Appendix J: Typha Solar Project Site Reports and Permit Applications

J-1: Typha Solar Project Critical Areas Report

J-2: Typha Solar Project Cultural Resources Report

J-3: Typha Permit Applications

J-4: Typha Solar Project Geotechnical Engineering Study

J-5: Typha Solar Project Drainage Report

Appendix J-3: Typha Permit Applications

WASHINGTON STATE
Joint Aquatic Resources Permit Application (JARPA) Form[1,2] [help]

US Army Corps of Engineers ®
Seattle District

USE BLACK OR BLUE INK TO ENTER ANSWERS IN THE WHITE SPACES BELOW.

AGENCY USE ONLY

Date received:

Agency reference #: _____

Tax Parcel #(s): _____

Part 1–Project Identification

1. Project Name (A name for your project that you create. Examples: Smith's Dock or Seabrook Lane Development) [help]
Typha Solar Project

Part 2–Applicant

The person and/or organization responsible for the project. [help]

2a. Name (Last, First, Middle)			
Evans, Jason			
2b. Organization (If applicable)			
TUUSSO Energy, LLC			
2c. Mailing Address (Street or PO Box)			
500 Yale Avenue North			
2d. City, State, Zip			
Seattle, WA 98109			
2e. Phone (1)	**2f.** Phone (2)	**2g.** Fax	**2h.** E-mail
(206) 303-0198			jason.evans@tuusso.com

[1]Additional forms may be required for the following permits:
- If your project may qualify for Department of the Army authorization through a Regional General Permit (RGP), contact the U.S. Army Corps of Engineers for application information (206) 764-3495.
- If your project might affect species listed under the Endangered Species Act, you will need to fill out a Specific Project Information Form (SPIF) or prepare a Biological Evaluation. Forms can be found at http://www.nws.usace.army.mil/Missions/CivilWorks/Regulatory/PermitGuidebook/EndangeredSpecies.aspx.
- Not all cities and counties accept the JARPA for their local Shoreline permits. If you need a Shoreline permit, contact the appropriate city or county government to make sure they accept the JARPA.

[2]To access an online JARPA form with [help] screens, go to http://www.epermitting.wa.gov/site/alias__resourcecenter/jarpa_jarpa_form/9984/jarpa_form.aspx.

For other help, contact the Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.

Part 3–Authorized Agent or Contact

Person authorized to represent the applicant about the project. (Note: Authorized agent(s) must sign 11b of this application.) [help]

3a. Name (Last, First, Middle)			
Dulin, Nathaniel Evan			
3b. Organization (If applicable)			
SWCA Environmental Consultants			
3c. Mailing Address (Street or PO Box)			
221 1st Ave W			
3d. City, State, Zip			
Seattle, WA 98119			
3e. Phone (1)	**3f.** Phone (2)	**3g.** Fax	**3h.** E-mail
(206) 781-1909	(214) 931-3256		edulin@swca.com

Part 4–Property Owner(s)

Contact information for people or organizations owning the property(ies) where the project will occur. Consider both **upland and aquatic** ownership because the upland owners may not own the adjacent aquatic land. [help]

☐ Same as applicant. (Skip to Part 5.)

☐ Repair or maintenance activities on existing rights-of-way or easements. (Skip to Part 5.)

☐ There are multiple upland property owners. Complete the section below and fill out JARPA Attachment A for each additional property owner.

☐ Your project is on Department of Natural Resources (DNR)-managed aquatic lands. If you don't know, contact the DNR at (360) 902-1100 to determine aquatic land ownership. If yes, complete JARPA Attachment E to apply for the Aquatic Use Authorization.

4a. Name (Last, First, Middle)			
Dicken, Douglas A.			
4b. Organization (If applicable)			
4c. Mailing Address (Street or PO Box)			
P.O. Box 1201			
4d. City, State, Zip			
Ellensburg, WA 98926			
4e. Phone (1)	**4f.** Phone (2)	**4g.** Fax	**4h.** E-mail
(509) 859-2740			

Part 5–Project Location(s)

Identifying information about the property or properties where the project will occur. [help]

☐ There are multiple project locations (e.g. linear projects). Complete the section below and use JARPA Attachment B for each additional project location.

5a. Indicate the type of ownership of the property. (Check all that apply.) [help]

☒ Private
☐ Federal
☐ Publicly owned (state, county, city, special districts like schools, ports, etc.)
☐ Tribal
☐ Department of Natural Resources (DNR) – managed aquatic lands (Complete JARPA Attachment E)

5b. Street Address (Cannot be a PO Box. If there is no address, provide other location information in 5p.) [help]

None (See 5p)

5c. City, State, Zip (If the project is not in a city or town, provide the name of the nearest city or town.) [help]

Ellensburg, WA 98926

5d. County [help]

Kittitas

5e. Provide the section, township, and range for the project location. [help]

¼ Section	Section	Township	Range
NE	30	18N	18E

5f. Provide the latitude and longitude of the project location. [help]

- Example: 47.03922 N lat. / -122.89142 W long. (Use decimal degrees - NAD 83)

47.024157 N lat. / -120.628488 W long.

5g. List the tax parcel number(s) for the project location. [help]

- The local county assessor's office can provide this information.

712633, 752633 (partial)

5h. Contact information for all adjoining property owners. (If you need more space, use JARPA Attachment C.) [help]

Name	Mailing Address	Tax Parcel # (if known)
Douglas A. Dicken	PO Box 1201 Ellensburg WA 98926	802633
Green Jacket Inc.	3231 Thorp Highway S Ellensburg WA 98926	832633, 352633, 382633, 311033
Three Bar G Ranch Inc., Frank J. Gregerich	4491 Thorp Highway S Ellensburg WA 98926	732633

5i. List all wetlands on or adjacent to the project location. [help]

TW01, TW02, TW03, TW04, TW05

5j. List all waterbodies (other than wetlands) on or adjacent to the project location. [help]

Yakima River, Ellensburg Power Canal, ditches

5k. Is any part of the project area within a 100-year floodplain? [help]

☐ Yes ☒ No ☐ Don't know

5l. Briefly describe the vegetation and habitat conditions on the property. [help]

The Typha Solar Project site primarily consists of recently grazed former agricultural land located just west of the Yakima River and north of Thorp Highway, west of Ellensburg in unincorporated Kittitas County, Washington. Topography of the site generally slopes to the east toward the Yakima River. Surface elevation within the site and ranges from 1,570 to 1,614 feet above mean sea level, the lowest elevation being along the eastern site boundary closest to the Yakima River and the highest elevation being at the southern end of the proposed generation tie line near Thorp Highway.

The Typha Solar Project site consists of formerly irrigated and grazed pasture along the west bank (right bank when facing downstream) of the Yakima River. The site is currently fallow, recently grazed, and dominated by weeds and non-native herbaceous species in upland areas, including tall false rye grass (*Schedonorus arundinaceus*), bluegrass (*Poa* spp.), remnant planted common timothy (*Phleum pretense*), garden yellow rocket (*Barbarea vulgaris*), hairy cat's-ear (*Hypochaeris radicata*), common dandelion (*Taraxacum officinale*), and white clover (*Trifolium repens*). In addition, the site has patches of noxious weeds, including Canadian thistle (*Cirsium arvense*), Scotch thistle (*Onopordum acanthium*), yellow nutsedge (*Cyperus esculentus*), and reed canary grass (*Phalaris arundinacea*). The southern portion of the project crosses areas of rural residential use, existing driveways and access roads, and a manicured golf course, including some areas with mature grand fir (*Abies grandis*), ponderosa pine (*Pinus ponderosa*), quaking aspen (*Populus tremuloides*), and crack willow (*Salix* X *fragilis*) trees, with Nootka rose (*Rosa nutkana*) shrubs along the Ellensburg Power (EP) Canal and around nearby residences.

Five wetlands were delineated within the Typha Solar Project study area. Table 1 summarizes the size, rating, and classification of wetlands found within the study area. See the figures in the attached Critical Areas Wetland and Waters Delineation Report for Typha Solar Project for the locations of the wetlands, streams and data plots. A detailed description of wetland TW03 is provided below. See the attached critical areas report for detailed descriptions of all other wetlands and waterbodies delineated in the project's study area.

Table 1. Wetland Size, Rating, and Classification for Wetlands within the Study Area

Wetland Name	Delineated Area within the Project (Wetland Rating Unit Size) [a] (acres)	Wetland Rating [b]	Hydrogeomorphic Classification	Cowardin Classification [c]	Dominant Species Observed within Wetland
Solar Site					
TW01	0.07 (estimated 0.33)	II	Riverine	PEM/PSS	Narrow-leaf willow, Nootka rose, red osier dogwood, common panic grass, and hairy cat's-ear
TW02	0.38 (estimated 0.68)	II	Riverine	PEM	Baltic rush, tall false rye grass, common timothy, reed canary grass, and Fuller's teasel
TW03	0.35 (estimated 8.45)	II	Riverine	PEM/PSS	Reed canary grass, common duckweed, Rocky Mountain iris, and bluegrass
TW04	0.04 (0.05)	III	Depressional	PEM	Broad-leaf cat-tail, reed canary grass, and tall false rye grass
Generation Tie Line					
TW03	0.07 (estimated 8.45)	II	Riverine	PEM/PSS	Reed canary grass, common duckweed, Rocky Mountain iris, and bluegrass
TW05	0.03 (estimated 0.47)	III	Riverine	PEM	Broad-leaf cat-tail, reed canary grass, and Baltic rush

a Wetland rating unit size is the total area of wetland delineated or estimated based on aerial photograph interpretation and field reconnaissance. Area of delineated portions of the wetlands is based on SWCA survey data.

b Wetland ratings are based on *Washington State Wetland Rating System for Eastern Washington – Revised* (Hruby 2014).

c *Classification of Wetlands and Deepwater Habitats of the United* State (Cowardin, Carter, Golet, and LaRoe 1979). PEM = palustrine emergent, PSS = palustrine scrub-shrub.

Wetland TW03

Wetland TW03 is a riverine wetland drainage that starts just outside of the western project site boundary and extends south and east along the southern study area boundary. This wetland encompasses approximately 0.35 acre of the project site study area and 0.07 acre in the generation tie line study area, which are portions of the approximately 8.45 acres of total wetland unit. This wetland is fed by runoff and irrigation from the agricultural fields to the north and west of the wetland and includes areas of open water as the drainage extends south and west, eventually feeding into the Yakima River east of the study area (see Figure 5; and wetland rating Figures 1 through 5 in Appendix E of the Critical Areas Wetland and Waters Delineation Report for Typha Solar Project). Delineation data were recorded at sample plots TP05 and TP11 and are provided on datasheets in Appendix C of the Critical Areas Wetland and Waters Delineation Report for Typha Solar Project. The drainage passes through many culverts along its route east, but the culverts are partially obstructed, causing the water to flood over the higher elevation areas between the main drainage reaches; therefore, these areas are included in the wetland. The upland boundary of the wetland is defined by an obvious rise in elevation on either side of the overall drainage area.

Wetland TW03 is mostly a palustrine emergent (PEM) wetland habitat type with some palustrine scrub-shrub (PSS) wetland areas off-site to the east of the project site. The wetland is dominated by reed canary grass (facultative wetland [FACW]), common duckweed (*Lemna minor*, obligate wetland [OBL]), Rocky Mountain iris (*Iris missouriensis*, FACW), bluegrass (*Poa* spp., facultative [FAC]), tall false rye grass, and yellow nutsedge (FACW), with some broad-leaf cat-tail (*Typha latifolia*, OBL), Fuller's teasel (*Dipsacus fullonum*, FAC), and narrow-leaf willow (*Salix exigua*, FACW) in the eastern portion of the wetland. The dominance of these species meets the wetland vegetation criteria. Wetland TW03 is located within two different National Wetlands Inventory (NWI)-mapped palustrine emergent, persistent, seasonally flooded (PEM1C) wetland polygons, one along the western project site boundary and one in the southeastern corner of the project site that extends off-site (see Figure 2 of the Critical Areas Wetland and Waters Delineation Report for Typha Solar Project).

Soils in Wetland TW03 are mapped as Nosal ashy silt loam with 0% to 2% slopes; Mitta ashy silt loam, drained with 0% to 2% slopes; Weirman-Kayak-Zillah complex with 0% to 2% slopes; and Weirman gravelly sandy loam with 0% to 2% slopes (see Figure 3 of the Critical Areas Wetland and Waters Delineation Report for Typha Solar Project). The soil profile observed within 16 inches of the soil surface consists of black (2.5Y 2.5/1) silty clay loam with depletions of dark grayish-brown (10YR 4/2) and redoximorphic features starting at 8 inches. The soils in Wetland TW03 meet the hydric soil indicator for Redox Dark Surface (F6). Primary indicators of hydrology within this wetland include aquatic invertebrates. Secondary indicators of hydrology observed within the wetland include drift deposits (riverine) and drainage patterns. The presence of these indicators meets wetland hydrology criteria.

Wetland TW03 is rated as a Category II wetland in the Ecology rating system, with a high score for hydrologic function (8/9 points) and moderate scores for habitat function (6/9 points) and water quality improvement (6/9 points). Wetland TW03 has high potential to provide hydrologic functions because of its large wetland to channel width ratio and its potential to help reduce flooding issues directly downstream in the Yakima River.

5m. Describe how the property is currently used. [help]

The property for the proposed road improvement project is currently being used as pasture for livestock and was previously irrigated for agriculture. This tax lot, 752633, is privately owned and zoned as commercial agriculture. A single-family residence, barn, and several other auxiliary structures are present in the western half of Tax Lot 752633 north of the EP Canal, which are currently being rented from the property owner.

5n. Describe how the adjacent properties are currently used. [help]

The adjacent property to the north (712633) is owned by the same property owner as the road improvement project tax lot and is a continuation of the same land use as the project tax lot. The adjacent property to the west (732633) is owned by Three Bar G Ranch Inc. and used for active agriculture. The adjacent property to the south (832633) and southeast (382633 and 352633) is owned by Green Jacket Inc. and is managed as the Ellensburg Golf and Country Club.

5o. Describe the structures (above and below ground) on the property, including their purpose(s) and current condition. [help]

The nearest structure to the proposed road improvement is located approximately 80 feet south and is a small 8 × 8–foot pump house. The next closest structure is a large barn located approximately 200 feet southwest of the proposed road improvement that appears to be partially stocked with hay. Other structures on the property include a one-story, single-family residence, an old abandoned house, a couple of work sheds, and an additional barn/corral. Aside from the old abandoned house, all other structures are stable and in decent condition.

5p. Provide driving directions from the closest highway to the project location, and attach a map. [help]

From I-90 North, take Exit 106 for US-97 N toward Wenatchee, turn left onto US-97 S, turn left onto Thorp Highway S, after 2.1 miles turn right into the driveway just after the Ellensburg Golf and Country Club parking lot, follow the driveway for 0.4 mile to where it dead-ends at 3401 Thorp Highway S. The proposed road improvement project area is in another approximately 500 feet following the site access road past the barn and north to the drainage/wetland crossing.

Part 6–Project Description

6a. Briefly summarize the overall project. You can provide more detail in 6b. [help]

The overall project is designed to improve site access over a wetland drainage channel at the entrance of the Typha Solar Project site. TUUSSO Energy, LLC (TUUSSO), is proposing to construct a new photovoltaic (PV) facility, the Typha Solar Project, northwest of the city of Ellensburg, Kittitas County, Washington. The proposed Typha Solar Project PV facility would be located on approximately 54.29 acres of private land zoned as commercial agriculture, formerly used as agricultural land and currently used for grazing. This proposed project includes the construction of a switchyard with a short (0.45-mile-long) generation tie line into an existing Puget Sound Energy (PSE) distribution transmission line. All construction activities associated with the Typha Solar Project would avoid impacts to all wetlands and waters, with the exception of 630 square feet of fill in wetland TW03 for the proposed road improvements to an existing farm road to allow for year-round site access.

6b. Describe the purpose of the project and why you want or need to perform it. [help]

The Typha Solar Project is intended to provide up to 5 MW of solar energy to PSE for use within their service area. The purpose of the proposed access road improvement project is to raise the currently flooded farm road at the entrance to the site to allow year-round access to the site. Access to the proposed solar facility is limited to the farm road that enters the site from the south and crosses a wetland drainage channel (wetland TW03). The wetland drainage channel runs northwest to southeast across the entrance to the site. Currently, the road periodically floods during storm events and snow melt when a collapsed culvert at the road crossing prevents water from freely passing through the wetland drainage channel under the road. Elevated water levels within the wetland drainage channel have the potential to degrade the structural integrity of the road at the site entrance. The current conditions prevent year-round access to the site, which is required for management of the proposed solar facility. Therefore, for safety and site management, the road must be improved to prevent flooding of the site access road and ensure year-round access to the site.

6c. Indicate the project category. (Check all that apply) [help]

☒ Commercial ☐ Residential ☐ Institutional ☒ Transportation ☐ Recreational
☐ Maintenance ☐ Environmental Enhancement

6d. Indicate the major elements of your project. (Check all that apply) [help]

☐ Aquaculture	☒ Culvert	☐ Float	☐ Retaining Wall (upland)
☐ Bank Stabilization	☐ Dam / Weir	☐ Floating Home	☒ Road
☐ Boat House	☐ Dike / Levee / Jetty	☐ Geotechnical Survey	☐ Scientific Measurement Device
☐ Boat Launch	☐ Ditch	☐ Land Clearing	☐ Stairs
☐ Boat Lift	☐ Dock / Pier	☐ Marina / Moorage	☐ Stormwater facility
☐ Bridge	☐ Dredging	☐ Mining	☐ Swimming Pool
☐ Bulkhead	☐ Fence	☐ Outfall Structure	☐ Utility Line
☐ Buoy	☐ Ferry Terminal	☐ Piling/Dolphin	
☐ Channel Modification	☐ Fishway	☐ Raft	

☐ Other:

6e. Describe how you plan to construct each project element checked in 6d. Include specific construction methods and equipment to be used. [help]

- Identify where each element will occur in relation to the nearest waterbody.
- Indicate which activities are within the 100-year floodplain.

Entrance Road Improvement

Entrance road improvement activities will occur within a delineated wetland drainage. The wetland drainage channel discharges to the Yakima River, approximately 2,000 feet downstream of the proposed road improvement. Activities associated with the road improvement of the entrance do not occur within a 100-year floodplain. Entrance road improvement construction methods and equipment are as follows:

1. Demarcate the limits of the excavation. As depicted on design drawings, the limits of excavation are located approximately 1,001 feet from the 100-year floodplain.
2. Call Washington State Northwest Utility Notification Center at 800-424-5555 or 811, 2 working days minimum prior to excavation.
3. Set up best management practices (BMPs) in accordance with the erosion and sediment control (ESC) plan, stormwater pollution prevention plan (SWPPP), and State of Washington, Department of Ecology, Construction Stormwater General Permit (CGP).
4. Equipment size should be determined by the contractor in order to perform the work safely and efficiently.
5. Remove soil to the limits of the excavation.
6. Stockpile soil away from the excavation in an upland area of the site.
7. Surround stockpiled soil by BMP(s) consistent with the ESC, SWPPP, and CGP.
8. All soil used for backfilling the excavation shall meet, at a minimum, the structural fill requirements included in the Swiftwater Environmental & Geotechnical "Geotechnical Engineering Study, Phase 1" dated June 16, 2017. Additionally, structural fill shall meet gradation requirements of ASTM C136. ASTM C136 gradation requirements are as follows:
    a. 100% passing the 3-inch sieve
    b. 35%–100% passing the #4 sieve
    c. Less than 5% passing the #200 sieve
    d. Maximum Liquid Limit of 35
    e. Maximum Plasticity Index of 15
    f. Maximum Expansive Potential of 4%
    g. Maximum Sulfate Content of 0%
    h. Maximum Solubility of 2%
9. Moisture condition structural fill, whether reused on-site soil or imported soil, to within 3% of the optimum moisture content to meet or exceed the 90% Maximum Dry Density (MDD) as defined by the Modified Proctor Density Test. Soil compaction will be performed by a plate vibratory compactor, vibratory tamper, or equivalent machinery.
10. Excavate a minimum of 24 inches below the existing road surface elevation.
11. Scarify and compact a minimum of 12 inches of native soil, or use imported structural fill, in the bottom of the excavation (subbase).
12. Place non-woven, needle-punched, geotextile filter fabric (filter fabric) on top of the subbase.
13. Place and compact a minimum 12-inch-thick layer of quarry spalls on top of the filter fabric.
14. Construct the site entrance road as designed by Encompass Engineering & Surveying.
15. Perform final stabilization in accordance with the ESC, SWPPP, and CGP.
16. Remove temporary BMPs following completion of final stabilization as defined in the GCP.

These construction activities will likely be performed in less than 7 days. Any exposed ground resulting from construction activities will be seeded with native herbaceous plant species.

6f. What are the anticipated start and end dates for project construction? (Month/Year) [help]

- If the project will be constructed in phases or stages, use JARPA Attachment D to list the start and end dates of each phase or stage.

Start Date: May 2018 End Date: June 2018 ☐ See JARPA Attachment D

6g. Fair market value of the project, including materials, labor, machine rentals, etc. [help]

Construction costs will be approximately $8–10 million for the entire Typha Solar Project. The road improvement project will be a small portion of that amount, consisting of $10,000 or less of the overall project cost.

6h. Will any portion of the project receive federal funding? [help]

- **If yes**, list each agency providing funds.

☐ Yes ☒ No ☐ Don't know

Part 7–Wetlands: Impacts and Mitigation

☒ Check here if there are wetlands or wetland buffers on or adjacent to the project area.
(If there are none, skip to Part 8.) [help]

7a. Describe how the project has been designed to avoid and minimize adverse impacts to wetlands. [help]

☐ Not applicable

The required road access to the proposed solar site has been designed to minimize adverse impacts to wetlands by aligning the road crossing at an existing farm road crossing. This crossing will require minimal road preparation. Alternative potential road crossings evaluated during the project design would all result in greater impacts to wetlands and would require a longer road to access alternative crossing areas. In addition, temporary road mats that could reduce or eliminate wetland fill would not meet requirements for year-round access, which would create safety issues for maintenance staff and emergency responders. Therefore, the proposed road improvement is the optimal option for meeting the project needs while minimizing adverse impacts to wetlands.

7b. Will the project impact wetlands? [help]

☒ Yes ☐ No ☐ Don't know

7c. Will the project impact wetland buffers? [help]

☒ Yes ☐ No ☐ Don't know

7d. Has a wetland delineation report been prepared? [help]

- **If Yes**, submit the report, including data sheets, with the JARPA package.

☒ Yes ☐ No

7e. Have the wetlands been rated using the Western Washington or Eastern Washington Wetland Rating System? [help]

- **If Yes**, submit the wetland rating forms and figures with the JARPA package.

☒ Yes ☐ No ☐ Don't know

7f. Have you prepared a mitigation plan to compensate for any adverse impacts to wetlands? [help]

- **If Yes**, submit the plan with the JARPA package and answer 7g.
- **If No, or Not applicable**, explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

Under Nationwide Permit (NWP) 14 for linear transportation projects and U.S. Army Corps of Engineers Seattle District guidance, projects of this kind that result in less than 1,000 square feet of impact do not require mitigation. The proposed road improvement would result in approximately 630 square feet of wetland fill, which is below the minimum threshold requiring compensatory mitigation. Therefore, a mitigation plan will not need to be prepared.

7g. Summarize what the mitigation plan is meant to accomplish, and describe how a watershed approach was used to design the plan. [help]

Not applicable.

7h. Use the table below to list the type and rating of each wetland impacted, the extent and duration of the impact, and the type and amount of mitigation proposed. Or if you are submitting a mitigation plan with a similar table, you can state (below) where we can find this information in the plan. [help]

Activity (fill, drain, excavate, flood, etc.)	Wetland Name[1]	Wetland type and rating category[2]	Impact area (sq. ft. or Acres)	Duration of impact[3]	Proposed mitigation type[4]	Wetland mitigation area (sq. ft. or acres)
Fill	TW03	PEM, Category II	630 sq. ft.	Permanent	None	N/A

[1] If no official name for the wetland exists, create a unique name (such as "Wetland 1"). The name should be consistent with other project documents, such as a wetland delineation report.
[2] Ecology wetland category based on current Western Washington or Eastern Washington Wetland Rating System. Provide the wetland rating forms with the JARPA package.
[3] Indicate the days, months or years the wetland will be measurably impacted by the activity. Enter "permanent" if applicable.
[4] Creation (C), Re-establishment/Rehabilitation (R), Enhancement (E), Preservation (P), Mitigation Bank/In-lieu fee (B)

Page number(s) for similar information in the mitigation plan, if available: _____

7i. For all filling activities identified in 7h, describe the source and nature of the fill material, the amount in cubic yards that will be used, and how and where it will be placed into the wetland. [help]

The fill material will consist primarily of native soils from on-site, geotextile filter fabric, and quarry spalls. If these soils do not meet the soil parameters listed in the construction methods outlined in Section 6e, then additional soils may be brought in from off-site or from uplands within the project site associated with the overall Typha Solar Project. Refer to Section 6e for a detailed description of how these fill materials will be placed in the project area. Filling activities will not exceed 630 square feet within the wetland and likely will not result in a net fill of more than 2,000 cubic feet because the ending contours would be maintained approximately 2 inches above the existing grade. Engineering drawings have not been finalized and the exact cubic feet of fill has not yet been determined.

7j. For all excavating activities identified in 7h, describe the excavation method, type and amount of material in cubic yards you will remove, and where the material will be disposed. [help]

Not applicable. Any minor excavation activities involved in the road improvement would be backfilled within the project area and would not result in a net excavation of native materials. Any native soils excavated from the project area that do not meet the parameters for backfilling would be disposed in an upland area with proper BMPs in place or be used elsewhere in the overall Typha Solar Project construction area.

Part 8–Waterbodies (other than wetlands): Impacts and Mitigation

In Part 8, "waterbodies" refers to non-wetland waterbodies. (See Part 7 for information related to wetlands.) [help]

☒ Check here if there are waterbodies on or adjacent to the project area. (If there are none, skip to Part 9.)

8a. Describe how the project is designed to avoid and minimize adverse impacts to the aquatic environment. [help]

☒ Not applicable

Not applicable. No impact proposed to waterbodies.

8b. Will your project impact a waterbody or the area around a waterbody? [help]

☐ Yes ☒ No

8c. Have you prepared a mitigation plan to compensate for the project's adverse impacts to non-wetland waterbodies? [help]

- **If Yes**, submit the plan with the JARPA package and answer 8d.
- **If No, or Not applicable,** explain below why a mitigation plan should not be required.

☐ Yes ☒ No ☐ Don't know

Not applicable. No impact proposed to waterbodies.

8d. Summarize what the mitigation plan is meant to accomplish. Describe how a watershed approach was used to design the plan.

- If you already completed 7g you do not need to restate your answer here. [help]

Not applicable.

8e. Summarize impact(s) to each waterbody in the table below. [help]

Activity (clear, dredge, fill, pile drive, etc.)	Waterbody name[1]	Impact location[2]	Duration of impact[3]	Amount of material (cubic yards) to be placed in or removed from waterbody	Area (sq. ft. or linear ft.) of waterbody directly affected
-	-	-	-	-	-

[1] If no official name for the waterbody exists, create a unique name (such as "Stream 1") The name should be consistent with other documents provided.
[2] Indicate whether the impact will occur in or adjacent to the waterbody. If adjacent, provide the distance between the impact and the waterbody and indicate whether the impact will occur within the 100-year flood plain.
[3] Indicate the days, months or years the waterbody will be measurably impacted by the work. Enter "permanent" if applicable.

8f. For all activities identified in 8e, describe the source and nature of the fill material, amount (in cubic yards) you will use, and how and where it will be placed into the waterbody. [help]

Not applicable.

8g. For all excavating or dredging activities identified in 8e, describe the method for excavating or dredging, type and amount of material you will remove, and where the material will be disposed. [help]

Not applicable.

Part 9–Additional Information

Any additional information you can provide helps the reviewer(s) understand your project. Complete as much of this section as you can. It is ok if you cannot answer a question.

9a. If you have already worked with any government agencies on this project, list them below. [help]

Agency Name	Contact Name	Phone	Most Recent Date of Contact
State of Washington Energy Facility Site Evaluation Council (EFSEC)	Stephen Posner	(360) 664-1903	10/23/2017
Washington State Department of Ecology (Ecology)	Lori White	(509) 575-2616	9/28/2017
Washington Department of Fish and Wildlife (WDFW)	Justin Allegro	(360) 707-8927	9/27/2017
Kittitas County	Dan Carlson	(509) 962-7506	8/3/2017

9b. Are any of the wetlands or waterbodies identified in Part 7 or Part 8 of this JARPA on the Washington Department of Ecology's 303(d) List? [help]

- **If Yes,** list the parameter(s) below.
- If you don't know, use Washington Department of Ecology's Water Quality Assessment tools at: http://www.ecy.wa.gov/programs/wq/303d/.

☐ Yes ☒ No

9c. What U.S. Geological Survey Hydrological Unit Code (HUC) is the project in? [help]

- Go to http://cfpub.epa.gov/surf/locate/index.cfm to help identify the HUC.

HUC 17030001

9d. What Water Resource Inventory Area Number (WRIA #) is the project in? [help]

- Go to http://www.ecy.wa.gov/water/wria/index.html to find the WRIA #.

WRIA 39

9e. Will the in-water construction work comply with the State of Washington water quality standards for turbidity? [help]

- Go to http://www.ecy.wa.gov/programs/wq/swqs/criteria.html for the standards.

☐ Yes ☐ No ☒ Not applicable

9f. If the project is within the jurisdiction of the Shoreline Management Act, what is the local shoreline environment designation? [help]

- If you don't know, contact the local planning department.
- For more information, go to: http://www.ecy.wa.gov/programs/sea/sma/laws_rules/173-26/211_designations.html.

☐ Urban ☐ Natural ☐ Aquatic ☐ Conservancy ☒ Other: Rural Conservancy

9g. What is the Washington Department of Natural Resources Water Type? [help]

- Go to http://www.dnr.wa.gov/forest-practices-water-typing for the Forest Practices Water Typing System.

☐ Shoreline ☐ Fish ☐ Non-Fish Perennial ☒ Non-Fish Seasonal

9h. Will this project be designed to meet the Washington Department of Ecology's most current stormwater manual? [help]

- **If No**, provide the name of the manual your project is designed to meet.

☒ Yes ☐ No

Name of manual: _____

9i. Does the project site have known contaminated sediment? [help]

- **If Yes**, please describe below.

☐ Yes ☒ No

9j. If you know what the property was used for in the past, describe below. [help]

The property appears to have been irrigated for several decades, undergoing periods of active agriculture and cattle grazing, based on historic Google Earth aerial photos.

9k. Has a cultural resource (archaeological) survey been performed on the project area? [help]

- **If Yes**, attach it to your JARPA package.

☒ Yes ☐ No

9l. Name each species listed under the federal Endangered Species Act that occurs in the vicinity of the project area or might be affected by the proposed work. [help]

The following Endangered Species Act (ESA)-listed species may occur in the vicinity of the Typha Solar Project site:

- Bull trout (*Salvelinus confluentus*) – Threatened
- Middle Columbia River Steelhead (*Oncorhynchus mykiss*) – Threatened

Both of the ESA-listed fish species occur in the Yakima River adjacent to the project site. However, the proposed road improvement would only affect wetland TW03, which is approximately 2,000 feet upstream from the Yakima River and does not provide fish access to the project area or provide proper habitat for these species. Therefore, the proposed project will have no effect on ESA-listed species.

9m. Name each species or habitat on the Washington Department of Fish and Wildlife's Priority Habitats and Species List that might be affected by the proposed work. [help]

According to WDFW's Priority Habitats and Species (PHS) online mapper, no priority habitats or species are documented on the proposed Typha Solar Project site. The nearest PHS-mapped habitats or species include:

- Mountain sucker (*Catostomus platyrhyncus*)
- Coho salmon (*Oncorhynchus kisutch*)
- Chinook salmon (*O. tshawytscha*)
- Westslope cutthroat trout (*O. clarki lewisi*)
- Summer steelhead salmon (*O*. *mykiss*)
- Bull trout (*Salvelinus confluentus*)
- Great blue heron (*Ardea herodias*)

The PHS-listed fish species listed above all occur within the portion of the Yakima River adjacent to the proposed project site. However, the proposed road improvement would only affect wetland TW03, which is approximately 2,000 feet upstream from the Yakima River and does not provide fish access to the project area or provide proper habitat for these species. Therefore, the proposed project will have no effect on these PHS-listed fish species.

There is a PHS-mapped great blue heron rookery, along the east bank of the Yakima River opposite the Typha Solar Project site, that is approximately 1,700 feet northeast of the proposed road improvement and at least 224 feet from the edge of the property. This rookery was observed as active during field surveys. The rookery is unlikely to be affected by the proposed road improvement due to its distance from the project area. The overall project may have a minor noise impact to this rookery during construction and measures will be taken to reduce these effects during nesting season to the extent possible.

In addition, amphibian egg masses were observed during field surveys in wetland TW04 that could potentially belong to the PHS-listed Columbia spotted frog (*Rana luteiventris*). This wetland is approximately 400 feet southeast of the proposed road improvement and appears to be hydrologically disconnected from wetland TW03. No egg masses were observed within wetland TW03. Therefore, the proposed road improvement would likely have no effect on this species' use of local habitats and would not be affected by the proposed road improvement.

Part 10–SEPA Compliance and Permits

Use the resources and checklist below to identify the permits you are applying for.

- Online Project Questionnaire at http://apps.oria.wa.gov/opas/.
- Governor's Office for Regulatory Innovation and Assistance at (800) 917-0043 or help@oria.wa.gov.
- For a list of addresses to send your JARPA to, click on agency addresses for completed JARPA.

10a. Compliance with the State Environmental Policy Act (SEPA). (Check all that apply.) [help]

- For more information about SEPA, go to www.ecy.wa.gov/programs/sea/sepa/e-review.html.

☐ A copy of the SEPA determination or letter of exemption is included with this application.

☒ A SEPA determination is pending with EFSEC (lead agency). The expected decision date is April 2018.

☐ I am applying for a Fish Habitat Enhancement Exemption. (Check the box below in 10b.) [help]

☐ This project is exempt (choose type of exemption below).

☐ Categorical Exemption. Under what section of the SEPA administrative code (WAC) is it exempt? _____

☐ Other: _____

☐ SEPA is pre-empted by federal law.

10b. Indicate the permits you are applying for. (Check all that apply.) [help]

LOCAL GOVERNMENT

Local Government Shoreline permits:

☐ Substantial Development ☐ Conditional Use ☐ Variance

☒ Shoreline Exemption Type (explain): Applying through EFSEC at state level (RCW 90.58.140(9); WAC 173-27-040(2)(l)).

Other City/County permits:

☐ Floodplain Development Permit ☐ Critical Areas Ordinance

STATE GOVERNMENT

Washington Department of Fish and Wildlife:

☐ Hydraulic Project Approval (HPA) ☐ Fish Habitat Enhancement Exemption – Attach Exemption Form

You must submit a check for $150 to Washington Department of Fish and Wildlife, unless your project qualifies for an exemption or alternative payment method below. **Do not send cash.**

Check the appropriate boxes

☒ $150 check enclosed. Check # 2274
Attach check made payable to Washington Department of Fish and Wildlife.

☐ My project is exempt from the application fee. (Check appropriate exemption):
- ☐ HPA processing is conducted by applicant funded WDFW staff. Agreement # _____
- ☐ Mineral prospecting and mining
- ☐ Project occurs on farm and agricultural land. (Attach a copy of current land use classification recorded with the county auditor, or other proof of current land use)
- ☐ Project is modification of an existing HPA originally applied for, prior to July 10, 2012. HPA # _____

Washington Department of Natural Resources:

☐ Aquatic Use Authorization

Complete JARPA Attachment E and submit a check for $25 payable to the Washington Department of Natural Resources. **Do not send cash.**

Washington Department of Ecology:

☒ Section 401 Water Quality Certification

FEDERAL GOVERNMENT

United States Department of the Army permits (U.S. Army Corps of Engineers):

☒ Section 404 (discharges into waters of the U.S.) ☐ Section 10 (work in navigable waters)

United States Coast Guard permits:

☐ Private Aids to Navigation (for non-bridge projects)

Part 11–Authorizing Signatures

Signatures are required before submitting the JARPA package. The JARPA package includes the JARPA form, project plans, photos, etc. [help]

11a. Applicant Signature (required) [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities, and I agree to start work only after I have received all necessary permits.

I hereby authorize the agent named in Part 3 of this application to act on my behalf in matters related to this application. _____ (initial)

By initialing here, I state that I have the authority to grant access to the property. I also give my consent to the permitting agencies entering the property where the project is located to inspect the project site or any work related to the project. _____ (initial)

Applicant Printed Name	Applicant Signature	Date

11b. Authorized Agent Signature [help]

I certify that to the best of my knowledge and belief, the information provided in this application is true, complete, and accurate. I also certify that I have the authority to carry out the proposed activities and I agree to start work only after all necessary permits have been issued.

Authorized Agent Printed Name	Authorized Agent Signature	Date
N. Evan Dulin		12/5/2017

11c. Property Owner Signature (if not applicant) [help]

Not required if project is on existing rights-of-way or easements (provide copy of easement with JARPA).

I consent to the permitting agencies entering the property where the project is located to inspect the project site or any work. These inspections shall occur at reasonable times and, if practical, with prior notice to the landowner.

Property Owner Printed Name	Property Owner Signature	Date

18 U.S.C §1001 provides that: Whoever, in any manner within the jurisdiction of any department or agency of the United States knowingly falsifies, conceals, or covers up by any trick, scheme, or device a material fact or makes any false, fictitious, or fraudulent statements or representations or makes or uses any false writing or document knowing same to contain any false, fictitious, or fraudulent statement or entry, shall be fined not more than $10,000 or imprisoned not more than 5 years or both.

If you require this document in another format, contact the Governor's Office for Regulatory Innovation and Assistance (ORIA) at (800) 917-0043. People with hearing loss can call 711 for Washington Relay Service. People with a speech disability can call (877) 833-6341. ORIA publication number: ORIA-16-011 rev. 09/2016

TYPHA SOLAR PROJECT - ENTRANCE ROAD IMPROVEMENT

5MWac SOLAR PV POWER PLANT
KITTITAS COUNTY WASHINGTON

TUUSSO ENERGY

STATE MAP:

PROJECT TEAM:

PROJECT DEVELOPER:
TUUSSO ENERGY, LLC.
500 YALE AVE. NORTH
SEATTLE, WASHINGTON 98109

CIVIL ENGINEER:
SIERRA OVERHEAD ANALYTICS, INC.
P.O. BOX 1716 TWAIN HARTE, CA 95383

AUTHORITY HAVING JURISDICTION:
US ARMY CORE OF ENGINEERS
KITTITAS COUNTY BUILDING DEPARTMENT

SITE DETAILS:

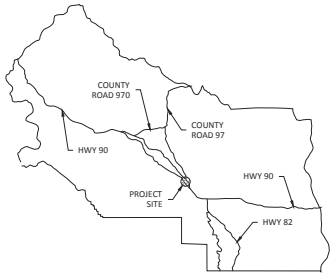
SITE LIMIT OF DISTURBANCE (LOD): ±56 ACRES
PROJECT DISTURBED AREA (PDA): 630 SQ.FT.

NOTE: LIMIT OF DISTURBANCE (LOD) INCLUDES THE ENTIRE AREA WITHIN THE PROJECT FENCE AND PERIMETER CONTROLS, INCLUDING JURISDICTIONAL WETLANDS AS DEPICTED UNLESS OTHERWISE PERMITTED.

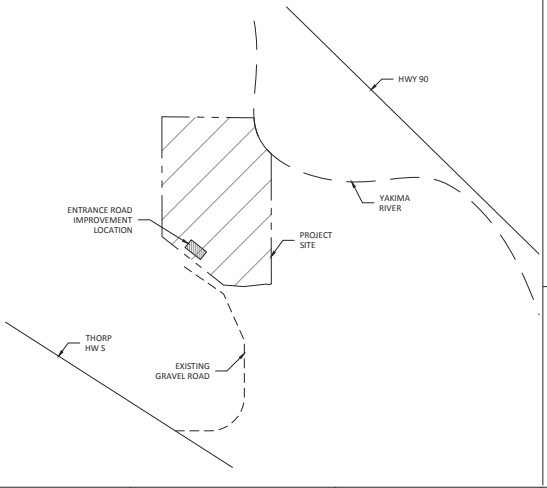
THE PROJECT DISTURBED AREA (PDA) IS THE ESTIMATED LAND DISTURBANCE FROM CONSTRUCTION ACTIVITIES FOR THIS ENTRANCE ROAD IMPROVEMENT PROJECT.

DRAWING SHEET INDEX:

COUNTY MAP:



PROJECT MAP:



GENERAL NOTES:

SCOPE OF WORK:
THIS PROJECT ENTAILS THE IMPROVEMENT OF A SECTION OF THE PROJECT ENTRANCE ROAD. THE IMPROVEMENT WILL ALLOW CONSTRUCTION EQUIPMENT TO PASS TO THE TYPHA SITE OF TUUSSO'S PV DEVELOPMENT PROJECT.

PROJECT LOCATION:
SECTION 30; TOWNSHIP 18 NORTH; RANGE 18 EAST

LAT/LON: 47.024157 N; 120.628488 W

KITTITAS COUNTY TAX PARCEL IDENTIFICATION NUMBERS: 712633; 752633.

SYSTEM DESCRIPTION:
THE ACCESS RAMP TO THE CONSTRUCTION STAGING AREA WILL BE IMPROVED FOR PASSAGE OF CONSTRUCTION TRAFFIC USING QUARRY SPALLS AND GEOTEXTILE.

PERMITEE:
TUUSSO ENERGY, LLC.
500 YALE AVENUE NORTH
SEATTLE, WASHINGTON 98109

_____
KITTITAS COUNTY APPROVAL

_____
US ARMY CORE OF ENGINEERS APPROVAL

soa
SIERRA OVERHEAD ANALYTICS

TUUSSO ENERGY

500 YALE AVE. NORTH
SEATTLE, WA 98109
(T) 925.659.3
(F) 925.659.3

REV #	DESCRIPTION	DATE
A	USACE SUBMITTAL	28 - Nov - 17

PROJECT NAME:
TYPHA SOLAR PROJECT

PROJECT ADDRESS:
ELLENSBURG
KITTITAS COUNTY
WA, 98926

SEAL:
FOR PERMIT PREVIEW

DATE: 28-Nov-17
PROJECT #: 000-000-000
DRAWN BY:
CHECKED BY: PP
DIVISION CLASS: DG
SHEET NAME: COVER SHEET
SHEET NUMBER: C-1
REV #: A

NOTES:

ALL ON-SITE ENTRANCE ROAD IMPROVEMENT CONSTRUCTION SHALL ADHERE TO AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO) GUIDE FOR DESIGN OF PAVEMENT STRUCTURES.

ALL EARTHWORK AND TESTING SHALL ADHERE TO THE RECOMMENDATIONS OF THE GEOTECHNICAL REPORT PRODUCED BY SWIFTWATER ENVIRONMENTAL & GEOTECHNICAL TITLED "GEOTECHNICAL ENGINEERING STUDY, PHASE 1, TYPHA SOLAR ARRAY SITE" DATED JUNE 16, 2017. EARTHWORK ON THE SITE SHOULD BE OBSERVED AND EVALUATED BY SWIFTWATER. THE EVALUATION OF EARTHWORK SHOULD INCLUDE OBSERVATION AND TESTING OF ON-SITE BACKFILL MATERIAL AND OTHER GEOTECHNICAL CONDITIONS EXPOSED DURING ENTRANCE ROAD IMPROVEMENT WORK.

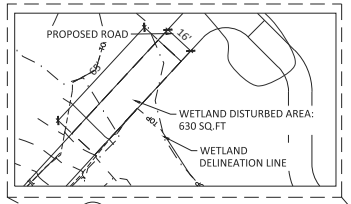
EARTHWORK

1. COMPACTION STANDARD IS 90% OF MATERIALS MAXIMUM MODIFIED PROCTOR DRY DENSITY TEST (ASTM D1557)
2. MOISTURE CONTENT OF ON-SITE SOILS SHALL BE ±3% THE OPTIMUM MOISTURE CONTENT VALUE AS DETERMINED BY THE MAXIMUM MODIFIED PROCTOR DRY DENSITY TEST AT THE TIME OF PLACEMENT AND COMPACTION
3. COMPACTION TESTING PROTOCOL: AT LEAST TWO TESTS PER LIFT PER DAY
4. PLACE FILL IN MAXIMUM 12 INCH LIFTS
5. PRIOR TO PLACING FILL, ALL UNSUITABLE MATERIAL SHALL BE REMOVED FROM THE CONSTRUCTION AREAS. THIS SHALL INCLUDE THE REMOVAL OF ALL VEGETATION AND TOPSOIL, DEBRIS, LOOSE AND DISTURBED SOIL, AND OTHER DELETERIOUS MATERIALS THAT MAY EXIST WITHIN THE AREA OF THE PROPOSED CONSTRUCTION
6. STRUCTURAL FILL SHALL MEET THE FOLLOWING MATERIAL REQUIREMENTS:

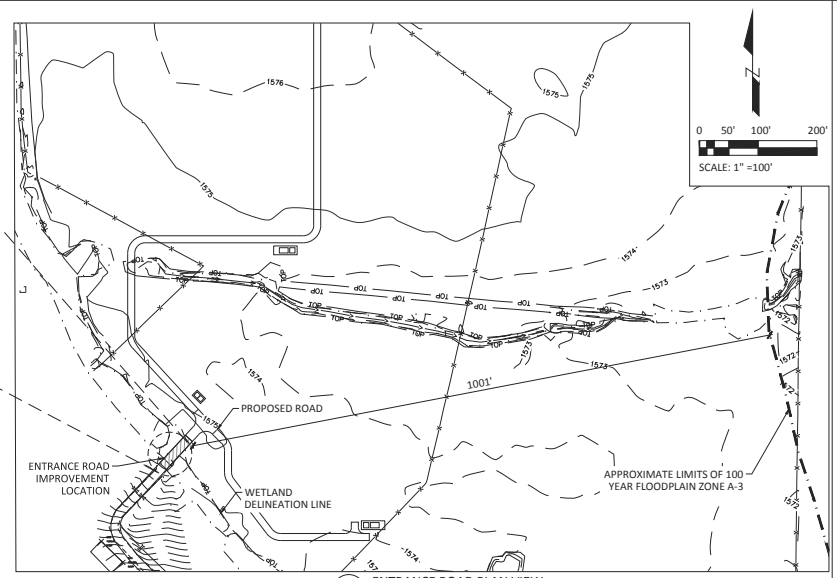
GRADATION(ASTM C 136)	PERCENT FINER BY WEIGHT
3"	100
NO. 4 SIEVE	35 - 100
NO. 200 SIEVE	LESS THAN 5%

- MAXIMUM LIQUID LIMIT (LL) 35
- MAXIMUM PLASTICITY INDEX (PI) 15
- MAXIMUM EXPANSIVE POTENTIAL (%)..... 4
- MAXIMUM SULFATE CONTENT (%) 0
- MAXIMUM SOLUBILITY (%)..... 2

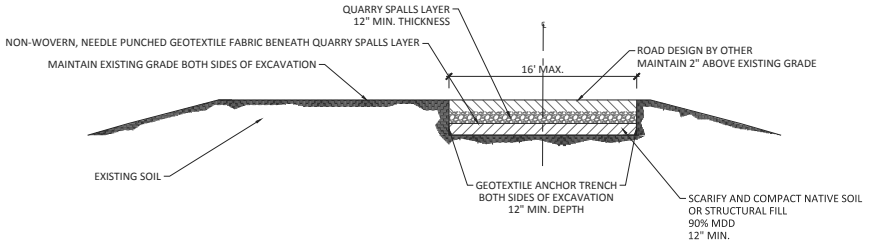
7. ALL EARTHWORK, UNLESS SPECIFIED ON DRAWINGS SHALL BE CONSIDERED STRUCTURAL FILL
8. IF UNDERGROUND FACILITIES ARE ENCOUNTERED DURING SITE CLEARING, SUCH FEATURES SHOULD BE REMOVED AND THE EXCAVATION THOROUGHLY CLEANED AND BACKFILLED
9. DRY AND LOW-DENSITY SOIL SHOULD BE REMOVED OR COMPACTED IN-PLACE PRIOR TO PLACING FILL



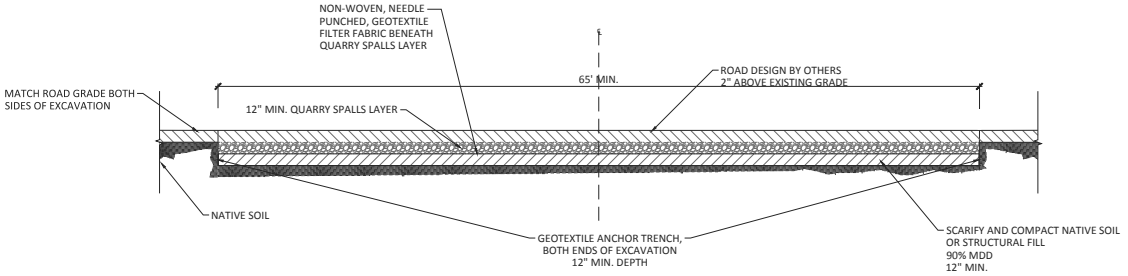
2 ENTRANCE ROAD DETAILED PLAN VIEW
SCALE: 1"=30'



1 ENTRANCE ROAD PLAN VIEW
SCALE: 1" = 100'



3 ENTRANCE ROAD IMPROVEMENT DETAIL #1, TYP.
SCALE: NTS



4 ENTRANCE ROAD IMPROVEMENT DETAIL #2, TYP.
SCALE: NTS

soa
SIERRA OVERHEAD ANALYTICS

TUUSSO ENERGY
500 YALE AVE. NORTH
SEATTLE, WA 98109
(T) 925.659.3
(F) 925.659.3

REV #	DESCRIPTION	DATE
A	USACE SUBMITTAL	28 - Nov - 17

PROJECT NAME: TYPHA SOLAR PROJECT

PROJECT ADDRESS: ELLENSBURG
KITTITAS COUNTY
WA, 98926

SEAL: FOR PERMIT PREVIEW

DATE: 28-Nov-17
PROJECT #: 000-000-000
DRAWN BY:
CHECKED BY: PP
DIVISION CLASS: DG
SHEET NAME: TYPICAL CIVIL DETAILS
SHEET NUMBER: C-2
REV #: A

Legend

Project Site

0 200 400 Feet

0 50 100 Meters

TUUSSO Typha Solar Project
Joint Aquatic Resources Permit Application
Kittitas County, WA

SWCA
ENVIRONMENTAL CONSULTANTS
221 First Avenue West, Suite 205
Seattle, WA 98119
www.swca.com
206.781.1909

Project: 38727.05

December 05, 2017

TYPHA SOLAR PROJECT - ENTRANCE ROAD IMPROVEMENT

5MWac SOLAR PV POWER PLANT
KITTITAS COUNTY WASHINGTON

TUUSSO ENERGY

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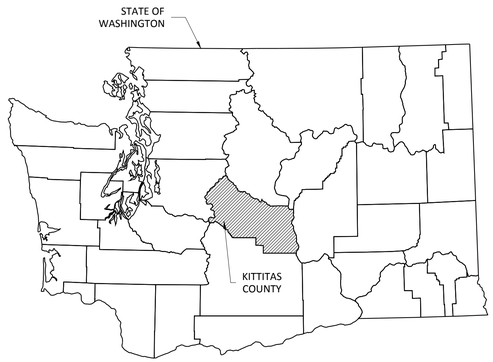

PROJECT TEAM:

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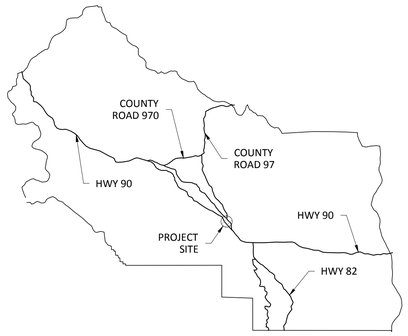

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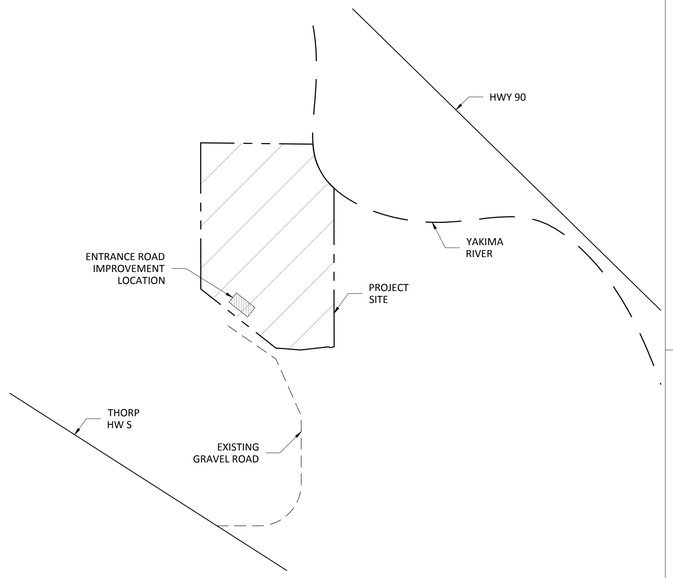

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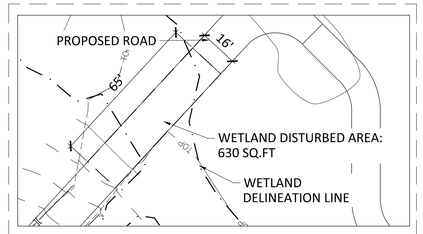
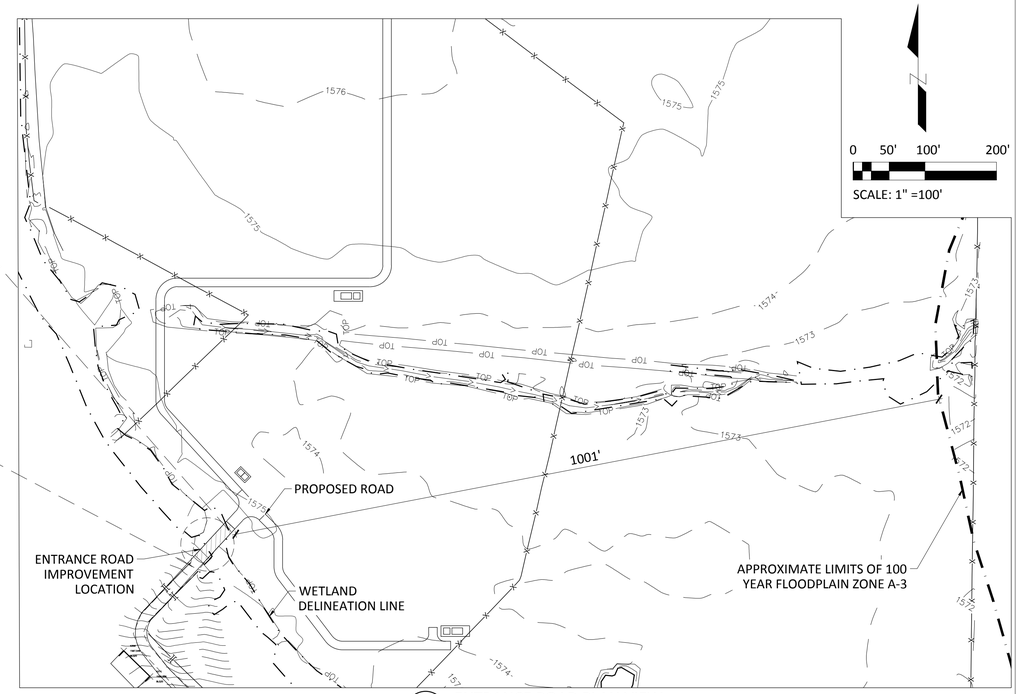
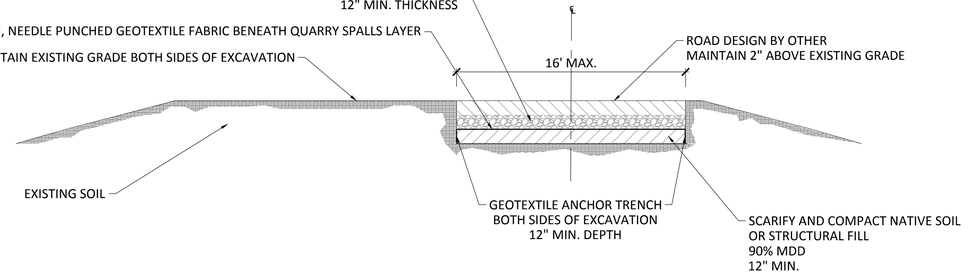


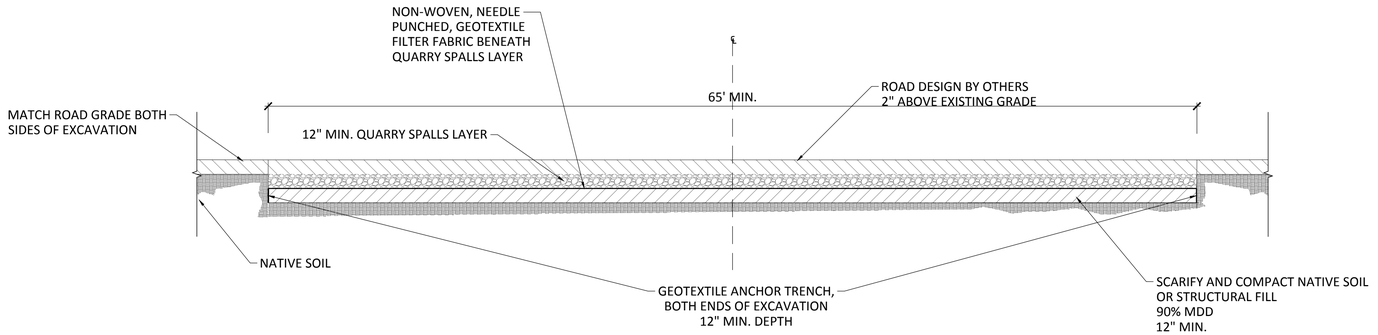
2 ENTRANCE ROAD DETAILED PLAN VIEW
SCALE: 1"=30'



1 ENTRANCE ROAD PLAN VIEW
SCALE: 1" = 100'



3 ENTRANCE ROAD IMPROVEMENT DETAIL #1, TYP.
SCALE: NTS



4 ENTRANCE ROAD IMPROVEMENT DETAIL #2, TYP.
SCALE: NTS

SIERRA OVERHEAD ANALYTICS

TUUSSO ENERGY
500 YALE AVE. NORTH
SEATTLE, WA 98109
(T) 925.659.3
(F) 925.659.3

REV #	DESCRIPTION	DATE
A	USACE SUBMITTAL	28 - Nov - 17

PROJECT NAME:
TYPHA SOLAR PROJECT

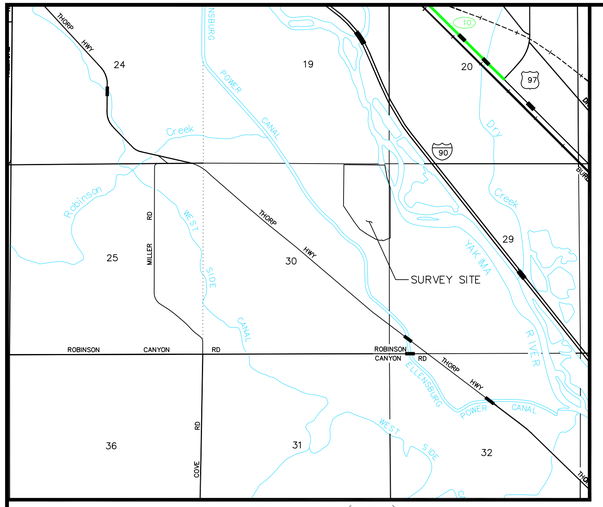
PROJECT ADDRESS:
ELLENSBURG
KITTITAS COUNTY
WA, 98926

SEAL:
FOR PERMIT PREVIEW

DATE: 28-Nov-17
PROJECT #: 000-000-000
DRAWN BY:
CHECKED BY: PP
DIVISION CLASS: DG
SHEET NAME: TYPICAL CIVIL DETAILS
SHEET NUMBER: C-2
REV #: A

TUUSSO ENERGY - TYPHA SITE

A PORTION OF THE EAST 1/2 OF THE NE 1/4 OF SECTION 30, T. 18 N., R. 18 E., W.M.
KITTITAS COUNTY, STATE OF WASHINGTON



VICINITY MAP (NTS)

SHEET INDEX:

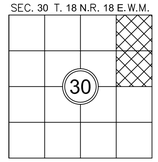
NOTES:

1. ALL CONSTRUCTION TECHNIQUES AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OR COUNTY STANDARDS (AS APPLICABLE) AND AS SHOWN IN THESE PLANS.
2. BOUNDARY AND TOPOGRAPHIC SURVEY SHOWN HEREON WAS PREPARED BY ENCOMPASS ENGINEERING AND SURVEYING IN MAY 2017 UNDER DIRECT SUPERVISION OF DUSTIN PIERCE, PLS #45503.

PROPERTY INFORMATION:

APPLICANT:	TUUSSO ENERGY, LLC 500 YALE AVE N SEATTLE, WA 98109
PARCEL NUMBERS:	712633, 752633, 802633
PARCEL 1 SIZE:	80.44 ACRES
TRACT 1A SIZE:	54.29 ACRES (LEASED)
TRACT 2A SIZE:	1.85 ACRES (LEASED)
TRACT 3A SIZE:	24.30 ACRES (NOT LEASED)
PARCEL 4 SIZE:	0.97 ACRES (NOT LEASED)
PROPERTY ADDRESS:	TBD, ELLENSBURG, WA 98926
ZONE:	COMMERCIAL AGRICULTURAL
IRRIGATION DISTRICT:	WEST SIDE, PACKWOOD

INDEX LOCATION
SEC. 30 T. 18 N.R. 18 E.W.M.



811
Know what's **below.**
Call before you dig.

REVISIONS

DESCRIPTION	BY	DATE

TUUSSO ENERGY, LLC
TYPHA SITE
COVER SHEET AND OVERALL SITE PLAN

Encompass
ENGINEERING & SURVEYING
Western Washington Division
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250 • Fax: (425) 391-3055
Eastern Washington Division
407 Southwater Blvd • Cle Elum, WA 98922 • Phone: (509) 674-7433 • Fax: (509) 674-7419

JOB NO.	17019
DATE	Sept. 27 2017
SCALE	AS SHOWN
DESIGNED	SF
DRAWN	SF
CHECKED	TML
APPROVED	TML
SHEET	C1.0

STANDARD PLAN NOTES:

1. ALL CONSTRUCTION TECHNIQUES AND MATERIALS SHALL BE IN ACCORDANCE WITH THE CURRENT STATE OR COUNTY STANDARDS AND AS SHOWN IN THESE PLANS.
2. A COPY OF THE APPROVED PLANS MUST BE ON SITE WHENEVER CONSTRUCTION IS IN PROGRESS.
3. THE CONTRACTOR SHALL OBTAIN ALL PERMITS REQUIRED FOR WORK THAT ARE NOT PROVIDED BY THE OWNER PRIOR TO START OF CONSTRUCTION.
4. PAVED OR SIMILAR ESTABLISHED SURFACES INCLUDING ROADWAYS, SIDEWALKS AND CURBS THAT ARE TO REMAIN BUT ARE DAMAGED BY NEW CONSTRUCTION SHALL BE REPAIRED AS REQUIRED BY THE INSPECTOR.
5. ALL SURVEYING AND STAKING OF IMPROVEMENTS SHALL BE APPROVED BY THE OWNER. CONTRACTOR SHALL COORDINATE AND VERIFY WITH THE OWNER PRIOR TO OBTAINING STAKING SERVICES.
6. THE CONTRACTOR SHALL NOTIFY THE KITTITAS COUNTY FIRE DISTRICT (509-386-1495) TWENTY-FOUR (24) HOURS IN ADVANCE OF ALL WATER SERVICE INTERRUPTIONS, HYDRANT SHUT-OFFS, AND STREET CLOSURES OR OTHER ACCESS BLOCKAGE. THE CONTRACTOR SHALL ALSO NOTIFY THE DISTRICT OF ALL NEW, RELOCATED, OR ELIMINATED HYDRANTS RESULTING FROM THIS WORK.
7. ALL LOCATIONS OF EXISTING UTILITIES SHOWN HEREON HAVE BEEN ESTABLISHED BY FIELD SURVEY OR OBTAINED FROM AVAILABLE RECORDS AND SHOULD THEREFORE BE CONSIDERED APPROXIMATE ONLY AND NOT NECESSARILY COMPLETE. IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO INDEPENDENTLY VERIFY THE ACCURACY OF ALL UTILITY LOCATIONS SHOWN AND TO FURTHER DISCOVER AND AVOID ANY OTHER UTILITIES NOT SHOWN HEREON WHICH MAY BE AFFECTED BY THE IMPLEMENTATION OF THIS PLAN.
8. THE CONTRACTOR SHALL LOCATE AND PROTECT ALL ACTIVE CASTINGS AND UTILITIES DURING CONSTRUCTION AND SHALL CONTACT THE UNDERGROUND UTILITIES LOCATOR SERVICE (1-800-424-5555 OR 811) AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
9. THE CONTRACTOR SHALL ADJUST ALL EXISTING MANHOLE RIMS, DRAINAGE STRUCTURE LIDS, VALVE BOXES AND UTILITY ACCESS STRUCTURES TO FINISH GRADE WITHIN AREAS AFFECTED BY THE PROPOSED IMPROVEMENTS.
10. THE CONTRACTOR SHALL PROVIDE FOR ALL COMPACTION TESTS REQUIRED BY THE INSPECTOR.
11. BACKFILL MATERIAL SHALL MEET STATE OR COUNTY STANDARDS.
12. INSPECTION AND ACCEPTANCE OF ALL WORK WILL BE ACCOMPLISHED BY THE DESIGNATED INSPECTOR. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO COORDINATE AND SCHEDULE APPROPRIATE INSPECTIONS, ALLOWING PROPER ADVANCE NOTICE. THE INSPECTOR MAY REQUIRE RECONSTRUCTION OF ITEMS THAT DO NOT MEET THE CONTRACT DOCUMENTS OR THAT WERE CONSTRUCTED WITHOUT INSPECTION.
13. THE CONTRACTOR SHALL PROVIDE AND MAINTAIN BEST MANAGEMENT PRACTICES AS SHOWN HEREIN TO INSURE THAT SEDIMENT-LADEN WATER DOES NOT ENTER THE WATER OF THE STATE. AS CONSTRUCTION PROGRESSES AND UNEXPECTED (SEASONAL) CONDITIONS DICTATE, ADDITIONAL BEST MANAGEMENT PRACTICES MAY BE REQUIRED. THEREFORE, DURING THE COURSE OF CONSTRUCTION IT SHALL BE THE OBLIGATION AND RESPONSIBILITY OF THE CONTRACTOR TO ADDRESS ANY NEW CONDITIONS THAT MAY BE CREATED BY HIS ACTIVITIES AND TO PROVIDE ADDITIONAL FACILITIES THAT MAY BE NEEDED TO PROTECT ADJACENT PROPERTIES.
14. THE CONTRACTOR SHALL KEEP ALL STREETS AND PUBLIC RIGHT-OF-WAY CLEAN AT ALL TIMES BY SWEEPING.
15. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AS NECESSARY THROUGHOUT THE PROJECT. TRAFFIC CONTROL SHALL BE IN ACCORDANCE WITH THE MUTCD, STATE, AND/OR COUNTY STANDARDS.
16. CONTRACTOR SHALL NOT MAKE ANY REVISIONS IN THE FIELD WITHOUT PRIOR WRITTEN APPROVAL BY THE ENGINEER.
17. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS 1-07.23 - TRAFFIC CONTROL, SHALL APPLY.
18. ANY TRENCH DEEPER THAN 5 FEET WILL REQUIRE SHORING FOR TRENCH WALL STABILIZATION.

GENERAL TESC NOTES:

1. APPROVAL OF THIS TEMPORARY EROSION AND SEDIMENTATION CONTROL (TESC) PLAN DOES NOT CONSTITUTE AN APPROVAL OF PERMANENT ROAD OR DRAINAGE DESIGN (E.G. SIZE AND LOCATION OF ROADS, PIPES, RESTRICTORS, CHANNELS, RETENTION FACILITIES, UTILITIES, ETC.).
2. THE IMPLEMENTATION OF THESE TESC PLANS AND THE CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THESE TESC FACILITIES IS THE RESPONSIBILITY OF THE APPLICANT OR A TESC SUPERVISOR UNTIL ALL CONSTRUCTION IS APPROVED.
3. THE BOUNDARIES OF THE CLEARING LIMITS SHOWN ON THIS PLAN SHALL BE CLEARLY FLAGGED BY A CONTINUOUS LENGTH OF SURVEY TAPE (OR FENCING, IF REQUIRED) PRIOR TO CONSTRUCTION. DURING THE CONSTRUCTION PERIOD, NO DISTURBANCE BEYOND THE CLEARING LIMITS SHALL BE PERMITTED. THE CLEARING LIMITS SHALL BE MAINTAINED BY THE APPLICANT/TESC SUPERVISOR FOR THE DURATION OF CONSTRUCTION.
4. THE TESC FACILITIES SHOWN ON THIS PLAN MUST BE CONSTRUCTED PRIOR TO OR IN CONJUNCTION WITH ALL CLEARING AND GRADING SO AS TO ENSURE THAT THE TRANSPORT OF SEDIMENT TO SURFACE WATERS, DRAINAGE SYSTEMS, AND ADJACENT PROPERTIES IS MINIMIZED.
5. THE TESC FACILITIES SHOWN ON THIS PLAN ARE THE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE TESC FACILITIES SHALL BE UPGRADED AS NEEDED FOR UNEXPECTED STORM EVENTS AND MODIFIED TO ACCOUNT FOR CHANGING SITE CONDITIONS (E.G. ADDITIONAL SUMP PUMPS, RELOCATION OF DITCHES AND SILT FENCES, ETC.).
6. ANY AREAS OF EXPOSED SOILS, INCLUDING ROADWAY EMBANKMENTS, THAT WILL NOT BE DISTURBED FOR TEN DAYS DURING THE WET SEASON OR FOURTEEN DAYS DURING THE DRY SEASON SHALL BE IMMEDIATELY STABILIZED WITH THE APPROVED TESC METHODS (E.G., SEEDING, MULCHING, PLASTIC COVERING, ETC.).
7. ANY AREA NEEDING TESC MEASURES, NOT REQUIRING IMMEDIATE ATTENTION, SHALL BE ADDRESSED WITHIN FIFTEEN (15) DAYS.
8. THE TESC FACILITIES ON INACTIVE SITES SHALL BE INSPECTED AND MAINTAINED A MINIMUM OF ONCE A MONTH OR WITHIN 48 HOURS FOLLOWING A STORM EVENT.
9. AT NO TIME SHALL MORE THAN ONE (1) FOOT OF SEDIMENT BE ALLOWED TO ACCUMULATE WITHIN A CATCH BASIN. ALL CATCH BASINS AND CONVEYANCE LINES SHALL BE CLEANED PRIOR TO PAVING. THE CLEANING OPERATION SHALL NOT FLUSH SEDIMENT-LADEN WATER INTO THE DOWNSTREAM SYSTEM.
10. STABILIZED CONSTRUCTION ENTRANCES AND ROADS SHALL BE INSTALLED AT THE BEGINNING OF CONSTRUCTION AND MAINTAINED FOR THE DURATION OF THE PROJECT. ADDITIONAL MEASURES, SUCH AS WASH PADS, MAY BE REQUIRED TO ENSURE THAT ALL PAVED AREAS ARE KEPT CLEAN FOR THE DURATION OF THE PROJECT.
11. ANY PERMANENT RETENTION/DETENTION FACILITY USED AS A TEMPORARY SETTLING BASIN SHALL BE MODIFIED WITH THE NECESSARY EROSION CONTROL MEASURES AND SHALL PROVIDE ADEQUATE STORAGE CAPACITY. IF THE PERMANENT FACILITY IS TO FUNCTION ULTIMATELY AS AN INFILTRATION SYSTEM, THE TEMPORARY FACILITY MUST BE GRADED SO THAT THE BOTTOM AND SIDES ARE AT LEAST ONE FOOT ABOVE THE FINAL GRADE OF THE PERMANENT FACILITY.
12. WHERE STRAW MULCH FOR TEMPORARY EROSION CONTROL IS REQUIRED, IT SHALL BE APPLIED AT A MINIMUM THICKNESS OF TWO INCHES

STANDARD GRADING NOTES:

1. ALL GRADING ACTIVITIES, INCLUDING EXCAVATION, BACKFILL AND COMPACTION, SHALL BE DONE IN ACCORDANCE WITH STATE OR COUNTY STANDARDS AS APPLICABLE.
2. WITHIN ANY AREAS TO RECEIVE STRUCTURAL FILL, PAVEMENTS OR HARDSCAPE, THE SUBGRADE SHALL BE SCARIFIED, MOISTURE CONDITIONED, AND COMPACTED TO AT LEAST 95% MAXIMUM DENSITY (ASTM D 1557).
3. CONTRACTOR SHALL OBTAIN AN APPROVAL BY THE GEOTECHNICAL ENGINEER PRIOR TO PROCEEDING WITH ANY OVEREXCAVATION. CONTRACTOR SHALL VERIFY THE AMOUNT OF OVEREXCAVATION WITH GEOTECHNICAL ENGINEER.
4. COMPACTION SHALL BE DONE PER STATE OR COUNTY STANDARDS AS APPLICABLE. SITE EXCAVATION AND/OR SUBGRADE PREPARATION SHALL BE COMPLETED BEFORE PLACING STRUCTURAL FILL. COMPACTION SHALL BE VERIFIED BY DENSITY TESTING.
5. ALL TEMPORARY CUT SLOPES SHALL NOT EXCEED 1.5H:1V. ALL PERMANENT CUT SLOPES SHALL NOT EXCEED 2H:1V OR AS SHOWN ON PLANS. ALL PERMANENT FILL SLOPES SHALL NOT EXCEED 2H:1V.
6. CONTRACTOR SHALL IMPLEMENT APPROPRIATE PROTECTION AND TRAFFIC CONTROL DURING CONSTRUCTION TO DIRECT TRUCK TRAFFIC.
7. ANY AND ALL FILL MATERIAL PLACED ON THE LOT SHALL BE COMPACTED AND A COMPACTION INSPECTION REPORT FOR THE COMPACTION AND BEARING CAPACITY OF THAT FILL MATERIAL SHALL BE PROVIDED TO THE STATE OR COUNTY AS APPLICABLE WITHIN 60 DAYS OF THE PLACEMENT OF THE FILL MATERIAL.
8. ALL EXCESS SOIL SHALL BE OFF-HAULED TO A LEGAL DISPOSAL SITE. NO EXCESS SOIL SHALL BE SPREAD ON THE SITE WITHOUT CLEARLY BEING SHOWN ON THE APPROVED GRADING PLAN.
9. ALL CUT AND FILL SLOPES AND ALL EXPOSED DIRT SHALL BE PLANTED, WATERED AND MAINTAINED UNTIL EFFECTIVE EROSION CONTROL HAS BEEN ESTABLISHED TO THE SATISFACTION OF THE STATE OR COUNTY AS APPLICABLE.
10. CONTRACTOR SHALL PROVIDE HIS/HER OWN EARTHWORK CALCULATIONS FOR ALL CUT AND FILL OPERATIONS.

ABBREVIATIONS:

AC – ASPHALT CONCRETE
ACP – ABESTOS CEMENT PIPE
ADD'L – ADDITIONAL
AD – AREA DRAIN
ADJ – ADJACENT
ANSI – AMERCIAN NATIONAL STANDARDS INSTITUTE
ALT – ALTERNATE
ALUM – ALUMINUM
APPROX – APPROXIMATE(LY)
ARCH – ARCHITECTURAL)
AP – ANGLE POINT
ASPH – ASPHALT
ASSY – ASSEMBLY
ASTM – AMERICAN SOCIETY OF TESTING AND MATERIALS
AVE – AVENUE
BC – BACK OF CURB
BF – BLIND FLANGE
BLDG – BUILDING
BLDG – BUILDING CORNER
BLK – BLOCK
BLVD – BOULEVARD
BM – BENCHMARK
BNDY – BOUNDARY
BO – BLOW OFF
BOW – BOTTOM OF WALL (AT FINISHED GRADE)
BSBL – BUILDING SETBACK LINE
BVC – BEGINNING OF VERTICAL CURVE
BVCE – BEGIN VERTICAL CURVE ELEVATION
BVCS – BEGIN VERTICAL CURVE STATION
BW – BACK OF WALK
CB – CATCH BASIN
CF – CUBIC FEET (FOOT)
CIP – CAST IRON PIPE
CJ – CONSTRUCTION JOINT
CL – CLASS
C/L – CENTER LINE
CLR – CLEARENCE
CMP – CORRUGATED METAL PIPE
CO – CLEAN OUT
CONN – CONNECTION
CONT – CONTINUOUS (CONTINUED)
CONTR – CONTRACTOR
C, CONC – CONCRETE
CONST – CONSTRUCTION
CP – CONTROL POINT
CFS – CUBIC FEET PER SECOND
CTR – CENTER(ED)
CTV – CABLE TV
C&G – CURB AND GUTTER
CY – CUBIC YARD
DCVA – DOUBLE CHECK VALVE ASSEMBLY
DDCV – DOUBLE DETECTOR CHECK VALVE
DEPT. – DEPARTMENT
DET – DETAIL OR DETENTION
DIP – DUCTILE IRON PIPE
DIA(S) – DIAMETER
DIM – DIMENSION
DOT – DEPARTMENT OF TRANSPORTATION
DS – DOWN SPOUT
DWG – DRAWING
E – EAST(ING)
EA – EACH
EL – ELEVATION
ELEC – ELETRICAL
EP – EDGE OF PAVEMENT
EQUIV – EQUIVALENT
EVC – END OF VERTICAL CURVE
EVCE – END OF VERTICAL CURVE ELEVATION
EVCS – END OF VERTICAL CURVE STATION
EX, EXIST – EXISTING
FC – FACE OF CURB
FD – FLOOR DRAIN
FDC – FIRE DEPARTMENT CONNECTION
FFE – FINISH FLOOR ELEVATION
FH – FIRE HYDRANT
FL – FLANGED OR FLOW LINE
FLR – FLOOR
FS – FINISHED SURFACE
FT (') – FOOT (FEET)
FTG – FOOTING
G – GAS MAIN
GA – GAUGE
GALV – GALVANIZED
GB – GRADE BREAK
GM– GAS METER
GRD – GRADE
HB – HOSE BIBB
HDPE – HIGH DENSITY POLYETHYLENE
HORIZ (H) – HORIZONTAL
HT – HEIGHT
HYD – HYDRANT
ID – INSIDE DIAMETER
IE – INVERT ELEVATION
IN (") – INCHES
INV – INVERT
IRR – IRRIGATION WATER
L – LENGTH
LB. # – POUND(S)
LF – LINEAR FEET
LN – LANE
MATL – MATERIAL
MAX – MAXIMUN
MFR – MANUFACTURER
MH – MANHOLE
MIN – MINIMUM
MISC – MISCELLANEOUS
MJ – MECHANICAL JOINT
N – NORTH(ING)
NO (#) – NUMBER
N.T.S. – NOT TO SCALE
O.C. – ON CENTER
O.D. – OUTSIDE DIAMETER
O/W – OIL WATER
P – POWER
PC – POINT OF CURVATURE
PERF – PERFORATED
PI – POINT OF INTERSECTION
PIV – POST INDICTOR VALVE
PL – PROPERTY LINE
PP – POWER POLE
PROV – PROVIDED
PSF – POUNDS PER SQUARE FOOT
PSI – POINDS PER SQUARE INCH
PT – POINT OF TANGENCY
PVC – POLYVINYL CHLORIDE
PVI – POINT OF VERTICAL INTERSECTION
PVMT – PAVEMENT
PVT – POINT OF VERTICAL TANGENT
QTY – QUANTITY
RAD (R) – RADIUS
RCP – REINFORCED CONCRETE PIPE
RD – ROAD
REF – REFERENCE
REINF – REINFORCED
REQ – REQUIRED
RET – RETAINING
ROW – RIGHT-OF-WAY
RR – RAILROAD
S – SOUTH
S, SL – SLOPE
SCH – SCHEDULE
SD – STORM DRAIN
SF – SQUARE FOOT
SHT – SHEET
SIM – SIMILAR
SPEC – SPECIFICATION(S)
SQ – SQUARE
SS – SANITARY SEWER
ST – STREET
STA – STATION
STD – STANDARD
STL – STEEL
T – TELEPHONE WIRE
TBM – TEMPORARY BENCH MARK
TC – TOP OF CURB
TEMP – TEMPORARY
TG/RIM – TOP OF GRATE/RIM
THRU – THROUGH
TOE – TOE OF WALL, OR SLOPE
TOP – TOP OF WALL OR SLOPE
TOW – TOP OF WALL
TYP – TYPICAL
VC – VERTICAL CURVE
VOL – VOLUME
W – WEST
W/ – WITH
WM – WATER METER
W/O – WITHOUT
WQ – WATER QUALITY
WT – WEIGHT
WWF – WELDED WIRE FABRIC
WV – WATER VALVE
YD – YARD DRAIN

LEGEND

	EXISTING:	PROPOSED:
BOUNDARY LINE/RIGHT-OF-WAY		
LOT LINE		
STREET MONUMENT (IN CONCRETE)		
PROPERTY CORNER		
BENCHMARK/CONTROL POINT		
TEMPORARY BENCHMARK	TBM	TBM
EASEMENT LINE		
CENTERLINE		
CURB/GUTTER/SIDEWALK LINE		
EDGE OF PAVEMENT LINE		
CHAIN LINK FENCE LINE		
SIGN		
STREET LIGHT (ELECTROLIER)		
GRADE BREAK LINE		
CONTOUR LINE (MAJOR)	1650	1650
CONTOUR LINE (MINOR)	1651	1651
CATCH BASIN (TYPE 1)		
STORM DRAIN MANHOLE/CATCH BASIN TYPE 2	SD	
STORM DRAIN LINE	SD	
CONTROL STRUCTURE		
RIP-RAP PAD		
SANITARY SEWER LINE	SS	
SANITARY SEWER CLEANOUT		
SANITARY SEWER MANHOLE		
WATERMAIN LINE	W	
GATE VALVE (MECHANICAL JOINT)		
GATE VALVE (FLANGE)		
WATER METER		
FIRE HYDRANT		
CAP		
GAS LINE	G	G
GAS VALVE		
UNDERGROUND ELECTRIC LINE	E	E
POWER POLE / UTILITY POLE		
GUY ANCHOR		
ELECTRICAL TRANSFORMER / VAULT	P	P
TELEPHONE VAULT/PEDESTAL	T	T
TELEPHONE MANHOLE	T	T
100 YR FLOODPLAIN HATCH		
CONCRETE HATCH		
GRAVEL HATCH		
ALL WEATHER ROAD HATCH (COMPACTED SOIL OR GRAVEL)		
PROPOSED LANDSCAPING STRIP		

CONTRACTOR RESPONSIBILITY:

CONTRACTOR AGREES THAT HE SHALL ASSUME SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS, INCLUDING THE SAFETY OF ALL PERSONS AND PROPERTY, DURING THE COURSE OF CONSTRUCTION OF THIS PROJECT, AND THAT THIS REQUIREMENT SHALL APPLY CONTINUOUSLY AND NOT BE LIMITED TO NORMAL WORKING HOURS. THE CONTRACTOR SHALL DEFEND, INDEMNIFY AND HOLD THE OWNER AND THE ENGINEER HARMLESS FROM ANY AND ALL LIABILITY, REAL OR ALLEGED, IN CONNECTION WITH THE PERFORMANCE OF WORK ON THIS PROJECT, EXCEPTING FOR LIABILITY ARISING FROM THE SOLE NEGLIGENCE OF THE OWNER OR THE ENGINEER.

DISCREPANCIES:

IF THERE ARE ANY DISCREPANCIES BETWEEN DIMENSIONS IN DRAWINGS AND EXISTING CONDITIONS WHICH WILL AFFECT THE WORK, THE CONTRACTOR SHALL BRING SUCH DISCREPANCIES TO THE ATTENTION OF THE ENGINEER FOR ADJUSTMENT BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER FITTING OF ALL WORK AND FOR THE COORDINATION OF ALL TRADES, SUBCONTRACTORS, AND PERSONS ENGAGED UPON THIS CONTRACT.

REVISIONS

DESCRIPTION	BY	DATE

PHILIP MICHOULIS ADAMO
STATE OF WASHINGTON
40999
REGISTERED
PROFESSIONAL ENGINEER

TUUSSO ENERGY, LLC
TYPHA SITE
NOTES, LEGEND & ABBREVIATIONS

Encompass
ENGINEERING & SURVEYING
Western Washington Division
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250 • Fax: (425) 391-3055
Eastern Washington Division
407 Swiftwater Blvd. • Cle Elum, WA 98922 • Phone: (509) 674-7433 • Fax: (509) 674-7419

JOB NO.	17019
DATE	Sept. 27 2017
SCALE	AS SHOWN
DESIGNED	SF
DRAWN	SF
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APPROVED	TML
SHEET	C1.1

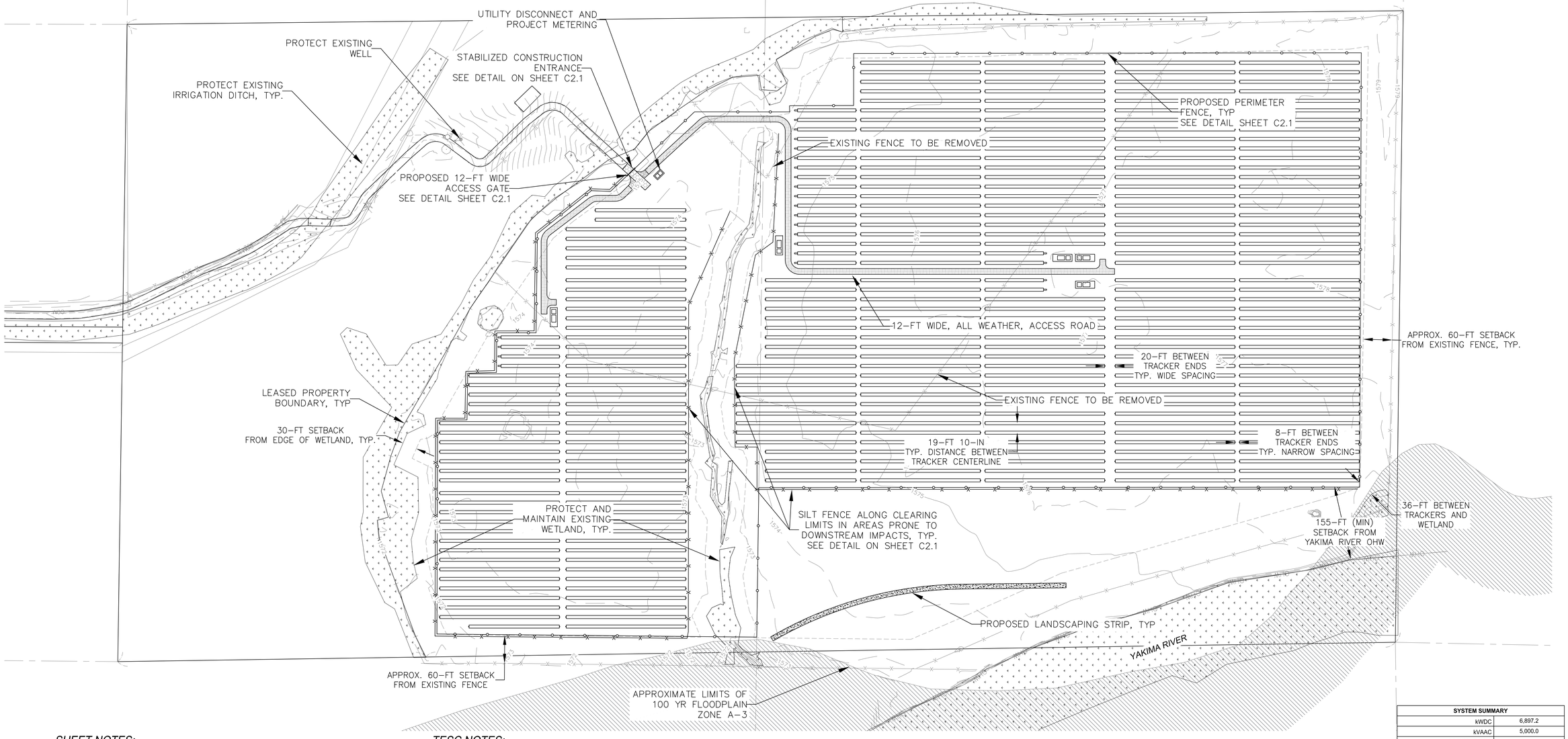
TUUSSO ENERGY - TYPHA SITE

A PORTION OF THE EAST 1/2 OF THE NE 1/4 OF SECTION 30, T. 18 N., R. 18 E., W.M.
KITTITAS COUNTY, STATE OF WASHINGTON

NORTH

05 25 50 100

SCALE 1" = 100'



SHEET NOTES:

1. REFER TO STANDARD PLAN NOTES ON SHEET C1.1.
2. ALL CONSTRUCTION SHALL BE IN ACCORDANCE WITH STATE OR COUNTY STANDARDS AS APPLICABLE. IT SHALL BE THE SOLE RESPONSIBILITY OF THE APPLICANT AND THE PROFESSIONAL CIVIL ENGINEER TO CORRECT ANY ERROR, OMISSION, OR VARIATION FROM THE ABOVE REQUIREMENTS FOUND IN THESE PLANS.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROVIDING ADEQUATE SAFEGUARDS, SAFETY DEVICES, PROTECTIVE EQUIPMENT, FLAGGERS, AND ANY OTHER NEEDED ACTIONS TO PROTECT THE LIFE, HEALTH, AND SAFETY OF THE PUBLIC, AND TO PROTECT PROPERTY IN CONNECTION WITH THE PERFORMANCE OF WORK COVERED BY THE CONTRACTOR. ANY WORK WITHIN THE TRAVELED RIGHT-OF-WAY THAT MAY INTERRUPT NORMAL TRAFFIC FLOW SHALL REQUIRE AT LEAST ONE FLAGGER FOR EACH LANE OF TRAFFIC AFFECTED. ALL SECTIONS OF THE WSDOT STANDARD SPECIFICATIONS 1-07.23 – TRAFFIC CONTROL, SHALL APPLY.
4. ANY TRENCH DEEPER THAN 5 FEET WILL REQUIRE SHORING FOR TRENCH WALL STABILIZATION.

TESC NOTES:

1. SILT FENCE TO BE INSTALLED AS STAND-ALONE UNLESS RUNNING ALONG EXIST. FENCE.
2. CONTRACTOR'S STAGING AREA AND STOCKPILE AREAS SHALL BE DETERMINED PRIOR TO START OF CONSTRUCTION.

TESC LEGEND:

SILT FENCE – SEE DETAIL ON SHEET C2.1

CONSTRUCTION ENTRANCE – SEE DETAIL ON SHEET C2.1

RECOMMENDED CONSTRUCTION SEQUENCE:

(1) PRE-CONSTRUCTION MEETING.
(2) GRADE AND INSTALL CONSTRUCTION ENTRANCE(S).
(3) INSTALL PERIMETER PROTECTION (SILT FENCE, BRUSH BARRIER, ETC.).
(4) GRADE AND STABILIZE CONSTRUCTION ROADS.
(5) INSTALL WIDE FLANGE STEEL PILES.
(6) INSTALL ELECTRICAL UNDERGROUND AND MECHANICAL TRACKERS
(7) INSTALL PANELS
(8) PERFORM ANY REQUIRED SITE RESTORATION

LEGEND

INVERTER STATION
72 MODULE TRACKER
54 MODULE TRACKER
36 MODULE TRACKER

SYSTEM SUMMARY	
kWDC	6,897.2
kVAAC	5,000.0
INVERTER QTY.	5
MODULE QTY.	19,992
DC SYSTEM VOLTAGE (V)	1000
DC SYSTEM VOLTAGE (kV)	12.47
INVERTER AC RATING (KVA)	1000
PV MODULE MODEL #	QCELLS 345W
PV MODULE NAMEPLATE (W)	345
RACKING SYSTEM	NEXTRACKER
GROUND COVERATE RATIO	0.33
DC:AC RATIO	1.38
MODULE TILT	TRACKER, +/-60°
NORTH AREA	
kWDC	5,133.6
kVAAC	4,000.0
DC:AC RATIO	1.28
INVERTER QTY.	4
SOUTH AREA	
kWDC	1,763.6
kVAAC	1,000.0
DC:AC RATIO	1.76
INVERTER QTY.	1

REVISIONS		
DESCRIPTION	BY	DATE

HUGO MICHAUD ADAMO
STATE OF WASHINGTON
48999
REGISTERED
PROFESSIONAL ENGINEER

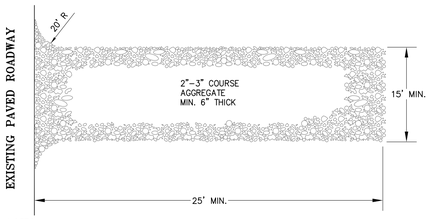
TUUSSO ENERGY, LLC
TYPHA SITE
TESC, GRADING, AND DRAINAGE PLAN

Encompass
ENGINEERING & SURVEYING
Western Washington Division
165 NE Juniper Street, Suite 201 • Issaquah, WA 98027 • Phone: (425) 392-0250 • Fax: (425) 391-3055
Eastern Washington Division
407 Swiftwater Blvd. • Cle Elum, WA 98922 • Phone: (509) 674-7433 • Fax: (509) 674-7419

JOB NO.	17019
DATE	Sept. 27 2017
SCALE	AS SHOWN
DESIGNED	SF
DRAWN	SF
CHECKED	TML
APPROVED	TML
SHEET	C2.0

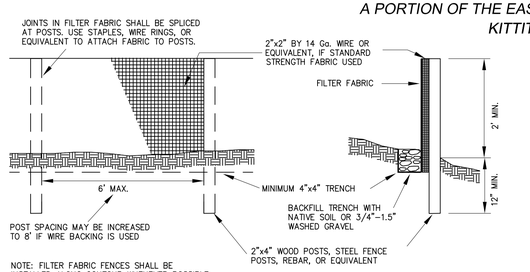
TUUSSO ENERGY - TYPHA SITE

A PORTION OF THE EAST 1/2 OF THE NE 1/4 OF SECTION 30, T. 18 N., R. 18 E., W.M.
KITTITAS COUNTY, STATE OF WASHINGTON

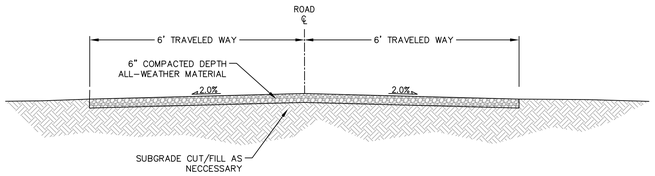


NOTES:
1. THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION THAT WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ONTO PUBLIC RIGHTS-OF-WAY. THIS MAY REQUIRE TOP DRESSING, REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT.
2. WHEN NECESSARY, WHEELS SHALL BE CLEANED PRIOR TO ENTRANCE ONTO PUBLIC RIGHT-OF-WAY.
3. WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN.

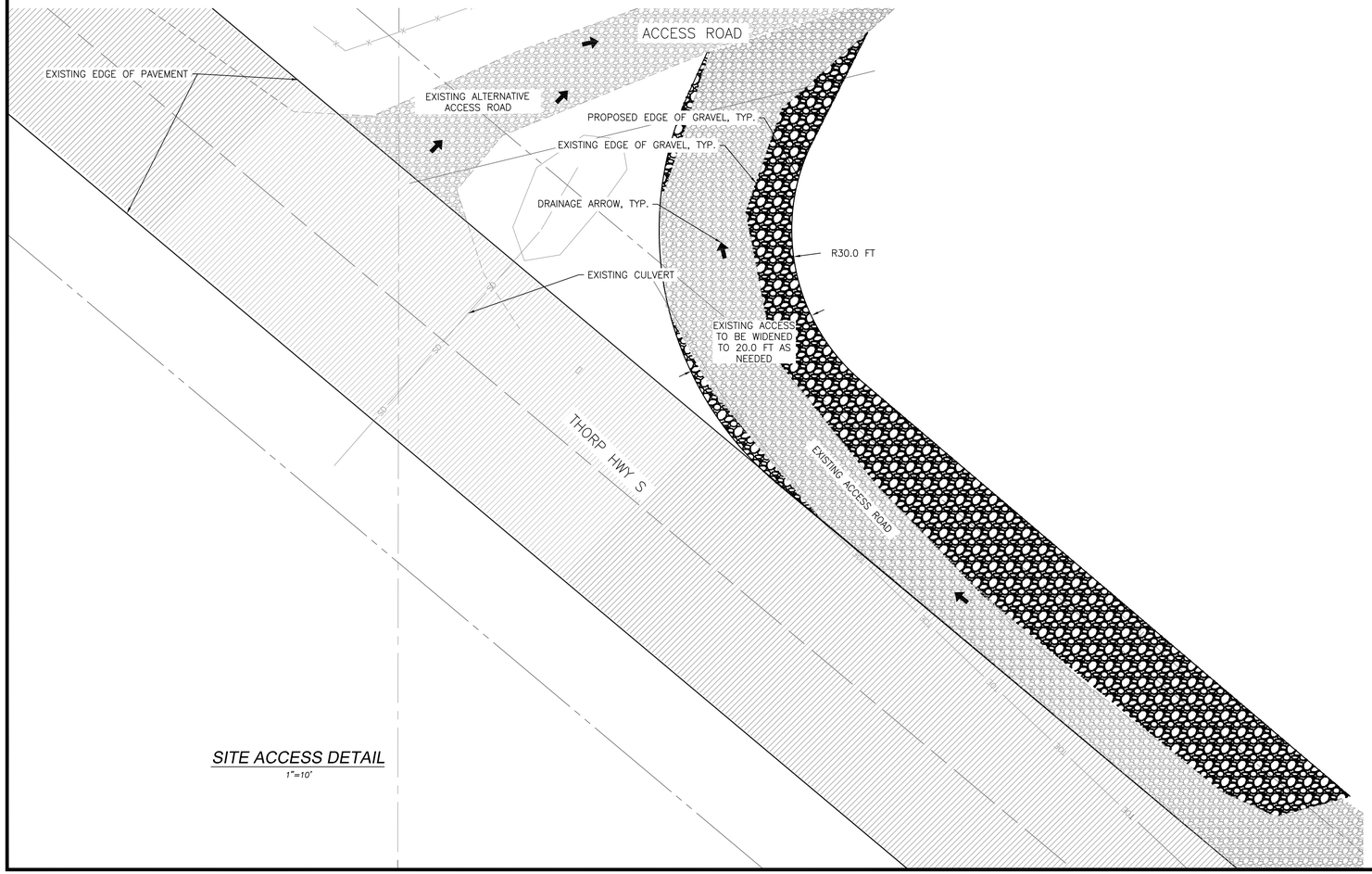
ROCK CONSTRUCTION ENTRANCE
N.T.S.



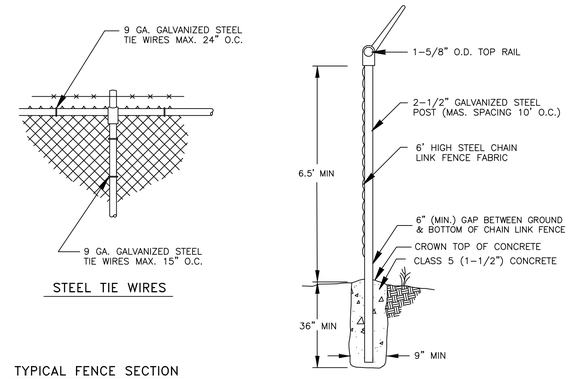
SILT FENCE DETAIL
N.T.S.



TYPICAL ALL-WEATHER ACCESS ROAD SECTION
N.T.S.



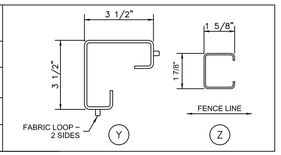
SITE ACCESS DETAIL
1"=10'

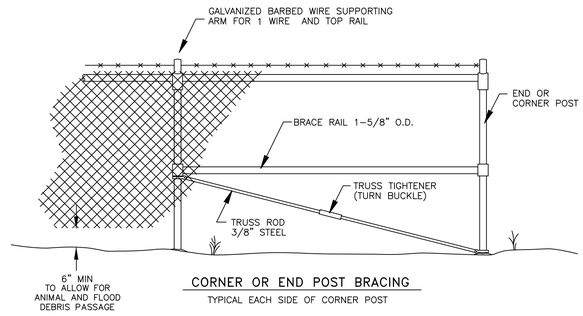


STEEL TIE WIRES

TYPICAL FENCE SECTION

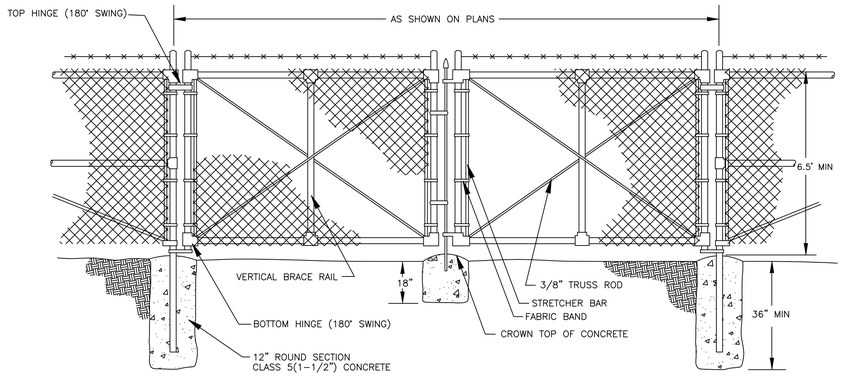
POST AND RAIL SPECIFICATIONS			
POST	PIPE	ROLL FORMED	
	NOM. SIZE (SCH. 40) I.D.	SECTION	WEIGHT (lb/ft)
END, CORNER, OR PULL POST	2 1/2" DIAM.	Y	5.10
LINE OR BRACE POST	2" DIAM.	Z	1.85





CORNER OR END POST BRACING
TYPICAL EACH SIDE OF CORNER POST

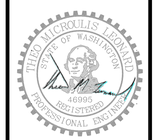
CHAIN LINK FENCE DETAIL
N.T.S.



CHAIN LINK FENCE GATE DETAIL
N.T.S.

REVISIONS

DESCRIPTION	BY	DATE



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