Metro Waste Authority
We Know Where It Should Go

300 E. Locust Street, Ste. 100
Des Moines, Iowa 50309
515-244-0021

MEMORANDUM

DATE: November 17, 2021

TO: MWA Board Members

CC: MWA Staff

FROM: Michael McCoy, Executive Director

RE: Wednesday, Nov. 17, 2021, Board Meeting

This month's board meeting is scheduled for Wednesday, Nov. 17, 2021, at 5:45 pm in the education center at Metro Recovery Facility (4185 SE Beisser Drive, Grimes, Iowa). If you have questions about any items listed below, please call me at 323.6519 (w) or 707.3869 (c). I look forward to seeing you on Wednesday.

The following numbered items correspond with the number of the item on the agenda:

Consent Agenda Items for Approval

6. Resolution 11-21-01 - Consideration of June 2021, Financial Statements – Action to Receive and File

7. Resolution 11-21-02 - Consideration of July 2021, Financial Statements – Action to Receive and File

8. Resolution 11-21-03 - Consideration of August 2021, Financial Statements – Action to Receive and File

9. Resolution 11-21-04 - Consideration of October 2021, Monthly Expenditures

Regular Agenda Items for Approval

10. Resolution 11-21-05 – Approval to Purchase Articulated Dump Truck (ADT) – Action Item
    Three bids were received for the purchase of a 40-ton capacity ADT for Metro Park East Landfill. The ADT is used to haul cover soil, hydrated coal ash from the solidification pit, and compost material at MPE. Due to long lead times for new equipment purchases, staff sought out low hour rental machines for sale, that could be available immediately.

11. Resolution 11-21-06 – Approval to Award bid for Public Improvement at Central Office – Action Item

One bid was received for the installation of a solar panel system at Metro Waste Authority's Central Office. The solar panel system is expected to lower MWA's electric grid consumption by 25% or more.

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Metro Waste Authority
Board Meeting
November 17, 2021

MWA Metro Recycling Facility
4185 SE Beisser Dr, Grimes, Iowa 50111
5:45 pm

Members of the public wishing to attend this meeting in person may do so at the MWA Metro Recycling Facility, where seats will be arranged to allow for social distancing. Masks will be available and are mandatory for public guests. Additional CDC recommendations will be implemented.

Meeting ID: 847 9250 6487
Passcode: 708798

Agenda

1. Call to Order, Roll Call
2. Approval of Regular Agenda
3. Public Forum

CONSENT AGENDA
The following are routine items enacted by one roll call vote without separate discussion unless someone, Board or Public, requests an item be removed for consideration:

4. Approval of Consent Agenda – Items 4 through 9
5. Consideration of Minutes October 20, 2021, Metro Waste Authority Board Meeting – Action for Approval
6. Resolution 11-21-01 - Consideration of June 2021, Financial Statements – Action to Receive and File
7. Resolution 11-21-02 - Consideration of July 2021, Financial Statements – Action to Receive and File
8. Resolution 11-21-03 - Consideration of August 2021, Financial Statements – Action to Receive and File
9. Resolution 11-21-04 – Consideration of October 2021, Monthly Expenditures – Action for Approval

END CONSENT AGENDA

Regular Agenda Items for Approval – Item 11

10. Resolution 11-21-05 – Approval to Purchase Articulated Dump Truck (ADT) – Action Item
11. Resolution 11-21-06 – Approval to Award Bid for Public Improvement at Central Office – Action Item
12. Director's Report
13. Chair's Report

14. General Board Discussion and Other Business

15. Correspondence

16. Adjournment

December Executive/Finance Meeting: December 1, 2021, MWA Central Office, 300 E. Locust Street, Ste 100, Des Moines, Iowa 50309, 12:00 pm.

December Board Meeting: December 15, 2021, MWA Central Office, 300 E. Locust Street, Ste. 100, Des Moines, Iowa 50309, 5:45 pm.

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Des Moines, Iowa 50309
515-244-0021

October 20, 2021 Unofficial Metro Waste Authority Board Meeting Minutes

1. Call to Order
The meeting was held at Metro Waste Authority's Central Office. David Gisch, vice chair, called the October 20, 2021, Metro Waste Authority Board Meeting to order at 5:45 pm. A quorum was present.

Roll Call – MWA Board Representatives/Alternates in Attendance
Dean O'Connor, Altoona
Mark Holm, Ankeny
John Edwards, Clive
Joe Gatto, Des Moines
David Gisch, Grimes
Bill Roberts, Mitchellville
Ed Kuhl, Norwalk
Rob Sarchet, Polk City
Susan Skeries, Windsor Heights

2. Approval of Regular Agenda
Dean O'Connor, Altoona, motioned to remove consent agenda items 6 and 7 from the agenda.

Moved by Altoona, seconded by Clive, to approve the October 20, 2021, board meeting agenda as amended. Motion carried unanimously by voice vote.

3. Public Forum
Hannah Inman, Great Outdoors Foundation , presented on behalf of Polk County Water & Land Legacy upcoming 2021 bond projects.

CONSENT AGENDA
The following are routine items enacted by one roll call vote without separate discussion unless someone, Board or Public, requests that an item be removed for consideration:

4. Approval of Consent Agenda – Items 4 through 10
Moved by Clive, seconded by Altoona, to approve the Consent Agenda, items 4 through 10. Motion carried unanimously by voice vote.

5. Consideration of Minutes of September 15, 2021, Metro Waste Authority Board Meeting – Action for Approval

~~6. Resolution 10-21-01 - Consideration of July 2021, Financial Statement - Action to Receive and File~~

~~7. Resolution 10-21-02 - Consideration of July 2021, Financial Statement - Action for Approval~~

8. Resolution 10-21-03 – Consideration of September 2021, Monthly Expenditures - Action for Approval

9. Resolution 10-21-04 - Approval of Ordering Spare Parts for MRF Equipment - Action for Approval

10. Resolution 10-21-05 - Approval of Change Order for MRF Education Center - Action for Approval

END CONSENT AGENDA

Regular Agenda Items for Approval - Items 11 through 13

11. Resolution 10-21-06- Approval to Reject Phase I Closed Stormwater Repair Bids at Metro Park East Landfill - Action Item

Moved by Clive, seconded by Altoona, to approve Resolution 10-21-06. Motion carried unanimously by voice vote.

Michael McCoy, executive director, reported bids received to repair the damaged culverts in phase one closed stormwater exceeded the amount expected by staff. Staff recommend rejecting all bids, making necessary repairs this fall, and completing the repairs with Cell E construction in the spring of 2022.

Clive asked what the engineer originally estimated for the repairs. Austin Broshar, HDR Engineers, reported $635,000 and the lowest bid received was $1.9 million dollars.

12. Resolution 10-21-07 - Approval of Contract SloanVasquezMcAfee Municipal Solid Waste Advisors - Action Item

Moved by Clive, seconded by Altoona, to approve Resolution 10-21-07. Motion carried unanimously by voice vote.

Leslie Irlbeck, deputy director, reported the contract with SloanVasquezMcAfee Municipal Solid Waste Advisors will include two scopes of work and contracts. The first scope of work will include physically inspecting the equipment, then preforming dry and wet test runs on the equipment over the course of 13 to 15 days. The contact cost is $32,500-37,500.

During Executive Finance, McCoy had asked to move forward with the contract to start the testing phase. Tonight, staff is bringing to the board for an official vote.

The second scope of work is for management and training for the first 60 days of operation. SloanVasquezMcAfee team will put together an operational playbook, designed to the specs for our equipment and what MWA is doing to serve our communities. As MWA learns the business of operating a material recovery facility (MRF), they will manage the site for as an operational manager. The estimated cost is $70,000.

13. Public Hearing to Approve Public Improvement at Central Office

McCoy reported since the project is a public improvement at Central Office, for solar panels on the roof, it needs to go out for a public bid.

Resolution 10-21-08 - Approval of Public Improvement at Central Office - Action Item

Moved by Clive, seconded by Altoona, to approve Resolution 10-21-08. Motion carried unanimously by voice vote.

14. Director's Report

McCoy reported one of the two balers for the MRF was placed yesterday, and the second baler is on its way to Iowa. The equipment manufacturer is on site testing. Leslie's team is working very hard to onboard staff. Currently, we have a full-time mechanic, interim mechanic and six to seven full time sorters starting Friday. Emily Dobbins, human resource manager, continues to have hiring events and work with community partners. McCoy reported it is a tough market for hiring, however, we are getting some great applications.

McCoy reported the City of Des Moines has committed to bring their recycling tonnage to Metro Recycling Facility, starting November 1st. They will be doing a tour and learning truck flow.

McCoy reported staff is working through the budget process with Kent Farver, former MWA Finance Administrator. Staff have been working with Scott Racker and the Drake University team on the Strategic Plan and are excited to bring to the board for approval in coming months.

McCoy reported MWA received a grant from the EPA for $140,578 to create virtual resources and interactive simulations to allow uninterrupted learning. Irlbeck reported opportunity to take hands-on learning into the classroom. Sarah Borzo, education and outreach coordinator, has done a wonderful job finding real life field work and places people can visit. MWA will work on logistics to get the goggles to the classrooms, since students cannot leave the classroom for field trips.

The November executive finance meeting will be held at Central Office (300 E. Locust Street, Ste. 100, Des Moines, Iowa) on Wednesday, Nov. 3, 2021, at 12:00 pm.

The November board meeting will be held at Metro Recycling Facility (4185 SE Beisser Drive, Grimes, Iowa) on Wednesday, Nov. 17, 2021, at 5:45 pm.

15. Chair's Report

David Gisch, vice chair, reported having many board members on the audit committee, however, if you are still interested to contact Leslie Irlbeck. Ron Pogge, chair, is sending information regarding when the audit committee will meet.

The November board meeting will be at Metro Recycling Facility in Grimes at 5:45 pm, with a ribbon cutting prior to the meeting.

Employee Service Awards are on Friday, Nov. 5, at Metro Recycling Facility in Grimes. Open house starts at 5:00 pm, dinner at 6:00 pm, followed by a drive-in movie at 7:00 pm. McCoy reported if you have not seen the flyer, staff will send one out. It will be a fun event.

16. General Board Discussion and Other Business

No report.

17. Adjournment

METRO WASTE AUTHORITY
BILLS PAID IN OCTOBER 2021

Vendor Name	Services Provided	Amount
ABM PARKING	Parking	12,240.00
AFLAC	Insurance premium	953.28
ALLENDER BUTZKE ENGINEERS, INC.	Engineering fees	3,082.82
ANKENY SANITATION	Waste/drop off/contract expense	222,375.53
ARAMARK UNIFORM SERVICES, INC.	Rags/mats/supplies	1,261.24
ATLANTIC BOTTLING COMPANY	Office supplies	21.16
BOMGAARS	Parts/small tools/supplies	8.57
BOOT BARN	Health/safety	4,361.00
BRICK GENTRY P.C.	Legal fees	12,669.00
CENTRAL STATES ROOFING	Repair services	698.75
CITY GARDENS, INC	Site maintenance	14,396.50
CLEAN DES MOINES, INC.	Janitorial services	1,104.00
CLEAN HARBORS ENV. SERVICE INC	Contract disposal	27,860.28
COMMONWEALTH ELECTRIC COMPANY	Site maintenance	12,120.62
DES MOINES MOBILE WASH, INC	Preventive maintenance	3,702.40
DES MOINES WATER WORKS	Utilities	229.98
DES MOINES, CITY OF	Lease/leachate processing	23,959.22
DIAM PEST CONTROL	Pest control	520.00
EMSL ANALYTICAL, INC	Asbestos testing	1,244.00
ETC GRAPHICS, INC.	Signage	3,945.26
EXPRESS LAUNDRY	Floor mats	125.00
FERRELLGAS	Utilities/equipment fuel	137.02
FREIGHTLINER OF DES MOINES, INC	Parts	2,917.44
GRIMES, CITY OF	Utilities	766.49
HEAVY HIGHWAY FRINGE BENEFIT ADMINISTRATION CO.	Medical insurance	1,875.00
HOUSBY HEAVY EQUIPMENT	Parts/labor/preventive maint	20,083.76
HOUSBY MACK, INC.	Parts/labor/preventive maint	3,523.63
INLAND TRUCK PARTS CO.	Parts/labor/preventive maint	993.33
IOWA DES MOINES SUPPLY	Janitorial supplies	611.77
IPERS	Employer's share of IPERS	45,693.27
KABEL BUSINESS SERVICES	Employee benefit expense	4,686.37
KABEL BUSINESS SERVICES	Service fees	79.30
MAILFINANCE INC	Mailing expense	1,580.51
MCANINCH	MRF	54,384.78
MCMASTER-CARR SUPPLY CO.	Leachate maintenance/collection	338.72
MHC KENWORTH - DES MOINES	Parts/labor/preventive maint	50.56
MIDAMERICAN ENERGY	Utilities	46,648.90
MIDLAND POWER COOPERATIVE	Utilities	884.55
NATIONWIDE OFFICE CLEANERS LLC	Janitorial services	2,261.42
ODORGON	Parts	674.88
O'REILLY AUTO PARTS	Parts/small tools/supplies	850.66
PER MAR	Security	99.00
PETERSON CONTRACTORS, INC.	Contracted fly ash hauler	26,687.65
POMP'S TIRE SERVICE, INC.	Tire/track repairs	23,936.10
PROSPERITY JANITORIAL	Janitorial services	2,608.68
PROSPERITY JANITORIAL	trash p/u	160.00
PROSPERITY JANITORIAL	sanitizing	720.00
QUICK OIL CO.	Equipment fuel	155,811.61
SOCIAL SECURITY ADMINISTRATION	Employer's share of FICA	35,017.92
TESTAMERICA LABORATORIES, INC	Environmental monitoring	6,620.20
TIFCO INDUSTRIES	Parts/small tools/supplies	2,210.80
TREASURER STATE OF IOWA	Sales tax	13,410.03
TRI-CITY ELECTRIC CO OF IOWA	MRF	196,773.27
TRUENORTH COMPANIES	Dues/subscription/fee	7,713.37
VANTAGEPOINT TRANSFER AGENTS	Employer's share deferred compensation	8,754.11
VERIZON WIRELESS	Computer supplies/maintenance	471.88
WASTE CONNECTIONS, INC.	Waste collection/tire processi	138,783.45
WASTE MANAGEMENT OF IOWA	Curbside/drop off/waste coll	538,976.65
WILLIAMSON'S REPAIR	Equipment maintenance	148.41
ZIEGLER, INC.	Part/labor/prev maint/subscription	43,440.92
ACCESS SYSTEMS	Office printing	364.78
AMERICAN SECURITY	Security	460.72
CENTRAL IOWA MECHANICAL	Site maintenance	252.50
CENTRAL UNITED LIFE INSURANCE	Life insurance	152.22
CHAMPLIN TIRE RECYCLING, INC	Tire processing	7,353.45
CONTROLLED ACCESS OF THE MIDWEST, LLC	Site maintenance	45.50
CPI TECHNOLOGIES, LLC	Phone system	3,264.09
DAN'S OVERHEAD DOORS 4	Building repairs	1,285.00
DARYLE J BENNETT II	Building services	335.00
DES MOINES SOLID WASTE	Yard waste collection	107,521.32
DEX MEDIA EAST	Advertising	1,580.99

HDR ENGINEERING, INC.	Engineering services	17,271.47
HIRERIGHT SOLUTIONS INC.	Health/safety	67.30
IMWCA	WC Insurance	15,260.00
J PETTIECORD	Equipment rent	942.50
KIERRA HORTON	Mileage/expenses	117.60
KNAPP PROPERTIES	Building services	2,337.50
KNAPP PROPERTIES	Management Fee	1,741.00
LUBE-TECH & PARTNERS, LLC	Equipment fuel	17,362.88
MMC CONTRACTORS IOWA, INC.	Bldg repairs/site maintenance	34,010.07
P & P SMALL ENGINES, INC.	Parts	555.83
PRAXAIR DISTRIBUTION INC.	Welding supplies	708.67
SCOTT'S AUTO GLASS LLC	Parts/labor	500.00
SCS FIELD SERVICES	Engineering services	2,415.00
SINK PAPER & PACKAGING	Yard bag storage/distribution	4,828.02
STRAUSS SECURITY SOLUTIONS	Security	557.00
SUMMIT ELECTRIC LLC	Motion sensor switches	90.00
THE UNIVERSITY OF IOWA	Grant/consulting fees	86.90
VALLEY ENVIRONMENTAL SERVICES	Contract disposal	429.00
VAN WALL EQUIPMENT	Parts/labor/preventive maint	3,272.08
VERMEER SALES & SERVICE INC.	Parts	10,626.82
WASTE SOLUTIONS OF IOWA	Building services	760.00
WAYNE DALTON OF CENTRAL IOWA	Building repairs	1,123.00
A TECH, INC.	Security	488.52
ADVENTURE LIGHTING	Electrical supplies	329.20
AERATION INDUSTRIES INT'L INC.	CWTS	2,317.00
AEROVIEW SERVICES LLC	Engineering services	3,900.00
AIR MACH INC.	Site maintenance	1,827.00
AMERICAN EXPRESS	Waste/Yard collection expense	709,512.09
ANFAB INC	Drop off expense	1,144.06
ARCHITECTURAL WALL SYSTEMS, LLC	MRF	122,265.82
ARSENAULT ASSOCIATES	Computer supplies/maintenance	3,090.00
ASHLEY SCHAUM	Mileage/expenses	42.32
ASI	Computer supplies/maint/fees	1,800.00
ASPEN WASTE SYSTEMS, INC.	Curbside/drop off/waste coll	12,402.47
A-TEC RECYCLING, INC.	Contract disposal	8,362.19
AUREON COMMUNICATIONS	Telephone expense	16,713.31
BLANK CHILDREN'S HOSPITAL	Program development	977.46
BLUE TARP FINANCIAL	Parts/small tools/supplies	67.77
BONDURANT, CITY OF	Utilities	115.65
BONNIE LE PAGE	Wrong Vendor	171.00
CALLISTA FRUEH	Mileage/expenses	143.75
CAMP TOWNSHIP FIRE DEPT. - HOST FEES	Host fees	7,358.82
CAPITAL CITY EQUIPMENT CO.	Equipment/parts/labor	317.19
CAROLINA SOFTWARE	Computer supplies/maintenance	2,100.00
CENTRAL BAG AND BURLAP CO.	Public information/promotion	3,420.00
CHARLES GABUS FORD	Parts/labor/preventive maint	139.00
CITY OF AMES PUBLIC WORKS	Fire extinguisher	226.00
CL SMITH COMPANY	Contract disposal	19,139.85
CLEAN EARTH SYSTEMS INC	Contract disposal	1,100.00
COMMERCIAL INTERIORS INC	Tenant work	12,329.00
COMMUNICATION INNOVATORS INC	Computer supplies/maintenance	43,246.00
Concrete Technologies Inc.	MRF	216,600.00
CP MANUFACTURING INC	Equipment	1,743,520.00
CRYSTAL CLEAR	Office supplies	632.63
CUTLER, SUSAN	Mileage/expenses	33.60
DATASHIELD CORP	Recycling expense	230.50
DENMAN & COMPANY, L.L.P.	Professional fees	13,000.00
DES MOINES CHILDREN'S MUSEUM	Grant	1,000.00
DEXON COMPUTER, INC	Computer supplies/maintenance	8,343.00
DOBBINS, EMILY	Mileage/expenses	255.75
DRAKE UNIVERSITY	Consulting fees	166.25
ED M. FELD EQUIPMENT COMPANY, INC	Health/safety	125.00
ELECTRONIC ENGINEERING CO.	Parts	1,260.98
EXPRESS STEEL INC	MRF	4,395.00
EXPRESS TARP SERVICE	Litter control	1,150.00
FAST SIGNS	Trailer wraps	541.00
FASTENAL COMPANY	Health/safety	673.87
FCX PERFORMANCE	Leachate collection	6,036.00
FINANCIAL FORMS & SUPPLIES INC	Office supplies	1,405.07
FIRST CHOICE SERVICES / US COFFEE	Office supplies	69.98
GHD SERVICES INC	Professional fees	6,992.43
GOODYEAR TIRE & RUBBER CO	Tire/track repairs	77.57
GRACE LABEL, INCORPORATED	Outside printing	4,551.00
GRAHAM CONSTRUCTION CO.	MRF	111,787.17
GRAINGER	Parts/small tools/supplies	1,151.97
GREAT CATERERS OF IOWA	Meetings	90.00
GROUP CREATIVE SERVICES LLC	MRF	4,000.00

GRP & ASSOCIATES	Contract disposal	1,489.00
HANNAH GENESER FOUNDATION, INC	Donation	10,000.00
HAWKEYE TRUCK EQUIPMENT	Parts	379.57
HEALTHCARE MARKETING MAKEOVERS, LLC	Public information/promotion	350.00
HEARTLAND DOOR & FRAME, INC.	Parts/labor/preventive maint	348.00
HIRE QUALITY SOLUTIONS	Temporary labor	2,713.50
HIRE QUEST, LLC	Staffing	4,363.83
HOME DEPOT CREDIT SERVICES	Supplies	90.31
HQI HYDRAULICS	Parts	248.18
IMPACT7G, INC.	Environmental monitoring	6,500.00
IN THE BAG	Meetings	365.70
IOWA FIRE EQUIPMENT COMPANY	Fire alarm/inspection	165.50
IOWA LABORERS' DISTRICT COUNCIL HEALTH & WELFAR	Medical insurance	98,250.48
IOWA METHODIST OCCUP. MEDICINE	DOT px/workers' comp	1,431.70
IOWA MUFFLER & BRAKE	Parts/labor/preventive maint	337.05
IOWA PUMP WORKS	Leachate collection	403.75
IOWA WORKFORCE DEVELOPMENT	Unemployment tax	7,151.55
JERICO SERVICES, INC.	Site maintenance	6,200.00
JETCO, INC	Leachate maintenance/collection	555.50
JOHNSON CONTROLS FIRE PROTECTION	Monitoring	710.88
KASSANDRA DAVIS	Mileage/expenses	182.85
KATOM RESTAURANT SUPPLY, INC	MRF	5,741.31
KEY COOPERATIVE	Equipment fuel	877.01
KNOWBE4, INC	Computer supplies/maintenance	2,074.50
KOCH BROTHERS	Office supplies	1,504.85
LABSOURCE, INC	Health/safety	2,042.65
MATCO TOOLS	Shop tools/supplies	100.00
MENARDS - CLIVE	Supplies	56.45
MENARDS-ALTOONA	Supplies	74.15
MIDWEST ALARM SERVICES	Alarm/detection monitoring	399.96
MIDWEST WHEEL COMPANIES	Parts	927.46
NEBRASKA FURNITURE MART, INC	MRF	5,822.00
NIELSEN, SUSAN	Mileage/expenses	92.40
NMC INDUSTRIAL SERVICES, LLC	Parts/labor/preventive maint	647.01
PABCO INDUSTRIES, LLC	Yard waste bags	111,902.37
PETERBILT OF DES MOINES	Parts/labor/preventive maint	443.16
PINNACLE MARKETING GROUP	Public information/promotion	129.60
PORTER DO-IT BEST	Supplies	59.99
QED ENVIRONMENTAL SYSTEMS, INC	Leachate maintenance/collection	4,333.12
R ROGERS SEPTIC LLC	Site maintenance	537.50
RED WING SHOE STORE	Health/safety	948.48
RELIANCE STANDARD LIFE	Insurance premium	3,539.42
RMH SYSTEMS	Building repairs	2,516.98
ROAD MACHINERY & SUPPLIES,CO.	Parts/labor/preventive maint	3,006.36
RSM US LLP	Consulting/prof service/dues	32,109.00
RSM US PRODUCT SALES LLC	Computer supplies/maint/fees	4,205.30
SCHIMBERG CO	Parts	254.95
SECURITY EQUIPMENT	Security	90.00
SETCO	Parts	17,609.04
SIOUX CITY TARP, INC	Parts	1,919.24
SLINGSHOT ARCHITECTURE	Building services	615.00
SOUTHEAST POLK COMM SCHOOL-HOST	Host fees	14,717.63
SPINUTECH	Website/social media	1.63
SPLIT ROCK STUDIOS	MRF	68,233.00
STEW HANSEN'S DODGE CITY, INC	Vehicle/maintenance	3,239.65
STOREY-KENWORTHY CO.	Office supplies	10,415.03
STRAUB MARKETING	Employee uniform	621.29
SUMMIT COMPANIES	Fire extinguisher	244.00
THE HOME DEPOT PRO	Office supplies	2,129.67
TOTER, LLC	Curbside cart expense/repair	53,459.34
URBANDALE PUBLIC WORKS DEPT.	Yard waste collection	109,669.74
WASTE MANAGEMENT	Waste/Yard collection expense	618.63
WASTE MANAGEMENT (YARD WASTE)	Yard waste collection	82,533.66
WEX BANK	Equipment fuel	1,213.55
WONDERWARE MIDWEST	Computer supplies/maintenance	660.00
Grand Total		**5,773,650.90**

The MWA Executive Director and the Accounting Manager certify that the above MWA bills paid are properly due and have been made in accordance with the operating and expenditure processes established by MWA.

Michael McCoy, Executive Director

Sue Nielsen, Accounting Manager

Metro Waste Authority Board

Monthly Board Meeting

November 17, 2021

Agenda Item #10

ITEM:
Approval to Purchase Articulated Dump Truck (ADT)

SUMMARY:
Three bids were received for the purchase of a 40-ton capacity ADT for Metro Park East Landfill. The ADT is used to haul cover soil, hydrated coal ash from the solidification pit, and compost material at MPE. Due to long lead times for new equipment purchases, staff sought out low hour rental machines for sale, that could be available immediately.

The following bids were received:

- Zieglar Caterpillar: Caterpillar 740 New 31.9 yd3 capacity $655,000
- Murphy Tractor: John Deere 2019 460E 1,900 hours 35.1 yd3 capacity $432,500
- Heavy Housby: Volvo 2020 A40G 1675 hours 32.3 yd3 capacity $457,200

Murphy Tractor is the recommended vendor with pricing in the amount of $432,500. This represents the lowest bid and the highest capacity. The John Deere comes with a powertrain warranty for 5,000 hours or until December 2026. The current ADT at MPE is typically used 800 to 1,000 hours per year.

DISCUSSION POINTS:
Staff has inspected and driven the specific John Deere that is recommended for purchase. The unit would be available for use at the landfill immediately.

STAFF RECOMMENDATION:
Staff recommends approval of the purchase of the John Deere 460E from Murphy Tractor.

BUDGET REQUIREMENTS:
The ADT is budgeted in the FY 21/22 budget. The budgeted amount is $463,000 and is listed as 6-wheel truck.

ATTACHMENTS:

- Ziegler Bid
- Murphy Tractor Bid
- Heavy Housby Bid

CONTACT:
Jon Penheiter, solid waste administrator, 515.333.4446

188117-01

September 30, 2021

METRO WASTE AUTHORITY
300 E LOCUST ST STE 100
Des Moines, IA 50309-1864

Attn: Jon Penheiter

NEW 2022 CAT 740GC Articulated Truck

STANDARD EQUIPMENT

POWERTRAIN – Auto shift transmission with nine - forward and two reverse speeds – Advanced Automatic Traction Control –

OPERATOR ENVIRONMENT – Air vents, adjustable – Radio ready – Colour Multi-Purpose Display (CMPD), - including cycle counter, rear view – Air conditioning with R134A refrigerant –

ELECTRICAL – Hood raise and lower switch. - stop/tail and width marker - rear, two reversing/working, two – Lights: cab interior, front, side and – Headlights, four – 12 volt convertor – Electrical system: 24 volt, 10A 24 to –

POWERTRAIN – Waiting brake – Hill assist – Auto retarder control (ARC)/no lever – Machine speed limiter - wheel brake – Three axle, six wheel drive, six – Fluid sampling valves – Oil cooled brakes, enclosed – Engine compression brake - for all axles - clutched cross-axle differential locks – Differentials, standard with auto - for the region of sale - for emissions compliance as required - -Engine will be certified and labelled – Cat C15 engine with ACERT technology

OPERATOR ENVIRONMENT - camera and screen –

OTHER STANDARD EQUIPMENT – Spill guard, front, integral part of - fabricated body – Starting receptacle, electric, remote – Towing eyes front – Vandalism protection: lockable caps for - fuel tank and hydraulic oil tank – Fully raised body lock –

OPERATOR ENVIRONMENT – Electro hydraulic hoist control – Glass windows, laminated and tinted - front, toughened and tinted rear – Heater and defroster with four-speed fan – Horn, electric – Operator and passenger grab handles – ROPS/FOPS cab with full instrumentation – Seat, fully adjustable, air suspension – Seat, padded companion/trainer – Seat belts, two retractable – Secondary steering – Storage: two cup holders, flask - receptacle, under seat storage, door - pocket, behind seat storage, coat hook – Sun visor – Tilt and telescopic steering wheel – Front windshield wiper and washer, - intermittent

OTHER STANDARD EQUIPMENT – Back up alarm – Body, adapted for exhaust heat – Guards: rear window and radiator, - crankcase and axle – Mirrors, left, right and front – Mud flaps, body mounted

MACHINE SPECIFICATIONS

740GC 04A ARTICULATED TRUCK
LANE 3 ORDER
LUBRICATION, MANUAL
ROW ENGINE ARRANGEMENT
AID, COLD WEATHER STARTING
LIGHTS, ROOF MOUNTED WORK
NO MACHINE SECURITY SYSTEM
WIPER, REAR
AM/FM RADIO (BLUETOOTH READY)
MIRROR, ELECTRIC HEATED
SEAT, DELUXE
SEAT BELT, 4 POINT
CAB, STANDARD
PRODUCT LINK, CELLULAR PLE641
NO PAYLOAD
TANK, STANDARD FUEL
NO SOUND SUPPRESSION
FENDER COVER
CHASSIS, STANDARD
BODY, STANDARD
EXHAUST, HEATED BODY
ANTIFREEZE, -50C (-58F)
SERIALIZED TECHNICAL MEDIA KIT
FILM GROUP, ANSI
GROUP, ETHER
HEATER, ENGINE COOLANT, 240V
TAILGATE, SCISSOR
ROLL ON-ROLL OFF
TIRES, 29.5R25 MM**MS302 E3/L3

SELL PRICE $655,000.00

WARRANTY

Standard Warranty:	Standard Manufacturer's Warranty
Extended Warranty:	48 MO/4000 HR POWERTRAIN + HYDRAULICS + TECH

F.O.B/TERMS: DES MOINES

*** Ziegler Currently has 3 machines on order slated for March 2022 delivery ***
Inventory subject to change

Quote Id: 25289105

Prepared For:

METRO WASTE AUTHORITY METRO PARK EAST LANDFILL

Prepared By: **BARRY SEBASTIAN**

Murphy Tractor & Equipment
5087 E Broadway Ave
Des Moines, IA 50317-4744

Tel: 515-263-0055
Mobile Phone: 515-326-5136
Fax: 515-263-0002
Email: bsebastian@murphytractor.com

Date: 21 September 2021

Offer Expires: 30 September 2021

Quote Summary

Prepared For:

METRO WASTE AUTHORITY METRO PARK EAST LANDFILL
12181 NE UNIVERSITY AVE
MITCHELLVILLE, IA 50169
Business: 515-333-4447
gdi@mwatoday.com

Prepared By:

BARRY SEBASTIAN
Murphy Tractor & Equipment
5087 E Broadway Ave
Des Moines, IA 50317-4744
Phone: 515-263-0055
Mobile: 515-326-5136
bsebastian@murphytractor.com

Quote Id: 25289105
Created On: 21 September 2021
Last Modified On: 21 September 2021
Expiration Date: 30 September 2021

Equipment Summary	Qty	Extended
2019 JOHN DEERE 460E ARTICULATED DUMP TRUCK - 1DW460ETVJF693052	1	
Equipment Total		**$ 432,500.00**

Quote Summary	
Equipment Total	$ 432,500.00
SubTotal	$ 432,500.00
Total	$ 432,500.00
Balance Due	**$ 432,500.00**

Salesperson : X _____

Accepted By : X _____

Selling Equipment

MORPHY TRACTOR & EQUIPMENT CO.

Quote Id: 25289105 **Customer:** METRO WASTE AUTHORITY METRO PARK EAST LANDFILL

2019 JOHN DEERE 460E ARTICULATED DUMP TRUCK - 1DW460ETVJF693052

Hours: 1994
Stock Number: 179520

Description	Qty
JOHN DEERE DORF, 875/65R29, TAILGATE	1
Standard Options - Per Unit	
JDLINK ULT 5 YEAR SERVICE	1
FT4 ENGINE	1
1400CC BATTERY	1
MUFFLER WITH CHROME EXHAUST	1
REVERSE FAN DRIVE	1
DUMP BIN AND SPLASH GUARDS	1
NO DUMP BODY HEATER	1
TAILGATE	1
DC ENGLISH DECALS	1
ELECTRIC MIRRORS	1
HEATED HB SEAT W DUR SUSPENS	1
RADIO	1
25 AMP CONVERTER	1
REAR CAMERA W 2ND MONITOR	1
MANUAL TEMPERATURE CONTROL	1
HVAC PRECLEANER	1
875/65R29 MI TIRES	1
TIRE PRESS MONITORING SYSTEM	1
ONBOARD WEIGHING W LIGHTS	1
NO FAST FUEL	1
AC CHARGE	1
QUICK SERVICE	1
FIRE EXTINGUISHER	1
TOOLBOX	1
ETHER START AID	1
COOLANT HEATER, 120V	1
VLS CAB WORK LIGHTS LED	1
SEVERE DUTY FUEL FILTER	1
REAR WINDSHIELD WIPER	1

Warranty Coverage

Selling Equipment

MURPHY TRACTOR & EQUIPMENT CO.

Quote Id: 25289105 **Customer:** METRO WASTE AUTHORITY METRO PARK EAST LANDFILL

Warranty Type	Coverage Term	Expiration Date	Days Remaining
BASIC WARRANTY	BASIC 12M	09-Dec-2020	0
STRUCTURALL	STRUCTURAL 36M/10000H	08-Dec-2022	443
LIMITED BASIC	LIMITED BASIC- TRANSMISSION 60 M/15000 H	09-Dec-2024	1175
EMISSIONS WARRANTY	EMISSION 60M/3000H	09-Dec-2024	1175
EXTENDED WARRANTY (POWERTRAIN & HYDRAULIC)	EXT PT;H W/ DIAG 84 M/5000 H	07-Dec-2026	1903

HOUSBY HEAVY EQUIPMENT

Metro Waste Authority
Mitchellville, IA

Date: 9/22/2021

Quote: 2020 Volvo A40G Articulated Hauler

1,675 Machine Hours

29.5R25 VLT E3 BS	FARENHEIT AC CONTROL	LIFETIME FRAME GUAR.
29.5-25 5PC RIMS	RADIO INSTALL KIT	USA PARA. SETTINGS
FRONT FENDER WIDENER	RETARDER PEDAL	GROUND LEVEL LUBE
REAR MUDFLAPS	RADIO WITH BLUETOOTH	GROUND LEVEL LUBE
D13J TIER 4F ENGINE	KAB AIR SUSP. SEAT	R2 RUST PROTECTION
120V ENGINE HEATER	BACK UP ALARM	USA DECAL SET
EON HD AIR FILTER	REAR VIEW CAMERA	CARETRACK SUBSCRIPT.
DELAYED ENGINE STOP	POWER MIRRORS	CARETRACK 3G
AUTO ENG. SHUTDOWN	CO PILOT SYSTEM	DE-ACTIVATE SAT SW
BODY HEAT EXHAUST	HAUL ASSIST OBW	DECALS
LONG HAUL KIT	WORK LIGHTS	STANDARD BODY
ANCHORAGE MANUAL	ENTRANCE LITE	OVERHUNG TAILGATE
UNIVERSAL KEY	LED HEADLIGHTS	EXHAUST BODY HEATING
ARMREST	LED ROTATING BEACON	PIN PLATE

Sale Price:	$ 457,200.00
Extended Warranty:	$ 15,900.00
Net Sale:	**$ 473,100.00**

Warranty: Current Coverage: Premier thru 4,000 machine hours / 4-29-2023

Extended Warranty: Additional 36 months / 4,500 hours. Premier coverage.

Delivery Time: 1-2 weeks.
Terms of Payment: Prices quoted herein are exclusive of all sales, use & similar taxes.
Validity: This quote is valid for 30 days.

Acceptance: _____ **Date:** _____

BEAU KAPLAN
515.724.2120
bkaplan@housby.com

Volvo A35G, A40G in detail

Engine

V-ACT, 13 liter, 6-cylinder straight VGT (Variable Geometry Turbocharged) diesel engine with 4 valves per cylinder, overhead camshaft and electronically controlled unit injectors. It has wet, replaceable cylinder liners and replaceable valve guides and valve seats.

The engine has cooled EGR (Exhaust Gas Recirculation) and exhaust after treatment with EAT Muffler (Exhaust After treatment) including DOC (Diesel Oxidation Catalyst), DPF (Diesel Particulate Filter) and SCR (Selective Catalytic Reduction) with an electronically controlled UDS (Urea Dosing System).

After treatment system features passive DPF regeneration with an AHI (After treatment Hydro carbon Injection) device as back up.

		A35G	A40G
Engine model	Volvo	D13J	D13J
Max power - SAE J1995 Gross	kW (hp)	336 (451)	350 (469)
at engine speed	r/min (r/s)	1,900 (31.7)	1,900 (31.7)
Flywheel power - ISO 9249, SAE J1349 Net	kW (hp)	333 (447)	347 (465)
at engine speed	r/min (r/s)	1,900 (31.7)	1,900 (31.7)
Max torque - SAE J1995 Gross	Nm (ft lbf)	2,407 (1,775)	2,525 (1,862)
Max torque - ISO 9249, SAE J1349 Net	Nm (ft lbf)	2,386 (1,760)	2,500 (1,844)
at engine speed	r/min (r/s)	1,200 (20)	1,050 (17.5)
Displacement	l (in³)	12.8 (781)	12.8 (781)

Electrical system

All cables, sockets and pins are identified. Cables are enclosed in plastic conduits and secured to main frame. Halogen lights. Prewired for options. Connectors meet IP67 standard for water-proofing as necessary.

		A35G	A40G
Voltage	V	24	24
Battery	V	2x12	2x12
Battery capacity	Ah	2x170	2x170
Alternator	kW/A	3,396/120	3,396/120
Starter motor	kW	9	9

Drivetrain

Torque converter with built-in lock-up function.
Transmission: Fully automatic Volvo Power Tronic planetary transmission with nine forward gears and three reverse gears. The transmission has the ability to skip gears for fast and accurate gear selection.
Dropbox: Volvo developed, in-line design with high ground clearance and 100% longitudinal "dog clutch" type differential lock.
Axles: Heavy duty, purpose built Volvo design with fully floating axle shafts, planetary type hub reductions and 100% dog clutch type diff lock.
Automatic traction control system (ATC).

		A35G	A40G
Torque converter		2.1:1	2.1:1
Transmission	Volvo	PT 2529	PT 2529
Dropbox	Volvo	TE2 ATC	TE2 ATC
Axles	Volvo	ARB H35	ARB H40

Brake system

Fully hydraulic, wet multiple disc brakes with enclosed, forced oil cooled multiple discs on all wheels. Two circuit brake system. Complies with ISO 3450 at total machine weight.
Circuit division: One circuit for front axle and one for bogie axles.
Parking brake: Spring applied disc brake acting on the trailer unit propeller shaft. When the parking brake is applied, the longitudinal differential locked.
Retarder: Service brake retarder function and Volvo Engine Brake (VEB).

Steering System

Hydro-mechanical articulated steering, self-compensating design.
Two double-acting steering cylinders.
Steering angle: 3/4 steering wheel turns lock-to-lock, ±45°.
Steering system, including secondary steering fulfills ISO 5010.

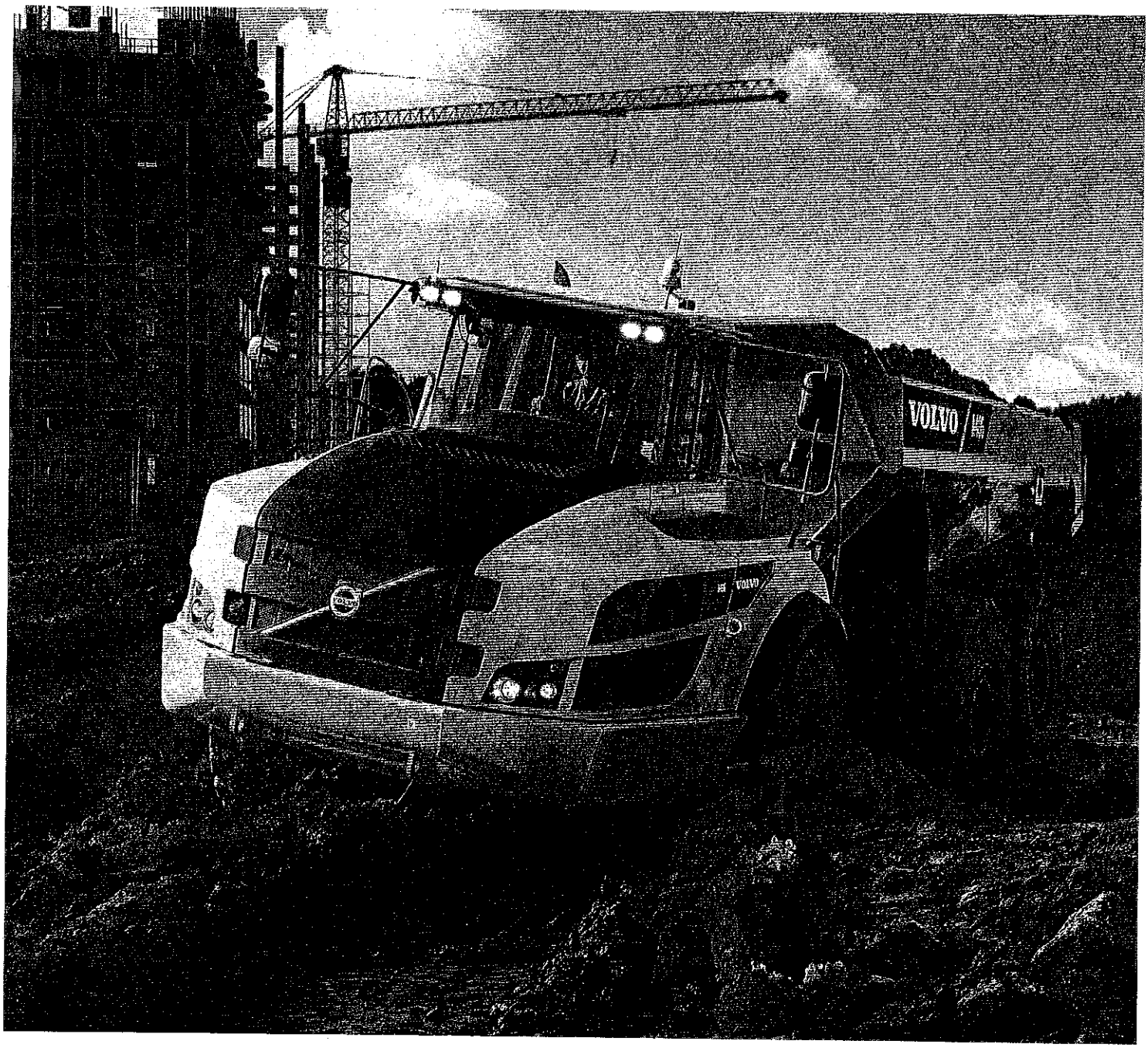
Chassis

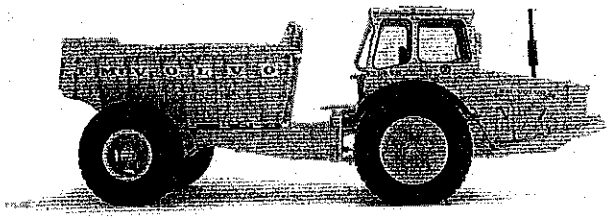
Frames: box type, heavy duty. High strength steel, robot welded.
Rotating hitch: 100% maintenance free, fully sealed, with permanently greased tapered roller bearings.

Volvo Construction Equipment
Building Tomorrow

A35G, A40G

Volvo Articulated Haulers • 38.0-43.0 ton • 451-469 hp





1966: DR 631 GRAVEL CHARLIE

WORLD'S FIRST SERIES-MANUFACTURED ARTICULATED HAULER

By today's standards Gravel Charlie was not a big machine – but its impact
on transport operations in the construction sector was massive.

- The world's first series manufactured articulated hauler
- Pioneering solutions including articulated steering, all-wheel drive and differential locks
- Unrivalled manoeuvrability in off-road conditions

GRAVEL CHARLIE MARKED THE BEGINNING OF SOMETHING NEW AND SOMETHING WHICH WOULD CHANGE THE CONSTRUCTION SECTOR FOREVER.

10 000
ARTICULATED HAULERS PRODUCED BY VOLVO
1981

25 000
ARTICULATED HAULERS PRODUCED BY VOLVO
1996

A40
1995
A-class bigger
36 t (72,000 lb)

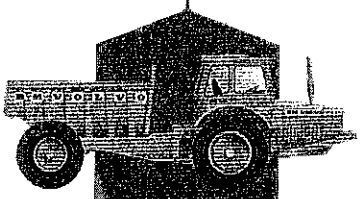
A complete product range 20 - 40 ton class

A25C
1993
First articulated hauler with low-emission engine as standard

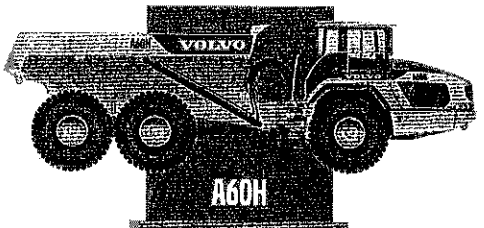
5350
1979
"Terrain Express" – expanded Volvo articulated hauler's global success
20 t (40,000 lb)
50 kph (31 mph)

- *Constant 4-wheel drive*
- *Higher average speed in combination with higher load capacity = **improved profitability***
- *Fully automatic transmission*
- *Unique suspension system allows high average speed*
- *Top class, roomy cab with low noise level*

DR 860
1967
Master of rough terrain – 3-axle machine with unique bogie concept, still going strong
15 t (30,000 lb)
30 kph (18 mph)

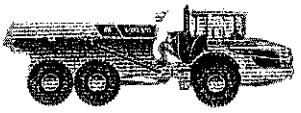


DR 631 GRAVEL CHARLIE
1966
World's first series-manufactured articulated hauler
10 t (20,000 lb)
25 kph (15 mph)



2016
Launching the world's largest articulated hauler
55 t (110,000 lb)

50 000
ARTICULATED HAULERS PRODUCED BY VOLVO
2006



G-SERIES

2014
Wet cooled brakes on all models

- *Uptime*
- *Fuel efficiency*
- *Operator's choice*

F-SERIES

2011
Further improving ease of operation and environmental care

2017
75 000
ARTICULATED HAULERS PRODUCED BY VOLVO

E-SERIES
A40E FS

2007
World's first full suspension articulated hauler boosting operator comfort and productivity
39 t (78,000 lb)

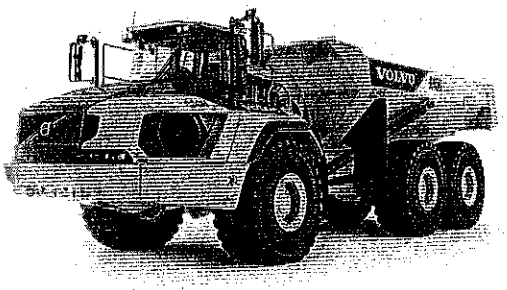
D-SERIES

2000
Built with the operator in focus
37 t (74,000 lb)

- *Increased productivity*
- *Improved operator comfort*
- *Inproved serviceability*

2001
BEST INDUSTRIAL DESIGN AWARD FOR D-SERIES DESIGN
reddot award

2012
BEST INDUSTRIAL DESIGN AWARD FOR THE A40F DESIGN
reddot award



2016: VOLVO A60H
THE BEST JUST GOT BIGGER

Built on the proven Volvo technology of articulated steering, all-wheel drive and differential locks, the Volvo A60H has evolved to be bigger and bolder!

- The largest true articulated hauler on the market
- 55 t payload capacity
- Meeting a growing demand for larger, higher payload haulers

BY EVOLVING OUR PRODUCT LINE-UP TO RESPOND TO CUSTOMER DEMANDS, THE VOLVO A60H CONTINUES OUR PROUD HERITAGE OF INNOVATION AND MARKET LEADERSHIP IN HAULER SOLUTIONS.

Pure uptime

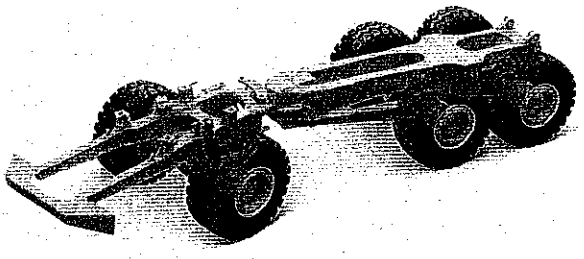
Get ready to work with the new Volvo articulated hauler. Designed for heavy hauling in severe off-road operation, the machine's long service life, quality, reliability and durability is everything you expect from a Volvo. Hauling is easier and more efficient.

Guaranteed durability

Increase your uptime using heavy-duty front and rear frames, hitch and wet disk brakes. Volvo proven durability and the support of extensive warranty options means you never need to worry about getting the job done. Strength and durability are hallmarks of the Volvo articulated hauler.

Over fifty years strong

Fifty years and fifty tonnes later, Volvo is the world's leading manufacturer of articulated haulers. We invented the concept and have been developing and building these machines for over 50 years – it has come a long way from its original 10 tonne articulated hauler. With proven success over the years, the machines include innovative technology and the renowned Volvo engine.

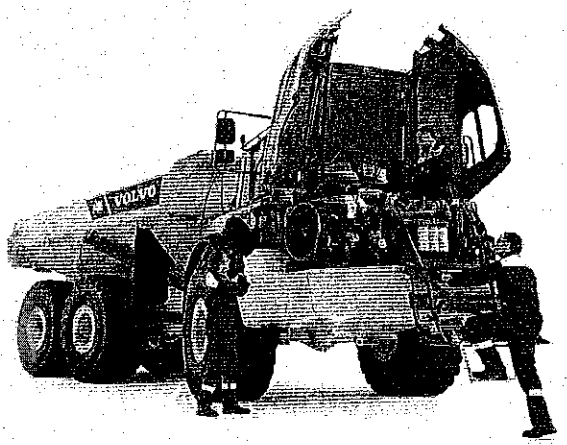


Service access

With industry-leading access, servicing your machine is quick and easy. The front grill swings down, opening a service platform with anti-slip steps. The electric hood opens to 90 degrees, allowing full and safe access to the engine compartment.

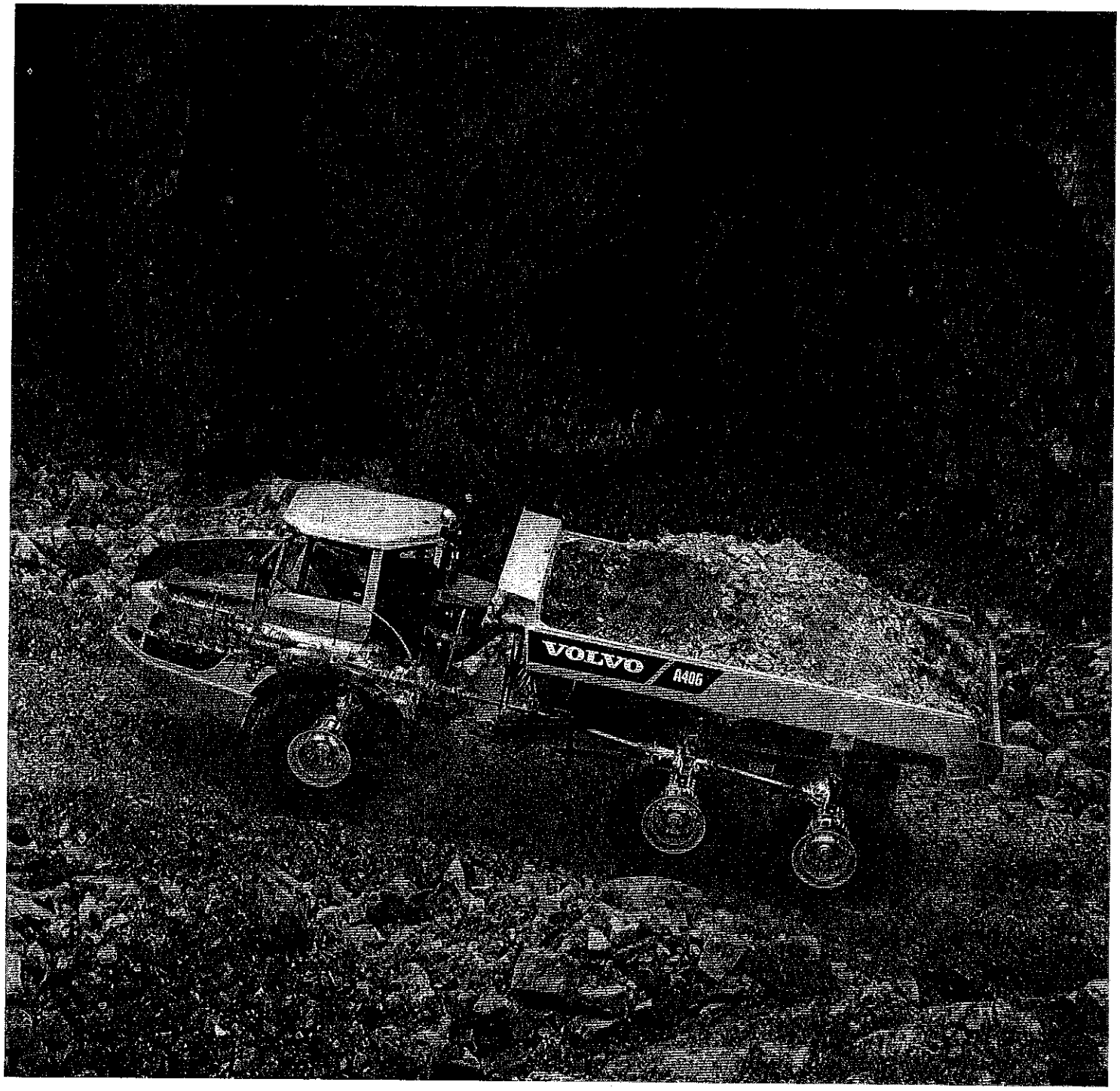
Volvo dealer network

The exclusive Volvo dealer network is there to support you whenever you need it. Volvo offers a number of services, local knowledge and global experience, including telematics machine monitoring – CareTrack™ and MATRIS™ – as well as superb parts availability.



UPTIME

Get ready to work with the all new A35G/A40G. Designed for heavy hauling in severe off-road operation, the machine's long service life, quality, reliability and durability is everything you expect from a Volvo. Hauling is easier and more efficient.



FUEL EFFICIENCY GUARANTEED

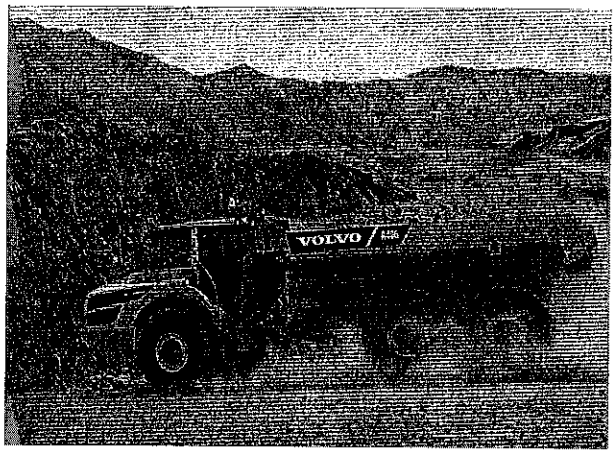
The A35G/A40G, powered by the world-renowned Volvo engine delivers excellent fuel efficiency without compromising on power or performance. With guaranteed fuel efficiency, this machine will increase your profitability and improve your return on investment.

Incredible efficiency

Improve your efficiency and move more for less. Excellent fuel efficiency, innovative technology and useful operational data tools help to control your maintenance costs and maximize your investment.

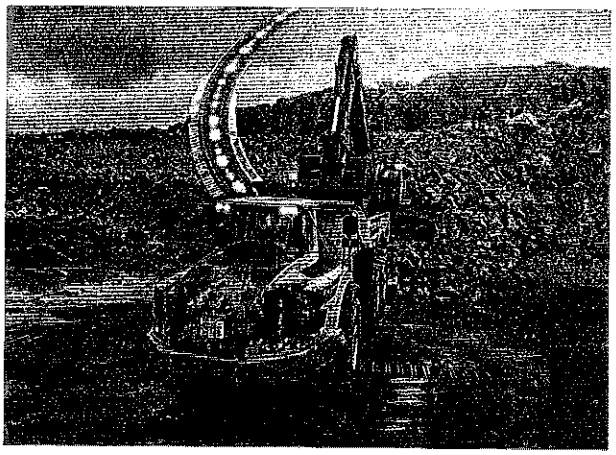
Move more for less

The machine is optimized for efficiency featuring higher payload capabilities. Its smart design allows for more capacity while reducing fuel consumption so you can move more for less.



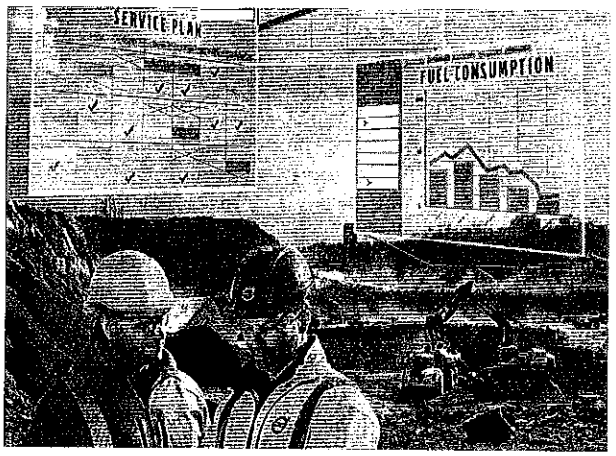
Operational data

Receive valuable data to improve onsite efficiency and save costs. With intelligent systems from Volvo such as MATRIS™, CareTrack™ and the On Board Weighing system, you will optimize your production and minimise your operational costs.



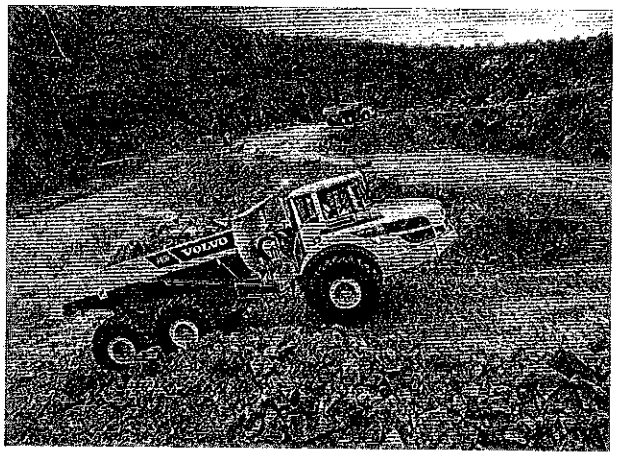
Control your maintenance costs

The range of Customer Support Agreements offer preventive maintenance, total repairs and a number of uptime services. Volvo uses the latest technology to monitor machine operation and status, giving you advice to increase your profitability. By having a Customer Support Agreement you are in control of your service costs.



Volvo dynamic drive

Dynamic and predictive gear selection adapts to operating conditions, for improved comfort and fuel efficiency.

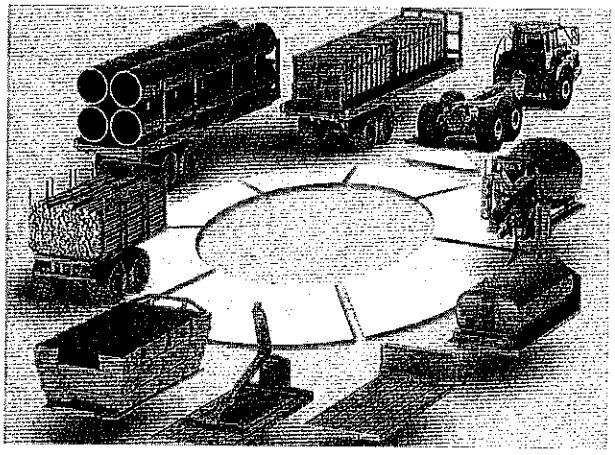


Hit the targets

Hit your targets with the A35G, A40G. This machine features 100% off-road performance, proven Volvo technology and increased payload – contributing to sustainable operations, year after year.

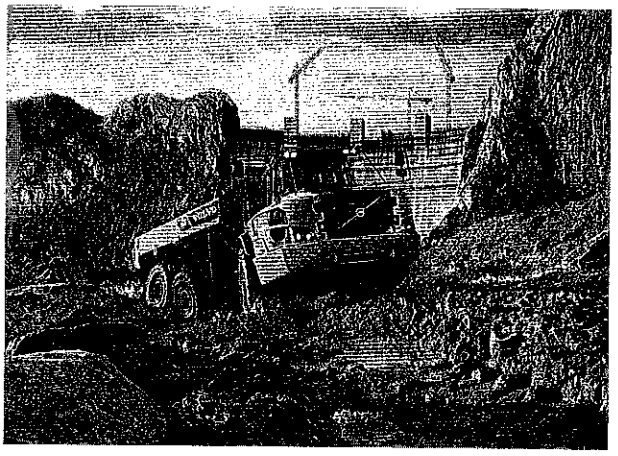
Articulated hauler concept

Go where others can't. The articulated hauler concept provides total versatility so you can access the entire jobsite and climb steeper gradients. Work in all seasons, terrains and applications. With body building solutions and different chassis options you can tailor the machine to your jobsite.



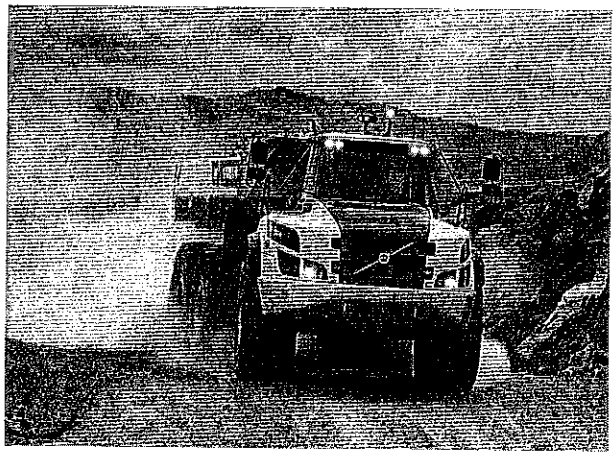
Simply the best

The A35G/A40G machine delivers unbeatable off-road performance in its class with features including matched Volvo drivetrain, Automatic Traction Control including 100% differential locks, all-terrain bogie, hydro-mechanical steering.



The right speed for the job

Ensure the right speed for your job using the retarders, Volvo Engine Brake and new Downhill Cruise Control to adapt your speed for maximum productivity and safety.



Load optimization

The optional On Board Weighing System guarantees the optimal load every cycle. This maximizes production, boosts fuel efficiency and reduces machine wear in all site conditions and operations.

PRODUCTIVITY

With superior productivity you can carry more in one go. The A35G, A40G articulated hauler is built to improve your cycle times and productivity.

Get ready for heavy hauling

OPERATOR'S CHOICE

Its comfortable cab and ease of operation, even in adverse conditions, makes operators choose this machine.

Guaranteed durability

Volvo proven durability and support mean you never need to worry about getting the job done.

Over fifty years strong

Over fifty years later, Volvo is still the world's leading manufacturer of articulated haulers.

Dump support system

The new dump support system increases stability and control in tough environments.

Service access

With industry-leading access, servicing your machine is quick and easy.

OptiShift

Directional changes are made smoother, easier and faster.

UPTIME

Designed for heavy hauling in severe off-road operation, its long service life, quality, reliability and durability is everything you expect from a Volvo.

FUEL EFFICIENCY GUARANTEED

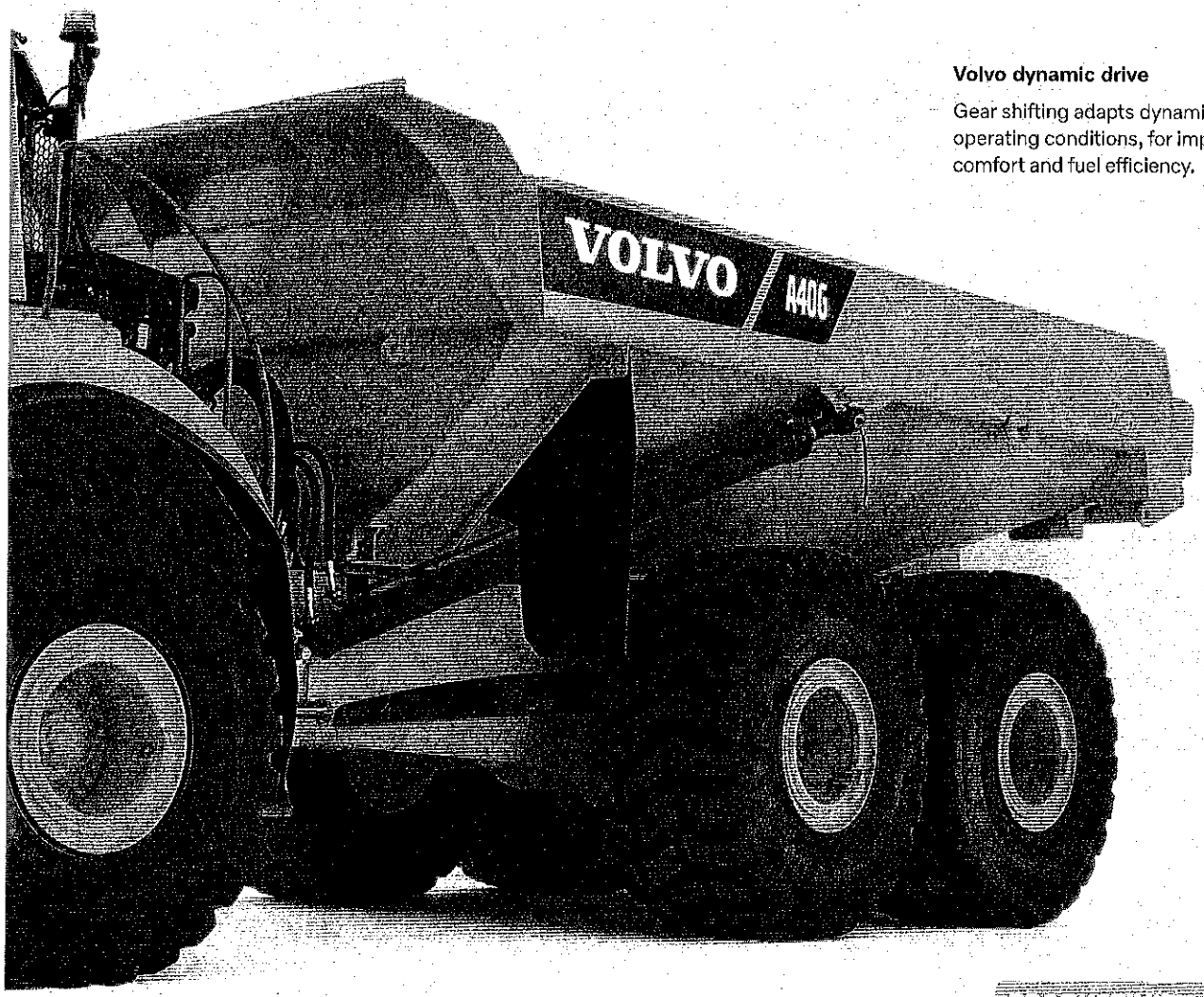
Powered by the world-renowned Volvo engine delivers excellent fuel efficiency without compromising on power or performance.

Cruise Control

Set and adjust the cruise control to maintain a constant travel speed for smoother and more efficient hauling.

Volvo dynamic drive

Gear shifting adapts dynamically to operating conditions, for improved comfort and fuel efficiency.



Brake test

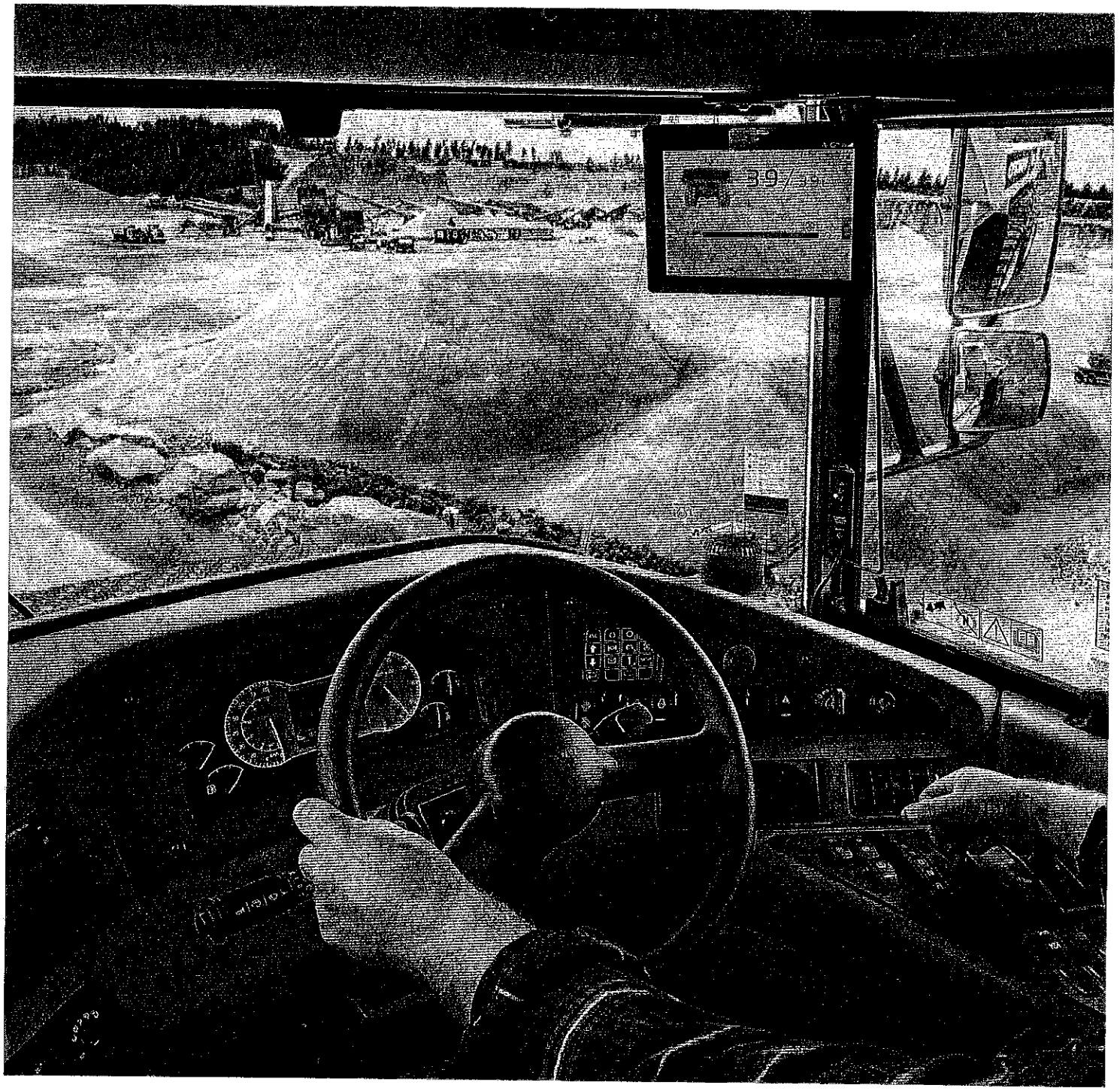
Schedule and perform a safe and easy stationary test, guided by the operator's display.

Downhill Speed Control

Easily maintain control and speed when operating downhill, for safer and more comfortable operation.

PRODUCTIVITY

Move more tonnes per hour and give a 100% in all conditions.



OPERATOR'S CHOICE

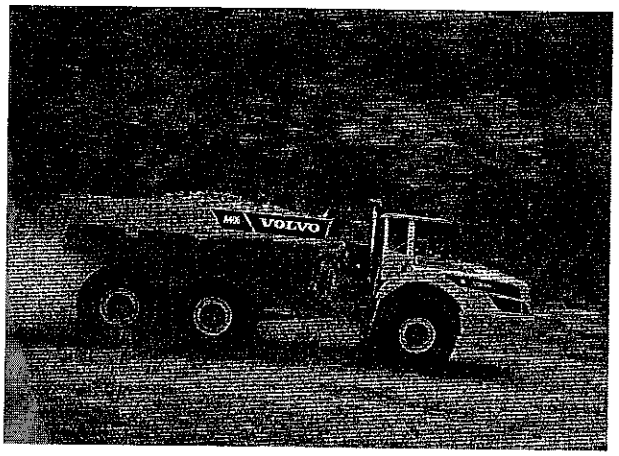
A happy operator is a more productive operator and when many other machines are onsite, most operators prefer the Volvo. Even in the most adverse conditions, its comfortable cab and ease of operation keep operators alert and performing their best.

Control in comfort

The industry-leading spacious cab and comfortable work environment make the A35G/A40G the number one choice for operators. Its superior comfort, control, ease of operation and safety appeals to operators, helping to maintain outstanding productivity all day, every day.

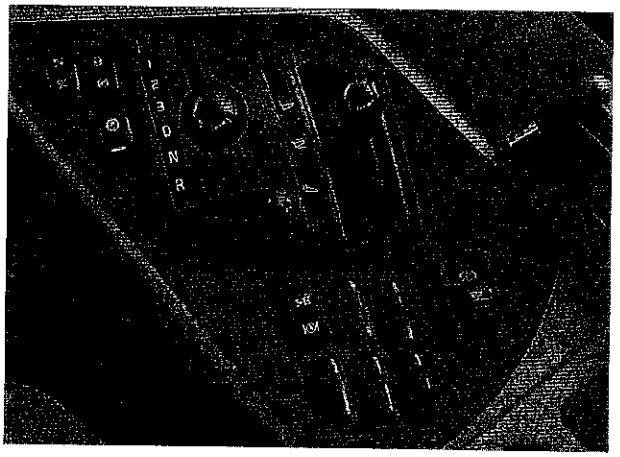
Total operator control

The A35G/A40G is packed with features to help operators get the most from the machine. Intelligent functions such as cruise control, downhill speed control and hill assist help the operator control the machine with ease and efficiency, for enhanced safety and productivity in all conditions.



Ease of operation

The ergonomic and comfortable controls make Volvo articulated haulers easy to understand and suit all operators. Automatic functions such as OptiShift – which enables fast and smooth directional changes – offer even greater ease of operation for an unrivalled operator experience.

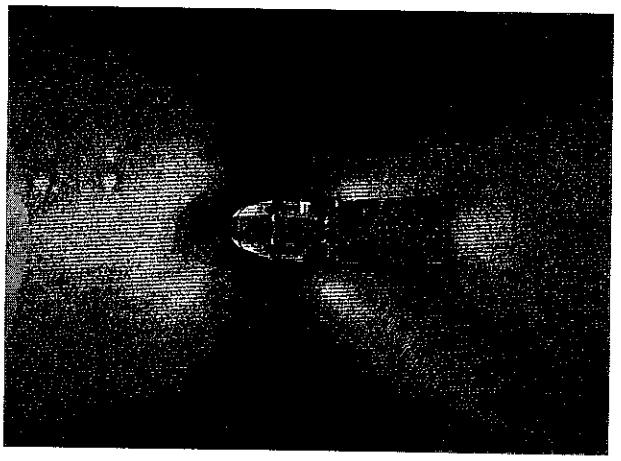


Operator comfort

Feel comfortable and spend more time in the A35G/A40G. The centrally positioned operator, superior steering, excellent suspension, low noise levels, climate control, space and visibility, reduce operator fatigue for more effective operations.

Safety

Whether its operators, trainers, technicians or site workers – safety on site is of fundamental importance. In the A35G/A40G superior visibility and efficient lighting combine with a number of safety features, such as the brake test and dump support, helping to keep the operator and people working around the machine safe, even in the most demanding working environments.



Cab

Mounted on rubber pads. Ergonimically designed. Easy entry and exit. Wide angle forward view.
Operator centerally positioned above the front axle. Adjustable operators seat with retractable seat belt.
Tilt/telescopic steering wheel. Ergonomically positioned controls. Filtered air. Optional climate control system.
Operator communication system Contronics.
Large color display, user-friendly and easy-to-understand information, all vital machine functions are constantly monitored.
Instructor seat with seat belt.
Safety: ROPS/FOPS standards approved according to ISO3471, SAE J1040 / ISO3449 SAE J231.

		A35G	A40G
Sound level in cab (ISO 6396) - LpA	dB(A)	72	72
External sound level (ISO 6395) - LwA	dB(A)	112	112

Internal sound level with sound kit: 70 dB(A).
External sound level with sound kit: 110 dB(A).

Suspension

Front suspension: Three-point suspension consisting of a stay fitted to the frame structure by a spherical rubber bushing, shock absorbers with accumulators and cross stays.
Rear suspension: 3-point bogie beam suspension consisting of a straddle-mounted bogie beam with maintenence free rubber bearings, flexible rubber pads, cross-stays and a stay.

Hydraulic system

Pumps: four variable displacement piston pumps driven by the flywheel PTO.
Two load-sensing used for steering and tipping and two electrical controlled used for fan, brake cooling and brake power supply.
One ground-dependent piston pump for secondary steering mounted on the dropbox.
Two return oil filters with magnetic cores provide effective oil filtration.

		A35G	A40G
System max working pressure	MPa (psi)	26 (3,771)	26 (3,771)

Dumping System

Patented Load and Dump Brake.
Dumping Cylinders: two single stage double acting cylinders.

		A35G	A40G
Tipping angle	°	72	70
Tipping time with load	s	12	12
Lowering time	s	10	10

Body

		A35G	A40G
Plate thickness			
Front	mm (in)	8 (0.31)	8 (0.31)
Sides	mm (in)	11 (0.43)	11 (0.43)
Bottom	mm (in)	14 (0.55)	14 (0.55)
Chute	mm (in)	16 (0.63)	16 (0.63)
Material			HB450 steel
Yield strength	N/mm² (psi)	1,150 (166,793)	1,150 (166,793)
Tensile strength	N/mm² (psi)	1,350 (195,801)	1,350 (195,801)

Load Capacity

		A35G	A40G
Standard Body			
Load capacity	kg (sh tn)	34,500 (38)	39,000 (43)
Body, struck	m³ (yd³)	16.6 (21.7)	18.4 (24.1)
Body, heaped 2:1	m³ (yd³)	21.2 (27.7)	24 (31.4)
With overhung tailgate			
Body, struck	m³ (yd³)	17 (22.2)	18.8 (24.6)
Body, heaped 2:1	m³ (yd³)	22.1 (28.9)	24.7 (32.3)

Specifications

REFILL CAPACITIES

			A35G		A40G	
Crankcase	l	gal	50	13.2	50	13.2
Fuel tank	l	gal	480	126.8	480	126.8
Cooling system	l	gal	44	11.6	44	11.6
Brake cooling system	l	gal	188	49.7	188	49.7
Transmission	l	gal	43	11.4	43	11.4
Dropbox	l	gal	9	2.4	9	2.4
Axles front/bogie	l	gal	26/51	6.6/13.5	26/53	6.9/14
Hydraulic tank	l	gal	174	46	174	46
DEF	l	gal	39	10.3	39	10.3

SPEED

			A35G		A40G	
Forward						
1	km/h	mph	5.9	3.7	5.8	3.6
2	km/h	mph	8.6	5.3	8.5	5.3
3	km/h	mph	10.3	6.4	10.4	6.5
4	km/h	mph	15.2	9.4	15	9.3
5	km/h	mph	21.9	13.6	21.6	13.4
6	km/h	mph	27.7	17.2	27.3	17
7	km/h	mph	36.6	22.7	36.1	22.4
8	km/h	mph	48.5	30.1	47.8	29.7
9	km/h	mph	57	35.4	57	35.4
Reverse						
1	km/h	mph	6.6	4.1	6.5	4
2	km/h	mph	9.5	5.9	9.4	5.8
3	km/h	mph	18	11.2	18	11.2

OPERATING WEIGHT UNLOADED

			A35G		A40G	
Tires			26.5R25*		29.5R25**	
Front	kg	lb	15,700	34,613	16,100	35,494
Rear	kg	lb	13,600	29,983	14,600	32,187
Total	kg	lb	29,300	64,595	30,700	67,682
Payload	kg	lb	34,500	76,059	39,000	85,980

Operating weight includes all fluids and operator.

*) A35G with tires 775/65R25, add 200 kg (440 lb)/axle

**) A40G with tires 875/65R25, add 300 kg (660 lb)/axle

TOTAL WEIGHT

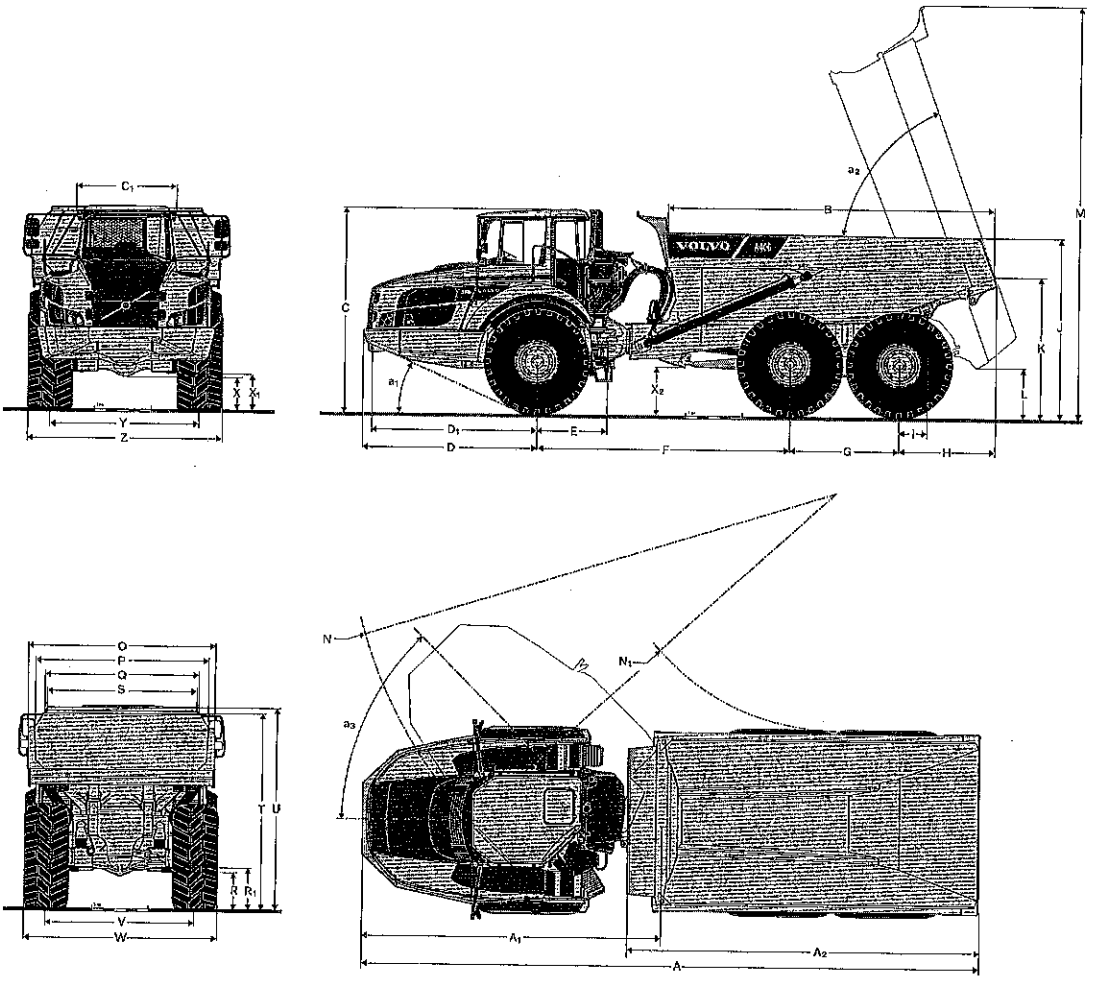
			A35G		A40G	
Tires			26.5R25*		29.5R25**	
Front	kg	lb	19,200	42,329	20,450	45,084
Rear	kg	lb	44,600	98,326	49,250	108,578
Total	kg	lb	63,800	140,655	69,700	153,662

*) A35G with tires 775/65R25, add 200 kg (440 lb)/axle

**) A40G with tires 875/65R25, add 300 kg (660 lb)/axle

GROUND PRESSURE

			A35G		A40G		A35G		A40G	
Tires			26.5R25		29.5R25		775/65R25		875/65R25	
Unloaded										
Front	kPa	psi	132	19.1	111	16.1	115	16.7	98	14.2
Rear	kPa	psi	54	7.8	47	6.8	48	7	42	6.1
Loaded										
Front	kPa	psi	158	22.9	139	20.2	138	20	121	17.5
Rear	kPa	psi	183	26.5	167	24.2	160	23.2	146	21.2



DIMENSIONS

Pos	Unit	A35G		A40G	
A	mm ft in	11,180	36'8"	11,263	36'11"
A_1	mm ft in	5,476	18'	5,476	18'
A_2	mm ft in	6,241	20'6"	6,404	21'0"
B	mm ft in	5,568	18'3"	5,844	19'2"
C	mm ft in	3,547	11'8"	3,599	11'10"
C1	mm ft in	1,772	5'10"	1,772	5'10"
D	mm ft in	3,100	10'2"	3,100	10'2"
D_1	mm ft in	2,942	9'8"	2,942	9'8"
E	mm ft in	1,277	4'2"	1,277	4'2"
F	mm ft in	4,578	15'0"	4,518	14'10"
G	mm ft in	1,820	6'	1,940	6'4"
H	mm ft in	1,683	5'6"	1,706	5'7"
I	mm ft in	650	2'2"	495	1'7"
J	mm ft in	3,014	9'11"	3,132	10'3"
K	mm ft in	2,304	7'7"	2,436	8'
L	mm ft in	890	2'11"	822	2'8"
M	mm ft in	7,236	23'9"	7,265	23'10"
N	mm ft in	8,866	29'1"	8,957	29'5"
N_1	mm ft in	4,416	14'6"	4,327	14'2"
O	mm ft in	3,216	10'7"	3,430	11'3"

DIMENSIONS

Pos	Unit	A35G		A40G	
P	mm ft in	2,902	9'6"	3,118	10'3"
Q	mm ft in	2,553	8'5"	2,820	9'3"
R	mm ft in	564	1'10"	618	2'0"
R_1	mm ft in	652	2'2"	701	2'4"
S	mm ft in	2,423	7'11"	2,651	8'8"
T	mm ft in	3,382	11'1"	3,427	11'3"
U	mm ft in	3,498	11'6"	3,546	11'8"
V	mm ft in	2,534	8'4"	2,636	8'8"
W	mm ft in	3,221	10'7"	3,403	11'2"
X	mm ft in	500	1'8"	553	1'10"
X_1	mm ft in	592	1'11"	645	2'1"
X_2	mm ft in	738	2'5"	788	2'7"
Y	mm ft in	2,584	8'4"	2,636	8'8"
Z	mm ft in	3,221	10'7"	3,403	11'2"
a_1	°	23.6		24.3	
a_2	°	72		70	
a_3	°	45		45	

A35G: Unloaded machine with 26,5R25

A40G: Unloaded machine with 29,5R25

Equipment

STANDARD EQUIPMENT

	A35G	A40G
Engine		
Direct injected, electronically controlled, turbocharged, intercooled	•	•
Grouped oil filters, for ease of change	•	•
Preheater for easier cold starts	•	•
VEB (exhaust retarder EPG + compression brake)	•	•
Tires		
26.5R25	•	
29.5R25	–	•
Drivetrain		
6x4 and 6x6 automatically engaged drive modes	•	•
Dog clutch type 100% diff-locks in all axles	•	•
Full automatic transmission	•	•
Dropbox with longitudinal diff-lock	•	•
Torque converter with automatic lock-up	•	•
Electrical system		
120 A alternator	•	•
Battery disconnect switch	•	•
Co-pilot system	•	•
Extra 24 V socket for lunch cooler	•	•
Haul assist on board weighing	•	•
Lights:	•	•
Back-up light	•	•
Brake lights	•	•
Cab lighting	•	•
Direction indicators	•	•
Headlights	•	•
Instrument lighting	•	•
Parking lights	•	•
Rear lights	•	•
Brake system		
Hill assist	•	•
Load & Dump Brake	•	•
Retarder pedal	•	•
Parking brake on propeller shaft	•	•
Two circuit, fully hydraulic, wet discs on all axles	•	•
Body		
Body prepared for exhaust heating and optional equipment	•	•
Safety		
Anti-slip steps and platforms	•	•
Dump body lock	•	•
Handrails on steps and platforms	•	•
Hazard lights	•	•
Horn	•	•
Protective grill for cab rear window	•	•
Rear view mirrors	•	•
Retractable 3-inch safety belt	•	•
ROPS/FOPS protected Care Cab	•	•
Secondary steering	•	•
Steering joint lock	•	•
Windshield washers	•	•
Windshield wipers with interval function	•	•

STANDARD EQUIPMENT

	A35G	A40G
Dump support system	•	•
Comfort		
ACC control panel	•	•
Ashtray	•	•
Cab heater with filtered fresh air and defroster	•	•
Can holder /storage tray	•	•
Cigarette lighter	•	•
Instructor seat with seat belt	•	•
Overhead console for radio	•	•
Sliding window	•	•
Space for lunch cooler	•	•
Storage box	•	•
Sun visor	•	•
Tilt/telescopic steering wheel	•	•
Tinted glass	•	•
Operator information interface		
Gauges	•	•
Brake pressure	•	•
Fuel	•	•
Speedometer	•	•
Tachometer	•	•
Wet disc brakes cooling oil temperature	•	•
Warning lights grouped and easy to read		
Central warning (3 levels) for all vital functions	•	•
Central positioned information display		
Automatic pre-start checks	•	•
Clock	•	•
Hour meter	•	•
Operational information, easy-to-navigate menu	•	•
Troubleshooting diagnostics	•	•
Exterior		
Front mudguard wideners and rear mudflaps	•	•
Service and maintenance		
Electrical engine hood	•	•
Machine Tracking Information System MATRIS	•	•
Service platform integrated in the front grill	•	•
Tool box	•	•

OPTIONAL EQUIPMENT

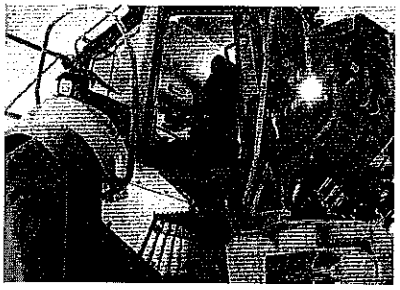
	A35G	A40G
Engine		
Air filter, heavy duty, EON	•	•
Engine heater, 120 V, USA	•	•
Engine heater, 240 V	•	•
Engine heater, diesel (Eberspächer)	•	•
Engine auto shutdown	•	•
Engine shutdown timer	•	•
External emergency engine stop	•	•
Fuel filter, extra	•	•
High engine idle speed	•	•
Tires		
775/65R25	•	
875/65R25	–	•
Electrical system		
Headlights, LED	•	•
Warning beacon, LED	•	•
Working lights, halogen	•	•
Working lights, LED	•	•
Entrance light	•	•
Anti-theft system (pin code)	•	•
Rear view camera	•	•
Reverse alarm	•	•
CAN-BUS interface, extra	•	•

OPTIONAL EQUIPMENT	A35G	A40G
Cab		
Noise reduction kit (fulfils 2000/14/EC)	•	•
Anchorage, operator's manual	•	•
Cab heating/ventilation timer	•	•
Cable kit, for cab heater 240 V	•	•
HEPA cab air filter	•	•
Bluetooth radio kit	•	•
Rear view mirrors, adjustable, el. heated	•	•
Seat belt XXL, non-retractable	•	•
Sun blinds, side windows	•	•
Universal key	•	•
Air suspended, heated, fully adjustable seat	•	•
Armrest for operator seat	•	•
Headrest for operator seat	•	•
Low profile cab	•	•
Body		
Body exhaust heating	•	•
Front spillguard, extra	•	•
Side extension, 200 mm/7.9 in	•	•
Side extension, light material	•	•
Tailgate, overhung, wire-operated	•	•
Tailgate, underhung	•	•
Wear plates, 450 HB	•	•
Underground body	•	•

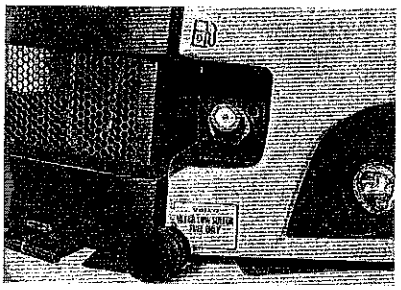
OPTIONAL EQUIPMENT	A35G	A40G
Safety		
Fire suppression system	•	•
Warning triangle	•	•
First aid kit and fire extinguisher	•	•
Fire extinguisher	•	•
Wheel chocks	•	•
Service and maintenance		
Lube system, standard machine	•	•
Lube system, tailgate	•	•
Lubrication hose, ground level greasing	•	•
Tool kit	•	•
Other		
Siberian kit -40°C	•	•
On board weighing (OBW)	•	•
Arctic oil kit	•	•
CareTrack	•	•
Fast fuelling system	•	•
Jump start connector, NATO -type	•	•
Frame extension	•	•

SELECTION OF VOLVO OPTIONAL EQUIPMENT

Entrance light

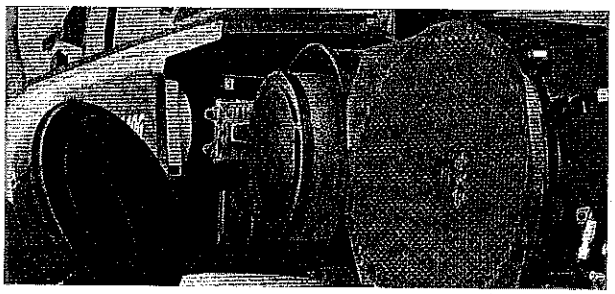


Fast fuelling

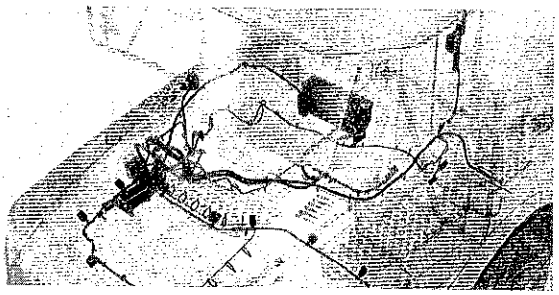


LED lighting

Heavy duty air filter



Volvo fire suppression system



Not all products are available in all markets. Under our policy of continuous improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

Ref. No VOE22400093228/ English-22 / 2019.11 / ART / Volvo, North America Marketing

VOLVO

Volvo Construction Equipment

volvoce.com

Metro Waste Authority Board

Monthly Board Meeting

November 17, 2021

Agenda Item #11

ITEM:
Approval to Award Bid for Public Improvement at Central Office

SUMMARY:
One bid was received for the installation of a solar panel system at Metro Waste Authority's Central Office. The solar panel system is expected to lower MWA's electric grid consumption by 25% or more.

The following bid was received from EPo Energy, LLC.

- Installation and Equipment $250,702
- Operations and Maintenance Plan (5 years) $18,360
- Total $269,062

DISCUSSION POINTS:
Last year's kWh was averaged at 585,900. The estimated annual production of the solar panel system is 171,000 kWh. This equals out to about 29% of our annual energy consumption at Central Office. EPo Energy's timeline for completion is six weeks.

STAFF RECOMMENDATION:
Staff recommends approval to award the bid for public improvement at Central Office to EPo Energy, LLC.

BUDGET REQUIREMENTS:
The DNR awarded MWA a grant in the amount of $112,086 for this project. The remaining $156,976 is budgeted in FY 21/22 Capital Expenditures.

ATTACHMENTS:

- EPo Energy's proposal

CONTACT:
Michael McCoy, executive director, 515.323.6519

24989 105th Street
Columbus Junction, Iowa 52738
PH: 319-541-3709

November 9, 2021

Metro Waste Authority
Mr. Michael McCoy
Executive Director
RE: RFP for Installation of Rooftop Solar System

Mr. McCoy,

EPo Energy, LLC (EPo) is pleased to provide Metro Waste Authority (MWA) a proposal for the Installation of Rooftop Solar System pursuant to the Request for Proposal issued and dated on October 20, 2021.

This is an exciting proposal, as we know MWA has long been recognized as a leader in the industry from a renewable energy perspective. EPo is eager to partner with MWA to be a part of this continued industry leadership while reducing MWA's electrical grid consumption, demonstrate greenhouse gas reduction and assist in the continued education of MWA's employees, customers, and associates.

EPo has submitted a proposal that includes all design documents for all elements of the project, including, but not limited to mechanical and electrical. All equipment, including electrical, meet the specifications and applicable codes as indicated in the request for proposal. EPo's proposal includes subcontracting all electrical work to CommonWealth Electric Company (CommonWealth) of the Midwest, located in Des Moines, Iowa. EPo and CommonWealth of Electric Company have visited the site location and are extremely familiar with all aspects of the Metro Waste Building located at 300 East Locust Street and believe we are best positioned to design a complete system that will maximize both system size relative to individual facility demand and cost savings per kWh for MWA.

The following pricing proposal is submitted to MWA:

- Turnkey Pricing - $250,702. This price includes all permitting, equipment, installation, electrical, interconnection, and monitoring system. This does not include disposal of rock that is removed from roof. Please note, the Operations and Maintenance plan is not included in this turnkey pricing. Please see below under "Technical Solution" for the Operations and Maintenance Plan proposed pricing.
- PPA with 6 year Option. EPo elected not to provide a proposal for this financing option, as the project size did not meet our financing partners requirements for a PPA.

EPo appreciates the opportunity to bid on this proposal for MWA.

Respectfully submitted,

Jason Egli
EPo Energy, LLC
President/Owner
24989 105th Street
Columbus Junction, Iowa 52738
Email: jegli@epoenergy.com
Cell: 319-541-3709

24989 105th Street
Columbus Junction, Iowa 52738
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Executive Summary

EPo Energy, LLC (EPo) is pleased to provide a proposal to Metro Waste Authority (MWA). EPo is familiar with the MWA site, as we previously proposed to MWA to install a solar energy system over the past few years. EPo has toured the facility and our Electrical subcontractor, CommonWealth Electric, has performed services for MWA at this current location and is an approved vendor of MWA. This background and knowledge have allowed EPo to propose a transaction that will exceed MWA's central office grid consumption goals as well as contribute to meeting the Iowa DNR's Environmental Management System's goal of greenhouse gas emissions.

This proposal is a turnkey solution for MWA. Jason Egli, owner and project manager, and the installation team have experience in managing and installing over 10 MW of solar energy in three hundred (300) plus locations. A good number of these installations were with Mid America Energy. In addition, EPo has experience working with the City of Des Moines on project such as CY Concepts and Bascom Trucking. This experience and CommonWealth's regular workload within the city limits of Des Moines, including a 20 kW install at the Dart terminal in Des Moines positions EPo as the vendor of choice for the solar rooftop installation at MWA.

EPo's timeline for this project is estimated to be six (6) weeks with the start of permitting. Please see the "Proposed Schedule" section of the proposal for a breakdown of the timeline.

Technical Solution

EPo Energy has utilized Helioscope for all design facets since inception of the company. The consistency and accuracy of EPo Energy's utilization of Helioscope is solidified by an article that the Des Moines Register published regarding school systems that had installed solar energy systems in Iowa. Not only was EPo one of the first solar companies to install a solar system for a school system in Iowa, but our installations demonstrated high performance in comparison to other installations.

EPo has historical experience working with solar options at other MWA sites and provided technical expertise in support of the grant application secured by MWA for solar installation. In addition, EPo assisted MWA with applying and securing the interconnection agreement with Mid America Energy. This experience and the experience of our electrical subcontractor, CommonWealth, allowed EPo to propose a solar energy system that maximizes both system size relative to the facility demand and cost savings for MWA.

EPo utilized past electricity bills to configure an optimal solar energy solution within the helioscope software. Factors considered when calculating maximum annual production can be found on the attached Helioscope summary in **Exhibit I**. The following summarizes

performance characteristics of the system:

- Guaranteed kW-DC is 122.4 kW.
- Guaranteed kW-AC is 100 kW.
- Estimated annual production is 171,700 kWh.
- Panels- SIL-400 NU (Silfab Solar Inc.). Specification's sheet is attached at **Exhibit II**.

- Inverter SE100K (Solar Edge). Specification's sheet is attached at **Exhibit III**.
- Electrical design. See Electrical Drawings and Line Specifications at **Exhibit IV**.
- Optimizers P860 (Solar Edge). Specification's sheet is attached at **Exhibit V**.
- IronRidge Racking. Specification's sheet is attached in **Exhibit VI**.

Warranties on the equipment and workmanship are as follows:

- **Panels.** The Silfab panels are warrantied for twenty-five (25) Year Manufacturing Warrant and a thirty (30) year Production Warranty.
- **Inverters.** The Solar Edge Inverters are warrantied for twelve (12) years. A twenty-five (25) year extended warranty can be purchased.
- **Ballasts.** Iron-Ridge provides a twenty-five (25) year warranty on all ballasts.
- **Workmanship.** EPo provides a one-year workmanship warranty.
- **All other equipment** warranties are direct pass through from the respective vendors.

Layout. See attached diagram (**Exhibit VII**) providing the proposed layout of the PV arrays. Please note this proposed layout takes into consideration the City Code for all setbacks and access to all equipment. The Helioscope report provides the proposed estimated annual production of the system at 171,700 kWh. Please see the Helioscope report for estimated monthly production. In addition, please see Exhibit VII for a one-line drawing completed by CommonWealth that provides the physical layout of the inverters and conduit.

Solar Edge Monitoring System. We will utilize Solar Edge's web-based monitoring system. We will work with MWA's web designer to place this on their website and connect a Kiosk at MWA's preferred location within their facility (Note: Internet connectivity will be provided by MWA).

Operations and Maintenance Plan (O&M Plan). EPo will provide an annual O&M Plan for $3,672 annually for five (5) years ($18,360 total). This O&M plan includes weekly on-line monitoring, quarterly site visits, and coverage for all labor and travel expenses. Equipment replacement not covered under warranty will be billed to MWA directly.

24989 105th Street
Columbus Junction, Iowa 52738
PH: 319-541-3709

Proposer Profile

At EPo Energy, A Customer Focused Company

EPo Energy is an Iowa based renewable energy company offering a complete line of affordable and reliable solar energy systems. EPo was founded in 2013 with a strong focus on the agricultural market. Whether you are a producer, processor, grower, dairy, or ranch, we can provide you energy savings and a predictability to

maximize your ROI. We are experts in dealing with the energy requirements of agricultural businesses (202 projects). EPo has installed over 305 projects (10 MW – 50,545 panels) since 2013.

EPo has expanded their agricultural experience to customers ranging from residential, commercial, and not for profit sectors in Iowa, Illinois, Minnesota, Nebraska, and Arkansas. With the success EPo had in the agriculture sector, expansion in to the commercial and residential areas progressed quickly. We have the expertise to design, install and support all your energy system needs to assist in the advancement of a clean energy distributed base throughout the Midwest, thereby reducing our dependence on both foreign and domestic fossil fuels, while enabling the agricultural, commercial, residential sectors in the Midwest communities to work toward developing their own form of energy independence. As we continue to grow, the EPo brand is fast becoming one of the most recognizable renewable energy options for agriculture and all other sectors in the Midwest. We set out to be the best in providing turn-key energy solutions, and we believe we are doing just that. It is our goal to create energy independence for Midwest communities that future generations can embrace.

At EPo Energy, we have the collective commercial and residential equipment installation experience ensuring professional quality workmanship at your site. Our premium line of products provides best-in-class performance and allows us the flexibility to offer customized renewable resources that best fulfill your current requirements while keeping options open for future expansion. However, one solar solution does not fit all customers. We have the expertise to customize a solar energy solution to maximize the ROI for all customers. At EPo Energy we partner with you from the first introductory conversation through project commissioning, to manage the process through completion. In addition, both EPo and our subcontractor CommonWealth have significant experience working Polk County and with the City of Des Moines which will drive time and cost saving

efficiencies for the MWA rooftop solar system installation investment. We stay involved from start to finish.

EPo has worked with the City of Des Moines on not-for-profit, commercial and residential projects. In addition, CommonWealth works on a regular basis with the City of Des Moines for projects in all business sectors. EPo is NABCEP certified (PV Certificate #092411-88). The North American Board of Certified Energy Practitioners (NABCEP) is the gold standard for Solar PV sales and installation for North America. NABCEP is committed to providing a certification program of quality and integrity for the professionals and consumer/public it is designed to serve. Professionals who choose to become certified demonstrate their competence in the field and their commitment to upholding high standards of ethical and professional practice. NABCEP's goal is to develop voluntary national certification programs that will promote renewable energy, provide value to solar installation and sales professionals, promote worker safety and skill, and promote consumer confidence. NABCEP holds all certified professionals to the highest standards. CommonWealth licensing includes holding state licenses in Iowa and twenty plus other states. At EPo and CommonWealth safety is held in the highest regard and priority. Our teams are never on site without being properly equipped and practicing the highest safety standards. In addition, we go above and beyond when it comes to the initial and continued assessment of projection locations to ensure that safety is adhered to and adjusted for each location. EPo is proud to state that we have not had a reportable incident since inception of the entity in 2013. CommonWealth is proud to have been awarded for the seventh consecutive year, an award for their training and educational efforts in safety through their insurance carrier. CommonWealth's accident rates are far below the national average for electrical contractors. Part of CommonWealth's electrical training efforts include 70E Arc flash electrician training, in accordance with NFPA 70E OSHA regulations.

EPo Insurance:

General Liability. Auto-Owners. Policy # 50-042-691-000. Broker: Jared Vincent, The Insurance Station, Altoona, IA. (515-975-9747).

Workers Compensation. Broker: Jared Vincent, The Insurance Station, Altoona, IA. (515-975-9747).

CommonWealth Insurance: Currently an approved vendor of MWA.

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Project Experience

Below is a list of projects completed by EPo over the last three years similar in size and scope. These jobs represent roof top and ground mounts. The permitting on these jobs includes working with MidAmerican Energy (Bascom Trucking and CY Concepts), Alliant and a few rural electrical cooperatives. Finally, the installs at WACO school district and CY Concepts involved providing monitoring systems for educational purposes.

Project	Location	Relevant Project Information
Waco CSD High School	Waco, IA	• 402.6 kW PV Solar • Ground Mount
Jet Gas- Mt. Pleasant St	Burlington, IA	• 111.63 kW PV Solar-Roof Mount
MIPA Farms	Columbus Junction, IA	• 374 kW PV Solar – Ground Mount
Tim Graber Farms	Wayland, Washington & Wapello, IA	• 263 kW PV Solar – Roof Mount
Morning Sun CSD	Burlington, IA	• 102.3 kW PV Solar – Ground Mount
Toyota of Iowa City (ABRA Auto Body)	Iowa City, Iowa	• 109 kW PV Solar- • Roof Top
Crooked Creek Camp	Washington, Iowa	• 26.1 kW • Roof and Ground
CY Concepts	Des Moines, Iowa	• 16.47 kW
Bascom Trucking	Des Moines, Iowa	• 112.75 kW

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References

Tim Graber
Graber Farms/WACO School Board President
319.461.2002
timgraberfarms@gmail.com
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Bob Walker
Walker Homestead
bob@walker-homestead.com
319.333.4524

Rich Krogmann
Farmer/Northwest Mechanical
rkrogmann@northwestmech.com
563.529.9236

Litigation

Neither EPo, CommonWeatlh, any team member, or corporate officers have been party to any lawsuit involving the performance of any equipment it has installed

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Project Team

Jason Egli – Owner and Project Manager

SUMMARY

Entrepreneur and Executive Officer with experience in operations management, business development, project management, project financing, people management and development, and process safety and environmental management in the Chemical and Biotech Industries. Excellent experience in coming into new facilities and optimizing processes to increase productivity and reduce costs with low capital costs. Managed facilities that were regulated by OSHA, EPA, DNR, FDA and cGMP guidelines with successful record of compliance. Excellent negotiation and business development skills.

PROFESSIONAL EXPERIENCE

EPo Energy, Cedar Falls, IA 2013- Present

President, Owner (2013-Present)

Solar Energy Company with emphasis on supplying, installing and designing solar systems for the Agricultural markets.

- Started business in spring of 2013. Sold $2.5 M of sales in 2013 and $6.4 M YTD in 2014 of solar systems into the Agricultural/Commercial market in Iowa.
- Worked with Gexpro/Rexel to develop and design systems that are US Based systems for this market at a cost that gives customers < 5 year ROI.
- Developed model with Gexpro/Rexel to target the Agricultural industry for Solar PV.
- Completed over 300 Energy Audits 2013 and 2014 for potential customers to determine size of Energy System to generate, evaluate economics of energy replacement/energy efficiency projects.
- Wrote and was successfully awarded 18 of 20 USDA REAP Grants for customers projects.
- Developed strategic relationships with subcontractors to reduce overhead and set the market for cost in Solar Industry in Iowa.

CVP Advisors, Cedar Falls, 2010- Present

Managing Director, Owner (2010-Present)

Consulting service that focuses on local businesses to help with Financial and Strategic Business Planning, International Expansion, Process Flow and Project Management, Mergers and Acquisitions, and Technical Expertise.

- Worked with small ethanol plant to implement safety, environmental and operational systems.
- Reviewed technologies that could be implemented into existing ethanol facilities to reduce energy usage and add higher value products, including biochemicals and organic acids.

R&E Advisors, LLC, Johnson City, TN 2010-Present

Executive Vice President, Owner (2010-2013)

- Business and technical advisors to Eastman Chemical Company, Kingsport, Tennessee.
- Technical and Business structure advisor for startup Algae company. Worked with founder and CEO to structure business, engineer best process for harvesting and extracting oil from algae, identified European Food R&D company, and acted as lead contact with to develop process for producing a 90% protein meal from algae biomass.

Sound Energy Systems, Eldon, IA 2009- 2012

Owner (2009- 2013)

Identified technology for an Energy Harvesting device. Work with professors that developed this device that utilizes the Faraday Principle to develop initial R&D prototype into a commercial saleable product.

- Secured exclusive license for Energy Harvesting device
- Work with local University on developing low cost ABS product
- Secured $250 K in equity

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- Sold IP to partners in 2012

Unity Biofuels, Olds, IA 2008-2012

Owner (2008-2012)

Identified and lead effort to build two ethanol blending fueling stations. Worked with contractor to procure first blending fuel pumps in state of Iowa. In 2009 constructed a Convenience store at Mt. Pleasant, IA location. Worked with other owners to procure $1.6 M in financing.

- Developed design and layout for fueling stations and Convenience store
- Worked with local Governments to obtain permits and zoning for construction
- Procured licensing agreement with Quiznos for Mt. Pleasant Location

GreenWay Communications, Belmond, IA 2009- 2011

Vice President, Owner (2009-2011)

Responsible for starting up a 4 G High speed wireless and voice communication company. Utilizing the licensed frequency in the 3.65-3.70 gHz frequency, successfully installed wireless network ring in small communities in North Central Iowa. Worked with Chief Technology Officer to procure and install equipment.

- Successfully applied for and received Competitive Local Exchange Carrier (CLEC) in state of Iowa
- Hired Chief Executive Officer and staff to lead company
- Raised $1 M in equity
- Negotiated contracts with Onvoy to handle Class 4 interconnection for Voice Services

Unity Ethanol, Fairfield, IA 2007-2010

Chief Operating Officer (2007-2010)

Responsible for startup Energy company business development and strategy plan to construct two- 55 million gallon ethanol facilities. Work for Board of Directors to develop Business Plan, work with local community organizers to identify infrastructure needs and skills development for local workers, develop and design facility and help financing strategy for startup Energy company in Southeast Iowa.

- Identified technologies that will help improve throughput and reduce energy usage in Fermentation process in the biofuels industry.
- Identified alternative process to alternative feedstocks to produce ethanol and other biochemicals.
- Developed and modified Business plan with Project Development Consultants. Presented this to local investors during equity fund raising. Successfully raised $3 million in equity.
- Worked with state and local governments to rezone properties, finalize taxation plan, road development infrastructure, and utility needs.

PURAC AMERICA, Blair, NE 2004-2007

Operations Manager (2004-2007)

Oversaw Fermentation, Biomass Separation, Chemical Reaction, Ion Exchange units, Evaporators, Distillation Columns, Base Reactors, Packaging and Warehouse for a Biotech facility. Implement Best Practices from previous companies and positions in this new process. Supervised 50 technicians and engineers.

- Developed and lead training for Acid production to teach Thai Supervisors for new plant that is being built in Thailand.
- Worked with technicians to optimize process to improve yield and plant productivity. For 2005, increased plant productivity by 5% over design capacity. Improved average yield by 1.5% for 2005, saving the business $600,000.
- Implemented and optimized new fermentation process to increase production of Lactic Acid by 5% per fermentation cycle.
- Developed and lead recruiting efforts for Purac America. This included making contact with Universities, developing job descriptions and hiring criteria, interviewing candidates and leading selection process.

MONSANTO CORPORATION, Muscatine, IA 1998-2003

Production Manager (2001-2003)

Oversaw manufacturing operations and address personnel issues within the Multi-Purpose and Waste Treatment areas at the Muscatine Plant. Provide technical leadership for batch and continuous processes and personal development for 45 salary staff and wage employees. Manage a combined budget of more than $20 million.

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Oversee quality concerns, maintenance activities, and coordinate production efforts. Implement procedures to ensure safety for all employees and the community.

- Manage quality efforts to reduce the potential for formulation issues occurring in the area and work with the Quality Assurance Department to effectively coordinate programs and initiatives.
- Play a pivotal role in production coordination, acting as the liaison between the production area and St. Louis planners.
- Review and approve all maintenance and capital projects, standard operating procedures (SOP's) and training guidelines for the Multi-Purpose and Waste Treatment areas.
- Implemented programs to update area process management files and standard operating procedures (SOP's) to ensure compliance with OSHA standards.
- Initiated and implemented a project totaling an estimated $650,000 per year in raw material and waste savings, using Six Sigma Methodology.

Process/Controls Engineer (1998-2001)

Responsible for production, troubleshooting and optimization of process that produces chemical intermediate used in the manufacture of herbicides. Process involves cracking, reacting, and separation of materials.

- Saved over $500,000 in raw material costs due to improved process management and project implementation over a two year period.
- Developed, tested and validated DCS code to manufacture a pharmaceutical raw material according to Good Manufacturing Practice (cGMP) guidelines. Successfully scaled up and validated this process.
- Developed a Statistical Process Control (SPC) program to track key raw materials to help technicians identify the occurrence of process upsets and provide direction on how to handle the upsets.

JOHN DEERE HARVESTER WORKS, East Moline, IL 1996-1998

Process Engineer/Supervisor

Supervised 12 union employees in a Lean manufacturing environment. Troubleshot Allen Bradley PLC3 equipment problems daily.

- Implemented preventive maintenance (PM) and quality control programs that improved equipment reliability and paint appearance.
- Developed and managed pilot plant to test pretreatment chemicals for new paint system. Successfully performed DOEs to determine conditions and chemicals to use in new system.
- Developed manual for E-Coat Paint Department to complete ISO 9001 registration requirements.

DEERE & COMPANY TECHNICAL CENTER, Moline, IL 1995-1996

Engineer

Evaluated paint and pretreatment materials for possible use at Deere facilities.

- Developed and performed Design of Experiment (DOE) tests to test multiple features simultaneously.
- Interacted with multiple suppliers and consulted for 9 Deere facilities to determine best product fit.
- Served as Co-Chair for 1996 Deere & Company Paint Conference with more than 150 attendees.

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JOHN C. BRANDT

510 NE Stoneridge Dr
Ankeny, IA 50021
515-451-4020/brandtjohnc@gmail.com

Professional Experience

CO-FOUNDER/CHIEF FINANCIAL OFFICER 2012-Present
EPo Energy, L.L.C.
Worked with partners in the strategic development of a turnkey renewable energy company focused on solar and energy efficiency. In the third year of operations was named a top 250 solar company in the United States.

- Managed all accounting and tax aspects including nine (9) joint ventures in solar projects.
- Became a recognized leader in Iowa regarding the ITC and solar tax credit.
- Active member of lobbying efforts for the extension and funding of the Iowa solar tax credit.
- Created philanthropic efforts to bring cost savings and education to not-for-profits in Iowa, successfully completing for Community Youth Concepts in Des Moines and others in S.E. Iowa.

CO-FOUNDER/PRESIDENT/CHIEF OPERATING OFFICER 2012-2019
Omega Concrete Mixers
Turned entrepreneurial vision into reality by securing an OEM fabricator, development of the supply chain and an international dealer network. Defined and managed all core business competencies including accounting, operations, sales and human resource aspects. Spearheaded a capital raise of $850K.

- Grew year over year annual sales to $3.5M.
- Led the strategic development of the only modular mixer in the industry, reducing manufacturing costs in excess of 15%.
- Developed and executed a manufacturing agreement with a top manufacturing company in India.

PRESIDENT 2010-2012
Keuka Energy, L.L.C.
Approached to assist a successful entrepreneur, in conjunction with the Florida State University Advanced Power Systems, to commercialize an innovative small wind turbine. Defined and implemented all core business functions from manufacturing through sales.

- Outsourced Manufacturing to first in class manufacturer in Iowa.
- Secured a $18B worldwide distributor for the turbine.

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CONSULTANT/PRESIDENT 2006-2010
Global Mixers, LLC/International Mobile Mixers
Hired as a consultant to assist Global Mixers with a turnaround strategy during a challenging recessionary period and an entity riddled with debt.

- Successfully developed an industry leading international dealer network, quickly grossing sales in excess of $1.5M.
- Eliminated $2.8M in recourse debt.
- Directed a successful sale with compatible industry competitor.

INTERIM CHIEF EXECUTIVE OFFICER Jan-Apr 2008
Hospice of Central Iowa, *West Des Moines, Iowa*
Implemented KPI's and a strategic pathway to eliminate underperforming brick and mortar.

CO-FOUNDER/CHIEF OPERATING OFFICER 2004-2018
Glycon Technologies, LLC, *Ames, Iowa*
Responsible for capital raise and reporting to shareholders. Directed all operational aspects, including implementation of phase gate models for all intellectual property development.

- Executed the sale of IP developed by Glycon Technologies, LLC.
- Successfully completed a grant application for $120K through the Iowa State Research Park

V.P., REGIONAL DIRECTOR OF OPERATIONS 1995-2004
Concentra Medical Centers
Responsible for all financial, operational, and human resource functions for 28 clinics in Iowa, Illinois, Missouri, Kansas, Nebraska, North Dakota, South Dakota and Minnesota. More than 500,000 visits annually and budget exceeding $125 million.

- Exceeded regional budget every year and top performing operating margin 6 out of 8 years within the company.
- The only regional director to manage multiple divisions, including managed care and bill review services for multiple states.
- Oversaw operations for on-site and consulting services, including a national drug screen TPA.
- Responsible for direct supervision of 24 managers and 325 employees, including physicians, physical therapists, operations, and sales.
- Involved in all aspect of new market development
- Coordinated first hospital joint venture for Concentra with the CEO. Managed three hospital joint ventures with diverse teams.
- Worked with regional management team to implement a national training program.

CHIEF FINANCIAL OFFICER
Good Shepherd Health Center, *Mason City, Iowa*
Financial responsibility for 400 plus bed nursing care facility, pharmacy and 1,000 plus low-income apartments. Budget preparation for a 100-bed addition.

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TAX MANAGER
KPMG Peat Marwick, *Des Moines, Iowa*

EDUCATION & CREDENTIALS

Master of Taxation, Drake University
Bachelor of Arts, Finance and Insurance, University of Iowa
Certified Public Accountant (Not Current)

Safety

At EPo and CommonWealth safety is held in the highest regard and priority. Our teams are never on site without being properly equipped and practicing the highest safety standards. In addition, we go above and beyond when it comes to the initial and continued assessment of projection locations to ensure that safety is adhered to and adjusted for each location. EPo is proud to state that we have not had a reportable incident since inception of the entity in 2013. CommonWealth is proud to have been awarded for the seventh consecutive year, an award for their training and educational efforts in safety through their insurance carrier. CommonWealth's accident rates are far below the national average for electrical contractors. Part of CommonWealth's electrical training efforts include 70E Arc flash electrician training, in accordance with NFPA 70E OSHA regulations.

OSHA reporting indicators are utilized monthly, if needed in our safety meetings. These are utilized for recommended practices, implementation guides, transforming performance, and other measures to elevate our performance. EPo will review the site prior to any prepping of the MWA site, as well as review the site daily during installation.

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Proposed Schedule

EPo would propose the following timeline upon successfully being awarded the MWA proposal and an Executed Agreement for Design, Installation, and Commissioning of Solar/Photovoltaic System:

- 1 Week – Permitting
- 3 Weeks – Securitization and Delivery of All Equipment
- 1 Week – Site Preparation
- 1 Week – Installation

Exhibit 1 – Helioscope

400 Watt Panels Metro Waste, 300 Locust st, des moines, ia

Report

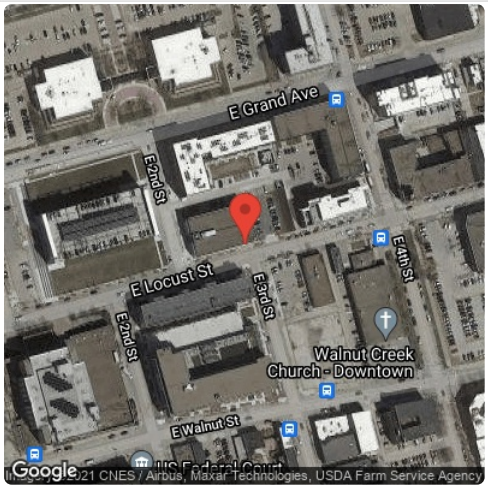
Project Name	Metro Waste
Project Address	300 Locust st, des moines, ia
Prepared By	Jason Egli jegli@epoenergy.com

EPo Energy

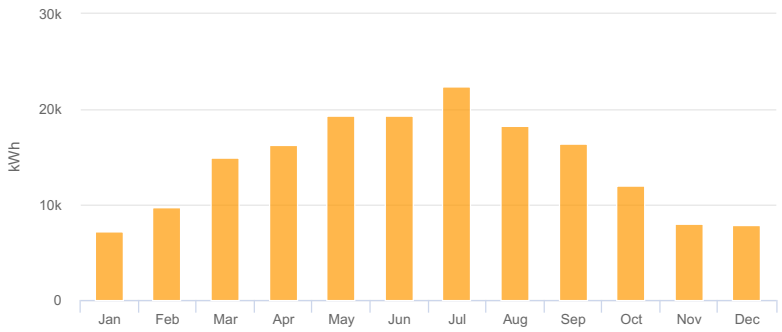
System Metrics

Design	400 Watt Panels
Module DC Nameplate	122.4 kW
Inverter AC Nameplate	129.6 kW Load Ratio: 0.94
Annual Production	171.7 MWh
Performance Ratio	87.9%
kWh/kWp	1,402.4
Weather Dataset	TMY, 10km Grid (41.55,-93.65), NREL (prospector)
Simulator Version	2be6a614f4-4dc81349c5-88b8ab94b4-1fa539f51c

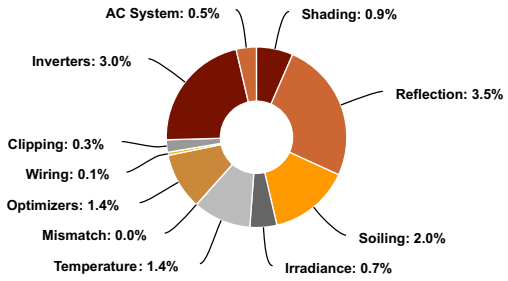
Project Location



Monthly Production



Sources of System Loss



Annual Production

	Description	Output	% Delta
Irradiance (kWh/m²)	Annual Global Horizontal Irradiance	1,478.8	
	POA Irradiance	1,595.7	7.9%
	Shaded Irradiance	1,581.3	-0.9%
	Irradiance after Reflection	1,526.3	-3.5%
	Irradiance after Soiling	1,495.8	-2.0%
	Total Collector Irradiance	**1,495.8**	**0.0%**
Energy (kWh)	Nameplate	184,921.2	
	Output at Irradiance Levels	183,691.6	-0.7%
	Output at Cell Temperature Derate	181,064.6	-1.4%
	Output After Mismatch	181,064.4	0.0%
	Optimizer Output	178,529.3	-1.4%
	Optimal DC Output	178,393.0	-0.1%
	Constrained DC Output	177,849.0	-0.3%
	Inverter Output	172,513.6	-3.0%
	Energy to Grid	**171,651.0**	**-0.5%**
Temperature Metrics			
	Avg. Operating Ambient Temp		12.5 °C
	Avg. Operating Cell Temp		19.8 °C
Simulation Metrics			
	Operating Hours		4676
	Solved Hours		4676

Condition Set

Description	Condition Set 1
Weather Dataset	TMY, 10km Grid (41.55,-93.65), NREL (prospector)
Solar Angle Location	Meteo Lat/Lng
Transposition Model	Perez Model
Temperature Model	Sandia Model

Temperature Model Parameters

Rack Type	a	b	Temperature Delta
Fixed Tilt	-3.56	-0.075	3°C
Flush Mount	-2.81	-0.0455	0°C
East-West	-3.56	-0.075	3°C
Carport	-3.56	-0.075	3°C

Soiling (%)

J	F	M	A	M	J	J	A	S	O	N	D
2	2	2	2	2	2	2	2	2	2	2	2

Irradiation Variance	5%
Cell Temperature Spread	4° C
Module Binning Range	-2.5% to 2.5%
AC System Derate	0.50%

Module Characterizations

Module	Uploaded By	Characterization
SIL-400 NU (Silfab Solar Inc.)	Folsom Labs	Spec Sheet Characterization, PAN

Component Characterizations

Device	Uploaded By	Characterization

Components

Component	Name	Count
Inverters	SE43.2K (SolarEdge)	3 (129.6 kW)
Strings	10 AWG (Copper)	17 (1,644.1 ft)
Optimizers	P800p (SolarEdge)	306 (244.8 kW)
Module	Silfab Solar Inc., SIL-400 NU (400W)	306 (122.4 kW)

Wiring Zones

Description	Combiner Poles	String Size	Stringing Strategy
Wiring Zone	-	7-18	Along Racking

Field Segments

Description	Racking	Orientation	Tilt	Azimuth	Intrarow Spacing	Frame Size	Frames	Modules	Power
Field Segment 1	Fixed Tilt	Landscape (Horizontal)	10°	165°	1.5 ft	1x1	306	306	122.4 kW

Detailed Layout

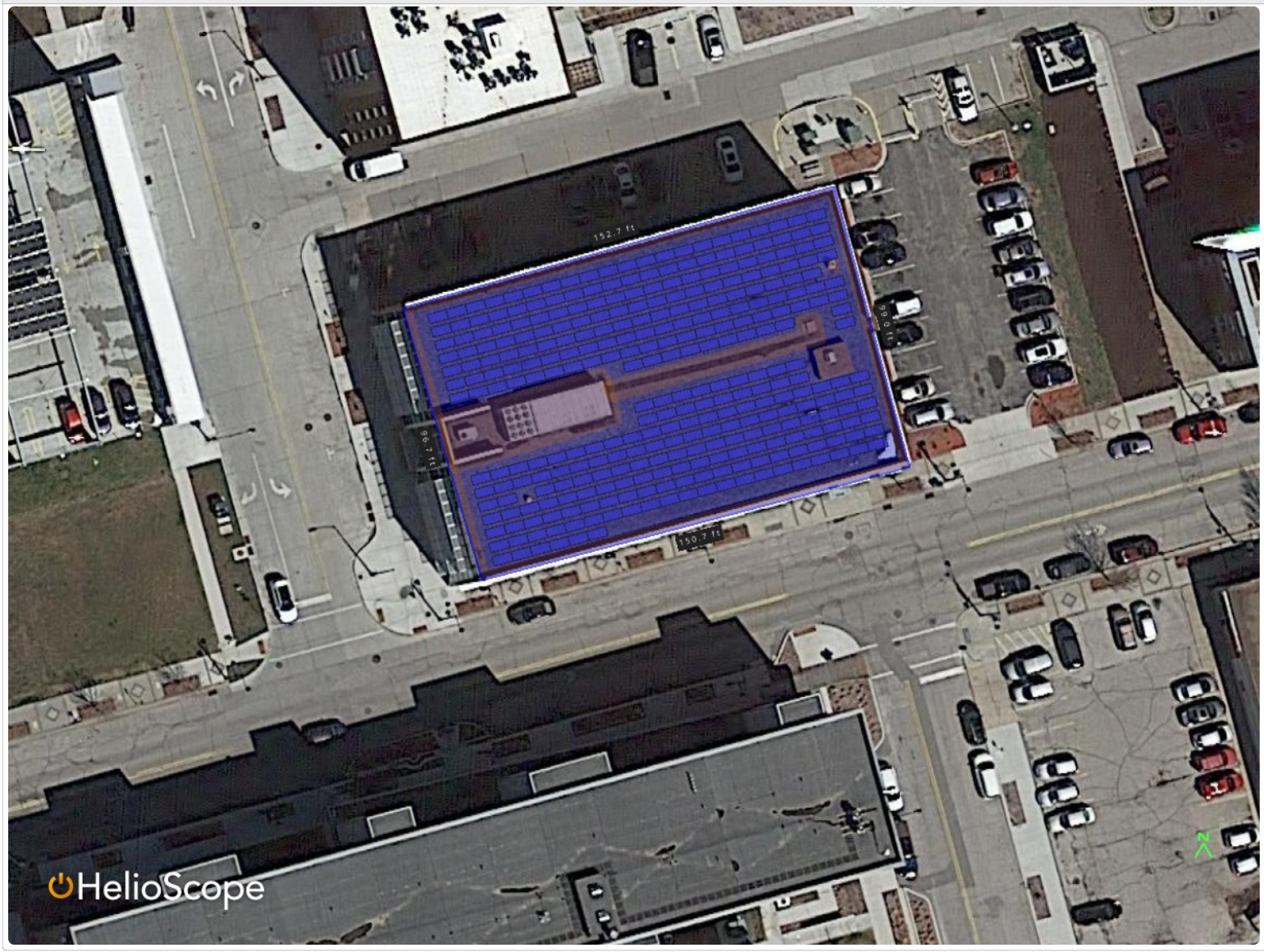


Exhibit 2 – SilFab (Panels)

Silfab SOLAR

SIL-400 NU

25 YEAR PRODUCT WARRANTY · AUTOMATED MANUFACTURING · JUST-IN-TIME · PVEL DNV·GL TOP PERFORMER · TIER 1 BANKABLE $$$ · HIGH EFFICIENCY

PREMIUM MONO-PERC PV MODULE

CE · Intertek · Intertek · IEC · Fraunhofer ISE

CHUBB*

* Chubb provides error and omission insurance to Silfab Solar Inc.

INDUSTRY LEADING WARRANTY

All our products include an industry leading 25-year product workmanship and 30-year performance warranty.

35+ YEARS OF SOLAR INNOVATION

Leveraging over 35+ years of worldwide experience in the solar industry, Silfab is dedicated to superior manufacturing processes and innovations such as Bifacial and Back Contact technologies, to ensure our partners have the latest in solar innovation.

QUALITY MATTERS

Utilizing premium quality materials and strict quality control management, Silfab is the industry leader in delivering the highest efficiency, premium quality PV modules.

MAXIMUM POWER

Silfab's high-efficiency modules are optimized for commercial projects where maximum power density is preferred.

LIGHT AND DURABLE

Engineered to accommodate high front-side load conditions for test loads validated up to 5400Pa. The light-weight frame is exclusively designed for wide-ranging racking compatibility and durability.

DOMESTIC SUPPORT/SERVICES

Our 500+ North American team is ready to help our partners win the hearts and minds of customers, providing customer service and product delivery that is direct, efficient and local.

SLEEK DESIGN

Sleek design in silver frame with white backsheet.

PID RESISTANT

PID Resistant due to advanced cell technology and material selection. In accordance to IEC 62804-1.

Electrical Specifications		SIL-400 NU mono PERC	60
Test Conditions		STC	NOCT
Module Power (Pmax)	Wp	400	291.3
Maximum power voltage (Vpmax)	V	40.0	36.6
Maximum power current (Ipmax)	A	10.1	8.0
Open circuit voltage (Voc)	V	48.7	44.8
Short circuit current (Isc)	A	10.5	8.3
Module efficiency	%	19.6	17.9
Maximum system voltage (VDC)	V	1500	
Max series fuse rating	A	20	
Power Tolerance	Wp	0 to +10	

Measurement conditions: STC 1000 W/m2 • AM 1.5 • Temperature 25 °C • NOCT 800 W/m² • AM 1.5 • Measurement uncertainty ≤ 3%
• Sun simulator calibration reference modules from Fraunhofer Institute. Electrical characteristics may vary by ±5% and power by 0 to +10W.

Temperature Ratings	SIL-400 NU mono PERC
Temperature Coefficient Isc	0.03 %/°C
Temperature Coefficient Voc	-0.3 %/°C
Temperature Coefficient Pmax	-0.38 %/°C
NOCT (± 2°C)	44 °C
Operating temperature	-40/+85 °C

Mechanical Properties and Components	SIL-400 NU mono PERC	
	Metric	Imperial
Module weight	22 kg ±0.3 kg	48.5 ±0.6 lbs
Dimensions (H x L x D)	2026 mm x 1006 mm x 38 mm	79.8 in x 39.6 in x 1.5 in
Maximum surface load (wind/snow)*	2400 Pa rear load / 5400 Pa front load N/m²	50.13/112.8 lb/ft^2
Hail impact resistance	ø 25 mm at 83 km/h	ø 1 in at 51.6 mph
Cells	72 - Si mono PERC - 5 busbar 158.75 x 158.75 mm	72 - Si mono PERC - 5 busbar 6.25 x 6.25 Inch
Glass	3.2 mm high transmittance, tempered, DSM anti-reflective coating	0.126 in high transmittance, tempered, DSM anti-reflective coating
Cables and connectors (refer to installation manual)	1200 mm, ø 5.7 mm, MC4 from Staubli	47.2 in, ø 0.22 in (12AWG), MC4 from Staubli
Backsheet	Highly reflective white backsheet, high durability, superior hydrolysis resistance, multi-layer dielectric film	
Frame	Anodized Aluminum (Silver)	
Bypass diodes	3 diodes-30SQ045T (45V max DC blocking voltage, 30A max forward rectified current)	
Junction Box	UL 3730 Certified, IEC 62790 Certified, IP67 rated	

Warranties	SIL-400 NU mono PERC			
Module product workmanship warranty	25 years**			
Linear power performance guarantee	30 years			
	≥ 97.1% end 1st year	≥ 91.6% end 12th year	≥ 85.1% end 25th year	≥ 82.6% end 30th year

Certifications	SIL-400 NU mono PERC
Product	ULC ORD C1703, UL1703, CEC listed, UL 61215-1/-1-1/-2, UL 61730-1/-2, IEC 61215-1/-1-1/-2***. IEC 61730-1/-2***, CSA C22.2#61730-1/-2, IEC 62716 Ammonia Corrosion; IEC61701:2011 Salt Mist Corrosion Certifed, UL Fire Rating: Type 1
Factory	ISO9001:2015

Option A Horizontal
- Modules Per Pallet: 25
- Pallets Per Truck: 30
- Modules Per Truck: 750

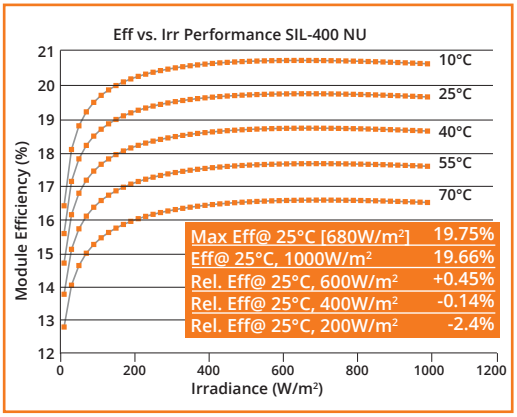
Option B Vertical
- Modules Per Pallet: 27
- Pallets Per Truck: 28
- Modules Per Truck: 756

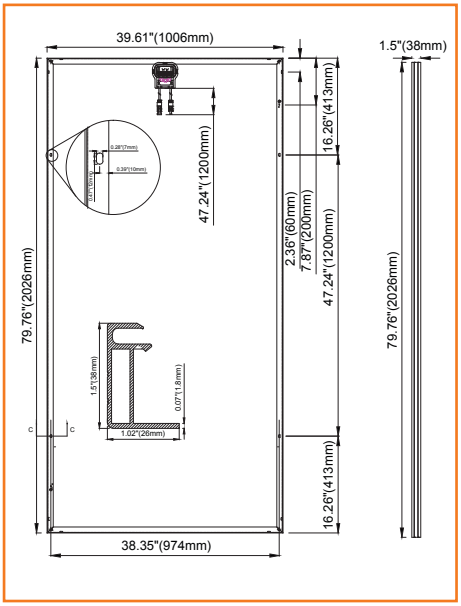
*⚠ Warning. Read the Safety and Installation Manual for mounting specifications and before handling, installing and operating modules.

**12 year extendable to 25 years subject to registration and conditions outlined under "Warranty" at www.silfabsolar.com.

***Certification in progress. IEC 61730/61215

Third-party generated pan files from Fraunhofer-Institute for Solar Energy Systems ISE are available for download at: www.silfabsolar.com/downloads





Silfab Solar Inc.
240 Courtneypark Drive East
Mississauga ON L5T 2Y3 Canada
Tel +1 905-255-2501 | Fax +1 905-696-0267
info@silfabsolar.com | www.silfabsolar.com

Silfab Solar Inc.
800 Cornwall Ave
Bellingham WA 98225 USA
Tel +1 360-569-4733

2020 TOP PERFORMER PVEL DNV·GL PV MODULE RELIABILITY SCORECARD

24989 105th Street
Columbus Junction, Iowa 52738
PH: 319-541-3709

Exhibit 3 – Solar Edge (Inverter)

Three Phase Inverter with Synergy Technology

For the 277/480V Grid for North America

SE80KUS / SE100KUS / SE120KUS

Powered by unique pre-commissioning process for rapid system installation

- Pre-commissioning feature for automated validation of system components and wiring during the site installation process and prior to grid connection
- Easy 2-person installation with lightweight, modular design (each inverter consists of 2 or 3 Synergy units and one Synergy Manager)
- Independent operation of each Synergy unit enables higher uptime and easy serviceability
- Built-in thermal sensors detect faulty wiring ensuring enhanced protection and safety
- Built-in arc fault protection and optional rapid shutdown
- Built-in PID mitigation for maximized system performance
- Monitored* and field-replaceable surge protection devices, to better withstand surges caused by lightning or other events
- Built-in module-level monitoring with Ethernet or cellular communication for full system visibility

*Applicable only for DC and AC SPDs

Three Phase Inverter with Synergy Technology

For the 277/480V Grid for North America

SE80KUS / SE100KUS / SE120KUS

Applicable to inverter with Part Numbers	SExxK-USx8Ixxxx			
	SE80KUS	SE100KUS	SE120KUS	
OUTPUT				
Rated AC Active Output Power	80000	100000	120000	W
Maximum AC Apparent Output Power	80000	100000	120000	VA
AC Output Line Connections	3W + PE, 4W + PE			
Supported Grids	WYE: TN-C, TN-S, TN-C-S, TT, IT; Delta: IT			
AC Output Voltage Minimum-Nominal-Maximum(1) (L-N)	244 - 277 - 305			Vac
AC Output Voltage Minimum-Nominal-Maximum(1) (L-L)	422.5 - 480 - 529			Vac
AC Frequency Min-Nom-Max(1)	59.5 - 60 - 60.5			Hz
Maximum Continuous Output Current (per Phase, PF=1)	96.5	120	145	Aac
GFDI Threshold	1			A
Utility Monitoring, Islanding Protection, Configurable Power Factor, Country Configurable Thresholds	Yes			
Total Harmonic Distortion	≤ 3			%
Power Factor Range	+/-0.2 to 1			
INPUT				
Maximum DC Power (Module STC) Inverter / Synergy Unit	120000 / 60000	150000 / 50000	180000 / 60000	W
Transformer-less, Ungrounded	Yes			
Maximum Input Voltage DC+ to DC-	1000			Vdc
Operating Voltage Range	850 - 1000			Vdc
Maximum Input Current	2 x 48.25	3 x 40	3 x 48.25	Adc
Reverse-Polarity Protection	Yes			
Ground-Fault Isolation Detection	167kΩ sensitivity per Synergy Unit(2)			
CEC Weighted Efficiency	98.5			%
Nighttime Power Consumption	< 8	< 12		W
ADDITIONAL FEATURES				
Supported Communication Interfaces(3)	2 x RS485, Ethernet, Wi-Fi (optional), Cellular (optional)			
Smart Energy Management	Export Limitation			
Inverter Commissioning	With the SetApp mobile application using built-in Wi-Fi access point for local connection			
Arc Fault Protection	Built-in, User Configurable (According to UL1699B)			
Photovoltaic Rapid Shutdown System	NEC 2014, 2017 and 2020, Built-in			
PID Rectifier	Nighttime, built-in			
RS485 Surge Protection (ports 1+2)	Type II, field replaceable, integrated			
AC, DC Surge Protection	Type II, field replaceable, integrated			
DC Fuses (Single Pole)	25A, integrated			
DC SAFETY SWITCH				
DC Disconnect	Built-in			
STANDARD COMPLIANCE				
Safety	UL1699B, CSA C22.2#107.1, Canadian AFCI according to T.I.L. M-07			
Grid Connection Standards	IEEE 1547, Rule 21, Rule 14 (HI)			
Emissions	FCC part 15 class A			

(1) For other regional settings please contact SolarEdge support
(2) Where permitted by local regulations
(3) For specifications of the optional communication options, visit https://www.solaredge.com/products/communication or the Resource Library webpage: https://www.solaredge.com/downloads#, to download the relevant product datasheet

Three Phase Inverter with Synergy Technology

For the 277/480V Grid for North America

SE80KUS / SE100KUS / SE120KUS

Applicable to inverter with Part Numbers	SExxK-USx8Ixxxx			
	SE80KUS	SE100K	SE120KUS	
INSTALLATION SPECIFICATIONS				
Number of Synergy Units per Inverter	2	3		
AC Max Conduit Size	2 ½"			in
Max AWG Line / PE	4/0 / 1/0			
DC Max Conduit Size	1 x 3" ; 2 x 2"			in
DC Input Inverter / Synergy Unit(4)	8 / 4 pairs; 6-12 AWG	12 / 4 pairs; 6-12 AWG		
Dimensions (H x W x D)	Synergy Unit: 22 x 12.9 x 10.75 / 558 x 328 x 273 Synergy Manager: 14.17 x 22.4 x 11.6 / 360 x 560 x 295			in / mm
Weight	Synergy Unit: 70.4 / 32 Synergy Manager: 39.6 / 18			lb / kg
Operating Temperature Range	-40 to +140 / -40 to +60(5)			℉ / ℃
Cooling	Fan (user replaceable)			
Noise	< 67			dBA
Protection Rating	NEMA 3R			
Mounting	Brackets provided			

(4) DC input is also available with single pair termination per synergy unit. For more information contact SolarEdge
(5) For power de-rating information refer to: https://www.solaredge.com/sites/default/files/se-temperature-derating-note.pdf

CE RoHS

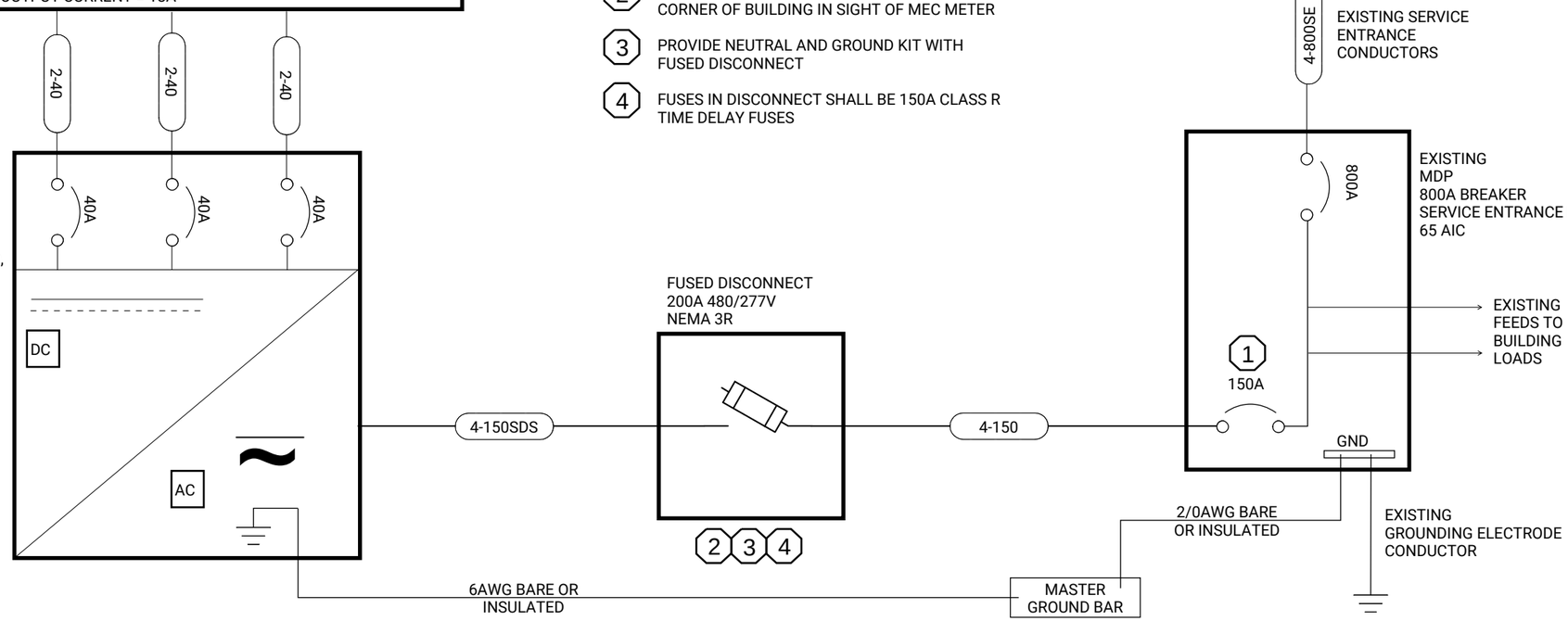
Exhibit 4 – Electrical Drawings

122.4 kW DC/100 kW AC Solar System

SILFAB SIL 400 NU 400W MODULE
(306 MODULES) WITH 153xP860 OPTIMIZERS
UNIT 01 - INPUT 01: 38 MODULES (19xP860 OPTIMIZERS)
UNIT 01 - INPUT 02: 30 MODULES (15xP860 OPTIMIZERS)
UNIT 01 - INPUT 03: 34 MODULES (17xP860 OPTIMIZERS)
UNIT 02 - INPUT 01: 34 MODULES (17xP860 OPTIMIZERS)
UNIT 02 - INPUT 02: 34 MODULES (17xP860 OPTIMIZERS)
UNIT 02 - INPUT 03: 34 MODULES (17xP860 OPTIMIZERS)
UNIT 03 - INPUT 01: 38 MODULES (19xP860 OPTIMIZERS)
UNIT 03 - INPUT 02: 30 MODULES (15xP860 OPTIMIZERS)
UNIT 03 - INPUT 03: 34 MODULES (17xP860 OPTIMIZERS)

AT STC : Pmax = 400W, Voc = 48.7 V, Isc = 10.5A
OPTIMIZER OUTPUT CURRENT = 18A

SOLAREDGE TECHNOLOGIES
SE100KUS (480/277V, 60Hz, 3PH),
100kW
INVERTER - 01(EXTERIOR)



Copper Feeder Schedule					
Tag No.	Number of Phase Conductors	Size of Conductors (AWG or kCMIL)	Size of Ground (AWG or kCMIL)	Minimum Conduit Size	Remarks
4-150	4	1/0	6	1.5"	
2-40	2	8	10	0.75"	

Separately Derived System Schedule					
Tag No.	Number of Phase Conductors	Size of Conductors (AWG or kCMIL)	Size of Ground (AWG or kCMIL)	Minimum Conduit Size	Remarks
4-150SDS	4	1/0	6	1.5"	

1. REPLACE 200A BREAKER WITH 150A BREAKER
2. FUSED DISCONNECT TO BE LOCATED ON NE CORNER OF BUILDING IN SIGHT OF MEC METER
3. PROVIDE NEUTRAL AND GROUND KIT WITH FUSED DISCONNECT
4. FUSES IN DISCONNECT SHALL BE 150A CLASS R TIME DELAY FUSES

MODULE SPECIFICATION	
MODEL	SILFAB SIL 400 NU
MODULE POWER @ STC	400W
OPEN CIRCUIT VOLTAGE:**Voc**	48.7V
MAX POWER VOLTAGE:**Vmp**	40.0V
SHORT CIRCUIT VOLTAGE:**Isc**	10.5A
MAX POWER CURRENT:**Imp**	10.1A

INVERTER SPECIFICATIONS	
MODEL	SOLAREDGE TECHNOLOGIES SE100KUS (480/277V, 60Hz, 3PH)
POWER RATING	100kW
MAX DC POWER	150kW
MAX OUTPUT CURRENT	120A
CEC WEIGHTED EFFICIENCY	98.5%
MAX INPUT CURRENT	3 x 40 Adc
MAX DC VOLTAGE	1000 Vdc

OPTIMIZER CHARACTERISTICS	
MODEL	**P860**
MAX INPUT VOLTAGE	60 VDC
MAX OUTPUT CURRENT	18 ADC

No.	Date	Description
0	06/30/21	ISSUED FOR CONSTRUCTION

DRAWN	CHECKED	APPROVED
SJK	ELH	

Commonwealth Electric Company of the midwest
"Committed to Excellence"
COLUMBUS - DES MOINES - LINCOLN - OMAHA - PHOENIX - TUCSON

EPo Energy

Sheet Title: ONE LINE DIAGRAM

Project Information: METRO WASTE PV PROJECT
300 E Locust St, Des Moines, IA

E-601

Project Number: 162002-075
Revision: 0

Scale is as indicated when plotted as Size Arch B 11" x 17"

24989 105th Street
Columbus Junction, Iowa 52738
PH: 319-541-3709

Exhibit 5 – Solar Edge(Optimizer)

Power Optimizer

For North America

P860 / P960 / P1101

POWER OPTIMIZER

PV power optimization at the module-level

The most cost-effective solution for commercial and large field installations

- Specifically designed to work with SolarEdge inverters
- Up to 25% more energy
- Superior efficiency (99.5%)
- Balance of System cost reduction; 50% less cables, fuses and combiner boxes, over 2x longer string lengths possible
- Fast installation with a single bolt
- Advanced maintenance with module-level monitoring
- Module-level voltage shutdown for installer and firefighter safety
- Meets NEC requirements for arc fault protection (AFCI) and Photovoltaic Rapid Shutdown System (PVRSS)

solaredge

/ Power Optimizer For North America

P860 / P960 / P1101

Power OptimizerModel (Typical Module Compatibility)	P860 (for 2 x 72 cell modules)	P960 (for 2 x 72 cell modules)	P1101 (for up to 2 x high power or bi-facial modules)	
INPUT				
Rated Input DC Power(1)	860	960	1100	W
Connection Method	Dual input for independently connected modules(2)		Single input for series connected modules	
Absolute Maximum Input Voltage (Voc at lowest temperature)	60		125	Vdc
MPPT Operating Range	12.5 - 60		12.5 - 105	Vdc
Maximum Short Circuit Current (Isc)	22	23.2	14.1	Adc
Maximum Short Circuit Current per Input (Isc)	11	11.6	-	Adc
Maximum Efficiency	99.5			%
Weighted Efficiency	98.6			%
Overvoltage Category	II			
OUTPUT DURING OPERATION (POWER OPTIMIZER CONNECTED TO OPERATING SOLAREDGE INVERTER)				
Maximum Output Current	18			Adc
Maximum Output Voltage	80			Vdc
OUTPUT DURING STANDBY (POWER OPTIMIZER DISCONNECTED FROM SOLAREDGE INVERTER OR SOLAREDGE INVERTER OFF)				
Safety Output Voltage per Power Optimizer	1 ± 0.1			Vdc
STANDARD COMPLIANCE				
Photovoltaic Rapid Shutdown System	Compliant with NEC 2014, 2017, 2020			
EMC	FCC Part 15 Class A, IEC61000-6-2, IEC61000-6-3			
Safety	IEC62109-1 (class II safety), UL1741		IEC62109-1 (class II safety), UL1741, UL3741	
Material	UL94 V-0, UV resistant			
RoHS	Yes			
INSTALLATION SPECIFICATIONS				
Compatible SolarEdge Inverters	Three phase inverters		SE30K & larger	
Maximum Allowed System Voltage	1000			Vdc
Dimensions (W x L x H)	129 x 169 x 59 / 5.1 x 6.65 x 2.32	129 x 169 x 72 / 5.1 x 6.65 x 2.83	129 x 162 x 59 / 5.1 x 6.4 x 2.32	mm / in
Weight	1340 / 2.95	1410 / 3.1	1064 / 2.34	gr / lb
Input Connector	MC4(3)			
Input Wire Length Options	Input #1 / Input #2	Input #1 / Input #2	-	m / ft
1	(-) 0.16 / 0.52, (+) 0.16 / 0.52 / (-) 0.16 / 0.52, (+) 0.16 / 0.52	(-) 1.6 / 5.2, (+) 1.6 / 5.2 / (-) 1.6 / 5.2, (+) 1.6 / 5.2	1.6 / 5.2	m / ft
2	(-) 1.6 / 5.2, (+) 0.16 / 0.52 / (-) 0.16 / 0.52, (+) 1.6 / 5.2			
3	(-) 1.6 / 5.2, (+) 1.6 / 5.2 / (-) 1.6 / 5.2, (+) 1.6 / 5.2			
Output Wire Type / Connector	Double insulated; MC4			
Output Wire Length	2.3 / 7.5	2.3 / 7.5	2.4 / 7.8	m / ft
Operating Temperature Range(4)	-40 to +85 / -40 to +185			°C / °F
Protection Rating	IP68 / NEMA6P			
Relative Humidity	0 - 100			%

(1) Rated power of the module at STC will not exceed the Power Optimizer "Rated Input DC Power". Modules with up to +5% power tolerance are allowed
(2) In the event of an odd number of PV modules in one string, installation of one P860 /P960 Power Optimizer connected to one PV module is allowed. When connecting a single module to the P860/ P960, seal the unused input connectors with the supplied pair of seals
(3) For other connector types please refer to: https://www.solaredge.com/sites/default/files/optimizer-input-connector-compatibility.pdf
(4) For ambient temperature above +70°C / +158°F, power de-rating is applied. Refer to the Power Optimizers Temperature De-Rating Application Note for more details

PV System Design Using a SolarEdge Inverter(5)(6)		208V Grid SE14.4K*	208V Grid SE17.3K*	277/480V Grid SE20K, 30K	277/480V Grid SE33.3K*, SE40K*	
Compatible Power Optimizers		P860, P960, P1101	P860, P960, P1101	P860, P960, P1101	P860, P960, P1101	
Minimum String Length	Power Optimizers	8	10	14	14	
	PV Modules	15	19	27	27	
Maximum String Length	Power Optimizers	30	30	30	30	
	PV Modules	60	60	60	60	
Maximum Continuous Power per String		7200	8820	15300	15300	W
Maximum Allowed Connected Power per String(7) (Permitted only when the difference in connected power between strings is up to 2,000W for the 277/480V grid, or 1,000W for the 208V grid)		1 string - 8400	1 string - 10020	1 string - 17550	2 strings or less - 17550	W
		2 strings or more - 9000	2 strings or more - 10620	2 strings or more - 20300	3 strings or more - 20300	
Parallel Strings of Different Lengths or Orientations		Yes				

* The same rules apply for Synergy units of equivalent power ratings, that are part of the modular Synergy Technology inverter
(5) P860/P960 can be mixed in one string only with P860/P960
(6) P860/P960 design with three phase 208V inverters is limited. Use the SolarEdge Designer for verification
(7) To connect more STC power per string, design your project using SolarEdge Designer

RoHS

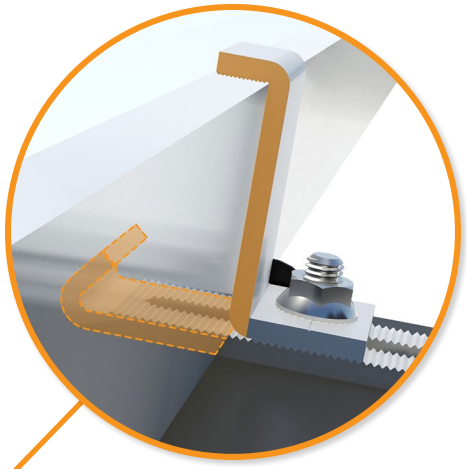
Exhibit 6 – IronRidge (Racking)

Strong, Light, and Ready for Anything

The IronRidge BX System is designed to meet the needs of commercial solar—navigating complex roof layouts, while also handling the most extreme environmental conditions.

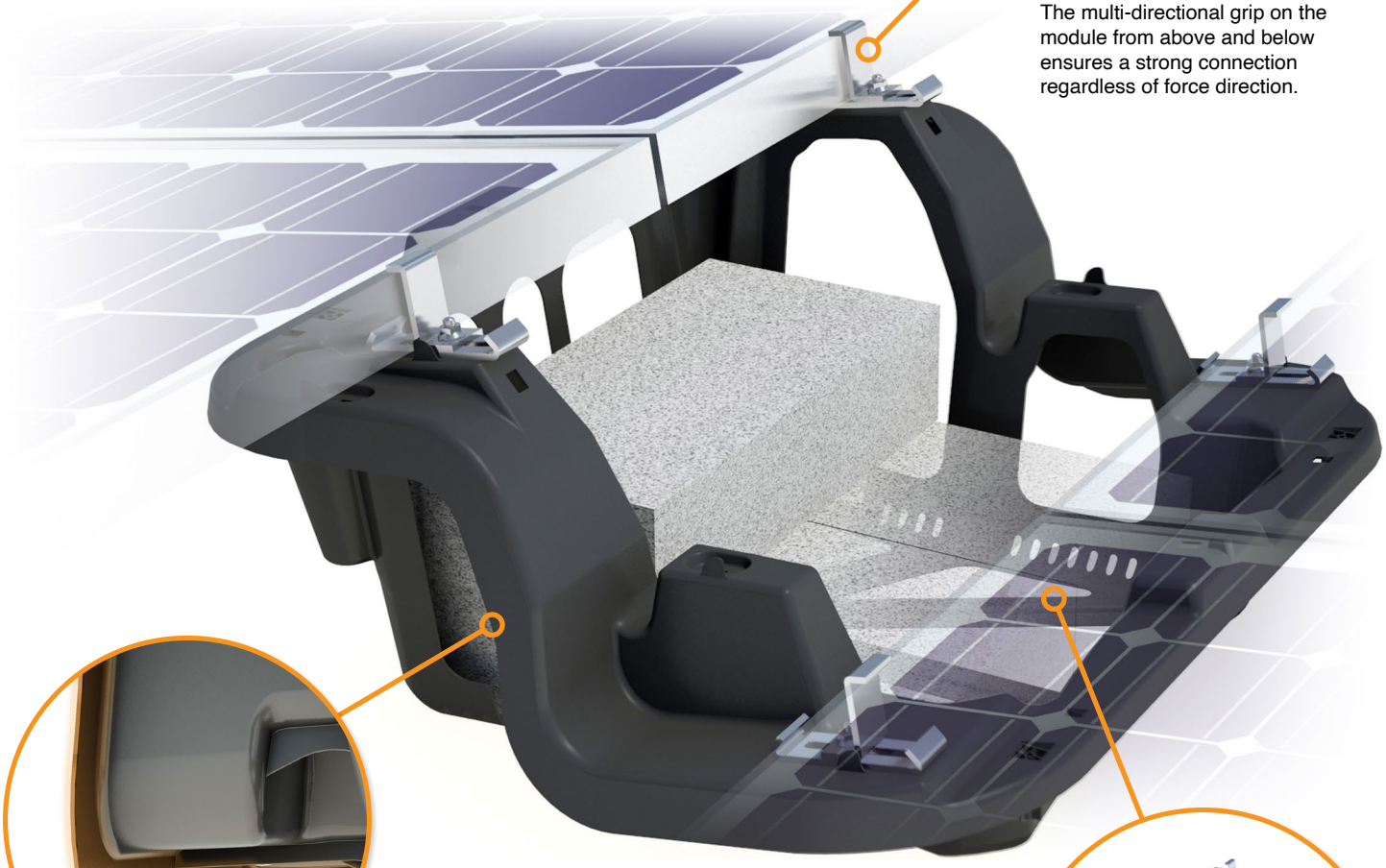
At the core of BX is the Chassis, a ballasted mount made of BASF Ultramid polyamides. They are exceptional for their high mechanical strength, rigidity and thermal stability (and are 100% recyclable).

Moreover, Ultramid polyamides afford good impact resistance even at low temperatures as well as UV protections for long life. Chassis come in 5° and 10° options and are backed by IronRidge's 25-year warranty.



Top & Bottom Clamp

The multi-directional grip on the module from above and below ensures a strong connection regardless of force direction.



360° Reinforcement

A flange around the entire perimeter helps to reinforce and stiffen the Chassis in all directions—alongside wide bends to reduce point loading and braced corners to increase rigidity.

Roof-Friendly Design

Wide base spreads weight and reduces point pressure, while openings along the bottom and corners prevent pooling and reduce ballast weathering.

Inter-Row Spacing & Edge Clearances

5° Chassis

10° Chassis

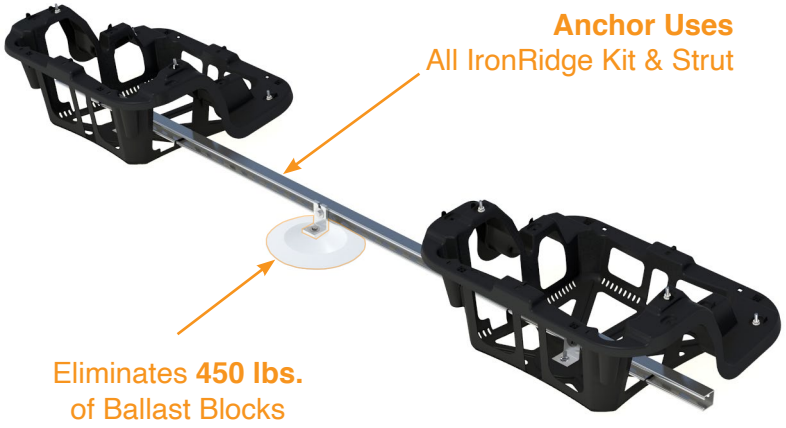
With 10-13” inter-row spacing, BX provides an **8-10% increase** in power density compared with other ballasted systems—that’s a **capacity increase of 20%** in a typical 50kW system. The BX Chassis geometry also offers more than 5” of clearance in the 10-degree configuration and 8” in the 5-degree configuration, enabling the system to avoid drain domes, roof saddles, and conduit supports.

Flat Roof Attachment Anchors

BX Systems can be fully ballasted, fully anchored, or a hybrid optimized for the site.

Combine BX with an IronRidge Flat Roof Attachment Kit to eliminate hundreds of pounds of required ballast weight and achieve configurations as light as 3 PSF.

The placement and fastening method can be optimized for existing roof structures, and pre-approved membranes are offered to maintain membrane roof warranties.



Testing & Certification

Design Assistant

Automated design software provides an accurate bill of materials, using a simple drag-and-draw interface to generate a complete system plan—also generate a ballast map showing the required ballast for each Chassis.

Permit Documentation

Design Assistant project reports are backed with a ASCE/PE stamp and Commercial Services are also available to assist with more complex projects. Visit our website or contact an IronRidge sales represenative.

UL 2703

Certification for the BX System conforms to the latest requirements and includes 1) Mechanical, 2) Bonding, and 3) Class A Fire Ratings (without wind deflectors). Ninety percent of solar modules are fully supported.

BX Slip Sheet Guide

Slip sheet requirements will vary based on the roofing material, manufacturer and project location. The specified dimensions below are for the actual interface between BX Chassis and the roof.

Please consult the roofing manufacturer to determine if slip sheets are required, and if so, the appropriate dimensions, as slip sheets will need to be larger than the interface dimensions.

BX/ROOF INTERFACE

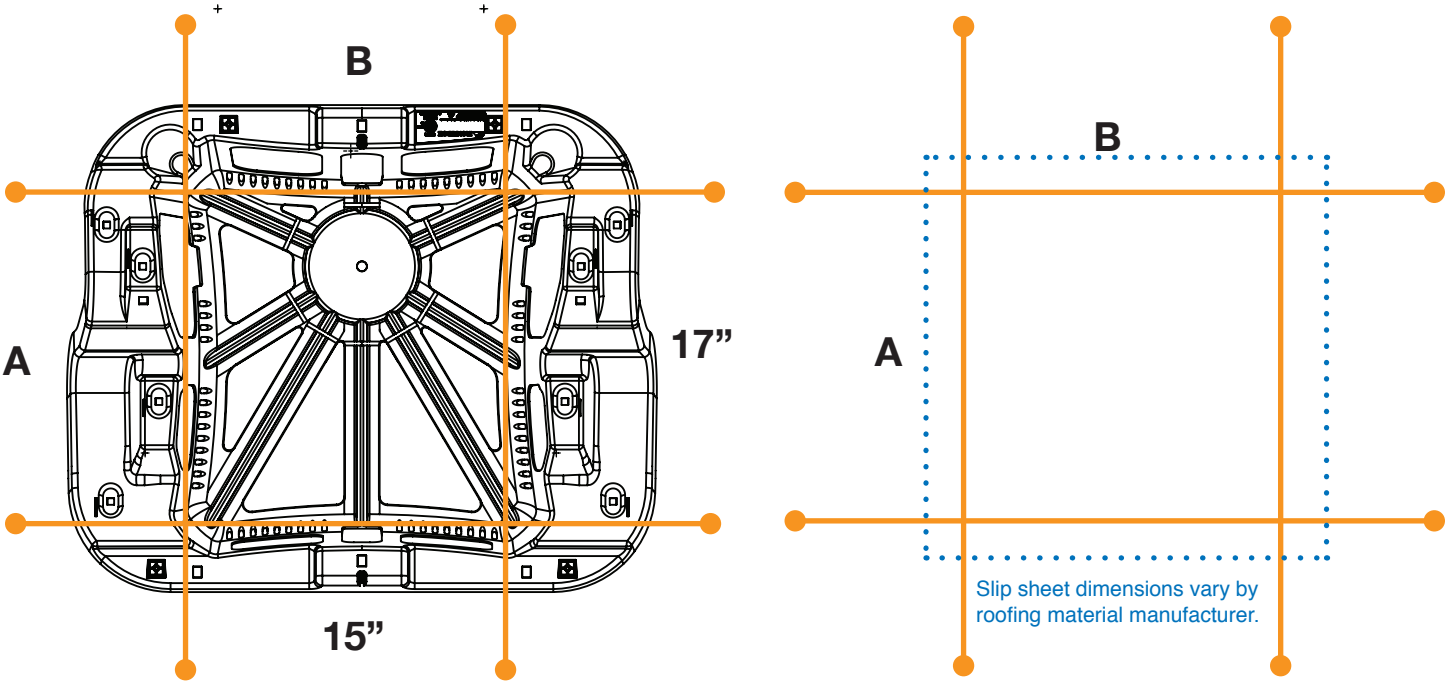
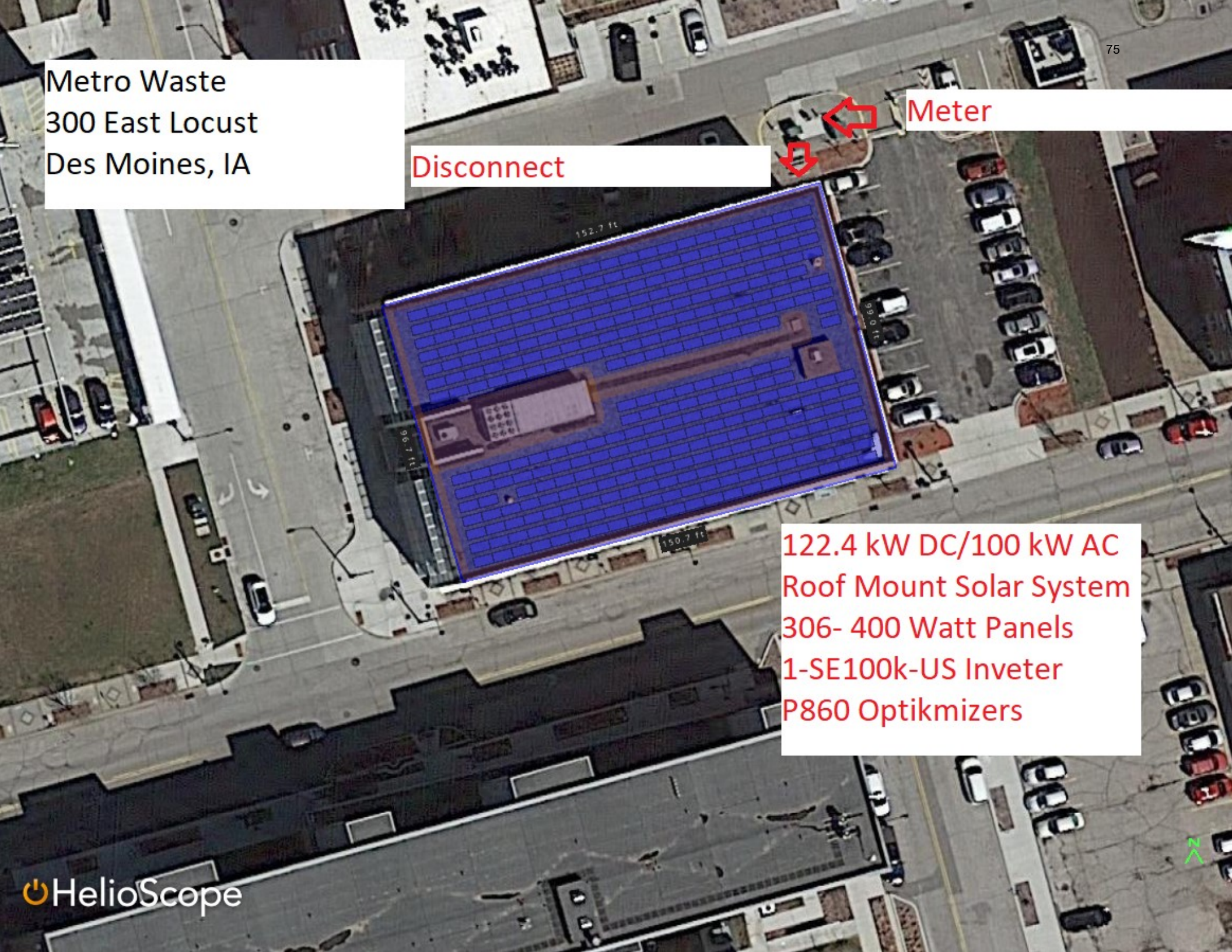


Exhibit 7 – Diagram of Proposed System Layout


Metro Waste
300 East Locust
Des Moines, IA
Meter
Disconnect
152.7 ft
150.7 ft
122.4 kW DC/100 kW AC
Roof Mount Solar System
306- 400 Watt Panels
1-SE100k-US Inveter
P860 Optikmizers
HelioScope