

Application for Conditional Use Permit Citylot 1MW CSG

Tuesday, July 5, 22
City of Mankato

Impact Power Solutions (IPS) is requesting a Conditional Use Permit for a period of Thirty-Five years on behalf of MN CSG 2019-59 LLC to construct a 1MW AC photovoltaic community solar garden (solar farm) on approximately 6.8 acres of land in the City of Mankato known as Blue Earth County PID R01.04.32.100.042. The site was selected due to its physical characteristics, proximity to existing electrical infrastructure and distribution lines, zoning and permitting requirements, and landowner participation.

1. Design and Interconnection	3
2. Construction.....	3
3. Storm Water Management	4
4. Operations & Emergency Response	4
5. Access, Parking, Road Use and Maintenance.....	4
6. Landscaping	4
7. Fire Prevention.....	5
8. Visual Impact Analysis	5
9. Decommissioning Plan	5
10. Insurance Information	5
12. Exhibit List.....	6



1. Design and Interconnection:

The garden will consist of approximately Three thousand two hundred fifty solar panels. The panels are mounted on a steel and aluminum racking structure that generally averages approximately eight feet above grade. The installation will not exceed a maximum height of ten feet above grade. The racking system is installed in the ground with pilings (I-beams) that are driven directly into the ground at a depth usually between six feet and ten feet depending on soil conditions. The racking system manufacturer's engineer will provide certification that the design of the foundations and panels are within accepted professional standards, given local soil and climate controls. The equipment is designed to withstand wind up to one hundred five MPH and fifty pounds per square foot of snow. The garden will have one concrete equipment pad, typically less than five hundred square feet, to support interconnection and metering equipment. The only proposed grading that will occur is for the roads and concrete equipment pads. Demonstrative equipment specifications are attached as **Exhibit C**.

The panels will be arranged into rows. Each row of solar panels will connect to an inverter. The inverters will be connected by directionally bored underground conduit that is housed inside of biodegradable PVC housing which will be installed two feet below the surface. The conduit will lead to the concrete equipment pad for each garden. The inverters transform the direct current power generated by the photovoltaic system to alternating current power, which is then connected to the existing three-phase power distribution line at the point of interconnection.

The solar array will be contained within an area protected by an eight-foot deer style fence. It will not create any noise, dust, fumes, glare, or other pollutants or nuisance to surrounding neighbors. There will be signage along the fence, approximately 2' x 2', including utility hazard, company information, and contact information on the fence. The solar garden will comply with all applicable state, county, and federal regulations. No exterior lighting is proposed for the project. We do not request the county to provide any services or county personnel.

2. Construction:

IPS would like to begin construction as soon as April 2023 and complete the project before December 2023. The construction process typically takes approximately three months. The site will have a portable toilet for workers. No water supply will be required. Any waste or debris will be gathered in a dumpster that will be removed during construction progress as necessary. Multiple truckloads of equipment will be delivered throughout the construction period. In addition, crews in passenger vehicles, pickup trucks, bobcats and skid steer loaders on tracks will be on site almost every day throughout the construction process. IPS will use appropriate temporary (construction-related) erosion and sediment control best management practices through construction. IPS agrees to the Site Rules attached as **Exhibit D**.

3. Storm Water Management Measures

A licensed civil engineering firm will determine storm water management measures. Measures will include an analysis of the existing topography, the use of erosion control logs and silt fences where necessary, and establishment of a germinated pollinator friendly vegetative base underneath the project site before construction begins to prevent erosion.

4. Operations & Emergency Response:

The solar garden site will operate and be monitored 24 hours a day, 365 days a year after construction has been completed. It will be monitored remotely through a computer data acquisition system (DAS) so that appropriate personnel can be dispatched to investigate potential problems. Additionally, twice a year qualified solar operations and maintenance crews will perform maintenance on the array and inspect the solar components, array and fence.

Construction, maintenance and decommissioning of the garden will be conducted in accordance with the Innovative Power Systems Safety Manual, which is attached as **Exhibit E**. The proposed contacts for emergency response as well as ongoing maintenance and operations are local and easily accessible. No chemicals will be used, stored, or disposed of on the modules unless they are certified organic cleaning products.

Drainage, weeds, screening, general operations, maintenance, stray voltage or electrical:
Impact Power Solutions Inc.
jamieb@ips-solar.com
612-801-5999

5. Access, Parking, Road Use and Maintenance:

Construction and operation and maintenance crews will access to the site by a fifteen foot wide gravel road that has a twenty foot entrance connected to Industrial Rd on the Southwest corner of the property. Road access will be controlled for erosion control during construction. Construction crew parking will be located entirely within the site. No additional permanent parking is required. Maintenance crews will park within the site access road and turnaround area.

6. Landscaping:

The project site will be planted with pollinator friendly groundcover. The specific seed mix is yet to be determined and will be specified with construction plan sets. The entire site will be maintained with mechanical mowing to prevent overgrowth.

7. Fire Prevention:

This solar array will meet the requirements of the 2012 International Fire Code, specifically to sections 605.11 – 605.11.2 for clearance, markings and location of underground DC conductors. The solar garden will meet the international Building Code (IBC), National Electric Code (NEC), and local electric and fire code. NEC code is produced by the National Fire Protection Agency (NFPA) with safety of the public, contractors, and firefighters as the entire objective. Solar specific Code has been included in the NEC for over a decade. Safety is paramount in our solar PV facilities, as we need them to function optimally for their entire system life.

8. Visual Impact Analysis:

IPS conducted a site visit and visual analysis of the parcel and adjacent parcels to determine if any nearby properties would have their line of sight substantially obstructed or impeded by the proposed project. All

surrounding properties to the East, North and West are non-homestead land used for industrial purposes. Two separate similar solar sites exist East and North of this parcel. A manufactured home park exists across Industrial Rd from the site. Existing vegetation and trees obscure nearly all views of this site. On site existing vegetation will be preserved wherever possible. Typically the point of interconnection consists of three electric poles, however IPS is working on a plan to limit the number to two if possible.

9. Decommissioning Plan:

Per City Code IPS has obligations to establish a monetary security for decommissioning removal in the form of a bond, escrow, or letter of credit.

The purpose of the security is to ensure there is sufficient money available to return the project site to an appropriate condition at the end of the project's useful life, or earlier. The City will be the designated beneficiary of the fund and will be provided a copy of the document establishing the security before construction commences.

IPS or its successors agree to be responsible for all decommissioning costs, and agree that any future buyer or successor of the project will assume the same decommissioning responsibilities. Installation by IPS will be done with no significant or permanent alterations to the land. Upon removal, the project site shall be restored to pre-construction conditions as is reasonably practical, including removal of structures, foundation, and restoration of soil and vegetation. The system will be dismantled and removed using minimal impact construction equipment and materials will be safely recycled or disposed. Appropriate temporary construction-related erosion and sediment control best management practices (BMP) during the decommissioning of the project.

IPS expects that decommissioning will occur 25-35 years after the date that the system becomes operational. Decommissioning will occur in the event that the array is not used for twelve consecutive months. All structures, foundations, electrical equipment all internal or perimeter access roads will be removed. Soils and vegetation will be restored. Disposal of structures and foundations shall meet the provisions of Blue Earth County Solid Waste Ordinance or successor ordinance.

Nonfunctioning solar components consist of valuable recyclable materials including silver, semiconductor material, steel, aluminum, copper and plastics that have a significant salvage value. Also, it is more likely that the System components would be used for continued electrical generation than for scrap.

IPS estimates that 125% of the cost to meet the requirements of the decommissioning plans is \$21,052.75 IPS or its partners shall submit a financial guarantee by posting a bond, Letter of Credit or establishing an Escrow Account in favor of the City of Mankato.

A full schedule of removal and restoration costs is included as Exhibit G.

Decommissioning requirements:

The decommissioning party shall:

- a. Obtain any permits required for the decommissioning, removal, and legal disposal of the system components prior to the commencement of the decommissioning activities.
- b. Remove and dispose of all equipment and components.



- c. Remove all hazardous materials (if any) and transport them to be disposed of by licensed contractors at an appropriate facility in accordance with rules and regulations.
- d. If appropriate, grading, and re-vegetation in accordance with permits and in compliance with all applicable rules and regulations.
- e. Preserve and reclaim the soils on the project site to a level of pre-project quality
- f. Reclaim soils in the access driveway and equipment pad areas by removing imported aggregate material and concrete foundations and replacing with soils as needed.
- g. Remove non-biodegradable electrical conduits and backfill trenches with the native soils removed.

Equipment Removal Procedure:

The decommissioning of the project proceeds in reverse order of the installation:

- a. The solar system shall be disconnected from the utility power grid.
- b. PV modules shall be disconnected, unattached, collected, and removed.
- c. Site aboveground and underground electrical interconnection and distribution materials shall be removed and recycled off site by an approved recycler, provided that IPS will not remove one biodegradable underground conduit housing.
- d. PV module support racking shall be removed and recycled off site by an approved recycler.
- e. PV modules support steel and support posts shall be removed and recycled off site by an approved recycler.
- f. Electrical devices, including transformers and inverters, shall be removed and recycled off-site by an approved recycler.
- g. Concrete pads shall be removed and recycled by an approved recycler.
- h. Fencing shall be removed and recycled by an approved recycler.

10. Insurance Information:

IPS's or its successor will provide a certificate of insurance meeting the following requirements:

- Insurance provider must be rated B+ or better by "Best."
- Limits of \$2,000,000 for each occurrence.
- Coverage against claims for damages resulting from bodily injury, wrongful death, and property damage arising out of the Interconnection Customer's ownership and/or operating of the Generation System under the interconnection agreement.
- Contain a severability of interest clause of cross-liability insurance

We at IPS sincerely appreciate all of the help we have received from your staff with regard to our applications and we look forward to collaborating with you further to develop a great project that we can all be proud of.

Thank you



Brian Keenan
Sr Project Developer
(651)226-8274 Cell
briank@ips-solar.com

11. Exhibit List:

- A. Application Form (filed electronically)
- B. Site Plan
- C. Equipment Pack
- D. Site Rules
- E. IPS Safety Manual
- F. (reserved)
- G. Decommissioning Plan



EXHIBIT D

SITE RULES

Project Company will use commercially reasonable efforts to follow and to cause its personnel to follow the following rules while on the Premises. Owner may bar further access to the Premises by any individual who commits repeated, material violations of these rules after such individual has received at least three written warnings of a particular material violation from Owner describing, and including reasonable evidence documenting, such material violation. In addition, any individual violating rules (d)(i), (iv), or (vi) at least three times after receipt of a third written warning with documented evidence of such violation, will be immediately expelled from the Premises and will be banned from the Premises thereafter. The rules are as follows:

a. When not in active use by Project Company, all access gates, as well as all interior gates, will remain closed at all times.

b. Smoking is prohibited except in designated construction areas and in vehicles. Project Company will employ reasonable precautions to prevent fires and will be responsible for all damage caused by Project Company.

c. Project Company will keep the Premises clean and free of debris created by Project Company, its contractors, or others brought on to the Premises by Project Company. Project Company will not use the Premises for storage of items that are not related to, used or to be used in connection with, or for the benefit of all or a portion of the Project.

d. At no time will any of employees of Project Company bring any of the following onto the Premises:

- i. weapons of any type, including but not limited to, guns, bows and arrows, or sling shots;
- ii. animal calling devices;
- iii. fishing equipment or nets;
- iv. dogs, cats or any other animals;
- v. alcoholic beverages;
- vi. illegal drugs or related paraphernalia.

e. Project Company, its employees, contractors, agents and any individual allowed onto the Premises by Project Company will use reasonable efforts to confine their activities on the Premises to the designated access routes and to the areas upon which operations are then being conducted.

f. No wood, plants, animals (dead or alive), antlers, artifacts or any other item that was not originally brought onto the Premises by Project Company personnel will be removed from

the Premises by such personnel, except that Project Company can burn, remove and clear wood, plants and brush on the Premises.

g. A speed limit of 25 miles per hour (15 miles per hour at night) will be strictly observed while using roads on the Premises.

h. This Agreement does not cover or include any right or privilege of hunting or fishing on the Premises, all such rights being expressly reserved to Owner.



Exhibit E
Employee Safety Manual
Rev 06/2013

Impact Power Solutions, Inc.
2670 Patton Road
Roseville, MN 55113
651-789-5305
651-789-4415 Fax
lps-solar.com

TABLE OF CONTENTS

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COMPANY POLICY LETTER

SAFETY AND HEALTH POLICY FOR Impact Power Solutions, Inc.

The purpose of this policy is to develop a high standard of safety throughout all operations of **Impact Power Solutions, Inc.**

We believe that each employee has the right to derive personal satisfaction from his/her job and the prevention of occupational injury or illness is of such consequence to this belief that it will be given top priority at all times.

It is our intention here at **Impact Power Solutions, Inc.** to initiate and maintain complete accident prevention and safety training programs. Each individual from top management to the working person is responsible for the safety and health of those persons in their charge and coworkers around them. By accepting mutual responsibility to operate safely, we will all contribute to the wellbeing of personnel.



Jamie Borell- Chief Executive Officer

Safety Program Outline

(Impact Power Solutions, Inc.)

Element 1 - Safety Orientation: Each employee will be given a safety orientation by *Jamie Borell*, CEO or Eric Hanson, COO, when first hired. The orientation will cover the following items:

A description of the accident prevention program:

- We have a formal written accident prevention program. It consists of this safety orientation, safety meetings as described in Element 2, and Self-inspections as outlined in Element 3.
- We also have basic safety rules that all employees must follow. They are:
- Never do anything that is unsafe in order to get the job done. If a job is unsafe, report it to your supervisor or foreman. We will find a safer way to do that job.
- Do not remove or disable any safety device! Keep guards in place at all times on operating machinery.
- Never operate a piece of equipment unless you have been trained and are authorized.
- Use your personal protective equipment whenever it is required.
- Obey all safety warning signs.
- Working under the influence of alcohol or illegal drugs or using them at work is illegal and absolutely prohibited.
- Do not bring firearms or explosives onto company property.
- Horseplay, running and fighting are prohibited
- Clean up spills immediately. Replace all tools and supplies after use. Do not allow scraps to accumulate where they will become a hazard. Good housekeeping helps prevent accidents.

How and when to report injuries, including first aid kits and their locations:

- If injured on the job, report to Michael Paul, onsite safety coordinator 612-998-0328.
- We have first aid qualified workers here but we do not have “designated” first-aiders. First aid at the job site is done on a Good Samaritan basis.
 - If first aid trained personnel are involved in a situation involving blood, they should:
 - Avoid skin contact with blood/other potentially infectious materials by letting the victim help as much as possible, and by using gloves provided in the first aid kit.
 - Remove clothing, etc. with blood on it after rendering help.
 - Wash thoroughly with soap and water to remove blood. A 10% chlorine bleach solution is good for disinfecting areas contaminated with blood (spills, etc.).
 - Report such first aid incidents within the shift to supervisors (time, date, blood presence, exposure, names of others helping).
- **First aid kit locations at jobsites include:**
- **First-Aid kits on the roof and in the company van.**

Temperature Extremes

Workers subjected to temperature extremes, radiant heat, humidity, or air velocity combinations which, over a period of time, may produce physical illness. Protection by use of adequate controls, methods or procedures, or use of protective clothing will be provided to employees working in these conditions. Excessive exposure to heat is referred to as heat stress and excessive exposure to cold is referred to as cold stress.

Heat related illness (HRI) and cold-induced illnesses (Hypothermia/frostbite) are well known, recognized workplace hazards. All work operations involving exposure to temperature extremes, either humidity/heat extremes or cold extremes have the potential for inducing heat stress and heat related illnesses or cold stress resulting in frostbite or hypothermia, therefore, **Impact Power Solutions, Inc.** has developed a policy to address these issues. All employees will receive training relating to the causes and effects, as well as the personal and environmental factors that may lead to temperature extreme related illnesses. Each employee will be provided with training and materials that include but are not limited to:

- The chosen method or methods to assess the risk for HRI or cold stress.
- A section covering training elements to provide employees information on what the employer will do when working in extreme weather conditions.
- A section on first aid including how to identify HRI symptoms and cold stress systems. The proper first aid application for an individual that is suffering from HRI or cold weather illness, and procedures for summoning medical aid personnel.
- A section identifying where and how adequate drinking water will be supplied.

What to do in an emergency including how to exit the workplace:

- An evacuation map for the office and each jobsite is posted. It shows the location of exits and emergency meeting location.

Fire Emergency

- A fire extinguisher or fire extinguishers will be covered as part of this orientation.
- If you discover a fire: Tell another person immediately. Call or have them call 911 and a supervisor.
- If the fire is small (such as a wastebasket fire) and there is minimal smoke, you may try to put it out with a fire extinguisher.
- If the fire grows or there is thick smoke, do not continue to fight the fire.
- Tell other employees in the area to evacuate.
- Go to the designated emergency meeting location outside the building.

Use and care of required personal protective equipment (PPE):

- Some tasks in our company require an employee to wear PPE to protect against injury.
- Employees be instructed by the onsite job foreman using the manufacturer's instructions on how to use and care for these PPE.

On-the-job training about what you need to know to perform the job safely:

- Before first assigned a task, an onsite job supervisor will demonstrate what to do along with safety instructions and required PPE.
- We have established safety rules and personal protective equipment (PPE) requirements based upon a hazard assessment for each task.
- Do not use equipment or attempt to do any of these tasks until required training and PPE.

Safety Meetings and Self-Inspections

- **Employee Safety Meetings**

- At the beginning of each job and at least weekly thereafter.
- Review of any walk-around safety inspections conducted since the last safety meeting.
- Review of any citation to assist in correction of hazards.
- Evaluation of any accident investigations conducted since the last meetings to determine if the cause of the unsafe acts or unsafe conditions involved were properly identified and corrected.
- Document attendance and other subjects discussed.

Safety Disciplinary Policy

Impact Power Solutions, Inc. believes that a safety and health Accident Prevention Program is unenforceable without some type of disciplinary policy. Our company believes that in order to maintain a safe and healthful workplace, the employees must be cognizant and aware of all company, State, and Federal safety and health regulations as they apply to the specific job duties required. The following disciplinary policy is in effect and will be applied to all safety and health violations.

The following steps will be followed unless the seriousness of the violation would dictate going directly to Step 2 or Step 3.

1. A first-time violation will be discussed orally between company supervision and the employee. This will be done as soon as possible.
2. A second-time offense will be followed up in written form and a copy of this written documentation will be entered into the employee's personnel folder. Time off without pay (3-day minimum).
3. A third-time violation will result in termination.

If an employee of this company knowingly and willingly violates any of the safety rules or procedures or puts his/her self in an imminent danger situation, the employee will be immediately discharged.

General Safe Work Practices for Construction

Personal Protective Equipment

- Suitable clothing must be worn; long pants, at least short-sleeved shirts and adequate foot wear.
- Hard hats, safety glasses or goggles must be used when a potential hazard exists. (Safety glasses must be ANSI Z87 or Z87.1 approved).
- Hearing protection (earplugs or earmuffs) must be used in high noise areas.

- Gloves (as needed).

Housekeeping

- Always store materials in a safe manner. Tie down or support materials if necessary to prevent falling, rolling, or shifting.
- Shavings, dust scraps, oil or grease should not be allowed to accumulate. Good housekeeping is a part of the job.
- Trash piles must be removed as soon as possible. Trash is a safety and fire hazard.
- Immediately remove all loose materials from stairs, walkways, ramps, platforms, etc.
- Do not block aisles, traffic lanes, fire exits, gangways, or stairs.

Other general safe work practices

- Avoid shortcuts – use ramps, stairs, walkways, ladders, etc.
- Do not remove, deface or destroy any warning, danger sign, or barricade, or interfere with any form of accident prevention device or practice provided for your use or that is being used by other workers.
- Get help with heavy or bulky materials to avoid injury to yourself or damage to material.
- Do not use tools with split, broken, or loose handles, or burred or mushroomed heads. Keep cutting tools sharp and carry all tools in a container.
- Know the correct use of hand and power tools. Use the right tool for the job.

Fall protection

- Fall hazards of 10 feet or more will be outlined and addressed in our jobsite fall protection work plan.
- Fall hazards of less than 10 feet will be protected by covers, guardrails or other methods and will be addressed in our self-inspections and safety meetings.
- Standard guardrails must be erected around all floor openings and open-sided surfaces.

Electrical

- Ground-fault circuit interrupters (GFCI) will be used whenever possible.
- Electric cords will be inspected daily and repaired or replaced as necessary.
- Do not operate any power tool or equipment unless trained in its operation.
- Use tools only for their designed purpose.

Ladder safety

- Inspect before use for physical defects.
- Ladders are not to be painted except for numbering purposes.
- Do not use ladders for skids, braces, workbenches, or any purpose other than climbing.
- When you are ascending or descending a ladder, do not carry objects that will prevent you from grasping the ladder with both hands.
- Always face the ladder when ascending and descending.
- Always maintain 3 points of contact with the ladder.
- If a ladder must be placed over a doorway, barricade the door to prevent its use and post a warning sign.
- Only one person is allowed on a ladder at a time.
- Do not jump from a ladder when descending.
- All joints between steps, rungs, and side rails must be tight.
- Safety feet must be in good working order and in place.
- Rungs must be free of grease and/or oil.

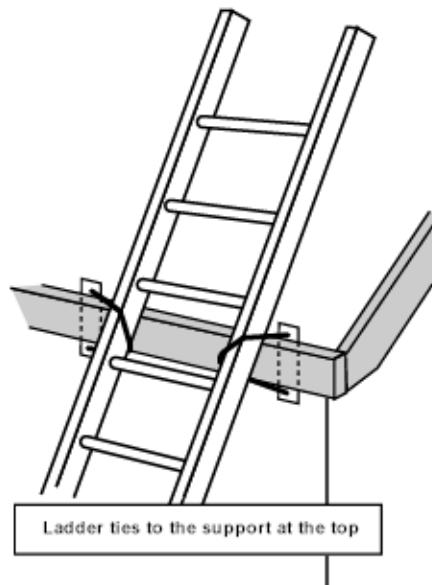
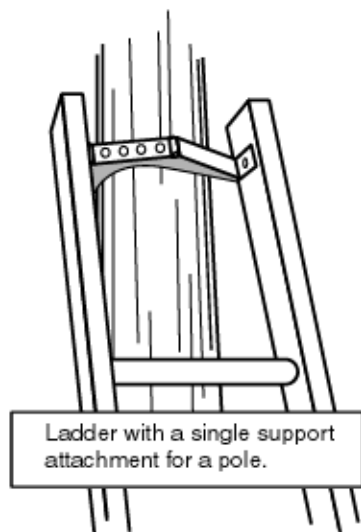
Stepladders

- Do not place tools or materials on the steps or platform of a stepladder

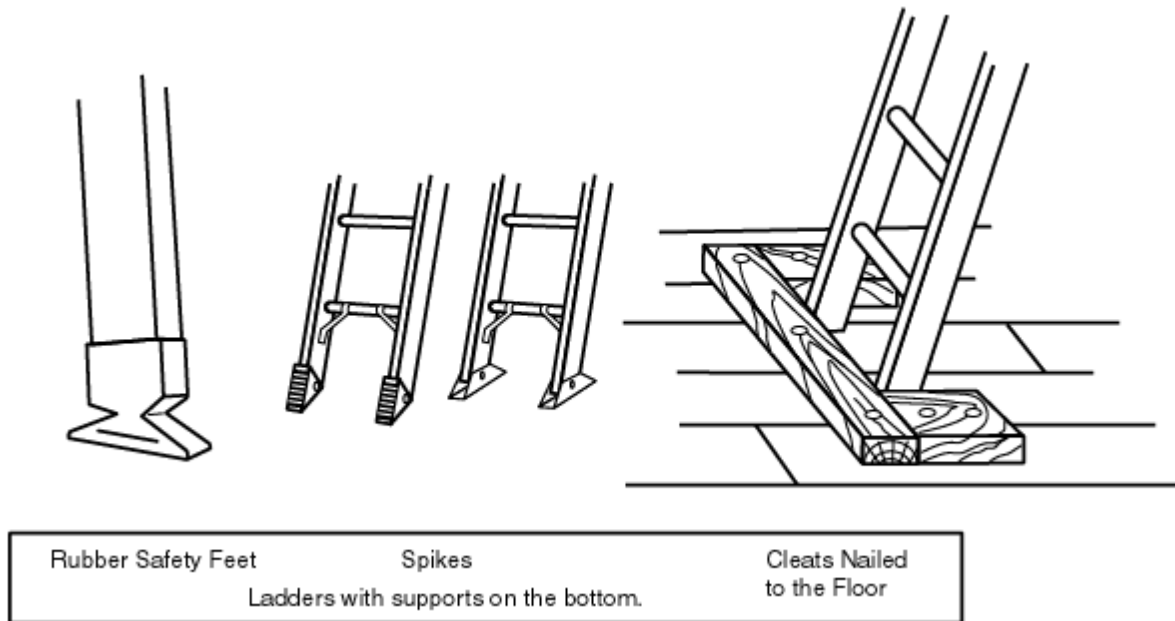
- Do not use the top two steps of a stepladder as a step or stand.
- Always level all four feet and lock spreaders in place.
- Do not use a stepladder as a straight ladder.

Straight type or extension ladders

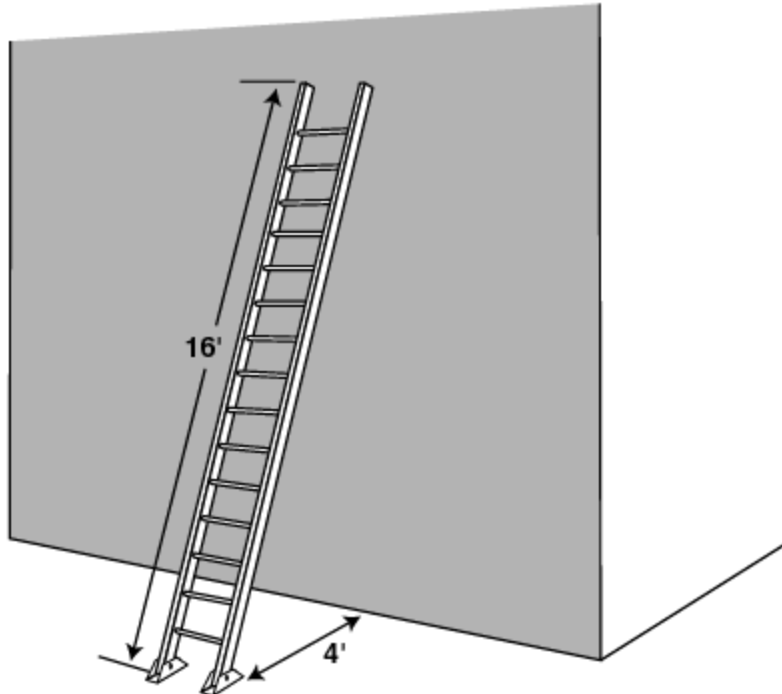
- All straight or extension ladders must extend at least three feet beyond the supporting object when used as an access to an elevated work area.
- After raising the extension portion of a two or more-stage ladder to the desired height, check to ensure that the safety dogs or latches are engaged.
- All extension or straight ladders must be secured or tied off at the top.



- All ladders must be equipped with safety (non-skid) feet.



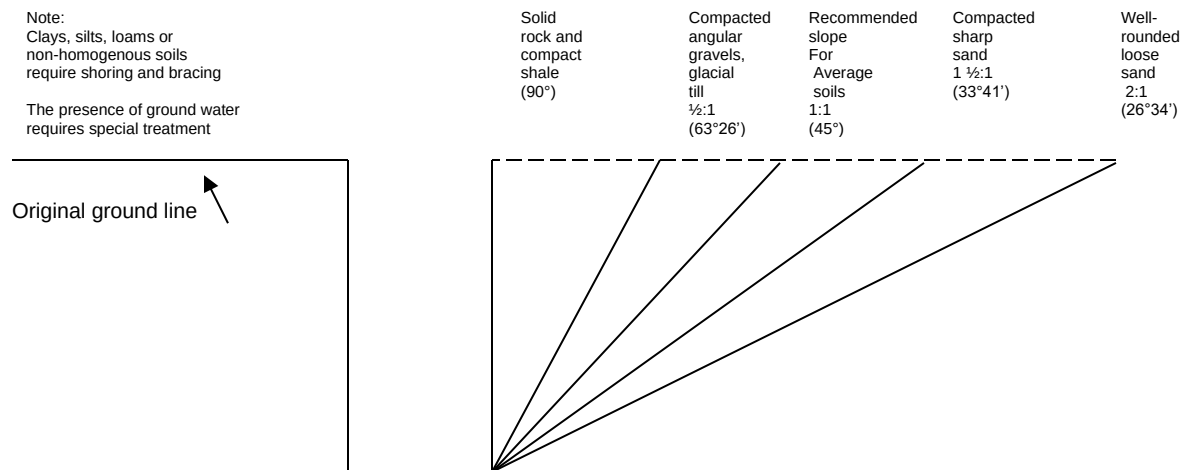
- Portable ladders must be used at such a pitch that the horizontal distance from the top support to the foot of the ladder is about one-quarter of the working length of the ladder.



Trenching and Excavating

1. The determination of the angle of repose and design of the supporting system shall be based on careful evaluation of pertinent factors, such as:
 - a. Depth and/or cut/soils classification
 - b. Possible variation in water content of the material while excavation is open
 - c. Anticipated changes in materials from exposure to air, sun, water, or freezing
 - d. Loading imposed by structures, equipment, or overlaying or stored material
 - e. Vibration from equipment, blasting, traffic, or other sources

Approximate Angle of Repose For sloping of sides of excavations



2. Walkways or bridges with standard railings **must be provided** when employees or equipment are required to cross over excavations.
3. The walls and faces of all excavations in which employees are exposed to danger from moving ground **must be guarded** by a shoring system, sloping of the ground, or some other equivalent means.
4. **No person must be permitted** under loads handled by power shovels, derricks, or hoists.
5. **All employees must be protected** with personal protective equipment for the protection of the head, eyes, respiratory system, hands, feet, and other parts of the body.

Scaffold Safety Rules

1. General

Before starting work on a scaffold, inspect it for the following:

- a. Are guardrails, toe boards, and planking in place and secure?
 - b. Are locking pins at each joint in place?
 - c. Are all wheels on moveable scaffolds locked?
2. Do not attempt to gain access to a scaffold by climbing on it (unless it is specifically designed for climbing – always use a ladder).
 3. Scaffolds and their components must be capable of supporting four times the maximum intended load.
 4. Any scaffold, including accessories such as braces, brackets, trusses, screw legs, ladders, etc., damaged or weakened in any way, must be immediately repaired or replaced.
 5. Scaffold planks must extend over their end supports not less than 6 inches or more than 12 inches, unless otherwise specifically required.
 6. Scaffold platforms must be at least 18 inches wide unless otherwise specifically required or exempted.
 7. Where persons are required to work or pass under the scaffold, scaffolds shall be provided with a screen between the toe board and guardrail, extending along the entire opening. The screen must be made of No. 18 gauge U.S. Standard wire, ½ inch mesh or equivalent protection.
 8. All scaffolds must be erected level and plumb, and on a solid footing.
 9. Do not change or remove scaffold members unless authorized.
 10. Do not allow workers to ride on a rolling scaffold when it is being moved. Remove or secure all materials and tools on deck before moving.
 11. Do not alter any scaffold member by welding, burning, cutting, drilling, or bending.

Motorized vehicles and equipment

1. Do not ride on motorized vehicles or equipment unless a proper seat is provided for each rider.
2. Always be seated when riding authorized vehicles (unless they are designed for standing).
3. Do not operate any motorized vehicle or equipment unless you are specifically authorized to do so by your supervisor.
4. Always use seat belts in the correct manner.
5. Obey all speed limits and other traffic regulations.
6. Always be aware of pedestrians and give them the right-of-way.
7. Always inspect your vehicle or equipment before and after daily use.
8. Never mount or dismount any vehicles or equipment while they are still in motion.
9. Do not dismount any vehicle without first shutting down the engine, setting the parking brake and securing the load.
10. Do not allow other persons to ride the hook or block, dump box, forks, bucket or shovel of any equipment.
11. Each operator must be knowledgeable of all hand signals and obey them.
12. Each operator is responsible for the stability and security of his/her load.

Job Orientation Guide

Company: **Impact Power Solutions**

Employee:

Trainer:

Hire Date:

Date

Position:

This checklist is a guideline for conducting employee safety orientations for employees new to (Customize by adding the name of your company). Once completed and signed by both supervisor and employee, it serves as documentation that orientation has taken place.

	Date	Initials
1. Explain the company safety program, including:		
Orientation	_____	_____
On-the-job training	_____	_____
Safety meetings	_____	_____
Accident investigation	_____	_____
Disciplinary action	_____	_____
2. Use and care of personal protective equipment, (Hard hat, fall protection, eye protection, etc.)	_____	_____
3. Line of communication and responsibility for immediately reporting accidents.		
A. When to report an injury	_____	_____
B. How to report an injury	_____	_____
C. Who to report an injury to	_____	_____
D. Filling out accident report forms	_____	_____
4. General overview of operation, procedures, methods and hazards as they relate to the specific job	_____	_____
5. Pertinent safety rules of the company and WISHA	_____	_____
6. First aid supplies, equipment and training		
A. Obtaining treatment	_____	_____
B. Location of Facilities	_____	_____
C. Location and names of First-aid trained personnel	_____	_____
7. Emergency plan		
A. Exit location and evacuation routes	_____	_____
B. Use of firefighting equipment (extinguishers, hose)	_____	_____
C. Specific procedures (medical, chemical, etc.)	_____	_____
8. Vehicle safety	_____	_____
9. Personal work habits		
A. Serious consequences of horseplay	_____	_____
B. Fighting	_____	_____
C. Inattention	_____	_____
D. Smoking policy	_____	_____
E. Good housekeeping practices	_____	_____
F. Proper lifting techniques	_____	_____

NOTE TO EMPLOYEES: Do not sign unless ALL items are covered and ALL questions are satisfactorily answered.

The signatures below document that the appropriate elements have been discussed to the satisfaction of both parties, and that both the supervisor and the employee accept responsibility for maintaining a safe and healthful work environment.

Date: _____ Supervisor's Signature: _____

Date: _____ Employee's Signature: _____

JOB SAFETY ANALYSIS WORKSHEET

TITLE OF JOB OPERATION:

Date: _____

Title of person who does job:

Employee observed:

Location:

Analysis made by:

Analysis approved by:

Sequence of basic job steps	Potential accidents or hazards	Recommended safe job procedures

Personal protective equipment required for this position:

Other hazards that may develop and will be addressed in our safety meetings:

--

FALL PROTECTION WORK PLAN

COMPANY: _____ DATE: _____
 SITE ADDRESS: _____

REPORT PREPARED BY: _____ TITLE: _____

- 1) SPECIFIC WORK AREA: _____
- 2) ACTIVITIES: _____
- 3) IDENTIFY ALL FALL HAZARDS IN THIS AREA: _____

- 4) CHECK THE METHOD OF FALL RESTRAINT OR ARREST TO BE UTILIZED:

☐ STANDARD GUARDRAIL ☐ SECURED TO EXISTING STRUCTURE	☐ FULL BODY HARNESS ☐ TIE-OFF POINT CAPABLE OF 5000 LB/PERSON	☐ SCISSOR LIFT ☐ BOOM LIFT
☐ SHOCK ABSORBING LANYARD ☐ FORKLIFT BASKET ☐ SCAFFOLD W/GUARDRAIL ☐ WARNING LINE	☐ RETRACTABLE LANYARD ☐ OTHER (SPECIFY) ☐ WARNING LINE & SAFETY MONITOR (See WAC 296-155-24521)	☐

- 5) DESCRIBE PROCEDURES FOR ASSEMBLY, MAINTENANCE, INSPECTION AND DIASSEMBLY OF THE SYSTEM (IF ADDITIONAL SPACE IS REQUIRED, COMPLETE ON THE BACK OF THIS FORM OR ATTACH A SEPARATE SHEET.)

- 6) DESCRIBE PROCEDURES FOR HANDLING AND SECURING TOOLS, EQUIPMENT AND MATERIALS AND FOR PROVIDING OVERHEAD PROTECTION FOR WORKERS (IF ADDITIONAL SPACE IS REQUIRED, COMPLETE ON THE BACK OF THIS FORM OR SEPARATE SHEET):

- 7) DESCRIBE THE METHOD FOR PROMPT, SAFE REMOVAL OF INJURED WORKER(S):
 (Calling 911 is not sufficient as a means of rescue)

- 8) I CERTIFY THAT I HAVE RECEIVED FALL PROTECTION ORIENTATION INCLUDING THE MATERIAL COVERED IN THIS FALL PROTECTION WORK PLAN.

<u>EMPLOYEE NAME:</u> _____ _____ _____	<u>DATE:</u> _____ _____ _____
--	---

Firm Name		Address	
Date	Time	# of employees	
Subject discussed			

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

Walk-around Safety Inspection

- ☐ **Power lines:** Minimum 10' clearance / insulate – de-energize, under 50 kw; over 50 kw – refer to Chapter 155
- ☐ **Trench/excavation:** Any trench four feet or must be sloped, shored or braced
- ☐ **Guardrails:** Any opening four feet or more above ground level must be guarded
- ☐ **Standard guardrail:** Top rail = 39" to 45" above working surface. Midrail = halfway between top rail and floor. Toe board = 4".
- ☐ **Scaffold:** Fully planked
- ☐ **Scaffold:** Fall protection provided if fall hazards over 10 feet exist
- ☐ **Stairs:** Four or more risers must have handrails
- ☐ **Fall protection:** Any exposure to fall hazards of 10' or greater must be eliminated by the use of safety harness/belt, lanyard or lifeline, horizontal lines, or cantenary lines. Positive fall restraint/protection must be utilized at all times. Two lanyards may be necessary at the beam/upright traverse points. No exposure at any time is allowed.
- ☐ **Fall protection work plan:** Job specific, in writing; available on-site for all fall hazards above 10'.
- ☐ **Open belts and pulleys, chains and sprockets, points of operation** must be guarded to prevent accidental contact. Air compressors and electric motor pulleys are the most common hazards.
- ☐ **Radial saws:** Cutting head must return easily to start position when released; blade must not extend past the edge of the worktable; off/on switch should be at front of operator's position.
- ☐ **Table saws:** Upper hood guard; anti-kickback, push stick, belt and pulley guarded
- ☐ **Circular saws:** Blade guard instantly returns to covering position
- ☐ **Never wedge or pin a guard.**
- ☐ **Ladders:** Extended 36" above landing and secured to prevent displacement
- ☐ **Floor holes/openings:** Covered and secured; be sure no tripping hazards in the area.
- ☐ **Extension cords/electric power tools:** Marked/covered by Assured Grounding Program
- ☐ **Clothing:** Minimum of short sleeve shirts, long pants, and substantial footwear; no recreational shoes
- ☐ **Hard hats:** readily accessible at all times; worn when overhead hazard exists
- ☐ **Oxygen/acetylene storage areas:** Cylinders chained and separated
- ☐ **Personal protective equipment:** Head, eye, ear, respiratory, and leg protection – high visibility vests when required
- ☐ **Housekeeping:** Workers are responsible for their own area of exposure
- ☐ **First aid/fire extinguishers:** Available and readily accessible

Other hazards observed: _____

 Supervisor's signature

 Date

 Employee's signature

 Date

Equipment Safety Inspection Checklist

Date: _____

Project: _____

Equipment: _____

All guards and fenders	_____	OK	_____	Needs Repair
Brakes	_____	OK	_____	Needs Repair
Lights – front, rear, side, dash	_____	OK	_____	Needs Repair
Back-up alarm – horn	_____	OK	_____	Needs Repair
Ladders, stairs, hand holds	_____	OK	_____	Needs Repair
ROPS (Roll-over protection)	_____	OK	_____	Needs Repair
Seat belts	_____	OK	_____	Needs Repair
Fire extinguisher	_____	OK	_____	Needs Repair
Glass	_____	OK	_____	Needs Repair
Tires	_____	OK	_____	Needs Repair
Electrical cords	_____	OK	_____	Needs Repair
Ground fault circuit interrupters	_____	OK	_____	Needs Repair
Electrical hand tools	_____	OK	_____	Needs Repair
Powder actuated tools	_____	OK	_____	Needs Repair
Condition of pneumatic hand tools	_____	OK	_____	Needs Repair

Other Items Checked:

Oil level and leaks	_____	OK	_____	Needs Repair	_____	Add	_____	Change
Hydraulic oil level and leaks	_____	OK	_____	Needs Repair	_____	Add	_____	Change
Anti-freeze level and leaks	_____	OK	_____	Needs Repair	_____	Add	_____	Change
Fuel level and leaks	_____	OK	_____	Needs Repair	_____	Add	_____	Change
First aid kit	_____	OK	_____	Needs Repair	_____	Add	_____	Change

Repaired by: _____

Checked by: _____

Jobsite Inspection

Employer Impact Power Solutions, Inc.____
Report Number: _____
Inspector's name: _____
Date of inspection: _____

	YES	NO	N/A
FALL PROTECTION			
Is fall protection used when exposed to 10' fall hazard?			
Are fall protection anchorage points installed properly?			
Is fall protection work plan available and implemented?			
LADDERS / STAIRWAYS			
Stairway installed before 2 nd floor studs raised?			
Guardrail and handrail on stairways with 4 or more risers?			
Ladders extend 3 ft beyond upper landing?			
Ladders used for purpose they were designed for?			
Top of ladder used as step?			
Defective ladder marked and removed from service?			
Ladder/stairway safety training program implemented?			
GUARDING			
Hand-held power circular saws properly guarded?			
Table saws properly guarded?			
Radial saws properly guarded?			
Power miter saws properly guarded?			
Pneumatic nailer/stapler have safety device on muzzle?			
STRUCTURE CONSTRUCTION			
Walls braced to prevent collapse?			
Scaffolds fully planked and guarded?			
Floor openings guarded (12" or more)?			
Wall openings guarded by standard railing or equivalent?			
Open sided surfaces guarded by standard railing or equivalent?			
Stair or ramp provided for break in elevation >19"?			
Ramp used for access is at least 18" wide?			
PERSONAL PROTECTIVE EQUIPMENT (PPE)			
Individual hard hats available on site?			
Hard hats used when exposed to flying or falling objects?			
Eye protection worn?			
Suitable clothing -short sleeved shirt and long pants worn?			
Proper footwear worn?			
Is leg protection used during chainsaw usage?			
ELECTRICAL			
Extension cords with ground pin?			
Extension cords free of improper splices?			

Multi-outlet J-Box are waterproof?				
GFCI or assured grounding program?				
RELATED PROGRAM REQUIREMENTS				
Is a Crew Leader-Crew Safety meeting held at beginning of job & weekly thereafter?				
Are safety meetings tailored to the operations?				
Are safety meetings documented?				
Are safety walk-around inspections conducted at the beginning of the job and weekly thereafter?				
Are walk-around inspections documented and available for inspection?				
Do employees work with hazardous chemicals/materials?				
Is there a hazard communication program that is written and implemented?				
FIRST-AID				
Are first-aid supplies available on-site?				
Is there a first-aid trained person or persons on site?				
Are crew leaders and supervisors first aid trained?				
HOUSEKEEPING				
Is proper housekeeping maintained at the jobsite?				
SANITATION				
Adequate supply of potable water provided?				
Toilets provided and maintained at jobsite?				

CityLot CSG

Decommissioning Plan

Prepared for:

**Impact Power Solutions
2670 Patton Road, Roseville, MN, 55113**

**Location: Mankato, MN
May 3, 2022**



Table of Contents

1 - Introduction.....	1
2 - Summary Statement of Expected Residual Value.....	1
3 - Basis of Plan Narrative.....	1
4 - Schedule of Removal and Restoration Costs.....	3
5 - Schedule of Salvage Values.....	4

1.0 Introduction

The purpose of this report is to describe the decommissioning process for the CityLot solar photovoltaic generation facility (“the project”) located adjacent to: 155 Sakatah Dr, Mankato, MN 56001. The project consists of 3250 solar modules mounted to a driven pile, single axis tracker system. Both direct current (DC) and alternating current (AC) conductors will be trenched in conduit. After final circuit consolidation at the PV system pad mounted switchboard, the system’s voltage will be stepped-up to distribution level at the Xcel owned transformer and interconnected, onto an existing utility distribution circuit.

The project converted approximately 6.8 acres of agricultural land into a power generation facility. Construction included elevated solar modules mounted on driven steel piles, concrete inverter/transformer pads, and gravel access roads.

2.0 Summary Statement of Expected Decommissioning Cost

The expected residual value of the solar facility is the difference between the removal/restoration cost and the salvage value. The decommissioning cost to remove the solar pv facility and reestablish the property back to a grassy field is not expected to exceed a net expenditure of \$22000 at the end of the project’s expected service life.

3.0 Basis of Plan Narrative

The following is a list of assumptions and clarifications to further define the methodology used to establish the scope and values of the removal costs and salvage values.

3.1 General

- The intent of the decommissioning work will be to fully remove the solar facility, dispose of any components, and restore the site to a permanently stabilized grassed field.
- The service life of the facility is assumed to be 35 years. All dollar amounts are in net-present-value. It is assumed that all values will inflate/deflate at consistent with baseline inflation, therefore, the net-present-value comparison of removal cost to salvage value will remain relevant at the end of the service life.
- Costs associated with this plan represent a “turn key” operation for a general contractor to be hired for this work, including permits, mobilization, contingency, etc.
- Haul costs assume a maximum distance of 60 miles between the project and nearest disposal or recycling facility.
- No maximum duration has been assigned for this work. It has been assumed that this work would be handled by a single crew without full time site personnel.

3.2 Civil Infrastructure

- Topsoil used to backfill excavations will be borrowed from onsite locations. No topsoil import is included.
- Remove rip rap at stormwater basins.
- Aggregate removal will be the full depth of the aggregate section for roads, equipment pads, and other areas utilizing aggregate. No aggregate will be buried. Includes subgrade scarification prior to backfilling with topsoil.
- Turf establishment includes mulch, fertilizer, and water as necessary to achieve 70% ground cover as required to satisfy the NPDES Construction General Permit.
- Sediment control cost consists of silt fence but could also be fiber logs. Location of sediment control will be downslope from exposed soils only in areas where sedimentation offsite or into onsite water bodies can reasonably be expected.
- Trees and shrubs shall be protected and shall remain in place.

3.3 Structural Infrastructure

- Steel pile foundation removal is estimated at 25% the effort and cost as pile installation.
- Steel racking removal is estimated at 50% the effort and cost of racking installation.

3.4 Electrical Infrastructure

- PV modules to be recycled. Assumption is that the modules are 72 cell polysilicon modules, having an approximate dimension of 6' x 3' in dimension.
- Switchgear including transformers will be removed from their respective concrete pads and recycled or returned to the manufacturer.
- Copper wiring will be dug up (if required) and recycled.
- Aluminum wiring will be dug up (if required) and recycled.
- On site riser or interconnection poles shall be removed.
- String inverters/combiner boxes are no more than 130 lbs. in weight and not more than 40" x 25" x 12" in dimension. A two-person crew can dismantle a string inverter and recycle the components.
- Transformers are pad mounted and weigh approximately 8,500 pounds. These are dry type transformers, so there is no need for any oil disposal.
- Underground power and communication cables can be removed by excavating with a power trencher or excavator.

3.5 Recycling PV Modules

- Recycling solar modules have environmental benefits such as
 - o Creating a useful and sustainable method of disposal
 - o Providing raw materials for repurposing and reprocessing
 - o Recovering up to 90% of the photovoltaic glass and up to 95% of the semiconductor material necessary for further production
 - o Recycling of rare earth metals.

4.0 Schedule of Removal and Restoration Costs

CityLot CSG						
ENGINEER'S ESTIMATE						
5/3/2022						
Schedule of Removal and Restoration Costs						
		QUANTITY	UNITS	\$/UNIT	COST	NOTES
	CIVIL INFRASTRUCTURE					
1	Aggregate Removal	75	CY	\$4.00	\$300.00	Remove full section of aggregate road, structural concrete base material, and surfacing around equipment pads
2	Aggregate Haul and Offsite Disposal	75	CY	\$10.00	\$750.00	
3	Geotextile Removal under Aggregate Roads	4,800	SF	\$0.18	\$864.00	
4	Geotextile Haul and Offsite Disposal	4,800	SF	\$0.01	\$48.00	
5	Topsoil Backfill	23	CY	\$10.00	\$230.00	Onsite relocation of topsoil to backfill road and equipment pad excavations
6	Rip Rap Removal	120	CY	\$10.00	\$1,200.00	Remove CMP of approximate 30' length with no greater than 2' of cover
7	Rip Rap Haul and Offsite Disposal	120	CY	\$10.00	\$1,200.00	
8	Chainlink Fence Removal	2,230	LF	\$1.00	\$2,230.00	Includes fence mesh, post framing, concrete foundations, gates, etc. Assumes min 20' clearance from energized equipment
9	Chainlink Fence Haul and Offsite Disposal	2,230	LF	\$0.50	\$1,115.00	
10	Reinforced Concrete Equipment Pad Removal	1	EA	\$500.00	\$500.00	
11	Concrete Waste Haul and Offsite Disposal	1	EA	\$500.00	\$500.00	
12	Site Grading	1	AC	\$2,000.00	\$2,000.00	Grading smooth all areas disturbed by removals, excavations, etc, assumed (0.1 x project area) + Road Area + Equipment Pad Area
13	Turf Establishment	1	AC	\$1,500.00	\$1,500.00	Hydroseed all areas disturbed by removals, excavations, etc
14	Sediment Control	1350	LF	\$1.50	\$2,025.00	Silt fence, assumed 2 x the project area N-S length
	Structural Infrastructure					
15	Foundation Removal	650	EA	\$4.50	\$2,925.00	Assumed [20] posts for 100 mod tables and [15] posts for 75 mod tables
16	Foundation Haul and Offsite Disposal	650	EA	\$1.50	\$975.00	
17	Steel Racking Removal	1.706	MW	\$3,000.00	\$5,118.00	
18	Steel Racking Haul and Offsite Disposal	1.706	MW	\$500.00	\$853.00	
	Electrical Infrastructure					
19	Removal of Solar Modules	3,250	EA	\$3.00	\$9,750.00	
20	Removal of String Inverters	8	EA	\$40.00	\$320.00	
21	Removal of Switchgear/Xfmr	2	EA	\$1,200.00	\$2,400.00	
22	Removal of Riser and Interconnection Poles	3	EA	\$800.00	\$2,400.00	
23	Removal of SCADA/Aux Panel/Weather Station	1	EA	\$350.00	\$350.00	
24	Removal of Medium Voltage AL Cables	1	MW	\$1,200.00	\$1,200.00	
25	Removal of Fiber Optic Cables	1	MW	\$250.00	\$250.00	
	Total Cost				\$41,003.00	

5.0 Schedule of Salvage Values

CityLot CSG						
ENGINEER'S ESTIMATE						
5/3/2022						
Schedule of Salvage Value						
		QUANTITY	UNITS	\$/UNIT	Value	NOTES
	Structural Infrastructure					
1	Steel Pile	33.12	TONS	\$40.00	\$1,324.80	Assuming 80 lbs. per pile
2	Steel Racking	66.24	TONS	\$40.00	\$2,649.60	
3	Chainlink Fence	2,230	LF	\$0.50	\$1,115.00	
	Electrical Infrastructure					
4	PV Modules	3,250	EA	\$2.00	\$6,500.00	
5	String Inverters	8	EA	\$500.00	\$4,000.00	
6	Equipment Switchgear in Xfmrs	2	EA	\$1,200.00	\$2,400.00	
7	SCADA/Aux/Weather Station Equipment	1	EA	\$350.00	\$350.00	
8	MV AL Collection Lines	197	lbs	\$0.20	\$39.40	http://www.nehringwire.com/aluminum/aac-all-aluminum-conductor/
9	DC Copper Wires	5,130	lbs	\$1.00	\$5,130.00	http://colonialwire.com/wp-content/uploads/2013/09/WIRE-WEIGHTS1.pdf
10	AC Aluminum Wires	1,630	lbs	\$0.40	\$652.00	
	Total Cost				\$24,160.80	

NET EXPENSE = REMOVAL – SALVAGE = \$16,842.20

Multiply by 125% for safety factor:

\$16,842.20 X 125% = \$21,052.75