impacts for review and approval. If a TIA is required, the certificate holder shall submit documentation to the Department in accordance with OAR 345-027-0057.
 - b. Prepare and submit to the Department a Construction Traffic Management Plan for review and approval. The certificate holder shall demonstrate that the Construction Traffic Management Plan, at a minimum, includes:
 1. Traffic management measures or other recommendations to minimize traffic impacts on Tower Road, as applicable, based upon consultation with Morrow County Public Works Department and Morrow County Sheriff's Office.
 2. Staggering shift start times or other measures that would significantly reduce the total number of construction worker vehicle trips through the westbound I-84/Tower Road ramp terminal; or
 3. Installation of temporary traffic controls during peak construction to prioritize westbound left-turning vehicles at the westbound Tower Road ramp terminal during the weekday a.m. peak hour.
- [AMD1]
- 6.28 Prior to construction, the certificate holder shall record in the real property records of Morrow County a Covenant Not to Sue with regard to generally accepted farming practices on adjacent farmland consistent with MCZO 3.010.K.3(i).[AMD1]

7.0 PUBLIC HEALTH AND SAFETY

- 7.1 The certificate holder shall take the following steps to reduce or manage human exposure to electromagnetic fields:
- (a) Constructing all aboveground transmission lines at least 200 feet from any residence or other occupied structure, measured from the centerline of the transmission line.
 - (b) Providing to landowners a map of underground and overhead transmission lines on their property and advising landowners of possible health risks from electric and magnetic fields.
 - (c) Designing and maintaining all transmission lines so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public.
 - (d) Designing and maintaining all transmission lines so that induced voltages during operation are as low as reasonably achievable
- [Final Order V.D.2.1]
- 7.2 To protect the public from electrical hazards, the certificate holder must enclose the facility switchyard with appropriate fencing and locked gates.
- [Final Order V.D.2.2]
- 7.3 If the Council finds, at any time during facility operation, that cooling tower emissions are likely to contribute significantly to ground-level fogging or icing along public roads and to cause a significant threat to public safety, the certificate holder shall cooperate with appropriate local public safety authorities regarding implementation of reasonable safety measures, such as posting warning signs on affected roads. Cooperation may include, but is not necessarily limited to, the reimbursement of expenses for posting warning signs and implementing other safety measures.
- [Final Order V.D.2.4]
- 7.4 The certificate holder must comply with all emergency planning and notification requirements of Emergency Planning and Community Right-to-Know Act (EPCRA) Section 302.
- [Final Order V.D.2.6]
- 7.5 The certificate holder must comply with all reporting requirements of the Emergency Planning and Community Right-to-Know Act (EPCRA) Section 304, including reporting of any chemical release in an amount equal to or greater than the EPCRA reportable quantity for that chemical.
- [Final Order V.D.2.7]

- 7.6 ~~[Deleted] The certificate holder must report emissions, transfer, and waste management data for hydrazine and sodium nitrite as required by Section 313 of the Emergency Planning and Community Right-to-know Act (EPCRA) and Section 6607 of the Pollution Prevention Act.~~
[Final Order V.D.2.8][AMD1]
- 7.7 The certificate holder must comply with all reporting requirements of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), including reporting of any chemical release in an amount equal to or greater than the CERCLA reportable quantity for that chemical.
[Final Order V.D.2.9]
- 7.8 The certificate holder shall notify the Department of Energy and Morrow County within 72 hours of any occurrence involving the facility if:
- a. There is an attempt by anyone to interfere with its safe operation;
 - b. A natural event such as an earthquake, flood, tsunami or tornado, or a human-caused event such as a fire or explosion affects or threatens to affect the public health and safety or the environment; or
 - c. There is any fatal injury at the facility.
- [Final Order V.D.2.10] [Mandatory Condition OAR 345-026-0170] [AMD1]
- 7.9 The certificate holder must develop and implement a program that provides reasonable assurance that all fences, gates, cattle guards, trailers, or other objects or structures of a permanent nature that could become inadvertently charged with electricity are grounded or bonded throughout the life of the line. A current copy of the electrical protection plan must be available at the O&M building and provided upon request by ODOE staff.
[Final Order IV.O.2.2] [Mandatory Condition OAR 345-027-0023(4)]
- 8.0 ON-SITE SAFETY AND SECURITY**
- 8.1 During construction and operation of the facility, the certificate holder shall provide for on-site security and shall establish good communications between on-site security personnel and the Morrow County Sheriff's Office. During operation, the certificate holder shall ensure that appropriate law enforcement agency personnel have an up-to-date list of the names and telephone numbers of facility personnel available to respond on a 24-hour basis in case of an emergency on the facility site.
[Final Order IV.M.2.1]
- 8.2 During construction, the certificate holder shall require that all on-site construction contractors develop and implement a site health and safety plan that informs workers and others on-site about first aid techniques and what to do in case of an emergency.

The plan shall also include important telephone numbers and the locations of on-site fire extinguishers and nearby hospitals. The certificate holder shall ensure that construction contractors have personnel on-site who are first aid and CPR certified.
[Final Order IV.M.2.2]

- 8.3 During operation, the certificate holder shall develop and implement a site health and safety plan that informs employees and others on-site about first aid techniques and what to do in case of an emergency. The plan shall also include important telephone numbers and the locations of on-site fire extinguishers and nearby hospitals.
[Final Order IV.M.2.3]

- 8.4 During construction, the certificate holder shall ensure that construction vehicles and equipment are operated on graveled areas to the extent possible and that open flames, such as cutting torches, are kept away from dry grass areas.
[Final Order IV.M.2.4]

- 8.5 During operation, the certificate holder shall ensure that all on-site employees receive annual fire prevention and response training by qualified instructors or members of the local fire districts. The certificate holder shall ensure that all employees are instructed to keep vehicles on roads and off dry grassland, except when off-road operation is required for emergency purposes.
[Final Order IV.M.2.5]

- 8.6 During construction and operation of the facility, the certificate holder shall ensure that all service vehicles are equipped with shovels and portable fire extinguishers of a 4500BC or equivalent rating.
[Final Order IV.M.2.6]

- 8.7 During construction and operation of the facility, the certificate holder shall develop and implement fire safety plans in consultation with the Boardman Rural Fire Protection District to minimize the risk of fire and to respond appropriately to any fires that occur on the facility site. In developing the fire safety plans, the certificate holder shall take into account the dry nature of the region and shall address risks on a seasonal basis. The certificate holder shall meet annually with local fire protection agency personnel to discuss emergency planning and shall invite local fire protection agency personnel to observe any emergency drill conducted at the facility.
[Final Order IV.M.2.7]

- 8.8 Upon the beginning of operation of the facility, the certificate holder shall provide a site plan to the Boardman Rural Fire Protection District. The certificate holder shall indicate the actual location of all facility structures on the site plan. The certificate holder shall provide an updated site plan if additional structures are later added to the

facility. During operation, the certificate holder shall ensure that appropriate fire protection agency personnel have an up-to-date list of the names and telephone numbers of facility personnel available to respond on a 24-hour basis in case of an emergency on the facility site.

[Final Order IV.M.2.8]

9.0 PROTECTION OF SOIL

- 9.1 The certificate holder must conduct all construction work in compliance with an Erosion and Sediment Control Plan (ESCP) satisfactory to the Oregon Department of Environmental Quality and as required under the NPDES Storm Water Discharge General Permit #1200-C. The certificate holder must include in the ESCP any procedures necessary to meet local erosion and sediment control requirements or storm water management requirements.

[Final Order IV.D.2.1]

- 9.2 During construction, the certificate holder, to the extent practicable, must limit truck traffic to improved road surfaces to avoid soil compaction.

[Final Order IV.D.2.2]

- 9.3 During construction, the certificate holder must implement best management practices to control any dust generated by construction activities, such as applying water to roads and disturbed soil areas.

[Final Order IV.D.2.3]

- 9.4 During construction of the facility, the certificate holder must complete monitoring according to the NPDES Storm Water Discharge General Permit #1200-C issued to the certificate holder for construction of the unit to ensure that there are no significant potential adverse impacts to soils and: [AMD1]

- a. ~~[Deleted]During construction, monitor disturbed area erosion and sediment control measures at the active construction site on a weekly basis and every two weeks on inactive sites. Inspection of both active and inactive sites must occur at least daily during periods when 0.5 inches or more rain has fallen in a 24-hour period~~ [AMD1]
- b. ~~[Deleted]. The certificate holder must remove trapped sediment when storage capacity has been reduced by 50 percent. Sediments will be placed in an upland area certified by a qualified wetlands specialist~~ [AMD1]
- c. ~~[Deleted]Observe and record color and turbidity within 35 feet upstream and downstream of locations where surface waters from the construction site(s) enter a receiving stream. Observations shall note whether sheen and floating matter is present or absent. Any apparent color and turbidity of the discharge, as~~

~~well as any observable difference in comparison with the receiving stream shall be described. If there are observable differences, or any sheen or floating matter is present, the certificate holder must take immediate steps to identify and rectify the cause of the run-off to the stream.~~[AMD1]

- d. ~~[Deleted]. If the erosion and sediment control measures are deemed ineffective, different strategies and/or measures shall be implemented, maintained and monitored.~~ [AMD1]
- e. After completing construction in an area, the certificate holder must monitor the area until soils are stabilized and evaluate whether construction-related impacts to soils are being adequately addressed by the mitigation procedures described in the Erosion and Sediment Control Plan and the approved Revegetation and Noxious Weed Control Plan. As necessary, the certificate holder must implement follow-up restoration measures such as scarification and reseeding to address those remaining impacts.

[Final Order IV.D.2.4] [AMD1]

- 9.5 During facility operation, the certificate holder shall routinely inspect and maintain all transmission line corridors, roads, pads and trenched areas and, as necessary, maintain or repair erosion and sediment control measures and control the introduction and spread of noxious weeds.

[Final Order IV.D.2.5]

- 9.6 Upon completion of construction, the certificate holder must restore vegetation to the extent practicable and shall landscape all areas disturbed by construction in a manner compatible with the surroundings and proposed use and in compliance with the Revegetation and Noxious Weed Control Plan. Upon completion of construction, the certificate holder must remove all temporary structures not required for facility operation and dispose of all timber, brush, refuse and flammable or combustible material resulting from clearing of land and construction of the facility.

[Final Order IV.D.2.7] [Mandatory Condition OAR 345-027-0020(11)]

- 9.7 During operation of the facility, the certificate holder shall restore areas that are temporarily disturbed during facility maintenance or repair activities using the same methods and monitoring procedures described in the Revegetation and Noxious Weed Control Plan.

[Final Order IV.D.2.8]

- 9.8 ~~[Deleted] The certificate holder must dispose of all accumulated evaporation pond solids, when removed, in a landfill approved for such waste material. All residual solids deposited in evaporation ponds must be removed to an appropriate disposal facility upon closure of the facility. The certificate holder shall include protocols for solids removal and soil restoration at the location of the evaporation ponds in the retirement plan.~~
[Final Order IV.D.2.9] [AMD1]
- 9.9 During operation, the certificate holder must minimize drift from the cooling towers through the use of high efficiency drift eliminators that allow no more than a 0.001% drift rate.
[Final Order IV.D.2.10]
- 9.10 The certificate holder must handle hazardous materials used on the site in a manner that protects public health, safety and the environment and shall comply with all applicable local, state and federal environmental laws and regulations. During operation, the certificate holder may not store gasoline that is intended for fueling vehicles on the facility site.
[Final Order IV.D.2.11]
- 9.11 If a reportable release of hazardous substance occurs during construction or operation of the facility, the certificate holder must notify the Department within 72 hours and must clean up the spill or release and dispose of any contaminated soil or other materials according to applicable regulations. The certificate holder must make sure that spill kits containing items such as absorbent pads are located on equipment, near storage areas, and in the administrative or maintenance areas of the facility. The certificate holder must instruct employees about proper handling, storage and cleanup of hazardous materials.
[Final Order IV.D.2.12]

10.0 PROTECTION OF NATURAL RESOURCES

- 10.1. Prior to construction, the certificate holder shall:
- i. Consult with the Oregon Department of Fish and Wildlife and prepare a final Wildlife and Habitat Monitoring Mitigation Plan and submit the plan to the Department for review and approval. The certificate holder must conduct all wildlife and habitat monitoring as described in the approved Wildlife and Habitat Monitoring and Mitigation Plan, as amended from time to time.
[Final Order IV.H.2.1] [Mandatory Condition OAR 345-027-0020(6)]
 - ii. Submit for review and approval by the Department, in consultation with the Oregon Department of Fish and Wildlife, a final Wildlife and Habitat Monitoring

Mitigation Plan based upon the mitigation methodology and enhancement actions in the draft amended plan provided as Attachment D of the Final Order on Amendment 1. The certificate holder must conduct all wildlife and habitat monitoring as described in the approved Wildlife and Habitat Monitoring and Mitigation Plan, as amended from time to time.

[AMD1] [OAR 345-025-0016]

10.2. The certificate holder shall:

- a. Prior to construction, acquire the legal right to create, enhance, maintain and protect a habitat mitigation area as long as the facility is in operation and the site certificate is in effect by means of an outright purchase, conservation easement or similar conveyance and shall provide a copy of the documentation to the Department.
- b. Prior to construction of the Carty Solar Farm and its supporting facilities, the certificate holder shall provide a habitat assessment of the habitat mitigation area, based on a protocol approved by the Department in consultation with ODFW, which includes methodology, habitat map, and available acres by habitat category and subtype in tabular format.
- c. During operations, the certificate holder shall improve and monitor the habitat quality within the habitat mitigation area, in accordance with the Wildlife and Habitat Monitoring and Mitigation Plan approved by the Department per Condition 10.1.

[Final Order IV.H.2.2] [AMD1]

10.3. The certificate holder shall consult with the Oregon Department of Fish and Wildlife prior to commencement of construction to determine the final acreage of habitat mitigation required. Mitigation shall be provided in accordance with this final acreage determination.

[Final Order IV.H.2.3] [AMD1]

10.4. The certificate holder shall conduct noxious weed inventories within the HMA to identify patches of weed infestation during year one, year three and year five after construction of Unit 1, and then continue once every 5 years for the life of the project, in years divisible by five. Weeds shall be controlled as needed to maintain and enhance habitat quality within the mitigation area, with the goal of working toward eradication of targeted noxious weeds or, if eradication is not practical, decreasing their abundance to minimize impacts to native plant communities. Weed management practices shall be consistent with the Revegetation and Noxious Weed Control Plan and shall include an integrated weed management approach, using an appropriate

combination of prevention and control methods. The certificate holder shall obtain ODFW approval prior to the use of pesticides. If a substantial area of soil is left bare from weed control activities, the area shall be seeded using the appropriate methods as described in the Revegetation and Noxious Weed Control Plan.

[Final Order IV.H.2.5] [AMD1]

- 10.5. The certificate holder shall implement a fire control plan for wildfire suppression within the HMA in accordance with the existing Boardman Wildfire Control Plan. A copy of the fire control plan shall be provided to the Department upon request. If vegetation in the HMA is damaged from fire or from fire suppression efforts (e.g., vehicular disturbance), the area shall be seeded as necessary with the appropriate seed mix using the appropriate methods for the site, as described in the *Revegetation and Noxious Weed Control Plan*.

[Final Order IV.H.2.6]

- 10.6. The certificate holder shall monitor and control access to the HMA and shall post signs for the life of the facility designating the area as “protected” and including natural resources information. Access to the proposed area shall be limited to Boardman Plant operational needs, conservation area monitoring, and noxious weed control efforts. Any fences within or bordering the HMA shall be modified to wildlife-friendly specifications. Livestock grazing shall not be permitted within the HMA. Periodic monitoring (at least annually) shall be conducted to evaluate effectiveness of access control measures and signage maintenance needs.

[Final Order IV.H.2.7]

- 10.7. The certificate holder must:

- i. Implement measures to avoid or minimize temporary and permanent impacts to high quality native habitat and to retain habitat cover in the general landscape, where practicable.
 - a. The certificate holder shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat.
 - b. Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility and the areas that would be disturbed during construction and identifying the survey areas for all plant and wildlife surveys conducted in 2010 or earlier as described in the *Final Order on the Application*. The certificate holder shall use a qualified professional biologist to conduct a pre-construction plant and wildlife investigation of all areas that would be

disturbed during construction that lie outside of the previously surveyed areas. The certificate holder shall provide a written report of the investigation to the Department and to the Oregon Department of Fish and Wildlife. Based on consultation with the Department and ODFW, the certificate holder shall implement appropriate measures to avoid impacts to any Category 1, 2, or 3 habitat, to any State-listed threatened or endangered plant or wildlife species, and to any State Candidate plant species. If any Category 2 or 3 habitat is identified and will be impacted, the certificate holder shall work with the Department and ODFW to identify appropriate mitigation measures for such impacts.

- c. Before beginning construction, the certificate holder's qualified professional biologist shall survey the previously-identified Category 1 Washington ground squirrel habitat to ensure that the sensitive use area is correctly marked with exclusion flagging and avoided during construction. The certificate holder shall maintain the exclusion markings until construction has been completed.
 - d. Before beginning construction, certificate holder's qualified professional biologist shall complete aerial raptor nest surveys within the raptor nest survey area as described in the *Final Order on the Application*. The purposes of the survey are to identify any sensitive raptor nests near construction areas and to provide baseline information on raptor nest use for analysis as described in the *Wildlife and Habitat Monitoring and Mitigation Plan* referenced in Condition 10.1. The certificate holder shall provide a written report on the raptor nest surveys to the Department and to ODFW. [Final Order IV.H.2.9]
- ii. Implement measures to avoid or minimize temporary and permanent impacts to high quality native habitat and to retain habitat cover in the general landscape, where practicable.
 - a. The certificate holder shall not construct any facility components within areas of Category 1 habitat and shall avoid temporary disturbance of Category 1 habitat.
 - b. Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility and the areas that would be disturbed during construction and identifying the survey areas for all plant and wildlife surveys conducted prior to construction. The certificate holder shall use a qualified professional biologist to conduct a pre-construction habitat assessment of all areas that would be disturbed during construction. The certificate holder shall provide a written report of the habitat assessment to the Department and to the

Oregon Department of Fish and Wildlife. Based on consultation with the Department and ODFW, the certificate holder shall implement appropriate measures to avoid impacts to any Category 1 habitat, to any State-listed threatened or endangered plant or wildlife species, and to any State Candidate plant species.

[AMD1]

- 10.8. During construction, the certificate holder shall avoid all construction activities within one mile of golden eagle nests, and 0.6 miles of ferruginous hawk nests, and 1,300 feet of other potentially active sensitive raptor species nest sites for the following species during the sensitive period, as provided in this condition:

<u>Species</u>	<u>Sensitive Period</u>	<u>Early Release Date</u>
Swainson's hawk	April 1 to August 15	May 31
Ferruginous hawk	March 15 to August 15	May 31
Bald Eagle	January 1 to August 15	May 31
Golden eagle	January 1 to July 15	May 31
Burrowing owl	April 1 to August 15	July 15
Long-billed curlew	March 8 to June 15	May 31

During all years in which construction occurs, the certificate holder shall use a protocol approved by the Oregon Department of Fish and Wildlife (ODFW) to determine whether there are any active nests of these species within 1,300 feet of any areas that would be disturbed during construction. Surveys shall be extended to one mile for golden eagle nests and 0.6 miles for ferruginous hawk nests. This construction buffer distance may be decreased with approval by ODFW and USFWS depending on the intensity of construction activity and whether there is an adequate physical barrier (i.e., vegetation, topography, etc.) between the nest site and the construction impacts or if consultation determines a lesser distance is feasible and appropriate. The certificate holder shall begin monitoring potential nest sites by the beginning of the sensitive period, as listed above, and shall continue monitoring until at least May 31 (July 15 for golden eagle nests) to determine whether any potentially-active nest sites become active during the sensitive period.

If any nest site is determined to be unoccupied by the early release date, then unrestricted construction activities may occur within 0.6 miles (one mile for golden eagle nests) of the nest site after that date. If a nest is occupied by any of these species after the beginning of the sensitive period, the certificate holder will flag the boundaries of a 1,300 foot (or 0.6 miles for ferruginous hawk nests, or one mile for golden eagle nests) buffer area around the nest site and shall instruct construction

personnel to avoid disturbance of the buffer area. During the sensitive period, the certificate holder shall not engage in high-impact construction activities (activities that involve blasting, grading or other major ground disturbance) within the buffer area. The certificate holder shall restrict construction traffic within the buffer, except on public roads, to vehicles essential to the limited construction activities allowed within the buffer. If a golden eagle nest is identified, construction and maintenance activities between February 1 and July 15 (courtship and nesting period) will be avoided within one mile of the active nest (or 0.5 miles if the active nest is not in line-of-sight of activities).

The certificate holder must use a qualified independent professional biologist to observe the active nest sites during the sensitive period for signs of disturbance and to notify the Department of any non-compliance with this condition. If the biologist observes nest site abandonment or other adverse impact to nesting activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of the Department, unless the adverse impact is clearly shown to have a cause other than construction activity.

The certificate holder may begin or resume construction activities within the buffer area before the ending day of the sensitive period with the approval of ODFW, after the young are fledged. The certificate holder shall use a protocol approved by ODFW to determine when the young are fledged (the young are independent of the core nest site).

[Final Order IV.H.2.10] [AMD1]

- 10.9. The certificate holder shall implement the following measures to avoid or mitigate impacts to sensitive wildlife habitat during construction:
- a. Preparing maps to show exclusion areas that are off-limits to construction personnel, such as nesting or denning areas for sensitive wildlife species.
 - b. Avoiding unnecessary road construction, temporary disturbance, and vehicle use.
 - c. Limiting construction work to approved and surveyed areas shown on facility constraints maps.
 - d. Ensuring that all construction personnel are instructed to avoid driving cross-country or taking short-cuts within the site boundary or otherwise disturbing areas outside of the approved and surveyed construction areas.

[Final Order IV.H.2.11]

- 10.10. The certificate holder shall reduce the risk of injuries to avian species by designing and installing all aboveground transmission line support structures following the most current suggested practices for avian protection on power lines published by the Avian Power Line Interaction Committee.
[Final Order IV.H.2.12]
- 10.11. Sensitive raptor nest monitoring shall be conducted by qualified biologists in year one, year three, and year five after operations of Unit 1 have begun and then at least every five years after that for the life of the project in years divisible by five. Results of the monitoring shall be included in an annual sensitive raptor nest monitoring report provided to the Oregon Department of Fish and Wildlife, the U.S. Fish and Wildlife Service, and the Department. This report shall document the nest productivity of sensitive raptor species, including golden eagle (*Aquila chrysaetos*), occurring within one mile of the Carty facility, the Ferruginous Hawk occurring within 0.6 miles, and other sensitive raptor species nests occurring within 1,300 feet of the facility site.
[Final Order IV.H.2.13] [AMD1]
- 10.12. The certificate holder shall use a qualified environmental professional to provide environmental training during construction and operation. Environmental training includes information on the sensitive species present onsite, precautions to avoid injuring or destroying wildlife or sensitive wildlife habitat, exclusion areas, permit requirements, and other environmental issues. The certificate holder shall instruct construction and operations personnel to report any injured or dead wildlife detected while on the site to the appropriate onsite environmental manager.
[Final Order IV.H.2.14]
- 10.13. The certificate holder shall not place any structures in jurisdictional waters of Sixmile Canyon and shall avoid new impacts to Sixmile Canyon during construction by using the existing access road for vehicle crossing only during the dry season. Impacts to jurisdictional waters in Sixmile Canyon drainages shall be avoided.
[Final Order IV.H.2.15] [AMD1]
- 10.14. Prior to construction, the certificate holder shall conduct surveys for Washington ground squirrel (WGS) and Lawrence's milkvetch.
- i. The certificate holder shall determine the boundaries of Category 1 Washington ground squirrel (WGS) habitat based on the locations where the squirrels were found to be active in the most recent WGS surveys prior to the beginning of construction in habitat suitable for WGS foraging or burrow establishment ("suitable habitat"). The certificate holder shall use a qualified professional biologist who has

experience in detection of WGS to conduct surveys within the site boundary using appropriate search protocols. Except as provided in (a), the biologist shall conduct surveys in the active squirrel season (February 1 to June 30) at least once every three years until the beginning of construction in suitable habitat. The biologist shall survey all areas of suitable habitat where permanent facility components would be located or where construction disturbance could occur. The certificate holder shall provide written reports of the surveys to the Department and to the Oregon Department of Fish and Wildlife (ODFW) and shall identify the boundaries of Category 1 WGS habitat. During each year in which construction will occur, the boundaries of Category 1 WGS habitat shall be marked by the biologist with high-visibility flagging or markers. The certificate holder shall not begin construction until the identified boundaries of Category 1 WGS habitat have been approved by the Department. Category 1 WGS habitat includes the areas described in (b) and (c) below.

- a. The certificate holder may omit the WGS survey in any year if the certificate holder avoids all permanent and temporary disturbance within suitable habitat until a WGS survey has been completed in the following year and the boundaries of Category 1 habitat have been determined and approved based on that survey.
 - b. Category 1 WGS habitat includes the area within the perimeter of multiple active WGS burrows plus a 785-foot buffer, excluding areas of habitat types not suitable for WGS foraging or burrow establishment. If the multiple-burrow area was active in a prior survey year, and active burrows are still present, then Category 1 habitat includes the largest extent of the active burrow area ever recorded (in the current or any prior-year survey), plus a 785-foot buffer. If no active burrows are still present, then it is no longer Category 1 habitat for WGS.
 - c. Category 1 WGS habitat includes the area containing single active burrow detections plus a 785-foot buffer, excluding areas of habitat types not suitable for WGS foraging or burrow establishment. Category 1 habitat does not include single-burrow areas that were found active in a prior survey year but that are not active in the current survey year.
- ii. The certificate holder shall use a qualified professional biologist who has experience in detection of Lawrence's milkvetch to conduct plant surveys within the site boundary, using appropriate survey protocols, during the blooming season (May through August).
 - a. If the species is found to occur, the certificate holder must install protection flagging around the plant population and avoid any ground disturbance within this zone; and its location shall be presented on construction constraint maps showing restricted work areas. [Final Order IV.I.2.1] [AMD1]

10.15. The certificate holder shall impose and enforce a construction and operation speed limit of 20 miles per hour throughout the facility site and, during the active squirrel season (February 1 to June 30), a speed limit of 10 miles per hour from one hour before sunset to one hour after sunrise on private roads near known Washington ground squirrel (WGS) colonies. The certificate holder shall ensure that all construction and operations personnel are instructed to watch out for and avoid WGS and other wildlife while driving through the facility site.

[Final Order IV.I.2.2]

10.16. The certificate holder shall use perch-preventing structures on Carty Generating Station components in areas identified as Category 1 habitat for Washington ground squirrels.

[Final Order IV.I.2.3]

10.17. The certificate holder shall provide environmental awareness training for all project personnel and construction contractors before such contractors or personnel enter the site to perform construction-related activities. The training program shall discuss Washington ground squirrel issues as well as other environmental issues related to the project, and include handouts with identification information and reporting procedures. Additional training sessions shall be conducted as needed for personnel that start after the beginning of construction.

[Final Order IV.I.2.4]

10.18. In order to discourage Washington ground squirrels from moving into planned construction areas the certificate holder may disc or till a minimum of an 800-ft. buffer within the perimeter of the site boundary, or implement other approved measures, in closest proximity to squirrel activity areas. Proposed measures and areas where measures will be implemented shall be reviewed by ODFW and shall be informed by the most recent Washington ground squirrel survey data.

[Final Order IV.I.2.5] [AMD1]

10.19. If the certificate holder discs or tills areas, the certificate holder shall plant dryland wheat or another cover crop in tilled areas within the site boundary. Crops to be planted shall be selected by the certificate holder in coordination with ODFW.

[Final Order IV.I.2.6] [AMD1]

10.20. Should new Washington ground squirrel burrows become established within 785 feet of the site boundary, the certificate holder shall immediately report to ODFW. The certificate holder shall coordinate with ODFW to establish additional mitigation measures or to obtain an Incidental Take Permit, as appropriate.

[Final Order IV.I.2.8] [AMD1]

10.21. The certificate holder shall conduct post-construction surveys on known Washington ground squirrel colonies in the Carty facility area, on land owned by the certificate holder, both within the HMA and in areas where known active burrows were recorded during preconstruction field surveys. The Washington ground squirrel surveys shall be conducted by qualified biologists in year one, year three, and year five after operations of Unit 1 have begun, and then at least every five years after that for the life of the project in years divisible by five. Surveyors shall record evidence of Washington ground squirrel activity, current land use, and evidence of conditions caused by the project that might increase erosion or result in a decline in vegetation quality and adversely affect a Washington ground squirrel colony.

[Final Order IV.I.2.9] [AMD1]

10.22. The certificate holder shall implement a waste management plan during operation that includes but is not limited to the following measures:

- a. Training employees to minimize and recycle solid waste.
- b. Recycling paper products, metals, glass and plastics.
- c. Recycling used oil and hydraulic fluid.
- d. Collecting non-recyclable waste for transport to a local landfill by a licensed waste hauler.
- e. Segregating all hazardous wastes such as used oil, oily rags and oil-absorbent materials, mercury-containing lights and lead-acid and nickel-cadmium batteries for disposal by a licensed firm specializing in the proper recycling or disposal of hazardous wastes.

[Final Order IV.N.2.2]

10.23 During construction and operation of the Carty Generating Station, the certificate holder shall obtain potable water from the existing well located approximately 750 feet northwest of the Boardman Plant or from a bottled water vendor. Water for construction and process water shall be obtained from Carty Reservoir. The certificate holder may use other sources of water for on-site uses subject to prior approval by the Department.

[Final Order V.C.2.1] [AMD1]

- 10.24. During operation, the certificate holder shall discharge sanitary wastewater generated at the facility to the Boardman Plant sanitary waste facility in compliance with DEQ permit requirements.
[Final Order IV.N.2.4]
- 10.25. Before beginning construction, the certificate holder shall receive approval of the wetlands delineation report by the Department of State Lands and provide an approval letter to the Department.
[Final Order V.B.2.1]
- 10.26. The certificate holder shall avoid impacts to waters of the state in the following manner:
- (a) The certificate holder shall avoid any disturbance to delineated wetlands.
 - (b) The certificate holder shall construct stream crossings for transmission lines substantially as described in the *Final Order on the Application*. In particular, the certificate holder shall not remove material from waters of the State or add new fill material to waters of the State such that the total volume of removal and fill exceeds 50 cubic yards for the project as a whole.
 - (c) The certificate holder shall construct support structures for aboveground lines outside of delineated stream channels and shall avoid in-channel impacts.
- [Final Order V.B.2.2]
- 10.27. Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility and the areas that would be disturbed during construction and showing the wetlands and stream channels delineated through field surveys conducted prior to construction. For areas to be disturbed during construction that lie outside of the previously-surveyed areas, the certificate holder shall hire qualified personnel to conduct a pre-construction investigation to determine whether any jurisdictional waters of the State exist in those locations. The certificate holder shall provide a written report on the pre-construction investigation to the Department and the Department of State Lands for approval before beginning construction. The certificate holder shall ensure that construction and operation of the facility will not impact any jurisdictional water identified in the pre-construction investigation in a manner that would require a Removal-Fill Permit.
[Final Order V.B.2.3] [AMD1]

10.28. Before beginning operation of the facility, the certificate holder shall demonstrate that the Oregon Department of Environmental Quality has issued to the certificate holder:

- i. A Water Pollution Control Facilities Permit substantially in the form of Exhibit 4 of the *Final Order on the Application*, allowing for wastewater discharge from the Carty Generating Station.

[Final Order V.E.2.1]

- ii. A modified Water Pollution Control Facilities Permit with the following additional condition, allowing discharge of solar panel washwater:

- a. Solar panel wash water is permitted to be discharged through evaporation or infiltration into the ground at the point of application. The use of chemicals, soaps, detergents and heated water is prohibited. Pressure washing is allowed, so long as it does not remove paint or other finishes. Soil erosion and runoff from the Carty Solar Farm is prohibited. Soil erosion must be repaired within 30 days of occurrence.

[AMD1]

10.29. The certificate holder shall comply with state laws and rules applicable to Water Pollution Control Facilities Permits that are adopted in the future to the extent that such compliance is required under the respective statutes and rules.

[Final Order V.E.2.2]

10.30. The certificate holder may not dispose of wastewater into the Boardman settling ponds, vehicle wash water pond or coal yard ponds unless the site certificate and the WPCF are amended to permit such use. [Final Order V.E.2.3]

10.31. The site certificate holder must meet the compliance dates set out in the WPCF unless alternative compliance dates have been approved in advance in writing by DEQ. Either prior to or not later than 14 calendar days following any lapsed compliance date, the site certificate holder must submit a notice of noncompliance with the established schedule to the Department of Energy and DEQ. Any report of noncompliance must include the cause of noncompliance.

[Final Order V.E.2.4]

10.32. Prior to constructing or modifying wastewater management treatment and disposal facilities, detailed plans must be submitted to and approved by the Department of Environmental Quality.

[Final Order V.E.2.5]

10.34. ~~[Deleted] Prior to discharge of wastewater treatment system wastewater to lined evaporation ponds for the Carty Generating Station, the certificate holder shall submit a wastewater characterization to the Department of Environmental Quality for review and approval.~~

~~[Final Order V.E.2. [AMD1]~~

10.35. ~~[Deleted] Unless otherwise approved in writing by the Department of Environmental Quality, the site certificate holder is permitted to manage and dispose only of the following wastes from operation of the Carty Generating Station in lined ponds construction in accordance with the plans that are approved by the Department of Environmental Quality:~~

- ~~a. Water treatment wastewater~~
- ~~b. Facility sumps and drains wastewater~~
- ~~c. Laboratory and sampling wastewater~~
- ~~d. Evaporative cooling wastewater~~
- ~~e. Equipment cleaning wastewater~~
- ~~f. Storm water~~

~~[Final Order V.E.2.7] [AMD1]~~

10.36. Prior to discharge of Carty Generating Station sewage to the lagoons, the certificate holder must:

- a. Submit a work plan to remove vegetation from the Clay-lined cells and either leak test the cells or recondition them; and
- b. Submit a long-term plan to ensure the integrity of the clay lined cells. The plan may include evaluating system capacity requirements and modifying system capacity accordingly prior to discharge of Carty Generating Station sewage to lagoons.

[Final Order V.E.2.8]

- 10.37. The certificate holder must prepare and implement a Hazardous Materials Management and Monitoring plan approved by the Department. The plan(s) must address the handling of potentially hazardous substances (as defined by ORS 465.200) during construction and operation of the facility, measures to prevent on- and off-site contamination and documentation of plan implementation. Separate plans for the construction and operation phases are acceptable. The certificate holder must use hazardous materials in a manner that protects public health, safety and the environment and must comply with all applicable local, state and federal environmental laws and regulations.

The Hazardous Materials Management and Monitoring Plan shall contain the same information required for a Spill Prevention, Control and Countermeasure Plan (40 CFR 112). Whereas the SPCC Plan addresses spill prevention for oil products, the materials management and monitoring plan shall address hazardous substances. The Plan shall include operating procedures to prevent hazardous substances releases, control measures to contain hazardous substance releases, countermeasures to contain, cleanup, and mitigate hazardous substance releases, and procedures for required inspections and testing. This Plan must be submitted to the Department for review and approval prior to respective construction or operation phase of the Carty Generating Facility.

[Final Order IV.G.2.2] [AMD1]

- 10.38. If any inspection performed in accordance with the Hazardous Materials Management and Monitoring Plan identifies improper handling or storage of hazardous substances (as defined by ORS 465.200) or improper record keeping procedures, the certificate holder must correct such deficiencies promptly and must report the corrective actions to the Department. If the certificate holder has not corrected such deficiencies within six months after the date of the inspection report, the certificate holder shall submit to the Council an independently prepared estimate of cost of correction. Upon approval of the estimate by the Council, the certificate holder shall increase the amount of the bond or letter of credit required under Condition IV.G.2.9 by the approved amount of the estimate. In no event, however, shall the certificate holder be relieved of its obligation to exercise all due diligence in correcting deficiencies identified in the course of a site inspection.

[Final Order IV.G.2.3]

- 10.39. The certificate holder shall report any release (as defined by ORS 465.200) of hazardous substances to the Department within 72 hours after the discovery of such release, in addition to any other reporting requirements under applicable law. If the certificate holder has not remedied a release consistent with applicable Oregon Department of Environmental Quality standards within six months after the date of the release, the certificate holder shall submit to the Council an independently prepared estimate of the cost to complete necessary remediation. Upon approval of the estimate by the Council, the certificate holder shall increase the amount of its bond or letter of credit by the approved amount of the estimate. In no event, however, shall the certificate holder be relieved of its obligation to exercise all due diligence in remedying a release of hazardous substances.
- [Final Order IV.G.2.4] [AMD1]

11.0 PROTECTION OF HISTORIC, CULTURAL AND ARCHAEOLOGICAL RESOURCES

- 11.1. ~~[Deleted]Before beginning construction, the certificate holder shall label Oregon State Historic Preservation Office (SHPO) archaeological resource site 35MW19 and a 100-foot buffer around site 35MW19 on construction maps and drawings as a “no entry” area. Site 35MW19 and its 100-foot buffer shall be marked with temporary fencing or stakes with rope and/or flagging to prevent inadvertent entry].~~
- [Final Order IV.K.2.1] [AMD1]
- 11.2. Before beginning construction, the certificate holder shall provide to the Department a map showing the final design locations of all components of the facility, the areas that would be temporarily disturbed during construction, the areas that were surveyed in 2009 as described in the Draft Proposed Order or that have been subsequently surveyed.
- 11.3. [Final Order IV.K.2.2] [AMD1]The certificate holder shall use qualified personnel to conduct field investigation of all areas to be disturbed during construction that lie outside the previously-surveyed areas. The certificate holder shall provide a written report of the field investigation to the Department and to the Oregon State Historic Preservation Office (SHPO). If any potentially significant historic, cultural, or archaeological resource sites are found during the field investigation, the certificate holder shall instruct all construction personnel to avoid the identified sites and shall implement appropriate measures to protect the sites, including the measures described in Condition 11.5.
- [Final Order IV.K.2.3]

11.4. The certificate holder shall ensure that a qualified archaeologist, as defined in OAR 736-051-0070, develops a training program for cultural resources. The program will instruct construction personnel in the identification of cultural materials and avoidance of accidental damage to identified resource sites. Records of such training shall be maintained at the administration/control building and made available to authorized representatives of the Department upon request.

[Final Order IV.K.2.4] [AMD1]

11.5. The certificate holder shall ensure that construction personnel cease all ground-disturbing activities in the immediate area if any archaeological or cultural resources are found during construction of the facility until a qualified archeologist can evaluate the significance of the find. The certificate holder shall notify the Department and the SHPO of the find. If the SHPO determines that the resource is significant, the certificate holder shall make recommendations to the Council for mitigation, including avoidance, field documentation and data recovery, in consultation with the Department, SHPO, interested tribes and other appropriate parties. The certificate holder shall not restart work in the affected area until the certificate holder has demonstrated to the Department and the SHPO that it has complied with archaeological resource protection regulations.

[Final Order IV.K.2.5]

11.6. The certificate holder shall:

i. Prepare and implement an Archaeological Monitoring Plan for construction activities to address and mitigate impacts from exposure of unanticipated or previously unidentified cultural resources that may be exposed during construction of the facility. A current copy of the plan must be maintained at the administration/control building and made available to authorized representatives of the Department upon request. The Archaeological Monitoring Plan, as proposed by the certificate holder, shall include the following requirements:

- a. ~~[Deleted] The certificate holder will be responsible for providing a qualified archaeological monitor for any ground-disturbing project construction activity that occurs within the area between the shovel tests excavated in 2009 and the delineated 100-foot buffer around 35MW19. No ground-disturbance is permitting within the site boundaries or the 100-foot buffer around the archaeological site~~
[AMD1].
- b. A qualified archaeological monitor is a person who meets the “qualified archaeologist” standards defined by ORS 390.235(6)(b) or who is supervised by a “qualified archaeologist.” If the latter applies, the supervising qualified archaeologist must vouch for the work of the archaeological monitor and author

or co-author the archaeological monitoring report provided at the end of construction monitoring.

- c. The archaeological monitor will keep a daily log of construction and monitoring activities. If intact archaeological materials are encountered during the monitoring, the archaeological monitor will initiate procedures for inadvertent discovery of archaeological resources, as specified in ORS 358.920.
- d. Artifacts will be examined and documented in the field and will not be collected unless authorized under the provisions of a SHPO permit, if one is obtained in the inadvertent discovery of archaeological resources process.
- e. If human remains are identified during the course of construction monitoring, the monitor will initiate the procedures for Inadvertent Discovery of Human Remains, as specified in ORS 97.740-97.760.
- f. The certificate holder is responsible for providing an archaeological monitoring report to the Department and SHPO after construction work is completed. The report must detail the activities of the archaeological monitor and any inadvertent discoveries encountered, along with actions taken to address them.

[Final Order IV.K.2.6]

- ii. At least 45-days prior to construction of the Carty Solar Farm, provide to the Department for review and approval, in consultation with SHPO and the Confederated Tribes of the Umatilla Indian Reservation (CTUIR), an amended Archaeological Monitoring Plan for construction activities to address and mitigate impacts from exposure of unanticipated or previously unidentified cultural resources that may be exposed during construction of the Carty Solar Farm. The amended Archaeological Monitoring Plan shall include the following requirements:
 - a. The certificate holder shall coordinate with CTUIR prior to and during ground disturbing activities to determine if a tribal monitor should be onsite.
 - b. A qualified archeologist, as defined in 11.6(i)(b) of this condition, shall be mobilized to the site if unanticipated resources are discovered; in this event, Condition 11.6.ii(c) through (f) would then be applicable.
 - c. The archeological monitor will keep a daily log of construction and monitoring activities. If intact archaeological materials are encountered during the monitoring, the monitor will initiate procedures for inadvertent discovery of archaeological resources, as specified in ORS 358.920.
 - d. Artifacts will be examined and documented in the field and will not be collected unless authorized under the provisions of a SHPO permit, if one is obtained in the inadvertent discovery of archaeological resources process.

- e. If human remains are identified during the course of construction monitoring, the monitor will initiate the procedures for Inadvertent Discovery of Human Remains, as specified in ORS 97.740-97.760.
- f. The certificate holder is responsible for providing an archaeological monitoring report to the Department and SHPO after construction work is completed. The report must detail the activities of the monitor and any inadvertent discoveries encountered, along with actions taken to address them.
[AMD1]

12.0 CARBON DIOXIDE EMISSIONS

- 12.1. The net carbon dioxide emissions rate for the base load gas plant must not exceed 0.675 pounds of carbon dioxide per kilowatt-hour of net electric power output, with carbon dioxide emissions and net electric power output measured on a new and clean basis, as defined in OAR 345-001-0010.

[Final Order IV.P.2.1]

- 12.2. The net carbon dioxide emissions rate for incremental emissions for the facility operating with power augmentation must not exceed 0.675 pounds of carbon dioxide per kilowatt-hour of net electric power output, with carbon dioxide emissions and net electric power output measured on a new and clean basis at the site during the times of year when the facility is intended to operate with power augmentation, subject to modification under Condition 12.12.

[Final Order IV.P.2.2]

- 12.3. For the purposes of the site certificate, “monetary path payment requirement” means the amount of offset funds determined pursuant to OAR 345-024-0550, -0560, -0590 and -0600 and the amount of the selection and contracting funds that the certificate holder must disperse to The Climate Trust, as the qualified organization, pursuant to OAR 345-024-0710 and the site certificate. The certificate holder shall calculate the monetary path payment requirement using an offset fund rate of \$1.27 per ton of carbon dioxide in 2011 dollars.

- a. The certificate holder shall calculate 2011 dollars using the Index described in Condition 15.1.b.
- b. The certificate holder shall increase the amount of the letter of credit described in Condition 12.9 by the percentage increase in the Index. The certificate holder shall index the funds from the date of the Council’s approval of the site certificate to the date of disbursement of funds to The Climate Trust.

[Final Order IV.P.2.3]

- 12.4. Before beginning construction of the facility, the certificate holder shall submit to the Department information identifying its final selection of a gas turbine vendor, heat recovery steam generator vendor along with the following information, as appropriate:
- a. For the base load gas plant, the certificate holder shall submit written design information, based on its contracts with vendors, sufficient to verify the plant's designed new and clean heat rate (higher heating value) and its net power output at the average annual site condition. The certificate holder shall submit an affidavit certifying the heat rate and capacity.
 - b. For the base load gas plant designed with power augmentation, the certificate holder shall submit written design information, based on its contracts with vendors, sufficient to verify the facility's designed new and clean heat rate (higher heating value) and its net power output at the site during the times of year when the facility is intended to operate with power augmentation. The certificate holder shall submit an affidavit certifying the heat rate and capacity.
- [Final Order IV.P.2.4] [AMD1]
- 12.5. Before beginning construction of the facility, the certificate holder shall specify to the Department the annual average hours and the times that it expects to operate with power augmentation.
- [Final Order IV.P.2.5]
- 12.6. To calculate the initial monetary path payment requirement, the certificate holder shall use the contracted design parameters for capacities and heat rates submitted under Condition 12.4 and the annual average hours and times of operation with power augmentation specified under Condition 12.5.
- [Final Order IV.P.2.6]
- 12.7. Before beginning construction of the facility, the certificate holder shall enter into a Memorandum of Understanding (MOU) with The Climate Trust that establishes the disbursement mechanism to transfer selection and contracting funds and offset funds to The Climate Trust.
- a. The MOU must be substantially in the form of Exhibit 3 to the *Final Order on the Application*. At the request of the certificate holder, the Council may approve a different form of a letter of credit and concurrent MOU without an amendment of the site certificate.
 - b. Either the certificate holder or The Climate Trust may submit to the Council for the Council's resolution any dispute between the certificate holder and The Climate Trust concerning the terms of the letter of credit, the MOU or any other

issues related to the monetary path payment requirement. The Council's decision shall be binding on all parties.

[Final Order IV.P.2.7] [AMD1]

- 12.8. The certificate holder shall submit all monetary path payment requirement calculations to the Department for verification in a timely manner before submitting a letter of credit for Council approval, before entering into an MOU with The Climate Trust as required by Condition 12.7, and before making disbursements to The Climate Trust.

[Final Order IV.P.2.8] [AMD1]

- 12.9. Before beginning construction of the facility, the certificate holder shall submit to The Climate Trust a letter of credit in the amount of the offset funds of the monetary path payment requirement as determined under Condition 12.3.

- a. The certificate holder shall use a form of letter of credit that is substantially in the form of Appendix B to the MOU described in Condition 12.7. At the request of the certificate holder, the Council may approve a different form of a letter of credit without an amendment of the site certificate.
- b. The certificate holder shall use an issuer of the letter of credit approved by the Council.
- c. The certificate holder shall maintain the letter of credit in effect until the certificate holder has disbursed the full amount of the offset funds to The Climate Trust. The certificate holder may reduce the amount of the letter of credit commensurate with payments it makes to The Climate Trust. The letter of credit must not be subject to revocation before disbursement of the full amount of the offset funds.

[Final Order IV.P.2.9] [AMD1]

- 12.10. For any transfer of the site certificate approved under OAR 345-027-0100:

- a. If The Climate Trust has not yet fully withdrawn the amount of the letter of credit of the current certificate holder at the time of the transfer, the new certificate holder shall submit to The Climate Trust a pro-rated letter of credit, subject to the requirements of Condition 12.9. The new certificate holder shall submit to Council for the Council's approval the identity of the issuer of the letter of credit. The Council may approve a new letter of credit without a site certificate amendment.
- b. The new certificate holder shall enter into an MOU with The Climate Trust as described in Condition 12.7 unless the new certificate holder demonstrates to

the satisfaction of the Department that there has been a valid assignment of the current certificate holder's MOU to the new certificate holder. The Council may approve a new MOU without a site certificate amendment.

- c. For resolution of any dispute between the new certificate holder and The Climate Trust concerning the disbursement mechanism for monetary path payments or any other issues related to the monetary path payment requirement, either party may submit the dispute to the Council as provided in Condition 12.7.b.

[Final Order IV.P.2.10]

- 12.11. The certificate holder shall disburse to The Climate Trust offset funds and selection and contracting funds when requested by The Climate Trust in accordance with Conditions 12.13 and 12.14 and the following requirements:

- a. The certificate holder shall disburse selection and contracting funds to The Climate Trust before beginning construction and as appropriate when additional offset funds are required under Conditions 12.13 and 12.14.
- b. Upon notice pursuant to subsection (c), The Climate Trust may request from the issuer of the letter of credit the full amount of all offset funds available or it may request partial payment of offset funds at its sole discretion. Notwithstanding the specific amount of any contract to implement an offset project, The Climate Trust may request up to the full amount of offset funds the certificate holder is required to provide to meet the monetary path payment requirement.
- c. The Climate Trust may request disbursement of offset funds pursuant to paragraph (b) by providing notice to the issuer of the letter of credit that The Climate Trust has executed a letter of intent to acquire an offset project. The certificate holder shall require that the issuer of the letter of credit disburse offset funds to The Climate Trust within three business days of a request by The Climate Trust for the offset funds in accordance with the terms of the letter of credit.

[Final Order IV.P.2.11]

- 12.12. Within the first 12 months of commercial operation of the facility, the certificate holder shall conduct a 100-hour test at full power without power augmentation (Year One Test-1) and a test at full power with power augmentation (Year One Test-2). Tests performed for purposes of the certificate holder's commercial acceptance of the facility may suffice to satisfy this condition in lieu of testing after beginning commercial operation.

- a. The certificate holder shall conduct the Year One Test-1 to determine the actual heat rate (Year One Heat Rate-1) and the net electric power output (Year One Capacity-1) on a new and clean basis, without degradation, with the results adjusted for the average annual site condition for temperature, barometric pressure and relative humidity. The certificate holder shall calculate carbon dioxide emissions using a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel.
- b. The certificate holder shall conduct the Year One Test-2 to determine the actual heat rate (Year One Heat Rate-2) and net electric power output (Year One Capacity-2) for the facility operating with power augmentation, without degradation, with the results adjusted for the site condition for temperature, barometric pressure and relative humidity at the site during the times of year when the power augmentation is intended to operate. The certificate holder shall calculate carbon dioxide emissions using a rate of 117 pounds of carbon dioxide per million Btu of natural gas fuel.
- c. The certificate holder shall notify the Department at least 60 days before conducting the tests required in subsections (a) and (b) unless the certificate holder and the Department have mutually agreed that less notice will suffice.
- d. Before conducting the tests required in subsections (a) and (b), the certificate holder shall, in a timely manner, provide to the Department for its approval a copy of the protocol for conducting the tests. The Department may approve modified parameters for testing power augmentation on a new and clean basis and pursuant to OAR 345-024-0590(1) without a site certificate amendment. The certificate holder shall not conduct the tests until the Department has approved the testing protocols.
- e. Within two months after completing the Year One Tests, the certificate holder shall provide to the Council reports of the results of the Year One Tests.

[Final Order IV.P.2.12]

- 12.13. Based on the data from the Year One Tests described in Condition 12.12, the certificate holder shall calculate an adjusted monetary path payment. The certificate holder shall submit its calculations to the Department for verification. If the adjusted amount exceeds the amount of the letter of credit provided according to Condition 12.9 before beginning construction, the certificate holder shall fully disburse the excess amount directly to The Climate Trust within 30 days of the Department's verification of the calculations.

- a. The certificate holder shall include the appropriate calculations of the adjusted monetary path payment with its reports of the results of the Year One Tests required under Condition 12.12.
- b. For calculating the adjusted monetary path payment, the certificate holder shall use an offset fund rate of \$1.27 per ton of carbon dioxide (in 2011 dollars) and shall calculate contracting and selecting funds based on 10 percent of the first \$500,000 in offset funds and 4.286 percent of any offset funds in excess of \$500,000 (in 2011 dollars).
- c. In no case shall the certificate holder diminish the value of the letter of credit it provided before beginning construction or receive a refund from The Climate Trust based on the calculations made using the Year One Capacities and the Year One Heat Rates.

[Final Order IV.P.2.13]

- 12.14. The certificate holder shall use the Year One Capacity-2 and Year One Heat Rate-2 that it reports for the facility, as described in Condition 12.12.b, to calculate whether it owes supplemental monetary path payments due to increased hours that it uses power augmentation.
- a. Each five years after beginning commercial operation of the facility (five-year reporting period), the certificate holder shall report to the Department the annual average hours the facility operated with power augmentation during that five-year reporting period, as required under OAR 345-024-0590(6). The certificate holder shall submit five-year reports to the Department within 30 days after the anniversary date of beginning commercial operation of the facility.
 - b. If the Department determines that the facility exceeded the projected net total carbon dioxide emissions calculated under Conditions 12.4, 12.5 and 12.12, prorated for five years, during any five-year reporting period described in subsection (a), the certificate holder shall offset excess emissions for the specific reporting period according to paragraph (i) and shall offset the estimated future excess emissions according to paragraph (ii), as follows:
 - i. In determining whether there have been excess carbon dioxide emissions that the certificate holder must offset for a five-year reporting period, the Department shall apply OAR 345-024-0600(4)(a). The certificate holder shall pay for the excess emissions at \$1.27 per ton of carbon dioxide emissions (in 2011 dollars). The Department shall notify the certificate holder and The Climate Trust of the amount of supplemental payment required to offset excess emissions.

- ii. The Department shall calculate estimated future excess emissions for the remaining period of the deemed 30-year life of the facility using the parameters specified in OAR 345-024-0600(4)(b). The certificate holder shall pay for the estimated excess emissions at \$1.27 per ton of carbon dioxide (in 2011 dollars). The Department shall notify the certificate holder of the amount of supplemental payment required to offset future excess emissions.
- iii. The certificate holder shall offset excess emissions identified in paragraphs (i) and (ii) using the monetary path as described in OAR 345-024-0710. The certificate holder shall pay selection and contracting funds of 10 percent of the first \$500,000 in offset funds and 4.286 percent of any offset funds in excess of \$500,000 (in 2010 dollars).
- c. The certificate holder shall disburse the supplemental selection and contracting funds and supplemental offset funds to The Climate Trust within 30 days after notification by the Department of the amount that the certificate holder owes.

[Final Order IV.P.2.14]

- 12.15. The certificate holder shall use only pipeline quality natural gas or shall use synthetic gas with a carbon content per million Btu no greater than pipeline-quality natural gas to fuel the combustion turbines and the power augmentation.

[Final Order IV.P.2.15] [AMD1]

- 12.16. After the certificate holder has complied with the conditions relating to the carbon dioxide standard before beginning construction, incremental increases in capacity and heat rate that otherwise fall within the limits specified in OAR 345-027-0050(2) do not require an amendment of the site certificate if the certificate holder complies substantially with Conditions 12.1 through 12.15, except as modified below, and if:

- a. The Department or the Council determines, as described in OAR 345-027-0050(5), that the proposed change in the facility does not otherwise require an amendment; and
- b. The certificate holder complies with the appropriate carbon dioxide emissions standard and monetary offset rate in effect at the time the Department or the Council makes its determination under this condition.

[Final Order IV.P.2.16]

- 12.17. ~~[Deleted]If the certificate holder begins construction of the first generator block but not the second block, the certificate holder shall comply with Conditions 12.1 through 12.15 for the first block. If the certificate holder later begins construction of the second generator block, the certificate holder shall comply with Conditions 12.1 through 12.15 for the second block.~~

[Final Order IV.P.2.17] [AMD1]

13.0 NOISE CONTROL AND NOISE COMPLAINT RESPONSE

- 13.1. To reduce construction noise impacts at nearby residences, the certificate holder shall:
- a. Confine the noisiest operation of heavy construction equipment to the daylight hours.
 - b. Require contractors to install and maintain exhaust mufflers on all combustion engine-powered equipment; and
 - c. Establish a complaint response system at the construction manager's office to address noise complaints. Records of noise complaints during construction must be made available to authorized representatives of the Department of Energy upon request.

[Final Order V.A.2.1]

- 13.2. During operation, the certificate holder shall maintain a complaint response system to address noise complaints. The certificate holder shall notify the Department within 15 days of receiving a complaint about noise from the facility. The notification should include the date the complaint was received, the nature of the complaint, the complainant's contact information, the location of the affected property, and any actions taken, or planned to be taken, by the certificate holder to address the complaint.

[Final Order V.A.2.2]

- 13.3. Upon written notification from the Department, the certificate holder will monitor and record the actual statistical noise levels during operations to verify that the certificate holder is operating the facility in compliance with the noise control regulations. The monitoring plan must be reviewed and approved by the Department prior to implementation. The cost of such monitoring, if required, will be borne by the certificate holder.

[Final Order V.A.2.3]

14.0 MONITORING AND REPORTING REQUIREMENTS - GENERAL

14.1. The following general monitoring conditions apply:

- a. The certificate holder shall consult with affected state agencies, local governments and tribes and shall develop specific monitoring programs for impacts to resources protected by the standards of divisions 22 and 24 of OAR Chapter 345 and resources addressed by applicable statutes, administrative rules and local ordinances. The certificate holder must submit the monitoring programs to the Department of Energy and receive Department approval before beginning construction or, as appropriate, operation of the facility.
- b. The certificate holder shall implement the approved monitoring programs described in OAR 345-027-0028(1) and monitoring programs required by permitting agencies and local governments.
- c. For each monitoring program described in OAR 345-027-0028(1) and (2), the certificate holder shall have quality assurance measures approved by the Department before beginning construction or, as appropriate, before beginning commercial operation.
- d. If the certificate holder becomes aware of a significant environmental change or impact attributable to the facility, the certificate holder shall, as soon as possible, submit a written report to the Department describing the impact on the facility and any affected site certificate conditions.

[Final Order VI.2] [Mandatory Condition OAR 345-027-0028]

14.2. The certificate holder shall report according to the following requirements:

- a. General reporting obligation for energy facilities under construction or operating:
 - i. Within six months after beginning construction, and every six months thereafter during construction of the energy facility and related or supporting facilities, the certificate holder shall submit a semiannual construction progress report to the Department of Energy as described in OAR 345-026-0080(1)(a). . [AMD1]
 - ii. By April 30 of each year after beginning operation, the certificate holder shall submit an annual report to the Department addressing the subjects listed in OAR 345-026-0080 (1)(b). The Council Secretary and the certificate holder may, by mutual agreement, change the reporting date. [Amendment No. 1]
 - iii. To the extent that information required by OAR 345-026-0080 is contained in reports the certificate holder submits to other state, federal or local agencies, the certificate holder may submit excerpts from such other reports to satisfy this rule. The Council reserves the right to request full copies of such excerpted reports.

[Final Order VI.4] [Mandatory Condition OAR 345-026-0080] [AMD1]

- 14.3. The certificate holder and the Department of Energy shall exchange copies of all correspondence or summaries of correspondence related to compliance with statutes, rules and local ordinances on which the Council determined compliance, except for material withheld from public disclosure under state or federal law or under Council rules. The certificate holder may submit abstracts of reports in place of full reports; however, the certificate holder shall provide full copies of abstracted reports and any summarized correspondence at the request of the Department.

[Final Order VI.5] [Mandatory Condition OAR 345-026-0105]

15.0 RETIREMENT AND FINANCIAL ASSURANCE

- 15.1. Before beginning construction, the certificate holder shall submit to the State of Oregon through the Council a bond or letter of credit naming the State of Oregon, acting by and through the Council, as beneficiary or payee. The initial bond or letter of credit amount for Block 1 is \$7.884 million (in 3rd Quarter 2011 dollars), to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (a) of this condition. The initial bond or letter of credit amount for the Carty Solar Farm and its supporting facilities is \$2.7 million (in 3rd Quarter 2016 dollars) to be adjusted to the date of issuance, and adjusted on an annual basis thereafter, as described in sub-paragraph (a) of this condition.
- a. The certificate holder may adjust the amount of the bond or letter of credit based on the final design configuration of the facility and turbine types selected. Any revision to the restoration costs should be adjusted to the date of issuance as described in (b), and is subject to review and approval by the Department.
 - b. The certificate holder shall adjust the amount of the bond or letter of credit, using the following calculation and subject to approval by the Department.
 - i. Adjust the amount of the bond or letter of credit amount for Unit 1 (expressed in 3rd Quarter 2011 dollars) and Carty Solar Farm (expressed in 3rd Quarter 2016 dollars) to present value, using the U.S. Gross Domestic Product Implicit Price Deflator, Chain-Weight, as published in the Oregon Department of Administrative Services' "Oregon Economic and Revenue Forecast" or by any successor agency (the "Index") and using the index value and the quarterly index value applicable for Unit 1 and Carty Solar Farm for the date of issuance of the new bond or letter of credit. If at any time the Index is no longer published, the Council shall select a comparable calculation to adjust the bond or letter of credit to present value.
 - ii. Round the resulting total to the nearest \$1,000 to determine the financial assurance amount.
 - c. The certificate holder shall use a form of bond or letter of credit approved by the Council.
 - d. The certificate holder shall use an issuer of the bond or letter of credit approved by the Council.
 - e. The certificate holder shall describe the status of the bond or letter of credit in the annual report submitted to the Council under Condition VI.4.

- f. The bond or letter of credit shall not be subject to revocation or reduction before retirement of the facility site.

[Final Order IV.G.2.9] [Mandatory Condition OAR 345-025-0006(8)] [AMD1]

- 15.2. If the certificate holder elects to use a bond to meet the requirements of Condition 15.1, the certificate holder shall ensure that the surety is obligated to comply with the requirements of applicable statutes, Council rules and this site certificate when the surety exercises any legal or contractual right it may have to assume construction, operation or retirement of the energy facility. The certificate holder shall also ensure that the surety is obligated to notify the Council that it is exercising such rights and to obtain any Council approvals required by applicable statutes, Council rules and this site certificate before the surety commences any activity to complete construction, operate or retire the energy facility.

[Final Order IV.G.2.10]

- 15.3. The certificate holder shall prevent the development of any conditions on the site that would preclude restoration of the site to a useful, non-hazardous condition to the extent that prevention of such site conditions is within the control of the certificate holder.

[Final Order IV.G.2.5] [Mandatory Condition OAR 345-025-0006(7)]

- 15.4. The certificate holder must retire the facility in accordance with a retirement plan approved by the Council if the certificate holder permanently ceases construction or operation of the facility. The retirement plan must describe the activities necessary to restore the site to a useful, non-hazardous condition, as described in OAR 345-027-0110(5). After Council approval of the plan, the certificate holder must obtain the necessary authorization from the appropriate regulatory agencies to proceed with restoration of the site.

[Final Order IV.G.2.6] [Mandatory Condition OAR 345-025-0006(9)]

- 15.5. The certificate holder is obligated to retire the facility upon permanent cessation of construction or operation. If the Council finds that the certificate holder has permanently ceased construction or operation of the facility without retiring the facility according to a final retirement plan approved by the Council, as described in OAR 345-027-0110, the Council shall notify the certificate holder and request that the certificate holder submit a proposed final retirement plan to the Department within a reasonable time not to exceed 90 days. If the certificate holder does not submit a proposed final retirement plan by the specified date, the Council may direct the Department to prepare a proposed final retirement plan for the Council's approval.

[Final Order IV.G.2.7] [Mandatory Condition OAR 345-025-0006(16)]

15.6. Upon the Council's approval of a final retirement plan prepared per Condition 15.5, the Council may draw on the bond or letter of credit submitted per the requirements of Condition 15.1 to restore the site to a useful, non-hazardous condition according to the final retirement plan, in addition to any penalties the Council may impose under OAR Chapter 345, Division 29. If the amount of the bond or letter of credit is insufficient to pay the actual cost of retirement, the certificate holder shall pay any additional cost necessary to restore the site to a useful, non-hazardous condition. After completion of site restoration, the Council shall issue an order to terminate the site certificate if the Council finds that the facility has been retired according to the approved final retirement plan.

[Final Order IV.G.2.8] [Mandatory Condition OAR 345-027-0020(16)]

15.7. Following receipt of the site certificate or an amended site certificate, the certificate holder shall implement a plan that verifies compliance with all site certificate terms and conditions and applicable statutes and rules. As a part of the compliance plan, to verify compliance with the requirement to begin construction by the date specified in the site certificate, the certificate holder shall report promptly to the Department of Energy when construction begins. Construction is defined in OAR 345-001-0010. In reporting the beginning of construction, the certificate holder shall describe all work on the site performed before beginning construction, including work performed before the Council issued the site certificate, and shall state the cost of that work. For the purpose of this exhibit, "work on the site" means any work within a site or corridor, other than surveying, exploration or other activities to define or characterize the site or corridor. The certificate holder shall document the compliance plan and maintain it for inspection by the Department or the Council.

[Final Order VI.3] [Mandatory Condition OAR 345-026-0048]

SUCCESSORS AND ASSIGNS

To transfer this site certificate or any portion thereof or to assign or dispose of it in any other manner, directly or indirectly, the certificate holder shall comply with OAR 345-027-0100.

SEVERABILITY AND CONSTRUCTION

If any provision of this agreement and certificate is declared by a court to be illegal or in conflict with any law, the validity of the remaining terms and conditions shall not be affected, and the rights and obligations of the parties shall be construed and enforced as if the agreement and certificate did not contain the particular provision held to be invalid.

GOVERNING LAW AND FORUM

This site certificate shall be governed by the laws of the State of Oregon. Any litigation or arbitration arising out of this agreement shall be conducted in an appropriate forum in Oregon.

EXECUTION

This site certificate may be executed in counterparts and will become effective upon signature by the Chair of the Energy Facility Siting Council and the authorized representative of the certificate holder.

IN WITNESS THEREOF, this site certificate has been executed by the State of Oregon, acting by and through its Energy Facility Siting Council, and by Portland General Electric Company.

ENERGY FACILITY SITING COUNCIL

By: 

Barry Beyeler, Chair
Oregon Energy Facility Siting Council

Date: 12/14/2018

PORTLAND GENERAL ELECTRIC COMPANY

By:  

Print: Bob Jenkins

Date: 2/4/19

**Attachment B: Index of Comments Received on
Revised Request for Amendment 1**

Attachment B:RFA1 Comment Index	
Commenter/Reviewing Agency	Date Comment Received
Pouley, John. Oregon State Historic Preservation Office	03/09/2017
Stevenson, Chris. Oregon Department of State Lands.	05/10/2017
Gullion, Christina. Public Comment	03/05/2018
Jacobs, George. Public Comment	03/05/2018
Robinson, Kim. Public Comment	03/05/2018
Wiegmann, Mira. Public Comment	03/05/2018
Collins, Audre. Public Comment	03/08/2018
Hartman, Heidi. Oregon Department of State Lands	03/13/2018
Nadler, Carl. Oregon Department of Environmental Quality	03/15/2018
Ferman, Tera Farrow. Confederated Tribes of Umatilla Indian Reservation	04/02/2018
Murphy, Tim. Oregon Department of Land Conservation and Development	04/06/2018
Cherry, Steve. Oregon Department of Fish and Wildlife	04/06/2018

**Attachment C: Responses to Department's Request for Additional Information
(RFA1 Supplement)**

Carty Generating Station Request for Amendment 1 – Request for Additional Information (RAI) 1 and 2

September 24, 2018

Note: RAI Numbers were added by PGE after combining RAI request 1 and 2; no RAI numbers were included in the original requests from ODOE.

RAI Number	RFA Page(s)/ Section	Applicable Rule (OAR 345-021- or other as indicated)	Additional Information Request - Comment	PGE Response
Introduction				
1	Page 4-2, Proposed Changes and Analysis	N/A	<p>Page 4-2 provides that:</p> <p>“The Carty Solar Farm would include temporary construction laydown and parking areas near the Carty Reservoir and Unit 1, and several areas in the new portions of the amended Site Boundary where PGE currently does not propose permanent or temporary disturbances, but that are being included to accommodate potential small changes during the final project design stage. PGE is requesting approval to use all these areas to construct the Carty Solar Farm.”</p> <p>Please clarify the statement “PGE is requesting the approval to use all of these areas to construct the Carty Solar Farm.” This statement, read in conjunction with preceding sentences, would suggest that PGE intends to conduct construction activities in areas that are not identified for temporary or permanent impacts in the RFA. If PGE intends to build or otherwise utilize these areas then PGE must identify the areas in the RFA and demonstrate compliance with all EFSC regulations specific to these areas.</p> <p>This same concern is also found in Exhibit B, Page B-2, in the statement “several areas in the new portions of the amended Site Boundary where PGE currently does not propose permanent or temporary disturbances, but that are being included to accommodate potential small changes during the final project design stage.”</p> <p>Please clarify and/or update Exhibit B accordingly.</p> <p>This same concern is also found in Exhibit K, page K-1.</p>	<p>The statements in question were meant to refer to areas that were surveyed as part of the Carty Site Boundary Expansion Areas (Figure B-2), but that weren’t necessarily shown as an area of expected disturbance in Figure B-3, Sheet 2. Since all expansion areas were surveyed, those survey results are presented in the various Exhibits in order to show compliance with all EFSC regulations. Areas that were surveyed that are not currently designated as an expected disturbance area include the area within the amended site boundary west and north of the Carty Solar Farm on the south side of Carty Reservoir.</p>
Exhibit B - Project Description				
2	B-3	OAR 345-021-0010(1)(b)(A)(ii) (and any other applicable sections)	Please describe the depth that collector strings will be buried.	Collector strings rated in excess of 600 volts will be buried at a minimum depth of 30 inches or consistent with 2017 NESC code and Table 352-1. Actual burial depth may be deeper depending on final design requirements and combined clearance requirements for additional cable types such as low voltage or communication cables.
3	B-6	OAR 345-021-0010(1)(b)(B)	Please discuss the following components in section B.3 (Description of the proposed supporting facilities). (1) underground electrical collector system; (2) grassland substation; (3) control house; (4) private access roads, service roads, gates and / or security fences; (5) switchgear at the solar pv facility.	<ol style="list-style-type: none">1. Collection system: The collection system will consist of both DC and AC electrical cabling carrying the DC current produced by the PV modules to the facility switchgear. DC cabling is arranged to daisy chain the strings of PV modules and combined via combiner boxes through to the DC to AC inverters. AC cabling will be used from the inverter pads to the

			<p>Note: when discussing the underground electrical system from the DC combiner to the inverter station, please indicate the depth at which the lines will be buried.</p> <p>Note 2: When discussing the service road in the interior of the solar array, please indicate the road width. Furthermore, will the road be bordered by fencing? Please indicate approximate locations of access roads, if possible, in a diagram.</p>	<p>facility switchgear. DC cabling is expected to be designed for either a 1000V or 1500V system and AC cabling is expected to be rated for 34.5kV. Final cable sizing and characteristics are to be determined during detailed design. Cabling will be a mix of above ground and below ground installation to allow for vehicle access between module rows and ease of maintenance during operation. Below ground installation depth will be consistent with National Electric Safety Code, but expected to be a minimum of 30 inches.</p> <ol style="list-style-type: none"> 2. Grassland Substation: Grassland Switchyard is described in section B.3 and expansion of the switchyard to a substation is covered by Option 1 described in B.3. 3. Control house: No separate control house is being proposed for the facility. Local protective relaying, control, and communication functions will be handled within the switchgear installed at the facility. 4. Roads: The facility will be accessed from an existing gravel road that connects the Boardman Coal plant to the existing ash disposal area. One main lockable security gate is proposed at the northeast corner of the facility. A perimeter fence will be installed with 8ft chain link fencing topped by an additional foot of barb wire. Interior service roads will be constructed to allow for construction and maintenance of the facility. A full facility interior perimeter road will be established with additional inter-array roads to allow access to each solar array and inverter pad. Roads will be sized and surfaced for emergency and maintenance vehicle access per applicable fire code. Configuration of the interior access roads, gate, and perimeter fence is shown in Attachment RAI-3 Figure B-5 Revised. 5. Switchgear: The switchgear provides for the collection of the AC output of the facility, protective devices, relaying, metering, and communication prior to transitioning to the transmission lines. AC electrical circuits will be routed from the inverter pads through AC combiner boxes and collected at the switchgear through protective breakers. Protective relaying equipment will be installed to detect for faults along the transmission line and collection circuits and operate the necessary protective devices to allow for fault isolation. Communications and SCADA equipment will be installed to allow for remote monitoring and control of the facility. The switchgear is proposed to be an outdoor metalclad structure to aid in weather and personnel protection. The size of the switchgear is expected to be approximately 10 feet wide by 40 feet long.
4	B-6	OAR 345-021-0010(1)(b)(B)	The exhibit provides that the 34.5 kV line is designed to carry a maximum load of 840 amps. Figure 1 in Exhibit AA provide that approximately 881 amperes will be transmitted from the solar facility to the Grassland Switchyard. Please clarify this discrepancy.	The line is designed for a nominal voltage of 34.5kV carrying an average of 840 amps. The calculation for EMF in Exhibit AA depends on the highest current on the line which occurs at the lowest allowable voltage. Per the interconnection requirements, the lowest voltage on the line will be 0.95 per unit which results in 881 amps. This provides the conservative case when determining maximum magnetic field levels.
5	Figures B-3 and B-4	General	Figures B-3 and B-4 both state “sheet 1 of 2.” However, these figures do not contain pages “2 of 2”. Please provide the missing figures.	Attachment RAI-5 contains the complete set of Figures B-3 and B-4.
6	Figure B-2	General	The Department cannot identify any activities that would occur in the area of the site boundary highlighted (below). Please confirm that the area highlighted would not experience any temporary or permanent impacts. If impacts will occur, please explain. If the area is a legacy property from the previous amendment request, which anticipated a transmission line from the Grassland Switchyard to the BPA	The area in question is a “legacy property” from the initial site certificate and the previous amendment request. PGE does not have any disturbance activities planned in this area for purposes of the Carty Solar Farm or any other portion of the Carty Generating Station at this time.

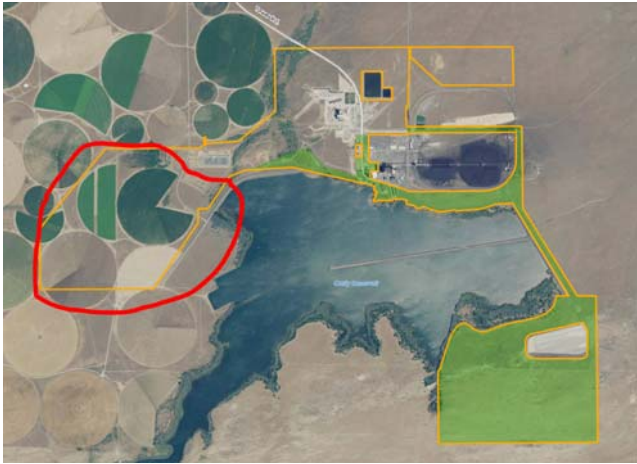
			<p>Slatt Substation, please indicate such.</p> 	
Exhibit C - Location				
7	Page C-3	OAR 345-021-0010(1)(C)(B)	<p>Table C-1 provides that permanent impacts would be 321.5 acres. Footnotes 4 and 5 indicate that the estimates are based on the interconnection routes that would require the “most mitigation acres (i.e. Route 1).” However, Route 1 disturbance is listed as less than 0.01 acres, while route 3 is listed as 2.07 acres.</p> <p>Please clarify this discrepancy. If the wrong number was selected to be included within permanent impacts, then update the total accordingly in Exhibit C and elsewhere within the RFA. (the Department estimates permanent impacts to be 323.57 acres if Route 3 is estimated).</p>	<p>The correct permanent impact acreage is 321.5 acres as indicated in Table C-1.</p> <p>The Grassland Switchyard build out is only necessary if Route 1 is selected; therefore, Route 1 total disturbance would be slightly more than 6.5 acres (Grassland Switchyard disturbance and disturbance associated with the poles). The 6.5 acres should not be added to the disturbance estimates if Route 2 or 3 is selected. Route 2 would tie into the existing Carty Unit 1 equipment and therefore would not require any additional permanent disturbance for new equipment (i.e. does not require Grassland Switchyard to be expanded or any additional disturbance at Carty Unit 1). Route 3 would require additional permanent disturbance in the vicinity of the existing Boardman Plant of about 2 acres to accommodate new equipment.</p>
Exhibit D – Organizational Expertise				
8	Pages D-2 - D-3	OAR 345-021-0010(1)(d)(A)	<p>The Exhibit states “additional information about the solar and natural gas projects listed in Table D-1 is provided below...” However, there is no description related to the Sunway 1, Sunway 2, or Sunway 3 solar facilities.</p>	<p>Sunway 1, LLC was created to build a pilot solar highway site in 2008. The site was developed in partnership with Oregon Department of Transportation (ODOT) and a tax equity partner. The site is 104 kW of crystalline solar panels with a PVPowered inverter, connected in a net metering arrangement with the site property owner, ODOT. It was a ground mounted installation, with concrete piers and galvanized steel framework supporting the panels. The site was built using an EPC contractor.</p> <p>Sunway 2, LLC was created to build a 1 MW solar system using Building Integrated Photovoltaic (BIPV) panels constructed of flexible thin film PV. The business structure included a tax equity partner. The thin film, manufactured by Unisolar, was mounted directly to the roof of three buildings owned by Prologis, a global provider of light industrial leased space. Three buildings were provided with BIPV panels by an EPC. Four Sat-Con inverters were used to provide power directly to PGE. Construction occurred in the fall of 2008.</p> <p>Sunway 3, LLC was created to build 2.4 MW of BIPV on seven additional buildings owned by Prologis. The business structure included a tax equity partner. PVPowered inverters were used throughout the project. Construction was again via an EPC arrangement in the winter and spring of 2010.</p>

Exhibit E – Permits					
9	E-3	OAR 345-021-0010(1)(e)(C)	The WPCF permit is correctly listed as being included in and governed by the site certificate (Table E-1). However, page E-4 states that “prior to starting construction, PGE will submit a letter request for revision of the WPCF permit to allow solar panel wash water to be disposed of on the ground...” If the WPCF permit needs to be modified, and it is a Council decision, information required by DEQ to allow Council to make such a decision needs to be included in the amendment request. Please provide the required information, or propose another compliance pathway.	PGE consulted with Carl Nadler (ODEQ) regarding the information required by DEQ in order to modify the WPCF to allow for the discharge of panel wash water. The necessary Letter Request was submitted to ODEQ on May 23, 2018. ODOE was copied on the Letter Request.	
Exhibit F - Property Owner Information					
10	NA	OAR 345-021-0010(1)(f)	Please note that prior to the department’s issuance of the proposed order the department will request that PGE obtain an updated property tax assessment roll to ensure that notice is issued to all property owners within 500-ft of the amended site boundary.	Noted.	
Exhibit G - Materials Analysis					
11	Entire Exhibit	OAR 345-021-0010(1)(G)	Exhibit G appears to not be specific to the Carty Solar Farm request. Please update Exhibit G related to materials usage, including hazardous and non-hazardous materials management, specific to the Carty Solar Farm.	Table G-1 of the RFA provides for updated amounts of chemical usage and storage from the ASC Table G-1 due to no longer including amounts applicable to the proposed Carty Unit 2 and including incremental amounts associated with the Carty Solar Farm. Of those materials listed in the table; the miscellaneous cleaners/degreasers, insulating oil, and miscellaneous lubricants would apply to the Carty Solar Farm. The amounts necessary to operate the Carty Solar Farm of miscellaneous cleaners/degreasers and miscellaneous lubricants are de minimis and would have no discernable difference in the amount already stored and used for Carty Unit 1. The full expected volume of insulating oil specific to the Carty Solar Farm is broken out from the volumes associated with Carty Unit 1.	
Exhibit H – Geology					
12	Ex H	OAR 345-021-0010(1)(h)	Exhibit H is has not followed the requirements of the revised EFSC Exhibit H and associated Structural Standard. The Exhibit H and Structural Standard requirements were revised in a rulemaking by EFSC that was finalized on October 18, 2017. Please revise Exhibit H in accordance with the current requirements.	Attachment RAI-12 contains a revised Exhibit H which follows the requirements established by the rulemaking finalized on October 18, 2017.	
Exhibit I – Soils					
13	I-6	OAR 345-021-0010(1)(i)(D)	Page I-6 discusses Construction Spill Prevention Control and Countermeasure Plans (SPCC). Page I-6 provides that an SPCC is required if aboveground storage exceeds 1,320 gallons. However, the Exhibit does not indicate the number of gallons of oil PGE expects to store aboveground. Please indicate the number of gallons PGE intends to store above ground. Please list other hazardous materials that may be stored on-site and their purpose (e.g. oil used in transformers, etc..)	Exhibit G, Table G-1 provides the volume of oil that is expected to be stored onsite in electrical equipment (e.g. transformers) associated with the Carty Solar Farm; it is expected that approximately 16,000 gallons will be stored inside electrical equipment. Other chemicals necessary for the construction of the Carty Solar Farm could include: minor amounts of paint; gas and/or diesel fuel for construction vehicles, equipment, and generators; miscellaneous cleaners/degreasers and miscellaneous lubricants. Chemicals necessary for the operation of the Carty Solar Farm, other than the already identified transformer oil, could include miscellaneous cleaners/degreasers and miscellaneous lubricants. However, the amount of miscellaneous cleaners/degreasers and miscellaneous lubricants necessary for the Carty Solar	

				Farm are de minimis and would have no discernable difference in the amount already stored and used for Carty Unit 1.
14	I-7	OAR 345-021-0010(1)(i)(e)	The exhibit states that “scarification of compacted occur as necessary for revegetation.” Please indicate when scarification would be considered “necessary.”	Scarification will be necessary on nearly all temporary disturbance areas where vegetation is removed and/or crushed. Scarification would not be necessary in areas where vegetation is only flattened by rubber-tired vehicles. For example, laydown and parking areas will be scarified because those areas will see heavy traffic and potentially be covered in gravel. However, areas along the selected transmission line route where only a few periodic vehicle trips are taken between pole locations may not require scarification, and the act of scarification may cause more disturbance than the original activity.
15	I-5	OAR 345-021-0010(1)(i)(C)	The relevant OAR requires discussion of potential adverse impacts to soils from construction, operation, and retirement of the facility. The Exhibit discusses construction related risks but does not appear to discuss risks associated with the operation or retirement of the facility. Please discuss risks that could arise from operation or otherwise indicate that there are no known risks or that the risks would be the same as that expected during construction.	During operation, potential adverse impacts on the soils present in the amended Site Boundary could result from wind or water erosion and spills from oil filled equipment failures. Wind erosion would be mitigated by revegetating areas of temporary disturbance; surfacing regularly traveled access routes; and complying with fire code, which requires a non-combustible material that does not lead to dust issues. Each transformer will contain approximately 640 gallons of oil; therefore, there is the potential for release of oil if a transformer has a critical failure. This risk is mitigated through preventive maintenance and compliance with SPCC regulations; such as secondary containment installed at each transformer and spill response procedures. During retirement potential adverse impacts are similar to those described for construction.
16	I-7	OAR 345-021-0010(1)(i)(E)	Please clarify/ explain the statement “erosion and sediment control measures would be maintained by removing trapped sediment at the storage capacities specified by the 1200-C permit issued to the site.” Please clarify the term “storage capacities.”	The current 1200-C permit outlines BMP maintenance requirements in Condition 9.c.i through 9.c.iv. The requirements are summarized below; however, PGE purposefully referenced the 1200-C permit rather than repeat the specific requirements in the application in case the capacities reference in the 1200-C permit change when it is renewed in the future(current 1200-C permit expires December 14, 2020). <ul style="list-style-type: none"> • Sediment fence: remove sediment before it reaches one third of the above ground fence height. • Other sediment barriers (such as biobags): remove sediment before it reaches two inches depth above ground height. • Catch basins: clean before sediment retention capacity has been reduced by fifty percent. • Sediment basins: remove trapped sediments before design capacity has been reduced by fifty percent
17		General	It is unclear whether PGE intends to use gravel under the solar arrays, or another non-combustible material, to comply with relevant fire code regulations (see Fire District letter contained in Exhibit U). Please explain either the presence or absence of gravel, any relevant risks, and mitigation efforts.	In accordance with 2014 Oregon Fire Code, the area under the solar array may be gravel or another non-combustible material that does not create a dust hazard and is approved by the fire code official. Vegetation on the site will be managed to meet fire code requirements and allow for proper operation and maintenance of the facility. Vegetation would be managed through the use of an approved ground cover or by chemical means via application of a pre-emergent or post-emergent herbicide as necessary.
Exhibit J – Wetlands				
18	Entire exhibit Figure 3a	OAR 345-021-0010(1)(j)(A)	Please note, the wetland concurrence letter is only valid for 5 years and expires at the end of 2018. ODOE understands that PGE has requested DSL reissue its wetland concurrence letter. ODOE will work with DSL on its review of the wetland delineation report.	On March 20, 2018 PGE submitted a Wetland Delineation/Determination Report Cover Form and associated Wetland Delineation Report covering the areas of expected disturbance for the Carty Solar Farm unit. At the same time, PGE requested reissuance of DSL concurrence #2010-0023 which has an expiration date of 12/24/2018 and covered the area associated with construction of Unit 1 and Grassland Switchyard. PGE has notified DSL and ODOE that we no longer seek reissuance of WD2010-0023. Originally it was thought PGE required a valid concurrence for all

				<p>land within the site boundary even if no disturbances were proposed as part of the Carty Solar Farm; however, ODOE clarified that PGE only needs a valid concurrence for areas of disturbance associated with the Carty Solar Farm since the other work is already complete.</p> <p>DSL provided comments to ODOE on the Wetland Delineation/Determination Report on May 10, 2018. ODOE provided a copy of the comments to PGE on May 17, 2018 and PGE submitted responses to DSL comments and revised figures on July 25, 2018. ODOE received a copy of the responses. On September 24, 2018 DSL requested an accuracy statement be added to certain figures, the changes were made, and revised figures were provided via email to DSL and ODOE on September 24, 2018.</p>
Exhibit K– Land Use				
19	K-5, K-6	MCZO Article 4 (4.040, 4.050, 4.060)	Evaluate MCZO Section 4.040, 4.050, and 4.060 related to parking and loading requirements during construction; provide an evaluation of compliance with these provisions if determined applicable.	PGE confirmed with the Morrow County Planning department that they do not apply MCZO 4.040, 4.050, and 4.060 to construction.
20	K-18, K-19	OAR 660-033-0130(38) / MCZO 3.010(K)(3)	<p>Exhibit K explains that the entire site is located within the Columbia Valley AVA, and that the “entire site” qualifies as “high value farmland” pursuant to ORS 195.310(10)(f)(C). The Department requests additional information to verify that all of the ORS 195.300(10)(f)(C) factors were considered.</p> <p>Please provide a map/figure and the acreage of the proposed project that would be located within the Columbia Valley AVA <u>and</u> that also meet the other factors per ORS 195.300(10)(f)(C) including: no more than 3,000 feet above mean sea level, with an aspect between 67.5 and 292.5 degrees, and a slope between 0-15 percent.</p> <p>ODOE has a GIS dataset with this information and can share with PGE, if requested.</p>	Attachment RAI-20 contains Figure K-2 showing the areas that meet all the criteria of ORS 195.300(10)(f)(C). A total of 57 acres of the proposed energy facility site meet the criteria of ORS 195.300(10)(f)(C). Although PGE initially stated that the entire site qualified as “high value farmland” the reduction in acreage that does qualify as high value farmland does not change the analysis presented in Exhibit K because more than 12 acres of high value farmland and 20 acres of “other” land in the EFU zone would still be disturbed.
21	K-21	660-033-0130(38)(f)(E)	<p>OAR 660-033-0130(38)(f)(E) requires the certificate holder to demonstrate that 1) non high-value farmland soils are not available on the subject tract; 2) siting the project on non high-value farmland soils, if present, would significantly impact the project’s ability to operate; or 3) the site is better suited than other possible sites because it would allow continued operation of existing farmland.</p> <p>The Department requests additional information to verify the subject “tract” has been accurately evaluated. Please provide maps/figures depicting the “tract” boundary (i.e. one or more contiguous lots or parcels under the same ownership per OAR 660-033-0020(14)) and presenting high value farmland soils, non high value farmland soils, and ORS 195.300(10)(f)(C) factors.</p>	<p>Attachment RAI-21 contains Figure K-3 showing all contiguous PGE owned property and showing areas of high value farmland (areas not designated high value farmland are by default non high value farmland).</p> <p>The figure shows that non high-value farmland is available on the subject tract; however, the areas of non high-value farmland are so fragmented by high value farmland or existing project features of the Boardman Plant or Carty Unit 1 that the Carty Solar Farm as proposed could not be constructed solely on non high value farmland.</p>
22	K-37	660-004-0022(3)(c)	The “reasons” justification provided under OAR 660-004-0022(3)(c) does not address any benefit to the county economy from siting of the facility at the specific location. Please describe any benefits to the local economy from the siting of the proposed Carty Solar Farm.	The local economy benefits in many direct and indirect ways from the proposed Carty Solar Farm. Primarily, the Carty Solar Farm will add to the local property tax base over the course of the facility’s useful life of 30 years to help the Boardman area provide services for local residents. In addition, construction of the facility will lead to increased local area employment with up to 130 workers expected at the peak of construction and an average of 50-60 workers throughout the estimated nine months of onsite work. Ongoing service and maintenance of the facility could utilize local vendors, if available, for services such as landscaping, panel washing, and other miscellaneous services. Indirect benefits include the increased demand for short term rental property and hotel services, food service, and other commodities or service industries during construction.

23	K-37, K-38	660-004-0022(3)(c)	The “reasons” justification provided under OAR 660-004-0022(c) does not address any specific transportation advantages of the site. Please describe any transportation advantages that are specific to the proposed site.	The Carty Generating Station is within 18 travel miles of the Port of Morrow County allowing for the delivery of materials via barge, if necessary, with minimal additional over land travel required once materials are off loaded at the Port. The site is accessed from a federal highway (I-84) by a well maintained paved county road (Tower Road). Only a small portion of the traffic on Tower Road is associated with residential travel and the road is primarily already used for industrial/agricultural uses. Since the additional permanent staff will be between zero and two staff; there is negligible impact to transportation during normal operations. In addition to the transportation benefits associated with the access roads; if deemed economical, the Carty Generating Facility could receive construction materials via the existing Boardman rail spur and then transport the materials the short remaining distance to the solar farm unit.
24	K-37, K-38	660-004-0022(3)(c)	The “reasons” justification provided under OAR 660-004-0022(c) describes that there are, “No topography or structures create the potential for shading any portion of the Carty Solar Farm generation facility.” Please describe “resource advantages” of the site specific to solar resources (e.g. solar radiation, tilt, etc).	As shown on Attachment RAI-24, Figure K-4, the Carty Solar Farm is located in an area that receives some of the highest available solar energy resource throughout the state as modeled by NREL. The Carty Solar Farm is uniquely positioned to utilize this favorable solar resource and the available existing infrastructure and transmission with minimal impact to the surrounding region.
Exhibit L– Protected Areas				
25	L-3	OAR 345-021-0010(1)(I)(C)	The applicant argues that the proposed amended facility would be greatly shorter than the existing visual features - 650 foot-tall stack, therefore the visual impact would not be significant. This statement is not sufficient because height is not the only measurement for visual impact. The added solar farm is a different visual feature compares to the existing visual features such as stacks. Please describe if there is any visibility to the proposed amended facility from protected areas within the analysis area, and then explain how the impact would not be significant.	Attachment RAI-25, Figure L-2 represents areas where the Carty Solar Farm panels could be visible and shows the locations of protected areas identified in Exhibit L. Note, that the figure represents areas where there is line-of-sight to the solar panels; however, it does not take into account other limiting factors to human sight (atmospheric conditions such as dust, clouds, etc). The figure indicates that there are small areas of clear line-of-sight at three protected areas; Horn Butte ACEC, Boardman Research Natural Area, and Crow Butte Park; however, given the distance from the solar panels to each of these areas, 11.5, 3.3, and 12.5 miles respectively, the impact is not significant. Additionally the closest of the Protected Areas where the solar farm may be visible is located within the Boardman Bombing Range and use and visitation is controlled by the Naval Weapons Systems Training Facility staff.
26	L-4	OAR 345-021-0010(1)(I)(C)	Please describe if there is any visual impact from the facility construction, such as any dust generated from construction activities.	OAR 345-021-0010(1)(I)(C) contains two sub-bullets related to visual impacts. Sub-bullet (v) pertains to visual impacts of the facility structures or plumes. Visual impacts of the facility are described in RAI #25 and there are no plumes associated with the solar facility. Sub-bullet (vi) pertains to visual impacts from air emissions resulting from facility construction or operation, including, but not limited to impacts on Class 1 Areas. The construction and operation of Carty Solar Farm will not result in any air emissions that require an air permit from any agency. If dust is considered an “air emission” there may be some dust generated during construction. However, PGE will implement dust suppression practices, such as application of water, to limit the amount of dust produced. Any dust produced would be a small plume and a short duration that would not impact any Class 1 areas or protected areas, the closest of which is 2.7 miles away.
Exhibit M– Financial Capability				
27	Appendix M-2	OAR 345-021-0010(1)(M) GENERAL	While the information provided is “complete” in that PGE has provided evidence of a “reasonable likelihood” of obtaining a bond or letter of credit, the Department has the following request for clarification: “The letter from J.P. Morgan in Appendix 2 provides that it is willing to furnish or arrange a letter of credit in an amount up to \$12 million for a period not to exceed three years and six months for the purpose of ensuring the Company’s obligation	Noted, PGE will maintain a LOC for the life of the project. The 3.5 year timeframe listed in the letter is the amount of time the bank has committed to issuing PGE a letter of credit if one is requested. Once a LOC is requested and issued then the annual renewal provisions outlined in the LOC applies and the 3.5 year timeframe is not applicable.

			<p>that the Carty Generating Station can be restored to a useful non-hazardous condition.”</p> <p>Please note that the bond or letter of credit must be maintained throughout the life of the facility, and must be submitted to the Department prior to commencement of construction. Presumably, the Carty Solar Farm will be operating for more than 3.5 years.</p>	
Exhibit O – Water Use				
28	Section O.2.2	OAR 345-021-0010(1)(o)(B)	In Section O.2.2 please describe the process by which water obtained from the Carty reservoir would be treated, prior to application to the solar modules. Would treatment result in any waste and, if so, please describe waste disposal process.	If required for panel washing, already demineralized water from the Carty Generating Station demineralized water system as described in the ASC could be used. Based on the estimated amounts needed for panel washing, the wash water volume would account for approximately 1% of the summer condition case proposed in the ASC and considered inconsequential to the demineralized water system. Waste associated with the demineralized water production is described in Exh. V of the ASC.
29	Section O.2.2	OAR 345-021-0010(1)(o)(B)	Please confirm that no soaps or chemicals will be used for panel washing.	PGE confirms that no soaps or chemicals will be used for panel washing.
PGE Edit	Section O.2.1	OAR 345-021-0010(1)(o)(B)	PGE requested change to source of water.	<p>In the Request for Amendment No. 1 submitted February 2018 PGE proposed to use an existing water permit held by PGE (Permit S-54925) as the source of construction water and operational water for Carty Solar Farm and included as Appendix O-1 a permit amendment application to add areas to the Place of Use allowed under Permit S-54925 in order to cover the entire Carty Solar Farm under one water permit. PGE would like to withdraw the permit amendment application and instead will use a combination of a limited water use license and existing water permit and existing water certificate, as described below, as the source of water.</p> <p>Water necessary for construction will be obtained by a third-party contractor through a limited water use license to be applied for prior to starting construction. The proposed source of water for the limited water use license will be Carty Reservoir storage under PGE Certificate 86056. Water necessary for decommissioning will also be obtained by a third-party contractor through a limited-use license or at a future time PGE will request a site certificate amendment to propose utilizing existing PGE held rights.</p> <p>Water necessary during operations will come from an existing PGE held permit and/or certificated water right (Permit S-54925; 3,736 acre-feet per year from Carty Reservoir) and/or (Certificate 86057; 135.0 cubic feet per second from Columbia River or Carty Reservoir) which already cover all necessary Place of Use areas for operations; therefore, no amendments are necessary to the existing water permit or water certificate. Panel washing, when necessary, would use an estimated 2 to 5 acre-feet per year, this amount of water can be accommodated by the existing permit and certificate.</p>
Exhibit P – Fish and Wildlife				
30		General	Please note that all temporary disturbance areas must be revegetated and returned to preconstruction habitat. This must be included within PGE’s habitat mitigation plan. ODOE and ODFW will determine, with PGE’s input, the relevant	Noted

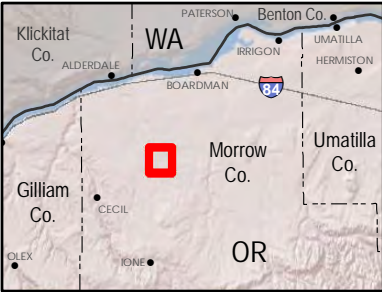
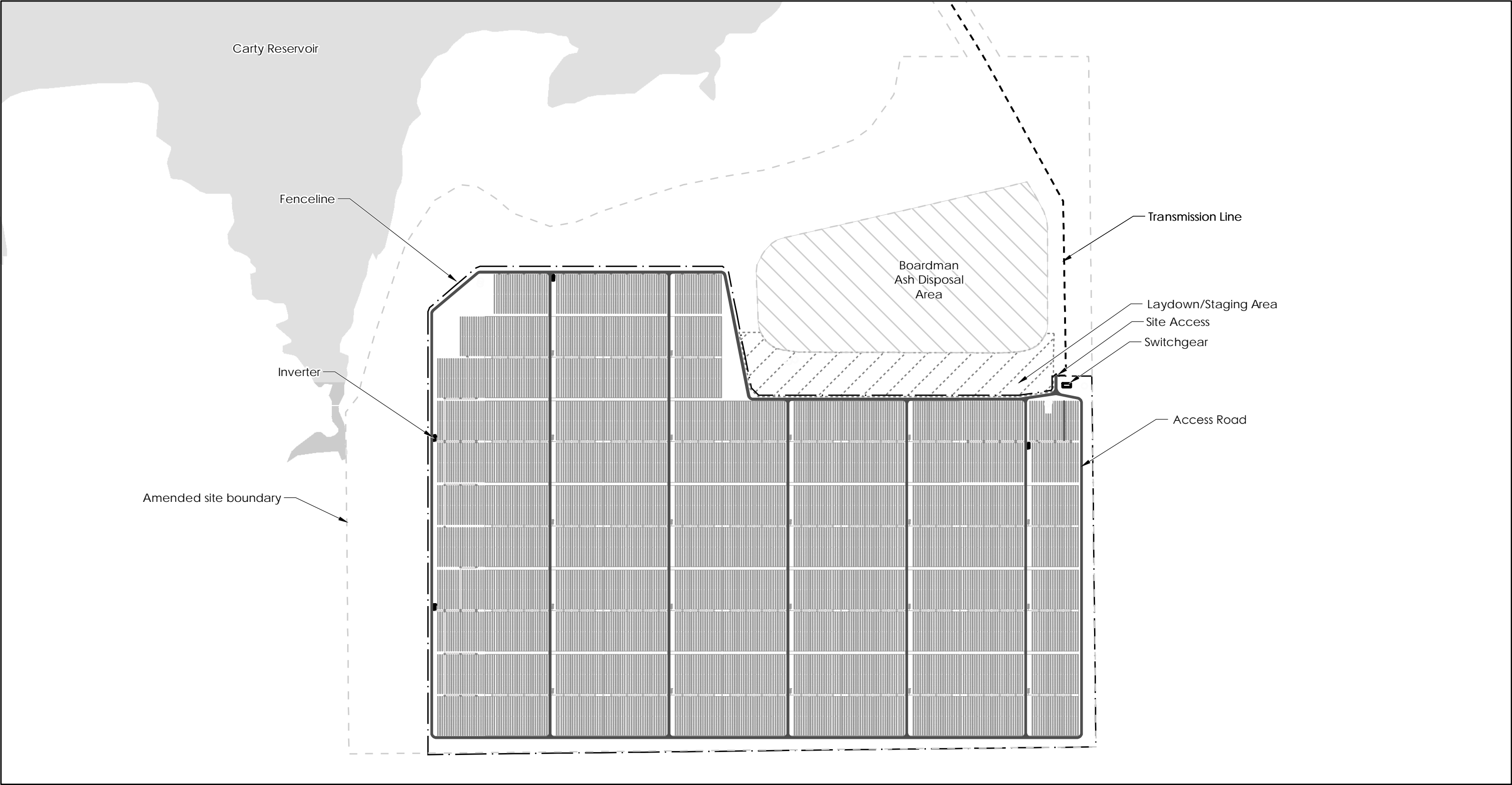
			timeframe by which temporarily disturbed land must be returned to preconstruction habitat. If PGE fails to perform this condition, PGE will be required to consider the impacts to be permanent. To maintain compliance with the EFSC Fish and Wildlife Habitat standard, this could necessitate additional mitigation, including compensatory mitigation.	
31	Appendix P-3 and Appendix P4	345-021-0010(1)(p)(G)	The Department is currently reviewing the draft WHHMP and Revegetation Plans in coordination with ODFW and will provide any additional edits/comments by 4/27/18.	Redlined WHHMP and Revegetation Plans were provided to PGE on May 17, 2018. PGE reviewed the revised plans and discussed the revision with ODFW and ODOE during a meeting on June 12, 2018. PGE revised both plans and provided redlines back to ODOE on June 21, 2018. PGE acknowledges that ODOE and ODFW may have additional comments which will be resolved separate from submittal of these RAI responses.
Exhibit R – Scenic Resources				
32	R-1	345-021-0010(1)(r)(A)	Section R.2 states, “PGE identified and reviewed four plans..” In addition to these plans, please review the City of Boardman’s Land Use Management Plan, Columbia Basin Wildlife Areas Management Plan (Oregon Department of Fish and Wildlife, 2008) and the Oregon Trail Comprehensive Management and Use Plan (U.S. National Park Service 1999). Evaluate whether these plans identify any important or significant scenic resources within the 10-mile analysis area (e.g. Willow Creek Wildlife Area, or high-potential sites). If there are any significant or important scenic resources identified within the referenced plans, please update the impact analysis and provide a copy of the relevant portion of the plan as required by OAR 345-022-0080(1).	<p>The City of Boardman’s Comprehensive Plan was reviewed and did not identify any important or significant scenic resources. Specifically Chapter 5 Natural Resources states there are no federal wild and scenic rivers, Oregon scenic waterways, or scenic views and sites.</p> <p>The Columbia Basin Wildlife Area Management Plan does not identify important scenic resources or values. Exhibit L – Protected Areas – identifies 3 of the 4 Wildlife Areas in the Plan within the analysis area for Protected Areas (Irrigon Area, Coyote Springs Area, and Willow Creek Area), the fourth area is outside the analysis area.</p> <p>The National Trails System Act provides for the identification of high-potential sites and segments, based on criteria established in the act. For high-potential historic sites, these criteria include “historic significance, the presence of visible historic remnants, scenic quality, and relative freedom from intrusion.” For high-potential route segments, these criteria include “high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route.”</p> <p>In Oregon there are 27 high-potential sites and 6 high-potential segments (the 6 segments total 82 miles), and one certified site (non-federal land). Of these sites and segments, one segment and one site are located within the 10 miles analysis area for scenic resources. Attachment RAI-32, Figure R-1 Revised provides the location of the Oregon National Historic Trail within the 10 mile analysis area. The segment, called the Boardman segment, is 12 miles in length and stretches west from the eastern boundary of the Boardman Bombing Range. The site is called Well Springs and is located about 4.2 miles southeast from the amended site boundary, along Immigrant Lane. Remains of a stage station, a graveyard which dates from the emigration era, and trail ruts can be found nearby according to the Oregon Trail Comprehensive Management and Use Plan. Figure R-1 Revised shows the areas with line-of-sight to the solar panels. A small portion of the Boardman segment does intersect with areas with line-of-sight to the solar panels; however, this portion of the trail is located within the Boardman Bombing range and access is restricted. The solar panels would not be visible from the Well Spring site. Traffic associated with construction and operation of the Carty Solar Farm would not impede access to the scenic resources because Tower Road does not provide access to the Boardman segment or the Well Spring site of the trail. For these reasons there will be no significant potential adverse impacts to the scenic resources and no mitigation or monitoring is proposed.</p>

				Attachment RAI-32 provides the relevant portions of the Oregon Trail Comprehensive Management and Use Plan.
33	R-1	345-021-0010(1)(r)(B) & 345-022-0080(1)	PGE identified Blue Mountain Scenic Byway as a scenic resources that may qualify as significant or important. Describe the potential scenic resource (e.g. what is it and why is it potentially important). Provide a copy of the portion of the management plan that identifies the resource as potentially significant or important as required by OAR 345-022-0080(1).	Under OAR 345-022-0080(1), “the Council must find that the design, construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impact to scenic resources and values identified as significant or important in local land use plans, tribal land management plans and federal land management plans for any lands located within the analysis area...” Although the Blue Mountain Scenic Byway was designated in 1989 under the National Scenic Byway Program and therefore identified in Exhibit R, that program itself is not a local land use plan, tribal management plan or federal land management plan. Within the analysis area identified in Figure R-1, the Blue Mountain Scenic Byway is within the local land use jurisdiction of Gilliam County and Morrow County. Neither Gilliam County nor Morrow County identifies the Blue Mountain Scenic Byway as a significant or important scenic resource under the Statewide Planning Goal 5 element of their respective comprehensive plans. The Blue Mountain Scenic Byway within the analysis area is not subject to a federal land management plan. Therefore, PGE does not believe the Council is required to make findings under the Scenic Resource Standard with respect to impacts on the Blue Mountain Scenic Byway.
Exhibit S – Cultural Resources				
34	S-6	345-021-0010(1)(s)(D)(ii) & 345-022-0090(1)	<p>Page S-2 states that “Within the analysis area, WillametteCRA identified and recorded two archaeological resources. Both were isolated finds and fall under the definition of an archaeological object under Oregon Revised Statutes (ORS) 358.905(1)(a).” Page S-6 goes on to state, “The two archaeological isolates identified during the current fieldwork—a precontact projectile point (Isolate 1) and historic-period bottle base (Isolate 2)—are recommended not to be eligible for listing on the NRHP.”</p> <p>However, the EFSC standard OAR 345-022-0090(1) requires the Council to find that the construction and operation of the facility, taking into account mitigation, are not likely to result in significant adverse impacts to:</p> <p style="padding-left: 40px;">“(a) Historic, cultural or archaeological resources that have been listed on, or would likely be listed on the National Register of Historic Places;</p> <p style="padding-left: 40px;">(b) For a facility on private land, archaeological objects, as defined in ORS 358.905(1)(a), or archaeological sites, as defined in ORS 358.905(1)(c);”</p> <p>The Council standard protects three types of resources equally. A) Resources that have been or would likely be listed on the NRHP, B) archaeological objects, and C) archaeological sites.</p> <p>PGE argues that the two isolates are not eligible to be listed on NRHP under any criteria therefore are not consider to be significant and as such are not protected by the EFSC standard. However, the argument should address the impact of the construction and operation of the proposed facility on the archaeological objects, if the two isolates meet the “archaeological object” definition (ORS 358.905(1)(a)), regardless of whether they are eligible for listing on the NRHP.</p> <p>Please also revisit the definition of “archaeological object” under ORS 358.905(1)(a). If the isolates meet the definition, please address OAR 345-022-0090(1)(b) by describing whether the construction and operation of the proposed project will cause any significant adverse impact to the “archaeological objects,” and any mitigation or monitoring plan that PGE proposing to prevent the adverse impact to the resource.</p>	<p>PGE has consulted with SHPO (John Pouley) to respond to this RAI; SHPO has agreed that construction and operation of the propose project will have no effect on any significant archaeological objects or sites. Oregon Revised Statue 358.905(1)(a)(C) defines an archaeological object as “Is material remains of past human life or activity that are of archaeological <u>significance</u> including, but not limited to, monuments, symbols, tools, facilities, technological by-products and dietary by-projects” (emphasis added); since the identified objects are not significant, they do not meet the criteria that requires addressing under OAR 345-022-0090(1)(b).</p> <p>Please see Attachment RAI-34 for an email from John Pouley to Sarah Esterson dated March 14, 2017 which contains SHPOs concurrence of “no effect”.</p>

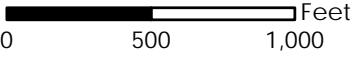
Exhibit T – Recreation					
35	T-2	345-021-0010(1)(t)(B)(i)	Provide an evaluation of the significant potential adverse impacts to the Oregon National Historic Trail including the direct or indirect loss of the important recreational opportunity.		RAI-32 provides information regarding the location of the Oregon National Historic Trail in relationship to the amended site boundary. There will be no direct loss of recreational opportunities along the trail because the project is located more than 2 miles from the closest point to the trail and construction and operation of the Carty Solar Farm would not impact any portion of the trail. There will be no indirect loss of recreational opportunities because construction and operation of the Carty Solar Farm will not limit access to the trail. Access to the trail in the vicinity of the project would either be off Highway 74 and then heading east from Cecil, OR, or by special permission to access the Boardman Bombing Range; the project does not impact either of those routes.
Exhibit W – Facility Retirement					
36	W-3, Appendix W-1	345-021-0010(1)(w)(B)&(D)	<p>Site Certificate Condition 15.1 requires the certificate holder to submit a separate bond or letter of credit for Block 1 and Block 2. The bond or letter of credit for Block 1 and Block 2 each included values for decommissioning of Grassland Switchyard (see Site Restoration Cost Estimate Table, page 92 of Final Order on ASC, June 2012). Currently, PGE has submitted a letter of credit to the Department for Block 1 only, in compliance with the condition.</p> <p>Because the amendment request includes build out of Grassland Switchyard, and the bond or letter of credit currently on file appears to account only for the Grassland Switchyard components associated with Block (Unit) 1, please evaluate the retirement cost estimate provided in RFA Exhibit W and determine whether decommissioning of the Grassland Switchyard buildout, as proposed in the amendment request, is included and revise the retirement cost estimate, if necessary.</p>		All costs associated with restoration of Grassland Substation were included in the cost estimate for Unit 1 (i.e. not divided between Unit 1 and Unit 2); therefore, the existing letter of credit already includes the cost of restoration of Grassland Switchyard and does not need to be added as part of the solar farm decommissioning.
37	W-3, Appendix W-1	345-021-0010(1)(w)(D)	Appendix W-1 includes a cost estimate for “2.0 Module and Rack Disassembly.” The Department requests a brief explanation of the estimate presented under “2.1 Removal of Solar Array.” The Department requests that PGE verify that the information is correct (i.e. 198,450 PV modules and associated hours of work required per person per module at 0.01, 0.02 and 0.00139).		PGE confirms that the values provided are correct, within reason, based on current high level design. The ultimate number of PV modules may vary higher or lower than the 198,450 listed; however, the number will not vary significantly and would not impact the decommissioning cost estimate great enough to require adjustment. Contingencies built into the cost estimate would be sufficient enough to cover any variances.
38	W-3, Appendix W-1	345-021-0010(1)(w)(D)	Appendix W-1 includes a cost estimate for “5.0 Civil Site Reclamation.” “5.5 Regrading of Site” and “5.6 Site Rehabilitation” references 314 acres. RFA Exhibit C references 321.5 acres of permanent disturbance. In addition, if the buildout of Grassland Switchyard (7.5 acres) proposed in this amendment request is not already accounted for in the letter of credit currently on file with the Department for Block (Unit) 1, please update the retirement cost estimate to align with either 321.5 acres (based on RFA Exhibit C) or 329 acres (based on RFA Exhibit C + 7.5 acres from Grassland Switchyard buildout), or provide explanation to support use of 314 acres as presented.		The actual facility permanent disturbance area as proposed would be 315 acres. An additional 6.5 acres covers the expansion of the Grassland Switchyard to approximately the original expected size as proposed in the Carty ASC of 15 acres. The letter of credit currently on file does include costs associated for the full build of the Grassland Switchyard to 15 acres as originally proposed.

Attachment RAI-3

Figure B-5 - Revised



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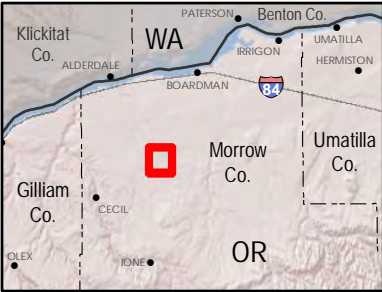
Source: Blue Oak Energy

Figure B-5 Revised
Carty Solar Farm
Detailed Layout

Request for Amendment No. 1
Carty Generating Station Site Certificate
Portland General Electric Company
June 2018

Attachment RAI-5

Figures B-3 and B-4



- - - Transmission Line Options
- Amended Site Boundary
- Existing Permanent Feature
- Existing and Proposed Temporary Disturbance
- Proposed Permanent Feature

Note: this figure shows 80-foot wide temporary disturbance corridors along all potential transmission line routes; however, during final design the selected transmission line will be micro-sited within this corridor, and final disturbance acreages will be smaller.

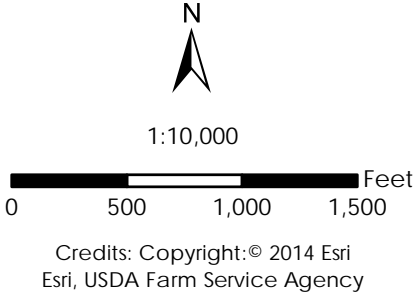
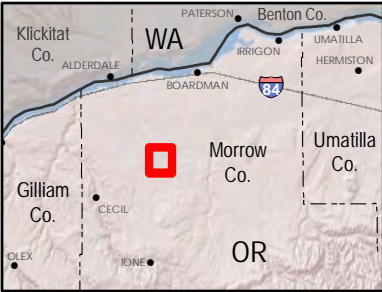


Figure B-3
Sheet 1 of 2
Carty Permanent Disturbance
and Temporary Construction
Work Space



- - - Transmission Line
- Amended Site Boundary
- Proposed Temporary Disturbance
- Proposed Permanent Feature

Note: this figure shows 80-foot wide temporary disturbance corridors along all potential transmission line routes; however, during final design the selected transmission line will be micro-sited within this corridor, and final disturbance acreages will be smaller.

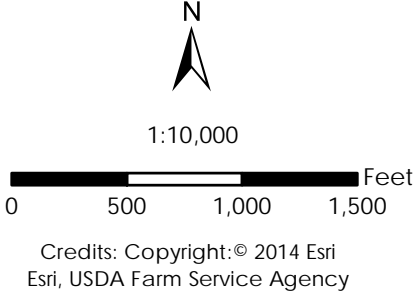
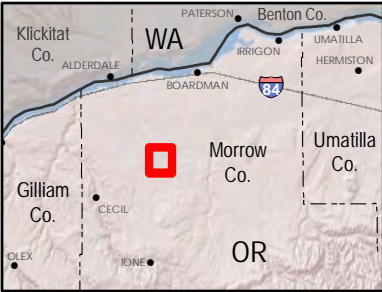


Figure B-3
Sheet 2 of 2
Carty Permanent Disturbance
and Temporary Construction
Work Space



- Transmission Line Options
- Route 1: to Grassland Switchyard
 - Routes 2a and 2b: to Unit 1 Isophase
 - Routes 3a and 3b: to Boardman Plant
 - Amended Site Boundary
 - Existing or Proposed Project Disturbance Areas

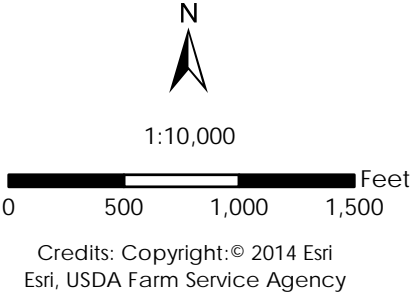
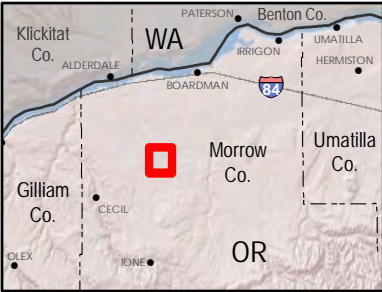
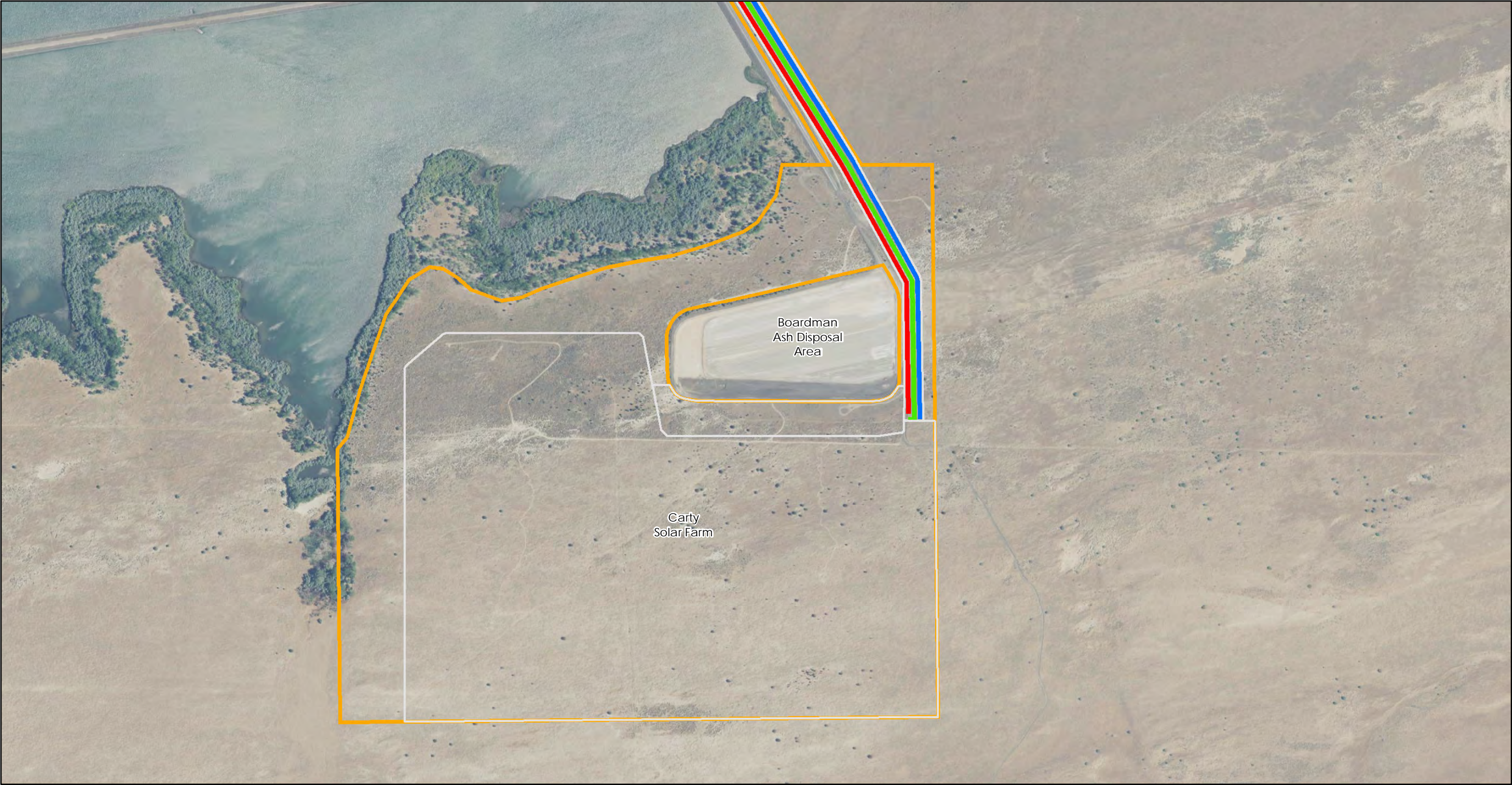


Figure B-4
Sheet 1 of 2
Carty Solar Farm Interconnection
Options and Potential
Transmission Line Routes
Request for Amendment No. 1
Carty Generating Station Site Certificate
Portland General Electric Company
February 2018



- Transmission Line Options
- Route 1: to Grassland Switchyard
 - Routes 2a and 2b: to Unit 1 Isophase
 - Routes 3a and 3b: to Boardman Plant
 - Amended Site Boundary
 - Existing or Proposed Project Disturbance Areas

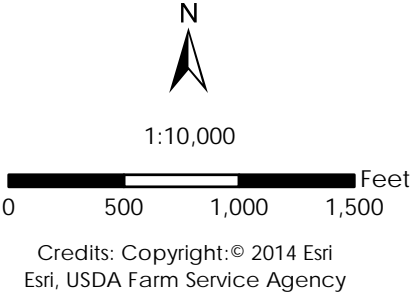


Figure B-4
Sheet 2 of 2
Carty Solar Farm Interconnection
Options and Potential
Transmission Line Routes
Request for Amendment No. 1
Carty Generating Station Site Certificate
Portland General Electric Company
February 2018

Attachment RAI-12

Revised Exhibit H

EXHIBIT H

GEOLOGY AND SEISMICITY

OAR 345-021-0010(1)(h)

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H-2 Recorded Earthquakes Within 50 Miles

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H.1 INTRODUCTION

OAR 345-021-0010(1)(h) *Information from reasonably available sources regarding the geological and soil stability within the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0020.*

Response: This exhibit presents the results of a preliminary geologic and geotechnical assessment for the proposed Carty Solar Farm. This exhibit was prepared using information from previously published geologic and seismic studies and preliminary site-specific geotechnical site explorations. Detailed geotechnical design recommendations will be prepared in a separate report after additional subsurface explorations and laboratory testing are completed for specific structure placement(s) and site layout work. The following sections present information required under updated Oregon Administrative Rule OAR 345-021-0010(1)(h).

H.2 GEOLOGIC REPORT

OAR 345-021-0010(1)(h)(A) *A geologic report meeting the Oregon State Board of Geologist Examiners geologic report guidelines. Current guidelines shall be determined based on consultation with the Oregon Department of Geology and Mineral Industries, as described in paragraph (B) of this subsection.*

Response: A geotechnical/geologic investigations report, meeting the general guidelines in DOGAMI Open File Report 00-04 and the Oregon State Board of Geologist Examiners' *Guidelines for Preparing Engineering Geologic Reports* (Second Edition, May 30, 2014), is presented in Appendix H-1. The report was prepared by Portland General Electric's geotechnical consultant, Cornforth Consultants, Inc., of Portland, Oregon and is dated May 27, 2016. The report summarizes Cornforth Consultants' preliminary geotechnical investigations and reconnaissance of the site, which were performed in March and April 2016.

Appendix H-1 was prepared for the previous version of this RFA and submitted to the Oregon Department of Energy in August 2016. Since that submittal, Portland General Electric Company (PGE) has modified its plans for the project. References to Units 2 and 3 are included in Appendix H-1, Figure 2, but are no longer relevant to PGE's amendment request and are not incorporated into the evaluation of compliance with applicable Oregon Energy Facility Siting Council standards.

H.3 CONSULTATION SUMMARY

OAR 345-021-0010(1)(h)(B) *A summary of consultation with the Oregon Department of Geology and Mineral Industries regarding the appropriate methodology and scope of the seismic hazards and geology and soil-related hazards assessments, and the appropriate site-specific geotechnical work that must be performed before submitting the application for the Department to determine that the application is complete.*

Response: The Oregon Department of Geology and Mineral Industries (DOGAMI) was notified of Portland General Electric's intent to prepare a Site Certificate Amendment Request for the Carty Solar Farm pursuant to OAR 345-021-0010 via a telephone conference that occurred on March 28, 2016. The telephone conversation occurred between Mr. Bill Burns of DOGAMI and Mr. Darren Beckstrand, Senior Associate Geologist with Cornforth Consultants, Inc. Mr. Beckstrand informed Mr. Burns during the conversation of Cornforth's intent to complete preliminary site investigations consisting of a geologic site reconnaissance (completed March 30, 2016), drilling of preliminary site exploratory borings (completed March 29 through 31, 2016), field electrical resistivity testing (completed April 8, 2016) and laboratory testing (completed in April 2016).

Subsequent email communications (Beckstrand/Burns) confirmed this consultation with DOGAMI and highlighted several suggestions by DOGAMI for Cornforth to consider during the site evaluations. In his email response, Mr. Burns pointed-out that the latest version of the OAR 345-021-0010 regulations at the time did not reference the latest building codes/guidelines. At the time, He suggested that any analyses that refers to or relies on the International Building Code (IBC) or the Oregon Structural Specialty Code (OSSC) consider both the codes/guidelines referred to in the current OAR regulations (outdated code references, 2009 IBC and 2010 OSSC) and also the updated codes (IBC 2015 and OSSC 2014). Mr. Beckstrand confirmed that we would keep these updated codes in mind during our assessments. It is understood that DOGAMI will complete a detailed review of the Site Certificate Amendment (specifically the geologic, seismic and geotechnical information sections relating to the project) when requested by the Energy Facility Siting Council (EFSC). The preliminary geotechnical/geological site investigation report prepared for this site is included in Appendix H-1, and the geologic and seismic assessments for the site are included in other subsections of this Exhibit H.

Since the original submission of this Exhibit in 2016, OAR 345-021-0010(1)(h) has revised the statutes and removed references of specific building codes, instead referencing standard-of-practice and best practices. Section H-6 of this Exhibit reflects this updated approach.

H.4 DESCRIPTION AND SCHEDULE OF GEOTECHNICAL WORK

OAR 345-021-0010(1)(h)(C) *A description and schedule of site-specific geotechnical work that will be performed before construction for inclusion in the site certificate as conditions.*

Response: Preliminary geologic and geotechnical site investigations were completed at the site during the period of March 29 through April 8, 2016. The preliminary site work included a geologic reconnaissance of the area, drilling of four exploratory borings to depths of 50 feet below the existing ground surface, and field electrical resistivity measurements (one location) to evaluate on-site soil conductivity. The results of the preliminary site characterization are summarized in the geotechnical/geologic investigations report in Appendix H-1. Additional site-specific geologic and geotechnical work will be performed during the final project design and in advance of construction activities, after the layout of the solar panel arrays and racking systems

are developed, structural loads are determined, and after locating other associated on-site electrical equipment and project components.

The additional site investigation work will likely include exploratory borings at multiple locations across the site, laboratory testing to develop additional soil index properties and geotechnical parameters for final design, foundation designs for the racking system support structures, site grading and access roadway designs. All of the above would be summarized in a geotechnical design report for the project. The program of additional site investigations will be developed and completed during the next phases of permitting and design studies for the project, prior to the beginning of significant construction activities. These follow-up site investigations and reporting tasks will be completed by registered professional engineers and engineering geologists. Final design of foundation support systems may be completed by a construction contractor's in-house engineering staff, or retained consultants, prior to the beginning of project construction.

H.5 TRANSMISSION LINES

OAR 345-021-0010(1)(h)(D) *For all transmission lines, and for all pipelines that would carry explosive, flammable or hazardous materials, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, dead ends (for transmission lines), corners (for transmission lines), and portions of the proposed route where geologic reconnaissance and other site specific studies provide evidence of existing landslides, marginally stable slopes or potentially liquefiable soils that could be made unstable by the planned construction or experience impacts during the facility's operation.*

Response: Power generated by the Carty Solar Farm would be transmitted to the extended power grid at the Grassland Switchyard by: i) the existing Boardman Generating Plant powerlines; ii) new Carty Plant powerlines; or iii) directly to the switchyard via new lines where it would then be connected into the grid. It is anticipated that the line extending from the solar facility site to the Boardman/Carty/Grassland locations will be by an overhead transmission line. The new portions of the transmission line would extend along the eastside of the Carty Reservoir east embankment and along the northeast and northern limits of the reservoir. The subsurface conditions for design of that line would be investigated during final design studies for the project.

Power distribution would be accomplished by the original Boardman to Slatt 500-kV alternating current (AC) transmission line. The transmission line has been operating since the late 1970s and has not experienced any geotechnical- or geologic-related issues.

The new power line from the solar facility does not cross over any major roadways, rivers, landslide or marginally stable slope areas. It may (depending on the chosen alignment) cross over the railroad spur line that supplies coal to the existing Boardman Plant. As discussed earlier, additional site investigations will be performed along the final route of any new power transmission lines.

There are no pipelines associated with the Carty Solar Farm.

H.6 SEISMIC HAZARDS ASSESSMENT

OAR 345-021-0010(1)(h)(E) *An assessment of seismic hazards, in accordance with standard-of-practice methods and best practices, that addresses all issues relating to the consultation with the Oregon Department of Geology and Mineral Industries described in paragraph (B) of this subsection, and an explanation of how the applicant will design, engineer, construct, and operate the facility to avoid dangers to human safety and the environment from these seismic hazards. Furthermore, an explanation of how the applicant will design, engineer, construct and operate the facility to integrate disaster resilience design to ensure recovery of operations after major disasters. The applicant shall include proposed design and engineering features, applicable construction codes, and any monitoring and emergency measures for seismic hazards, including tsunami safety measures if the site is located in the DOGAMI-defined tsunami evacuation zone.*

Response: *Site-Specific Seismic Design Factors:* Seismic hazards are addressed using current standard-of-practice and best practices by applying 2015 International Building Code (IBC) and the 2008 USGS maps and updates. The upcoming 2019 Oregon Structural Specialty Code (OCSS) is anticipated to reference the 2015 IBC. Identification of the Maximum Considered Earthquake Ground Motion as shown for the site under the 2015 International Building Code. If new IBC and/or OCSS guidelines are released prior to the final design efforts, the newer, updated guidelines will be adhered to.

Mapped spectral accelerations (USGS 2008 maps and updates) at the site are based on International Building Code (IBC) 2015 (2,475-year return period, 0.2s SA and 1.0s SA) are 0.423g and 0.165g, for short (S_s) and 1-second (S_1) period motions, respectively. Based on preliminary subsurface explorations, the soil profile at the site corresponds to an IBC site class D. The risk-targeted maximum considered earthquake (MCE_R) ground motions at the site, S_{MS} and S_{M1} are 0.618g and 0.353g, respectively.

Two principal types of earthquake sources are capable of generating strong ground motions at the site; the Cascadia Subduction Zone (CSZ) “interface” and local crustal faults. The CSZ seismic events result from the Juan de Fuca tectonic plate subducting (sliding) beneath the North American continental tectonic plate with the CSZ interface events occurring between the two plates. The crustal fault sources identified are those occurring on known, unknown, buried, or random faults in the area. Table H-1 identifies and characterizes the seismic sources capable of

generating a peak bedrock acceleration of at least 0.05g at the site. Mean peak bedrock accelerations for crustal sources were calculated using the average of all five enhanced Next-Generation Attenuation-West 2 (NGA-West 2) relationships (Idriss, 2014; Campbell and Bozorgnia, 2014; Abrahamson and Silva, 2014; Boore and Atkinson, 2014 and Chiou and Youngs, 2014). The peak acceleration estimated for the CSZ interface event was calculated using the averaged, mean plus one standard deviation ground motions from Addo, et al (2012), Atkinson and Boore (2003), Atkinson and Macias (2009), and Zhao, et al. (2006) attenuation relationships.

Table H-1: Deterministic Seismic Hazard Assessment Peak Bedrock Acceleration >0.05g

Source	Probability of Activity	MCE	Minimum Distance (km)	Mean Peak Acceleration (g)
Horse Haven Hills Structure	1.0	7.1	66	0.06
Rattlesnake-Wallula Fault System	1.0	7.4	71	0.06
Mill Creek Thrust Fault	1.0	7.1	75	0.05
Random Event	1.0	6	10	0.24
CSZ Interface Event	1.0	9	310	0.05

MCE – Maximum Credible Earthquake

As shown in the table, the random crustal event would control ground motions at the site. Other crustal sources in eastern Oregon and Washington and the CSZ Interface Event are located too far from the site to produce peak bedrock accelerations much greater than 0.05g to 0.06g at the site.

The vast majority of seismic events are located within the crust of the North American Plate. Even along the coastal portion of Oregon where the Juan de Fuca Plate dominates the tectonic setting of the region, less than 5 percent of historical seismicity is related to potential intraslab or interface events.

Seismicity documented for the period from 1827 through 1969 can be divided into two sub-periods. Pre-instrumental data for the period 1827 through 1935 are converted from maximum intensity data based on personal accounts of the shaking, i.e., on “felt” reports. In Oregon, the data from 1944 through 1969 were recorded instrumentally, but this instrumental coverage was not sufficient to accurately locate events, or to record smaller events. After 1960, enough instrumental coverage was achieved to improve locations over felt reports; however, events below magnitude (M) 4.5 could not be located accurately prior to 1970.

A list of earthquakes recorded since 1970 within 50 miles of the site is provided in Appendix H-2. The largest of these earthquakes was M 4.1.

Six earthquakes that could have generated Modified Mercalli III intensity, or greater, at the site have been reported. These earthquakes of M 4.5 or greater are more than 50 miles from the site. These larger earthquakes are listed in Table H-2 below. No earthquakes greater than M 7.1 have been recorded in the Pacific Northwest.

Table H-2: Large Earthquakes >50 miles from Site

Date	Latitude N	Longitude W	Magnitude	Maximum Mercalli Intensity
Dec. 15, 1872	47.90	120.30	7 M _L	VIII
Jul. 16, 1936	46.00	118.21	5.7 M _S	VI
April 13, 1949	47.08	122.75	7.1 M _L	VIII
April 29, 1965	47.40	122.40	6.5 M _L	VII
April 13, 1976	45.22	120.77	4.8 M _L	V
Feb. 28, 2001	47.15	122.73	6.8 M _W	VII

The median ground response spectra for the MCE and MPE are compared with the Oregon Structural Specialty Code (OSSC) (both 2010 and 2014 editions in Appendix H-1, 2014 discussed here) design spectrum in Appendix H-1, Figure 15. The spectral accelerations for the MCE Random Crustal earthquake exceed the design spectrum over the period range 0.10 to 0.47 seconds using the 2014 OSSC. As part of final design studies, additional borings would be completed to investigate subsurface conditions. The preliminary borings indicate that subsurface materials generally consist of loose to very dense, sandy silt to silty sand. General site topography is gently sloping without steep slopes. Based on site topography and preliminary boring information it is anticipated that amplification of ground motions is not expected, and that the design ground motions would not be greater than those of the MCE ground motions.

Seismic Hazard Assessment. Based on the preliminary geotechnical studies, no significant seismic hazards are expected at the site. The predominant foundation conditions include loose to dense cemented silt/fine sand underlain by weathered rock, which in turn, is underlain by hard basalt. There are also medium stiff to very stiff clayey silt layers in several of the borings. These conditions should provide adequate bearing strata for the project foundations, and the predominantly dense and stiff overburden soils would not be expected to liquefy, spread laterally, or significantly amplify ground motions from a seismic event.

Due to the gently sloping topography of the site, the likelihood of seismically-induced landsliding is low. Additionally, the site is not located near a body of water large enough to develop a significant tsunami wave. Therefore, the risk of tsunami inundation at the site is extremely low to non-existent. Earthquake induced waves (seiche) from the impoundment reservoir are not expected to exceed the height of the embankments or to travel very far landward of the shorelines. There are no mapped active crustal faults located within 6 miles of the site. The risk of fault rupture is low.

The proposed Carty Solar Farm is outside any DOGAMI-defined tsunami evacuation zone.

Seismic Disaster Resilience. The proposed solar facility is located over 200 miles from the CSZ and is in the *light* damage zone as defined in the Oregon Resiliency Plan (2013), making it inherently resilient to region-wide seismic disaster. Local seismic resiliency will be provided by adhering to current seismic building codes, which incorporate the latest, widely-accepted earthquake data and science.

Ground shaking hazards would be addressed by the use of seismic ground response spectra in the design, in general accordance with applicable International Building Code and Oregon Structural Specialty Code requirements to design project structural support elements to avoid failure of the panel support systems. The structural engineer would design the facilities to resist lateral base shear based on the spectral values and the seismic design category of the structure. If the spectral values are significantly lower than the OSSC values, the code values would be utilized. Seismic activity monitoring would be accomplished by monitoring public seismic data when needed, such as that provided by the United States Geologic Survey or the Pacific Northwest Seismic Network. On-site seismic monitoring is not warranted.

In addition, in the unlikely event of a failure of a solar panel support system (i.e. the racking support system for the solar panels), the risk that would pose to human safety is considered to be low. This is considered low since the presence of operational staff being beneath failing racks that had been designed to seismic codes during a significant seismic event is considered to be remote.

H.7 GEOLOGY AND SOIL-RELATED HAZARDS ASSESSMENT

OAR 345-021-0010(1)(h)(F) *An assessment of geology and soil-related hazards which could, in the absence of a seismic event, adversely affect or be aggravated by the construction or operation of the facility, in accordance with standard-of-practice methods and best practices, that address all issues relating to the consultation with the Oregon Department of Geology and Mineral Industries described in paragraph (B) of this subsection. An explanation of how the applicant will design, engineer, construct and operate the facility to adequately avoid dangers to human safety and the environment presented by these hazards, as well as: (i) An explanation of how the applicant will design, engineer, construct and operate the facility to integrate disaster resilience design to ensure recovery of operations after major disasters. (ii) An assessment of future climate conditions for the expected life span of the proposed facility and the potential impacts of those conditions on the proposed facility.*

Response: Based on the preliminary geotechnical investigations, the solar facility site does not appear to possess any significant, non-seismic geologic hazards. As discussed in the preliminary geotechnical/geological report (Appendix H-1), there is an upper, surficial layer of dry silt/fine sand that may present minor geotechnical concerns relating to wind erosion or soil-structure

collapse; however, it is anticipated that these concerns can be mitigated during the final design and construction phases of the project. In general, the near-surface soil conditions across the site are similar with loose to medium dense, silty sand to sandy silt with weak caliche cementation throughout the layer in the upper 18 to 28 feet. All borings encountered slightly looser soils in approximately the upper five feet. These near surface soil units generally increase in relative density with increasing depth. Underlying these upper soil units are very dense silt and sand, medium stiff to very stiff clayey silt, dense to very dense basalt fragments in a soil matrix, and medium hard to hard basalt. These conditions should provide adequate bearing strata for project foundations.

The risk of landslide occurrences at the site is very low due to: i) gently sloping or flat topography all across the site; ii) relatively strong soils at depth; and iii) apparent low groundwater levels. In addition, the risk of flood damage is low due to the flat terrain and lack of upslope drainage areas that could direct water into the project site. There were no indications from the geologic reconnaissance of any significant surficial flood drainage ways or flood-eroded ravines.

The two key geotechnical and geologic issues for the solar facility project appear to be the potential for erosion of loose surficial soils, and a low potential for collapse of the relatively loose, near-surface wind-blown soils. Collapse of the soil-structure is a phenomenon where the wind-blown loose, dry, silt/fine sand consolidates upon saturation or additional loading, which can cause distress to overlying structural elements or road pavement sections due to differential settlement. It is anticipated that the final design exploration program would include additional borings and test pits, to evaluate the areal extent of the loose silt/fine sand layers.

Soil erosion typically results from the uncontrolled flow of surface water across a site or from strong winds acting on loose silty or sandy soils. Due to the relatively flat topography at the site, surface erosion from water flow is considered unlikely. The soils at the ground surface have a low to moderate susceptibility to wind erosion

Non-Seismic Mitigation Measures. The potential for surface wind erosion will be addressed in the final design with some form of vegetation growth or treatment of the ground surface to bind the surface soil particles together or covering them with a wind-resistant layer such as a crushed rock aggregate. The potential problem of soil structure collapse is simple to address in the design phase, with considerations given to: i) extending foundations support for the solar panel support systems and other appurtenant structures through the looser soil to stronger bearing layers at a slightly lower depth; and/or ii) excavating and replacing the looser soil with engineered fill that is moisture conditioned, and placed and compacted in lifts. Extending the foundation support of the panel support system to a deeper, more competent soil layer may be best for the racking support systems, whereas the latter option of removal and replacement may be better suited under any electrical equipment concrete support slabs and any paved road sections.

Again, these potential geotechnical or geological hazard issues are not considered to be a danger to human safety and could be easily mitigated during the final design of project features. There is

no need to develop any mitigation measures relating to landslides or flooding as these geologic hazards are not considered to be an issue for this site.

Integration of Disaster Resilience Design. The proposed solar facility will be founded upon strong soils and will have comprehensive engineering design efforts to ensure renewed operation as soon as practicable after a major disaster. The location of the facility in the Eastern Cascadia Scenario Impact Zone anticipates *light* damage from a CSZ earthquake (Oregon Resilience Plan, 2013), improving the electricity grid’s ability to recover from a regional disaster originating to the west. Solar facilities are inherently resilient to disasters due to less complex generation systems and fewer moving parts or ignition sources that could be damaged during shaking.

Following significant, regional storms that may impact other regional facilities, solar and other facilities outside the high-rainfall areas of the Pacific Northwest improves extreme-storm resilience.

An Assessment of Future Climate Conditions and their Impacts. Impacts of climate change in the region may include (Dalton et al, 2017):

- More common extreme heat events
- Small increases in drought frequency
- Longer fire seasons
- More common storm events
- Altered precipitation patterns influencing rangeland vegetation
- Shifting streamflow seasonality

These potential impacts would either not affect the solar facilities (i.e. more heat, more drought) or are mitigated through site development, such as wildfire potential being reduced by site vegetation control. Local vegetation changes could increase eolian (wind-driven) sand transport, though site maintenance would control for this. Other factors, such as shifting streamflow seasonality, forest transformation and disturbance, and challenges to fish do not apply to this facility due to the surrounding grasslands and absence of streams traversing the site. Site drainage from strong storms would be controlled by site grading and surface water control systems engineering using site-specific hydraulic analyses.

Future climate conditions that impact the region are not expected to negatively affect the Solar Facility.

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APPENDIX H-1

Preliminary Geotechnical/Geological Site Investigations

Note: Appendix H-1 Geotechnical/Geological Investigations for the Photovoltaic Solar Facility was prepared for the previous draft of this RFA, submitted to the Oregon Department of Energy in August 2016. Since that submittal, PGE has modified its plans for the project. References to Units 2 and 3 are included in Appendix H-1 Figure 2, but are no longer relevant to PGE's amendment request and is therefore not incorporated into the evaluation of compliance with applicable Council standards.



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2488

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Preliminary Geotechnical/Geological Investigations
Carty Generating Station – Photovoltaic (PV) Solar Facility Project
Boardman, Oregon

Dear Mr. Boyd:

In accordance with our proposal, we have completed a preliminary geotechnical/geological investigation for a proposed Carty Generating Station – Solar Facility Project near Boardman, Oregon. This letter-report summarizes our field investigations, laboratory testing, and our geotechnical and geological assessments of the proposed project site.

Background Information

General Description. Portland General Electric (PGE) is proposing to build a solar panel facility near its existing Carty Power Generation Facilities in north central Oregon. The Carty Solar Facility Site would be approximately 8,000 feet southeast of the existing Boardman Plant. It will be located on approximately 430 acres of undeveloped, open range land immediately adjacent to the Carty Reservoir in Morrow County, Oregon (see Vicinity Map, Figure 1). It will be adjacent to or surround the existing ash waste landfill site that is currently in-use for the Boardman (coal-fired) Plant. Figure 2 shows an aerial plan view of the Boardman-Carty Complex with many of the prominent site and plant features shown, as well as the relative location of the proposed solar facility site.

The proposed solar facility project will be capable of generating approximately 40-50 MW of power, adding to the existing capacity of the Boardman and Carty Plants. All solar panels will be mounted on a yet-to-be-determined racking system elevated above the ground surface. The foundation support systems for the panel racks are unknown at this time as are the final design loads. Design loads for similar facilities have depended on the various types of racking systems used for the projects. Allowable design loads for different types of racking systems have typically ranged from 5,000 to 10,000 pounds for maximum axial and lateral loads. Other electrical equipment associated with the project will generally be supported by slab-on-grade

concrete pads. The electrical equipment and concrete slabs typically weigh approximately 50,000 pounds, and generally have an average footprint of 200 square feet. Foundation support for these electrical pads will be by direct bearing on the ground surface, shallow spread footing or possibly drilled piers; the final design being dependent on subsurface soil conditions. The electrical equipment and support pads will be arranged across the solar facility site, as needed.

The focus of these site investigations for the solar facility site is to provide a preliminary assessment of the foundation conditions and potential geotechnical/geological hazards at the proposed location. The information developed by these investigations will help satisfy the requirements of Exhibit H, a subsection on soils and geology that will be included in a Site Certificate Amendment Request to the Oregon Department of Energy's – Energy Facility Siting Council. Additional field investigations, laboratory testing, and geotechnical design analyses specific to the final solar facility layout and panel support system will be performed later in the project development.

Geotechnical Performance of Existing Boardman Plant. Based on discussions with PGE personnel, it is our understanding that the existing Boardman Generating Plant has not experienced any geotechnical- or geological-related issues since its construction in the late 1970's. Most of the structures are founded on deep foundations (drilled shafts), which penetrate into cemented soils and basalt bedrock underlying the site. There have been no problems associated with soil collapse, ground surface heave, settlement, landslide movement and no damages from minor seismic events that have occurred during the life span of the existing facility.

Scope of Work

The preliminary geotechnical assessment for the solar facility project included the following work tasks:

- Review existing site information on the geologic setting, potential seismic sources, and other geologic hazards that could have an impact on the design and performance of the proposed project structures.
- Complete a geological field reconnaissance of the proposed site to check for and document geologic hazards.
- Perform a preliminary subsurface exploration program consisting of four borings at locations identified by another consultant and staked in the field by PGE's survey crew. The borings are shown on a Solar Facility Site Plan, Figure 3. The drilling program also included piezometer installations at each of the four drillhole locations to monitor groundwater conditions across the site.
- A second field investigation task included a field electrical resistivity test site (Wenner 4-pin test) at one location in the northeast portion of the site, see Figure 3.

- Perform a laboratory testing program that included: i) moisture contents on all soil samples collected; ii) Atterberg limits; iii) grain-size analyses; iv) consolidation tests; v) collapse potential tests; vi) soil pH tests; vii) sulfate and chloride content tests; and viii) laboratory electrical resistivity tests, all on representative samples collected from the borings.
- Prepare a preliminary geotechnical/geological report summarizing: i) the assessments of existing geologic and seismic information relevant to the project; ii) the geologic field reconnaissance; iii) the site investigations and subsurface conditions; iv) laboratory testing results; v) preliminary geotechnical recommendations relating to foundation design; and vi) an overview of geological/geotechnical issues with regard to design and construction of the proposed facilities.
- Preparation of Exhibit H – Geology and Seismicity, Subsections A through I for a Site Certificate Amendment Request, in accordance with the Oregon Administrative Rules OAR 345-021. It is understood that the overall Site Certificate Amendment will be prepared by PGE, with input from our firm as required for Exhibit H. Our Exhibit H subsection will be submitted to PGE as a stand-alone document under a separate cover.

Geologic Setting

The proposed site is located on Poverty Ridge, approximately 12 miles southwest of Boardman, Oregon, within the Deschutes-Columbia Plateau physiographic province. The Deschutes-Columbia Plateau is predominantly a volcanic area covering about 63,000 square miles in Oregon, Washington, and Idaho and contains the widespread flows of the Columbia River Basalt Group. At the proposed site, the native terrain is gently sloping downhill to the north toward the Columbia River at $\frac{1}{2}$ to $1\frac{1}{2}$ degrees (Figure 1). This sloping terrain is interrupted occasionally by geologic folds, one of which is Poverty Ridge.

The topography of the Carty-Boardman Complex area is dominated by Poverty Ridge and Sixmile Canyon directly to the west. At this site, the ridge elevation is approximately 690 to 750 feet and the floor of Sixmile Canyon is 670 feet just west of the proposed site. The ridge surface is generally flat with an approximate elevation decrease of 10 feet per 1,000 feet toward the Columbia River. Adjacent to the site, Sixmile Canyon more closely resembles a narrow valley as the canyon diminishes from deeper northern portions toward the south. Surface water currently infiltrates into the soil or flows west towards Sixmile Canyon. One arm of the Carty Reservoir currently occupies and infills a portion of Sixmile Canyon directly west of the solar facility site.

Cataclysmic floods repeatedly swept through this area at the end of the last ice age, or about 13,000 to 15,000 years ago. These floods, termed the Missoula Floods, were the result of glacial damming of over 500 cubic miles of water in western Montana. As the water backed-up behind ice dams, the dams would eventually float and break free of their foundation, releasing the volume of glacial Lake Missoula at velocities up to 80 mph. Approximately twenty-five of these floods transported and deposited significant quantities of sediment and shaped the current landscape of the region, including the proposed solar facility site. The threat of future floods was

eliminated with the retreat of the ice sheets 13,000 years ago. The flood deposits at the site are evidenced by rock types foreign to the area, such as granite, schist, and gneiss that were transported to the site on ice rafts during the floods.

Mapped approximately 1½ miles northeast of the site is an inferred, concealed northwest-trending normal fault (Smith and Roe, 2015). This fault does not appear in the USGS databases for faults displaying known Quaternary displacement. The closest reported fault that may exhibit quaternary activity is approximately 17 miles to the west and is part of the Arlington-Shutler Butte fault zone. Three other possible Quaternary fault systems are present approximately 50 miles to the east of the site: the Wallula fault system, the Ukiah Valley faults, and the Hite fault system.

Borings located in the southern part of the site, drilled to depths of 50 feet, encountered similar overburden profiles consisting of loose to very dense sandy silt and silty sand displaying varying degrees of caliche cementation. These deposits are typical of the local loess deposits associated with dune field sedimentation and Missoula Flood deposits. These borings also encountered preserved veins of caliche sedimentation and occasional basaltic rock fragments. One of the borings (B-2), discussed fully in a subsequent section, encountered a medium hard to hard basalt at 43 feet below the ground surface (bgs). In the northerly borings, subsurface materials were similar to the southern borings, except for encountering an interlayer of medium stiff to very stiff clayey silt overlying the basalt bedrock. Boring B-4 encountered medium hard to hard basalt at 38 feet bgs.

The geologic formations underlying the overburden soil units at the proposed solar facility site are associated with the Columbia River Basalt Group and are interpreted to consist of the Elephant Mountain Flow (10.5 million years old). This basalt typically consists of very highly jointed, hard basalt in a matrix of slightly clayey to clayey silt in the upper 10 feet of the unit, grading to less-fractured hard basalt. The unit is generally 20 to 30 feet in thickness according to borings at the nearby Boardman Generating Station. From previous explorations at the Boardman Station, the unit is a hard to very hard, gray, fine- to medium-grained basalt.

The Rattlesnake Ridge unit underlies the Elephant Mountain flow and is generally 20 to 35 feet in thickness beneath the Boardman Station. It consists of weakly cemented, weathered tuff and tuffaceous sediments. This unit is altered to the extent that it exhibits soil-like engineering characteristics as a very stiff to hard, clayey silt.

The Pomona basalt flow underlies the Rattlesnake Ridge unit and consists of three distinct portions: an upper breccia zone, a middle vesicular zone, and a bottom dense basalt zone. When encountered beneath the Boardman Station, the breccia zone consists of vesicular to scoriaceous basalt fragments within a tuffaceous matrix. This unit has not been fully penetrated by any drilling at the Boardman Station. A geologic map from Oregon Geologic Data Compilation Release 6 (OGDC-6) showing the surficial geologic units at the site is shown on Figure 4.

Geologic Reconnaissance

A senior engineering geologist from our firm performed a geologic reconnaissance of the proposed Carty Area Expansion Site for the solar facility on March 30, 2016. The reconnaissance entailed examining published maps, aerial photos, and walking the site in the location of the planned facilities. Due to the site's straightforward conditions and setting (i.e. consistent gently sloping to level ground with silt and sand over bedrock), a site specific geologic map was deemed unnecessary. The reconnaissance confirmed the geology previously mapped in the area from both publicly and privately available geologic information. The units in the area are as described above.

There is an unnamed inferred/concealed fault located about 1½-miles northeast of the proposed solar facility site. A reconnaissance of this fault did not reveal any evidence of displacement of surficial deposits.

Surficial soils in the area of the solar facility site consist predominantly of up to 28 feet of light brown, cohesionless, wind-blown silt and fine sand (loess). The sand is loose and well drained. It's dry at the surface and, at the time of the site visit, becomes slightly moist at about 6-inches. Sparsely vegetated and stabilized longitudinal sand dunes aligned parallel to the northeast prevailing wind direction dominate the topography. The stabilizing vegetation consists of desert grasses, sagebrush, and scattered trees. Where vegetation is bare the dune sand is subject to accelerated erosion; wind erosion has created numerous scouring depressions in the silt/sand deposits and minor sediment transport was seen to be occurring at the time of the reconnaissance. The dune morphology has a relative relief of 3 to 4 feet in height and 6 to 8 feet across on the average. Numerous cobble- to boulder-sized lithics were observed scattered across the site, evidence of the Missoula Floods. Rock types included basalt, granite, and schist. The reservoir pool of the Carty Reservoir (see Figure 2) is cutting into these deposits, causing erosion and bank instability in some areas.

The surficial soils and the topography were observed to change slightly in the northern part of the proposed solar facility area. Near the reservoir, there is a zone that varies between 500 to 1,000 feet wide along the reservoir where soil moisture increases and the soil becomes slightly finer due to the reservoir influencing soil moisture and vegetation growth. In addition, the land surface is less irregular.

Geotechnical Explorations

Exploratory Borings. Field geotechnical investigations for the solar facility site consisted of exploratory borings and field electrical resistivity measurements at select locations. Four geotechnical borings were completed for this preliminary investigation at locations pre-staked by PGE, as shown on the Solar Facility Site Plan, Figure 3. The borings were pre-located and identified by another PGE consultant at locations scattered across the site to develop a general sense of the subsurface conditions present beneath the site.

The borings were drilled between March 29 to 31, 2016 by Cascade Drilling, LP of Clackamas, Oregon, using a track-mounted CME 85 drill rig. Drillholes were advanced using mud rotary and HQ3 wireline rock coring techniques. Standard Penetration Tests (SPT) samples were collected in the overburden soils at 2½-foot intervals to a depth of 20 feet, and at 5-foot intervals from that depth to the bottom of the hole, or until encountering bedrock. Additional samples were also collected at various depth intervals using a Pitcher-barrel sampler and a larger diameter drive sampler (Dames & Moore sampler) to collect representative samples of stiffer materials in all of the borings.

Two of the borings (B-1 and B-3) were drilled to 50-foot depths without encountering a bedrock contact. The other two borings (B-2 and B-4) each encountered rock at similar depths, and the lower samples collected in each consisted of short lengths of HQ3 rock cores. Both of these borings were also drilled to 50-foot total depths. Details of the soil and rock layers encountered, the sampling depths, SPT blow-count data, and information on the groundwater piezometer instrumentation are presented on Summary Boring Logs, Figures 5 through 8. A geologist from Cornforth Consultants was present at the site during all of the drilling work to coordinate the drilling operations, log soil and rock conditions, collect samples, and assist with the piezometer installations.

Groundwater Piezometers. Standpipe piezometers wells were installed in each of the borings. Each piezometer consisted of a ¾-inch nominal diameter 5-foot long PVC screen, with a ¾-inch PVC riser pipe. The screen section of the piezometer was surrounded by fine- to medium-sized silica sand, with the remaining annular space below and above the sand section backfilled with bentonite clay chips from the bottom of the hole to the ground surface. Each piezometer was finished with a flush-mount monument set in concrete at the ground surface. Details of the piezometer installation are shown on the Summary Boring Logs, Figures 5 through 8.

Electrical Resistivity Testing. Field resistivity measurements were collected at one location in the northeast portion of the site as shown on the Solar Facility Site Plan, Figure 3. The measurements were collected by a geophysical subconsultant firm, Earth Dynamics LLC on April 8, 2016. The resistivity measurements were obtained using a Wenner four-electrode procedure in general accordance with ASTM G 57-95a (2012). The testing procedures and measurement results are summarized in a letter report prepared by Earth Dynamics, which has been included in Appendix A of this report.

Laboratory Testing

Samples retrieved from the borings were re-examined in the laboratory to confirm field descriptions and laboratory tests were completed to develop soil index and engineering design properties.

Natural Moisture Content. The natural moisture content of all samples was determined in general accordance with ASTM D2216-10 test procedures. The results of the visual

classification and moisture content testing have been included on the Summary Boring Logs, Figures 5 through 8.

Atterberg Limits. Representative samples were also selected to determine Atterberg plasticity limits. The tests were performed on samples collected from the overburden soil to classify the plasticity of the fine-grained materials. The tests were performed in general accordance with ASTM D4318-10. The results are tabulated on Table 1 below and plotted on Figure 9.

Table 1 – Summary of Soil Index Testing

Boring No.	Sample No.	Depth (ft)	Natural Moisture Content (%)	Density [Dry Unit Weight] (pcf)	Liquid Limit (%)	Plastic Limit (%)	Plasticity Index (%)
B-1	S-4	10-13	12	114	--	--	NP
B-2	S-9	20-23	16	100	34	21	13
B-3	S-5	15-18	13	108	28	20	8
B-4	S-2	5-8	15	92	--	--	NP

Particle-size Gradation Analysis. Gradation tests were completed on four representative samples obtained from the overburden soil. The tests were performed in general accordance with ASTM D422-63(2007). Test results are plotted on Figure 10.

Density (Unit Weight). Representative samples were selected from the exploration program and tested for in-place density in general accordance with ASTM D7263-09. Density values were determined from consolidation tests, potential collapsibility tests, and density-only testing. The results of the density determinations are summarized in Table 1 and on Figures 11 through 14.

One-Dimension Consolidation. One consolidation test was performed on a portion of Boring B-1, Sample S-4 collected from a depth of approximately 10 to 13 feet. A second test was completed on Boring B-2, Sample S-9 collected from a depth of 20 to 23 feet. A third test was performed on Boring B-4, Sample S-2 collected from a depth of 5 to 8 feet. The tests were conducted in general accordance with ASTM D2435-11 test procedures. The results of the consolidation testing are presented graphically on Figures 11, 12 and 14.

Soil Collapsibility Potential. Three collapsibility tests were conducted on samples recovered from the borings to estimate the collapse potential for the near surface wind-blown silt/sand (loess) materials. Testing was conducted in general accordance with ASTM D4546-14. The results of the testing are tabulated below in Table 2 and plotted graphically on Figures 12 through 14.

Table 2 – Collapsibility Test Results

Boring No.	Sample No.	Depth (ft)	Inundation Load (tsf)	Collapse Potential (Ic)
B-2	S-9	20-23	0.5	0.1%
B-3	S-5	15-18	2	1.3 %
B-4	S-2	5-8	1	0.4 %

Corrosivity Tests. Corrosivity testing was completed on two representative samples collected from the exploratory borings. The test samples consisted of combined samples (combined to obtain sufficient materials for testing) from Borings B-1 and B-3. The corrosivity testing and testing procedures (identified in parentheses) consisted of soil pH (ASTM G51), sulfate content (ASTM D4327) and chloride content (ASTM D4327). The results of the corrosivity testing are tabulated in Table 3 below. The tests were performed by Cooper Testing Labs of Palo Alto, California.

Table 3 – Summary of Corrosivity Testing

Boring No.	Sample No.	Depth (ft)	Natural Moisture Content (%)	pH	Sulfate Content (mg/kg)	Chloride Content (mg/kg)
B-1	S-2 / S-3	5 – 9	10	8.3	114	20
B-3	S-1 / S-2	2½ - 6½	17	8.4	141	3

Laboratory Electrical Resistivity Testing. In addition to the field resistivity testing summarized in an earlier subsection, laboratory electrical resistivity testing was completed on two representative samples selected from the borings. The samples tested included Boring B-1, Sample S-7 collected from a depth of 15 to 16½ feet, and Boring B-3, Sample S-4 collected from a depth of 12½ to 14 feet. A letter report prepared by Earth Dynamics LLC summarizing the laboratory resistivity testing procedures and results is included in Appendix B of this report.

Subsurface Conditions

Overburden materials consisted of three sedimentary units: wind-blown silt and fine sand (loess), sandy silt and silty sand with small rock fragments, and clayey silt (The Dalles Formation). The upper loess materials generally consisted of loose to medium dense, fine sandy silt to silty sand; cemented to varying degrees with weak caliche (calcium carbonate) cementation throughout the layer, and with occasional to numerous distinct veins of caliche. These loess deposits range in thickness from approximately 18 to 28 feet below the ground surface in the four borings.

In two of the borings (B-1 and B-2) the soils directly below the caliche loess consisted of very dense, sandy silt to silty sand with occasional angular rock fragments varying from ¼- to ¾-inch in diameter. This layer varied from 33 feet thickness in B-1 (hole terminated within this soil

layer) to 15 feet thickness in B-2. Boring B-2 terminated in slightly weathered basalt bedrock in the lower 7 feet of the boring. Boring B-1 did not encounter bedrock conditions within the drilled depth of the boring.

In Borings B-3 and B-4 the soil layer directly below the caliche loess consisted of medium stiff to very stiff, slightly clayey to clayey silt (10 feet thickness in B-3 and 15 feet in B-4). This soil unit is identified as a portion of The Dalles Formation that is known to be present in the project area. Dense to very dense, highly weathered, basalt fragments in a soil matrix underlies the clayey silt layer in B-3, and extends from this contact to the bottom of the drilled depth of the boring. Very dense, highly weathered basalt fragments and slightly weathered basalt bedrock were encountered in B-4 below the clayey silt layer. Boring B-4 was terminated in basalt bedrock (lower 12 feet of boring).

The highly weathered rock fragment layers encountered in Borings B-3 and B-4 below the sedimentary soils form the upper part of the Elephant Mountain bedrock. The weathered basalt fragments generally consisted of angular, gravel-sized rock fragments in a matrix of silty sand. These weathered rock fragment layers range in thickness from approximately 5 feet (B-4) to approximately 13 feet (in B-3), the actual thickness in B-3 was not determined due to hole termination within this layer.

The bedrock encountered in B-2 and B-4 is a medium hard to hard (R3-R4), slightly weathered basalt identified as the Elephant Mountain Flow member of the Saddle Mountain Basalts in the Columbia River Basalt Group. It is generally very highly to highly jointed, with high sample recovery during drilling and a low rock quality designation (RQD) value (see Borings 2 and 4 on Figures 6 and 8, respectively). The depth from the ground surface of this basalt bedrock unit ranged from approximately 38 feet in Boring B-4 to 43 feet in Boring B-2.

Piezometers to measure groundwater levels in the soil formations were installed in all four borings. The groundwater levels measured a few days following the drilling operations are plotted on the Summary Boring Logs, Figures 5 through 8.

Site Seismicity

As described previously, there are no mapped faults beneath the proposed solar facility site. An inferred fault is mapped approximately 1½ miles to the northeast. The closest potentially active mapped fault is 17 miles away to the west, part of the Arlington-Shutler Butte fault zone. These faults do not appear in the USGS Quaternary fault database and no mapped historic earthquakes appear to be associated with the mapped locations, indicating a low likelihood of rupture on a known fault. There have been 61 reported earthquakes since 1975 within a 50 mile radius of the site with a minimum magnitude of 2.5, at a rate of just under 2 per year. The maximum recorded earthquake magnitude is 4.1, centered approximately 37.2 miles to the southwest near Condon, Oregon, which occurred in January 2000.

Two principal types of earthquake sources that are capable of generating ground motions at the site are the Cascadia Subduction Zone (CSZ) “interface” zone and local crustal faults. The CSZ results from the Juan de Fuca tectonic plate subducting (sliding) beneath the American continental tectonic plate. The CSZ interface events occur between the Juan de Fuca and North American plates. The crustal fault sources identified are those occurring on known, unknown, buried, or random faults. Table 4 identifies and characterizes the potential seismic sources capable of generating a peak bedrock acceleration of at least 0.05g at the site. Mean peak bedrock accelerations for crustal sources were calculated using the average of all five enhanced Next-Generation Attenuation-West 2 (NGA-West 2) relationships (Idriss, 2014; Campbell and Bozorgnia, 2014; Abrahamson and Silva, 2014; Boore and Atkinson, 2014 and Chiou and Youngs, 2014). The peak acceleration for the CSZ interface event was calculated using the averaged, mean plus one standard deviation ground motions from Addo, et al (2012), Atkinson and Boore (2003), Atkinson and Macias (2009), and Zhao, et al. (2006) attenuation relationships.

Table 4: Deterministic Seismic Hazard Assessment Peak Bedrock Acceleration >0.05g

Source	Probability of Activity	MCE	Minimum Distance (km)	Mean Peak Acceleration (g)
Horse Haven Hills Structure	1.0	7.1	65	0.06
Rattlesnake-Wallula Fault System	1.0	7.4	70	0.06
Mill Creek Thrust Fault	1.0	7.1	73	0.05
Random Event	1.0	6	10	0.24
Interface Event	1.0	9	310	0.05

MCE – Maximum Credible Earthquake

As shown in the table, the random crustal event would control ground motions at the site for potential seismic sources. Other crustal sources in eastern Oregon and Washington and the CSZ Interface Event are located too far from the site to produce peak bedrock accelerations much greater than 0.05g to 0.6g at the site.

The spectral accelerations for the MCE Random Crustal earthquake exceed the 2014 Oregon Structural Specialty Code (OSSC) design spectrum over the period range 0.10 to 0.47 seconds (see Figure 15). General site topography is gentle and without steep slopes. Based on site topography and the preliminary boring information discussed above, it is expected that amplification of ground motions are not expected to be greater than those of the Maximum Considered Earthquake ground motions. Additionally, earthquake induced landslides or liquefaction are not likely due to the gentle topography and the lack of high groundwater conditions in the overburden soils.

Mapped spectral accelerations at the site based on IBC 2015 (2,475-year return period, 0.2s SA and 1.0s SA) are 0.423g and 0.165g, for short (S_s) and 1-second (S_1) period motions, respectively. Based on preliminary subsurface explorations, the soil profile at the site corresponds to an IBC site class D. The risk-targeted maximum considered earthquake (MCE_R) ground motions at the site, S_{MS} and S_{M1} are 0.618g and 0.353g, respectively.

Preliminary Geotechnical Design Considerations

Siting the solar facility at the proposed location does not appear to pose significant geotechnical or geological design issues. In general, the subsurface soil conditions across the site are similar with loose to medium dense, silty sand to sandy silt with weak caliche cementation throughout the layer in the upper 18 to 28 feet. All borings encountered slightly looser soils in approximately the upper five feet. These near surface soil units generally increase in relative density with increasing depth, with the soils in Boring B-1 becoming dense from 11 to 28 feet. Underlying these upper soil units are very dense silt and sand, medium stiff to very stiff clayey silt, dense to very dense basalt fragments, and medium hard to hard basalt (refer to the Summary Boring Logs for details). These general soil conditions should provide an adequate bearing stratum for the project foundations, and the relatively stiff to dense overburden soils would not be expected to significantly amplify ground shaking from a seismic event.

Based on the finding from the preliminary borings and the geologic site reconnaissance, the key geotechnical and geologic issues for the solar facility project appear to be the potential for erosion of the looser surficial soils, and a somewhat low potential for collapse of the relatively loose, surficial wind-blown soils. Collapse is a phenomenon where the loose, dry, silt/fine sand soil structure consolidates upon saturation or additional loading, which can cause distress to overlying structural elements or road pavement sections due to differential settlement.

The potential for surface wind erosion will need to be addressed with some type of vegetation growth or treatment of the ground surface to bind the surface soil particles together. The problem of potential soil structure collapse is simple to address in the design phase, with considerations given to: (i) extending foundations support for the solar panel support system and other appurtenant structures through the looser soil to stronger bearing layers at a slightly lower depth, and/or (ii) excavating and replacing the looser soil with engineered fill that is moisture conditioned, and placed and compacted in lifts. The latter option of removal and replacement is better suited under any electrical equipment concrete support pads and any paved road sections.

Foundation support for the solar panel rack system could be either shallow spread footings, with bottom surfaces below about five feet depth; or on small diameter pin piles that could consist of driven steel pipe piles or auger-cast concrete piles. The depth of piling support would likely be in the 15- to 25-foot depth range in the general vicinity of Borings B-1 and B-2, increasing up to 25- to 35-foot depths in the general vicinity of Borings B-3 and B-4. The piles could develop load resistance from either end-bearing, skin friction or a combination of both. The foundation support systems and ground treatment measures for the project would be developed during final

project design when more details are known about the panel-support rack system, location of concrete equipment pads and access road surfaces.

Preliminary Geotechnical Recommendations

Based on the foregoing, we recommend that the final geotechnical design phase of the project include the following tasks:

- Drill additional borings at scattered locations across the site to further characterize the subsurface conditions, as well as collect information for foundation design. For planning purposes, we would anticipate boring depths to again be on the order of 50 feet to achieve 10 to 30 feet penetration into denser overburden soils or to encounter a bedrock contact.
- Complete a laboratory testing program to provide additional data on the soils for design studies. The laboratory data would be used to estimate collapse and settlement potential for any loose, compressible soil layers and to develop foundation soil index and shear strength parameters for design recommendations.
- Conduct geotechnical engineering studies and develop geotechnical recommendations for final design of foundation support systems, site grading, ground surface treatments and access road surfaces.
- Prepare a geotechnical design report summarizing the information outlined above.

We appreciate the opportunity to be of assistance on this preliminary phase of the project. If you have any questions, please contact Randy Hill at 503-452-1100.

Respectfully,

CORNFORTH CONSULTANTS, INC.

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Senior Associate Geologist



Randall J. Hill

Randall J. Hill, P.E.
Senior Associate Engineer



EXPIRES: 6/30/2017

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Limitations in the Use and Interpretation of this Geotechnical Report

Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied.

The geotechnical report was prepared for the use of the Owner in the design of the subject facility and should be made available to potential contractors and/or the Contractor for information on factual data only. This report should not be used for contractual purposes as a warranty of interpreted subsurface conditions such as those indicated by the interpretive boring and test pit logs, cross-sections, or discussion of subsurface conditions contained herein.

The analyses, conclusions and recommendations contained in the report are based on site conditions as they presently exist and assume that the exploratory borings, test pits, and/or probes are representative of the subsurface conditions of the site. If, during construction, subsurface conditions are found which are significantly different from those observed in the exploratory borings and test pits, or assumed to exist in the excavations, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, this report should be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

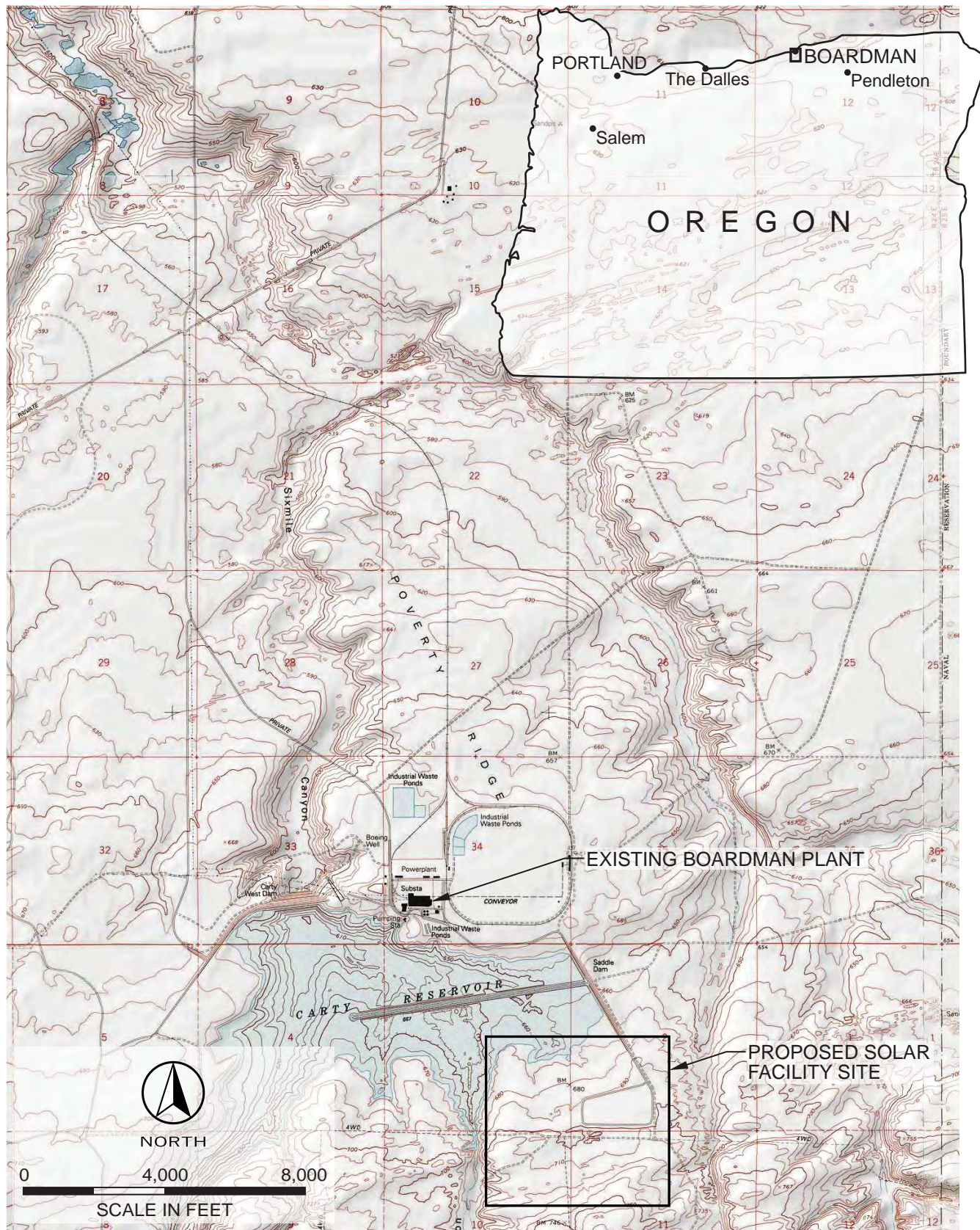
The Summary Boring Logs are our opinion of the subsurface conditions revealed by periodic sampling of the ground as the borings progressed. The soil descriptions and interfaces between strata are interpretive and actual changes may be gradual.

The boring logs and related information depict subsurface conditions only at these specific locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the soil conditions at these boring locations.

Groundwater levels often vary seasonally. Groundwater levels reported on the boring logs or in the body of the report are factual data only for the dates shown.

Unanticipated soil conditions are commonly encountered on construction sites and cannot be fully anticipated by merely taking soil samples, borings or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. It is recommended that the Owner consider providing a contingency fund to accommodate such potential extra costs.

This firm cannot be responsible for any deviation from the intent of this report including, but not restricted to, any changes to the scheduled time of construction, the nature of the project or the specific construction methods or means indicated in this report; nor can our firm be responsible for any construction activity on sites other than the specific site referred to in this report.



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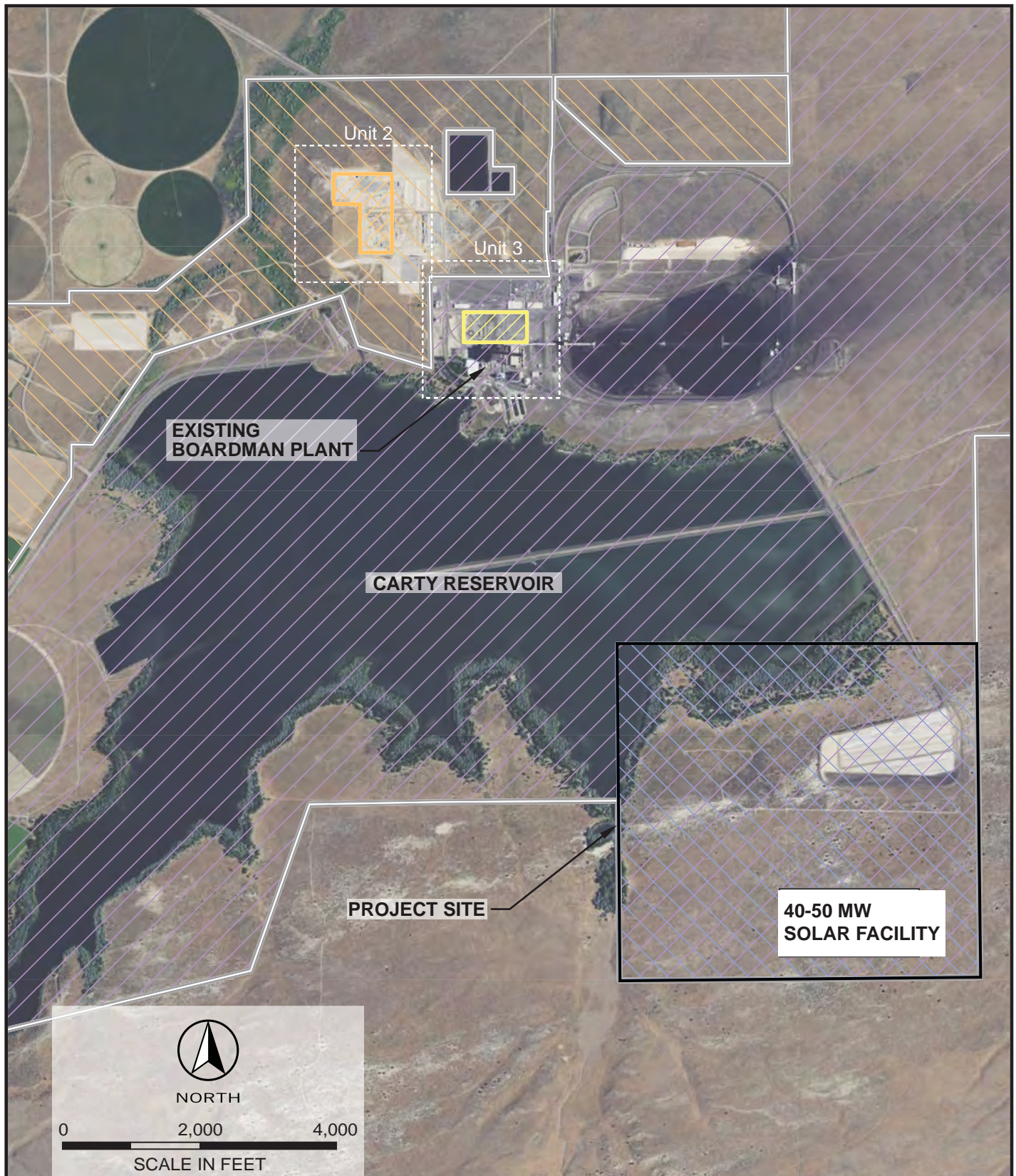
VICINITY MAP

CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

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FIG. 1



BASE IMAGE PROVIDED BY PORTLAND GENERAL ELECTRIC, 1/6/2016



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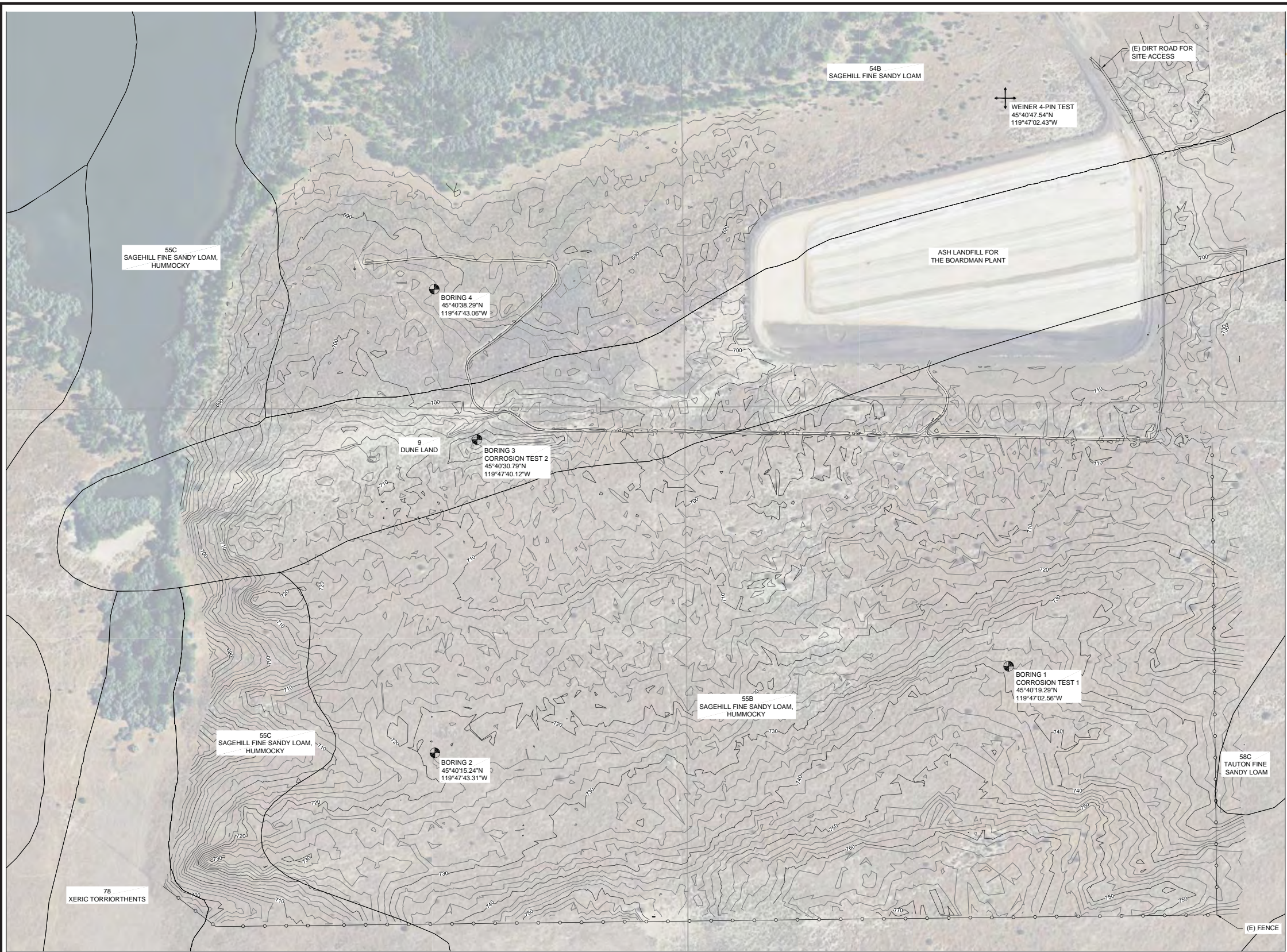
AERIAL PLAN

CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

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FIG. 2



- SURVEY NOTES:
- 1. SURVEY PERFORMED BY PORTLAND GENERAL ELECTRIC
 - 2. HORIZONTAL BASIS: OREGON STATE PLANE, NORTH ZONE, NAD'83 (2011)
 - 3. ELEVATION BASIS: NAVD 1988

BASE IMAGE PROVIDED BY PORTLAND GENERAL ELECTRIC, 2/22/2016



NORTH

NOT TO SCALE

LEGEND	
	BORING LOCATION
	ELECTRICAL RESISTIVITY TESTING LOCATION
	(E) MAJOR CONTOURS
	(E) MINOR CONTOURS
	(E) FENCE
	(E) NRCS SOIL LAYERS

NRCS SOILS REPORT INFORMATION			
MAP SYMBOL	MAP UNIT NAME	PRIME FARMLAND	HYDROLOGIC GROUP
9	DUNE LAND	NO	-
54B	SAGEHILL FINE SANDY LOAM, 2-5% SLOPES	YES IF IRRIGATED	B
55B	SAGEHILL FINE SANDY LOAM, HUMMOCKY, 2-5% SLOPES	YES IF IRRIGATED	B
55C	SAGEHILL FINE SANDY LOAM, HUMMOCKY, 5-12% SLOPES	YES	B
58C	TAUNTON FINE SANDY LOAM, 5-12% SLOPES	YES	C
78	XERIC TORRIORTHENTS, NEARLY LEVEL	YES	A



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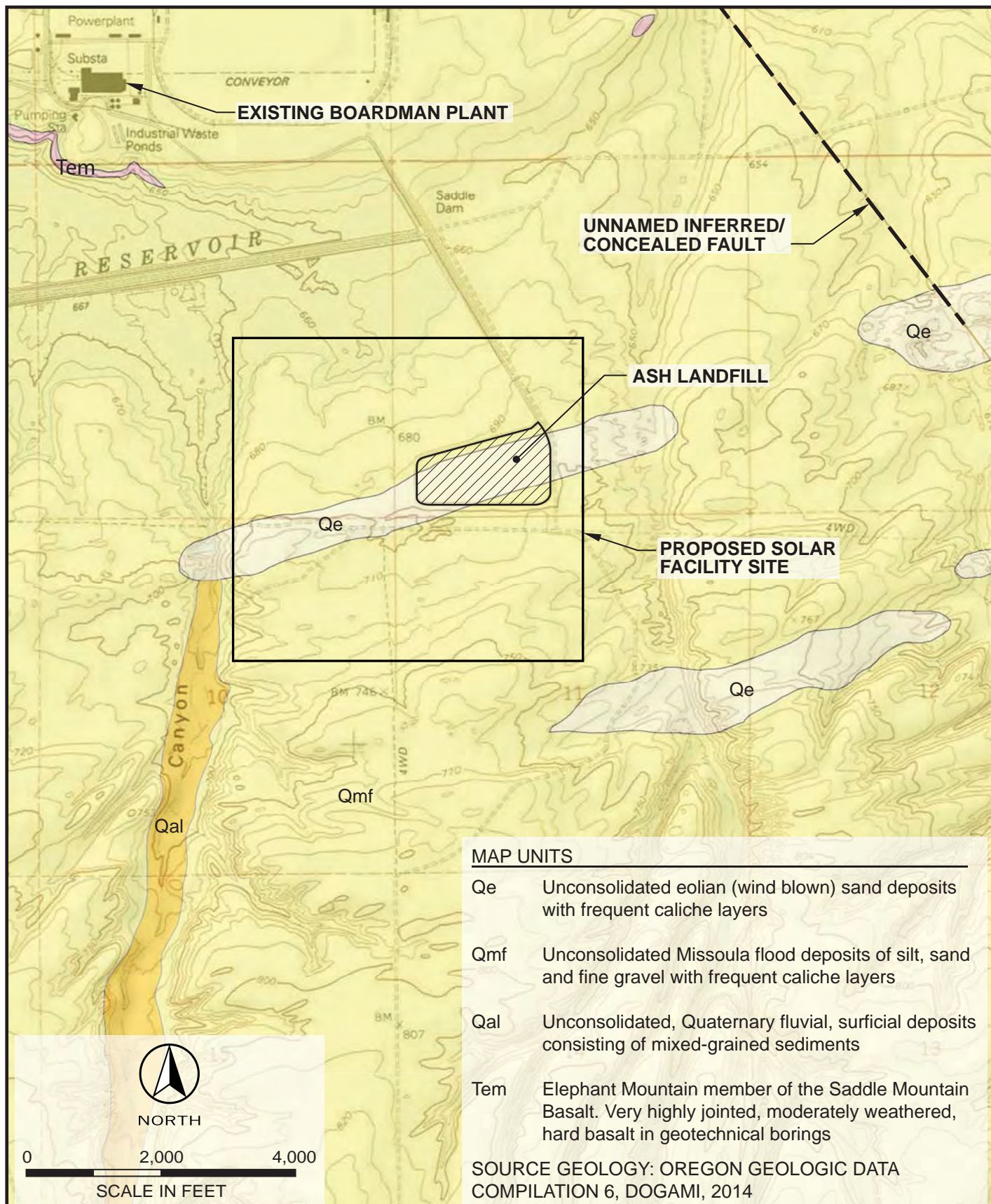
SOLAR FACILITY SITE PLAN

CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

MAY 2016

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FIG. 3



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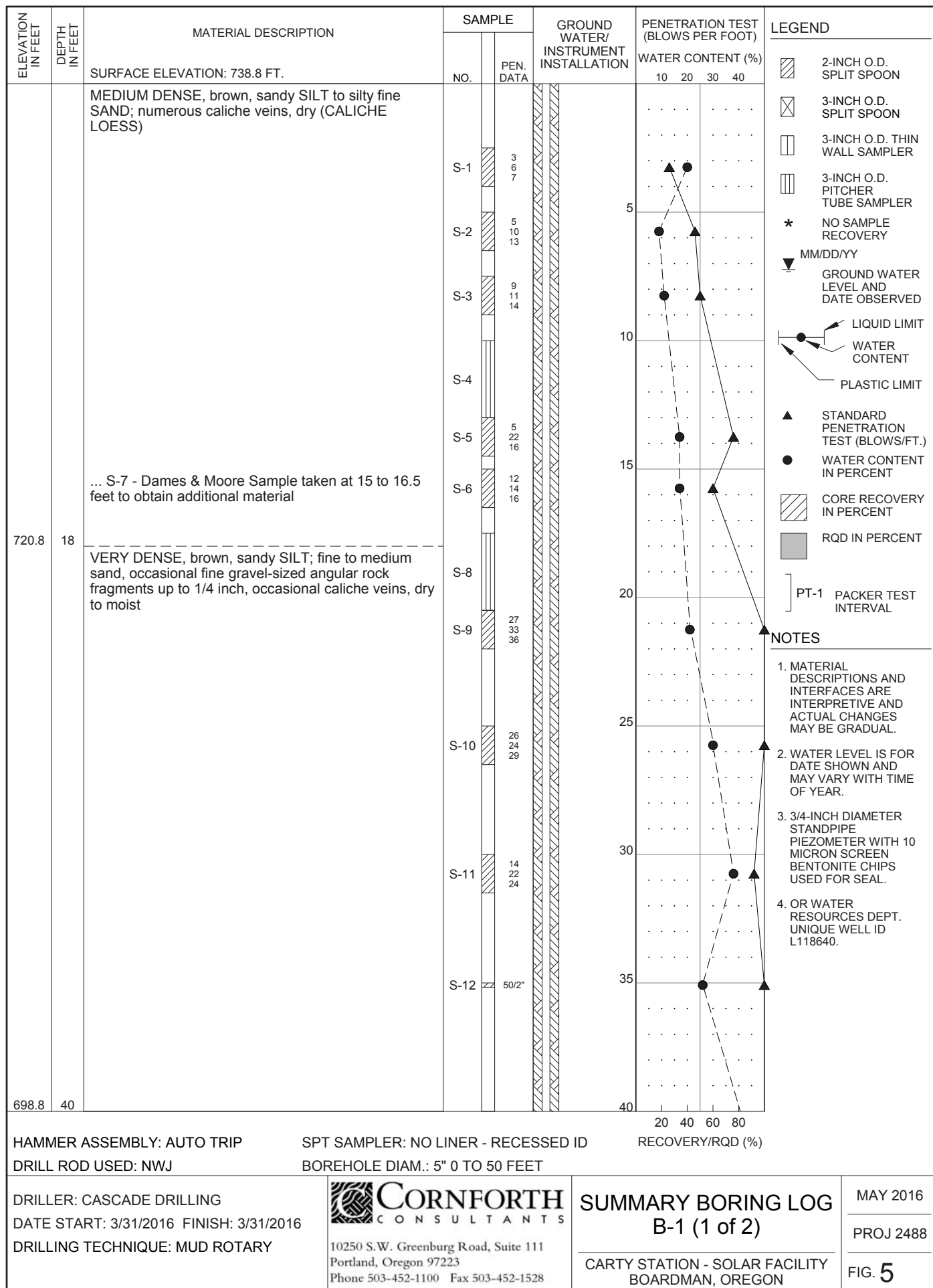
SITE GEOLOGIC MAP

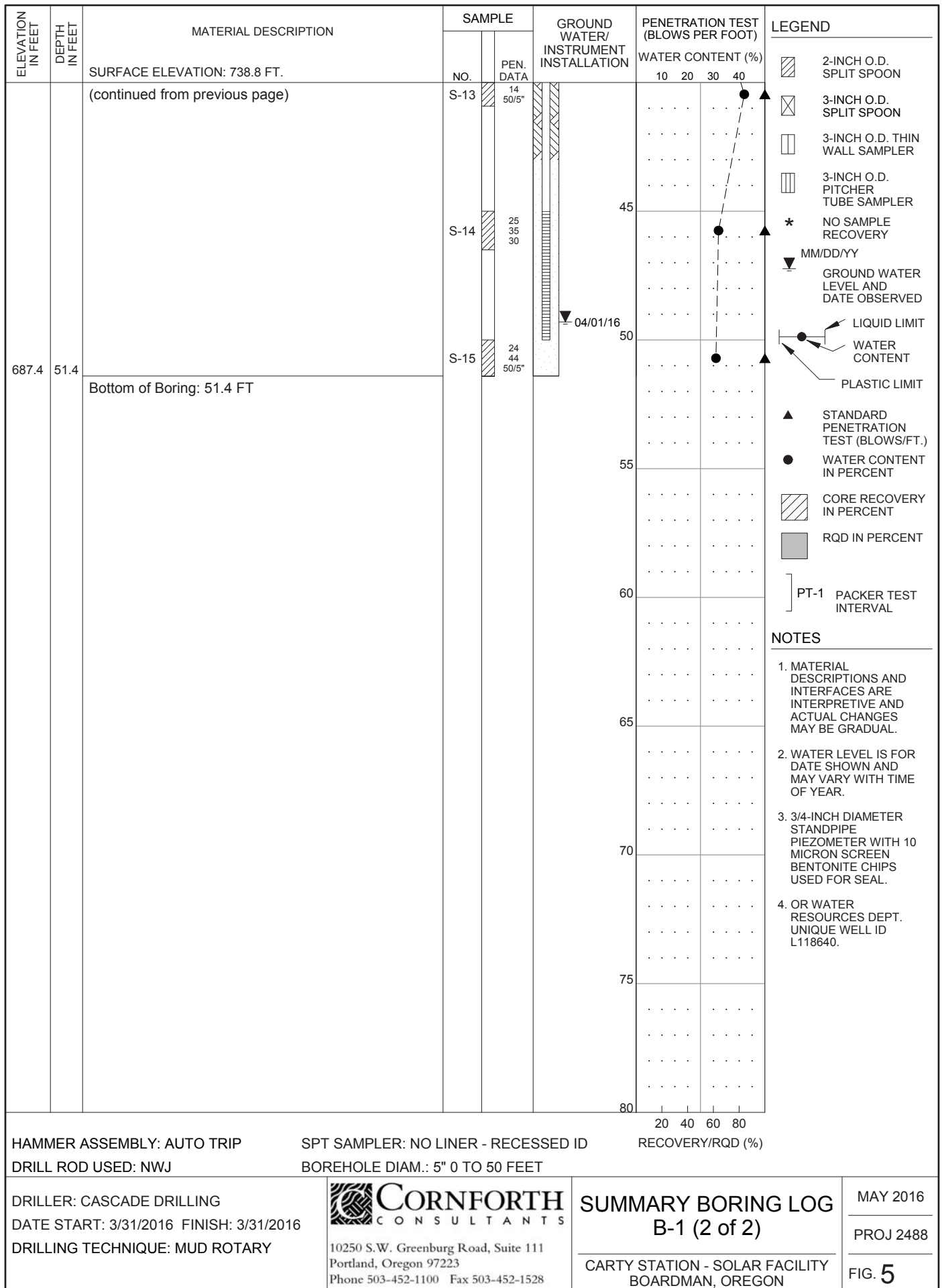
CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

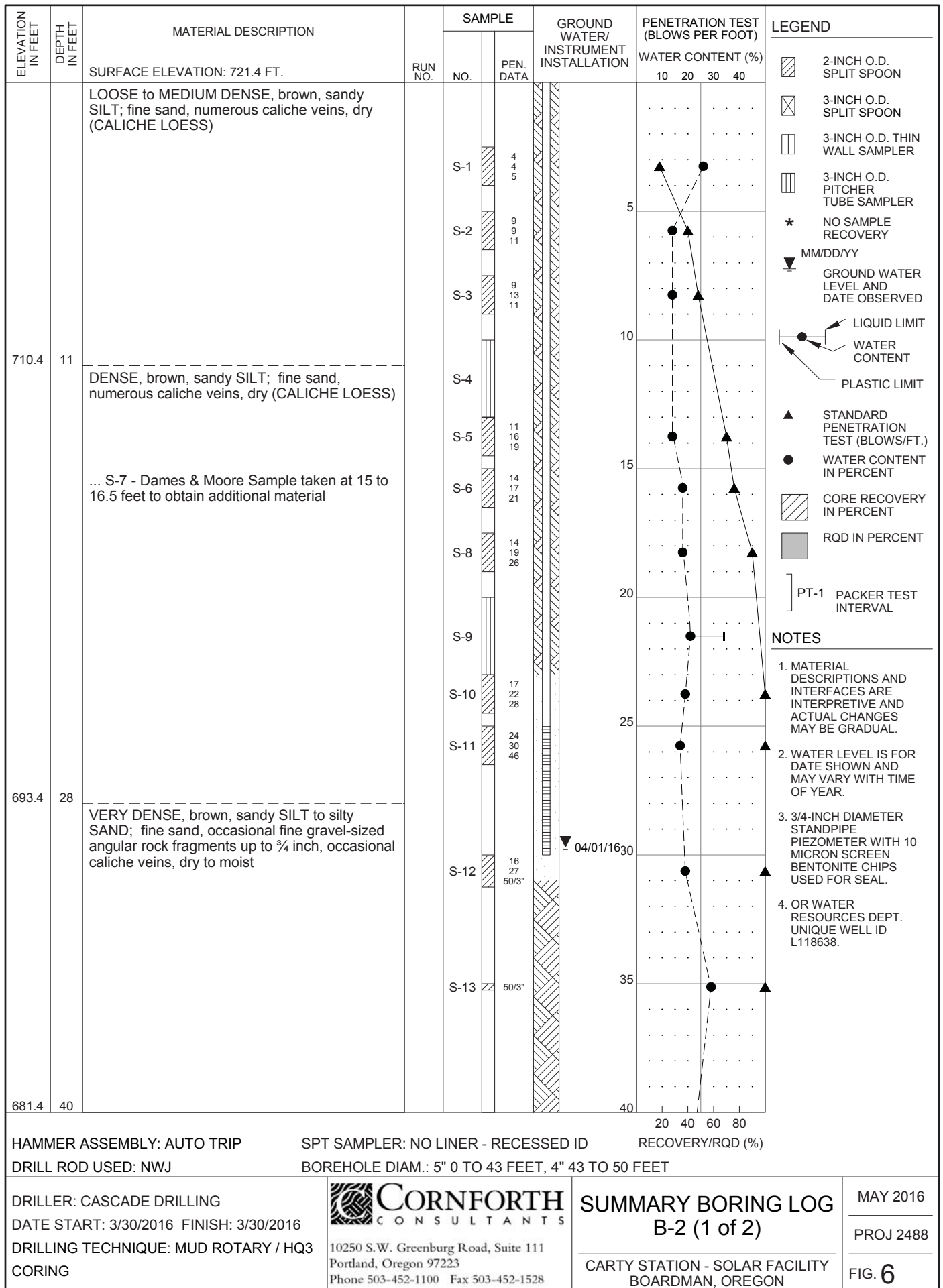
MAY 2016

PROJ. 2488

FIG. 4





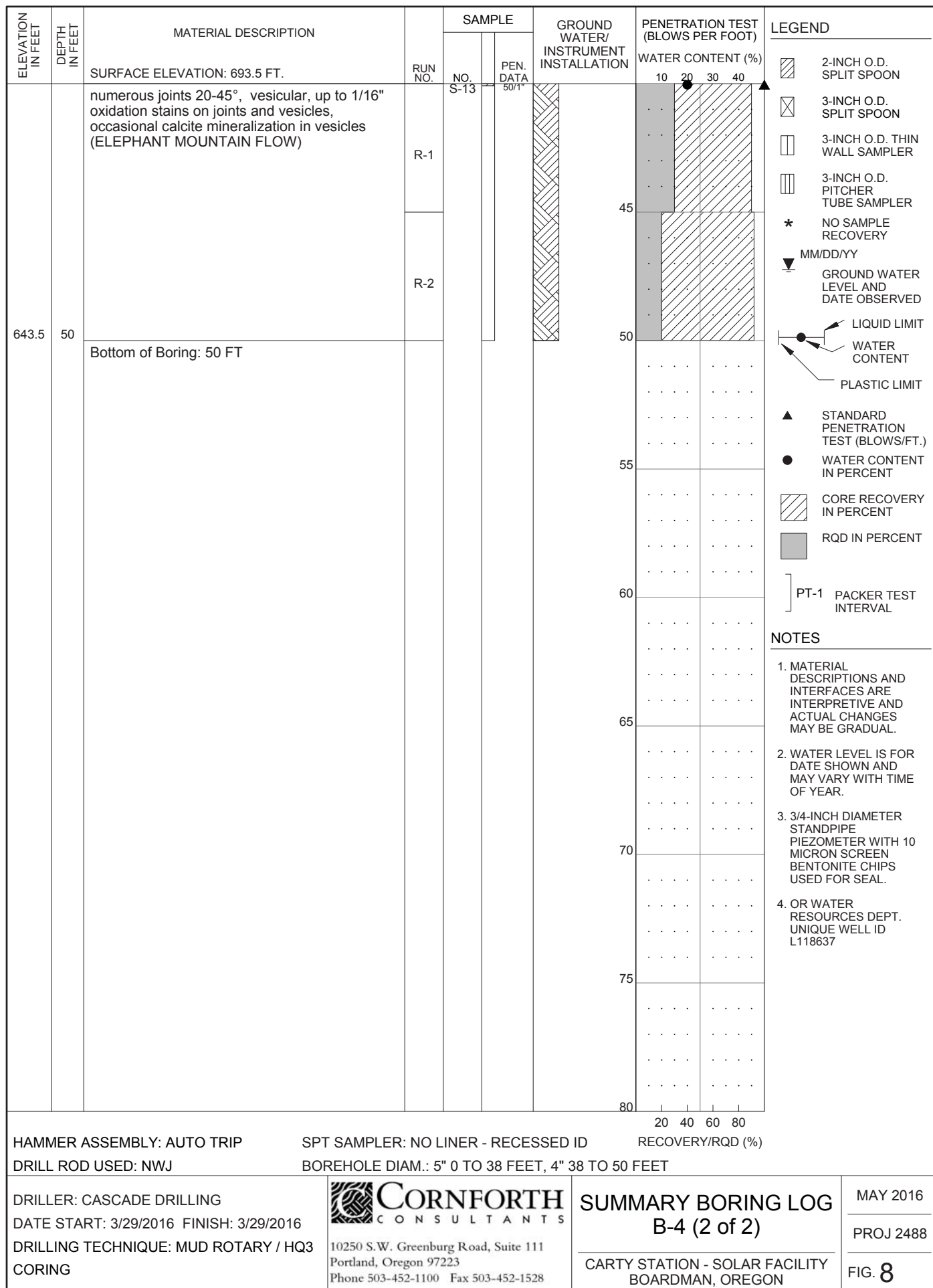


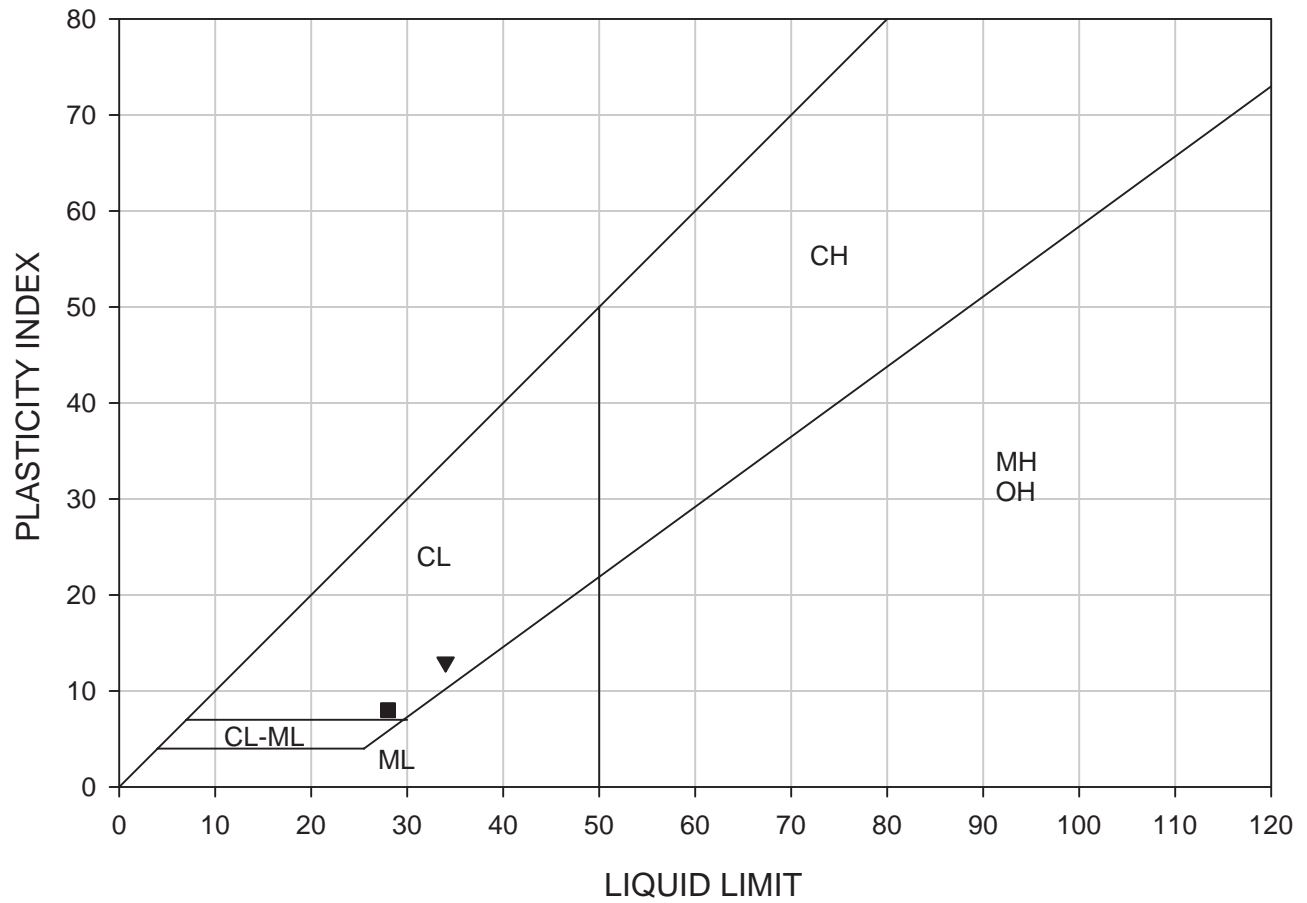
ELEVATION IN FEET	DEPTH IN FEET	MATERIAL DESCRIPTION	RUN NO.	SAMPLE		GROUND WATER/ INSTRUMENT INSTALLATION	PENETRATION TEST (BLOWS PER FOOT)				LEGEND
				NO.	PEN. DATA		WATER CONTENT (%)				
		SURFACE ELEVATION: 721.4 FT.		S-14	50/4"		10	20	30	40	<div><div></div>2-INCH O.D. SPLIT SPOON</div> <div><div></div>3-INCH O.D. SPLIT SPOON</div> <div><div></div>3-INCH O.D. THIN WALL SAMPLER</div> <div><div></div>3-INCH O.D. PITCHER TUBE SAMPLER</div> <div><div>*</div>NO SAMPLE RECOVERY</div> <div><div>MM/DD/YY</div><div></div>GROUND WATER LEVEL AND DATE OBSERVED</div> <div><div></div><div></div>LIQUID LIMIT WATER CONTENT</div> <div><div></div>PLASTIC LIMIT</div> <div><div>▲</div>STANDARD PENETRATION TEST (BLOWS/FT.)</div> <div><div>●</div>WATER CONTENT IN PERCENT</div> <div><div></div>CORE RECOVERY IN PERCENT</div> <div><div></div>RQD IN PERCENT</div> <div><div>PT-1</div>PACKER TEST INTERVAL</div>
678.4	43	(continued from previous page)		S-15	50/1"						
		MEDIUM HARD to HARD (R3-R4), gray, slightly weathered BASALT; very highly jointed, joints 5-15° (smooth, planer) dominant, occasional healed high angle fractures, highly vesicular, trace secondary mineralization on joint surfaces and vesicles, up to 1/16 inch oxidation staining on joints and vesicles (ELEPHANT MOUNTAIN FLOW)	R-1								
671.4	50	Bottom of Boring: 50 FT	R-2								

ELEVATION IN FEET	DEPTH IN FEET	MATERIAL DESCRIPTION	SAMPLE		GROUND WATER/ INSTRUMENT INSTALLATION	PENETRATION TEST (BLOWS PER FOOT)				LEGEND	
			NO.	PEN. DATA		WATER CONTENT (%)					
		SURFACE ELEVATION: 712.1 FT.				10	20	30	40		
684.1	28	MEDIUM DENSE, brown, silty fine SAND to sandy SILT; numerous caliche veins, trace clay, dry (CALICHE LOESS)	S-1	3 2 2							<div><div></div>2-INCH O.D. SPLIT SPOON</div> <div><div></div>3-INCH O.D. SPLIT SPOON</div> <div><div></div>3-INCH O.D. THIN WALL SAMPLER</div> <div><div></div>3-INCH O.D. PITCHER TUBE SAMPLER</div> <div><div>*</div>NO SAMPLE RECOVERY</div> <div><div>MM/DD/YY</div><div></div>GROUND WATER LEVEL AND DATE OBSERVED</div> <div><div></div><div>LIQUID LIMIT</div><div>WATER CONTENT</div><div>PLASTIC LIMIT</div></div> <div><div>▲</div>STANDARD PENETRATION TEST (BLOWS/FT.)</div> <div><div>●</div>WATER CONTENT IN PERCENT</div> <div><div></div>CORE RECOVERY IN PERCENT</div> <div><div></div>RQD IN PERCENT</div> <div><div>PT-1</div>PACKER TEST INTERVAL</div>
		S-2	6 8 8								
		S-3									
		... S-4 Dames & Moore Sample taken at 12.5 to 14 feet to obtain additional material									
		S-5									
		S-6	12 11 24								
		S-7	10 10 11								
		S-8	9 10 14								
		S-9	7 9 11								
		S-10	13 14 16								
674.1	38	MEDIUM STIFF to STIFF, brown, slightly clayey SILT; occasional caliche veins, moist (DALLES FORMATION)									
672.1	40										
						04/01/16					
							20	40	60	80	
HAMMER ASSEMBLY: AUTO TRIP						SPT SAMPLER: NO LINER - RECESSED ID		RECOVERY/RQD (%)			
DRILL ROD USED: NWJ						BOREHOLE DIAM.: 5" 0 TO 50 FEET					
DRILLER: CASCADE DRILLING			<div><div></div><div>CORNFORTH</div><div>CONSULTANTS</div><div>10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1100 Fax 503-452-1528</div></div>			SUMMARY BORING LOG B-3 (1 of 2) CARTY STATION - SOLAR FACILITY BOARDMAN, OREGON				MAY 2016	
DATE START: 3/29/2016 FINISH: 3/29/2016										PROJ 2488	
DRILLING TECHNIQUE: MUD ROTARY										FIG. 7	

ELEVATION IN FEET	DEPTH IN FEET	MATERIAL DESCRIPTION	SAMPLE		GROUND WATER/ INSTRUMENT INSTALLATION	PENETRATION TEST (BLOWS PER FOOT)		LEGEND		
			NO.	PEN. DATA		WATER CONTENT (%)				
		SURFACE ELEVATION: 712.1 FT.				10	20	<div><div><div></div></div>2-INCH O.D. SPLIT SPOON</div> <div><div><div></div></div>3-INCH O.D. SPLIT SPOON</div> <div><div><div></div></div>3-INCH O.D. THIN WALL SAMPLER</div> <div><div><div></div></div>3-INCH O.D. PITCHER TUBE SAMPLER</div> <div><div><div>*</div></div>NO SAMPLE RECOVERY</div> <div><div><div>MM/DD/YY</div></div>GROUND WATER LEVEL AND DATE OBSERVED</div> <div><div><div></div></div>LIQUID LIMIT</div> <div><div><div></div></div>WATER CONTENT</div> <div><div><div></div></div>PLASTIC LIMIT</div> <div><div><div>▲</div></div>STANDARD PENETRATION TEST (BLOWS/FT.)</div> <div><div><div>●</div></div>WATER CONTENT IN PERCENT</div> <div><div><div></div></div>CORE RECOVERY IN PERCENT</div> <div><div><div></div></div>RQD IN PERCENT</div> <div><div><div>PT-1</div></div>PACKER TEST INTERVAL</div>		
		DENSE to VERY DENSE, brown to gray, gravel-sized angular BASALT FRAGMENTS; in a matrix of silty SAND; angular, highly weathered, basalt rock fragments up to 1/8 inch, trace clay (WEATHERED BASALT)	S-11	15 16 29						
			S-12	27 34 50/5"		45				
			S-13	31 50/2"		50				
661.4	50.7	Bottom of Boring: 50.7 FT								
						55				
						60				
						65				
						70				
						75				
						80				
						20	40	60	80	
HAMMER ASSEMBLY: AUTO TRIP						SPT SAMPLER: NO LINER - RECESSED ID				
DRILL ROD USED: NWJ						BOREHOLE DIAM.: 5" 0 TO 50 FEET				
DRILLER: CASCADE DRILLING						SUMMARY BORING LOG B-3 (2 of 2)				
DATE START: 3/29/2016 FINISH: 3/29/2016										
DRILLING TECHNIQUE: MUD ROTARY										
<div><div><div><div></div><div>CORN FORTH</div><div>CONSULTANTS</div></div><div>10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1100 Fax 503-452-1528</div></div></div> <td colspan="4">CARTY STATION - SOLAR FACILITY BOARDMAN, OREGON</td> <td>MAY 2016</td>						CARTY STATION - SOLAR FACILITY BOARDMAN, OREGON				MAY 2016
						PROJ 2488				
						FIG. 7				

ELEVATION IN FEET	DEPTH IN FEET	MATERIAL DESCRIPTION	RUN NO.	SAMPLE		GROUND WATER/ INSTRUMENT INSTALLATION	PENETRATION TEST (BLOWS PER FOOT)				LEGEND		
				NO.	PEN. DATA		WATER CONTENT (%)						
		SURFACE ELEVATION: 693.5 FT.					10	20	30	40	<div><div></div>2-INCH O.D. SPLIT SPOON</div> <div><div></div>3-INCH O.D. SPLIT SPOON</div> <div><div></div>3-INCH O.D. THIN WALL SAMPLER</div> <div><div></div>3-INCH O.D. PITCHER TUBE SAMPLER</div> <div>* NO SAMPLE RECOVERY</div> <div>MM/DD/YY</div> <div><div></div>GROUND WATER LEVEL AND DATE OBSERVED</div> <div><div></div>LIQUID LIMIT</div> <div><div></div>WATER CONTENT</div> <div><div></div>PLASTIC LIMIT</div> <div><div></div>STANDARD PENETRATION TEST (BLOWS/FT.)</div> <div><div></div>WATER CONTENT IN PERCENT</div> <div><div></div>CORE RECOVERY IN PERCENT</div> <div><div></div>RQD IN PERCENT</div> <div>PT-1 PACKER TEST INTERVAL</div>		
675.5	18	LOOSE TO MEDIUM DENSE, brown, sandy SILT to silty SAND; fine sand, numerous caliche veins, dry, trace clay (CALICHE LOESS)		S-1	1 3 4							<div>1. MATERIAL DESCRIPTIONS AND INTERFACES ARE INTERPRETIVE AND ACTUAL CHANGES MAY BE GRADUAL.</div> <div>2. WATER LEVEL IS FOR DATE SHOWN AND MAY VARY WITH TIME OF YEAR.</div> <div>3. 3/4-INCH DIAMETER STANDPIPE PIEZOMETER WITH 10 MICRON SCREEN BENTONITE CHIPS USED FOR SEAL.</div> <div>4. OR WATER RESOURCES DEPT. UNIQUE WELL ID L118637</div>	
		... S-5 Dames & Moore Sample taken at 10 to 11.5 feet to obtain additional material		S-2									
		... becomes silty SAND below approximately 12 feet		S-3	6 8 11								
			S-4	7 9 10									
			S-6	7 8 10									
			S-7										
			S-8	7 9 9									
			S-9	5 7 7									
			S-10	4 5 5									
			S-11	5 13 18									
			S-12	50/3"									
		660.5	33	VERY DENSE, gray, gravel-sized angular BASALT FRAGMENTS; highly weathered (WEATHERED BASALT)									
655.5	38	MEDIUM HARD TO HARD (R3-R4), gray to black, slightly weathered BASALT; very highly jointed, joints 5-15° (smooth, planar) dominant,											
							20	40	60	80			
HAMMER ASSEMBLY: AUTO TRIP							SPT SAMPLER: NO LINER - RECESSED ID					RECOVERY/RQD (%)	
DRILL ROD USED: NWJ							BOREHOLE DIAM.: 5" 0 TO 38 FEET, 4" 38 TO 50 FEET						
DRILLER: CASCADE DRILLING DATE START: 3/29/2016 FINISH: 3/29/2016 DRILLING TECHNIQUE: MUD ROTARY / HQ3 CORING			<div><div></div><div>CORN FORTH CONSULTANTS</div><div>10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1100 Fax 503-452-1528</div></div>			SUMMARY BORING LOG B-4 (1 of 2) CARTY STATION - SOLAR FACILITY BOARDMAN, OREGON			MAY 2016 PROJ 2488 FIG. 8				





Boring No.	Sample No.	Depth	LL	PL	PI
B-1	S-4	10'-13'	--	--	NP
▼ B-2	S-9	20'-23'	34	21	13
■ B-3	S-5	15'-18'	28	20	8
B-4	S-2	5'-8'	--	--	NP



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PLASTICITY CHART

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PROJ. 2488

FIG. 9

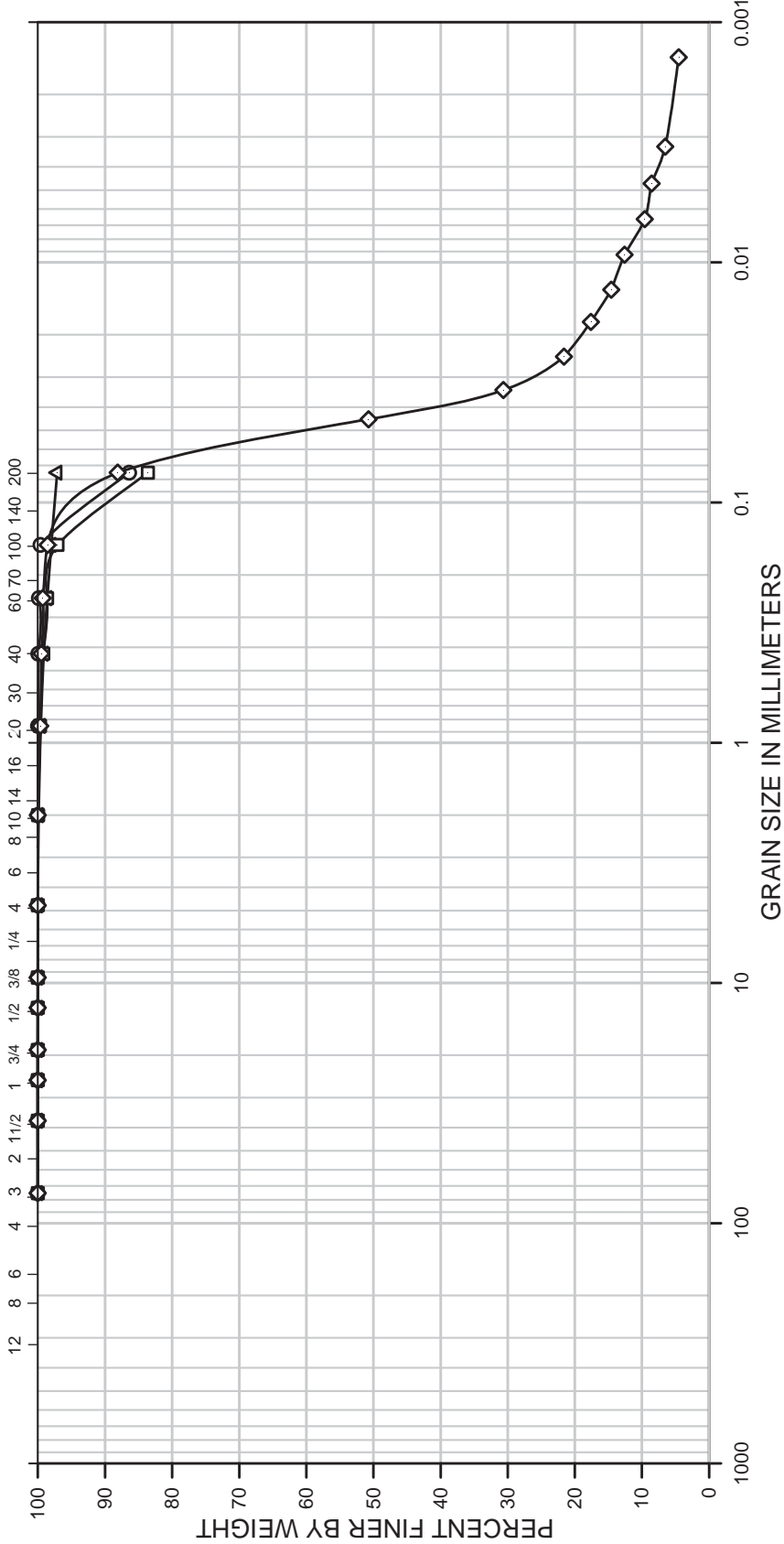
HYDROMETER

U.S. STANDARD SIEVE NUMBERS

U.S. STANDARD SIEVE OPENING
IN INCHES

12 8 6 4 3 2 1 3/4 1/2 3/8 1/4 6 4 3 2 1 3/4 1/2 3/8 1/4

100 90 80 70 60 50 40 30 20 10 0 1000 100 10 0.1 1 10 100 1000



GRAIN SIZE IN MILLIMETERS

COBBLES	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

Boring No.	Sample No.	Depth	Classification	Nat W%	LL	PL	PI
B-1	S-4	10'-13'	Sandy Silt	12	--	--	NP
B-2	S-9	20'-23'	Sandy, Slightly Clayey Silt	16	34	21	13
B-3	S-5	15'-18'	Sandy, Slightly Clayey Silt	13	28	20	8
B-4	S-2	5'-8'	Sandy Silt	15	--	--	NP



CORNFORTH
CONSULTANTS

10250 S.W. Greenburg Road, Suite 111
Portland, Oregon 97223
Phone 503-452-1100 Fax 503-452-1528

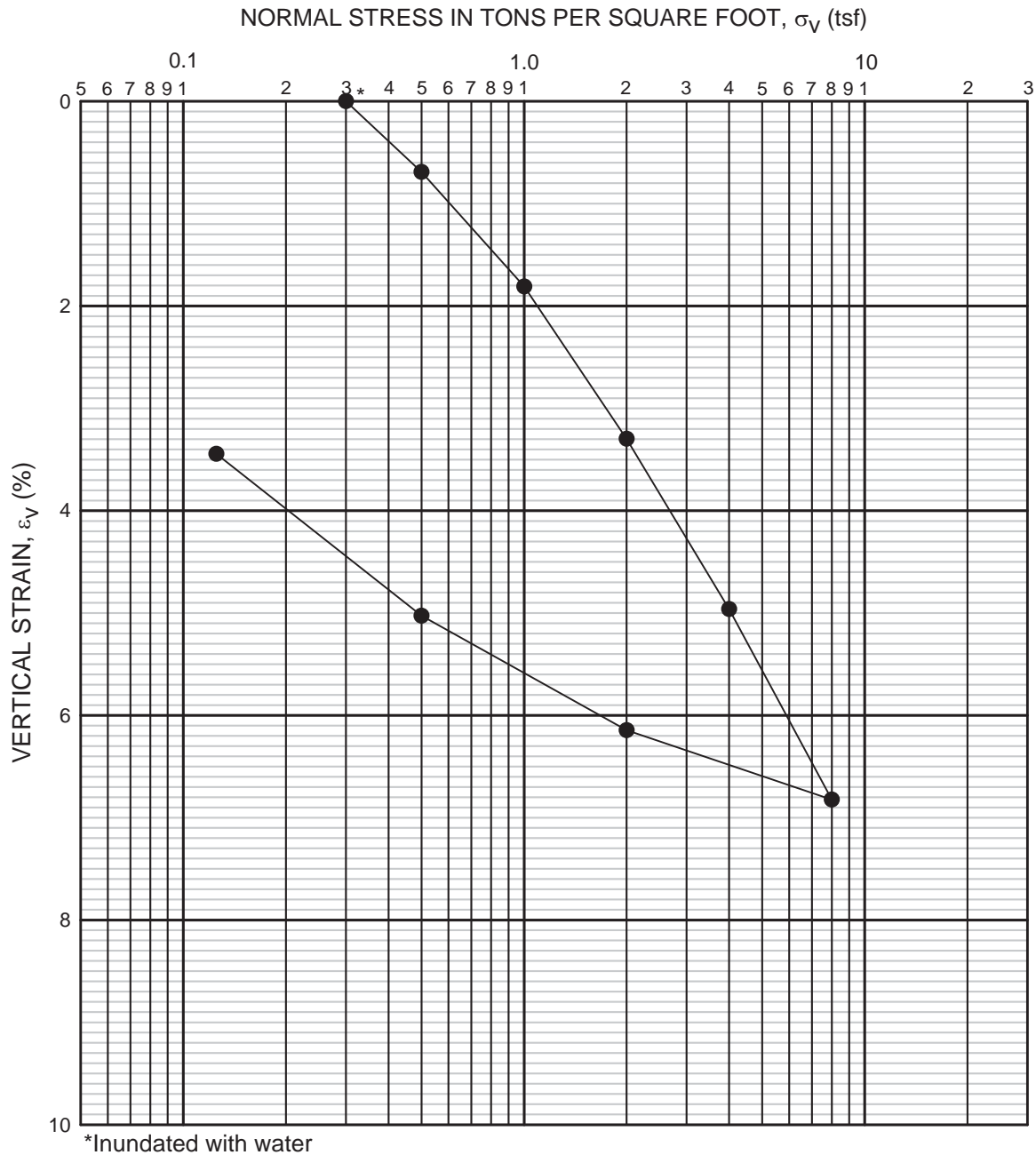
GRADATION GRAPH

CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

MAY 2016

PROJ. 2488

FIG. 10



Boring No. B-1 Sample No. S-4 Depth of Sample 10 to 13 ft.

Soil Description MEDIUM DENSE, brown, sandy SILT to silty SAND

☒ Undisturbed

☐ Re-compacted

Initial Conditions: Height 0.75 inches

Wet Density 130 lb/ft³

Diameter 2.50 inches

Water Content 18 %



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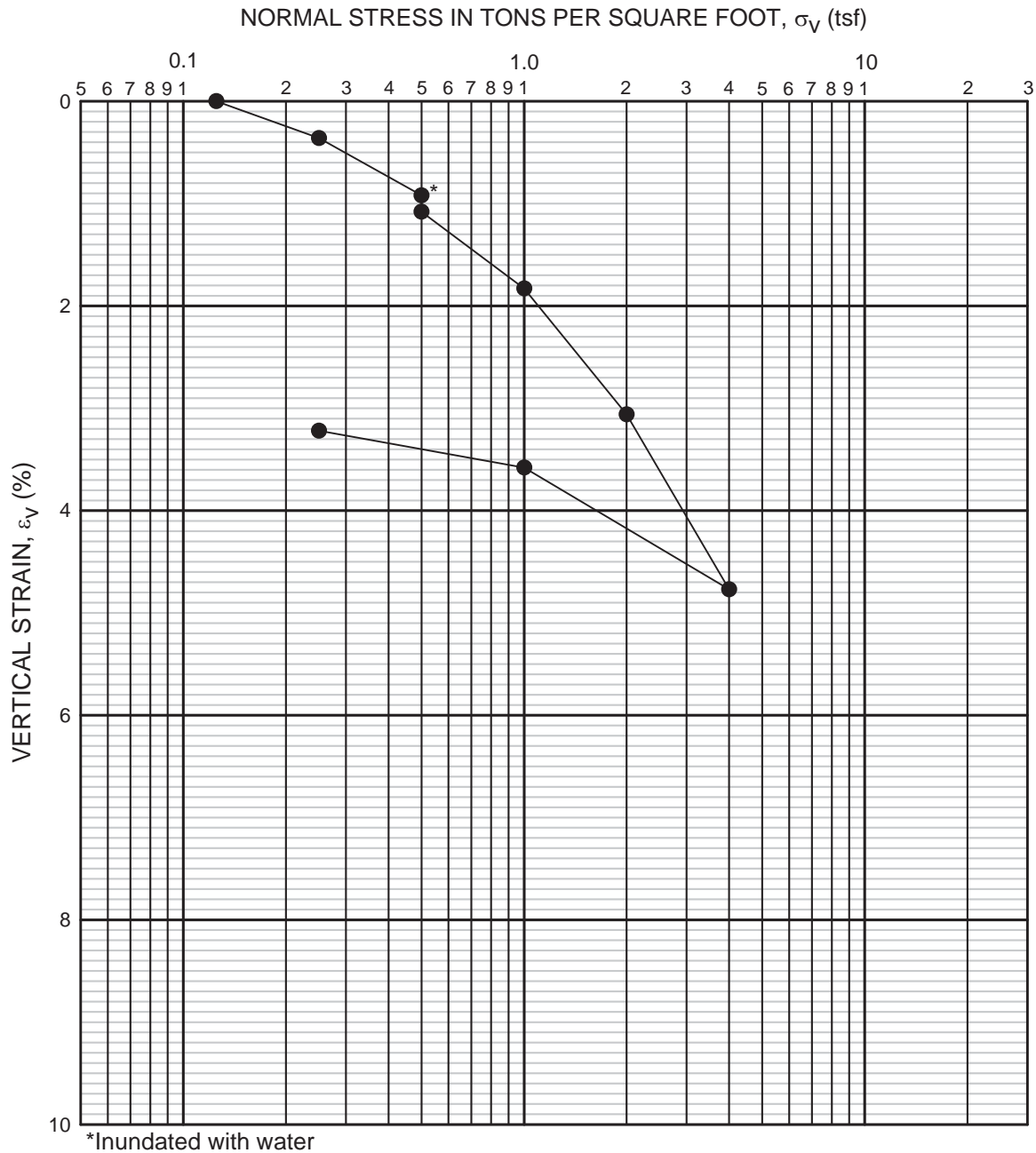
CONSOLIDATION TEST

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FIG. 11



Boring No. B-2 Sample No. S-9 Depth of Sample 20 to 23 ft.

Soil Description DENSE, brown, sandy SILT

☒ Undisturbed

☐ Re-compacted

Initial Conditions: Height 0.75 inches

Wet Density 105 lb/ft³

Diameter 2.5 inches

Water Content 16 %



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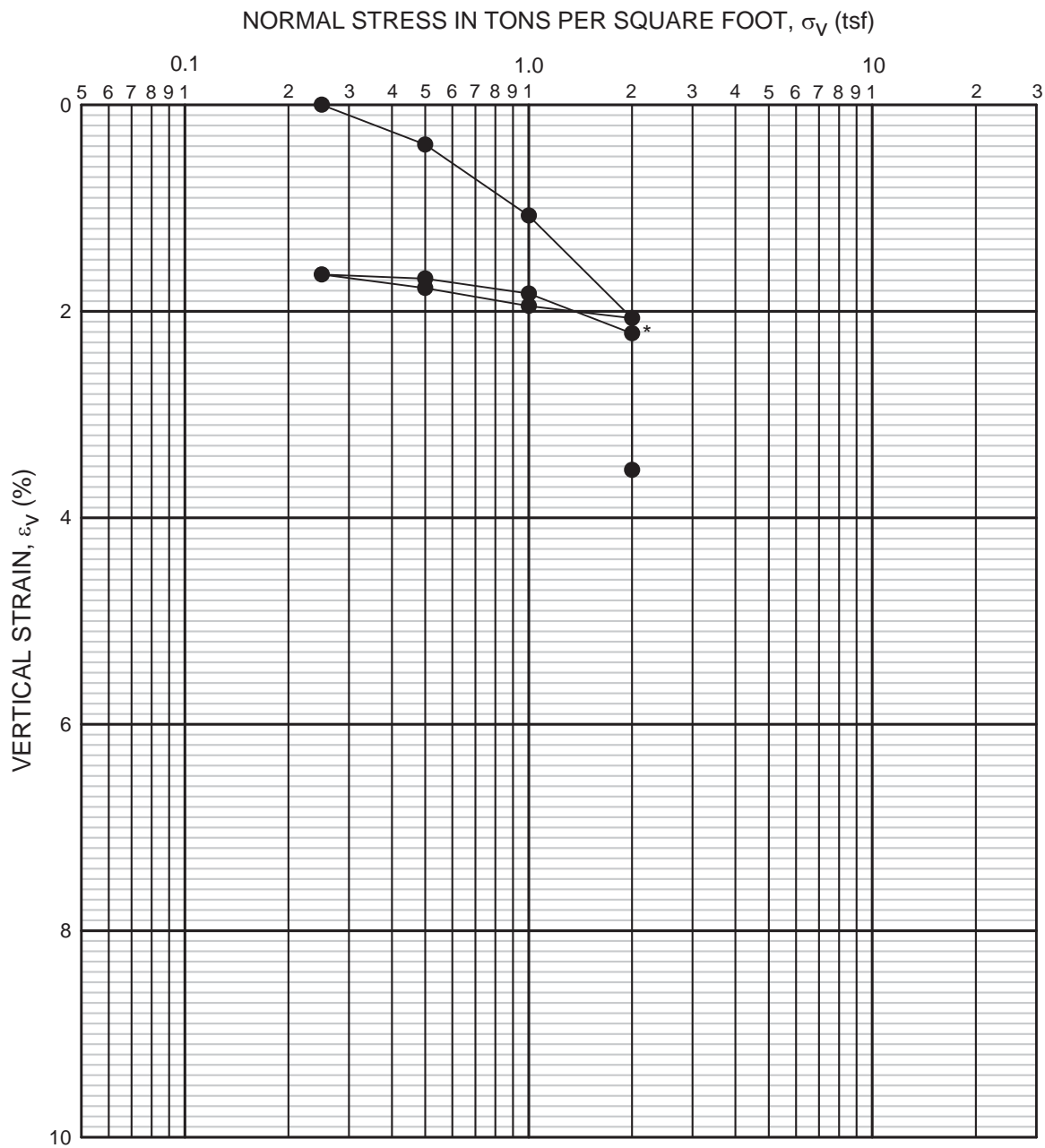
COLLAPSE/CONSOL. TEST

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BOARDMAN, OREGON

MAY 2016

PROJ. 2488

FIG. 12



Boring No. B-3 Sample No. S-5 Depth of Sample 15 to 18 ft.

Soil Description MEDIUM DENSE, brown, silty SAND to sandy SILT

☒ Undisturbed

☐ Re-compacted

Initial Conditions: Height 0.75 inches

Wet Density 115 lb/ft³

Diameter 2.5 inches

Water Content 13 %



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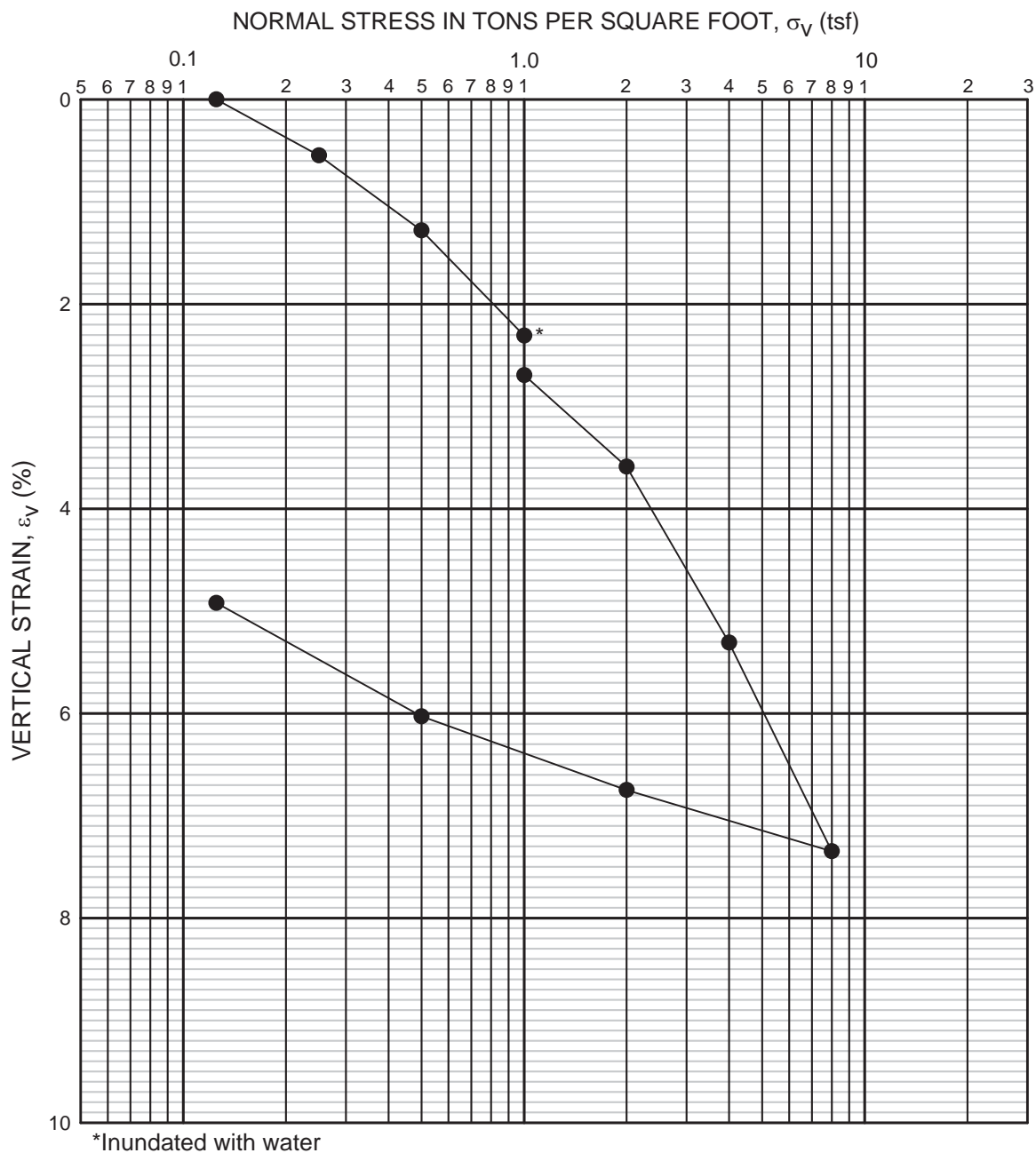
COLLAPSE TEST

CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

MAY 2016

PROJ. 2488

FIG. 13



Boring No. B-4 Sample No. S-2 Depth of Sample 5 to 8 ft.

Soil Description LOOSE to MEDIUM DENSE, brown, sandy SILT

☒ Undisturbed

☐ Re-compacted

Initial Conditions:

Height 0.75 inches

Wet Density 97 lb/ft³

Diameter 2.5 inches

Water Content 16 %



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Phone 503-452-1100 Fax 503-452-1528

COLLAPSE/CONSOL. TEST

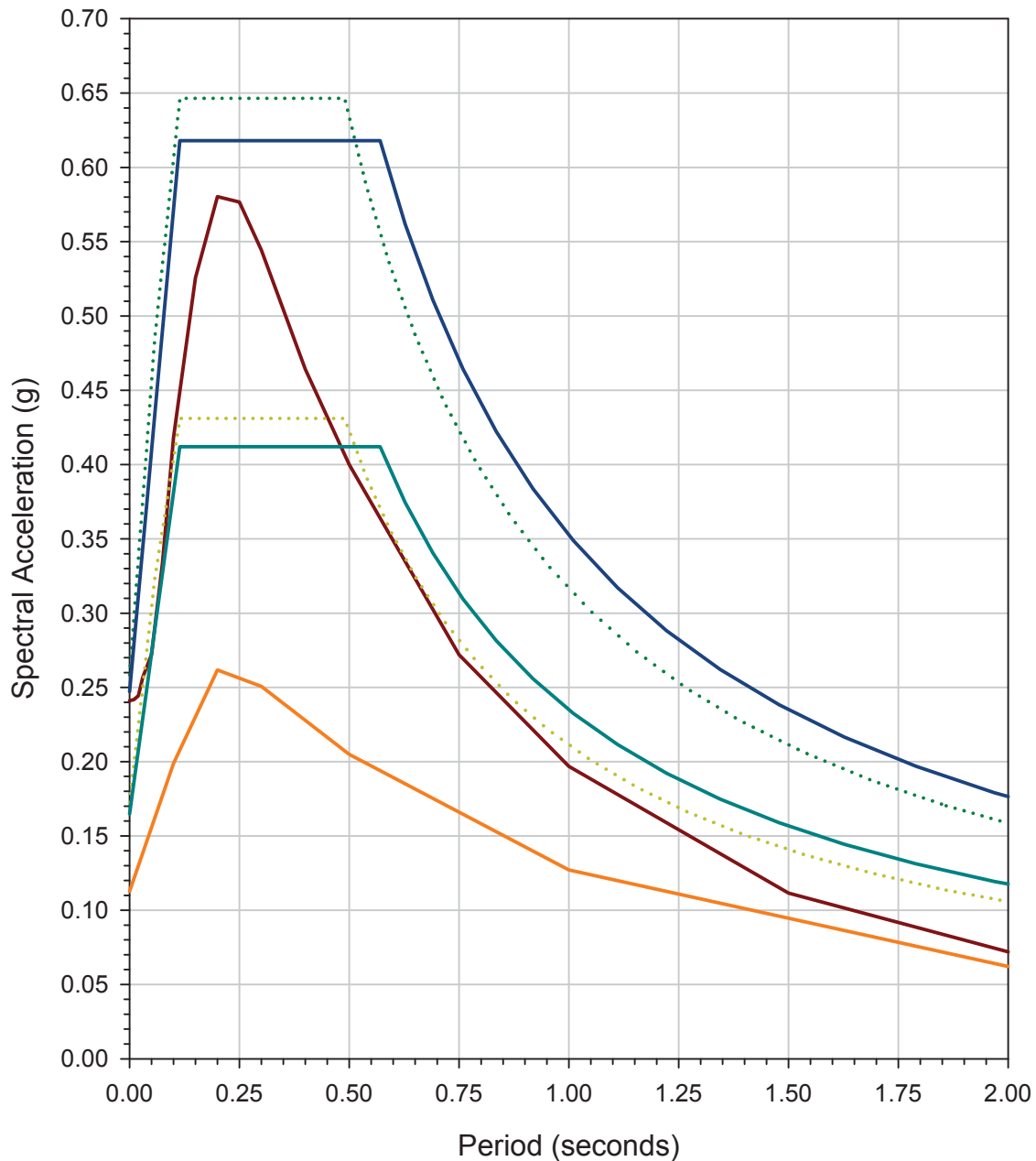
CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

MAY 2016

PROJ. 2488

FIG. 14

5% Damping - Site Class D



- MCE 2014 NGA-West 2 Median (M:6, 10km Random Crustal)
- MCE_R 2015 IBC (2014 OSSC Compliant)
- ... MCE 2009 IBC (2010 OSSC Compliant)
- MPE 2008 USGS NSHM (475yr)
- Design 2015 IBC (2014 OSSC Compliant)
- ... Design 2009 IBC (2010 OSSC Compliant)



CORNFORTH
CONSULTANTS

10250 S.W. Greenburg Road, Suite 111
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Phone 503-452-1100 Fax 503-452-1528

RESPONSE SPECTRA COMPARISON

CARTY STATION - SOLAR FACILITY
BOARDMAN, OREGON

MAY 2016

PROJ. 2488

FIG. 15

APPENDIX A

EARTH DYNAMICS LLC

**Wenner Field Resistivity Measurements
Carty Generating Station - Solar Facility Project**



EARTH DYNAMICS LLC

2284 N.W. Thurman Street
Portland, Oregon 97210
(503) 227-7659 (Phone)
(503) 227-1074 (FAX)

April 12, 2016

Mr. Randy Hill
Cornforth Consultants, Inc.
10250 SW Greenburg Rd. STE 111
Portland, OR 97223

RE: Wenner Resistivity Measurements for the Boardman-Carty Complex Project.

Dear Mr. Hill:

At your request, Earth Dynamics performed Wenner Array Resistivity measurements at the Boardman-Carty Complex near Boardman, Oregon. These data are needed to help develop a grounding grid design for a proposed solar panel project. Cornforth Consultants, Inc. provided the location coordinates for the study. Wenner resistivity data were acquired on April 8, 2016 by Mr. Daniel Lauer of Earth Dynamics.

Resistivity measurements are obtained using the Wenner four-electrode method in accordance with ANSI/IEEE Standard 81-1983 and ASTM G 57-95a (re-approved 2012), *Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method*. An Advanced Geosciences, Inc. Sting R1 Earth Resistivity Meter and a Wenner electrode array are used for the electrical resistivity sounding. For each measurement, the instrument applies a current (I), reverses polarity and applies the current again and then reverses polarity back to the original and applies current a third time. The reversed polarity technique is used to reduce electrode polarization. The voltage (V) at the potential electrodes is measured for each current injection, and the values are averaged. The average resistance (V/I), resistivity and standard deviation between two measurement cycles are displayed on a screen and stored in the internal memory. The memory also stores the date and time of the measurement, and the electrode configuration. The system does not require scale multipliers that are common on older analog resistivity meters.

The Sting R1 Meter calibration was checked in the field in accordance with the manufacturer's recommendations using a test resistor before and after acquiring resistivity data. All calibration values were within the specified tolerances for the instrument. Wenner sounding data were acquired in north-south and east-west orientations at the provided GPS coordinates of 45° 40' 47.54"N, 119° 47' 02.43"W. Data were acquired using Wenner A-spacings of 2.5, 5, 10, and 20 feet in both the North-South direction and in the East-West direction. Approximately 4 ounces of saline solution was applied to each electrode placement to reduce contact resistance with the soil.



EARTH
DYNAMICS
LLC

Wenner Resistivity Report
April 12, 2016

Page 1

The data for Wenner sounding were acquired from 11:00 to 11:50 on March 8, 2016. At the time of the data acquisition, the air temperature was approximately 65-70°F. The weather was calm, dry and sunny. A six-inch temperature probe inserted into the soil provided a temperature reading of 64°F.

The results of the Wenner sounding are contained in Table 1. Apparent electrical resistivity is listed in Ohm-feet since the requested A spacings were in feet. To comply with the ASTM G 57 standard, the apparent resistivity values are converted to Ohm-cm and also contained in Table 1. A flagged wooden survey stake marked "ED Wenner" was placed in the field at the center point of the survey.

Table 1. Summary of measured data for Wenner Sounding at Latitude 45° 40' 47.54"N and Longitude 119° 47' 02.43"W.

Wenner A spacing (ft)	Electrode insertion depth (in)	Measured Resistance (Ω)	Apparent Resistivity (Ω -ft)	Apparent Resistivity (Ω -cm)
East-West				
2.5	0.5	30.51	479.0	14,599.9
5	1.0	13.38	420.2	12,807.7
10	1.5	6.615	415.4	12,661.4
20	2.0	2.006	252.0	7,681.0
North-South				
2.5	0.5	34.18	536.6	16,355.6
5	1.0	17.37	545.4	16,623.8
10	1.5	6.492	407.7	12,426.7
20	2.0	1.574	198.0	6,035.0

No warranty, express or implied, is made or intended by presentation of this work. Earth Dynamics accepts no responsibility for damages as a result of decisions made or actions taken based on this report.

It has been a pleasure working with you on this project. Please do not hesitate to call if you have any questions.

Sincerely,



Daniel Lauer
Principal - Senior Geophysicist



APPENDIX B

EARTH DYNAMICS LLC

**Soil Sample Laboratory Resistivity Measurements
Carty Generating Station – Solar Facility Project**



EARTH DYNAMICS LLC

2284 N.W. Thurman Street
Portland, Oregon 97210
(503) 227-7659 (Phone)
(503) 227-1074 (FAX)

April 19, 2016

Mr. Randy Hill
Cornforth Consultants, Inc.
10250 SW Greenburg Rd. STE 111
Portland, OR 97223

RE: Soil Sample Resistivity Measurements for the Boardman-Carty Complex Project.

Dear Mr. Hill:

At your request, Earth Dynamics performed resistivity measurements on two soil samples from the Boardman-Carty Complex near Boardman, Oregon. These data are needed to help develop a grounding grid design for a proposed solar panel project. Cornforth Consultants, Inc. provided samples from two borings completed at the project site (B1 and B3). Resistivity measurements were acquired on April 19, 2016 by Mr. Daniel Lauer of Earth Dynamics.

Resistivity measurements are obtained in the laboratory using a Miller Soil Box in accordance with the following two ANSI Standards:

- *ASTM G 57-95a (re-approved 2012), Standard Test Method for Field Measurement of Soil Resistivity Using the Wenner Four-Electrode Method.*
- *ASTM G187-12a, Standard Test Method for Measurement of Soil Resistivity Using the Two-Electrode Soil Box Method.*

An Advanced Geosciences, Inc. Sting R1 Earth Resistivity Meter and a Miller Soil Box were used to acquire resistivity measurements. For each measurement, the instrument applies a current (I), reverses polarity and applies the current again and then reverses polarity back to the original and applies current a third time. The reversed polarity technique is used to reduce electrode polarization. The voltage (V) at the potential electrodes is measured for each current injection, and the values are averaged. The average resistance (V/I), and standard deviation between two measurement cycles are displayed on a screen and stored in the internal memory.

The Sting R1 Meter calibration was checked in accordance with the manufacturer's recommendations using a test resistor before and after acquiring resistivity data. All calibration values were within the specified tolerances for the instrument.

The soil samples were delivered in glass jars to Earth Dynamics' lab on April 7, 2016 by Cornforth Consultants personnel. For the resistivity testing, soil from two jars labelled B-1 : S7 were combined into one test specimen and soil from three jars labelled B-3 : S4 were combined into a second test specimen. Each specimen was saturated using distilled water and placed into the Miller Soil Box for testing.



**EARTH
DYNAMICS
LLC**

*Soil Sample Resistivity Report
April 20, 2016*

Page 1

The soil box resistivity measurements were acquired in Earth Dynamics' laboratory on April 19, 2016. At the time of the data acquisition, the air temperature was 73.0°F and the sample temperature was 71.3°F. Four measurements were made for each specimen and each test configuration.

The results of the testing using ASTM G57 are contained in Table 1. The results of the testing using ASTM G187 are contained in Table 2.

Table 1. Summary of measured resistivity data using ASTM G 57 Four-Electrode Method.

Sample	Listed Sample Depth	Average Measured Resistance (Ω)	Standard Deviation (Ω)	Miller Box Scale Factor	Average Measured Resistivity (Ω -cm)
B1 : S7	15 ⁰ - 16 ³	1,069	2.6	1	1,069
B3 : S4	12 ⁵ – 14 ⁰	1,064	1.9	1	1,064

Table 2. Summary of measured resistivity data using ASTM G 187 Two-Electrode Method.

Sample	Listed Sample Depth	Average Measured Resistance (Ω)	Standard Deviation (Ω)	Miller Box Scale Factor	Average Measured Resistivity (Ω -cm)
B1 : S7	15 ⁰ - 16 ³	1,942	0.7	0.57	1,106
B3 : S4	12 ⁵ – 14 ⁰	1,920	2.9	0.57	1,095

No warranty, express or implied, is made or intended by presentation of this work. Earth Dynamics accepts no responsibility for damages as a result of decisions made or actions taken based on this report.

It has been a pleasure working with you on this project. Please do not hesitate to call if you have any questions.

Sincerely,



Daniel Lauer
Principal - Senior Geophysicist



APPENDIX H-2

Recorded Earthquakes Within 50 Miles

6/10/2018

USGS EARTHQUAKE ARCHIVES OUTPUT

50 mile radius circle search

Site location					
Latitude:	45.686	Longitude:	-119.802	*Distances calculated using Haversine formula (R _E =3958.756 mi)	
Date	Latitude N	Longitude W	Depth (mi)	Magnitude	*Radial Distance (mi)
30-Dec-17	46.154	-120.543	12.2	2.7	49.4
13-Oct-17	46.160	-120.550	9.0	2.6	49.9
12-Oct-17	46.156	-120.540	8.0	3.4	49.4
07-Apr-14	46.122	-119.026	0.0	2.7	48.8
26-Oct-12	46.260	-119.384	0.0	2.5	45.7
12-Mar-12	46.165	-119.171	0.0	2.6	44.9
8-May-10	46.342	-120.218	7.9	2.6	49.5
16-Aug-09	45.933	-120.104	2.9	2.8	22.4
11-Aug-09	45.933	-119.988	11.5	2.6	19.3
10-May-09	45.833	-120.110	6.6	2.5	18.0
18-May-08	46.168	-119.550	12.5	3.7	35.5
28-Feb-04	46.036	-119.021	0.6	3.3	44.7
12-Sep-03	45.435	-118.858	13.6	2.8	48.9
1-Jun-03	45.194	-120.113	0.0	2.8	37.2
25-Oct-02	45.193	-120.094	0.9	2.7	36.9
31-Jan-02	45.685	-120.166	2.4	2.7	17.6
29-Dec-00	45.887	-119.708	0.0	2.6	14.6
17-Aug-00	45.312	-120.041	9.4	3.2	28.3
3-Aug-00	45.209	-120.073	2.3	2.8	35.5
28-Jul-00	45.170	-120.135	2.5	2.6	39.1
1-Feb-00	45.187	-120.118	0.0	2.8	37.7
1-Feb-00	45.190	-120.113	0.0	3.6	37.4
30-Jan-00	45.182	-120.109	1.1	2.8	37.9
30-Jan-00	45.190	-120.096	5.0	3.4	37.1
30-Jan-00	45.197	-120.125	0.0	4.1	37.2
5-Jan-00	45.704	-120.049	3.5	2.8	12.0
4-Sep-99	45.177	-120.077	0.8	2.9	37.6
31-Aug-99	45.187	-120.091	2.1	3.2	37.2
5-Sep-98	45.648	-119.491	0.0	2.9	15.2
12-Aug-98	45.169	-120.027	0.1	2.8	37.3
28-Apr-98	45.259	-120.281	5.2	2.7	37.5
14-Apr-98	45.480	-119.539	0.1	2.6	19.1
13-Apr-98	45.896	-119.319	0.2	2.6	27.4
3-Feb-98	45.812	-120.200	10.4	3.1	21.1
21-Jan-98	46.149	-120.458	12.1	2.7	44.9

6/10/2018

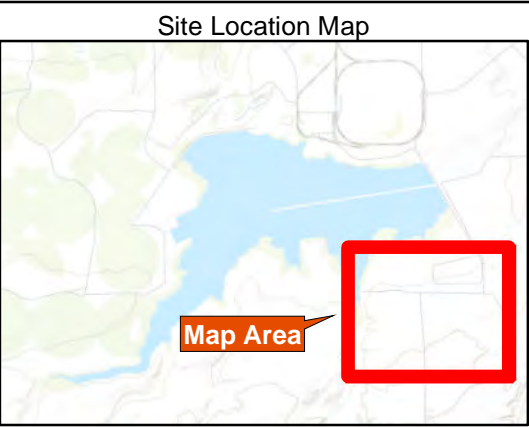
USGS EARTHQUAKE ARCHIVES OUTPUT

50 mile radius circle search

Site location					
Latitude:	45.686	Longitude:	-119.802	*Distances calculated using Haversine formula (R _E =3958.756 mi)	
Date	Latitude N	Longitude W	Depth (mi)	Magnitude	*Radial Distance (mi)
21-Dec-97	45.674	-118.835	1.9	2.6	46.7
18-Nov-97	46.137	-120.461	9.8	3.3	44.4
18-Nov-97	46.130	-120.460	9.6	2.5	44.1
18-Nov-97	46.140	-120.469	10.0	3.8	44.9
11-Nov-97	45.851	-120.565	7.9	2.8	38.5
13-Oct-97	46.100	-120.360	11.1	3.3	39.2
10-Sep-97	45.654	-120.198	0.1	2.7	19.2
17-Aug-97	45.648	-120.186	0.1	2.8	18.7
17-Apr-97	45.189	-120.083	1.2	3.2	36.9
28-Mar-97	45.201	-120.056	1.2	2.6	35.7
23-Mar-97	45.200	-120.069	0.6	3.4	36.0
22-Mar-97	45.190	-120.067	0.8	3.9	36.6
22-Mar-97	45.202	-120.065	0.4	2.7	35.8
13-Feb-96	45.530	-119.607	1.5	2.9	14.3
2-Nov-95	46.150	-119.564	13.2	3.1	34.1
29-Aug-95	46.208	-119.906	9.5	3.1	36.4
17-Nov-94	45.701	-120.178	0.0	2.7	18.2
22-Sep-94	45.692	-120.163	0.0	2.9	17.4
18-Dec-93	45.250	-120.112	0.1	3.1	33.6
16-Dec-93	45.196	-120.090	4.2	3	36.6
7-Aug-92	45.860	-119.590	0.4	3.9	15.8
20-Apr-91	45.345	-120.138	8.3	2.8	28.6
27-Mar-89	45.816	-120.262	7.6	3.1	23.9
29-Sep-88	45.850	-120.260	8.6	3.5	24.8
11-Jul-88	45.249	-120.131	0.0	2.9	34.1
29-Sep-87	45.186	-120.111	0.6	2.7	37.6
8-Sep-87	45.184	-120.085	0.6	3.1	37.3
10-Feb-85	45.858	-119.644	3.1	3.7	14.1
14-Jun-81	45.954	-120.492	8.9	3.1	38.0
1-Jul-75	45.628	-120.002	3.1	3.5	10.4
28-Jun-75	46.238	-119.712	0.6	3.7	38.4



Attachment RAI-20

New Figure K-2

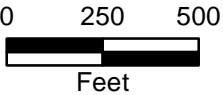


Map Area

Map Features

-  Proposed Solar Farm Energy Facility Boundary - 315 Acres
-  High-Value Farmland¹ 57 Acres

Notes:
1. Areas that are within the Columbia AVA and meet the criteria of ORS 195.300(10)(f)



Portland General Electric
Portland, Oregon

Figure K-2

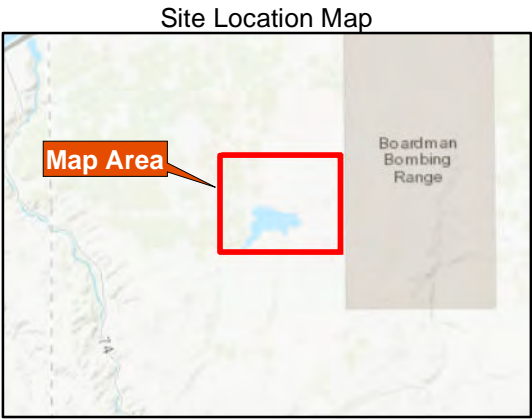
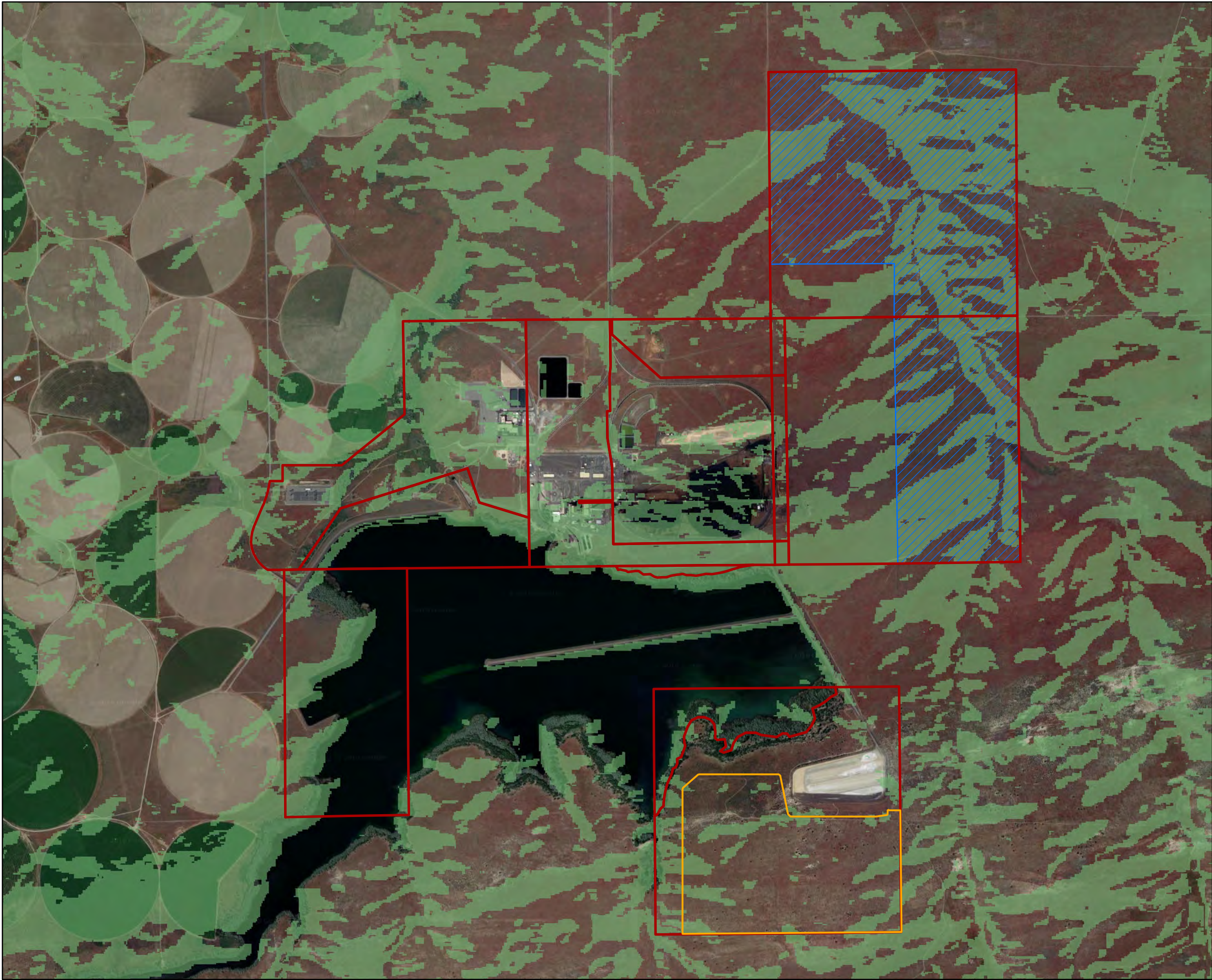
**Columbia Valley AVA
High-value Farmland**

Request for Amendment No. 1
Carty Generating Station Site Certificate

Date:	6/28/2018	Drawn By:	JBH	Rev.:	
Drawing File:	J:\Carty\Maps\Carty_Solar_Fig_K_2.mxd				

Attachment RAI-21

New Figure K-3



Map Features

- High-Value Farmland¹
- Proposed Solar Farm Boundary
- PGE Parcels²
- PGE Conservation Easement

Notes:

1. Areas that are within the Columbia AVA and meet the criteria of ORS 195.300(10)(f)
2. Parcels owned or co-owned by PGE



Portland General Electric
Portland, Oregon

Figure K-3

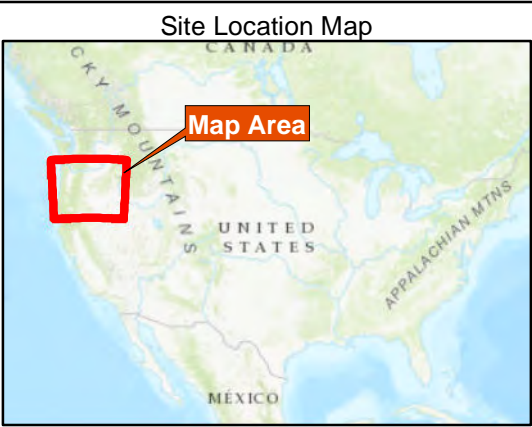
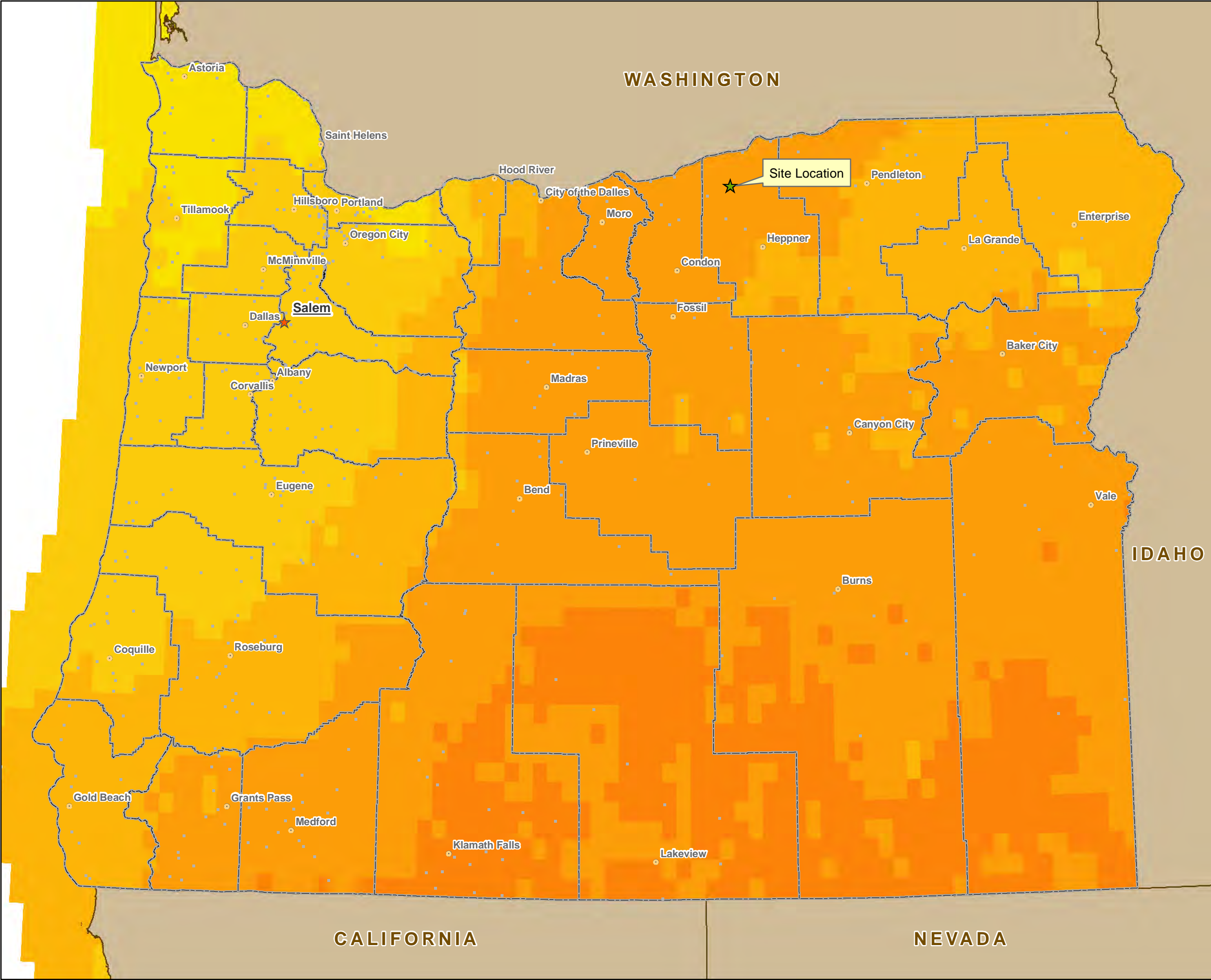
Columbia AVA High-value Farmland on PGE Owned Land

Request for Amendment No. 1
Carty Generating Station Site Certificate

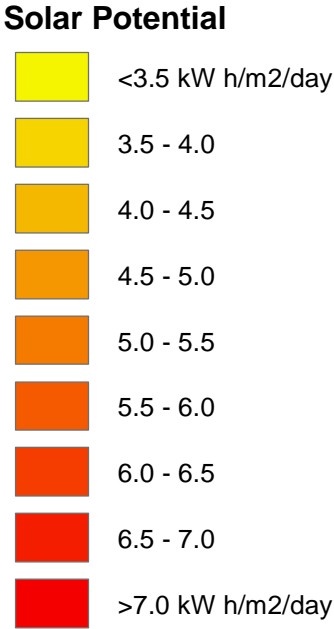
Date:	6/28/2018	Drawn By:	JBH	Rev.:	
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Attachment RAI-24

New Figure K-4

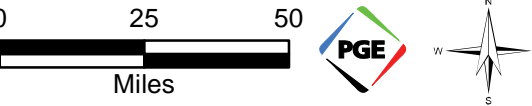


Solar Potential



Source:
ArcGIS Map Service - NREL Solar Energy Potential.

This data provides annual average daily total solar resource averaged over surface cells of 0.1 degrees in both latitude and longitude, or about 10 km in size. This data was developed using the State University of New York/Albany satellite radiation model.



Portland General Electric

Portland, Oregon

Figure K-4

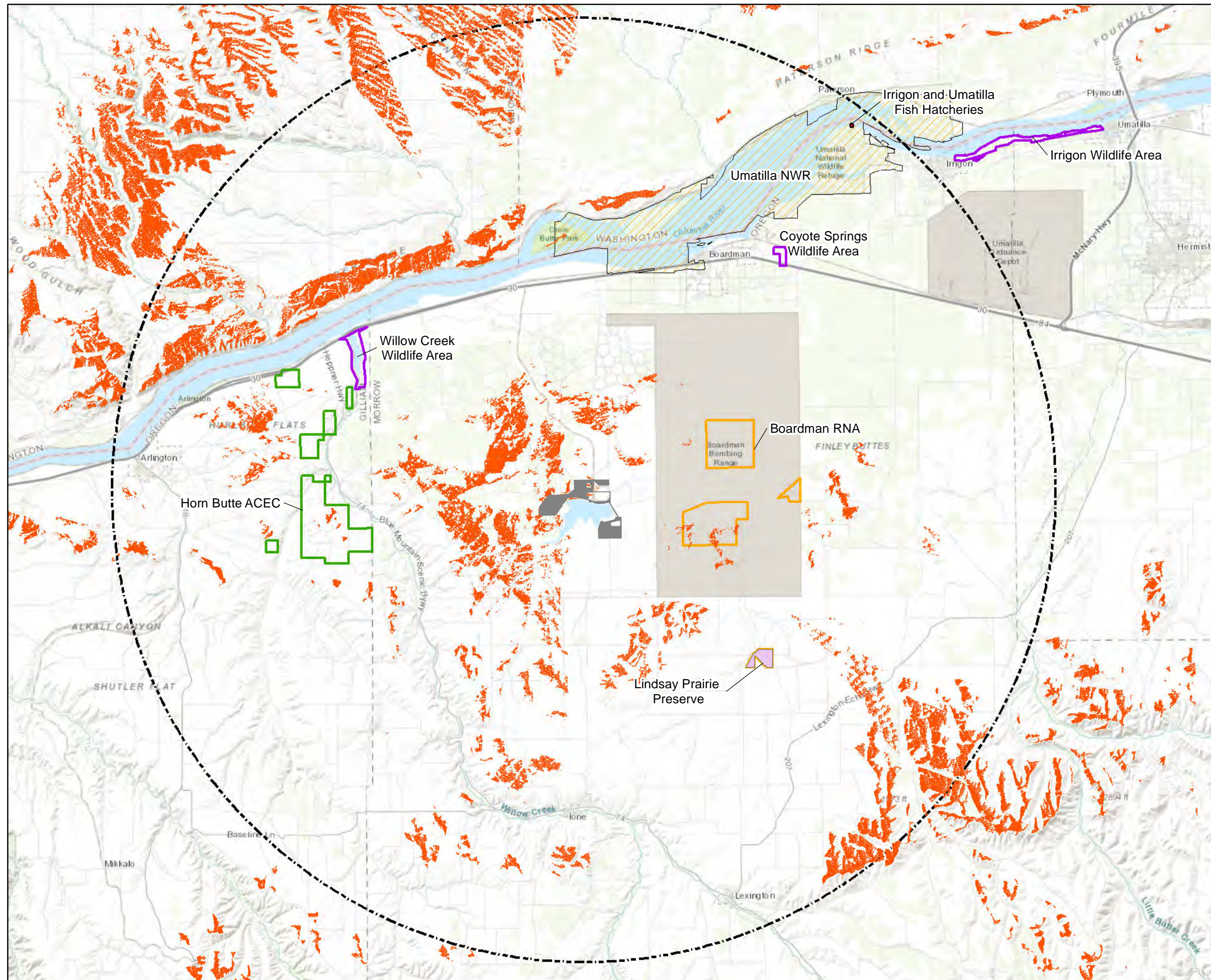
Regional Solar Resource Map

Request for Amendment No. 1
Carty Generating Station Site Certificate

Date:	6/29/2018	Drawn By:	JBH	Rev.:	
Drawing File: J:\Carty\Maps\Carty_Solar_Fig_K_4.mxd					

Attachment RAI-25

New Figure L-2



- ### Map Features
- Area Where Site Could Be Visible
 - State Wildlife and Management Areas
 - 20-Mile Analysis Area
 - Lindsay Prairie Preserve
 - Fish Hatchery
 - Boardman Research Natural Area
 - Umatilla National Wildlife Refuge (NWR)
 - Horn Butte ACEC
 - Amended Site Boundary Area



Portland General Electric
Portland, Oregon

Figure L-2
Visual Impact to Protected Areas
Request for Amendment No. 1
Carty Generating Station Site Certificate

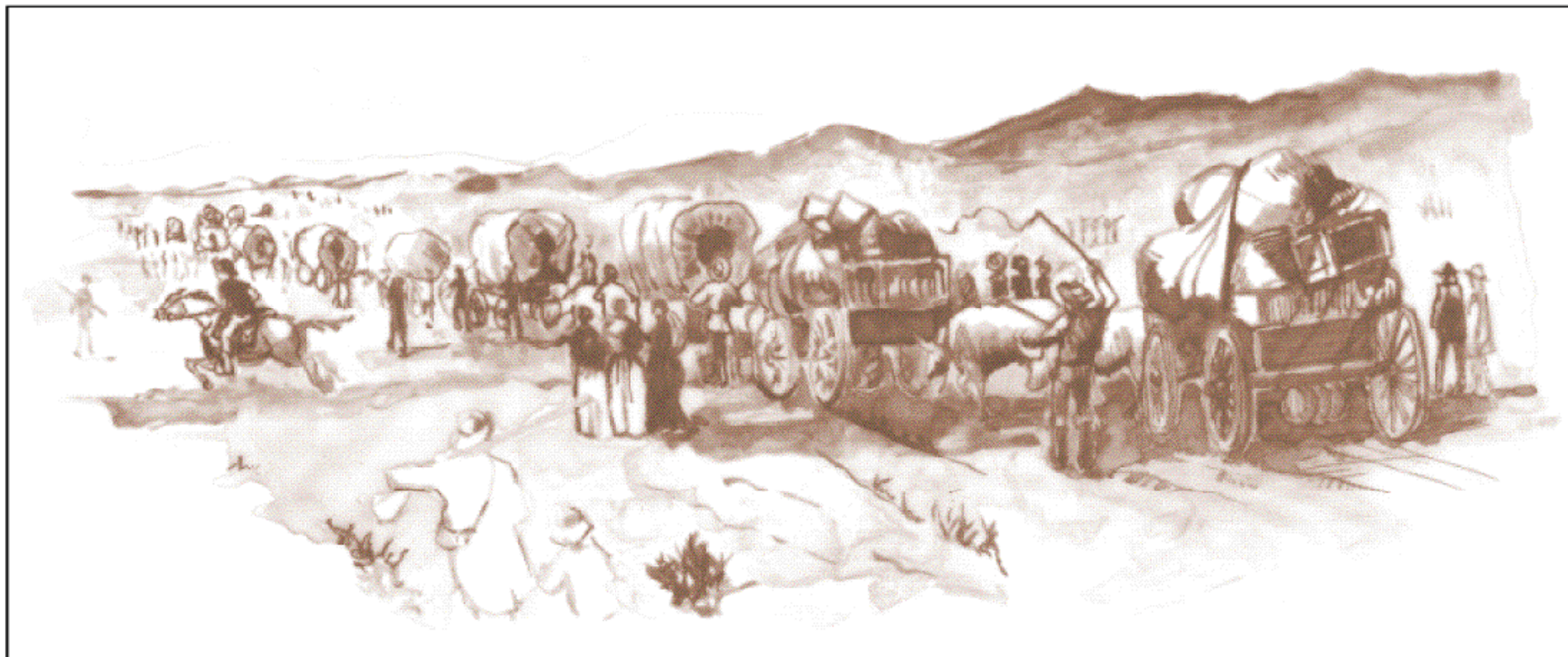
Date: 6/28/2018	Drawn By: JBH	Rev.:
Drawing File: J:\Carty\Maps\Carty_Solar_Fig_L_2.mxd		

Attachment RAI-32

Revised Figure R-1 and Relevant Portion of Oregon Trail Comprehensive
Management and Use Plan

Comprehensive Management and Use Plan
Final Environmental Impact Statement
California National Historic Trail
Pony Express National Historic Trail

Management and Use Plan Update
Final Environmental Impact Statement
Oregon National Historic Trail
Mormon Pioneer National Historic Trail



OREGON • CALIFORNIA • MORMON PIONEER • PONY EXPRESS
NATIONAL HISTORIC TRAILS

United States Department of the Interior • National Park Service

ownership jurisdiction. They include planning and developing trail segments or specific sites, site interpretation, site stabilization and protection, and managing visitor use.

In 1995 the National Park Service established the Long Distance Trails Office in Salt Lake City, Utah, to improve interstate and inter-regional coordination. This office is responsible for implementing this plan, but it does not manage trail resources. Specific responsibilities of the trails office include coordinating and supporting the protection of trail resources, marking and interpreting the trails, designating and marking an auto-tour route, and identifying and certifying high-potential sites.

The availability of the Draft Environmental Impact Statement for a 60-day public review was announced in the Federal Register on August 18, 1998. Close to 1,000 copies were sent out for review. Public meetings were held in late September and early October at nine locations throughout the West and were attended by approximately 180 people. Written comments were received from 32 federal, state, and local agencies, 1 Indian tribe, and about 105 organizations and individuals. This Comprehensive Management and Use Plan / Final Environmental Impact Statement has been revised in response to substantive comments on the draft document. Substantive comments, as defined by the Council on Environmental Quality, are those that (1) question the accuracy of information, (2) question the adequacy of the environmental analysis, (3) present reasonable alternatives to those presented in the plan, and (4) cause changes or revision in the proposal. In accordance with the National Environmental Policy Act, all written responses from public agencies are reprinted in this document. Substantive comments from individuals have been summarized and responded to in table 20.

This Comprehensive Management and Use Plan / Final Environmental Impact Statement

- describes the purpose and significance of each trail
- addresses the planning requirements outlined in section 5 of the National Trails System Act
- addresses issues and concerns related to resource protection
- addresses issues and concerns related to interpretation and visitor use
- establishes the long-term objectives for the administration of the four trails
- presents a proposed plan for the comprehensive administration of the trails, as well as a no-action alternative that would continue existing administrative programs
- assesses the impacts of implementing the proposed plan and the no-action alternative
- provides general maps of the national historic trails

The proposed plan provides a framework for federal, state, and local governments, as well as private organizations and individuals, to cooperatively maintain, protect, and manage the resources associated with the trails. In addition, this plan guides the development of an interpretive program and outlines a range of activities for visitor experience and use.

This document fulfills the legislative requirement for comprehensive management and use plans for the California and Pony Express National Historic Trails, and it updates earlier plans for the Oregon and the Mormon Pioneer National Historic Trails. These two plans were developed independently from each other and make no provision for the overlapping nature of these routes.

Only the 1,400-mile original wagon route that Brigham Young and the Pioneer Party followed in 1846–47, between Nauvoo, Illinois, and Salt Lake City, Utah, has been authorized by legislation as the Mormon Pioneer National Historic Trail. Only the primary route of the Oregon Trail has been authorized as a national historic trail. Only the routes and cutoffs identified in the National Park Service's 1987 Eligibility / Feasibility Study and Environmental Assessment for National Historic Trail Authorization have been authorized as the California and Pony Express National Historic Trails.

The Department of the Interior's Office of the Solicitor has established that additional routes and cutoffs determined to be directly associated with a national historic trail may be added through (1) a study to determine the feasibility and suitability of designating such routes as components of a national historic trail, and (2) subsequent congressional action amending the original act for a particular trail.

For the California and the Pony Express Trails, this plan identifies high-potential sites and segments as required by the National Trails System Act (see appendixes E and F and maps 2-6). **According to the National Trails System Act, high-potential historic sites are**

those historic sites related to the route, or sites in close proximity thereto, which provide opportunity to interpret the historic significance of the trail during the period of its major use. Criteria for consideration as high potential sites include historic significance, presence of visible historic remnants, scenic quality, and relative freedom from intrusion.

High-potential route segments are

those segments of a trail which would afford a high quality recreation experience in a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route.

Historic sites and segments associated with the trails, either listed on or determined eligible for listing on the National Register of Historic

Places, are included in the list of high-potential sites. Other historic resources that may be worthy of management consideration may in the future be considered for inclusion among the list of high-potential sites and segments if research confirms their significance and integrity.

Updates of the list of high-potential sites and segments for the Oregon and the Mormon Pioneer National Historic Trails are included (see appendixes G-H, I-J, and maps 7-11).

Federally owned sites and segments of these trails are considered federal protection components and should receive special attention by managing agencies to enhance their trail-related values.

Many high-potential resources are not under federal jurisdiction. In those cases the National Trails System Act (sec 3 (a) (3)) authorizes a procedure whereby landowners can have their historic sites certified as components of a national historic trail (see appendix K for a more detailed description of the certification procedure).

Legislative Authority

The Oregon and the Mormon Pioneer Trails were authorized as national historic trails by Congress in 1978 (see National Trails System Act, sections 5 (a) (3) and (4), respectively). In 1992 Congress established the California and Pony Express National Historic Trails (see National Trails System Act sec. 5 (a) (18) and (19), respectively). The 1992 legislation amending the National Trails System Act directs the secretary of the interior to

provide for the development and maintenance of [these] trails within federally administered areas.

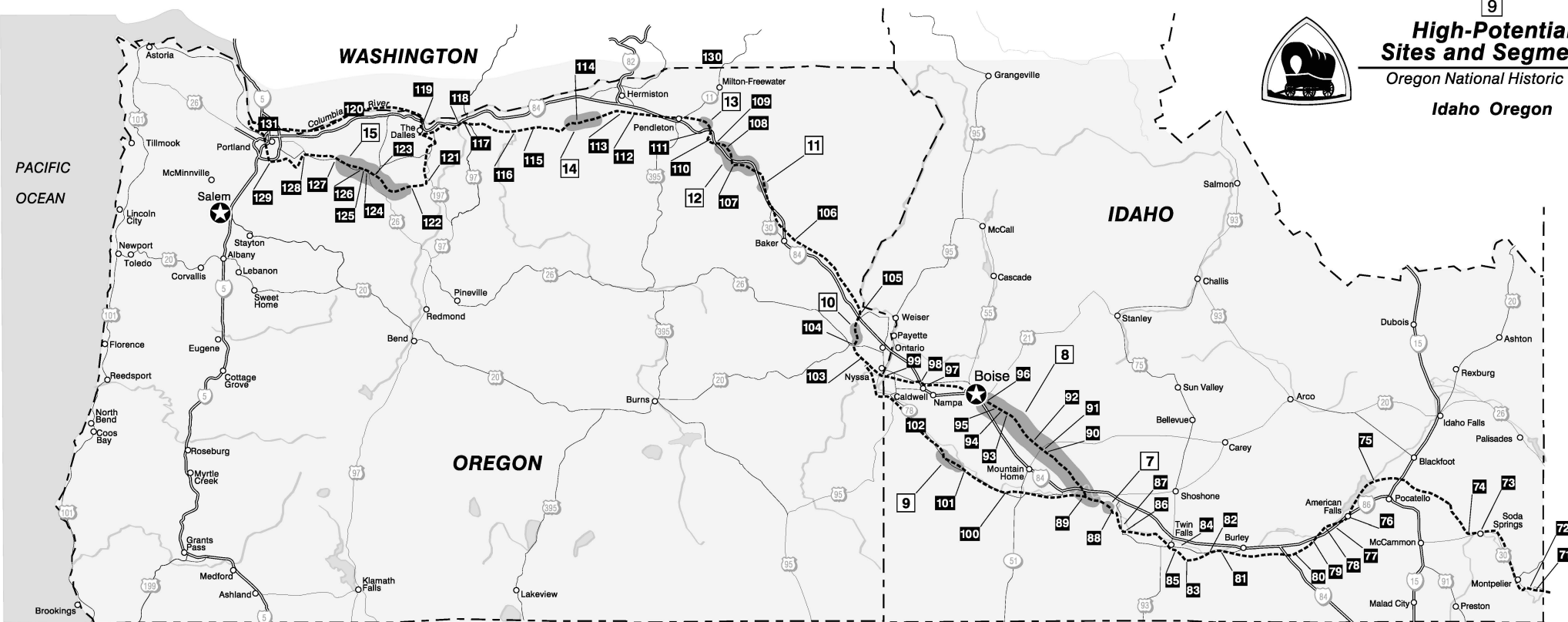
The legislation also directs the secretary to

cooperate with and encourage those states through which the trails pass to operate, develop, and maintain any portions of these trails which are located outside the boundaries of federally administered areas.

The National Trails System Act also authorizes the secretary of the interior to enter into cooperative agreements with states, local governments, landowners, and private organizations or individuals to help operate, develop, and maintain trail portions outside federal jurisdiction. These cooperative agreements can include provisions for limited financial or technical assistance to encourage participation in trail management activities. Cooperative agreements can also secure volunteer assistance for the protection and management of the trails and their related resources.



9
**High-Potential
Sites and Segments**
Oregon National Historic Trail
Idaho Oregon



HIGH-POTENTIAL SITES
Idaho

- 71 Thomas Fork Crossing
- * 72 Big Hill
- 73 Soda Springs Complex
- 74 Sheep Rock
- 75 Fort Hall
- 76 American Falls
- 77 Massacre Rocks
- * 78 Register Rock
- * 79 Coldwater Hill
- 80 California Trail Junction/
Raft River Crossing
- 81 Milner Ruts
(Cedars Emigrant Campsite)
- * 82 Caldron Linn
- 83 Stricker Store/Rock
Creek Station
- 84 Shoshone Falls
- 85 Rock Creek Crossing
- 86 Kanaka Rapids
- * * 87 Thousand Springs Complex
- 88 Upper Salmon Falls

- 89 Three Island Crossing
- * * 90 Teapot Dome Hot Springs
- 91 Rattlesnake Station
- 92 Canyon Creek Station
- * * 93 Inscription Rock
- * 94 Ditto Station
- * 95 Indian Creek Station
- 96 Bonneville Point
- 97 Ward Massacre Site
- 98 Canyon Hill Ruts
- 99 Fort Boise
(Hudson's Bay Company)
- 100 C.J. Strike Ruts
- 101 Utter Massacre Site
- 102 Givens Hot Springs

Oregon

- 103 Keeney Pass
- 104 Vale Complex
- 105 Farewell Bend

- * * 106 Flagstaff Hill/National
Historic Oregon Trail
Interpretive Center
- 107 Hilgard Junction
- * 108 Blue Mountain Crossing
Interpretive Park
- 109 Meacham
- 110 Emigrant Springs
- 111 Deadman Pass
- 112 Echo Complex
- 113 Echo Meadows
- 114 Well Spring
- 115 Fourmile Canyon
- * * 116 John Day River Crossing
- 117 Biggs Junction
- * * 118 Deschutes River Crossing
- 119 The Dalles Complex
- 120 Cascades of the Columbia
- 121 Tygh Valley
- 122 Barlow Gate
- 123 Barlow Pass Complex

- * 124 Government Camp
 - 125 Laurel Hill
 - 126 West Barlow Tollgate
 - * 127 Wildwood Recreation Area
 - * 128 Philip Foster Farm
 - * 129 Oregon City Complex
- Washington**
- 130 Whitman Mission
 - 131 Fort Vancouver

* New Site
* * New Name

HIGH-POTENTIAL SEGMENTS
Idaho

- 7 Hagerman Fossil Beds
- 8 North Trail
- 9 Sinkers Creek
- 10 Alkali Springs
- 11 Ladd Canyon
- 12 Blue Mountain
- 13 Emigrant Hill
- 14 Boardman
- 15 Barlow Road



OREGON • CALIFORNIA • MORMON PIONEER • PONY EXPRESS
NATIONAL HISTORIC TRAILS

United States Department of the Interior • National Park Service

485 • 20016A • DSC • 5/99

Significant Resources

The National Trails System Act provides for the identification of high-potential sites and segments, based on criteria established in the act. These criteria include historic significance, the presence of visible historic remnants, scenic quality, and relative freedom from intrusion. High-potential segments are those segments of a trail that afford high quality recreational experiences along a portion of the route having greater than average scenic values or affording an opportunity to vicariously share the experience of the original users of a historic route. Each site or segment must have the potential to interpret the trails' historical significance and to provide opportunities for high-quality recreation.

This plan acknowledges that the lists of high-potential sites and segments for each trail must be flexible and will require periodic updates. Under both alternatives a mechanism is provided to modify and revise high-potential sites and segments as new information becomes available, or if the integrity of trail resources becomes compromised.

All of the information on sites and segments gathered during the planning process and submissions received from resource managers and trail organizations through September 18, 1997, has been entered into the database. This database is available at the Long Distance Trails Office. In the future it will be linked to the GIS mapping effort completed as part of this planning process.

Revisions have been made to the lists of high-potential sites and segments for each trail to reflect comments received during the various review processes and to reflect research conducted by the Long Distance Trails Office since the release of the Draft Comprehensive Management and Use Plan / Draft Environmental Impact Statement.



OREGON NATIONAL HISTORIC TRAIL:
HIGH-POTENTIAL SITES AND SEGMENTS UPDATE

Modifications to the original listing of sites and segments identified in the Comprehensive Management and Use Plan for the Oregon National Historic Trail have resulted in the addition of 5 segments and 20 sites, the modification of 1 segment, and the deletion of 7 sites. Since the publication of the draft plan the Long Distance Trails Office has refined the list of high-potential resources associated with this trail. Four sites have been added, 10 have been deleted, and 15 names of sites or segments have been modified (see maps 7-9, and appendixes G and H).

Table 5 indicates the number of high-potential sites and segments by state. Table 6 displays the mileage of segments by state.

This list can be modified in the future to add sites and segments that additional research might indicate to be worthy of inclusion. Sites and segments can also be deleted from this list.

Table 5: Oregon National Historic Trail — High-Potential Sites and Segments by State		
State	Sites	Segments
Missouri	7	0
Kansas	14	1
Nebraska	17	0
Wyoming	32	5
Idaho	32	3
Oregon	27	6
Washington	2	0
Total	131	15

Table 6: Oregon National Historic Trail — Mileage of High-Potential Segments		
State	Number of Segments	Number of Miles
Kansas	1	6
Wyoming	5	243
Idaho	3	114
Oregon	6	82
Total	15	445



CALIFORNIA AND PONY EXPRESS NATIONAL HISTORIC TRAILS:
HIGH-POTENTIAL SITES AND SEGMENTS

From the extensive list of submissions, 244 sites and 52 segments listed in tables 7 and 8 have been identified as high-potential (for a more comprehensive description of these resources, see appendixes E and F and maps 2-6). The segments total 2,077 miles. Some of these sites and segments have already been classified as high-potential in the plans for the Oregon and Mormon Pioneer Trails.

Since the publication of the draft plan, the Long Distance Trails Office has refined the list of high-potential resources associated with this trail. These changes are the result of the opinion by the U.S. Department of the Interior's Office of the Solicitor, public comments, and additional research conducted by the Long Distance Trails Office. Seven segments were deleted, seven were added, and the names of seven segments were modified. A total of 37 sites have been deleted, 14 have been added, and the names of 26 sites have been modified (see maps 2-6 and appendixes E and F).

This list of high-potential resources can be modified in the future to add sites and segments that additional research might indicate to be worthy of inclusion. Sites and segments can also be deleted from this list.

NO	SEGMENT NAME	LENGTH (miles)	COUNTY/ STATE	QUAD 1:100,000	DESCRIPTION	NATIONAL REGISTER STATUS	OWNERSHIP	THREATS TO RESOURCES/ VISITOR SERVICES
11	Ladd Canyon	2	Union, OR	Enterprise, La Grande	The Ladd Canyon Ruts extend for two miles as they climb up and over a high ridge that overlooks the Grande Ronde Valley to the northwest. As the emigrants crested this ridge, they were greeted with an excellent view of the fertile valley and the Blue Mountains beyond. After enjoying the view, they were forced to negotiate a difficult descent down into the valley along several switchbacks, for the hill was too steep for a direct descent. The best portion of the ruts are cut into this hill.	Not listed	Private	Preservation of resources on private land is a concern.
12	Blue Mountains	17	Union, Umatilla, OR	La Grande	This segment, stretching from the western edge of present-day La Grande, Oregon, northwest to the Mount Emily Interchange of I-84, includes many miles of ruts through the picturesque and heavily forested Blue Mountains. This was the first forested terrain the emigrants had encountered since leaving the rolling hills of Kansas. The trail became rougher as it wound up the mountains and through the forests, but the shade was welcome in the summer's heat, and wood and water were now plentiful.	Not listed	Public (Wallowa-Whitman National Forest, Hilgard Junction State Park)/ Private	Preservation of resources on private land is a concern. There are interpretive waysides at Hilgard Junction State Park and Blue Mountain Crossing Interpretive Park and a monument at Summit Road.
13	Emigrant Hill	4	Umatilla, OR	Pendleton	This segment includes the long descent from Deadman Pass to the Umatilla River Valley. In spite of the visual intrusion of the pipeline and the powerlines, this segment provides an excellent feeling for the landscape.	Not listed	Public (U.S. Forest Service)/ Private	Leasing land for grazing has impaired and continues to threaten trail resources.
14	Boardman	12	Morrow, OR	Hemiston	This segment stretches from the eastern boundary of the Boardman Bombing Range to Immigrant Road and includes traces of the Oregon Trail. This appealing landscape of rough sagebrush-covered desert is much as it must have been during the emigrant years.	Not listed	Public/Private	Military use restricts access to the trail.
15	Barlow Road	32	Wasco, Hood River, Clackamas, OR	Mount Hood	The segment begins at Barlow Gate, swings south around Mount Hood, and ends at the West Barlow Tollgate. Ruts remain along most of the distance, and the scenic qualities are exceptional. On September 7, 1853, Amelia Stewart Knight wrote a graphic description of her day's journey over the Barlow Road: "Traveled 14 miles over the worse road that was ever made up and down very steep rough and rocky hills, through mud holes, twisting and winding round stumps, logs, and fallen trees. now we are on the end of a log, now bounce down in a mud hole, now over a big root of a tree, or rock, then bang goes the other side of the wagon and woe to be whatever is inside. . . .These mountains are a dense forest of pine, fir, white cedar, or redwood, the handsomest timber in the world must be here in these Cascade Mountains."	Barlow Road Historic District	Public (US Forest Service)/ Private	None known.

NO	SITE NAME	COUNTY	STATE	QUAD 1:100,000	DESCRIPTION	NATIONAL REGISTER STATUS	OWNERSHIP	THREATS TO RESOURCES/ VISITOR SERVICES
114	Well Spring	Morrow	OR	Hemiston	Well Spring, an important emigrant campsite and water source, made travel possible for weary emigrants and their worn-out teams across this dry stretch of the Columbia Plateau. Most emigrants left the Umatilla River, crossed Butter Creek, and pressed on to camp at Well Spring. The spring was always a meager source of water, but it was a crucial oasis, since this portion of the trail was usually traveled in late August or early September when the intermittent streams were normally dry. Riley Root made the journey from Butter Creek on August 24, 1848, and camped at Well Spring: "18 miles, over a poor tract of the Columbia River valley, to camp, at the foot of a hill, by a spring, called Well spring, rising in the center of a large mound of decayed vegetation, and sinking suddenly again, within a few feet of where it issues. . . . No grass nor water exists along this day's route, where emigrants might refresh themselves and their weary teams. . . . The spring at camp should be watched during the night by a strong guard, to keep thirsty cattle from falling into it, out of which they cannot extricate themselves." The spring has been seriously impacted over the years and is now virtually dry. Remains of a stage station, a graveyard which dates from the emigration era, and trail ruts can be found nearby.	Listed	Public (DOD)	Support of the U.S. Navy is needed to complete the development of Well Spring. Several wayside exhibits have been erected near the spring.
115	Fourmile Canyon	Gilliam	OR	Goldendale	After the Oregon Trail passed the desert-like range near Well Spring, it entered more rolling range country, transected by numerous small canyons. Over a mile of deep ruts can be found at a BLM interpretive site where the trail crossed Fourmile Canyon. Emigrants pressed on as rapidly as possible across this country because of dwindling supplies and their concern that winter would soon be upon them. Lydia A. Rudd struggled across Fourmile Canyon on September 23, 1852: "Continued our tedious journey . . . encamped on the hills wood plenty a little dry grass but no water ice nearly an inch thick this morning Mount Hood a peak of the Cascades loomed in the [sky] covered with snow Henry and myself are just able to move and that is all."	Not listed	Public (BLM)/ Private	Vandalism is a problem. Ruts on private land should be marked and preserved.
116	John Day River Crossing	Gilliam, Sherman	OR	Goldendale	After three days of sand, rock, blustery winds, and shortages of wood and water while crossing the Columbia Plateau, emigrants were relieved to arrive at the John Day River. This was the first of several major rivers flowing north toward the Columbia that would have to be crossed, but the McDonald ford provided an easy crossing. The river is normally only 8-12 inches deep during late summer, and the ford has a smooth, pebbly bottom. Esther Belle McMillan Hanna arrived at McDonald Ford on September 1, 1852: We had a very steep hill to descend in coming to it [John Day River]. We all rejoiced to see water once more as our poor beasts had had none since yesterday noon. We have encamped on the river bottom, which is large and very level. Will remain here until tomorrow to rest out cattle and ourselves and conclude on the route we will take." After ascending the west side of the canyon—"one of the most difficult hills we have met on the whole journey across the plains"—emigrants could take the right fork of the trail to go to the Dalles, or, after 1848, they could take the left fork and follow a cutoff to the Barlow Road.	Not listed	Public (BLM)/ Private	None known.

Attachment RAI-34

Email from John Pouley to Sarah Esterston

Email Details:

March 14, 2017

TO: sarah.esterson@oregon.gov
Sarah Esterson
OR Dept of Energy

FROM: John Pouley

RE: SHPO Case No. 10-0046
PGE Carty Generating Station Proj
CRS/site forms
Multiple legals, , Multiple legals County

Hi Sarah,

- Attached is a letter from Matt Diederich where he concurs that 35MW19 is not eligible to the National Register of Historic Places.
- The second letter (attached) is from me to Mini Sharma Ogle. It concurs with the findings of the report (SHPO Report# 28567. The report did a thorough job of investigating the two isolates and I concurred that both were not eligible.
- My letter (second attachment) again concurs with the report. The report stated that 35MW15 did not extend into the project area. My concurrence for “no effect on any significant archaeological objects or sites” addresses all discussed in the report, including 35MW15.

Please feel free to let me know if I did not address all of your questions.

-John

John O. Pouley
Assistant State Archaeologist
[Oregon SHPO](#)
503-986-0675

cc'd to:

**Attachment D: Draft Amended Wildlife and
Habitat Monitoring and Mitigation Plan**

Carty Generating Station: Wildlife and Habitat Monitoring and Mitigation Plan¹ TBD 2018²

I. INTRODUCTION

The Carty Generating Station includes existing generating components (Unit 1 and its associated components) and approved, but not yet constructed generating components (Carty Solar Farm and its associated components). Portland General Electric (PGE or certificate holder) received a site certificate from the Energy Facility Siting Council (Council) in June 2012 authorizing the construction and operation of a 900 megawatt (MW) combined-cycle natural gas-fueled energy generating facility in Boardman, Oregon in Morrow County (Carty Generating Station). The Council's 2012 approval authorized construction and operation of two 450-MW combined-cycle natural gas-fueled turbine generators (Unit 1 and Unit 2). PGE commenced Unit 1 construction on January 9, 2014; PGE completed Unit 1 construction on December 26, 2016; Unit 1 began operation on July 29, 2016. The construction commencement deadline for Unit 2 expired in June 2017 and therefore the certificate holder no longer has the authority to construct or operate Unit 2.

The Council issued the First Amended site certificate on **DATE** authorizing a site boundary change and the construction and operation of a 50 MW photovoltaic solar unit, five 34.5 kilovolt (kV) interconnecting transmission line routing options, and temporary construction and laydown areas (Carty Solar Farm). The construction commencement and completion deadlines for the components authorized in the First Amended site certificate is **DATES**.

This Amended Wildlife and Habitat Monitoring and Mitigation Plan (Amended Plan) describes wildlife monitoring that the certificate holder shall conduct during construction and operation of the Carty Generating Station (facility), including the already constructed Carty Unit 1; Grassland Switchyard; the transmission line segment connecting Unit 1 to the switchyard; and additional facilities as approved under Site Certificate Amendment 1, including the Carty Solar Farm site just southeast of Carty Reservoir and the associated interconnection transmission line. The monitoring objectives are to determine whether the facility causes significant fatalities of wildlife species or results in a loss of habitat quality.

This Amended Plan also describes methods and standards for preservation and enhancement of land near the Carty Generating Station to mitigate for impacts of the facility on wildlife habitat and addresses mitigation for both the permanent impacts of facility components and the temporal impacts of facility construction. The certificate holder shall protect and enhance the mitigation area(s) as described herein. This Amended Plan specifies habitat enhancement actions and monitoring procedures to evaluate the success of those actions. Remedial action may be necessary if the mitigation area(s) do not demonstrate progress toward habitat enhancement success.

¹ This Amended Plan is incorporated by reference in the site certificate for the Carty Generating Station and must be understood in that context. It is not a "stand-alone" document. This plan does not contain all mitigation required of the certificate holder.

² A draft version of this plan was included as Exhibit 1 to the Energy Facility Siting Council's *Final Order on the Carty Generating Station Application for Site Certificate* (June 29, 2012). In accordance with Site Certificate Condition 10.1 the certificate holder consulted with the Oregon Department of Fish and Wildlife (ODFW) and obtained Department approval of the Plan prior to the start of construction (December, 2013). As allowed by Section IX of the Plan, ODOE reviewed and approved an amended Plan on July 7, 2014. This February 2018 amended plan is being submitted as part of the Request for Amendment No. 1 of the Carty Generating Station Site Certificate.

Carty Generating Station
Wildlife and Habitat Monitoring and Mitigation Plan
(February 2018)

II. DESCRIPTION OF THE FACILITY

The Carty Generating Station Site is located in Morrow County, Oregon, approximately 13 miles southwest of the town of Boardman, Oregon. The facility would be located on an upland plateau at an elevation of approximately 650 feet above sea level. The facility components would be located entirely on private lands that are mostly characterized as shrub-steppe, grassland, or agricultural areas. There are some riparian and wetlands habitats present within the amended site boundary; however, all facility components—including transmission line towers—will be sited to avoid impacts on these habitats. Soil types in the area consist primarily of sandy loam, silt loam, and very stony loam.

Much of the native shrub-steppe vegetation within the site boundary has been modified by livestock grazing and past wildfires. Functional mature shrub-steppe habitat is patchy and is dominated by big sagebrush (*Artemisia tridentata*), broom snakeweed (*Gutierrezia sarothrae*), bluebunch wheatgrass (*Pseudoroegneria spicata*), cheatgrass (*Bromus tectorum*), gray rabbitbrush (*Ericameria nauseosus*), needle-and-thread grass (*Hesperostipa comata*), and Sandberg's bluegrass (*Poa secunda*). Grasslands consist of cheatgrass, crested wheatgrass (*Agropyron cristatum*), bluebunch wheatgrass, needle-and-threadgrass, Sandberg's bluegrass, redstem filaree (*Erodium cicutarium*), and mouse-ear chickweed (*Cerastium* sp.). Riparian forests are dominated by Russian olive (*Elaeagnus angustifolia*), Pacific willow (*Salix lucida* ssp.), Canada goldenrod (*Solidago canadensis*), amaranth (*Amaranthus* sp.), and broadleaf cattail (*typha latifolia*).

The Oregon Department of Fish and Wildlife (ODFW) describes habitat categories in its Wildlife Habitat Mitigation Policy (Oregon Administrative Rules [OAR] 635-415-0025). The facility will be constructed in two phases, with the generating components referred to as Unit 1 and the Carty Solar Farm. Unit 1 (generating unit and a portion of the switchyard), completed in 2016, occupies approximately 45 acres of Category 4 shrub-steppe habitat, and temporary construction-related impacts occurred on approximately 55.4 acres of Category 4 shrub-steppe habitat. Portland General Electric Company (PGE) established a Habitat Mitigation Area (HMA) of 78 acres (the HMA for Unit 1) to mitigate these permanent and temporal impacts.

PGE will establish the HMA for the Carty Solar Farm to mitigate permanent and temporal impacts that result from construction of the Carty Solar Farm. The overall HMA for the Carty Generating Station (the Carty Generating Station HMA, or just HMA in this document) will consist of the combined areas of the HMA for Unit 1 and the HMA for the Carty Solar Farm. Disturbance and mitigation acreage for the Carty Solar Farm will be finalized and updated in this Amended Plan in consultation with ODFW and the Oregon Department of Energy (ODOE) prior to construction of each phase of the project (see Section IV for HMA acreage calculation).

III. WILDLIFE MITIGATION AND MONITORING MEASURES

The certificate holder shall use a qualified investigator (wildlife biologist) to conduct monitoring for Washington ground squirrel (WGS; *Spermophilus washingtoni*), post-construction avian and bat mortality study, raptor nest surveys, and avian use of the facility area. Specific monitoring and mitigation measures for these species are described below (also see Section VII for HMA monitoring requirements):

A. Washington Ground Squirrel

Best Management Practices

- The certificate holder shall impose and enforce a construction and operation speed limit of 20 miles-per-hour throughout the facility site and, during the active squirrel season (February 1 through June 30) a speed limit of 10 miles-per-hour on private roads near known WGS colonies.

Carty Generating Station
Wildlife and Habitat Monitoring and Mitigation Plan
(February 2018)

- Conduct Environmental Awareness Training for all facility personnel and construction contractors prior to the beginning of construction or before entering the Project right-of-way (ROW). The training program shall discuss WGS and all other environmental issues related to the facility, and include handouts with WGS identification information and reporting procedures. Smaller training sessions shall be conducted as needed for personnel that start after the beginning of construction.
- In order to discourage WGS from moving into planned construction areas that are currently not within 785 feet of a known WGS colony the certificate holder may disc or till a minimum of an 800-foot buffer within the perimeter of the planned ground disturbance areas in closest proximity to squirrel activity areas. Proposed measures and areas where measures will be implemented shall be reviewed by ODOE, in consultation with ODFW, and shall be informed by the most recent WGS survey data. If the certificate holder discs or tills areas, the certificate holder shall plant dryland wheat or another cover crop approved by ODFW in tilled areas. Such areas shall be tilled annually until construction begins to maintain a soil disturbance regime that is unsuitable for use by WGS. Other potential measures for deterring WGS movement into planned construction areas, such as installation of perimeter silt fences, will be planned in coordination with and approved by ODFW. In addition to preventing WGS from moving into the planned construction areas, discing or tilling the planned construction area, and/or implementing other approved deterrence measures, means the area will no longer be considered WGS habitat and would not be included in the no-impact buffer area for any new WGS burrows that are established within 785 feet of the Facility Site Boundary. (Note, an approximately 45-acre portion of the Energy Facility Site was tilled and planted with winter wheat in December 2012 following coordination with ODFW and USFWS).
- If pre-construction surveys determine that WGS burrows have been established in previously inactive areas, the certificate holder shall immediately report to ODOE and ODFW. The certificate holder shall coordinate with ODOE and ODFW to establish additional mitigation measures or to obtain an Incidental Take Permit, as appropriate.
- The certificate holder will consult with ODOE and ODFW to discuss the situation and potential additional avoidance measures should WGS establish burrows within 785 feet of existing facilities, construction activity, or planned construction disturbance areas. If there is concern that, despite reasonable avoidance measures, WGS may accidentally be killed or injured by construction activities, then the certificate holder shall work with ODFW to obtain an Incidental Take permit, as appropriate.

WGS Monitoring

The certificate holder shall conduct post-construction surveys on known colonies within the amended Site Boundary, on land owned by the certificate holder, and within the HMA where known active burrows were recorded during pre-construction field surveys. The surveys shall be conducted by qualified biologists in year one, year three, and year five after operation of Unit 1 has begun (i.e., 2017, 2019, and 2021), and in year one, year three, and year five after Carty Solar Farm operation has begun (years tbd), and otherwise at least every five years (in years divisible by five) for the life of the facility. Surveyors shall record evidence of WGS activity, current land use, and any conditions caused by the facility that might increase erosion or result in a decline in vegetation quality and adversely affect a WGS colony. Unit 1 and portions of the potential Carty Solar Farm transmission line are located on the southwest side of Tower Road. In consultation with ODFW, it was determined that Tower Road is a significant boundary to WGS habitat. Therefore, for active burrows located on the northeast side of Tower Road, the 785-foot buffer will not extend across Tower Road.

Carty Generating Station
Wildlife and Habitat Monitoring and Mitigation Plan
(February 2018)

B. Raptor Nest Monitoring

During the year in which any phase of construction occurs, the certificate holder shall use a protocol approved by ODFW to conduct raptor nest surveys to determine whether there are any active nests that would potentially be disturbed during construction. Surveys will consist of ground-based and/or helicopter aerial searches, as appropriate to the construction activity locations planned for a given year. Surveys will be carried out to one mile from the amended site boundary.

If a nest is occupied by any of these sensitive raptor species, the certificate holder shall not engage in high-impact construction activities (activities that involve blasting, grading, or other major ground disturbance) or allow high levels of construction traffic within designated buffer distances for each species (Table 1). Buffer distances may be decreased with approval by ODFW and USFWS depending on the intensity of construction activity and whether sufficient barriers (e.g., vegetation, topography) are present to shelter a particular nest site from construction disturbance or if consultation determines a lesser distance is feasible and appropriate. The certificate holder also will instruct construction personnel to avoid any unnecessary activity within the buffer area.

Table 1. Critical Nesting Periods for Sensitive Raptors

Species	Disturbance Buffer Distance (line of sight)	Critical Nesting Period	Early Release Date
Ferruginous Hawk	0.6 mile	March 15 to August 15	May 31
Bald Eagle	0.5 mile	January 1 to August 15	May 31
Swainson's Hawk	0.25 mile	April 1 to August 15	May 31
Golden Eagle	1 mile	January 1 to August 15	May 31
Burrowing Owl	0.25 mile	April 1 to August 15	July 15
Long-billed Curlew*	0.5 mile	March 8 to June 15	May 31

*Although not a raptor species, a critical nesting period and buffer of 0.5 mile for active long-billed curlew nests were included in the Site Certificate. While not actively surveyed for, any curlew nests that are incidentally found will be protected with the stipulated nest buffer.

The certificate holder will direct a qualified biological monitor, as approved by ODOE, to observe the active nest sites during the sensitive period for signs of disturbance. The qualifications of the biological monitor shall be provided to ODOE in the annual report; the certificate holder shall provide notification to ODOE if changes in biological monitor occur. If an active State-sensitive raptor nest is found during construction that is for a species not currently identified in Table 1, the certificate holder will consult with ODFW and USFWS and institute buffer distances and monitoring as appropriate.

The certificate holder may begin or resume high-impact construction activities before the ending day of the sensitive period if any known nest site is not occupied by the early release date (Table 1). If a nest site is occupied, the certificate holder may begin or resume high-impact construction before the ending day of the sensitive period, with the approval of ODFW and USFWS, after the young are fledged. The certificate holder would use, and shall provide a copy to ODOE, of a protocol approved by ODFW and USFWS to determine when the young are fledged (that is,

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when the young are independent of the core nest site).

During construction and in year one, year three, and year five after operations of Unit 1 have begun (i.e., 2017, 2019, and 2021) and year one, year three and year five after operations of Carty Solar Farm have begun (years tbd) and otherwise at least every five years (in years divisible by five) for the life of the facility, the certificate holder shall provide an annual sensitive species raptor nest monitoring report to ODOE, ODFW and USFWS. The report will document the locations and nest productivity of sensitive raptor species nests one mile of the amended site boundary. The certificate holder shall consult with USFWS and ODFW regarding any active protected bird nests found within the construction disturbance area or within the disturbance buffer distances (Table 1) of facility construction or operational activities.

If nest monitoring detects nest site abandonment or other adverse impact to nesting activity caused by facility activity, the certificate holder shall implement appropriate mitigation, in consultation with ODFW and subject to the approval of ODOE. The certificate holder shall propose and implement mitigation for the affected species in consultation with ODOE, ODFW, and USFWS. Mitigation shall be designed to benefit the affected species or contribute to overall scientific knowledge and understanding of what causes nest abandonment or nest failure. Mitigation may be designed to proceed in phases over several years. It may include, but will not be limited to, additional raptor nest monitoring, protection of natural nest sites from human disturbance or cattle activity (preferably within the general area of the facility), or participation in research projects designed to improve scientific understanding of the needs of the affected species.

All bird mortalities and active nests of all other protected bird species found in association with facility components shall be documented and reported consistent with PGE's adopted Avian Protection Plan. All eagle and other sensitive raptor species mortalities shall be reported immediately to USFWS and ODFW.

C. Avian Protection

The certificate holder maintains a company-wide Avian Protection Plan (APP) to reduce impacts to avian species from electrocutions and collisions with electric utility power lines and equipment. The APP is hereby adopted by reference. The APP includes the following three-phased approach to address avian risks that will be applied to the development of the Carty Generating Station:

- Preventive – Emphasize compliance with applicable laws, regulations, and permits. Use avian-safe standards in areas identified as having high avian risk;
- Reactive – Implement the Avian Reporting System (report bird mortalities and conduct remedial measures as appropriate); and
- Proactive – Conduct employee training and risk assessments of existing lines, modify lines when necessary, and contribute to research of avian/electrical equipment interactions.

Electrocution from high-voltage transmission lines is very rare because the distances between conductors, and between conductors and grounded hardware, are greater than the wingspan of any raptor (APLIC 2006).³ However, transmission lines do present a collision risk for birds.

³ APLIC (Avian Power Line Interaction Committee). 2006. Suggested Practices for Avian Protection On Power Lines: The State of the Art in 2006. Edison Electric Institute, APLIC, and the California Energy Commission. Washington D.C. and Sacramento, CA. [http://www.aplic.org/uploads/files/2643/SuggestedPractices2006\(LR-2\).pdf](http://www.aplic.org/uploads/files/2643/SuggestedPractices2006(LR-2).pdf). Accessed August 23, 2016.

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Consistent with the APP, the certificate holder shall employ pre-construction measures to protect raptors in the design and construction of transmission lines. Protection measures to reduce the potential risks to raptors and other birds will include the following:

- Design and construct all above-ground transmission line support structures following the practices suggested by the Avian Powerline Interaction Committee (APLIC), including a minimum separation of 9 feet between all energized transmission conductors;
- Install perch guards or other deterrents as needed and safe alternative perching or nesting locations, as appropriate; and
- Install bird flight diverters and line marking devices where necessary to minimize areas of bird collision risk, such as bird concentration areas (wetland/riparian areas) and known flight routes.

A nest management procedure, which identifies steps facility employees must take when a nest is encountered on utility structures, is also included in the APP. As described in the APP, the certificate holder will track avian mortalities, nest management issues, and remedial actions taken using an internal reporting system and database, the Avian Reporting System. This reporting database allows: (1) tracking of incidents and remedial actions to ensure that all measures are completed and documented, (2) accumulation of a long-term data set, and (3) compliance with the reporting requirements of the USFWS Special Purpose Permit currently held by the certificate holder. The reporting system also provides data on the location and frequency of bird mortalities and problem nests.

Where feasible, the certificate holder shall conduct site preparation for construction of the Carty Generating Station and transmission line in a manner that minimizes potential for impacting nesting native birds protected by the Migratory Bird Treaty Act, such as conducting initial site clearing outside of the typical bird breeding season (generally March to July). Prior to commencement of construction activity during the breeding season, a qualified biologist shall survey the construction site to determine the presence of any active protected bird nests. Construction personnel shall be trained in avian awareness, reporting of protected bird nests, and the proper procedures if dead birds are found at the construction site.

D. Post-construction Avian and Bat Mortality Monitoring (Carty Solar Farm)

Monitoring Goals

The monitoring program will involve surveys designed to estimate bird and bat fatality rates at the Carty Solar Farm in the year following start of Carty Solar Farm operation. The certificate holder will analyze bird and bat carcass monitoring data to accomplish the following goals:

- Detect carcasses and estimate bird and bat fatality rates for the Carty Solar Farm;
- Estimate fatality rates for species of concern, if practicable; and
- Determine whether additional conservation measures are needed to reduce impacts to birds and bats at the Carty Solar Farm.

Monitoring Methods

i) Study Design

The avian and bat mortality monitoring study is designed to maximize the accuracy of the fatality estimates and to correct for the following sources of field-sampling error: (1) carcasses that occur on a highly periodic basis, (2) carcass removal by scavengers, (3) searcher efficiency, and (4) carcasses or injured birds or bats that may land or move to areas not included in the search transects (Kunz et al. 2007). Post-construction monitoring at the Carty Solar Farm will involve standardized distance-sampling based carcass searches, searcher efficiency trials, and carcass persistence trials, consistent with recommendations from Huso et.al (2016b) and

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accepted monitoring designs at other utility-scale solar facilities (WEST 2016a-c). Surveys of the PV panel area will be conducted using a distance-sampling based methodology. The layout of PV facilities is often well-suited to a distance-sampling approach. Distance sampling involves searching a transect line and assumes that searcher efficiency decreases (possibly dramatically) as a function of distance from the observer, and is ideally suited to situations in which animals (or carcasses) are sparsely distributed across a landscape (Buckland et al. 1993). As the landscape at the Carty Solar Farm would be flat and relatively clear of vegetation, a distance sampling design is well supported, as demonstrated at other PV solar facilities (WEST 2016a; Huso et. al 2016b).

Distance sampling adjusts carcass counts for variable searcher efficiency by calculating the *effective* searcher efficiency along a transect. Effective searcher efficiency is the average probability of detection in the searched area, derived from the detection function. As a highly simplified example, if a searcher walks a 10-m (33-ft) long transect line and detects 90% of all carcasses within 10-m of the line, and 60% of carcasses that are 10 to 30 m (33 to 99 ft) from the line, then the effective searcher efficiency between zero and 10 m would be 0.9 and the effective searcher efficiency between 10 and 30 m would be 0.6. For the total 10 by 30-m area, the effective searcher efficiency would be $\frac{0.9+0.6}{100m^2+200m^2} = 0.5$.

In practice, searcher efficiency is modeled as a continuous function of distance, and the detection function is estimated from bias trial data. An advantage to the use of data from bias trials is that the assumption that carcasses are randomly distributed within the search area (typical of most distance sampling designs) becomes unnecessary. Furthermore, having a sufficient sample size to fit the detection function is no longer dependent on what is observed, as in most distance sampling studies, and trials can be placed to measure potential covariates such as carcass size and ground cover. The fitted detection function is used to determine the overall probability of detection as well as to inform the approximate effective view shed of non-zero detection probability for observers.

Final study design will depend on actual as-built configuration of the Carty Solar Farm and post-construction site conditions, and current knowledge of avian mortality at PV solar farms and will be determined in coordination with ODFW. One potential design, if compatible with site design and conditions such as vegetation height, would be for surveyors to walk or drive an ATV along the facility's access roads, perpendicular to panel rows, and scan 90 meters (295 ft) along the PV array rows (Figure 1). Surveys will include a 50% sample of the blocks in the PV panel area. Study design may be refined, scaled down, or systematic study eliminated entirely if results from other PV solar farm systematic studies to date at the time of project construction indicate a low expected risk of bird mortality at Carty Solar Farm.

ii) Search Interval and Search Period

Surveys will be conducted once every three weeks November through February, and once every two weeks from March through October in the year following start of Carty Solar Farm operation; this period includes spring and fall migration and summer nesting/maternity seasons for birds and bats, respectively. Carcass persistence trials will be conducted concurrently with carcasses searches, and if documented scavenger rates indicate that shorter or longer search intervals are needed, the search intervals may be modified to improve carcass detection rates. Guidance from Huso et. al (2016b) suggests determining search intervals such that the average probability a carcass is available to be found is at least 50%. Since carcass persistence may vary by carcass size, search intervals should be determined based on the size or sizes of principal species of interest; for example, if impacts to water-associated birds are a focus, then search intervals can be adjusted based on persistence times for large and medium-sized birds, such as

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grebes, ducks, and loons.

iii) Searcher Qualifications

Searchers will be trained to conduct carcass searches and will be familiar with and able to accurately identify bird and bat species likely to be found in the Carty Solar Farm area. Any unknown birds and bats or suspected state or ESA-listed species discovered during carcass searches will be reported to a qualified biologist for positive identification.

iv) Data Collection

For each carcass or injured bird found, data recorded will include the following:

- Photos of the carcass from different angles and including a size-referencing object
- Date and time
- Initial species identification
- Sex, age, and reproductive condition (when possible)
- GPS location
- Nearest CARTY SOLAR FARM component (PV array, control house/storage facility, equipment, or other)
- Distance to the nearest PV panel
- Distance from observer when carcass first observed
- Substrate/ground cover conditions
- Condition of specimen
 - Dead and intact
 - Fresh or Dry
 - Dismembered
 - Feather spot (at least two or more primary feathers, five or more tail feathers, or ten or more feathers)
 - Other evidence of scavenging
 - Injured (note apparent injuries)

Bird and bat carcasses found in non-search areas (i.e., outside of the sampled areas described in Section i) will be coded as incidental finds and documented in a similar fashion to those found during standard searches. Incidental finds will be included in the raw survey summary totals but will not be included in the estimated fatality calculations. Carcasses be collected and disposed of consistent with PGE's Avian Protection Program and existing federal Migratory Bird Special Purpose Utility permit. Injured birds will be transferred to a licensed rehabilitator.

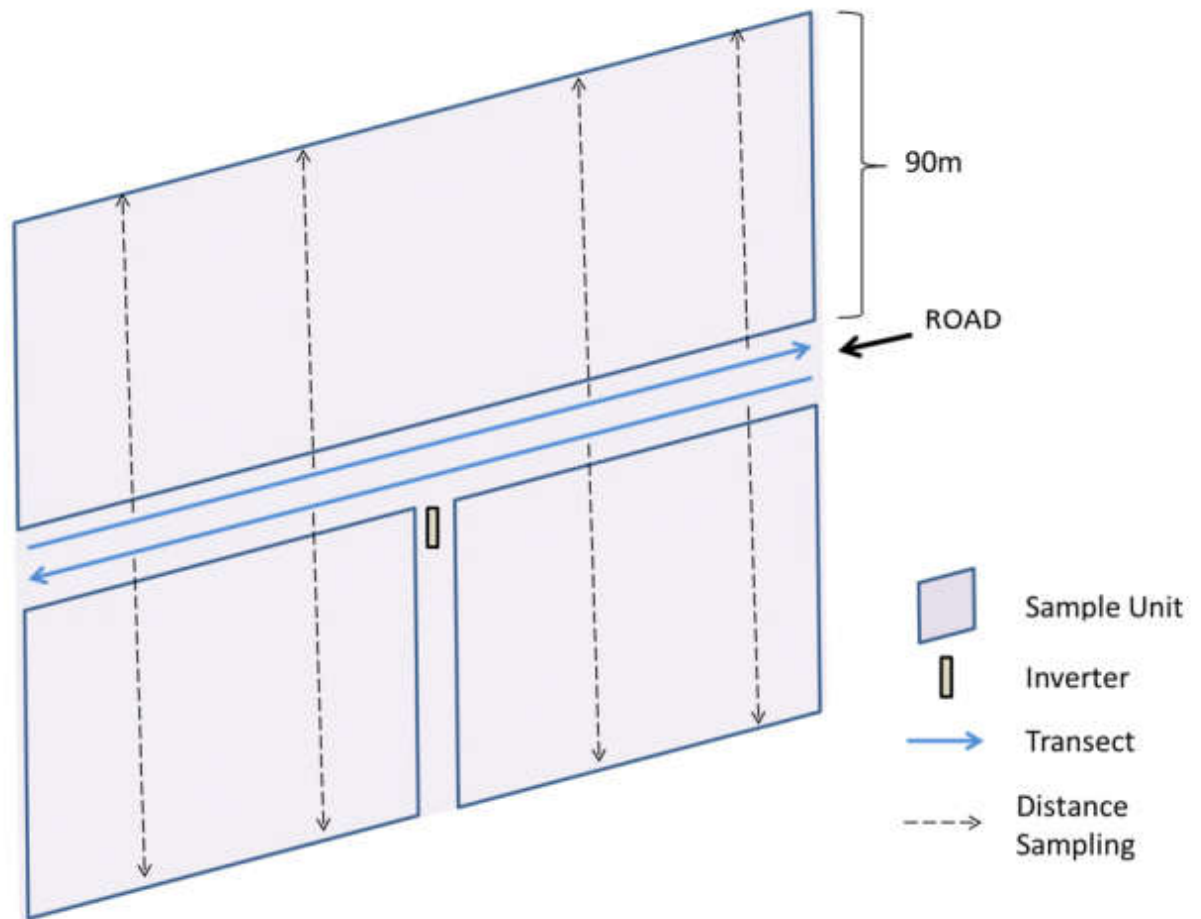


Figure 1. Example illustration of generic PV sampling unit with travel routes and searches using distance sampling ('observation perspectives').

(1) Searcher Efficiency and Carcass Persistence Trials

Searcher efficiency and carcass persistence trials will be conducted in conjunction with standard carcass surveys. Searcher efficiency trials will be placed throughout each season on scheduled search days to ensure trials are representative of search conditions throughout each season. Trials will be placed on at least five different days throughout each season. Searcher efficiency trials will be used to estimate the percentage of bird and bat carcasses that are detected during the carcass searches. Using the detection function fit from searcher efficiency trial data, the average probability of detecting a carcass along a specified length of panel rows can be calculated and used to adjust discovered carcasses for detection bias. Similarly, carcass persistence trials will be used to estimate the percentage of bird and bat carcasses that persist (i.e. are not removed by scavengers) long enough to be located by searchers. When considered together, the results of searcher efficiency and carcass persistence trials will inform the likelihood that a bird or bat carcass that falls within the searched area will be recorded. These correction factors will be incorporated into a fatality estimate model to estimate fatality rates.

The bias-trial sample sizes required to produce precise, adjusted fatality estimates are not well established, in part because needs may vary substantially depending on actual project-specific searcher efficiency, carcass persistence, and fatality rates. However, using searcher-efficiency trials to help evaluate the efficacy of the distance-sampling approach used in this investigation will require larger

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sample sizes to produce a sampling design that effectively accounts for distance as a key covariate of interest. A minimum of 25 carcass samples per small size class, 15 for medium, and 10 for large is anticipated within the solar array per season (Table 2). Searcher efficiency will be summarized for each individual searcher, but to avoid needlessly inflating the variance of the estimate, individual searcher effects will not be included in the fatality estimation model.

Table 2. Approximate Searcher efficiency trial sample sizes per season.

Facility component	Size	Sample size
solar arrays	Small	25
	Medium	15
	Large	10
Totals		50

Carcasses of bird or bat species recovered during the study that are not listed under the Migratory Birds Species Act or state or federal endangered species regulations may be re-used in the searcher efficiency trials, as carcass condition allows. Species such as house sparrows (*Passer domesticus*) and European starlings (*Sturnus vulgaris*) may be used to represent small-sized birds; rock doves (*Columbalivia*) and commercially raised hen mallards (*Anas platyrhynchos*) or hen pheasants (*Phasianus colchicus*) may be used to represent medium to large-sized birds. If visibility classes are established, to account for differences in vegetation, trial carcasses will be placed in a variety of vegetation types so that searcher efficiency rates can be determined for each visibility class. The number of carcasses used will be limited to ensure that a scavenger swamping does not occur. Searcher efficiency trials will be conducted blindly; the searchers will not know when trials are occurring, within which transects the trial carcasses are placed, or where trial carcasses are located within the project.

The number and location of trial carcasses found by searchers will be recorded and compared to the total number placed in the transects. Searchers will be instructed prior to the initial search effort to leave carcasses, once discovered to be trial carcasses (by inconspicuous ID tags), in place (these carcasses will also be used to calculate carcass persistence). The number of trial carcasses available for detection (non-scavenged) will be determined immediately after the conclusion of the trial. Searcher efficiency of the surveyors will generate the estimate of searcher bias for input into the fatality estimate models.

Carcass persistence trials will be conducted concurrently with searcher efficiency trials and, to the extent possible, using the same carcasses from the searcher efficiency trials. In total, 30 small, 20 medium, and 10 large carcasses will be randomly placed and monitored within the solar arrays, each season (Table 3). Carcass persistence trials in the solar arrays will be monitored, using motion-triggered, digital trail cameras (e.g., see Smallwood et al. 2010). The status of each trial carcass (e.g. gone/present, fresh/desiccated, whole/partial) will be recorded throughout the trial. The length of time carcasses persist on the ground will be used to generate the estimate of carcass persistence for input into the fatality estimate models.

It may not be necessary to use cameras to monitor every carcass, as carcass persistence can also be conservatively estimated by frequent field visits and using the last date a carcass was observed as its removal date. However, at least a subset of carcasses will be monitored with cameras to help determine fate of scavenged carcasses. Cameras may also be useful for other purposes. For example, if trained on solar arrays and facility fences, motion-activated cameras could help to document cause of avian and bat fatalities, which is often undetermined at solar farms. The number and purpose of cameras used will be determined along with final study protocol in consultation with ODFW and ODOE.

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Table 3. Approximate Carcass Persistence Trail Sample Sizes Per Season.

Facility component	Size	Sample size
solar arrays	Small	30
	Medium	20
	Large	10
Totals		60

Fake cameras or cameras without bias trial carcasses may also be placed to avoid training ravens to recognize cameras as “feeding stations”. Periodic ground-based checking of carcasses also will occur to guard against misleading indicators of carcass removal, such as wind blowing the carcass out of the camera’s field of view. To minimize potential bias caused by scavenger swamping (Smallwood 2007, Smallwood et al. 2010), carcass-persistence specimens will be distributed across the entire Facility, not just in areas subject to standard surveys, and new specimens will be placed every two to three weeks in small numbers.

(2) Data Analysis and Modeling

Because the detectability of carcasses during field surveys can be imperfect, raw carcass counts generally underestimate actual mortality. Therefore, the Huso fatality estimator (Huso 2011; Huso et al. 2012, Huso et. al 2016a), modified to account for distance sampling (WEST 2016a, Huso et. al 2016b), will be applied to generate corrected fatality rate estimates for the Carty Solar Farm.

The Huso fatality estimator (Huso 2011; Huso et al. 2012) allows the user to model categorical covariates that may affect searcher efficiency and carcass persistence. AICc scores are used to evaluate the effectiveness of candidate models before generating final fatality estimates. Because the underlying assumption that searchers have a single opportunity to discover a carcass, only those carcasses determined to have occurred within the previous search interval will be used to generate adjusted fatality estimates. In addition, the model does not produce reliable estimates when there are few carcasses included in analysis.

When fewer than five carcasses belonging to a group of interest (e.g. small birds) are found and included in analysis, estimates will not be provided. Corrected fatality estimates will be reported for the solar Facility (PV panel area). Estimated mortalities will be expressed in terms of carcasses/MW/season and in other metrics appropriate for a solar facility to facilitate comparison with other studies. Analysis of data collected during the post-construction study will include seasonal fatality estimates for all birds and bats to the taxonomic level where fatality estimates can be calculated. Fatality estimates and confidence intervals will be compared to determine if differences in fatality estimates between taxa or group (e.g. birds compared to bats, large birds compared to small birds), or season. Because representative fatality estimates are more challenging to develop for small (i.e. <5) numbers of carcasses, appropriate taxonomic level fatality estimates will only be calculated if the number of carcasses is sufficient.

Reporting

The Certificate Holder will document the results of the monitoring in a summary report following the completion of the post-construction monitoring. The certificate holder may include this summary report of bird and bat fatality monitoring data and analysis in the annual report required under OAR 345-026-0080 or submit this information as a separate document at the same time the annual report is submitted.

The summary report will include fatality estimates and data summaries. The report will include all data analyses, including correlation analyses and overall fatality estimates, and a discussion of monitoring

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results and their implications. The certificate holder shall notify the appropriate agency immediately upon the discovery of a carcass of any state-listed, ESA-listed species or eagle on the Facility site.

Adaptive Management

i. Adaptive Management Goals

Adaptive management will allow the Certificate Holder to meet the goals of avoiding and minimizing impacts to birds and bats. After the end of the first year of post-construction monitoring, if the fatality rates do not exceed any thresholds of concern identified in Section 3.2, no additional monitoring will be conducted. However, if the fatality rates do exceed any of the thresholds of concern in Section 3.2, ODOE, in consultation with ODFW and the Certificate Holder, will determine if additional monitoring is warranted based on the number of observed carcasses and estimated fatality rates and consideration of any other significant information available at the time.

ii. Adaptive Management Process

To enable new information, including the results of post-construction monitoring, to influence and improve avoidance and minimization measures, certain trigger events and the subsequent changes or actions have been established. The events that would trigger need to consider the additional avoidance and minimization measures presented herein would be:

- Discovery of an eagle carcass
- New ESA-listing of a bird or bat species
- Discovery of an ESA-listed species carcass
- New state-listing of a bird or bat species
- Discovery of a state-listed species carcass
- The total number of observed bird and bat mortalities is higher than expected and likely to be significant, as defined in Section 3.2.6.

1) Discovery of an Eagle or ESA-listed Species Carcass

If an eagle or ESA-listed species carcass is discovered within the Carty Solar Farm, the following actions will be taken:

- Certificate Holder will, working with a qualified wildlife biologist, promptly identify and secure the carcass at the place of its discovery in the field until USFWS personnel can be reached and provide the further instruction for the storage of the carcass.
- Certificate Holder will notify USFWS, ODFW, and ODOE within one business day after discovery and positive identification of the carcass.
- Certificate Holder will work with the USFWS to evaluate available data concerning the find and, as appropriate, identify and implement avoidance and minimization measures to reduce the risk of future carcasses. Potential adaptive management approaches are presented in Section 3.2.7 below.
- Certificate Holder will assess the need to obtain additional authorizations in view of the new information.

2) New ESA-listing of a Bird or Bat Species

If a bird or bat species, known to occur or that has a high likelihood to occur within the Carty Solar Farm area, becomes listed under the ESA during the life of the facility, Certificate Holder will

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coordinate with USFWS. If this trigger is met, Certificate Holder will work with USFWS to assess the potential for the facility to impact the species and subsequently to determine the appropriate action(s), if any.

3) New State-listing of a New Bird or Bat Species

If a bird or bat species, known to occur or that has a high likelihood to occur within the Carty Solar Farm area, becomes listed by ODFW during the life of the facility, Certificate Holder will coordinate with ODFW and ODOE. If this trigger is met, Certificate Holder will work with ODFW and ODOE to assess the potential for the facility to impact the species and subsequently to determine the appropriate action(s).

4) Discovery of a State-listed Species Carcass

- Certificate Holder will, working with a qualified wildlife biologist, promptly identify and secure the carcass at the place of its discovery in the field until ODFW personnel can be reached and provide the further instruction for the storage of the carcass.
- Certificate Holder will notify ODFW and ODOE within one business day after the discovery and positive identification of the carcass.
- Certificate Holder will work with the ODFW and ODOE to evaluate available data concerning the discovery and, as appropriate, identify and implement avoidance and minimization measures to reduce the risk of future mortalities.
- Certificate Holder will assess the need to obtain additional authorizations in view of the new information.

5) Total Number of Observed Bird and Bat Mortalities is Higher than Expected and Likely to be Significant

Mortalities to birds and bats during operations are expected to be low. Significance of the levels of mortality of any bird or bat species would be determined in coordination with USFWS, ODFW and ODOE based on the best available information, including the most recent data on species' population sizes and trends and fatality rates at technologically and geographically similar facilities if available. At this time, there is no publicly available avian fatality data at PV facilities in Oregon, but there may be in the future. This approach recognizes that higher levels of mortality of common species may not be significant. Conversely, lower levels of mortalities of less common species may be of more concern, particularly if these species appear to be at risk (e.g., Oregon sensitive-critical species). Given the assessment and prediction that impacts are likely to be low, the following actions are suggested in response to monitoring outcomes:

- If documented fatalities are low and not considered significant for the species involved, no mitigation will be conducted.
- If fatalities are high enough that they could be considered significant for the species involved, Certificate Holder will meet and confer with the ODFW and ODOE and the applicable actions presented below will be carried out. If a particular cause can be identified, Certificate Holder will develop specific mitigation measures in consultation with ODFW and ODOE to address the occurrence.

6) Potential Adaptive Management Approaches

Circumstances that trigger the need for adaptive management will be investigated such that the Certificate Holder can, in consultation with ODFW and ODOE, implement avoidance, minimization, and mitigation measures designed and implemented to reduce impacts to birds and/or bats while maintaining Facility viability. If ODOE determines that additional avoidance, minimization or mitigation measures are appropriate based on analysis of the data, consultation with ODFW, and

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consideration of other significant information available at the time, the Certificate Holder, in consultation with ODOE and ODFW, shall propose and implement measures to address the concern, subject to the approval of ODOE. Avoidance, minimization, and mitigation actions that may be taken under adaptive management include, but are not limited to, the following:

- Remove or modify any identified sources of bird or bat attraction to the extent practicable.
- If more than one eagle carcass is discovered in a 5-year time period, Certificate Holder will develop and implement a roadkill removal program on roads within or near the Carty Solar Farm, as appropriate, to offset Carty Solar Farm impacts to eagles.
- Implement technological solutions. If bird and/or bat carcass discoveries exceed the above-defined adaptive management triggers and new techniques or technology become available, the Certificate Holder, ODOE, and/or ODFW shall propose new approaches, techniques or technology designed to avoid and/or minimize impacts to the affected species, taking into consideration factors including but not limited to cost effectiveness and feasibility to implement, subject to the approval of ODOE. At this time, there are no technological solutions available. If ODOE determines that additional monitoring is appropriate based on analysis of the data, consultation with ODFW and Certificate Holder, and consideration of any other significant information available at the time, the Certificate Holder shall conduct additional specific, targeted monitoring to determine if adaptive management measures are effective.

IV. CALCULATION OF THE SIZE OF THE MITIGATION AREA

The HMA must be large enough and have characteristics that meet the standards set by ODFW's Wildlife Habitat Mitigation Policy. These standards include: no net loss of habitat quantity or quality and to provide a net benefit of habitat quantity or quality for Category 2 habitat; no net loss of habitat quantity or quality for Category 3 habitat (in-kind, in-proximity mitigation); no net loss of habitat quantity or quality for Category 4 habitat; net benefit in habitat quantity or quality for Category 5 habitat (i.e., actions that improve habitat conditions); and minimize impacts for Category 6 habitat.

Unit 1 permanent impacts and estimated acreage permanent impacts for the Carty Solar Farm are shown in Table 4. For permanent impacts, the mitigation area shall include 2 acres for every acre of impacts to Category 2 habitat (a 2:1 ratio to provide no net loss and a net benefit of habitat quantity) and 1 acre for every acre of permanent impacts to Category 3 and 4 habitats (a 1:1 ratio to provide no net loss). Mitigation for temporary impacts shall include 1 acre for every acre of impacts to Category 2 habitat (a 1:1 ratio) and 0.5 acre for every acre of temporary impacts to Category 3 and 4 habitat (a 0.5:1 ratio) that have not previously been mitigated for temporary impacts (e.g., areas of temporary impacts that are mitigated as part of construction for Unit 1 that are reused for subsequent units will not result in additional mitigation acreage). Temporary impacts on grasslands typically do not require mitigation in the form of land acquisition and/or conservation.

The acreages of impact in this Amended Plan for Unit 1 are based on the final design layout of the facility submitted to ODOE and ODFW prior to beginning of Unit 1 construction and the revised final design layout of the facility and the associated impact acreages provided to ODOE and ODFW during construction. The construction of Unit 1 resulted in 45 acres of permanent disturbance and 55.4 acres of temporary disturbance, resulting in a total required mitigation area of 72.7 acres.

The acreages of impact for the Carty Solar Farm are based on preliminary design and will be updated based on final design layout of the amended facility. The acreages of impact will be submitted for approval to ODOE and ODFW prior to beginning construction to demonstrate that the HMA is appropriately sized. The calculated maximum habitat impact estimates of the Carty Generating Station construction associated with each unit are shown in the table below (Table 2).

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Table 4. Estimated Habitat Impacts of the Carty Generating Station by Habitat Category

Habitat Type by Project Area	Temporary Impacts (acres) ¹	Permanent Impacts (acres) ²	Calculated Mitigation Area (acres) ^{1,2}
Unit 1 and Supporting Facilities³			
Category 4	55.4	45	72.75
Total Area	55.4	45	
Total Unit 1 Mitigation ^{1,2}	27.75	45	72.75
Carty Solar Farm and Supporting Facilities⁴			
Category 2			
Category 3	14.05	302.16	309.19
Category 4	90.57	18.79	64.08
Category 6	2.81	0.19	0
Total Area	107.43	321.14	
Total Solar Farm Mitigation ^{1,2}	53.72	321.14	373.27
Total Mitigation for Amended Project			446.02
Mitigation Required to date (Unit 1)			72.75
Additional Mitigation Required (Unit 1 and Carty Solar Farm)			373.27

Notes:

In all cases impacts in a given project area will only be mitigated once.

¹Temporary impact mitigation is based on a 1:1 ratio for Category 2, a 0.5:1 acre ratio of Category 3 and 4, and zero for Category 6.

² Permanent impact mitigation is based on a 2:1 ratio for Category 2, a 1:1 acre ratio of Category 3 and 4 and zero for Category 6.

³ Unit 1 includes Unit 1 and all related or supporting facilities constructed as part of Unit 1.

⁴ The Carty Solar Farm includes the Carty Solar Farm energy facility site, the potential route for the Carty Solar Farm interconnection transmission line that would require the most mitigation acres (Route 1), the Grassland Switchyard buildout area if interconnection Option 1 is selected (along with potential interconnection Route 1), and temporary construction laydown and parking areas.

V. DESCRIPTION OF THE MITIGATION AREA

To comply with the mitigation criteria outlined in OAR 635-415-0025, the certificate holder shall mitigate for impacts to Category 2, 3, 4, and 5 habitat in a manner consistent with the ODFW habitat mitigation policy and subject to the approval of ODFW. The certificate holder will establish a HMA (or areas) that will be maintained, enhanced, and monitored throughout the life of the facility⁴ through implementation of the habitat enhancement actions described in this Amended Plan. The certificate holder shall provide appropriate legal documentation to ODOE showing the legal right to create, maintain, and protect the HMA for the life of the facility. The certificate holder shall not undertake any development activities within the HMA throughout the life of the facility.

The 78-acre HMA for Unit 1 is located immediately east of the Site Boundary and adjacent to existing conservation areas, and comprises all or portions of map T3N R24E, tax lots 101, 113, and 116. The

⁴ As used in this plan, “life of the facility” means continuously until the facility site is restored and the site certificate is terminated in accordance with OAR 345-027-0110.

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parcel is owned and has been placed under conservation easement by the certificate holder. It is adjacent to the existing PGE Conservation Area on the north and east sides, and a conservation area maintained by The Nature Conservancy along part of the west boundary. The vegetation in the HMA is dominated by Sandberg's bluegrass, bluebunch wheatgrass, and intermittent areas of needle-and-thread grass, as well as cheatgrass. There are also occasional green rabbitbrush (*Chrysothamnus viscidiflorus*) and gray rabbitbrush, big sagebrush, fiddleneck (*Amsinckia menziesii*), and yarrow (*Achillea millefolium*). WGS burrows were identified within the HMA for Unit 1 in 2006. As of 2010, approximately 80 percent of the HMA for Unit 1 area was located within 785 feet of identified WGS burrows, and was therefore considered Category 1 habitat. The remainder of the HMA for Unit 1 was included in the buffer area for previously occupied WGS habitat and was therefore designated as Category 2 habitat. Based on 2016–2017 WGS surveys, the majority of the HMA for the Carty Solar Farm (see below) would be located on Category 2 or Category 3 habitat based on the current habitat categorization for Amendment 1.

The proposed HMA for the Carty Solar Farm and supporting facilities (the HMA for the Carty Solar Farm), estimated at approximately 373 acres per Table 4, would be located within a portion of the certificate holder's Multi-Species Candidate Conservation Agreement with Assurances (MSCCAA) Conservation Area that contains remnant stands of sagebrush. The MSCCAA area adjoins the HMA for Unit 1 to the north and east and is located in Section 26, T3N R24E tax lot 101 and the eastern half of Section 35, T3N R24E, tax lot 113). The certificate holder plans to mitigate for the habitats impacted by placing a conservation easement on a portion of the MSCCAA area and by providing habitat uplift through the habitat enhancement and monitoring activities described below. Final location of the HMA for the Carty Solar Farm within the MSCCAA area will be delineated in coordination with ODFW prior to construction once final design layout and mitigation acreage is determined.

VI. HABITAT ENHANCEMENT ACTIONS

The objectives of habitat enhancement and restoration are to protect habitat within the mitigation area from degradation and improve the habitat quality of the mitigation area. The certificate holder shall initiate the habitat enhancement actions for the facility before beginning operation. The certificate holder shall restrict uses of the mitigation area that are inconsistent with the goal of no net loss and net benefit of Category 2 habitat and no net loss of Category 3 and 4 habitats. The certificate holder shall implement habitat enhancement actions as described in this Amended Plan and as specified in the amended Site Certificate.

A. Noxious Weed Prevention, Inventory, and Control within the Habitat Management Area

The certificate holder shall conduct comprehensive noxious weed inventories to identify patches of weed infestation within the HMA during year one, year three, and year five after construction of Unit 1 (i.e., 2017, 2019, and 2021), and then continue once every five years (in years divisible by five) for the life of the facility. Weed control and monitoring activities will be conducted more frequently (at least every two years), in areas prioritized based on the results of the comprehensive surveys, and reported to ODOE and ODFW. Weeds will be controlled as needed to maintain and enhance habitat quality within the mitigation area, with the goal of working toward eradication of targeted noxious weeds or, if eradication is not practical, decreasing their abundance to minimize impacts on native plant communities. Weed management practices will be consistent with an integrated weed management approach, using an appropriate combination of inventory; prevention (such as best management practices to prevent weed establishment); and control methods (such as hand pulling, mowing, biological control, and/or herbicides). The certificate holder shall obtain ODFW's approval prior to the use of pesticides. Controlling weeds in the HMA should promote growth of native vegetation. If a substantial area of soil is left bare from weed control activities, the area will be seeded using the appropriate methods (as described in the Revegetation and Noxious Weed Control Plan) during the appropriate time of year and using an appropriate mixture of native grass and/or shrub seeds.

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B. Fire Control Plan

The certificate holder shall implement a fire control plan for wildfire suppression within the HMA according to the existing Boardman Wildfire Control Plan. A copy of the fire control plan will be provided to ODOE upon request. If vegetation in the HMA is damaged from fire or from fire suppression efforts (e.g., vehicular disturbance), the area would be seeded as necessary with the appropriate seed mix using the appropriate methods, as described in the Revegetation and Noxious Weed Control Plan.

C. Access Control and Wildlife-Compatible Fencing

The certificate holder will monitor and control access to the HMA and will post informative signs depicting the area(s) as “protected” and including natural resources information as appropriate for the life of the facility. Primary access to the PGE property is controlled by a gate off Tower Road northwest of PGE’s Boardman Plant (currently used by PGE and The Nature Conservancy [TNC]), the gated entrance to the Boardman Plant, and a gated road from Lone to the south. TNC and Three Mile Canyon Farms may occasionally use the two track access crossing PGE’s property to access the Farm’s conservation area. Approved access to the site is currently limited to such occasional approved use of access roads, Boardman Plant operational needs, and MSCCAA monitoring and noxious weed control efforts. Any fences within or bordering the mitigation area(s) will be removed or modified to wildlife-friendly specifications as appropriate. No livestock grazing is currently occurring on the site, and grazing would not be allowed in the future. Periodic monitoring (at least annually but typically more frequently concurrent with other site activities) will be conducted to evaluate effectiveness of access control measures and signage maintenance needs.

D. Enhancement and Sagebrush Habitat

To mitigate for permanent impacts to Category 2, 3, and 4 sagebrush habitat affected at the Carty Solar Farm (see acreage in Table 2), the certificate holder will plant sagebrush and/or bitterbrush seedlings in the HMA for the Carty Solar Farm, focusing on enhancing and expanding remnant stands of shrubs that were impacted by past wildfires. Sagebrush and/or bitterbrush seedlings will be planted at a density of 450 plants per acre (approximately 10 feet on center). Planted shrubs will be monitored annually for a period of five years, with a performance goal of 60% survival at the end of the five-year monitoring period. Methods and performance criteria to be finalized through consultation with ODFW.

E. Provide Additional Raptor Nesting Opportunities

As recommended by ODFW, to mitigate for removal of juniper trees and potential raptor nesting sites in the Carty Solar Farm permanent footprint, the certificate holder will plant up to one tree per 10 acres (roughly 660-foot spacing on center) based on the final size of the HMA for the Carty Solar Farm. Initial planting will be conducted in the October/November or February/March time period during the first year following start of construction. Planted juniper trees will be monitored annually for a period of five years, with a performance goal of 60% survival at the end of the five-year monitoring period. Methods and performance criteria to be finalized through consultation with ODFW.

VII. MITIGATION AREA MONITORING

The certificate holder shall use a qualified investigator (botanist, wildlife biologist, or revegetation specialist) to conduct a comprehensive monitoring program for the HMA. The purpose of this monitoring is to evaluate on an ongoing basis the protection of habitat quality, the results of enhancement actions, and the use of the area by avian and mammal species, especially during the wildlife breeding season.

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The investigator shall visit the HMA as necessary to complete the required monitoring during the first, third, and fifth year after Unit 1, and the Carty Solar Farm construction (i.e., 2017, 2019, 2021) and every fifth year thereafter (in years divisible by five, unless otherwise specified for specific measures) for the life of the Project. Monitoring activity shall include an assessment of the following:

General quality of vegetation cover (dominant species, structural age, etc.), as determined by ocular estimates and photo points (see below);

- 1) Success of weed control efforts;
- 2) Success of remedial actions to restore habitat quality in damaged areas (such as managed weed infestations and any necessary seeding/planting areas), as determined by vegetation cover (ocular estimate) and photo points (see below). Areas where remedial actions involve soil disturbance and reseeding would be monitored consistent with the revegetation monitoring methods and schedule as described in the Amended Carty Generating Station Revegetation and Noxious Weed Plan. See Section VI for schedule and performance criteria for habitat enhancements involving shrub and juniper plantings.
- 3) Photos taken from established photo points within the HMA, including 1) a minimum of five permanent photo points distributed to show general vegetation status throughout the HMA, and 2) additional photo points as needed to monitor success of significant enhancement activities, such as managed weed infestations and/or any necessary seeding/planting areas;
- 4) Incidental wildlife occurring within the HMA (counts concurrent with all other monitoring work);
- 5) Environmental factors found on site during monitoring activities and annual summary records (such as precipitation);
- 6) Surveys of resident special status wildlife species (WGS) that have been documented during previous monitoring or survey efforts within the HMA, using existing protocols approved by ODFW; and
- 7) Avian point counts during the breeding season conducted annually as part of the existing Boardman Plant Ecological Monitoring Program (four existing point count stations are located in the immediate vicinity of the HMA for Unit 1, and an additional four sites are located in the immediate vicinity of the proposed HMA for the Carty Solar Farm).

VIII. DATA REPORTING

The certificate holder shall submit a report including wildlife and habitat monitoring data and analysis to ODOE and ODFW during each monitoring year according to the Table 5 as shown below. The certificate holder shall notify USFWS and ODFW within one business day if any federal or state endangered or threatened species are killed or injured on the facility site or within the HMA. The certificate holder may include the reporting of wildlife monitoring data and analysis in the report required under OAR 345-026-0080, or submit this information as a separate document concurrent with the submittal of the report. In addition, the certificate holder shall provide ODOE with any data or record generated by the investigators in carrying out this Amended Plan upon request by ODOE.

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Table 5. Schedule of Wildlife Mitigation and Monitoring Programs

Task	Schedule
Post-construction Washington Ground Squirrel Survey Monitoring	Year one, three and five after operation of Unit 1 has begun and in year one, three and five after operation of Carty Solar Farm has begun, and otherwise at least every five years (in years divisible by five) for the life of the facility.
Raptor Nest Monitoring	
Post-construction Avian and Bat Mortality Monitoring	A full year of formal post construction avian and bat monitoring in the year following start of Carty Solar Farm operation. N/A for Unit 1.
General HMA Monitoring	During the first, third, and fifth year after Unit 1 HMA, (i.e., 2017, 2019, 2021) and during the first, third, and fifth years after Carty Solar Farm construction for Carty Solar Farm HMA, and otherwise every fifth year thereafter for the life of the facility for entire applicable HMA.
Noxious Weed Inventory for HMA	
General Weed Control and Monitoring Activity for HMA	At least every two years (in priority areas based every-five-year comprehensive inventory results) starting from the completion of construction.
HMA Sagebrush Habitat Monitoring	Annually for a period of five years, with a performance goal of 60% survival at the end of the five-year monitoring period, for the Carty Solar Farm. N/A for Unit 1.
Additional Raptor Nest Opportunities (juniper plantings) Monitoring for HMA	Annually for a period of five years, with a performance goal of 60% survival at the end of the five-year monitoring period for Carty Solar Farm. N/A for Unit 1.

IX. AMENDMENT OF THE PLAN

This Wildlife and Habitat Monitoring and Mitigation Plan may be periodically amended by agreement of the certificate holder and ODOE. Such amendments may be made without amendment of the Site Certificate. The Energy Facility Siting Council (Council) authorizes ODOE to agree to amendments to this plan and to mitigation actions that may be required under this Plan. ODOE shall notify the Council of all amendments and mitigation actions, and the Council retains the authority to approve, reject, or modify any amendment of this plan or mitigation action agreed to by ODOE.

X. LITERATURE CITED

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Attachment E: Draft Amended Revegetation and Noxious Weed Control Plan

Carty Generating Station: Draft Amended Revegetation and Noxious Weed Control Plan¹

July 2, 2014², TBD 2018³

1 INTRODUCTION

Portland General Electric (PGE or certificate holder) received a site certificate from the Energy Facility Siting Council (Council) in June 2012 authorizing the construction and operation of a 900 megawatt (MW) combined-cycle natural gas-fueled energy generating facility in Boardman, Oregon in Morrow County (Carty Generating Station). The Council's 2012 approval authorized construction and operation of two 450-MW combined-cycle natural gas-fueled turbine generators (Unit 1 and Unit 2). PGE commenced Unit 1 construction on January 9, 2014; PGE completed Unit 1 construction on December 26, 2016; Unit 1 began operation on July 29, 2016. The construction commencement deadline for Unit 2 expired in June 2017 and therefore the certificate holder no longer has the authority to construct or operate Unit 2.

The Council issued the First Amended site certificate on **DATE** authorizing a site boundary change and the construction and operation of a 50 MW photovoltaic solar unit, five 34.5 kilovolt (kV) interconnecting transmission line routing options, and temporary construction and laydown areas (Carty Solar Farm). The construction commencement and completion deadlines for the components authorized in the First Amended site certificate is **DATES**.

The site certificate for the facility requires restoration of disturbed areas to satisfy the requirements of the Fish and Wildlife Habitat standard (OAR 345-022-0060), which aligns with the mitigation goals and policies within the ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635 Division 415). In order to meet the 'no net loss of habitat quality' goal of the mitigation policy, the certificate holder shall revegetate disturbed areas according to a set of agreed-upon success criteria that return the site to pre-disturbance condition. In addition, the certificate holder shall mitigate for permanent habitat impacts and temporal habitat loss in temporary disturbance areas by creating, enhancing, and monitoring a habitat mitigation area as detailed in the Wildlife Habitat Monitoring and Mitigation Plan (WHMMP). See the WHMMP for more detail on mitigation measures and mitigation acreages by disturbance type and habitat category.

This Amended Revegetation and Noxious Weed Control Plan (Amended Plan) outlines the goals, methods, and success criteria that will be used for revegetation of areas temporarily disturbed during construction of the Carty Generating Station, including: the already-constructed Carty Unit 1; Grassland Switchyard; the transmission line segment connecting Unit 1 to the switchyard; laydown and parking lot areas; water pipeline area; sewer line area; and, areas temporarily disturbed during construction of additional components approved under the First Amended Site Certificate.

- 1 This Plan is incorporated by reference in the Site Certificate for the Carty Generating Station and must be understood in that context. It is not a "stand-alone" document. This Plan does not contain all revegetation and weed control measures required of the certificate holder.
- 2 A draft version of this Plan was included as Exhibit 1 to the Energy Facility Siting Council's Final Order on the Carty Generating Station Application for Site Certificate (June 29, 2012). In accordance with Site Certificate Condition 5.5 the certificate holder consulted with the Morrow County Weed Control Supervisor and obtained Oregon Department of Energy (ODOE) approval of the Plan prior to the start of construction (December 2013). As allowed by Section IX of the Plan, ODOE reviewed and approved the amended Plan on July 7, 2014.
- 3 Minor Plan updates were made to reference additional facilities within Morrow County included in the First Amended Site Certificate, and the updated Plan was reviewed and approved by the Morrow County Weed Control Supervisor in December 2017 (see Section 7, References). Subsequent edits were made in February 2017 to remove references to the unbuilt transmission line between Grassland Switchyard and Slatt substation and remove references to Gilliam County. Finally, revisions to the agency consultation procedures, revegetation monitoring protocol, and success criteria were made in consultation with ODOE and ODFW in June 2018.

This Amended Plan has been developed in consultation with the Oregon Department of Energy (ODOE), Oregon Department of Fish and Wildlife (ODFW) and the Morrow County Weed Control Supervisor, and utilizes restoration, revegetation, and weed control methods developed by other energy projects in this region of Oregon that were approved by Oregon Energy Facility Siting Council (2007). The objective of this Amended Plan is to minimize and mitigate potential impacts to the site, help bolster the native plant community, and provide clear guidelines for the revegetation and weed control of all areas disturbed by facility-related activities that are not occupied by permanent structures or facilities.

It is estimated that temporary impacts will occur on up to 163 acres within the amended site boundary (Table 1). In general, the intensity of construction impacts on vegetation and habitat in temporary disturbance areas will be low and will often be limited to the flattening of vegetation by rubber-tired vehicles. Such low impact areas will not require the revegetation or soil management measures (such as topsoil salvage) described below, but may require noxious weed prevention best management practices (BMPs) as appropriate (such as washing vehicles arriving from outside Morrow County). In some instances, however, the intensity of impacts in temporary disturbance areas will be higher and will involve the removal of topsoil and vegetation through grading, excavation, or drilling activities.

The certificate holder will implement revegetation and weed control measures in all temporary construction disturbance areas where soil is disturbed. Such soil disturbance sites will require active measures to restore vegetation cover in a timely manner, control erosion, and prevent the establishment and spread of noxious weeds (plant species listed as noxious under the Oregon Department of Agriculture (ODA) Noxious Weed Control Program and the Morrow County weed list).

Table 1. Estimated acreage of areas temporarily disturbed during Carty Generating Station Construction

Habitat Type by Project Area	Temporary Impact Areas to be Revegetated (acres)
Unit 1 and Supporting Facilities	55.4
Carty Solar Farm and Supporting Facilities	107.43

2 GOALS AND OBJECTIVES

The overall goal of this Amended Plan is to return the facility site to pre-construction (or better) conditions. The Amended Plan has the following objectives:

- Promote recovery of disturbed areas;
- Re-establish native plant communities;
- Control the introduction and spread of undesirable plants;
- Protect the site from erosion; and
- Support existing wildlife habitat.

These objectives will be achieved by a combination of techniques, including, but not limited to, the following:

- Installing and maintaining appropriate erosion control BMPs and construction limit staking per the Oregon Department of Environmental Quality (ODEQ) 1200-C permit;

- Revegetating disturbed areas with native grasses⁴ (See Table 2 in Section 5 for species list);
- Controlling weed germination and growth for the life of the facility including facility pre-construction, construction and operation; and
- Establishing a regular monitoring program prior to and after construction to ensure the continued successful development of restored areas, and to quickly identify new populations of weeds.

3 SITE DESCRIPTION

The facility site is located in Morrow County, Oregon, approximately 13 miles southwest of the town of Boardman. The facility area is situated approximately 7–10 miles south of the Columbia River within the Columbia Plateau physiographic region. The facility is located on an upland plateau at an elevation of approximately 650 feet above sea level.

Habitat Types and Subtypes within Facility Site

The facility area is composed primarily of shrub-steppe and grassland habitat subtypes or agricultural cropland. The agricultural lands are typically used for rotating crop production, including potatoes, onions, and corn. The Shrub-steppe habitat subtype located toward the eastern end of the facility, including areas near Unit 1, is rangeland that is no longer being grazed. There are some riparian and wetlands habitats present within the amended site boundary; however, all facility components - including transmission line towers - have been sited to avoid impacts on these habitats. Soil types in the area consist primarily of sandy loam, silt loam, and very stony loam.

Much of the native Shrub-steppe vegetation within the site boundary has been modified by livestock grazing and past wildfires. Functional mature shrub-steppe habitat is patchy and is dominated by big sagebrush (*Artemisia tridentata*), broom snakeweed (*Gutierrezia sarothrae*), bluebunch wheatgrass (*Pseudoroegneria spicata*), cheatgrass (*Bromus tectorum*), gray rabbitbrush (*Ericameria nauseosus*), needle-and-thread grass (*Hesperostipa comata*), and Sandberg's bluegrass (*Poa secunda*). Grasslands consist of cheatgrass, crested wheatgrass (*Agropyron cristatum*), bluebunch wheatgrass, needle-and - threadgrass, Sandberg's bluegrass, redstem filaree (*Erodium cicutarium*), and mouse-ear chickweed (*Cerastium* sp.).

Weed Types within Facility Site

The ODA has identified noxious weeds occurring in Morrow County. ODA has designated two categories of noxious weeds, “A” list species and “B” list species. Weeds designated on the “A” list are species of known economic importance which occur in the state in small enough infestations to make eradication or containment possible or are rare species not known to occur in the state but which have a presence in neighboring states, making future occurrence seem possible. Weeds on the “B” list are weeds of economic importance which are regionally abundant, but may have limited distribution in some areas. Listed species identified during recent site surveys (2010–2017) within the amended site boundary area have not included any ODA “A” list species, but have included the ODA “B” list species diffuse knapweed (*Centaurea diffusa*), yellow star-thistle (*Centaurea solstitialis*), Canada thistle (*Cirsium arvense*), and bull thistle (*Cirsium vulgare*), perennial pepperweed (*Lepidium latifolium*), Scotch thistle (*Onopordum acanthium*), and alkali swainsonpea (*Sphaerophysa salsula*). The Morrow County weed list classifies yellow star-thistle as an “A” list species at the county level. Rush skeletonweed (*Chondrilla juncea*) is another county “A” list species that is present in the area and has high potential to occur on the site. Morrow County considers both yellow starthistle and rush skeletonweed as high priority for treatment.

⁴ The Plan approved in the Council's Final Order included forbs and sagebrush as part of the seed mix, but were removed from the initial seed mix after consultation with local weed control staff. Sites may require seeding or planting of native shrubs if monitoring indicates that success criteria for shrub cover are not being met.

4 PRE-CONSTRUCTION AGENCY CONSULTATION

This section of the Amended Plan was incorporated on **DATE 2018** and does not apply to activities already completed, including construction of Unit 1 and its associated components. Therefore, this section applies to components approved in the First Amended site certificate and any subsequent site certificate amendments.

Prior to construction, the certificate holder shall consult with ODFW, ODOE and Morrow County Weed Control Authority to discuss: habitat category and habitat subtype conditions; monitoring site locations and conditions; reference site (as needed, see Section 6) locations and conditions; revegetation methods; erosion and sediment control measures; weed inventory and control methods; monitoring methods; and implementation schedule.

Prior to facility construction, the certificate holder shall identify monitoring sites and reference sites (as needed) in consultation with ODFW and ODOE. If reference sites are needed, they should closely resemble the pre-disturbance characteristics of the revegetation area monitoring sites as indicated by site conditions, including vegetation density and relative proportions of desirable vegetation and species diversity (see discussions of monitoring protocol and success criteria in Section 6). The certificate holder shall consider land use patterns, soil type, local terrain and noxious weed densities in selecting monitoring and reference sites. See Section 6 for a more detailed discussion of monitoring site selection and protocol.

Once monitoring and reference sites are selected by the certificate holder and approved by ODOE and ODFW, the monitoring and reference sites shall remain in the same location unless approval for use of a differing reference site is obtained from ODOE and ODFW.

5 REVEGETATION AND WEED CONTROL METHODS

Soil preservation and preparation techniques that are essential to a successful revegetation program, including topsoil segregation, erosion control, and noxious weed control, will begin prior to, or at the start of, construction. Other restoration and revegetation measures will be initiated immediately after construction and other disturbances to project areas are completed. Re-seeding activities may need to be delayed, depending on the season or on weather condition, but will always occur as soon as appropriate after construction.

The certificate holder will employ the following general restoration and revegetation steps to meet short- and long-term goals:

- Re-seed construction soil disturbance areas to restore vegetation;
- Prior to construction, pre-treat state-designated noxious weeds, as appropriate and practical, in temporary soil disturbance areas, with an emphasis on treatment of roadsides that will be used frequently throughout project construction;
- Prevent introduction of seeds and minimize dispersal of state-designated noxious weeds by following appropriate and standard methods of abatement, including BMPs for washing project-related vehicles and equipment, especially for vehicles newly arriving at the project site. Implement documentation procedure for ensuring that applicable vehicles are washed before use on site;
- Use proper soil management techniques, including stripping, stockpiling, and reapplying topsoil (generally defined as the upper 6 to 12 inches of soil where biological activity is concentrated) to establish surface conditions that will enhance development of diverse, stable, and self-generating plant communities. Topsoil management will apply to all areas of the project where excavation, grading, or other construction activities could result in mixing of soil layers;
- Establish stable surface and drainage conditions and use standard erosion control devices and

techniques to minimize soil erosion and sedimentation, including the installation of silt fencing, straw bales, mulch, straw wattle, erosion control fabric, and slope breakers, as appropriate.

- Maintain compliance with the Erosion and Sediment Control Plan (ESCP) requirements of the National Pollution Discharge Elimination System (NPDES) 1200-C permit. Maintain the ESCP drawings onsite during construction.
- Use certified weed-free straw bales, straw mulch, hydromulch, and/or other appropriate weed-free mulch materials for soil erosion and sediment control measures;
- Prevent introduction of seeds from plants that are listed by Oregon or on the U.S. Department of Agriculture federal list (PLANTS website) as noxious or invasive weeds;
- Establish terrain compatible with the surrounding landscape (recontouring) that emphasizes restoration of existing drainage and landform patterns, to the extent practical; and
- Minimize construction impacts in the project area by, where practical and safe, limiting grading and clearing to avoid impacts to native vegetation and wildlife habitat.

5.1 Revegetation of Shrub-Steppe and Grassland

Shrub-steppe and Grassland habitat subtypes are the primary non-agricultural vegetation type present in the facility area. Much of these habitat subtypes are considered marginal in quality due the presence of invasive weeds and past fires.

Seed Mix

The certificate holder will use a seed mixture consisting of native grass species known to provide erosion control and wildlife forage benefits. Seed mixture selection was based on consultation with ODFW (2010b), online guidance provided by ODFW for the restoration of burned areas in northeastern Oregon (ODFW 2010a), and consultation with County weed control staff (2013). The current seed mix (Table 2) may be altered at the request of landowners, ODOE, and ODFW.

Plant materials (seed and nursery stock) used in revegetation must be adapted to the conditions of the site in order to have the best chance of germinating and long-term survival. All plant materials shall meet the following requirements, pending approval by ODFW and the Morrow County Weed Department:

- Seed and nursery stock shall be “source identified.” The original source for the plant material should be Columbia Plateau Ecoregion (north-central Oregon State). The seed should be a locally adapted biotype, adapted to conditions similar to the project site.
- Seed shall be certified “weed free”, indicating there are no noxious weeds in the seed.
- Seed application rates shall be based on pure live seed per pound, which is passed upon purity and germination testing.
- Seed shall be tested within 120 days of application for purity, germination, and noxious weed content. Inert matter should not exceed 10%. A tetrazolium test may be performed on forb species, which are limited in availability in order to assess viability of the seed before it is used.

Table 2. Seed Mix for Temporarily Disturbed Project Areas in Shrub-Steppe and Grassland Habitat Types (Habitat Category 2, 3 and 4)

Common Name	Scientific Name	PLS lbs/Acre ^{1,2}	Description/ Purpose
Secar bluebunch wheatgrass	<i>Pseudoregneria spicata</i>	7	(N) (EC) (F)
Sherman big bluegrass	<i>Poa ampla</i>	2	(N) (F)
Great Basin wildrye *	<i>Elymus cinereus</i>	1.5	(N) (EC) (F)
Needle and thread grass*	<i>Hesperostipa comata</i>	1.5	(N) (EC) (F)
Sandberg bluegrass*	<i>Poa secunda</i>	1.5	(N) (EC) (F)

(N) = Native, (EC) = Erosion Control, (F) = Forage

* Optional species depending on site and availability

¹ PLS= pure live seed

² Final lbs/acre may change at the request of the landowner or ODFW

Areas of temporary disturbance will be graded to be consistent with existing topography and drainage patterns as soon as possible after the final construction ground disturbance and, if necessary, areas compacted by construction activities shall be ripped to a depth of 12" where feasible and roughened to provide maximum seed-soil contact. Re-seeding may not be necessary or appropriate in some areas, including places where vegetation has been flattened but not crushed and those where little or no vegetation was present prior to construction. Areas will be evaluated to determine whether re-seeding or other revegetation techniques are required to return the area to preconstruction vegetation conditions (as further described in Section 6, *Monitoring Program*, of the Amended Plan).

5.2 Seed Planting Methods and Schedule

Re-seeding of temporary disturbance areas will be conducted during the appropriate season and as weather conditions allow. The recommended seed mixture (Table 2) will be applied at an approximate rate of at least 8 to 12 pounds/acre and will be dependent on the method of seeding used. Seeds will be applied using either manual or mechanical methods, depending on factors such as the size of the area to be re-seeded and risk for further disturbance due to the use of planting equipment (e.g., tractor or all-terrain vehicle). Straw mulch, hydromulch, and/or other appropriate weed-free mulch material may be applied as needed immediately after seeding. The certificate holder anticipates using the restoration and re-seeding guidelines provided in this Amended Plan; however, the methods and timing could be altered at the request of landowners, ODOE, or ODFW.

Disturbed areas will be re-seeded as soon as possible after final construction disturbance in each area. Crews will attempt to conduct all re-seeding during the period from February through early April for construction disturbances that occurred during the winter and early spring. For areas where construction is completed outside of the winter or spring periods, re-seeding will be delayed until the months of October or November. If final construction and soil restoration is not completed at a time that allows immediate re-seeding during one of the two periods listed above (winter/spring or fall), the areas will be mulched or otherwise treated to minimize erosion, if necessary, until seeding can be conducted.

The certificate holder may employ broadcast seeding, drill seeding, and/or hydroseeding to apply the seed as appropriate and feasible; the choice of method will depend on slope and other site conditions. For example, drill seeding and broadcast seeding could be used as appropriate on areas with a slope of less than 3:1, and hydroseeding should be used on areas with a slope of greater than 3:1. Seeding rates (pounds of pure live seed per acre) must be adjusted according to the seeding method used. For hydroseeding, green- dyed, wood-fiber mulch shall be added to the slurry mixture at a rate of 1,000

pounds per acre. In addition to serving as a carrying agent for the seed, the biodegradable green mulch serves as a tracer for visually checking distribution to ensure complete and uniform coverage of the disturbed areas.

5.3 Weed Control Strategies

Weed control will be a priority for the life of the facility including pre-construction, construction and on-going operation and should begin early to prevent infestations and development of substantial weed seed reservoirs in the soil. Emphasis will be placed on avoiding infestations and controlling populations of state-listed and county-listed noxious weeds known to occur on the site.

The certificate holder shall conduct long-term weed surveys following the initial five years (or more) of annual surveys required to document revegetation success criteria under this amended plan. Once revegetation success has been documented, long term surveys of the revegetation areas will be conducted and reported consistent with the schedule for noxious weed monitoring of the Habitat Mitigation Area as described in the WHMMP. Comprehensive surveys will occur every five years (in years divisible by five) for the life of the facility. Weed control and monitoring activities will be conducted more frequently (at least every two years), in areas prioritized based on the results of the comprehensive surveys, and reported to ODOE and ODFW as part of WHMMP reporting. Weeds will be controlled as needed to maintain and enhance habitat quality within the revegetation areas, with the goal of working toward eradication of targeted noxious weeds or, if eradication is not practical, decreasing their abundance to minimize impacts on native plant communities.

6 MONITORING PROGRAM

The certificate holder will monitor the revegetated areas according to the protocol and schedule described below. The purpose of monitoring is to evaluate long-term soil stability, vegetation composition and cover, and occurrence of noxious and invasive weeds within areas disturbed during construction. In order to properly assess the progress of vegetation establishment, the certificate holder shall maintain a record of revegetation work. In the record, the certificate holder shall include the date that construction activity was completed in the area to be restored, a description of the affected area (location, acres affected and pre-disturbances condition) and supporting figures representing the revegetated area, the date that revegetation work began and a description of the work done within the affected area. The certificate holder shall update the revegetation records as revegetation work occurs.

The certificate holder shall use experienced and properly trained personnel (“investigators”) to conduct the monitoring required under this Amended Plan. The professional qualifications of the investigators are subject to approval by ODOE; the qualifications of the investigators shall be provided to ODOE prior to pre-construction monitoring (see Section 6) and ODOE shall be notified if changes in investigator occur.

It should be noted that post-construction annual monitoring for Unit 1 and its associated components commenced in 2017 and will continue through 2021, or until ODOE, in consultation with ODFW, concludes that success criteria have been met, or that a less frequent revegetation monitoring schedule may be implemented.

Post-construction annual monitoring for the Carty Solar Farm and its associated facilities may be conducted in coordination with monitoring for Unit 1 and its associated components, if the timing aligns; however, revegetation records and reporting should be maintained and submitted to ODOE separately (either as separate reports or clearly delineated sections of the same report) since the impacts, revegetation status, and activities may differ for the previously approved operating facility components compared to the facility components approved in the First Amended site certificate.

6.1 Pre-Construction Vegetation and Weed Survey

Revegetation success shall be measured at approved, fixed-point monitoring sites within the disturbed

area and compared to pre-disturbance habitat conditions as documented by pre-disturbance vegetation monitoring at the same site. If pre-disturbance monitoring data is not available for a particular site, revegetation monitoring data will be compared to a reference site approved by ODFW. Pre-disturbance monitoring will be conducted using the same protocol described below for post-construction monitoring, which will allow comparison of revegetated condition to pre-disturbance condition. The pre-disturbance vegetation and weed survey plan shall be submitted for review and approval by ODOE, in consultation with ODFW, as part of the agency consultation described in Section 4 of this plan.

6.2 Monitoring Procedures

Annual post-construction vegetation and weed surveys will be conducted for a period of at least five years to monitor revegetation success and invasive species control needs at construction disturbance areas. A representative sample (at least 50%) of all disturbance sites will be monitored for revegetation success. As described above in Section 4, *Pre-Construction Agency Consultation*, monitoring sites and reference sites (as needed) shall be identified by the certificate holder and approved by ODOE, in consultation with ODFW, prior to construction. Reference sites (as needed) should be identified that closely resemble the pre-disturbance characteristics of the revegetation area monitoring site as indicated by site conditions, including vegetation density, relative proportion of desirable vegetation and species diversity of desirable vegetation.

Revegetation monitoring will begin in the first year following initial revegetation of temporary disturbance areas and continue annually for five years or until monitored sites are successfully revegetated according to the success criteria described below. All soil disturbance sites will be visited at least once within the first year following revegetation, and annual surveys will be conducted for five years, or until ODOE, in consultation with ODFW, determines the success criteria to be achieved.

To select quantitative monitoring sites, the certificate holder will divide the total disturbance area into multiple monitoring sites, each of which is predominately of one habitat type (grassland or shrub steppe) and no larger than five acres. After dividing the area into such sites, a subset of sites (comprising at least 50% of each habitat type's total temporary disturbance acreage) will be randomly selected to be quantitative monitoring sites. Pre-disturbance vegetation data will be collected at each quantitative monitoring site using a systematic sampling method that can be repeated for post-construction monitoring. For example, a minimum of one, randomly-located 100-meter long by 5-meter wide belt transect could be used for documenting shrub and bunchgrass density, within which a point-intercept method or sampling quadrats could be used for collection of percent cover data. All sites not selected for quantitative monitoring would be qualitatively monitored using photo points and visual surveys.

During revegetation surveys, a qualified biologist shall inspect all areas of revegetation, including each revegetation area monitoring site, to assess revegetation success based on the success criteria and to recommend remedial actions, if needed. The qualified biologist will collect the following information within the general revegetation area, revegetation monitoring sites, and within the reference sites (if needed), as appropriate:

Quantitative monitoring will include a systematic monitoring protocol conducted at each monitoring site.). The following data will be collected at quantitative monitoring sites (both pre-disturbance and post-construction) and reference sites (if needed, just once):

- The habitat type of the area to be disturbed;
- Photo(s) representing the habitat (from documented location and direction so they are repeatable for post-disturbance revegetation monitoring);
- Density and percent cover of vegetation by plant species (determined through a quantitative sampling design such as randomly-located quadrats, belt transects, or other monitoring design approved by ODFW);
- Percent cover bare ground within the same sampling plots, and also estimated for the entire monitoring site, noting any large areas (>100ft²) of bare ground and estimated area;
- Percent cover of "other" ground cover by category (i.e., rock, gravel, hydro-mulch, vegetation

- litter, etc.)
- Percent cover estimate and species list of noxious weeds on the entire monitoring site in addition to sampling plot data;
- Vegetation structural stage, slope, soil type;

The following qualitative monitoring data will be collected both pre-disturbance and post-construction at all disturbance sites that are not quantitatively monitored:

- Photo(s) representing the habitat (from documented location and direction so they are repeatable for post-disturbance revegetation monitoring);
- List of noxious weed species present and estimated percent cover
- Note any erosion issues that need remedial action or any large areas of bare soil (>100ft²) that may require additional seeding.

6.3 Remedial Action and Maintenance

Following each of the surveys described above, the site certificate holder will consult with ODOE and ODFW to determine need for remedial measures to address remaining soil impacts and revegetation requirements not achieved through initial plantings. The nature of the remedial actions will depend on the problems that arise. ODOE may require reseeding or other remedial measures in those areas that do not meet the success criteria.

Common remediation measures will include:

- Reseeding of select areas where significant areas of bare soil remain after establishment of initial seeding;
- Determining the cause of low plant survival and implementation of actions appropriate to the cause of mortality (this may include selection of an alternate species better adapted to conditions at the site);
- Control of noxious weed/invasive plant species by qualified personnel using appropriate methods for the target species (e.g., herbicides applied according to label requirements if herbicides required);
- Repair of erosion control structures; and
- Soil decompaction.

The certificate holder will make every attempt to implement the recommended remedial actions as soon as possible, considering the season, weather conditions, and other site-dependent constraints.

The certificate holder will document revegetation progress and remedial actions in an annual Revegetation and Noxious Weed Control Monitoring Report to ODFW and ODOE (see section 5.4 below).

If a wildlife habitat area is damaged by fire during the first five years following initial seeding, the certificate holder shall work with the landowner to restore the damaged area. The certificate holder shall continue to report on revegetation progress during the remainder of the five-year period. The certificate holder shall report to ODOE the damage caused by fire and the cause of the fire, if known.

If an area is not trending toward meeting the success criteria at Year 5, the certificate holder may propose and ODOE may require remedial action and additional monitoring based on an evaluation of site capability. As an alternative, the certificate holder or ODOE, in consultation with ODFW, may conclude that revegetation of the area was unsuccessful and propose appropriate mitigation for the permanent loss of habitat quality and quantity. The certificate holder shall implement a remedial action plan, subject to the approval of ODOE in consultation with ODFW.

6.4 Revegetation Success Criteria

Revegetation will generally be considered successful when the revegetated areas support non-noxious plant communities that are similar in vegetation percent cover and erosion potential comparable to pre-disturbance condition or surrounding undisturbed areas. While the certificate holder shall evaluate whether all previously-disturbed wildlife habitat areas are trending towards revegetation success, the success criteria are evaluated based on the revegetation success of the approved revegetated monitoring sites compared to either pre-disturbance condition or reference sites, as appropriate. A wildlife habitat area is successfully revegetated when the habitat quality is equal to, or better than, the habitat quality of the pre-construction condition of the monitoring site itself or of an appropriate reference site selected in consultation with ODFW.

When the site certificate holder determines that an area of the project has been successfully restored by satisfying all success criteria, this will be stated in the annual revegetation report. If ODFW and ODOE concur, the site certificate holder will conclude that it has no further obligation to perform revegetation activities in that area of the facility. Reseeding or replanting efforts will occur, in consultation with ODFW, in any area where monitoring identifies a restoration failure.

The following criteria will be used to determine success of revegetation efforts related to construction of facilities authorized under Amendment 1:

1. **Native Shrubs:** The average density of the shrub component should be at least 50 % of the pre-disturbance or reference site density within 5 years. At least 15 % of the shrub density should be the dominant species found during pre-disturbance monitoring or on the reference site. The diversity of shrub species within the revegetated areas should at least equal the shrub species diversity measured during pre-disturbance monitoring or on the reference site.
2. **Native Grasses:** Revegetated sites should maintain grass species diversity and density that is at least 85% similar to pre-disturbance or reference sites diversity and density. Native bunchgrasses should be given preference. Native grasses are to be planted at rates sufficient to achieve abundance and diversity characteristics of the grass component compared to pre-disturbance or reference site conditions.
3. **Non-Native Weeds:** Every attempt should be made to prevent and control all species listed on county, state, and federal noxious weed lists. Revegetation sites should not contain a higher percentage of non-native weed cover than the pre-disturbance or reference site condition. All state and federal laws pertaining to noxious weeds must be followed. Highly competitive invasive species such as cheatgrass and other weedy brome grasses are prohibited in seed mixtures and should be actively controlled if any are found in the reclaimed areas.

The following success criteria from the original plan apply to temporary disturbance areas associated with Unit 1 construction. For those areas, PGE may either continue to use the criteria below, or follow the newer success criteria above using a reference site (approved by ODFW) for comparison.

1. The vegetation percent cover by native species and desirable non-native species (both seeded and naturally recruited) is 40 percent or more, or not significantly less than the percent vegetation cover of surrounding undisturbed areas.
2. Noxious weeds are absent or constitute only a small percentage (<5%) of vegetation otherwise dominated by native or desirable non-native species.
3. The percentage of bare soil (excluding rocky areas) in the sample plot is not significantly greater than the percentage of bare soil in surrounding undisturbed areas.

When ODOE, in consultation with ODFW, finds that the conditions of the wildlife habitat area revegetation monitoring sites satisfy the criteria for revegetation success, ODOE shall conclude that the certificate holder has met the restoration obligations for that area.

6.5 Reporting

The certificate holder will provide an annual Revegetation and Noxious Weed Control Monitoring Report for five years or until success criteria are achieved following initial revegetation of construction disturbance areas. In addition to the annual reports, PGE will share preliminary monitoring results with ODFW/ODOE as soon as possible following monitoring fieldwork to allow consultation regarding planning necessary remedial measures such as erosion control, reseeding, and weed control. Such consultation will allow more timely coordination and response to habitat management needs than may occur under the annual reporting process. This additional consultation is required for revegetation monitoring associated with facilities authorized under Amendment 1 and is recommended as a best management practice for Unit 1 revegetation areas.

Each annual report will contain a summary of field data collected during field visits and include: an assessment of whether revegetation area monitoring sites are trending toward meeting the success criteria; assessment of factors impacting the ability of the revegetated area monitoring sites to trend towards meeting the success criteria; a summary of consultation with ODOE, ODFW, and Morrow County and remedial measures (e.g., seeding, noxious weed control, and repair of erosion control structures) taken since the last annual report; any additional remedial measures planned; and the anticipated dates of completion of additional remedial measures.

6.6 Amendment of Plan

This Plan may be amended from time to time by agreement of the certificate holder and the Oregon Energy Facility Siting Council (Council). Such amendments may be made without amendment of the site certificate. The Council authorizes ODOE to agree to amendments to this Plan. ODOE shall notify the Council of all amendments, and the Council retains the authority to approve, reject, or modify any amendment of this Plan agreed to by ODOE.

7 REFERENCES

- Oregon Department of Fish and Wildlife. 2010a. Rehabilitating Habitat. ODFW website: http://www.dfw.state.or.us/fire/fire_rehab.asp. Accessed on December 15, 2010.
- _____. 2010b. Personal communication between Lucas Meek of Ecology and Environment, Inc. and Travis Schultz of ODFW. Email correspondence dated December 8, 2010.
- Oregon Energy Facility Siting Council. 2007. Biglow Canyon Wind Farm: Revegetation Plan. March 10, 2007. <http://www.oregon.gov/ENERGY/SITING/docs/BCWOa2B.pdf>
- _____. 2013. Carty Generating Station project site field visit with Dave Pranger (Morrow County) and Don Farrar (Gilliam County), October 2, 2013.
- _____. 2017. Personal communication between Andy Bidwell of PGE and Dave Pranger, Morrow County Weed Coordinator/Inspector. Email correspondence dated December 21, 2017.
- _____. 2018. Conference call attended by PGE, ODFW, and ODOE to discuss revisions to the Carty Generating Station Revegetation and Noxious Weed Control Plan, June 12, 2018.

Attachment F: Draft Erosion and Sediment Control Plan

EROSION AND SEDIMENT CONTROL PLANS

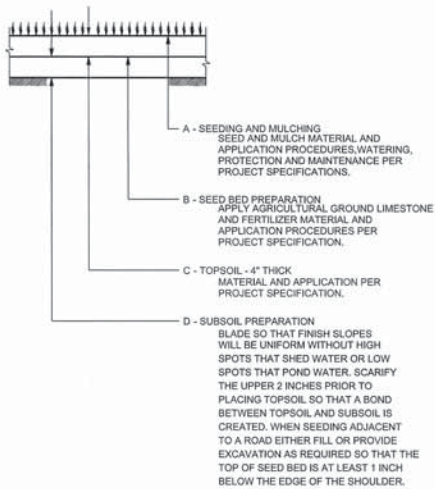
BMP MATRIX AND RATIONALE STATEMENT

BMP	CONSTRUCTION PHASE				
	PRE-EARTHWORK ACTIVITIES	CLEARING AND GRADING	BUILDING AND EQUIPMENT CONSTRUCTION	CLEAN-UP AND RESTORATION	WET WEATHER
EROSION PREVENTION					
EP-1 SCHEDULING	X	X	X	X	X
EP-4 TOPSOILING		X		X	
EP-2 PRESERVE NATURAL VEGETATION	X	X	X	X	X
EP-6 PERMANENT SEEDING				X	
EP-8 MULCHES				X	X
EP-10 EROSION CONTROL BLANKETS		X	X	X	X
EP-13 DUST CONTROL		X	X	X	
SEDIMENT CONTROL					
SC-1 SEDIMENT FENCE	X	X	X	X	X
SC-6 COMPOST SOCK		X	X	X	X
SC-10 ENTRANCE/EXIT TRACKING CONTROLS	X	X	X	X	X
DITCH CHECKS		X	X	X	X
RUN-OFF CONTROL					
RC-2 ENERGY DISSIPATORS		X	X	X	X
POLLUTION PREVENTION					
NS-3 PAVING OPERATION CONTROLS	X	X	X	X	
NS-4 ILLICIT CONNECTION/ILLEGAL DISCHARGE	X	X	X	X	
NS-6 VEHICLE AND EQUIPMENT CLEANING	X	X	X	X	
NS-8 VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE	X	X	X	X	
NS-7 MATERIAL DELIVERY AND STORAGE CONTROLS	X	X	X	X	
NS-8 MATERIAL USE	X	X	X	X	
NS-9 STOCKPILE MANAGEMENT		X	X	X	
NS-10 SPILL PREVENTION AND CONTROL PROCEDURES	X	X	X	X	
NS-11 SOLID WASTE MANAGEMENT	X	X	X	X	
NS-12 HAZARDOUS MATERIALS AND WASTE MANAGEMENT	X	X	X	X	
NS-13 CONTAMINATED SOIL MANAGEMENT		X	X	X	
NS-14 CONCRETE MANAGEMENT		X	X	X	
NS-15 SANITARY WASTE MANAGEMENT	X	X	X	X	
NS-17 TRAINING AND SIGNAGE	X	X	X	X	

FOR APPROXIMATE WORK TIME FRAME FOR BMP MATRIX, REFERENCE THE NARRATIVE DESCRIPTION SECTION - NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE.

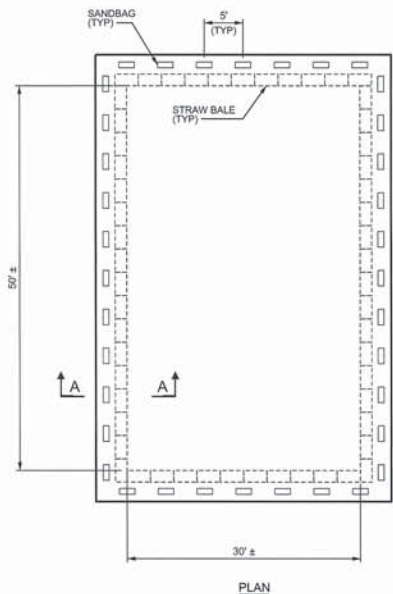
A COMPREHENSIVE LIST OF AVAILABLE BMP OPTIONS, BASED ON DEQ'S 1200-C PERMIT APPLICATION AND ESCP GUIDANCE DOCUMENT, HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN (ESCP). SOME OF THE ABOVE MENTIONED BMPS WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITION, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESCP, AN ACTION PLAN WILL BE SUBMITTED.

INITIAL: *JP* DATE: *AUGUST 17, 2016*



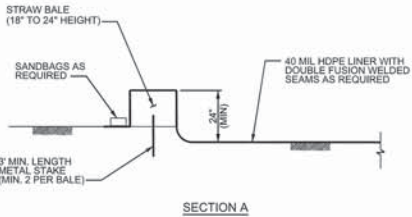
GRASS SEEDING ON TOPSOIL

DETAIL CSK-102-01
N.T.S.



TEMPORARY CONCRETE WASHOUT

DETAIL CSK-102-02
N.T.S.



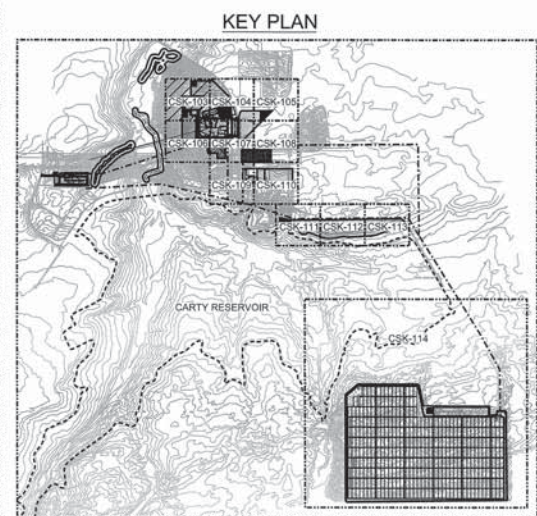
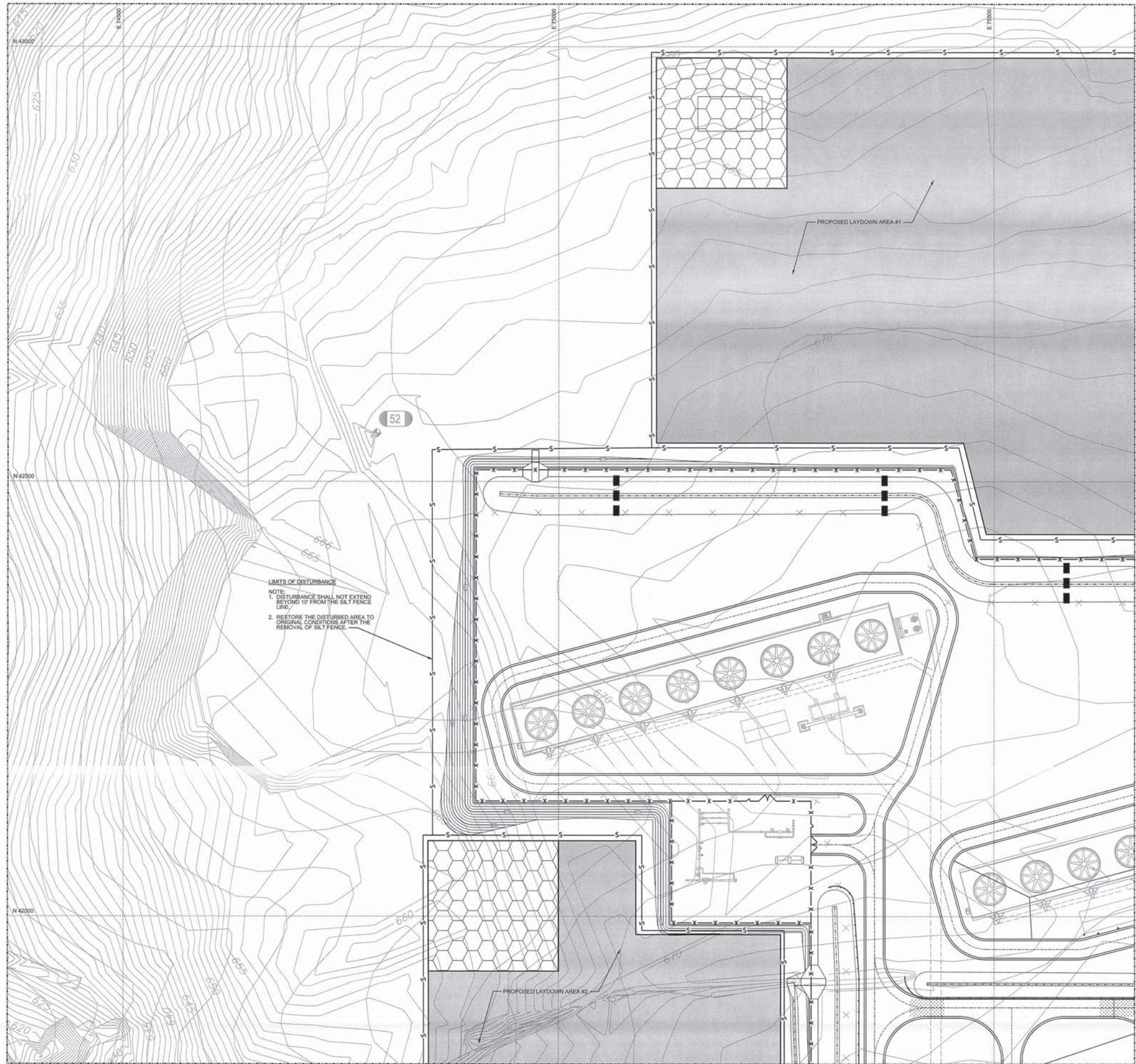
NOTE:
WASHOUT PIT SHALL BE CLEANED AS REQUIRED TO PREVENT OVERFLOW OF
WASHOUT WATER AND DAMAGE TO THE HAY BALE CURBING. WASHOUT WATER
SHALL BE VACUUMED OFF AND REMAINING SOLIDS SHALL BE REMOVED FROM
THE PIT FOR OFF-SITE DISPOSAL. IF THE PIT IS DAMAGED DURING CLEANING, IT
SHALL BE REPAIRED BY RE-LINING THE PIT AND REPLACING THE DAMAGED HAY
BALE. THE HARDENED SOLIDS SHALL BE REMOVED FOR RECYCLING OR SENT OUT
TO LANDFILL IF THEY BOUND UP WITH THE LINER.

FOR PERMIT ONLY

CONTRACTOR/INSTALLER SHALL TAKE ALL
APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY
OF ALL PEOPLE LOCATED ON THE WORK SITE.
INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL
(OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING
THE WORK.



0	ISSUED FOR PERMIT	GP	NET	DP
REV	DATE	DESCRIPTION	BY	CHK
REVISIONS				
WARNING				
Burgess & Lundy				
VENDOR & REF. DWG(S): -				
DATE:	08-17-2016	DESIGNER: AGP	CHECKED BY:	
DRAWN BY:	AGP	DESIGN ENGR.: MET	ENGR. MGR.: DJP	
SCALE:	NONE	CAD FILE NAME: CSK-102.DGN		
REF. DWG(S): REF. DWG				
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST., PORTLAND, OR 97204				
CARTY GENERATING STATION				
EROSION CONTROL - SITE PLAN BMP MATRIX AND RATIONALE STATEMENT				
DRAWING NO.:	CSK-102	SHEET NO.:	1	REV. NO.:
				0



FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



0 40' 80' 120' 160'
GRAPHIC SCALE
DRAWING SCALE
1"=40'-0"

LEGEND	
	EXISTING MAJOR CONTOURS
	EXISTING MINOR CONTOURS
	ASPHALT SURFACING
	AGGREGATE SURFACING
	GRAVEL ROAD SURFACING
	GRASS SEEDING
	SILT FENCE
	SOIL STORAGE/SPOIL AREA
	DITCH CHECKS

NOTES
1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 745,000.0000, E 2,177,500.0000 IS EQUAL TO N 40,000.000, E 77,000.0000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0		ISSUED FOR PERMIT				



Georgene & Lundy

VENDOR & REF. DWG(S):
DATE: 06-17-2016 DESIGNER: AGP CHECKED BY:
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DJP
SCALE: 1"=40' CAD FILE NAME: CSK-103.DGN
REF. DWG(S): REF. DWG
PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204
CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
SHEET 1

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CSK-103	1	0

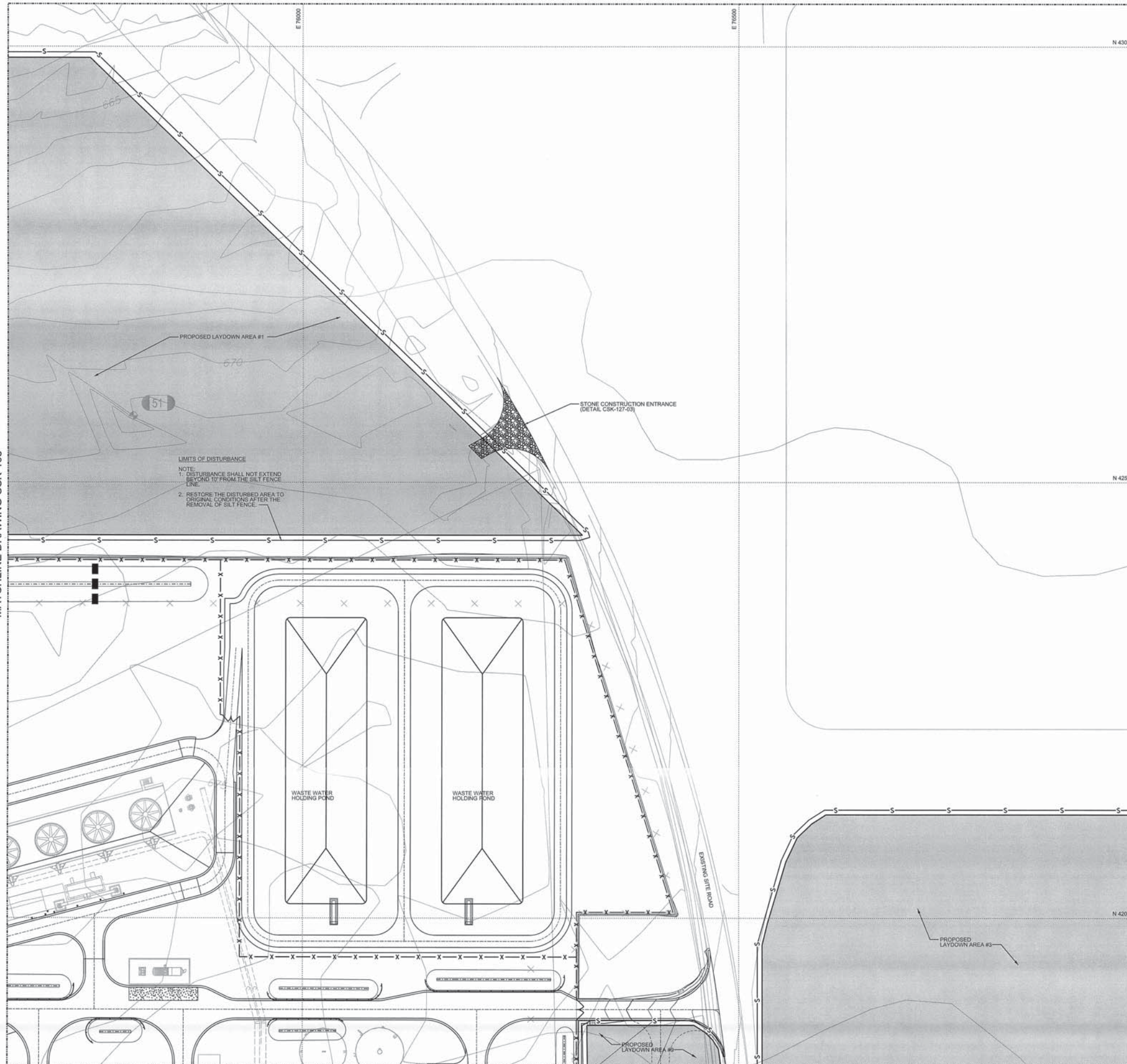


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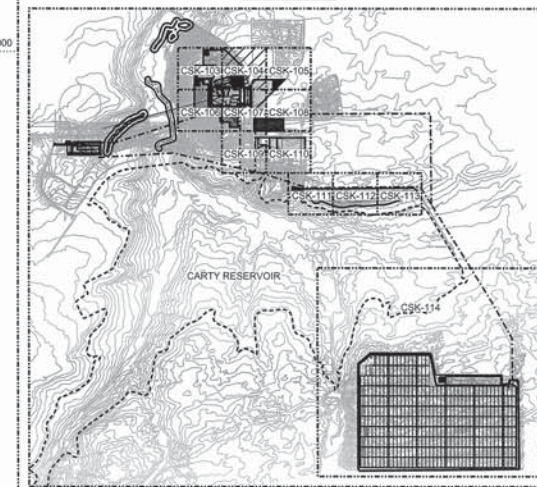
REVISIONS: DEC. 31, 2016

MATCHLINE DRAWING CSK-103



MATCHLINE DRAWING CSK-107

KEY PLAN



FOR PERMIT ONLY

EROSION CONTROL MEASURES

TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



0 40' 80' 120' 160'

GRAPHIC SCALE
DRAWING SCALE
1"=40'-0"

LEGEND

- 670 EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- ASPHALT SURFACING
- AGGREGATE SURFACING
- GRAVEL ROAD SURFACING
- CONCRETE SURFACING
- CONSTRUCTION ENTRANCE
- GRASS SEEDING
- SILT FENCE
- DITCH CHECKS

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE FOR THE FOLLOWING GRID POINT - N 740,000.0000, E 2,177,600.000 IS EQUAL TO N 40,000.000, E 17,000.0000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)

REV	DATE	DESCRIPTION	BY	CHK	ENG	ENG	MGR
0	06/17/2016	SUBMIT FOR PERMIT	AP		ME		DP

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PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204
CARTY GENERATING STATION

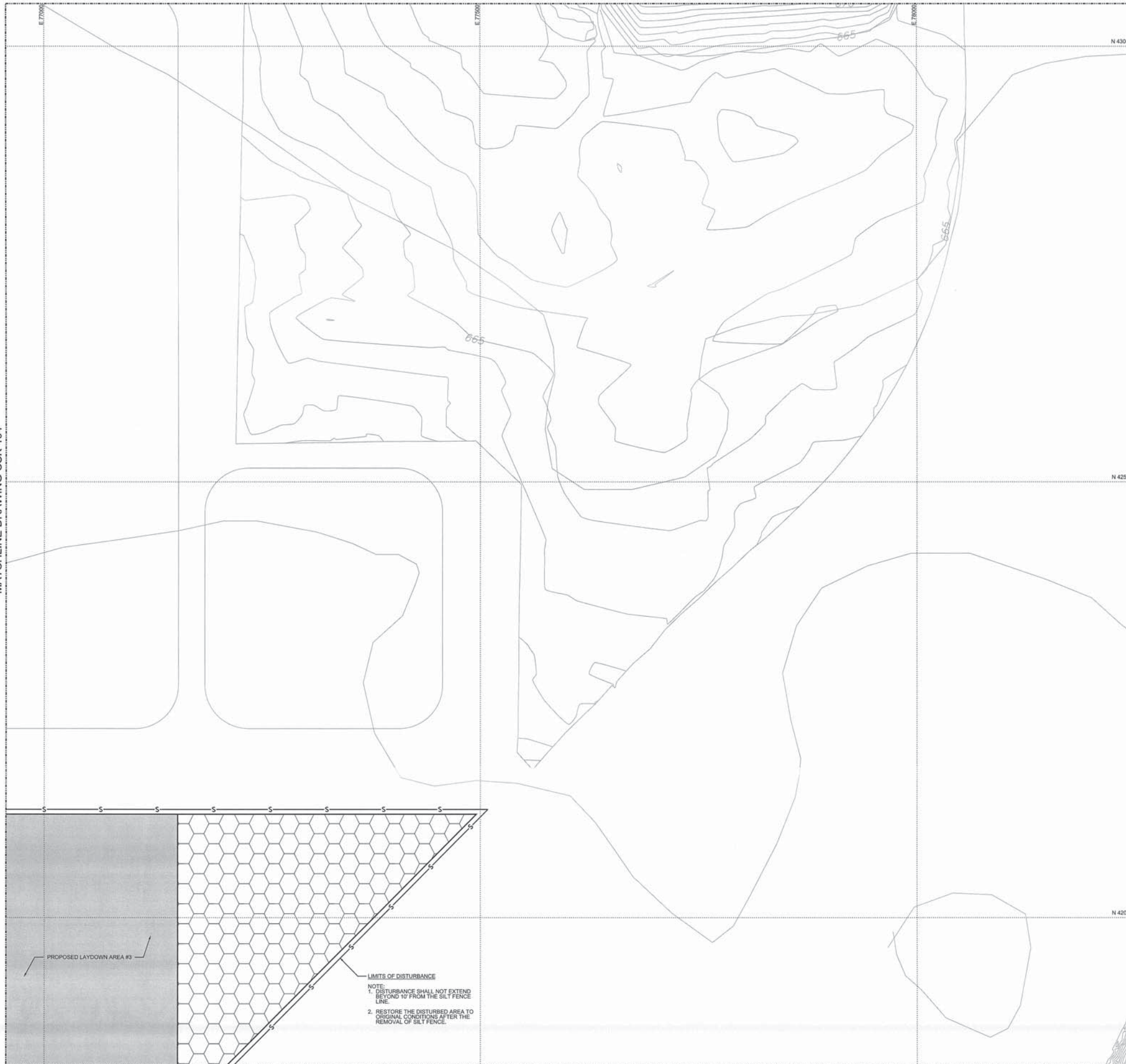
EROSION CONTROL - SITE PLAN SHEET 2

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CSK-104	1	0

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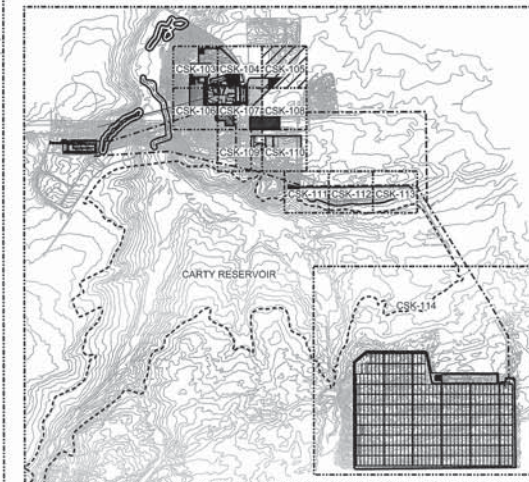
MATCHLINE DRAWING CSK-104



MATCHLINE DRAWING CSK-108

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.

KEY PLAN



FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



GRAPHIC SCALE
DRAWING SCALE
1"=40'-0"

LEGEND

670	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	ASPHALT SURFACING
	AGGREGATE SURFACING
	GRAVEL ROAD SURFACING
	CONCRETE SURFACING
	CONSTRUCTION ENTRANCE
	GRASS SEEDING
S S	SILT FENCE
	DITCH CHECKS
	SOIL STORAGE/SPOIL AREA

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT: N 740,000.0000, E 2,177,000.0000 TO N 40,000.000, E 77,000.0000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL, SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

0	04-02-2018	ISSUED FOR PERMIT	ADP	-	NET	-
REV	DATE	DESCRIPTION	BY	CHK	ENG	ENG

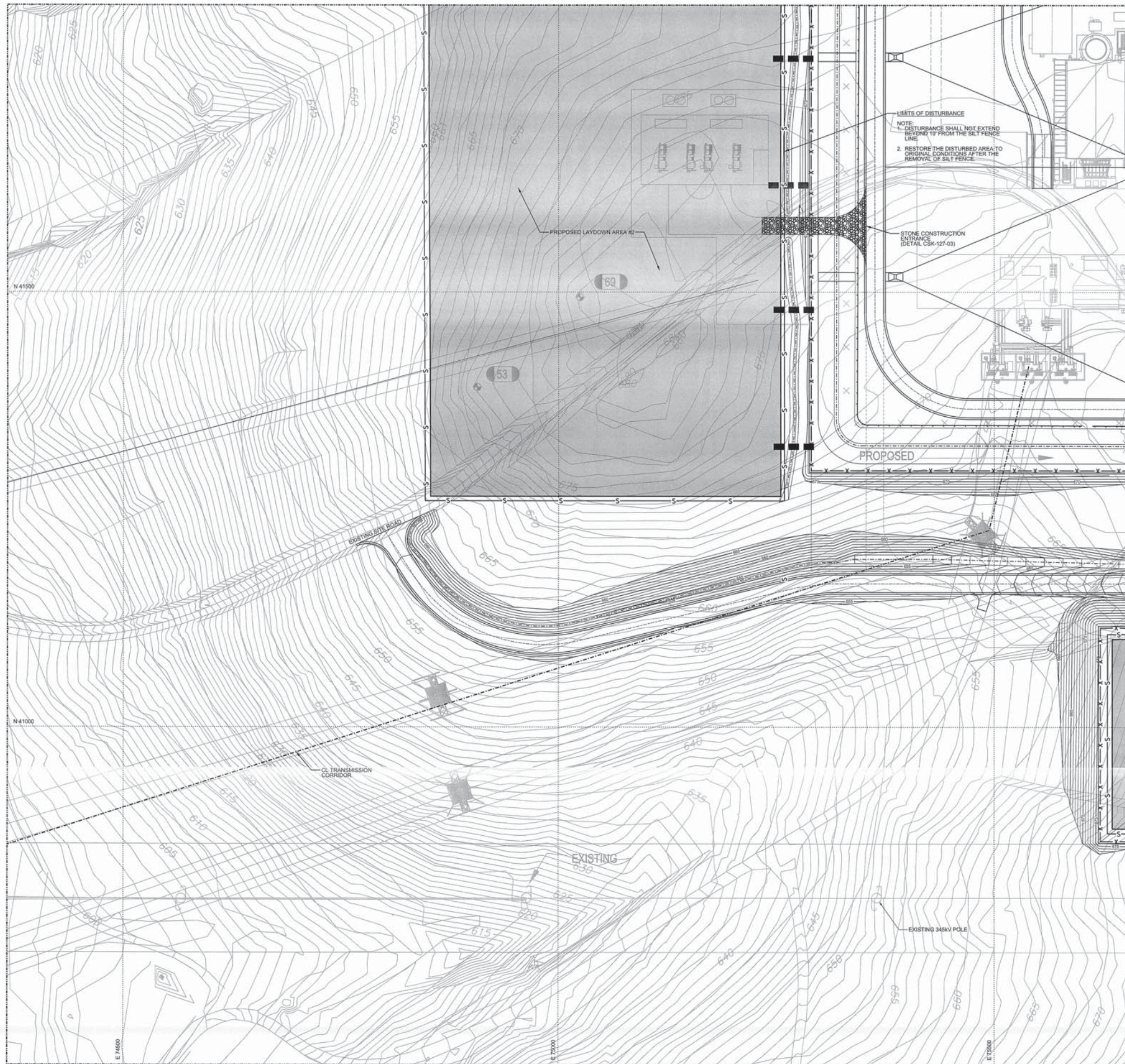
REVISIONS



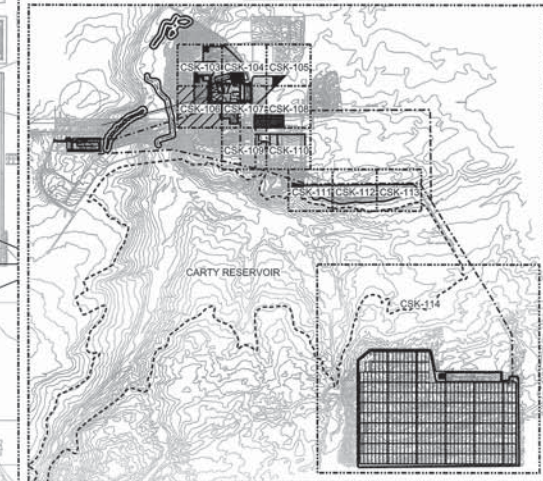
VENDOR & REF. DWG(S):
DATE: 06-17-2016 DESIGNER: AGP CHECKED BY:
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DJP
SCALE: 1"=40' CAD FILE NAME: CSK-105.DGN
REF. DWG(S): REF. DWG
PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204
CARTY GENERATING STATION
EROSION CONTROL - SITE PLAN
SHEET 3

DRAWING NO:	SHEET NO:	REV NO:
CSK-105	1	0

MATCHLINE DRAWING CSK-103

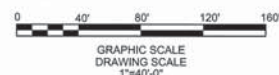


KEY PLAN



FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
EROSION CONTROL BLANKET	



LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- ASPHALT SURFACING
- AGGREGATE SURFACING
- GRASS SEEDING
- SILT FENCE
- DITCH CHECKS
- SLOPE IN PLAN
- CULVERT WITH FLARED END SECTION

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT: N 740,000.000, E 2,177,000.000 IS EQUAL TO N 400,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).



VENDOR & REF. DWG(S):		CHECKED BY:	
DATE: 08-17-2016	DESIGNER: AGP		
DRAWN BY: AGP	DESIGN ENGR: MET	ENGR. MGR: DUP	
SCALE: 1"=40'	CAD FILE NAME: CSK-106.DWG		
REF. DWG(S): REF. DWG			
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST. PORTLAND, OR 97204			
CARTY GENERATING STATION			
EROSION CONTROL - SITE PLAN SHEET 4			



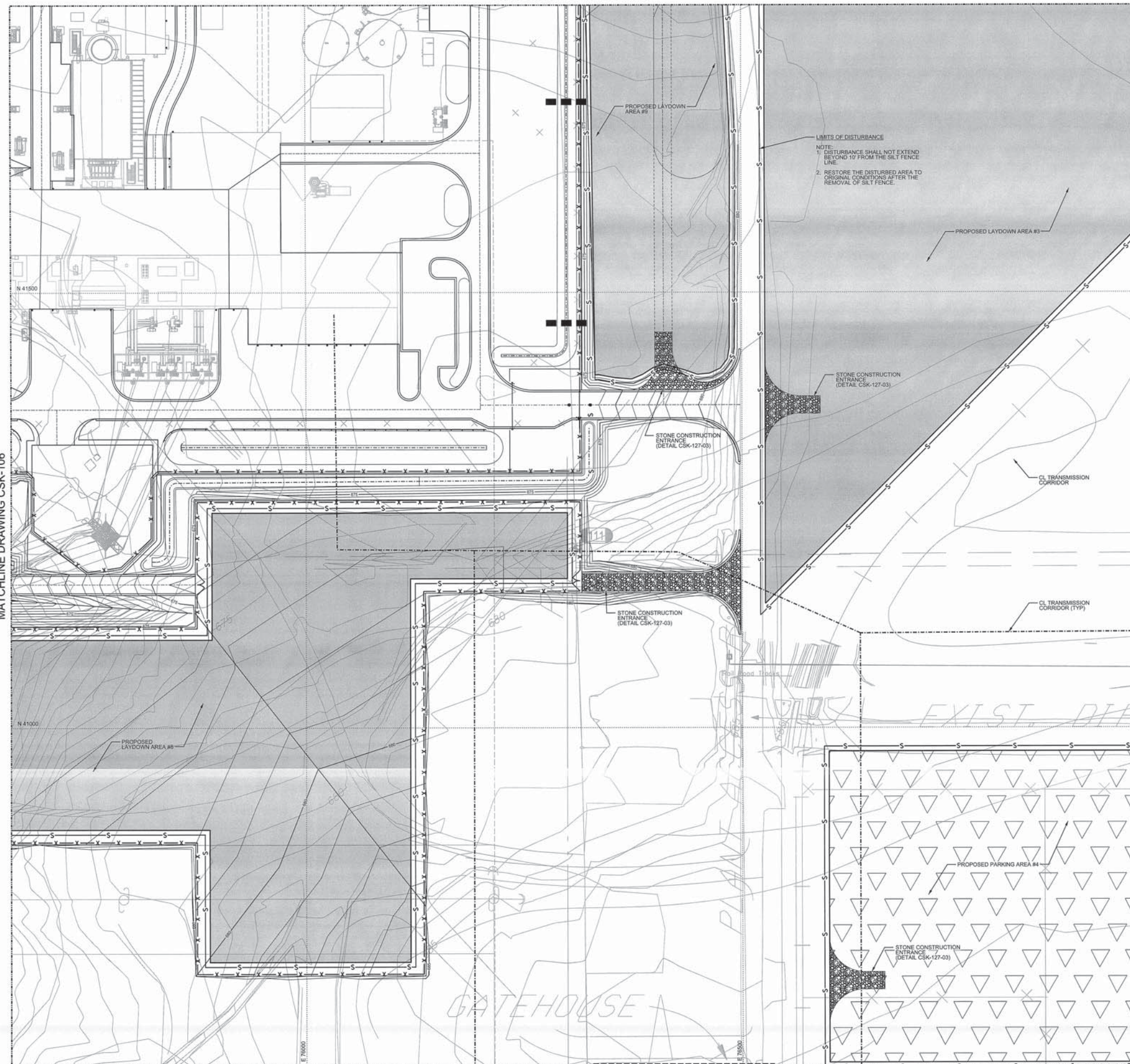
CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.

REVISIONS: DEC. 31, 2016

DRAWING NO.:	CSK-106	SHEET NO.:	1	REV. NO.:	0
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MATCHLINE DRAWING CSK-104

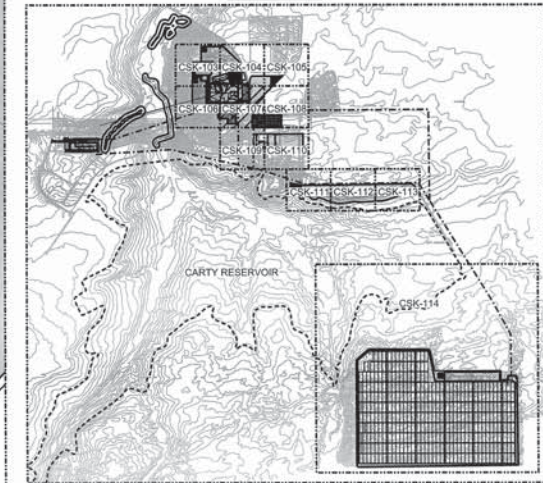
MATCHLINE DRAWING CSK-106



MATCHLINE DRAWING CSK-109

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLERS PERSONNEL, OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.

KEY PLAN



FOR PERMIT ONLY

EROSION CONTROL MEASURES

TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



0 40' 80' 120' 160'

GRAPHIC SCALE
DRAWING SCALE
1"=40'-0"

LEGEND

670	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	ASPHALT SURFACING
	AGGREGATE SURFACING
	GRASS SEEDING
S-S	SILT FENCE
	DITCH CHECKS
	SLOPE IN PLAN
	CULVERT WITH FLARED END SECTION
	CONSTRUCTION PARKING

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE FOR THE FOLLOWING GRID POINT - N 740,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 17,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC DATUM OF 1929 (NGVD29).



VENDOR & REF. DWG(S):
DATE: 08-17-2016 DESIGNER: AGP CHECKED BY:
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DUP
SCALE: 1"=40' CAD FILE NAME: CSK-107.DGN
REF. DWG(S): REF. DWG

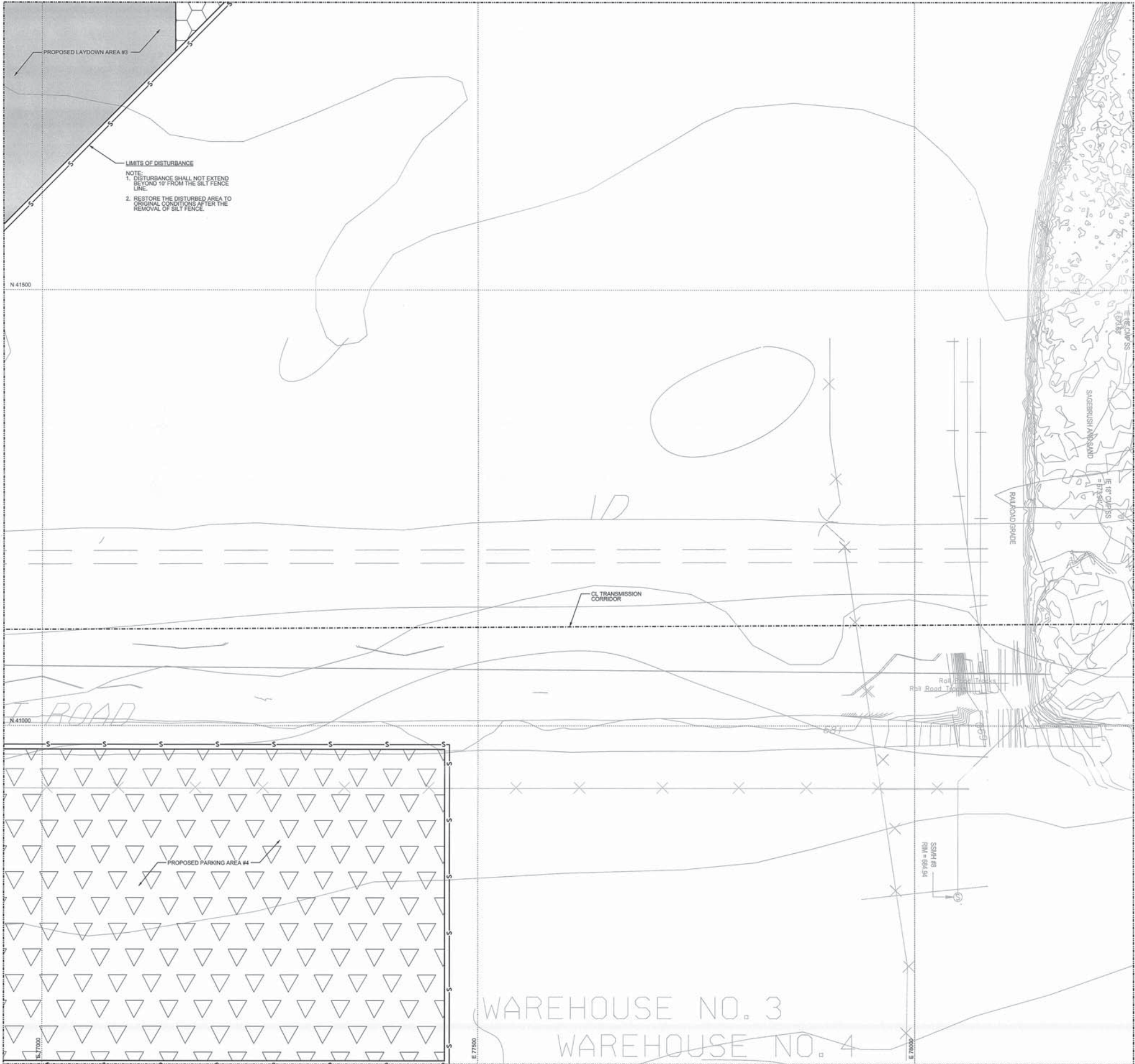
PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204
CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
SHEET 5

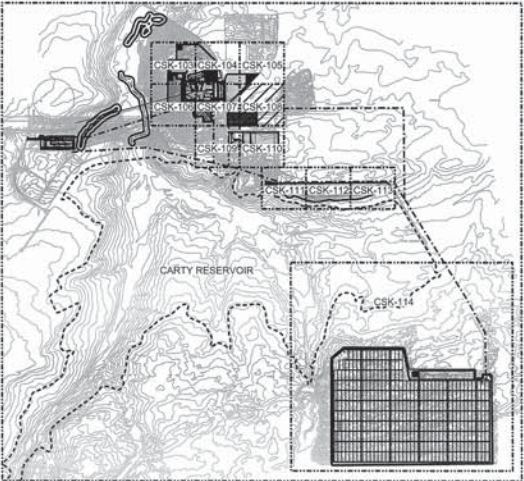
DRAWING NO.: CSK-107 SHEET NO.: 1 REV. NO.: 0



MATCHLINE DRAWING CSK-107

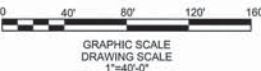


KEY PLAN



FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
EROSION CONTROL BLANKET	



LEGEND

670	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	ASPHALT SURFACING
	AGGREGATE SURFACING
	GRASS SEEDING
S S	SILT FENCE
	DITCH CHECKS
	SLOPE IN PLAN
	CULVERT WITH FLARED END SECTION
	CONSTRUCTION PARKING
	SOIL STORAGE/SPOIL AREA

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE FOR THE FOLLOWING GRID POINT - N 740,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

0	REVISION	DATE	DESCRIPTION	BY	CHK	ENG	ENG/MGR

WARNING

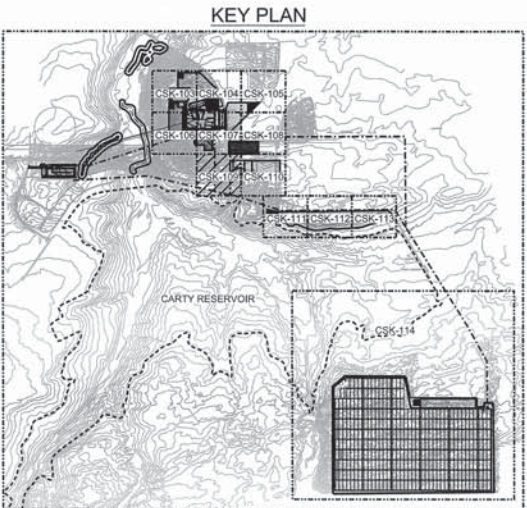
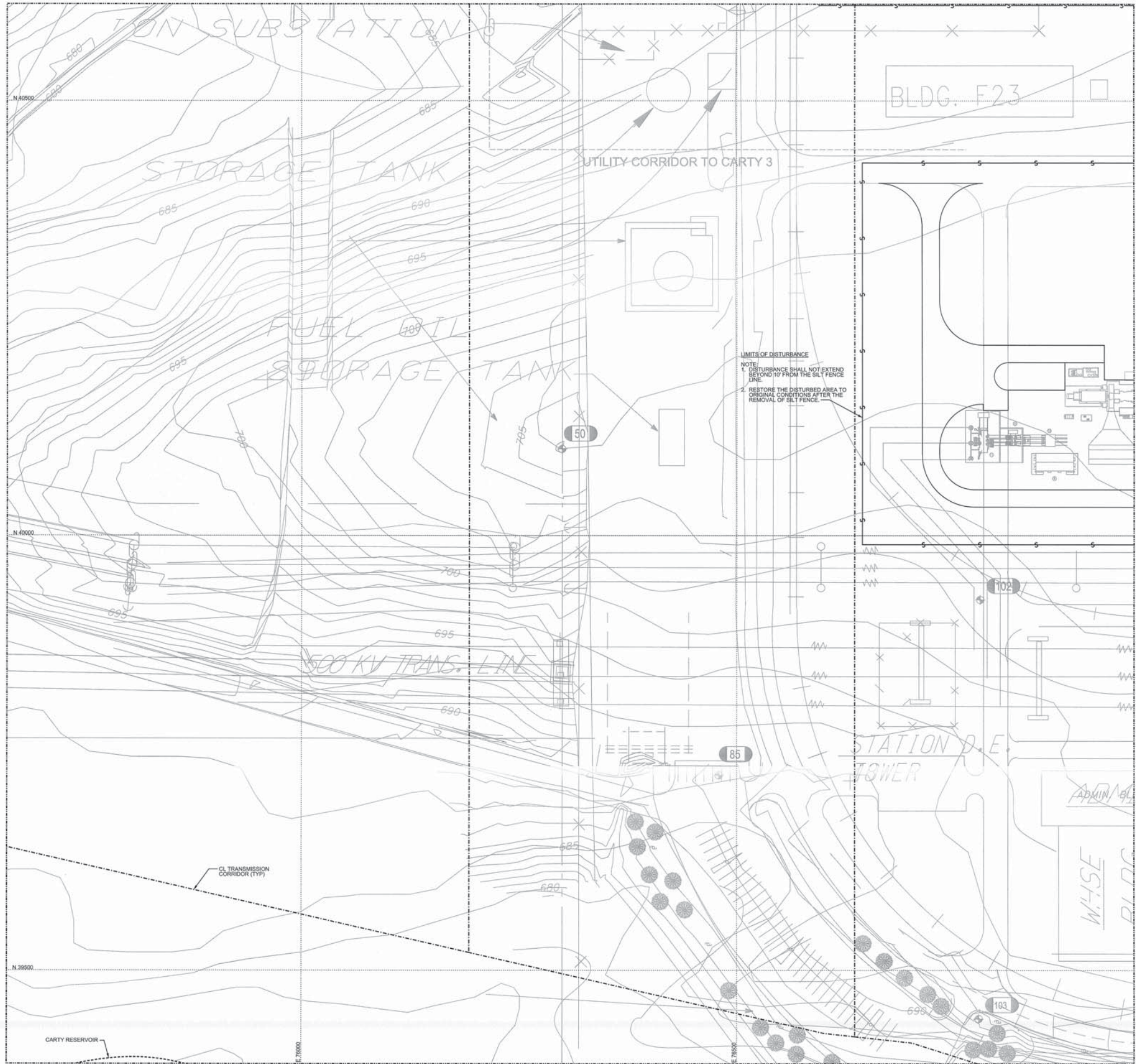


VENDOR & REF. DWG(S):	
DATE: 06-17-2016	DESIGNER: AGP
DRAWN BY: AGP	DESIGN ENGR: MET
SCALE: 1"=40'	CAD FILE NAME: CSK-108.DGN
REF. DWG(S): REF. DWG	
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST., PORTLAND, OR 97204	
CARTY GENERATING STATION	
EROSION CONTROL - SITE PLAN	
SHEET 6	



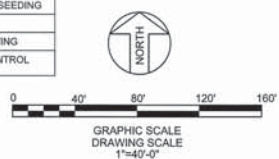
CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.

DRAWING NO:	SHEET NO:	REV. NO:
CSK-108	1	0



FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



LEGEND	
— 670 —	EXISTING MAJOR CONTOUR
-----	EXISTING MINOR CONTOUR
[Pattern]	ASPHALT SURFACING
[Pattern]	AGGREGATE SURFACING
[Symbol]	GRASS SEEDING
— S — S —	SILT FENCE
[Symbol]	DITCH CHECKS
[Symbol]	SLOPE IN PLAN
[Symbol]	CULVERT WITH FLARED END SECTION

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT: N 741,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0	08/28	SUBFORWRT				

WARNING

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTORS, PERFORMING THE WORK.

VENDOR & REF. DWGS: -

DATE: 08-17-2016 DESIGNER: AGP CHECKED BY: ENGR. MGR. DJP

DRAWN BY: AGP DESIGN ENGR: MET

SCALE: 1"=40' CAD FILE NAME: CSK-109.DGN

REF. DWGS: REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204

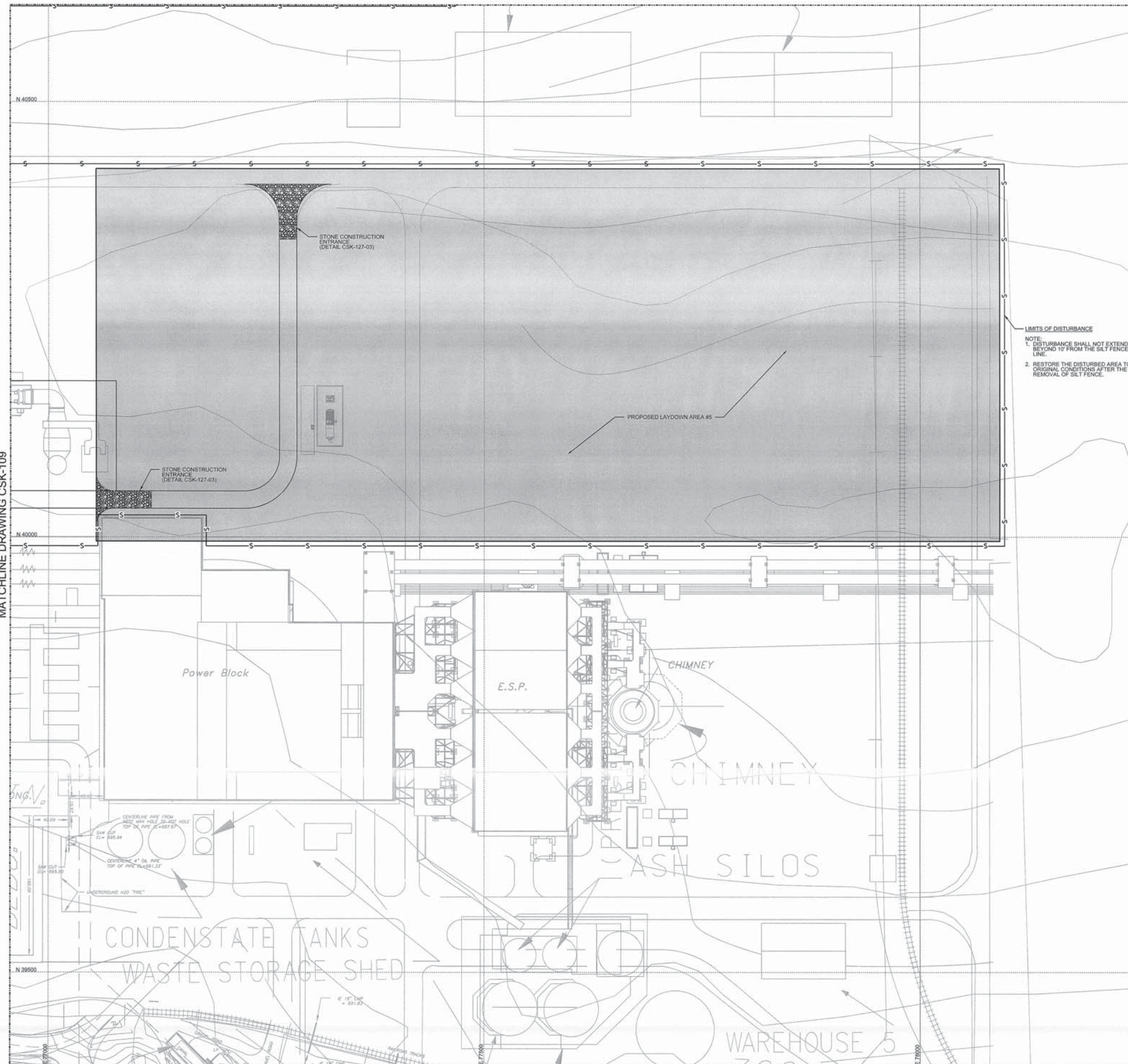
CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
SHEET 7

DRAWING NO.:	CSK-109	SHEET NO.:	1	REV. NO.:	0
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MATCHLINE DRAWING CSK-108

MATCHLINE DRAWING CSK-109

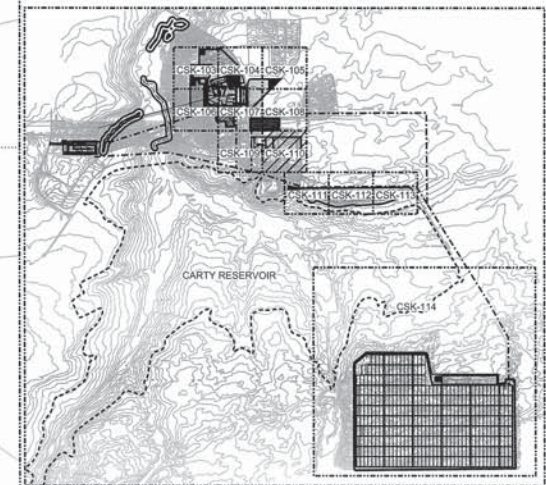


MATCHLINE DRAWING CSK-111

LIMITS OF DISTURBANCE

- NOTE:
1. DISTURBANCE SHALL NOT EXTEND BEYOND 10' FROM THE SILT FENCE LINE.
 2. RESTORE THE DISTURBED AREA TO ORIGINAL CONDITIONS AFTER THE REMOVAL OF SILT FENCE.

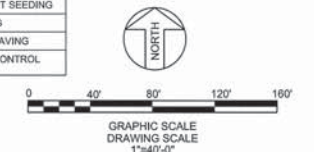
KEY PLAN



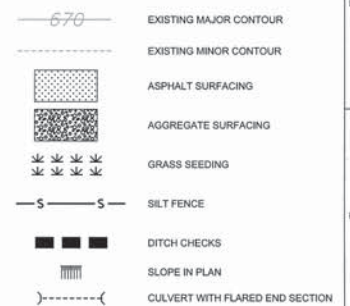
FOR PERMIT ONLY

EROSION CONTROL MEASURES

TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



LEGEND



NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1987 (NAD83). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT: N 740,000.000, E 77,000.000 IS EQUAL TO N 40,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1989 (NGVD89).



REVISIONS

REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0		ISSUED FOR PERMIT				

VENDOR & REF. DWG(S):

DATE: 06-17-2018 DESIGNER: AGP CHECKED BY: ENGR. MGR. DJP

DRAWN BY: AGP DESIGN ENGR: MET

SCALE: 1"=40'

REF. DWG(S): REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204

CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN

SHEET 8



CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.

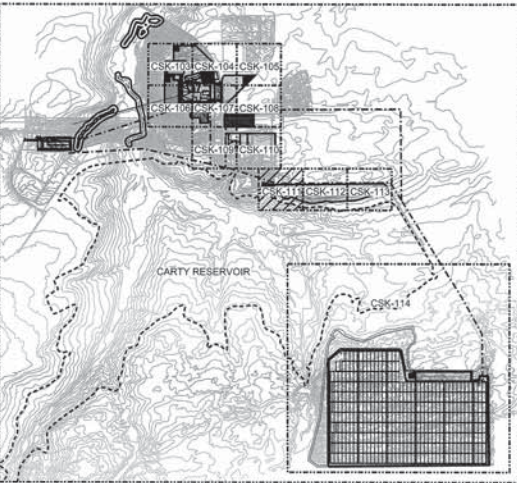
DRAWING NO.: CSK-110

SHEET NO.: 1

REV NO.: 0

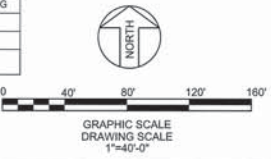
MATCHLINE DRAWING CSK-110

KEY PLAN

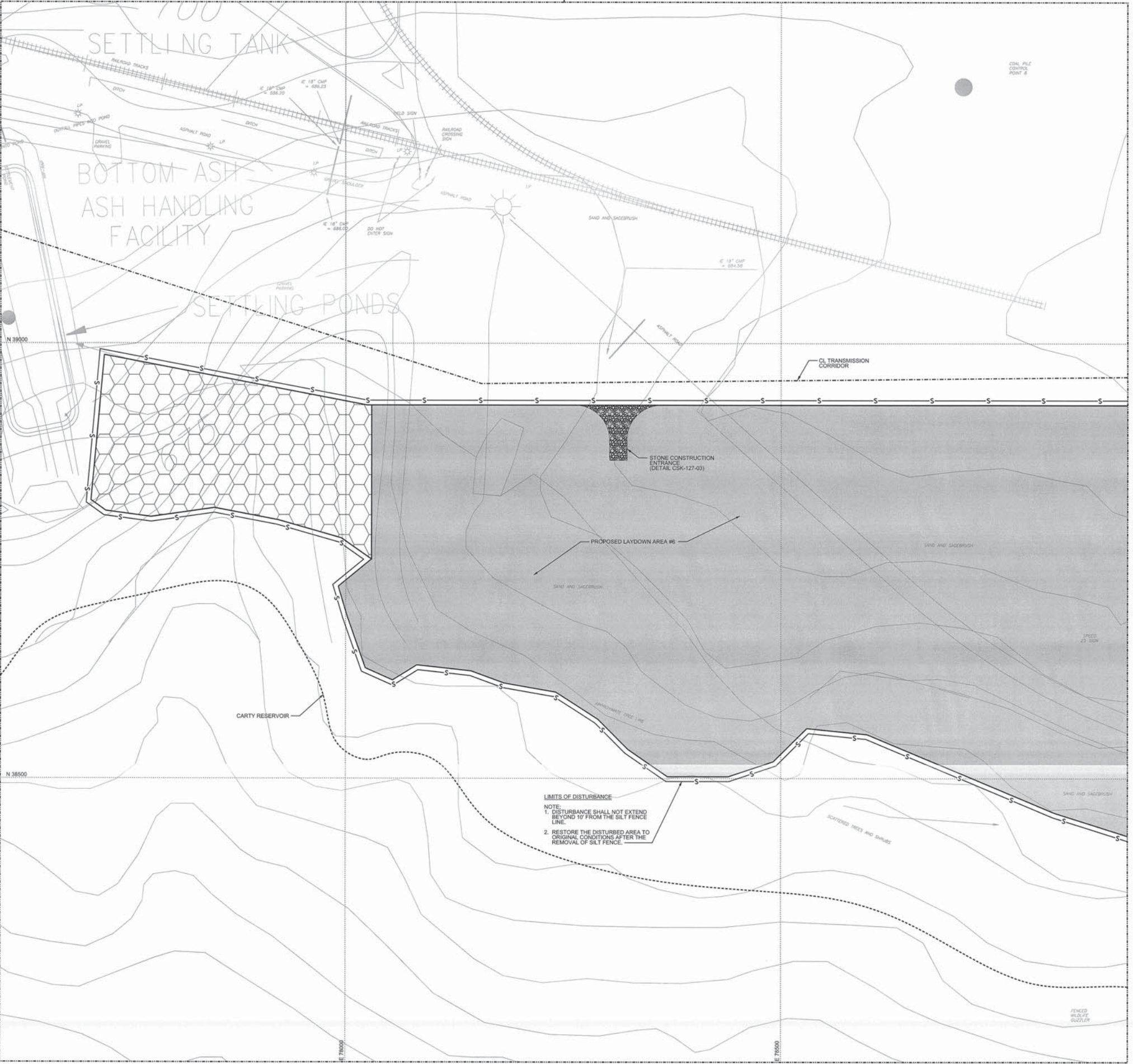


FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



MATCHLINE DRAWING CSK-112



LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	ASPHALT SURFACING
	AGGREGATE SURFACING
	GRASS SEEDING
	SILT FENCE
	DITCH CHECKS
	SLOPE IN PLAN
	CULVERT WITH FLARED END SECTION
	SOIL STORAGE/SPILL AREA

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 740,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0	8/1/2016	SUBMIT FOR PERMIT	AGP			

WARNING

Georgie & Landry

VENDOR & REF. DWG(S): -
DATE: 08-17-2016 DESIGNER: AGP CHECKED BY:
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DUP
SCALE: 1"=40' CAD FILE NAME: CSK-111.DGN
REF. DWG(S): REF. DWG

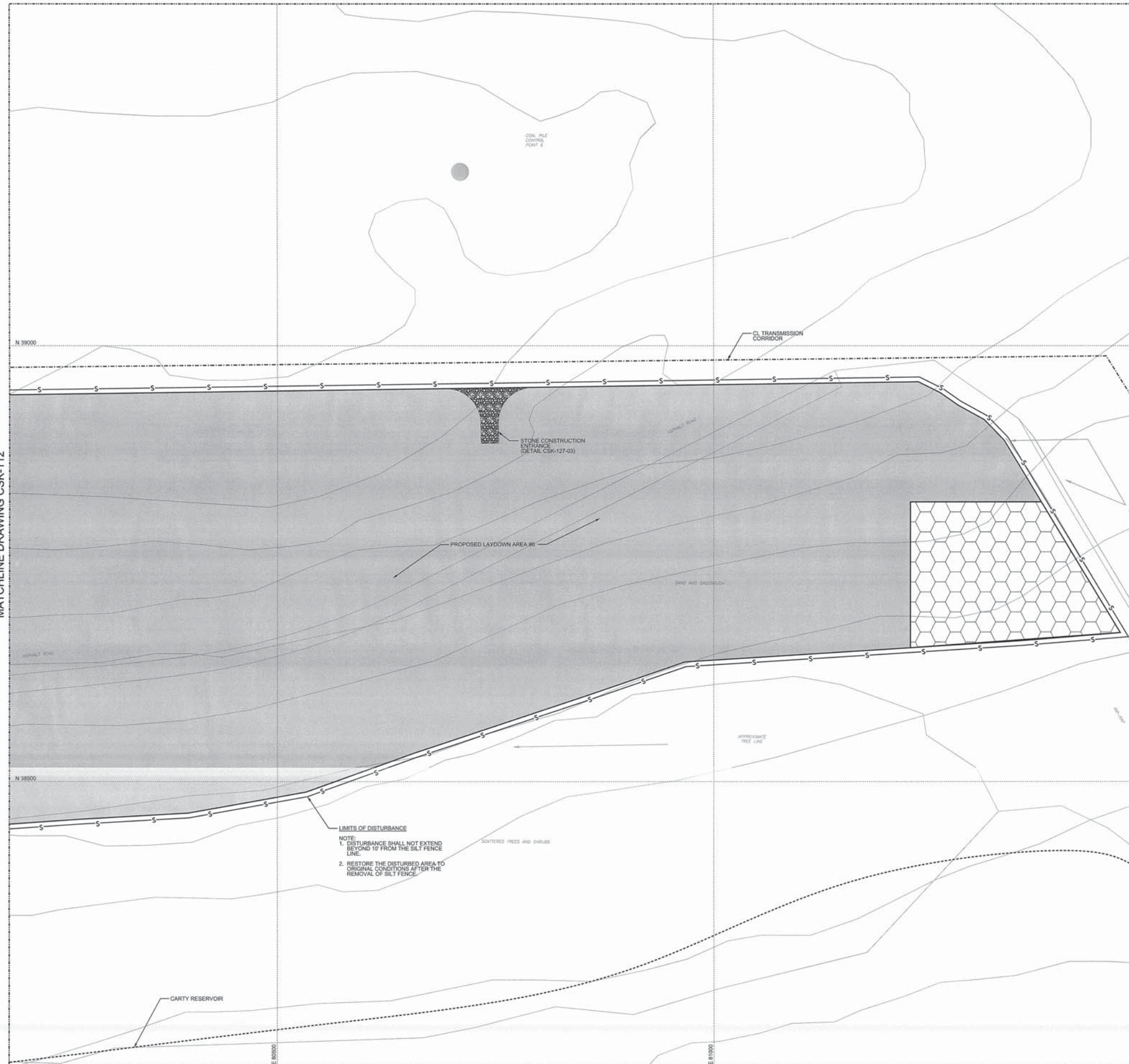
PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204
CARTY GENERATING STATION
EROSION CONTROL - SITE PLAN
SHEET 9

DRAWING NO.	SHEET NO.	REV. NO.
CSK-111	1	0

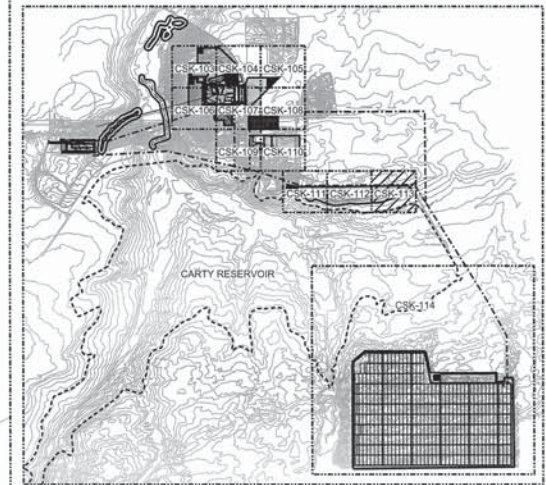
CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.



MATCHLINE DRAWING CSK-112



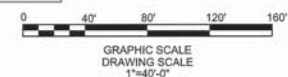
KEY PLAN



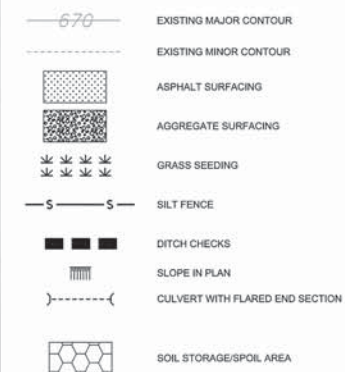
FOR PERMIT ONLY

EROSION CONTROL MEASURES

TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



LEGEND



NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE. THE FOLLOWING GRID POINT - N 740,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 17,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

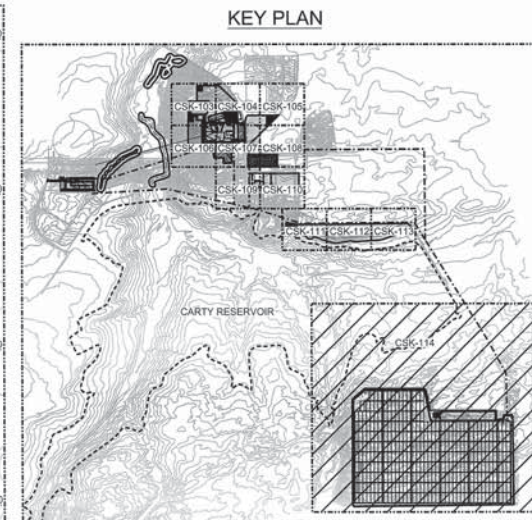
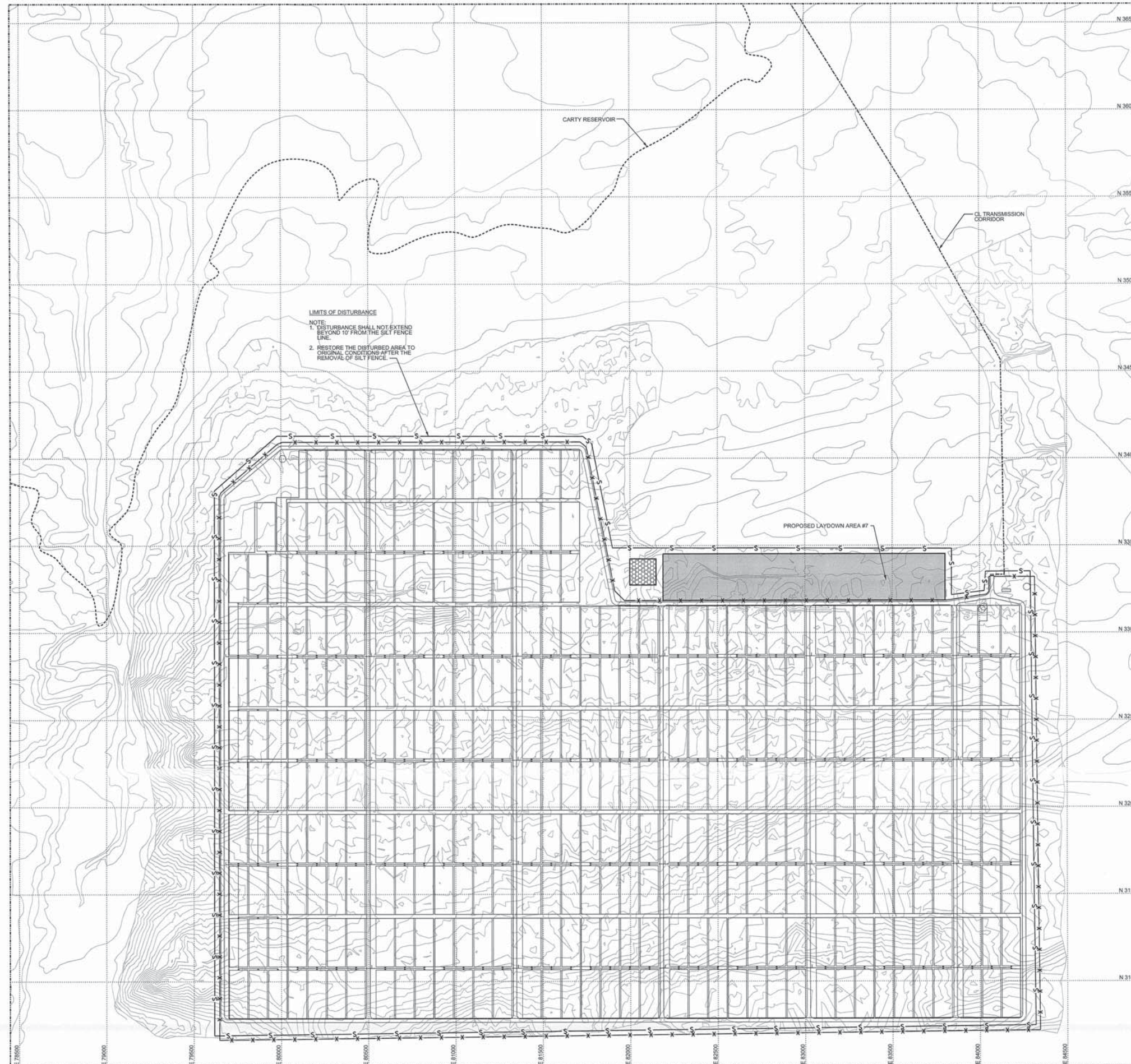


VENDOR & REF. DWG(S):	
DATE: 08-17-2018	DESIGNER: AGP
DRAWN BY: AGP	CHECKED BY: ENGR. MGR. D.P.
SCALE: 1"=40'	CAD FILE NAME: CSK-113.DGN
REF. DWG(S): REF. DWG	
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST. PORTLAND, OR 97204	
CARTY GENERATING STATION	
EROSION CONTROL - SITE PLAN	
SHEET 11	



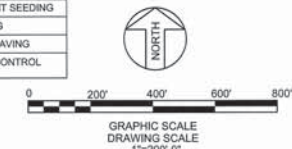
CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.

DRAWING NO:	SHEET NO:	REV. NO:
CSK-113	1	0



FOR PERMIT ONLY

EROSION CONTROL MEASURES	
TEMPORARY	PERMANENT
SILT FENCE	PERMANENT SEEDING
DITCH CHECKS	SURFACING
SEEDING	ASPHALT PAVING
	EROSION CONTROL BLANKET



LEGEND	
— 670 —	EXISTING MAJOR CONTOUR
- - - - -	EXISTING MINOR CONTOUR
— S — S —	SILT FENCE
[Cross-hatched box]	SOIL STORAGE/SPOIL AREA
- X - X - X -	FENCE

NOTES

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 740,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 77,000.000. PLANT GRID NORTH IS NOTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

0	ISSUED FOR PERMIT								
REV	DATE	DESCRIPTION			BY	CHK	ENG	ENG	
REVISIONS									

WARNING

SEARGENT & LUNDY

VENDOR & REF. DWG(S): -

DATE: 08-17-2016 DESIGNER: AGP CHECKED BY: -

DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DJP

SCALE: 1"=200'

REF. DWG(S): REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204

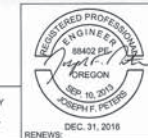
CARTY GENERATING STATION

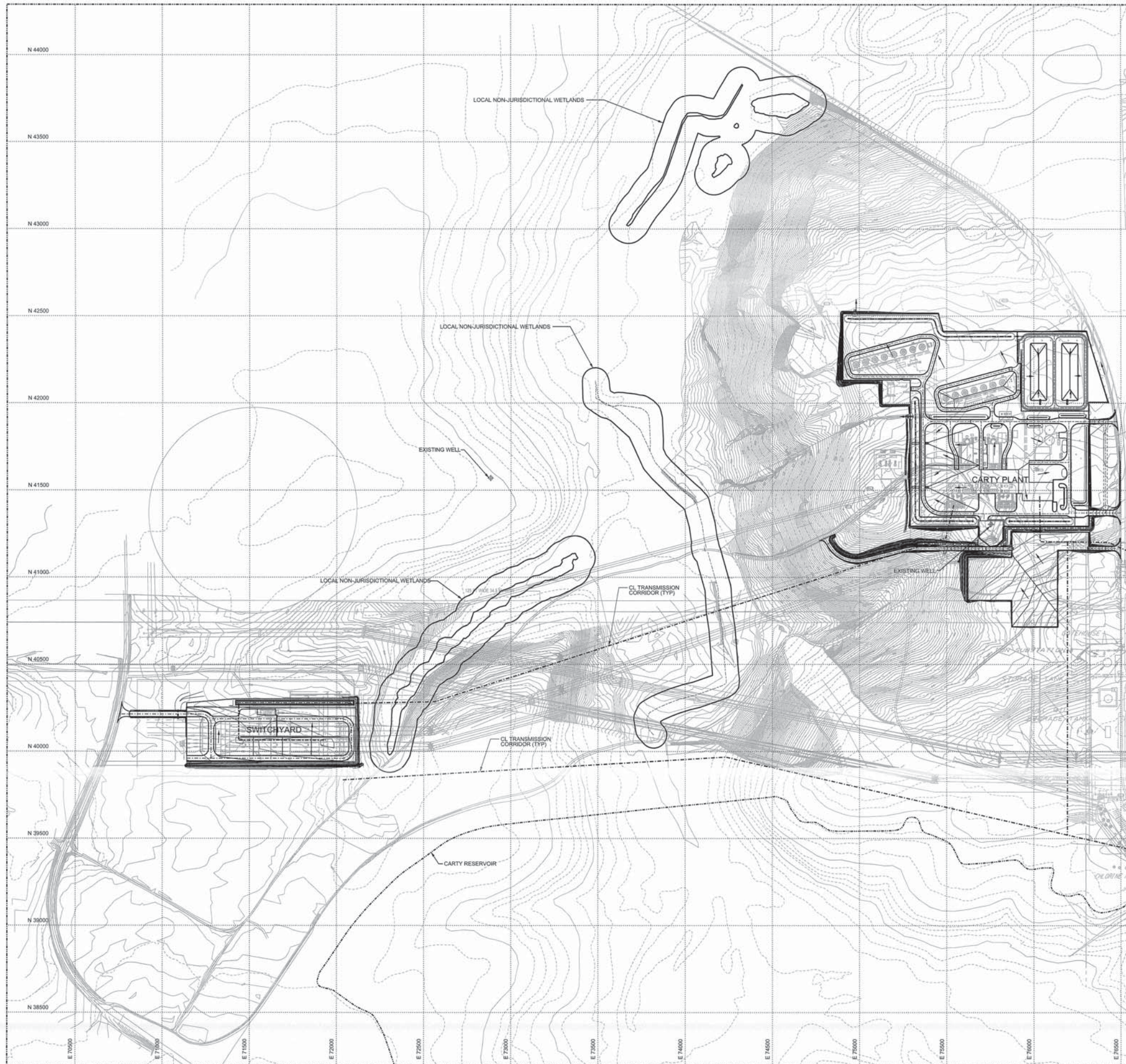
EROSION CONTROL - SITE PLAN

SHEET 12

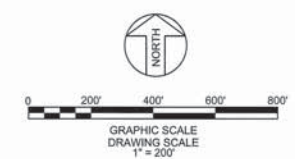
DRAWING NO.: CSK-114 SHEET NO.: 1 REV. NO.: 0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTORS) PERFORMING THE WORK.





FOR PERMIT ONLY



LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	GRADE SURFACE FLOW INDICATOR
	WELL
	EXISTING TRANSMISSION TOWER

NOTES

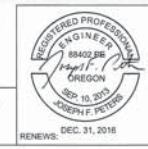
1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27) STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 740,000.0000, E 2,177,000.0000 IS EQUAL TO N 40,000.000, E 77,000.0000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29)

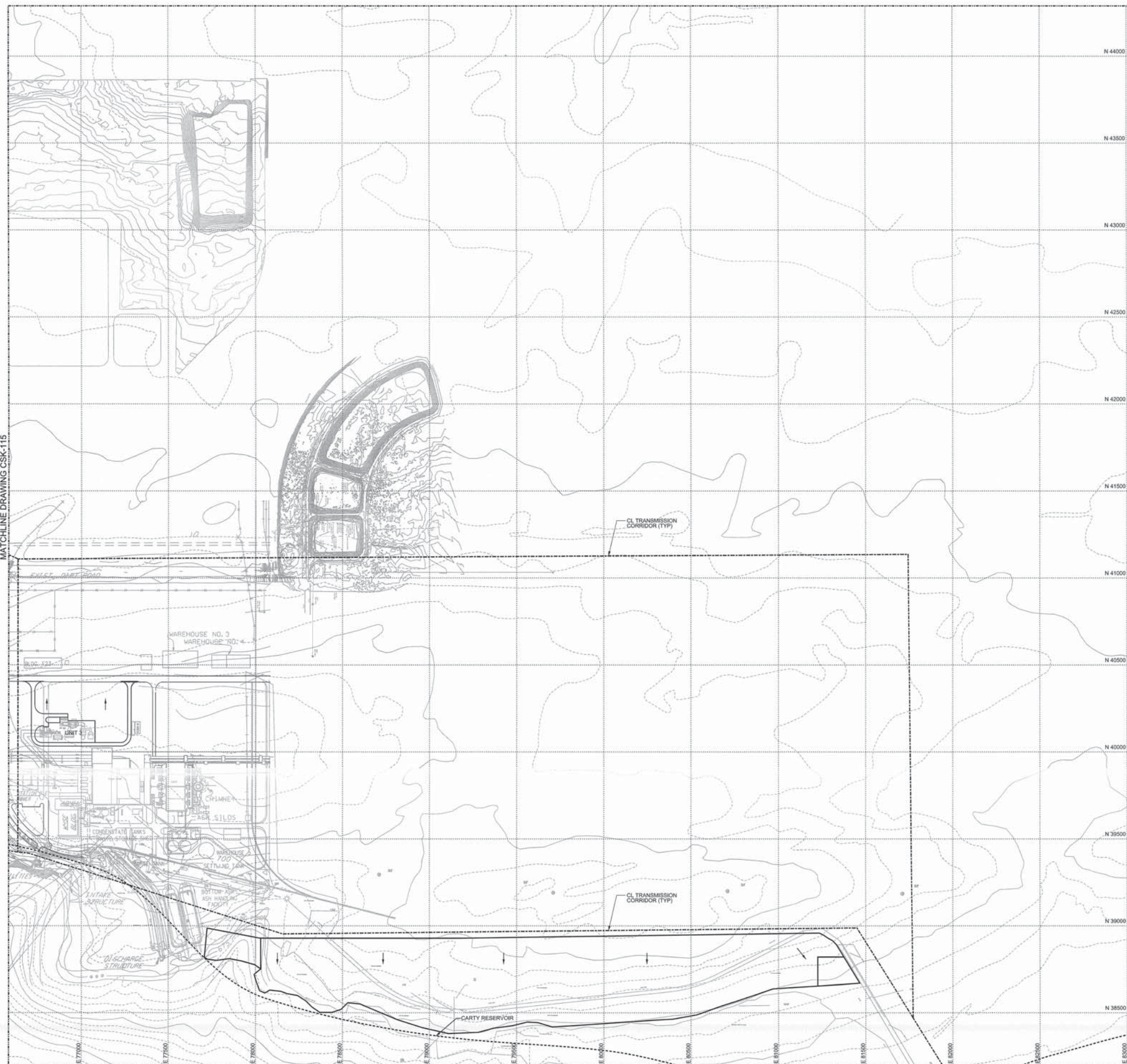
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DRAWN BY: AGP	CHECKED BY: ENGR. MGR.: DJP
SCALE: 1" = 200'	CAD FILE NAME: CSK-115.DGN
REF. DWGS: REF. DWG	
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST., PORTLAND, OR 97204	
CARTY GENERATING STATION	
EROSION CONTROL - SITE PLAN PRE-CONSTRUCTION DRAINAGE SHEET 1	
DRAWING NO.: CSK-115	SHEET NO.: 1
REV. NO.: 0	

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.






 EXISTING MAJOR CONTOUR
 EXISTING MINOR CONTOUR
 GRADE SURFACE FLOW INDICATOR
 WELL
 EXISTING TRANSMISSION TOWER

1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 740,000.000, E 2,177,000.000 IS EQUAL TO N 40,000.000, E 7,000,000.000. PLANT GRID NORTH IS ROTATED 0.30 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

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VENDOR & REF. DWG(S):		
DATE: 08-17-2018	DESIGNER: AGP	CHECKED BY:
DRAWN BY: AGP	DESIGN ENGR: MET	ENGR. MGR: D.
SCALE: 1"= 200'	CAD FILE NAME: CSK-116.DGN	
REF. DWG(S): REF. DWG		



PORTLAND GENERAL ELECTRIC CO.
 121 SW SALMON ST. PORTLAND, OR 97204

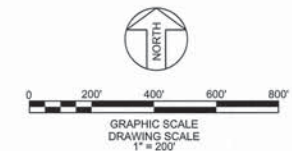
CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
PRE-CONSTRUCTION DRAINAGE
SHEET 2

DRAWING NO:	SHEET NO:	REV:
CSK-116	1	0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTORS/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.





LEGEND

- EXISTING MAJOR CONTOUR
- EXISTING MINOR CONTOUR
- GRADE SURFACE FLOW INDICATOR
- WELL
- EXISTING TRANSMISSION TOWER
- FENCE

NOTES

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[VENDOR & REF. DWGS.]: -		
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DRAWN BY: AGP	DESIGN ENGR: MET	ENGR. MGR. DJP
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REF. DWGS.: REF DWG		


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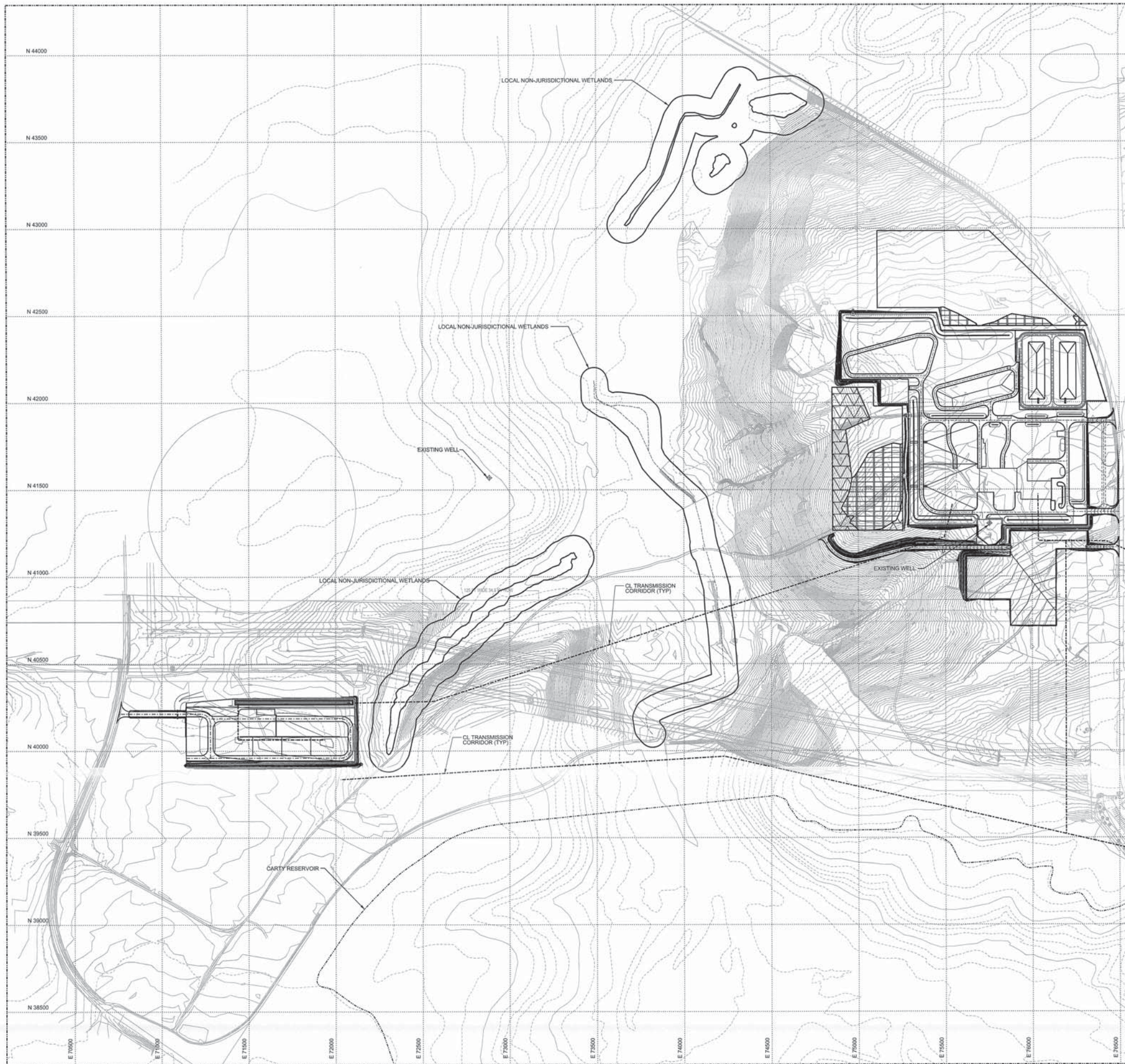
CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
 PRE-CONSTRUCTION DRAINAGE
 SHEET 3

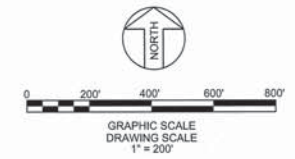
DRAWING NO.:	SHEET NO.:	REV. NO.:
CSK-117	1	0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR'S/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.





FOR PERMIT ONLY



LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	WELL
	EXISTING TRANSMISSION TOWER
	AREAS OF FILL
	AREAS OF CUT

NOTES

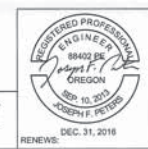
1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 740,000.000, E 77,000.000 IS EQUAL TO N 43,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0	08/17/2016	SUBMIT FOR PERMIT	ASP		MT	DP

WARNING
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PORTLAND GENERAL ELECTRIC CO.
IT IS TO BE USED ONLY FOR THE PROJECT
AND SITE SPECIFICALLY IDENTIFIED
HEREIN.

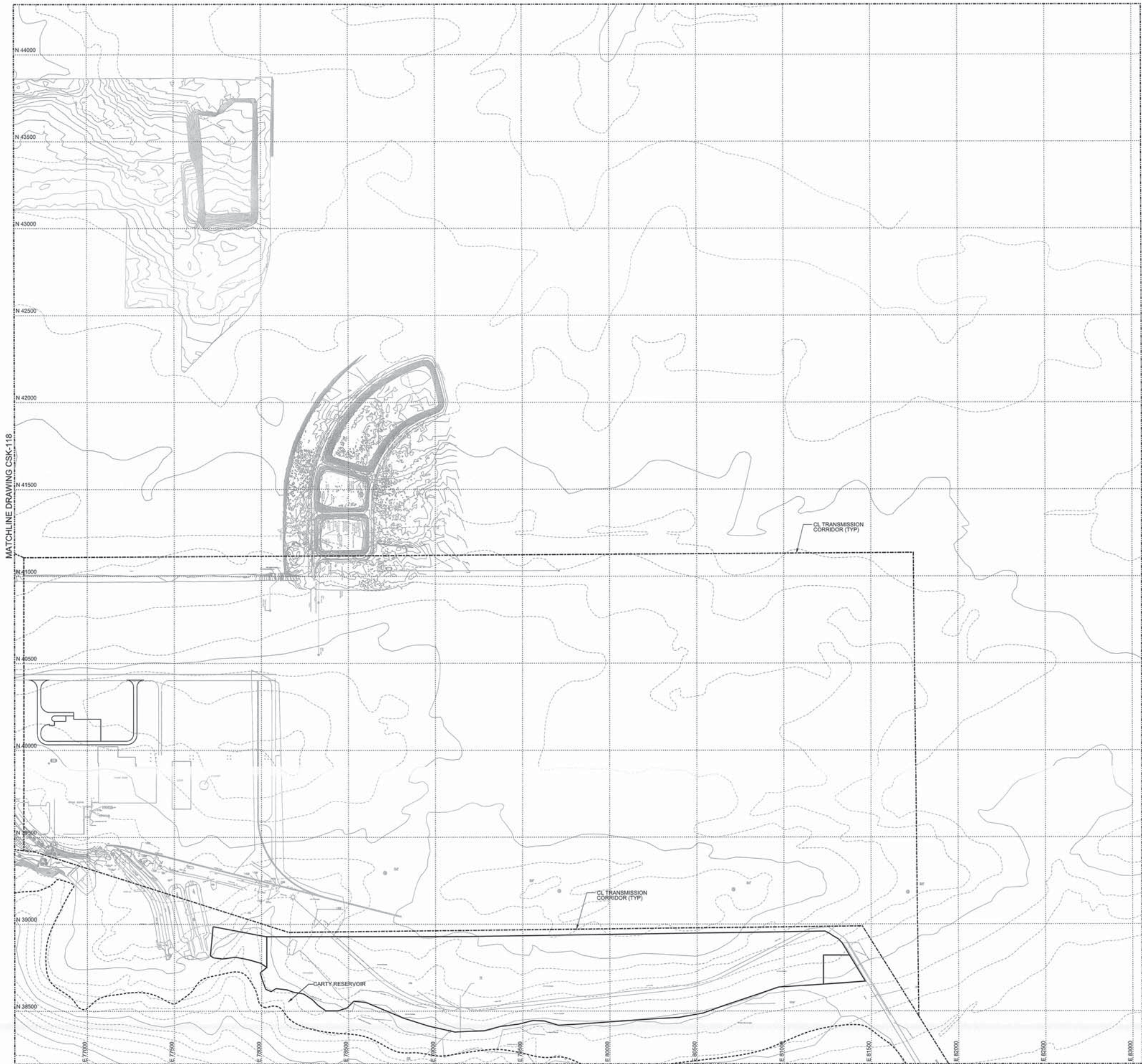
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DATE: 08-17-2016	DESIGNER: ASP	CHECKED BY:
DRAWN BY: ASP	DESIGN ENGR: MET	ENGR, MSR: DJP
SCALE: 1"=200'	CAD FILE NAME: CSK-118.DGN	
REF. DWG(S): REF. DWG		
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST. PORTLAND, OR 97204		
CARTY GENERATING STATION		
EROSION CONTROL - SITE PLAN CUT/FILL AREAS - PLAN SHEET 1		
DRAWING NO:	SHEET NO:	REV NO:
CSK-118	1	0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.

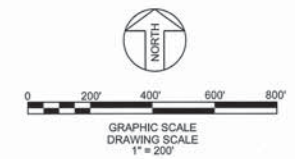


REVISIONS
DEC. 31, 2016

MATCHLINE DRAWING CSK-118



FOR PERMIT ONLY



LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	WELL
	EXISTING TRANSMISSION TOWER
	AREAS OF FILL
	AREAS OF CUT

NOTES

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REV	DATE	DESCRIPTION	BY	CHK	ENG	ENG	MGR
0	08/17/2016	ISSUED FOR PERMIT					



WARNING

10403 SEE OREGON DEC. 31, 2015 JOSEPH F. PETERS

REVISIONS

DATE: 08-17-2016 **DESIGNER:** AGP **CHECKED BY:**
DRAWN BY: AGP **DESIGN ENGR:** MET **ENGR. MGR:** DUP
SCALE: 1"=200' **CAD FILE NAME:** CSK-119.DGN

REF. DWG(S): REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204

CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
CUT/FILL AREAS - PLAN
SHEET 2

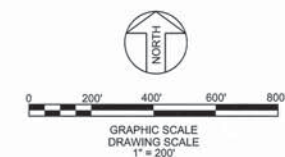
DRAWING NO: CSK-119 **SHEET NO:** 1 **REV NO:** 0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.





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LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	WELL
	EXISTING TRANSMISSION TOWER
	AREAS OF FILL (NOTE 2)
	AREAS OF CUT (NOTE 2)
	FENCE

- NOTES
1. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 745,000.000, E 2,177,000.000 IS EQUAL TO N 43,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC DATUM OF 1929 (NGVD29).
 2. MINOR SITE GRADING WILL BE PERFORMED TO FILL LOCAL DEPRESSIONS OR CUT LOCAL HIGH POINTS. MASS GRADING OR HIGH LEVELS OF CUT AND FILL WILL BE AVOIDED. TO THE EXTENT POSSIBLE, TO MINIMIZE IMPACT TO THE SITE, EXISTING DRAINAGE PATTERNS ON SITE WILL BE MAINTAINED.

REV	DATE	DESCRIPTION	BY	CHK	ENG	ENG/MGR
0	08/17/2016	ISSUED FOR PERMIT	AGP	AGP	AGP	AGP



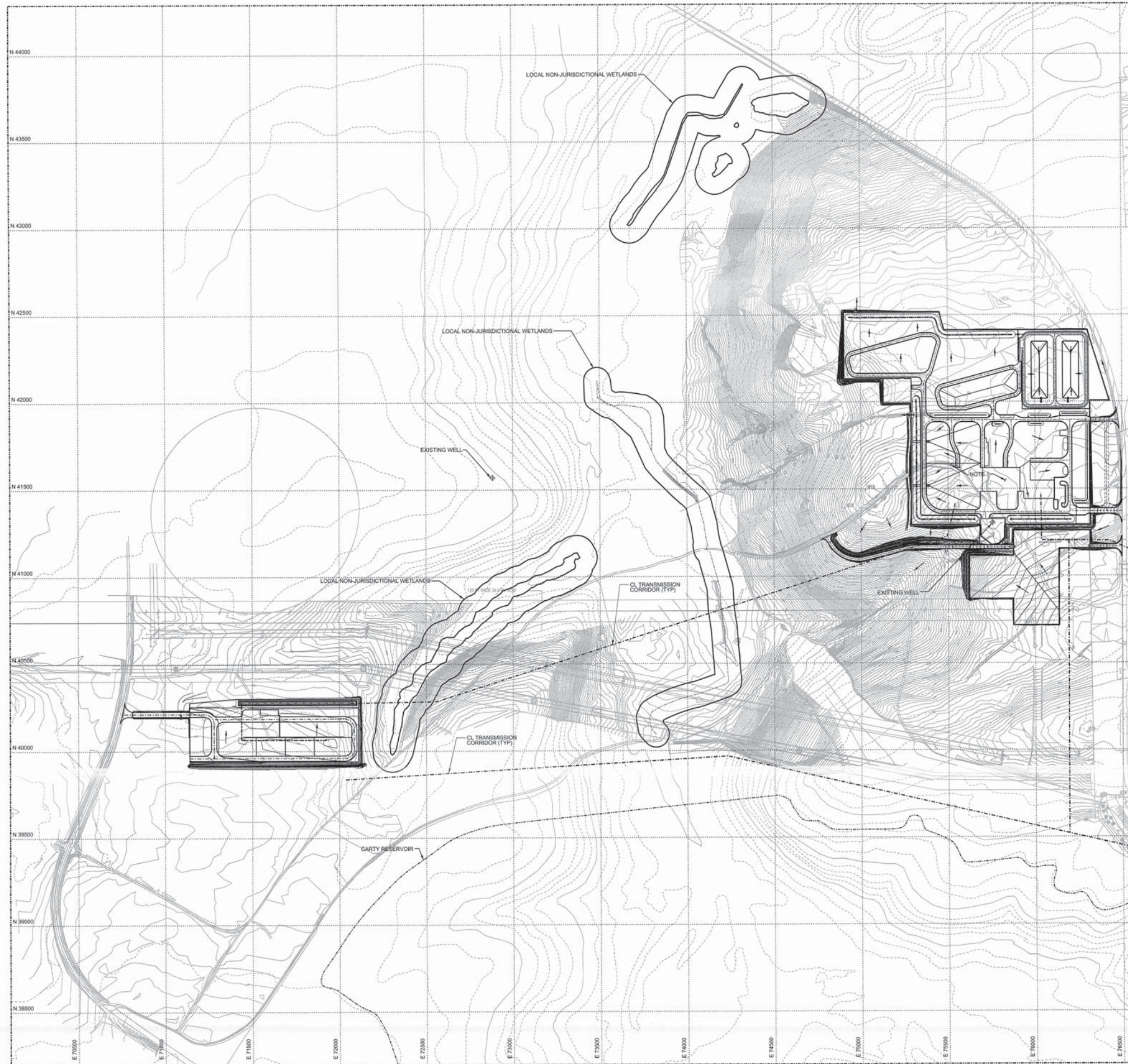
VENDOR & REF. DWG(S): -
DATE: 08-17-2016 DESIGNER: AGP CHECKED BY:
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DJP
SCALE: 1"=200' CAD FILE NAME: CSK-120.DGN
REF. DWG(S): REF. DWG
PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204
CARTY GENERATING STATION
EROSION CONTROL - SITE PLAN
CUT/FILL AREAS - PLAN
SHEET 3

DRAWING NO.:	SHEET NO.:	REV. NO.:
CSK-120	1	0

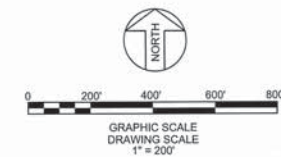
CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.



REVISIONS: DEC. 31, 2016



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LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	GRADE SURFACE FLOW INDICATOR
	WELL
	EXISTING TRANSMISSION TOWER

NOTES

1. POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DEQ IN AN ACTION PLAN, AT A LATER DATE.

2. THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27), STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE FOR THE FOLLOWING GRID POINT - N 740,000.0000, E 2,177,000.0000 IS EQUAL TO N 40,000.000, E 77,000.0000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL, SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).

REV	DATE	DESCRIPTION	BY	CHK	ENG	ENGR	MGR
0	08/17/2018	ISSUED FOR PERMIT	AGP				DP



WARNING

DESIGNER & REF. DWG(S):

DATE: 08-17-2018 DESIGNER: AGP CHECKED BY: ENGR. MGR. D/P

DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR. D/P

SCALE: 1" = 200' CAD FILE NAME: CSK-121.DGN

REF. DWG(S): REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204

CARTY GENERATING STATION

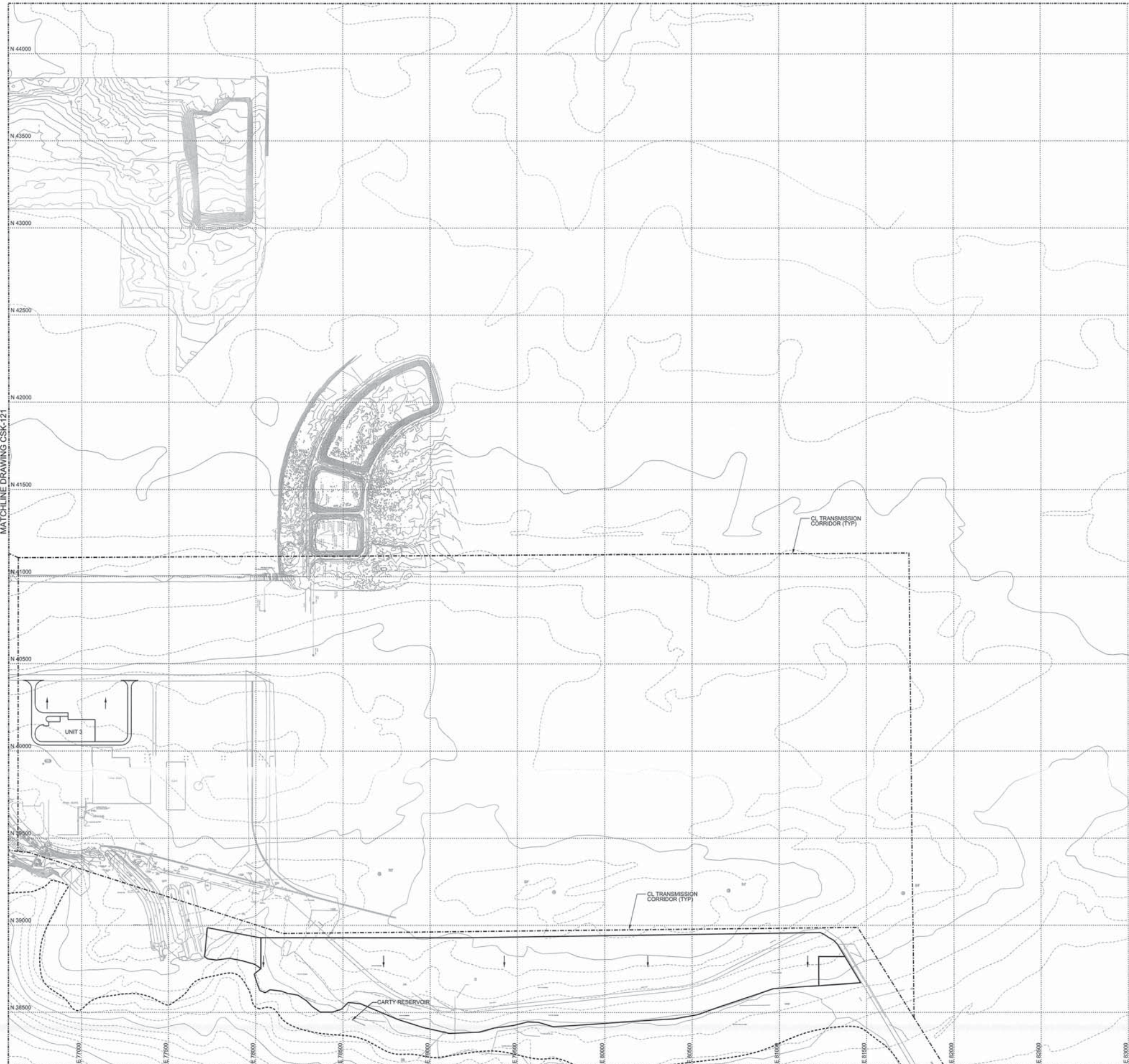
**EROSION CONTROL - SITE PLAN
POST-CONSTRUCTION DRAINAGE
SHEET 1**

DRAWING NO.: CSK-121 SHEET NO.: 1 REV. NO.: 0

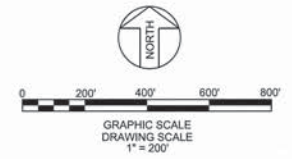
CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.



MATCHLINE DRAWING CSK-121



FOR PERMIT ONLY



LEGEND

- 670 — EXISTING MAJOR CONTOUR
- - - - - EXISTING MINOR CONTOUR
- GRADE SURFACE FLOW INDICATOR
- ⊕ WELL
- EXISTING TRANSMISSION TOWER

NOTES

1. POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DEQ. IN AN ACTION PLAN, AT A LATER DATE.
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REV	DATE	DESCRIPTION	BY	CHK	ENG	ENG	MGR
0	06/17/2018	ISSUED FOR PERMIT					



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DATE: 06-17-2018 DESIGNER: AGP CHECKED BY:
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DJP
SCALE: 1"=200' CAD FILE NAME: CSK-122.DGN
REF. DWG(S): REF. DWG
PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST. PORTLAND, OR 97204

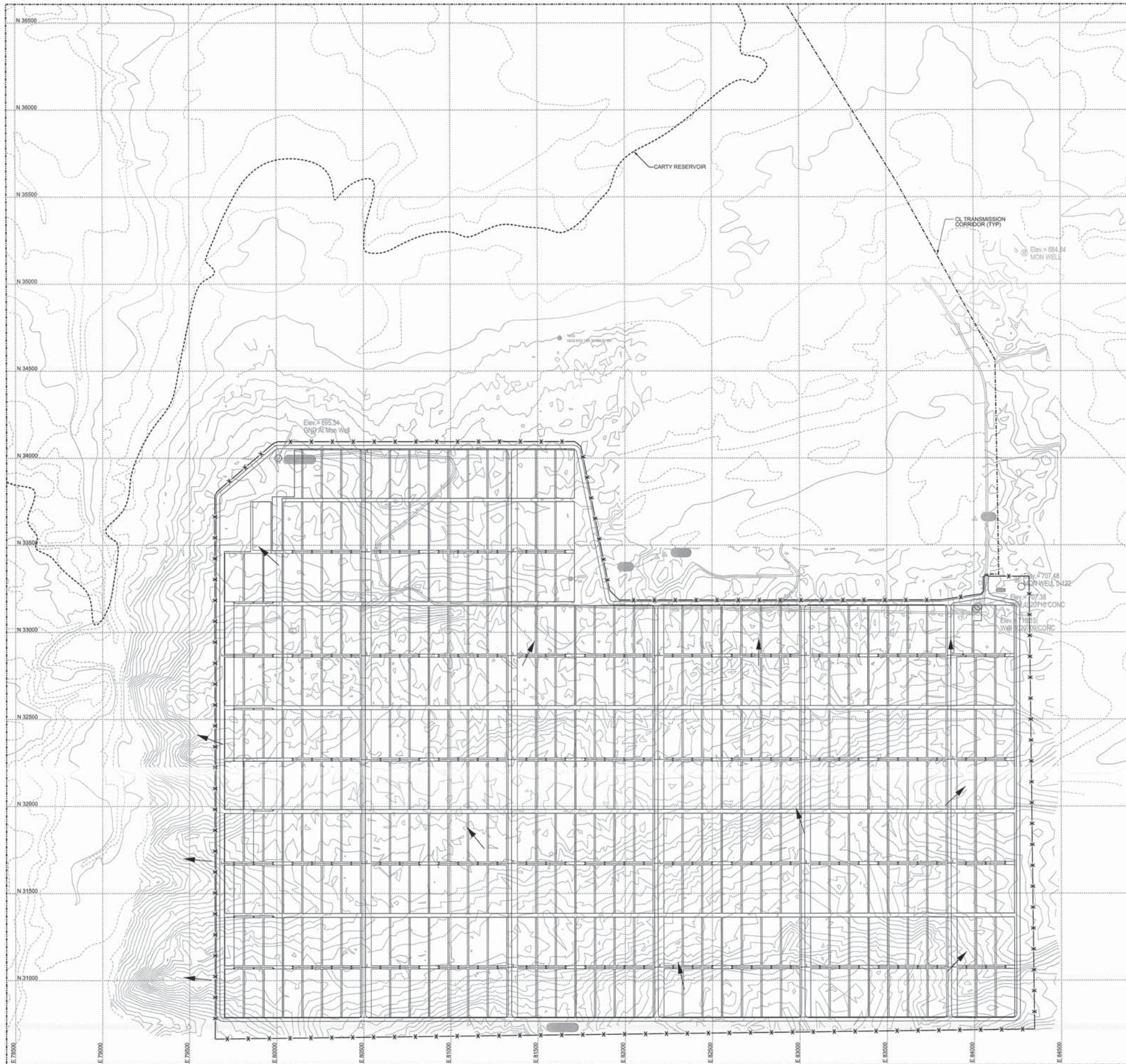


CARTY GENERATING STATION
EROSION CONTROL - SITE PLAN
POST-CONSTRUCTION DRAINAGE
SHEET 2

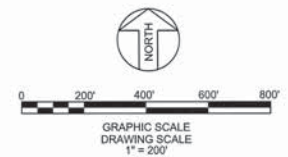
DRAWING NO.:	SHEET NO.:	REV. NO.:
CSK-122	1	0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.

RENEWED: DEC. 31, 2018



FOR PERMIT ONLY



LEGEND	
	EXISTING MAJOR CONTOUR
	EXISTING MINOR CONTOUR
	GRADE SURFACE FLOW INDICATOR
	WELL
	FENCE

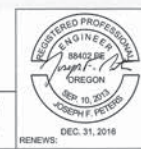
- NOTES
1. POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DEQ. IN AN ACTION PLAN, AT A LATER DATE.
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REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0	9/19/18	ISSUED FOR PERMIT		AP	MT	GP



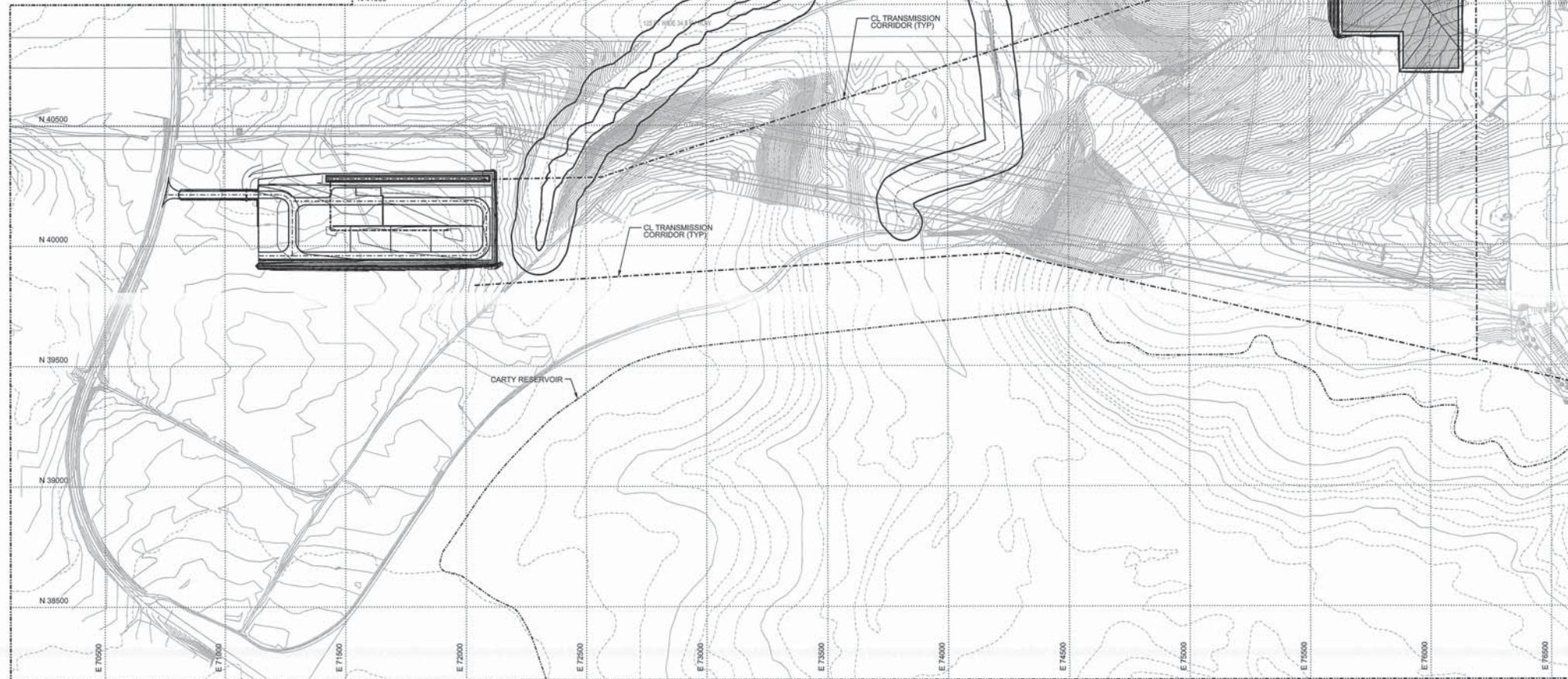
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DATE: 08-17-2018	DESIGNER: AGP
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PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST. PORTLAND, OR 97204	
CARTY GENERATING STATION	
EROSION CONTROL - SITE PLAN POST-CONSTRUCTION DRAINAGE SHEET 3	
DRAWING NO.: CSK-123	REV NO.: 1

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL OR THAT OF ITS SUBCONTRACTOR(S) PERFORMING THE WORK.

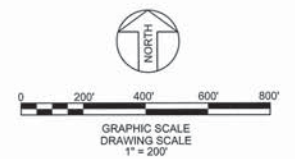


REVISIONS: DEC. 31, 2018

- GENERAL NOTES
- PERMANENT VEGETATIVE COVER SHALL BE A NATIVE GRASS MIX THAT CONTAINS THE FOLLOWING VARIETIES IN APPROXIMATELY THESE PROPORTIONS: BLUEBUNCH WHEATGRASS 33%, IDAHO FESCUE 20%, CANBAR BABBY BLUEGRASS 15%, INDIAN RICEGRASS 15%, BOTTLEBRUSH SQUIRREL TAIL 7%, BLUE FLAX 3%, OTHER 2%.
 - SITE PREPARATION:**
 - THE CONTRACTOR SHALL INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
 - THE CONTRACTOR SHALL REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
 - TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEED BED. WORK ON CONTOUR IF SITE IS SLOPING.
 - ESTABLISHMENT:**
 - THE CONTRACTOR SHALL SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES AS SPECIFIED BY SEEDING.
 - THE CONTRACTOR SHALL APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING OR HYDRAULIC.
 - UNLESS HYDROSEED, THE CONTRACTOR SHALL COVER SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.
 - THE CONTRACTOR SHALL MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. APPLY STRAW MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED FLOW WILL OCCUR.
 - EROSION CHECK:**
 - GENERAL:
 - TEMPORARY PREVIOUS BARRIERS USING COMPOST SOCKS OR SEDIMENT FILTER FABRIC FASTENED TO A FENCE POST AND BURIED INTO THE GROUND, SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.
 - CONSTRUCTION:
 - FILTER FABRIC SHALL BE SECURELY STITCHED AROUND A 3" HIGH FENCE POST AND BURIED A MINIMUM OF 6" TO THE SOIL SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF 6".
 - INSTALLATION AND MATERIAL:
 - COMPOST SOCKS SHALL BE INSTALLED AT ALL CULVERT INLETS.
 - ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
 - INSPECTION SHALL BE FREQUENT (AT MINIMUM WEEKLY AND AFTER ANY RAINFALL THAT EXCEEDS .37") AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
 - EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
 - SEDIMENT FENCE SHALL BE INSTALLED IN AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.
 - SEDIMENT & EROSION CONTROL PLAN NOTES:**
 - GENERAL:
 - THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.
 - IN GENERAL ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLAND, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INsofar AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, INsofar AS POSSIBLE, EROSION ON SITE.
 - THE CONTRACTOR SHALL REFERENCE THE DOCUMENT "EROSION AND SEDIMENT PLAN WORKSHEET" FOR ADDITIONAL REQUIREMENTS.
 - SITE GRADING:**
 - THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
 - THE PERMANENT CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL(3:1).
 - THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL(3:1).
 - TEMPORARY CONSTRUCTION FACES OF FILLS AND EXCAVATION CUTS SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL(3:1).
 - PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO DRAINAGE AREAS TO PREVENT SURFACE RUNOFF FROM DRAINAGE CUT FACES AND FILL SLOPES.
 - NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON ADJACENT WETLANDS, WATERCOURSES, OR WATERBODIES.
 - PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.



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APPROXIMATE ACREAGE (NOTE 6)	
POWER BLOCK AREA	10.0
CONSTRUCTION TRAILERS	3.50
CONSTRUCTION PARKING	7.00
CONSTRUCTION LAYDOWN	85.30
TEMPORARY FUEL STORAGE	0.06
CONCRETE TRUCK WASHOUT	0.06
SOIL STORAGE/SPOIL AREA	4.80

LEGEND	
	CONSTRUCTION LAYDOWN
	SOIL STORAGE/SPOIL AREA
	CONSTRUCTION PARKING
	SILT FENCE
	SLOPE IN PLAN

- NOTES
- SEE DRAWING CSK-127 FOR EROSION CONTROL DETAILS.
 - SEDIMENT FENCE LOCATIONS SHOWN ON DRAWINGS MAY BE RELOCATED AT THE DISCRETION OF THE SITE MANAGER TO ACCOUNT FOR INTERFERENCES WITH PAVEMENTS, ROAD CROSSINGS, WOODED AREAS, ETC. RELOCATION OF SEDIMENT FENCE SHALL PROVIDE THE INTENDED SEDIMENT BARRIER AND PROTECTION OF UNDISTURBED LAND AS SHOWN ON THE DRAWINGS.
 - PROVIDE 4" - 6" ROCK WITH NO MINUS FOR ROCK BASE IN WASHDOWN AREA.
 - THE HORIZONTAL CONTROL FOR THIS PROJECT IS THE PLANT GRID SYSTEM. THE PLANT GRID SYSTEM IS TIED TO THE NORTH AMERICAN DATUM OF 1927 (NAD27). STATE PLANE COORDINATE SYSTEM, OREGON NORTH ZONE PER THE FOLLOWING GRID POINT - N 740,000.000, E 277,000.000 IS EQUAL TO N 40,000.000, E 77,000.000. PLANT GRID NORTH IS ROTATED 0.00 DEGREES FROM TRUE NORTH. THE VERTICAL CONTROL SHOWN IS THE NATIONAL GEODETIC VERTICAL DATUM OF 1929 (NGVD29).
 - APPROXIMATELY 1.0 AC. OF LAND WILL BE DISTURBED AT EACH TRANSMISSION TOWER LOCATION. APPROPRIATE EROSION CONTROL BMP'S WILL BE INSTALLED AS PER THE REQUIREMENTS OF DEQ.
 - ACREAGE PROVIDED INCLUDES ENTIRE SITE DEVELOPMENT INCLUDED IN PERMIT PACKAGE.

REV	DATE	DESCRIPTION	BY	CHK	ENG	NO
0	06/17/2016	SUBMIT FOR PERMIT	AGP	-	MET	-

WARNING

REGISTERED PROFESSIONAL ENGINEER
JOSEPH F. PETERSON
DEC 10, 2010
RENEWED DEC 31, 2016

VENDOR & REF. DWGS:

DATE: 06-17-2016 DESIGNER: AGP CHECKED BY: AGP
DRAWN BY: AGP DESIGN ENGR: MET ENGR. MGR: DUP
SCALE: 1" = 200' CAD FILE NAME: CSK-124.DGN
REF. DWGS: REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204

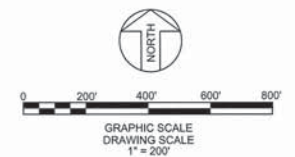
CARTY GENERATING STATION

EROSION CONTROL - SITE PLAN
OVERALL PLANT SITE-PLAN
SHEET 1

DRAWING NO.: CSK-124 SHEET NO.: 1 REV. NO.: 0



FOR PERMIT ONLY



LEGEND

- CONSTRUCTION LAYDOWN
- SOIL STORAGE/SPOIL AREA
- CONSTRUCTION PARKING
- SILT FENCE
- SLOPE IN PLAN

NOTES

- SEE DRAWING CSK-127 FOR EROSION CONTROL DETAILS.
- SEDIMENT FENCE LOCATIONS SHOWN ON DRAWINGS MAY BE RELOCATED AT THE DISCRETION OF THE SITE MANAGER TO ACCOUNT FOR INTERFERENCES WITH PAVEMENTS, ROAD CROSSINGS, WOODED AREAS, ETC. RELOCATION OF SEDIMENT FENCE SHALL PROVIDE THE INTENDED SEDIMENT BARRIER AND PROTECTION OF UNDISTURBED LAND AS SHOWN ON THE DRAWINGS.
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- APPROXIMATELY 1.0 AC. OF LAND WILL BE DISTURBED AT EACH TRANSMISSION TOWER LOCATION. APPROPRIATE EROSION CONTROL BMP'S WILL BE INSTALLED AS PER THE REQUIREMENTS OF DEC.
- FOR APPROXIMATE ACREAGE OF SITE DEVELOPMENT SEE DRAWING CSK-124.

REV	DATE	DESCRIPTION	BY	CHK	ENG	MGR
0	08/17/2016	ISSUED FOR PERMIT	AGP	-	MT	-

WARNING

DO NOT SCALE DRAWING

08/17/2016

DESIGNER: AGP

CHECKED BY: ENGR. MGR. DGP

DRAWN BY: AGP

SCALE: 1"=200'

CAD FILE NAME: CSK-125.DGN

REF. DWG(S): REF. DWG

PORTLAND GENERAL ELECTRIC CO.
121 SW SALMON ST., PORTLAND, OR 97204

CARTY GENERATING STATION

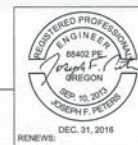
EROSION CONTROL - SITE PLAN

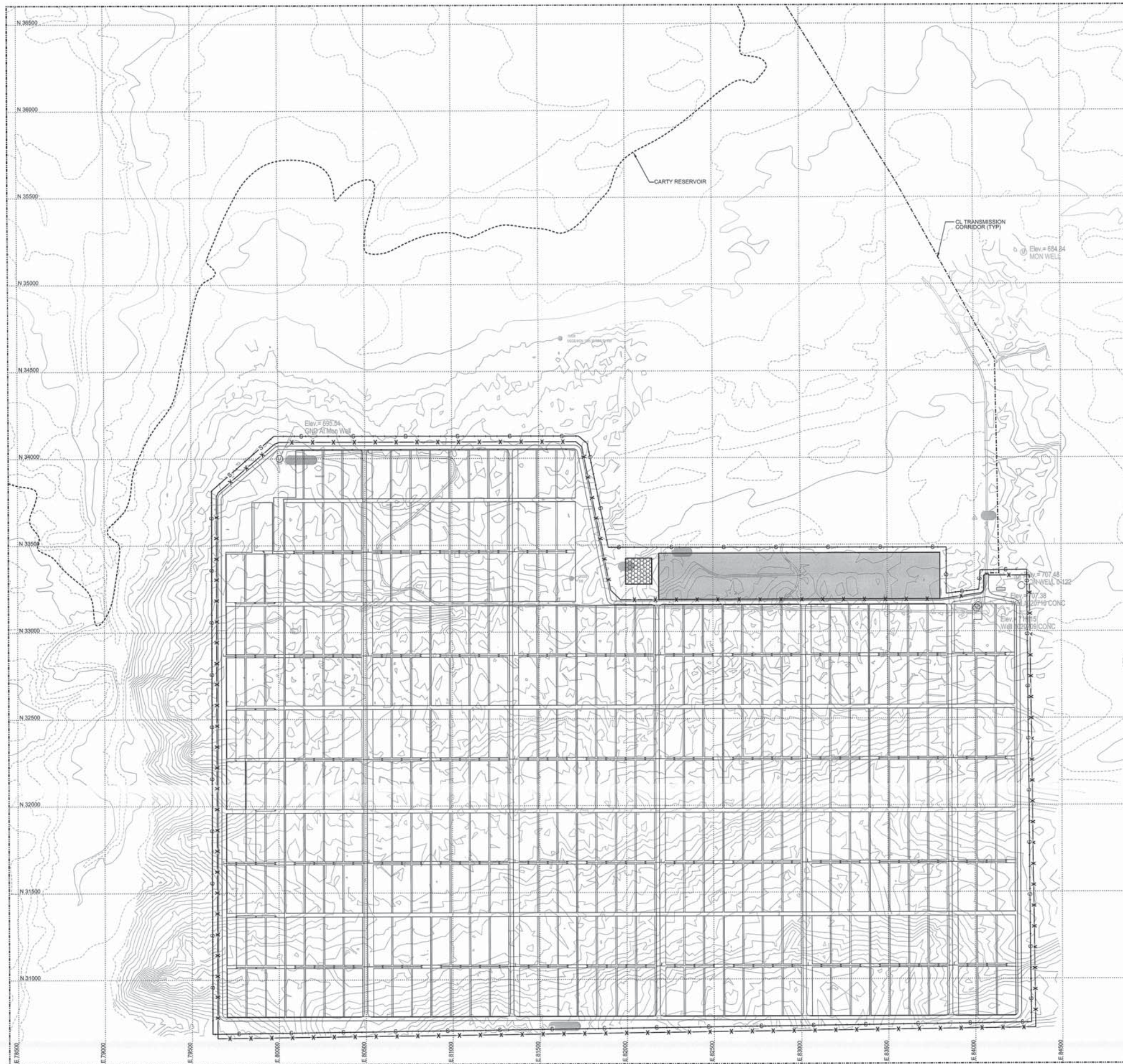
OVERALL PLANT SITE-PLAN

SHEET 2

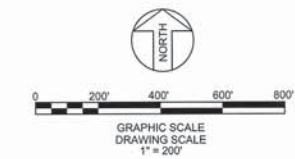
DRAWING NO.:	CSK-125	SHEET NO.:	1	REV. NO.:	0
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CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.





FOR PERMIT ONLY



LEGEND	
	CONSTRUCTION LAYDOWN
	SOIL STORAGE/SPOIL AREA
	CONSTRUCTION PARKING
	SILT FENCE
	SLOPE IN PLAN
	FENCE

- NOTES
- SEE DRAWING CSK-113 FOR EROSION CONTROL DETAILS.
 - SEDIMENT FENCE LOCATIONS SHOWN ON DRAWINGS MAY BE RELOCATED AT THE DISCRETION OF THE SITE MANAGER TO ACCOUNT FOR INTERFERENCES WITH PAVEMENTS, ROAD CROSSINGS, WOODED AREAS, ETC. RELOCATION OF SEDIMENT FENCE SHALL PROVIDE THE INTENDED SEDIMENT BARRIER AND PROTECTION OF UNDISTURBED LAND AS SHOWN ON THE DRAWINGS.
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 - APPROXIMATELY 1.0 AC. OF LAND WILL BE DISTURBED AT EACH TRANSMISSION TOWER LOCATION. APPROPRIATE EROSION CONTROL BMP'S WILL BE INSTALLED AS PER THE REQUIREMENTS OF DEQ.
 - FOR APPROXIMATE ACREAGE OF SITE DEVELOPMENT SEE DRAWING CSK-124.

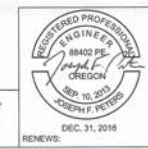
REV	DATE	DESCRIPTION	BY	CHK	ENG	ENGR
0	08/17/2018	ISSUE FOR PERMIT	ASP		NET	DP

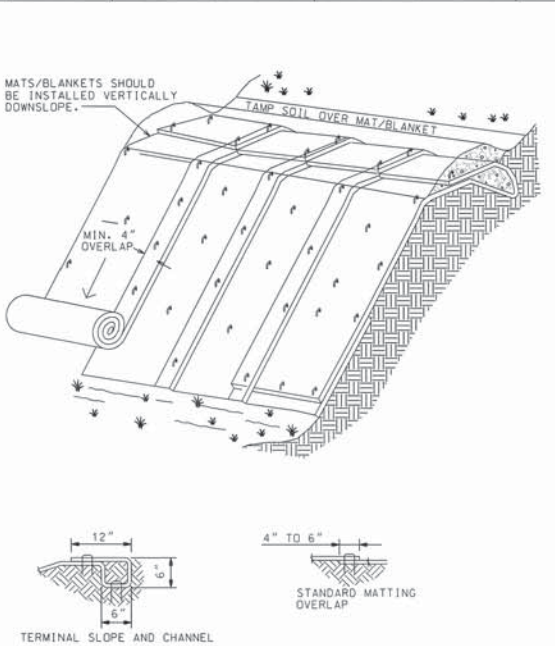
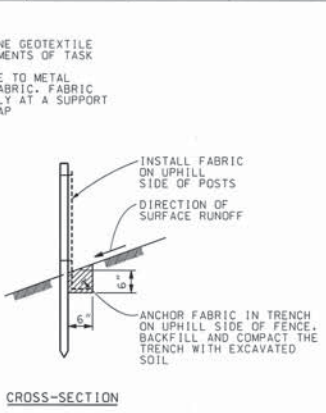
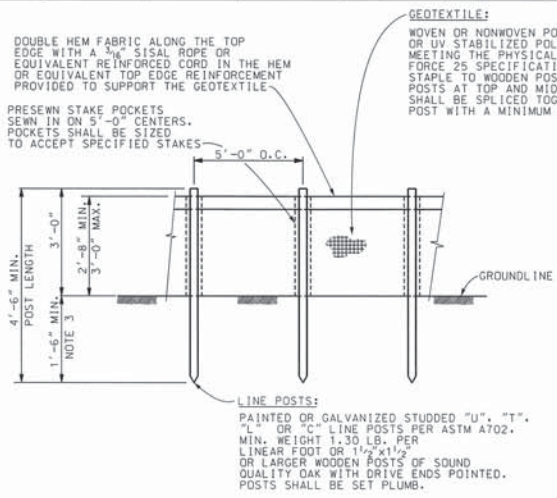
WARNING



VENDOR & REF. DWG(S):		DESIGNER: ASP	CHECKED BY:
DATE: 08-17-2018		DESIGN ENGR: MET	ENGR. MGR: DP
DRAWN BY: ASP		CAD FILE NAME: CSK-126.DGN	
SCALE: 1" = 200'		REF. DWG(S): REF DWG	
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST. PORTLAND, OR 97204			
CARTY GENERATING STATION			
EROSION CONTROL - SITE PLAN OVERALL PLANT SITE-PLAN SHEET 3			
DRAWING NO:	CSK-126	SHEET NO:	1
REVISIONS:		REVISIONS:	0

CONTRACTOR/INSTALLER SHALL TAKE ALL APPROPRIATE PRECAUTIONS TO ENSURE THE SAFETY OF ALL PEOPLE LOCATED ON THE WORK SITE, INCLUDING CONTRACTOR/INSTALLER'S PERSONNEL (OR THAT OF ITS SUBCONTRACTOR(S)) PERFORMING THE WORK.



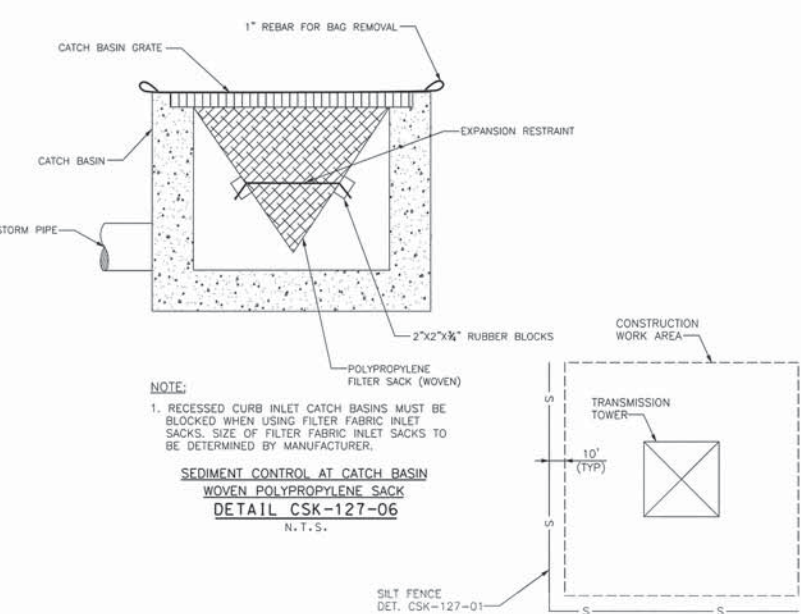
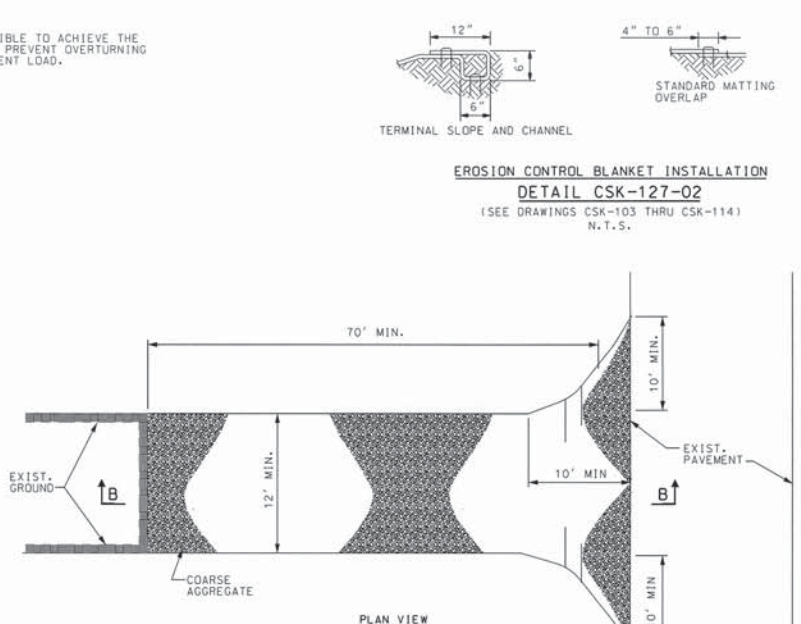
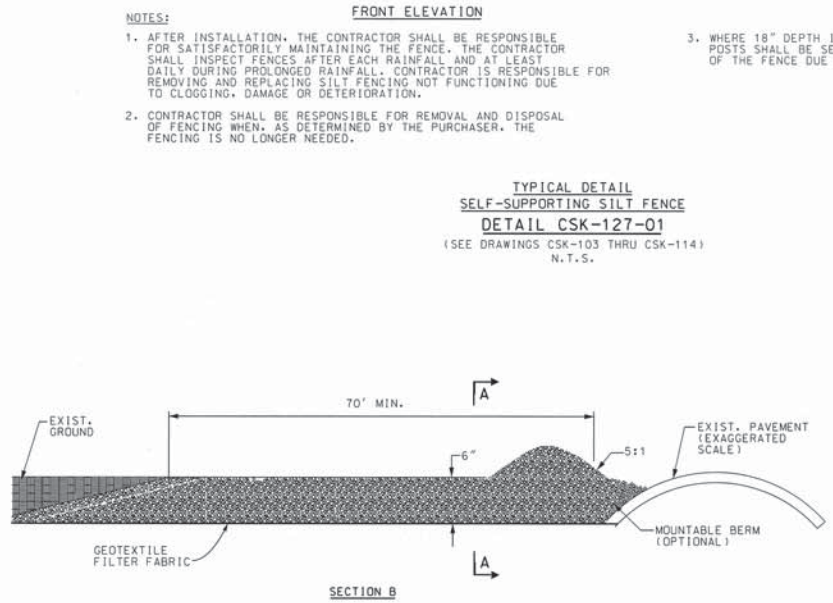


EROSION CONTROL BLANKET TYPES			
CATEGORY	SERVICE APPLICATION	USE	ACCEPTABLE TYPES
1	TEMPORARY	FLAT AREAS, SHOULDER DRAIN OUTLETS, ROADWAY SHOULDERS, LAWNS, MOWED AREAS	STRAW, WOOD FIBER, RAPIDLY DEGRADABLE NETTING ON ONE SIDE
2	ONE SEASON	SLOPES 1:3 AND STEEPER LESS THAN 50 FT LONG, DITCHES WITH GRADIENTS 2% OR LESS, FLOW VELOCITIES LESS THAN 5.0 FPS.	STRAW, WOOD FIBER, NETTING ON ONE SIDE
3	ONE SEASON	SLOPES 1 VERTICAL:3 HORIZONTAL AND STEEPER, MORE THAN 50 FT. LONG, DITCHES WITH GRADIENTS 3% OR LESS, FLOW VELOCITIES LESS THAN 6.5 FPS.	STRAW, WOOD FIBER, NETTING ON TWO SIDES
4	SEMI-PERMANENT	DITCHES WITH GRADIENTS 4% OR LESS, FLOW VELOCITIES LESS THAN 8.0 FPS, FLOW DEPTH 6 INCHES OR LESS.	STRAW/COCONUT, WOOD FIBER, NETTING ON TWO SIDES
5	SEMI-PERMANENT	DITCHES WITH GRADIENTS 8% OR LESS, FLOW VELOCITIES LESS THAN 15.0 FPS AND FLOW DEPTH LESS THAN 8 INCHES, WATERCOURSE BANKS WITHIN THE NORMAL FLOW ELEVATION	COCONUT FIBER, NETTING ON TWO SIDES

SOURCE: MPCA 2000

- EROSION CONTROL BLANKET INSTALLATION NOTES**
1. THE CONTRACTOR SHALL PREPARE SOIL (GRADE AND SMOOTH SLOPES) BEFORE INSTALLING ROLLED EROSION CONTROL PRODUCTS (RECP'S), INCLUDING ANY APPLICATION OF LIME, FERTILIZER AND SEED.
 2. THE CONTRACTOR SHALL BEGIN AT TOP OF THE SLOPE BY ANCHORING THE RECP'S IN A 6" DEEP X 6" WIDE TRENCH WITH APPROXIMATELY 12" OF RECP'S EXTENDED BEYOND THE UP-SLOPE PORTION OF THE TRENCH. ANCHOR THE RECP'S WITH A ROW OF STAPLES/STAKES APPROXIMATELY 12" APART IN THE BOTTOM OF THE TRENCH. BACKFILL AND COMPACT THE TRENCH AFTER STAPLING. APPLY SEED TO COMPACTED SOIL AND FOLD REMAINING 12" PORTION OF RECP'S BACK OVER SEED AND COMPACTED SOIL. THE CONTRACTOR SHALL SECURE RECP'S OVER COMPACTED SOIL WITH A ROW OF STAPLES/STAKES SPACED APPROXIMATELY 12" APART ACROSS THE WIDTH OF THE RECP'S.
 3. THE CONTRACTOR SHALL ROLL THE RECP'S DOWN ACROSS THE SLOPE. RECP'S WILL UNROLL WITH APPROPRIATE SIDE AGAINST THE SOIL SURFACE. ALL RECP'S MUST BE SECURELY FASTENED TO SOIL SURFACE BY PLACING STAPLES/STAKES IN APPROPRIATE LOCATIONS AS SHOWN IN THE STAPLE PATTERN.
 4. THE EDGES OF PARALLEL RECP'S MUST BE STAPLED WITH APPROXIMATELY 4"-6" OVERLAP.
 5. CONSECUTIVE RECP'S SPICED DOWN THE SLOPE MUST BE PLACED END OVER END (SHINGLE STYLE) WITH APPROPRIATE 3" OVERLAP. THE CONTRACTOR SHALL STAPLE THROUGH OVERLAPPED AREA, APPROXIMATELY 12" APART ACROSS ENTIRE RECP'S WITH.
 6. IN LOOSE SOIL CONDITIONS, THE USE OF STAPLE OR STAKE LENGTHS GREATER THAN 6" MAY BE NECESSARY TO PROPERLY SECURE THE RECP'S.

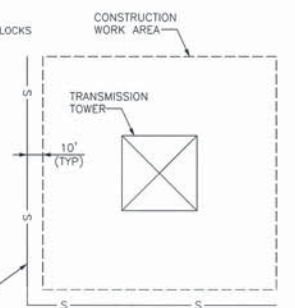
- MAINTENANCE**
1. THE CONTRACTOR SHALL INSPECT ALL MULCHES AND EROSION CONTROL FABRICS PERIODICALLY, AND AFTER RAINSTORMS TO CHECK FOR RILL EROSION, DISLOCATION OR FAILURE. WHERE EROSION IS OBSERVED, APPLY ADDITIONAL MULCH OR REPAIR FABRIC.
 2. THE CONTRACTOR SHALL CONTINUE INSPECTIONS UNTIL VEGETATION IS ESTABLISHED.
 3. IF WASHOUT OCCURS, THE CONTRACTOR SHALL REPAIR THE SLOPE GRADE, RESEED AND REINSTALL MULCH. CONTINUE INSPECTIONS UNTIL VEGETATION IS FIRMLY ESTABLISHED.



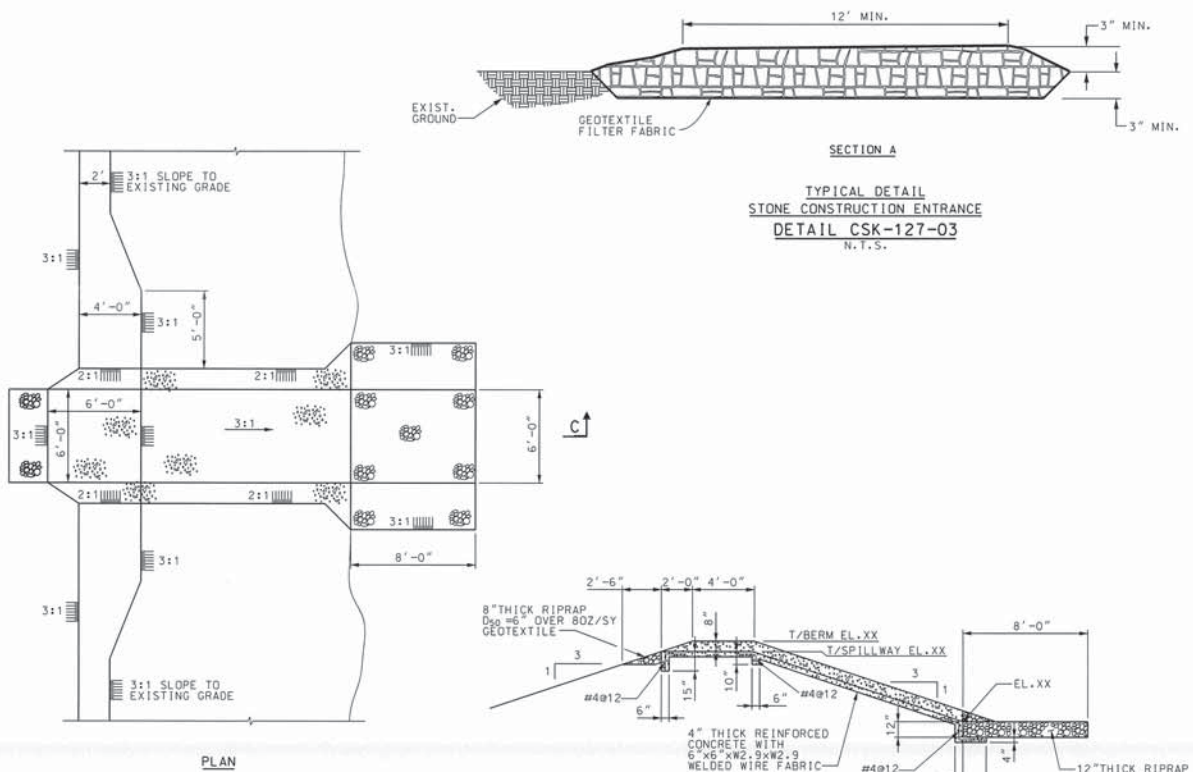
NOTE:

1. RECESSED CURB INLET CATCH BASINS MUST BE BLOCKED WHEN USING FILTER FABRIC INLET SACKS. SIZE OF FILTER FABRIC INLET SACKS TO BE DETERMINED BY MANUFACTURER.

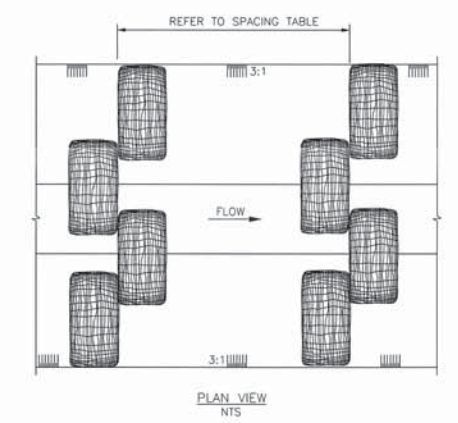
**SEDIMENT CONTROL AT CATCH BASIN
WOVEN POLYPROPYLENE SACK
DETAIL CSK-127-06
N.T.S.**



**TRANSMISSION TOWER
EROSION CONTROL SEDIMENT PLAN
DETAIL CSK-127-07
N.T.S.**



**EMERGENCY SPILLWAY
DETAIL CSK-127-04
N.T.S.**



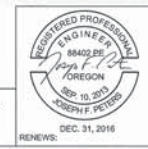
- NOTES:**
1. STAKING OF BAGS REQUIRED USING (2) 1"x2" WOOD STAKES OR APPROVED EQUAL PER BAG.
 2. SURFACE MUST BE SMOOTH BEFORE APPLICATION.
 3. CHECK DAMS CAN BE CONSTRUCTED USING STRAW WATTLES OR OTHER MATERIALS AS APPROVED BY DEQ.

**DITCH EROSION CHECK FOR TRAPEZOIDAL DITCH
DETAIL CSK-127-05
N.T.S.**

SPACING FOR CHECK DAMS TABLE			
DITCH SLOPE	6 INCH	12 INCH	18 INCH
6%	NOT ALLOWED	16 FT O.C.	26 FT O.C.
5%	NOT ALLOWED	20 FT	30 FT
4%	NOT ALLOWED	26 FT	40 FT
3%	15 FT	33 FT	50 FT
2%	25 FT	50 FT	80 FT

FOR PERMIT ONLY

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0		DATE	08-17-2016	DESIGNER	AGP	CHECKED BY	ENGR. MGR. DJP
REV		DATE		DESCRIPTION		BY	CHK/ENG/MGR
VENDOR & REF. DWG(S): -							
DATE: 08-17-2016							
DRAWN BY: AGP							
SCALE: NONE							
REF. DWG(S): REF. DWG							
PORTLAND GENERAL ELECTRIC CO. 121 SW SALMON ST. PORTLAND, OR 97204							
CARTY GENERATING STATION							
EROSION CONTROL - SITE PLAN SECTIONS AND DETAILS SHEET 1							
DRAWING NO.		CSK-127		SHEET NO.		1	
REV. NO.		0		REV. NO.		0	

**Attachment G: Amendment Rules at OAR 345-027-0050 thru -0070, prior to
October 2017**

**ATTACHMENT G: OAR CHAPTER 345 DIVISION 27 RULES
(In effect prior to October 2017)**

DIVISION 27

**SITE CERTIFICATE CONDITIONS, AMENDMENT, TRANSFER AND TERMINATION AND
DEPARTMENT OF ENERGY APPROVAL OF GAS STORAGE TESTING PIPELINES**

345-027-0050

When an Amendment is Required

- (1) Except as allowed under sections (2) and (6), the certificate holder must submit a request to amend the site certificate to design, construct or operate a facility in a manner different from the description in the site certificate if the proposed change:
 - (a) Could result in a significant adverse impact that the Council has not addressed in an earlier order and the impact affects a resource protected by Council standards;
 - (b) Could impair the certificate holder's ability to comply with a site certificate condition; or
 - (c) Could require a new condition or a change to a condition in the site certificate.
- (2) A site certificate amendment is not required if a proposed change in the design, construction or operation of a facility is in substantial compliance with the terms and conditions of the site certificate and is a change:
 - (a) To an electrical generation facility that would increase the electrical generating capacity and would not increase the number of electric generators at the site, change fuel type, increase fuel consumption by more than 10 percent or enlarge the facility site;
 - (b) To the number or location of pipelines for a surface facility related to an underground gas storage reservoir that would not result in the facility exceeding permitted daily throughput or enlarge the facility site;
 - (c) To the number, size or location of pipelines for a geothermal energy facility that would not enlarge the facility site;
 - (d) To a pipeline or transmission line that is a related or supporting facility that would extend or modify the pipeline or transmission line or expand the right-of-way, when the change is to serve customers other than the energy facility; or
 - (e) To an aspect or feature of the facility, operating procedures or management structures not addressed in the site certificate.
- (3) If the certificate holder concludes that a proposed change does not require a site certificate amendment under section (1), the certificate holder shall, nevertheless, complete an investigation sufficient to demonstrate that the proposed change in the design, construction or operation of the facility would comply with applicable Council standards. The certificate holder shall complete the investigation before implementing the proposed change. The certificate holder shall prepare a written evaluation describing the investigation and shall make the evaluation available to the Department for inspection at any time.
- (4) In the annual reports and semiannual construction progress reports required by OAR 345-026-0080, the certificate holder shall describe all significant changes made during

ATTACHMENT G: OAR CHAPTER 345 DIVISION 27 RULES
(In effect prior to October 2017)

the reporting period to the design, construction and operation of the facility without an amendment of the site certificate. The certificate holder shall keep a written record of the basis for concluding that an amendment of the site certificate was not required. The Department, at any time, may inspect the changes made to the facility and may inspect the certificate holder's written record of the basis for concluding that an amendment of the site certificate was not required.

(5) A certificate holder may submit a change request in writing to the Department for a determination whether a proposed change requires a site certificate amendment. In the change request, the certificate holder must describe the proposed change, explain the basis for the certificate holder's conclusion that an amendment is not required under section (1), and provide the written evaluation described in section (3). The Department shall respond in writing as promptly as possible. The Department may refer its determination to the Council for concurrence, modification or rejection. At the request of the certificate holder or a Council member, the Department must refer its determination to the Council for concurrence, modification or rejection.

(6) A site certificate amendment is not required for the construction of a pipeline less than 16 inches in diameter and less than five miles in length that is proposed to be constructed to test or maintain an underground gas storage reservoir. If the proposed pipeline would connect to a surface facility related to an underground gas storage reservoir for which the Council has issued a site certificate or to a gas pipeline for which the Council has issued a site certificate, the certificate holder must obtain, prior to construction, the approval of the Department for the construction, operation and retirement of the proposed pipeline. To obtain Department approval, the certificate holder shall submit a request as described in OAR 345-027-0210 through 345-027-0240.

Stat. Authority: ORS 469.470

Stat. Implemented: ORS 469.405

ATTACHMENT G: OAR CHAPTER 345 DIVISION 27 RULES
(In effect prior to October 2017)

345-027-0060

Request to Amend Certificate

(1) To request an amendment of a site certificate, the certificate holder shall submit a written request to the Department of Energy that includes the information described in section (2) and the following:

(a) The name and mailing address of the certificate holder and the name, mailing address, email address and phone number of the individual responsible for submitting the request.

(b) A description of the facility including its location and other information relevant to the proposed change.

(c) A detailed description of the proposed change and the certificate holder's analysis of the proposed change under the criteria of OAR 345-027-0050(1).

(d) The specific language of the site certificate, including affected conditions, that the certificate holder proposes to change, add or delete by an amendment.

(e) A list of the Council standards relevant to the proposed change.

(f) An analysis of whether the facility, with the proposed change, would comply with the requirements of ORS Chapter 469, applicable Council rules, and applicable state and local laws, rules and ordinances if the Council amends the site certificate as requested. For the purpose of this rule, a law, rule or ordinance is "applicable" if the Council would apply or consider the law, rule or ordinance under OAR 345-027-0070(10).

(g) An updated list of the owners of property located within or adjacent to the site of the facility, as described in OAR 345-021-0010(1)(f).

(2) In a request to amend a site certificate, the certificate holder shall provide the information described in applicable subsections of OAR 345-021-0000 and OAR 345-021-0010. The certificate holder may incorporate by reference relevant information that the certificate holder has previously submitted to the Department or that is otherwise included in the Department's administrative record on the facility.

(3) Before submitting a request to amend a site certificate, the certificate holder may prepare a draft request and may confer with the Department about the content of the request. Although the Council does not require the certificate holder to prepare a draft request and confer with the Department, the Council recommends that the certificate holder follow this procedure.

(4) The certificate holder shall submit an original and two printed copies of the amendment request to the Department. Upon a request by the Department, the certificate holder must submit printed copies of the amendment request for members of the Council. In addition to the printed copies, the certificate holder shall submit the full amendment request in a non-copy-protected electronic format acceptable to the Department. The certificate holder shall provide additional copies of the amendment request to the Department upon request and copies or access to copies to any person requesting copies. If requested by the Department, the certificate holder shall send copies of the request to persons on a mailing list provided by the Department.

Stat. Authority: ORS 469.470

Stat. Implemented: ORS 469.405

ATTACHMENT G: OAR CHAPTER 345 DIVISION 27 RULES
(In effect prior to October 2017)

345-027-0070

Review of a Request for Amendment

Except as specified in OAR 345-027-0080, the Council shall review a request for amendment of a site certificate as follows:

(1) Within 15 days after receiving a request to amend a site certificate, the Department of Energy shall determine whether the amendment requires extended review based on the criteria in section (2) and:

(a) Distribute copies of the request, or instruct the certificate holder to distribute copies of the request, to the persons on a distribution list that includes the reviewing agencies as defined in OAR 345-001-0010 and that may include additional persons, with a request for comments on the request by a specified date. The distribution may be done by courier delivery or mailing of printed copies or, with the approval of the Department, any form of electronic delivery.

(b) Send a notice of the amendment request by mail or email to all persons on the Council's general mailing list as defined in OAR 345-011-0020, to any special list established for the facility and to the updated property owner list supplied by the certificate holder under 345-027-0060(1)(g) and specify a date by which comments on the request are due.

(c) Post an announcement on the Department's website to notify the public that an amendment request has been received.

(d) Send a notice by mail or email to the certificate holder specifying a date for issuance of a proposed order. The Department shall specify a date that is no later than 60 days after the date of the notice unless the Department has determined that the amendment requires extended review. For extended review, the Department shall explain the basis of its determination and specify a date that is not more than 180 days after the date of the notice. Within 10 days after the Department sends notification that an amendment requires extended review, the certificate holder may request Council review of the determination. Upon a request for Council review, the Department shall refer its determination to the Council for concurrence, modification or rejection.

(2) The Department may determine that an amendment requires extended review if:

(a) The certificate holder requests extended review;

(b) The Department finds that the amendment request does not contain the information required by OAR 345-027-0060 or does not contain information sufficient for the Department to prepare a proposed order;

(c) The Department needs to hire a consultant to assist in reviewing the request;

(d) The amendment:

(A) Would require construction on land zoned residential or exclusive farm use;

(B) Would require construction in a zone for which the use is not permitted;

(C) Would require construction on land that may qualify as Habitat Category 1 or 2 land as described in OAR 635-415-0025;

(D) Would result in incremental carbon dioxide emissions that the certificate holder elects to offset, in compliance with the applicable carbon dioxide emissions

ATTACHMENT G: OAR CHAPTER 345 DIVISION 27 RULES
(In effect prior to October 2017)

- standard, by a means other than by payments described under OAR 345-024-0560(3), 345-024-0600(3) and (4) or 345-024-0630(2), (4) and (5); or
- (E) Could require the Council to determine, according to OAR 345-022-0000(2), that the overall public benefits of the facility outweigh any adverse effects on a resource or interest that is protected by an applicable standard the facility would not meet if the amendment is approved; or
- (e) The Department anticipates a high volume of public comment.
- (3) The Office may hold one or more public meetings during the review of a request for amendment of the site certificate.
- (4) Except as otherwise provided in this section, no later than the date the Department has specified in the notice described in subsection (1)(d), the Department shall issue a proposed order, recommending approval, modification or disapproval of the requested amendment. If the Department needs additional time to prepare the proposed order, the Department may issue the proposed order at a later date, but the Department shall, no later than the date the Department has specified in the notice, notify the certificate holder in writing of the circumstances that justify the delay.
- (5) After issuing the proposed order, the Department shall send a notice of the proposed order by mail or email to the persons on the Council's general mailing list as defined in OAR 345-011-0020, to any special list established for the facility, to the updated property owner list supplied by the certificate holder under 345-027-0060(1)(g) and to the distribution list described in subsection (1)(a). In the notice, the Department shall state that all comments must be submitted in writing and must be received by the Department by a specified deadline that is at least 30 days from the date of the notice. The Department shall post an announcement on its website to notify the public of the issuance of the proposed order.
- (6) Any person may, by written request submitted to the Department no later than the deadline described in section (5), ask the Council to hold a contested case proceeding on the proposed order. For the purpose of this rule, the request is submitted when it is received by the Department. In the request, the person shall provide a description of the issues to be contested, a statement of the facts believed to be at issue and the person's mailing address and email address.
- (7) To determine that an issue justifies a contested case proceeding under section (8), the Council must find that the request raises a significant issue of fact or law that may affect the Council's determination that the facility, with the change proposed by the amendment, meets an applicable standard. If the Council finds that the request would not affect the Council's determination if the alleged facts were found to be true but that those facts could affect a site certificate condition, the Council may deny the request and may adopt appropriate conditions. If the Council does not have jurisdiction over the issue raised in the request, the Council must deny the request.
- (8) The Council shall determine whether any issue identified in a request for a contested case proceeding justifies a contested case proceeding, and:
- (a) If the Council finds that the request identifies one or more issues that justify a contested case proceeding, the Council shall conduct a contested case proceeding

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- 1 according to the applicable provisions of OAR 345-015-0012 to 345-015-0085 limited
2 to the issues that the Council found sufficient to justify the proceeding.
- 3 (b) If the Council finds that the request identifies one or more issues that an
4 amendment of the proposed order would settle in a manner satisfactory to the
5 Council, the Council may deny the request as to those issues and direct the
6 Department to amend the proposed order and send a notice of the amended
7 proposed order to the persons described in section (5). Any person may, by written
8 request submitted to the Department within 30 days after the Department issues
9 the notice of the amended proposed order, ask the Council to hold a contested case
10 proceeding limited to issues raised by the amendment to the proposed order. For
11 the purpose of this rule, the request is submitted when it is received by the
12 Department. In the request, the person shall provide a description of the issues to
13 be contested, a statement of the facts believed to be at issue and the person's
14 mailing address and email address. As described in this section, the Council shall
15 determine whether any issue identified in the request for a contested case
16 proceeding justifies a contested case proceeding.
- 17 (c) If the Council finds that the request does not identify any issue that justifies a
18 contested case proceeding, the Council shall deny the request. In a written order
19 denying the request, the Council shall state the basis for the denial. The Council shall
20 then adopt, modify or reject the proposed order based on the considerations
21 described in section (10). In a written order, the Council shall either grant or deny
22 issuance of an amended site certificate. If the Council grants issuance of an
23 amended site certificate, the Council shall issue an amended site certificate, which is
24 effective upon execution by the Council Chair and by the applicant.
- 25 (9) If there is no request for a contested case proceeding as described in section (6) or
26 subsection (8)(b), the Council, may adopt, modify or reject the proposed order based on
27 the considerations described in section (10). In a written order, the Council shall either
28 grant or deny issuance of an amended site certificate. If the Council grants issuance of
29 an amended site certificate, the Council shall issue an amended site certificate, which is
30 effective upon execution by the Council Chair and by the applicant.
- 31 (10) In making a decision to grant or deny issuance of an amended site certificate, the
32 Council shall apply the applicable substantive criteria, as described in OAR 345-022-
33 0030, in effect on the date the certificate holder submitted the request for amendment
34 and all other state statutes, administrative rules, and local government ordinances in
35 effect on the date the Council makes its decision. The Council shall consider the
36 following:
- 37 (a) For an amendment that would change the site boundary or the legal description
38 of the site, the Council shall consider, for the area added to the site by the
39 amendment, whether the facility complies with all Council standards;
- 40 (b) For an amendment that extends the deadlines for beginning or completing
41 construction, the Council shall consider:
- 42 (A) Whether the Council has previously granted an extension of the deadline;

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- 1 (B) Whether there has been any change of circumstances that affects a previous
2 Council finding that was required for issuance of a site certificate or
3 amended site certificate; and
4 (C) Whether the facility complies with all Council standards, except that the
5 Council may choose not to apply a standard if the Council finds that:
6 (i) The certificate holder has spent more than 50 percent of the budgeted
7 costs on construction of the facility;
8 (ii) The inability of the certificate holder to complete the construction of the
9 facility by the deadline in effect before the amendment is the result of
10 unforeseen circumstances that are outside the control of the certificate
11 holder;
12 (iii) The standard, if applied, would result in an unreasonable financial burden
13 on the certificate holder; and
14 (iv) The Council does not need to apply the standard to avoid a significant
15 threat to the public health, safety or the environment;
16 (c) For any amendment not described above, the Council shall consider whether the
17 amendment would affect any finding made by the Council in an earlier order.
18 (d) For all amendments, the Council shall consider whether the amount of the bond
19 or letter of credit required under OAR 345-022-0050 is adequate.

20 Stat. Authority: ORS 469.470

21 Stat. Implemented: ORS 469.405