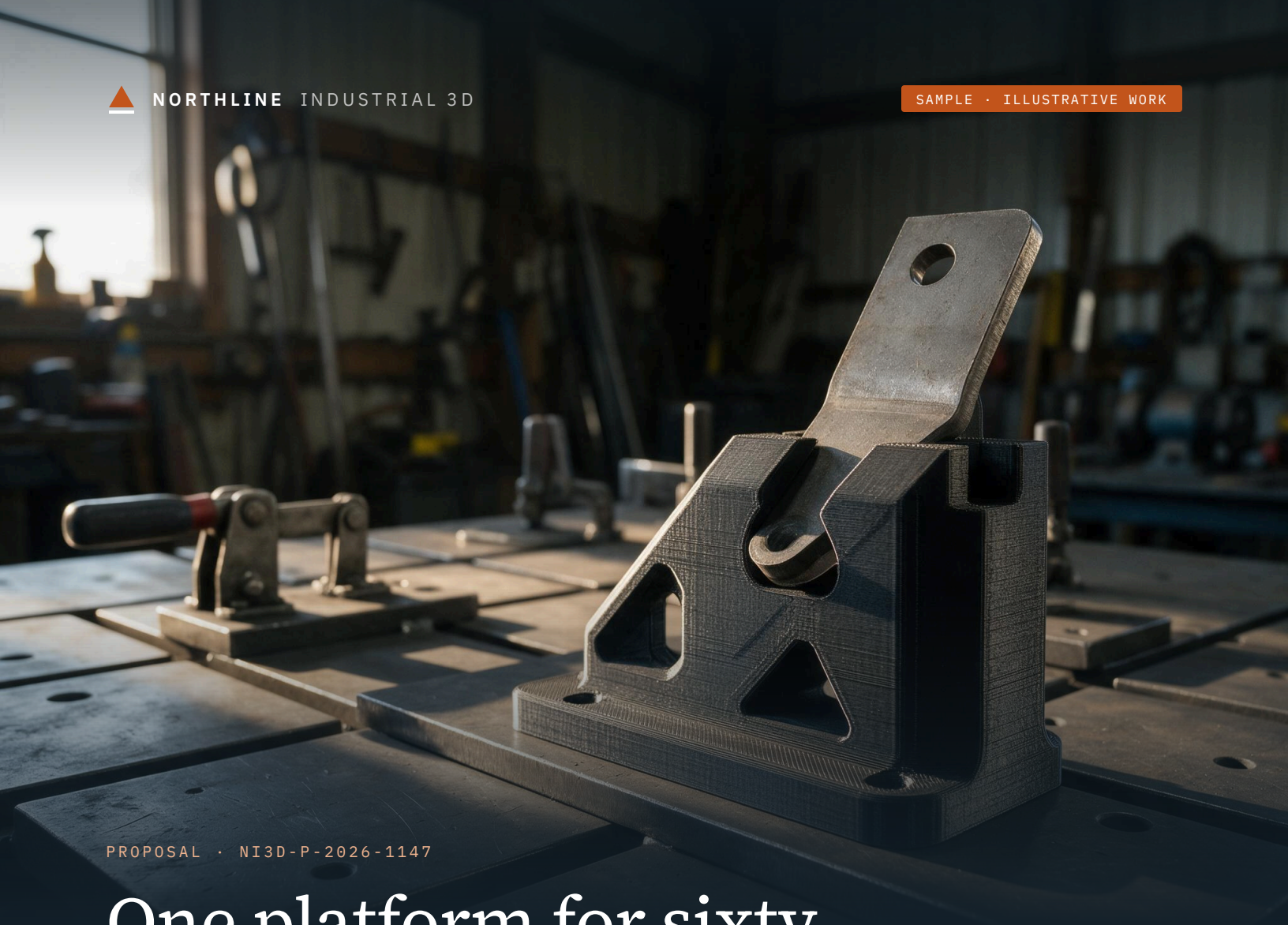
NORTHLINE INDUSTRIAL 3D

SAMPLE · ILLUSTRATIVE WORK



PROPOSAL · NI3D-P-2026-1147

One platform for sixty engineers. Fixtures off the printer, not the mill.

A proposal to move Cedar Ridge Equipment Co.'s design group onto the Keelson Design platform and stand up two Halden HX-900 production printers in the Marshalltown tooling shop.

PREPARED FOR

Dale Hendricks, VP Engineering
Cedar Ridge Equipment Co., Marshalltown, Iowa

PREPARED BY

Karen Voss, Engagement Lead
Northline Industrial 3D, Rockford, Illinois

PROPOSAL NI3D-P-2026-1147 · NOVEMBER 16, 2026 · VALID THROUGH DECEMBER 18, 2026

SAMPLE

Northline Industrial 3D, Cedar Ridge Equipment Co., every person, product, figure and date in this document are invented to show the form of an enterprise proposal. Nothing here is a quote.

01 AT A GLANCE

Sixty engineers on one platform, two printers qualified, in thirty-six weeks.

60	2	36 weeks	$1,065,840
engineers moved to Keelson Design	Halden HX-900 printers, qualified	kickoff Jan 11 to final acceptance Sep 17, 2027	Year 1 investment, all in

Cedar Ridge has run its design group on the incumbent system since 2007. Nineteen years of parts, assemblies and drawings now live in a vault that the engineers work around rather than in, and the incumbent's maintenance renewal comes due on September 30, 2027. Separately, every jig, fixture and gauge the tooling shop needs is machined, which means three weeks of lead time on tools that are often one-offs for a pilot build.

Northline proposes one engagement that fixes both. We move all 60 engineers onto Keelson Design and Keelson Vault in six phases, migrating the active data set with every converted part checked against the original, and we install and qualify two Halden HX-900 production printers so the tooling shop prints its own fixtures. All 60 engineers are live by August 6, 2027. Final acceptance is September 17, 2027, thirteen days before the incumbent renewal date, so Cedar Ridge can let it lapse.

WHAT CEDAR RIDGE HAS ON SEPTEMBER 17, 2027

01

60 engineers working in Keelson Design

46 Professional, 14 Premium seats, on one Keelson Vault, the incumbent system read-only since August 6.

02

41,200 active files migrated and validated

Every released revision accounted for; 120 high-reuse parts rebuilt natively with full feature history.

03

Two Halden HX-900 printers qualified

IQ, OQ and first-article sign-off, and five production tools in use on the line since April 16, 2027.

04

3,200 learner hours delivered

Across five role-based training waves, with certification vouchers for every engineer.

05

A named Northline applications engineer on call

Through Premier Support for the life of the subscription.

WHERE THE YEAR 1 INVESTMENT GOES · $1,065,840



$296,010
A · Software, 60 seats + Vault

$395,400
B · Printers & installation

$360,030
C · Professional services

$14,400
D · Support

CONTRACT TERM	ALL 60 ENGINEERS LIVE	INCUMBENT RENEWAL DATE
3 years from license activation	**August 6, 2027**	**September 30, 2027** can lapse

02 THE PROBLEM, IN CEDAR RIDGE'S WORDS

"We've got sixty engineers and a vault that's been patched together for nineteen years. Every model year somebody spends a morning hunting for the right revision of a row-unit bracket, and somebody else rebuilds a part that already exists because they couldn't find it. The incumbent renewal comes up next September. I'm not signing three more years of that."

Dale Hendricks, VP Engineering, Cedar Ridge Equipment Co.

"When the line needs a new weld fixture, we machine it out of steel and wait three weeks. Half the time it's for a pilot build and it's scrap after forty units. I want to print it Tuesday and have it on the line Thursday."

Gary Lund, Tooling Shop Supervisor

"Whatever we move to, I need to know on day one that the parts in the new vault are the same parts that are in the old one."

Rachel Moen, Engineering Manager

WHAT WE HEARD IN DISCOVERY CONVERSATIONS

Data you can't trust.

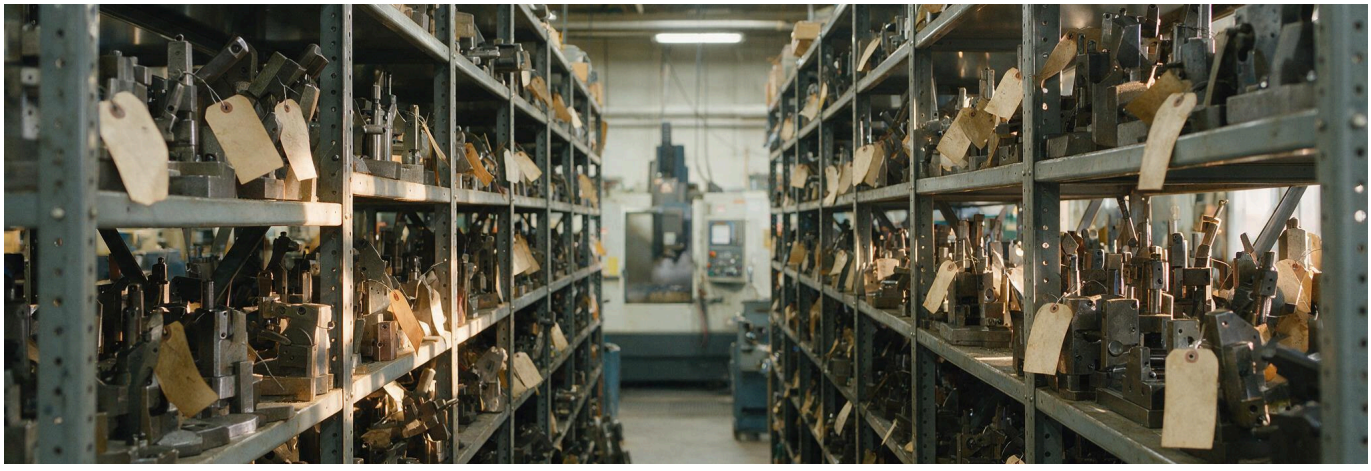
212,000 files in the incumbent vault, of which only 41,200 have been released or changed since 2021. Engineers search by habit, not by part number. Duplicate parts are created because finding the original takes longer than drawing a new one.

A system the team has outgrown.

The incumbent's sheet-metal and weldment tools lag what Cedar Ridge builds every day: formed shanks, welded toolbars, bent-plate brackets. Flat patterns are corrected by hand before they go to the laser.

A tooling shop waiting on the mill.

Jigs, fixtures and check gauges compete with production parts for CNC time. Lead time runs about three weeks, and short-run pilot tooling is the work that waits longest.



Machined jigs, fixtures and gauges compete with production parts for CNC time.

Illustrative image

03 THE PLAN, IN SIX PHASES

Nobody moves before the data is proven.

Why it's phased this way. Nobody moves before the data is proven. Ten power users run real Cedar Ridge work on the new platform before the other fifty touch it, and every rollout wave is small enough that one instructor can teach it and one applications engineer can sit beside it on go-live week. The printers run on their own track, so the tooling shop is producing tools while the design group is still in pilot.

1 PHASE

Discovery

WEEKS 1 TO 3 · JAN 11 TO JAN 29, 2027

We inventory the incumbent vault, profile the active data set, interview each engineering team lead, and agree the Priority Rebuild List of 120 parts and assemblies. We confirm printer site requirements with the tooling shop and IT.

ENDS WITH
An accepted migration plan, Priority Rebuild List and site-readiness checklist.

2 PHASE

Platform standup & data migration

WEEKS 4 TO 11 · FEB 1 TO MAR 26, 2027

Keelson Vault is installed on Cedar Ridge's server, configured with Cedar Ridge's part-numbering scheme, lifecycle states and templates. The active data set is extracted, converted and validated; the 120 priority parts are rebuilt natively. Administrators are trained in week 5.

ENDS WITH
The platform accepted and the migration validation report signed.

3 PHASE

Pilot group

WEEKS 12 TO 18 · MAR 29 TO MAY 14, 2027

Ten power users take 64 hours of training, then design live Cedar Ridge work in Keelson for five weeks with an applications engineer coaching on site. They finalize the standards (templates, design library, sheet-metal gauges) the other 50 will inherit. Week 18 is the go/no-go gate.

ENDS WITH
A passed go/no-go gate on May 14.

4 PHASE

Full rollout

WEEKS 19 TO 30 · MAY 17 TO AUG 6, 2027

The remaining 50 engineers move in four waves of 12 or 13. Each wave takes one week of on-site training, goes live the following Monday, and has an applications engineer on the floor for two weeks. A delta migration runs before each go-live so nothing changed in the incumbent is lost.

ENDS WITH
All 60 engineers live and the incumbent set read-only on August 6.

5 RUNS IN PARALLEL

Printer install & qualification

WEEKS 8 TO 14 · MAR 1 TO APR 16, 2027

Two HX-900 printers are delivered, installed and calibrated, then qualified in three steps: installation (IQ), operation (OQ) and first-article production of five starter tools (PQ). The tooling shop's six people are trained in week 11.

ENDS WITH
PQ sign-off and five tools in production use on April 16.

6 PHASE

Hypercare

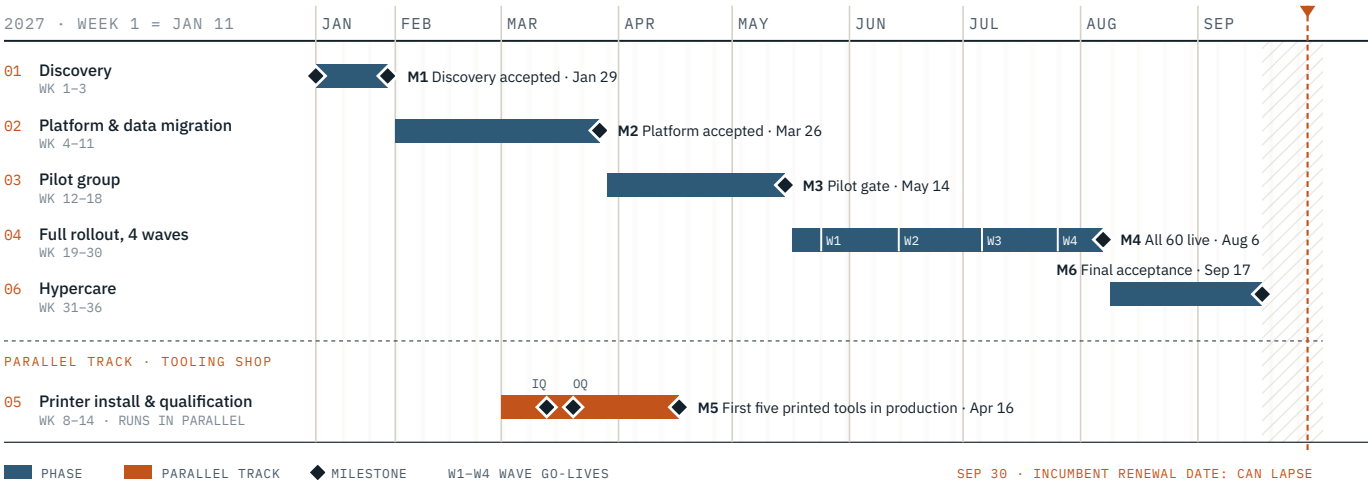
WEEKS 31 TO 36 · AUG 9 TO SEP 17, 2027

Northline stays close while the new platform becomes routine: priority response, a weekly check-in, cleanup of any migration dispositions left open, and a handover to Premier Support.

ENDS WITH
Final acceptance on September 17.

04 THE TIMELINE

Thirty-six weeks, kickoff to final acceptance, with thirteen days to spare.



PHASES

PHASE	START	END	WEEKS
1 Discovery	Jan 11	Jan 29	1 to 3
2 Platform standup & data migration	Feb 1	Mar 26	4 to 11
3 Pilot group	Mar 29	May 14	12 to 18
4 Full rollout (4 waves)	May 17	Aug 6	19 to 30
5 Printer install & qualification	Mar 1	Apr 16	8 to 14
6 Hypercare	Aug 9	Sep 17	31 to 36

All dates 2027. 36 weeks from kickoff to final acceptance.

THE FOUR ROLLOUT WAVES · PHASE 4

WAVE	ENG.	TRAINING	GO-LIVE
1	12	May 17 to May 21	Mon May 24
2	13	Jun 7 to Jun 11	Mon Jun 14
3	12	Jun 28 to Jul 2	Tue Jul 6
4	13	Jul 19 to Jul 23	Mon Jul 26
Total	**50**	**+ 10 pilot users = 60**	

Two weeks of floor support follow each go-live. Wave 3 goes live Tuesday; July 5 is a holiday.

MILESTONES

Jan 11	Kickoff
Jan 29	Discovery accepted
Mar 19	Printers pass OQ
Mar 26	Platform accepted, migration validated
Apr 16	First five printed tools in production
May 14	Pilot go/no-go gate
May 24	Wave 1 live
Aug 6	All 60 live; incumbent read-only
Sep 17	**Final acceptance**
Sep 30	Incumbent renewal date: can lapse

05 DATA MIGRATION

What converts, and what gets rebuilt.

The honest version. No design system reads another's feature history. When a part moves from the incumbent system to Keelson, its geometry, its metadata and its revisions come across exactly; the recipe the original engineer used to build it does not. We tell you which parts that matters for, we rebuild the 120 where it matters most, and we check every converted part against the original before anyone relies on it.

THE INCUMBENT VAULT

Total files	212,000
Active set, since Jan 1, 2021	41,200
Archive set, read-only	170,800
Rebuilt natively	120

STEP 1

Extract

Every released revision and its metadata (part number, description, material, revision, lifecycle state, where-used) is exported from the incumbent vault with Cedar Ridge's administrator. Record counts are reconciled before anything is converted.

STEP 2

Convert

Geometry moves through a neutral format into Keelson. Automated feature recognition restores editable holes, extrusions and fillets on prismatic parts and recognizes bends and flat patterns on sheet metal. Purchased and standard parts are remapped to the Keelson design library instead of being converted.

STEP 3

Validate

Every converted active part is checked automatically against its original for volume, surface area, center of mass and bounding box. A 5% stratified sample is opened and inspected by eye. Every failure gets a written disposition: fix, rebuild or archive-only.

WHAT CONVERTS CLEANLY, AND WHAT DOESN'T

DATA	VOLUME	WHAT HAPPENS	WHAT IT MEANS FOR YOUR ENGINEERS
Metadata and released revisions	All 212,000 files	Migrates exactly; 100% record reconciliation	Search, where-used and revision history work on day one
Simple machined parts and plates	Majority of the 24,800 active parts	Converted; feature recognition restores editable features	Edit them like native parts
Sheet-metal parts	Within the active parts	Converted; bends and flat patterns recognized	Flat patterns regenerate; check gauge table once
Purchased / standard parts	6,300	Remapped to the Keelson library, not converted	One fastener, one bearing, one cylinder: no duplicates
Complex weldments, castings, surfaced parts	Within the active set	Converted as accurate solids without feature history	Use as-is; rebuilt natively the next time they change
High-reuse parts and families	120 on the Priority Rebuild List	**Rebuilt natively** by Northline with full feature history	The parts you edit every model year are fully parametric
Active drawings	10,800	Carried as PDF and DXF linked to their item in the Vault	Readable and released; regenerated as associative drawings when the part next changes
Archive (no change since Jan 1, 2021)	170,800 files	Stored as STEP and PDF, read-only, metadata searchable	Nothing is lost; nothing is converted that nobody will open

≥ 98%

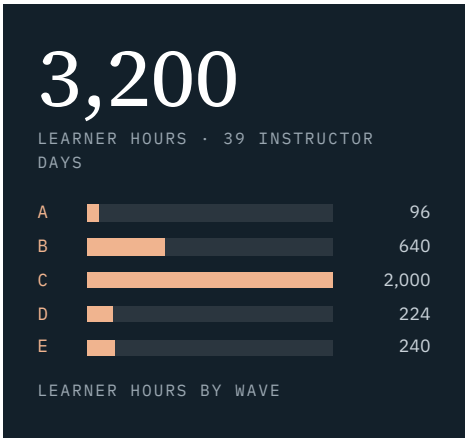
How we'll know it worked. At least 98% of converted active parts pass the automated check on the first pass, and every part that doesn't is dispositioned before its wave goes live. Zero released revisions lost. Ms. Moen signs the validation report before any engineer depends on the new vault.

06 TRAINING

Each group learns in the week before it needs to, on Cedar Ridge's own parts.

Training follows the rollout: each group learns in the week before it needs to, on Cedar Ridge's own parts. The pilot group's coursework is longer because they set the standards everyone else inherits.

WAVE	WHO	PEOPLE	COURSES	DAYS	HOURS EACH	LEARNER HRS	WHERE
A	**Administrators: CAD admin + 2 IT**	3	Vault Administration · Platform Administration	4	32	96	Live virtual, week 5
B	**Power users (pilot)**	10	Keelson Essentials · Sheet Metal & Weldments · Vault User	8	64	640	On site, Marshalltown, weeks 12 to 13
C	**Rollout engineers, 4 cohorts of 12 or 13**	50	Incumbent-to-Keelson Transition · Vault User	20	40	2,000	On site, Marshalltown, one week per wave
D	**Premium seat holders**	14	Simulation for Design Engineers	2	16	224	On site, Aug 3 to Aug 4
E	**Tooling shop: 4 technicians, 2 tool designers**	6	HX-900 Operation & Maintenance · Design for AM: Jigs & Fixtures	5	40	240	On site, tooling shop, week 11
	Total			**39**		**3,200**	



How it's taught.

Every on-site class runs in Cedar Ridge's training room with up to 14 students and one Northline instructor, using exercises built from Cedar Ridge parts captured in Discovery. The transition course is written for engineers who already know the incumbent system: it teaches the differences, not CAD from zero.

Certification.

Every engineer receives a Keelson Certified Associate exam voucher (60); the ten power users also receive a Certified Professional voucher (10). Our shared target is 90% of the 60 passing Associate within 45 days of their go-live.

60	10
ASSOCIATE	PROFESSIONAL

THE TRAINING CALENDAR, 2027

Feb 8–11	Mar 22–26	Wk 12–13	May 17–21	Jun 7–11	Jun 28–Jul 2	Jul 19–23	Aug 3–4
Wave A Administrators	Wave E Tooling shop	Wave B Pilot power users	Wave C Cohort 1, 12 engineers	Wave C Cohort 2, 13 engineers	Wave C Cohort 3, 12 engineers	Wave C Cohort 4, 13 engineers	Wave D 14 Premium seat holders

68 distinct people trained: 60 engineers (the CAD Administrator among them), 2 IT staff and 6 tooling shop staff.

07 THE PRINTERS: INSTALL AND QUALIFICATION

Two Halden HX-900 production printers, installed in the Marshalltown tooling shop.



Illustrative image. A production extrusion printer of the HX-900 class with a carbon-fiber nylon fixture on the plate.

BUILD VOLUME	900 × 600 × 900 mm
MATERIALS	Nylon 12 carbon-fiber, PEI 9085-class, ASA
SUPPORT	One Halden SR-2 soluble-support removal station per printer

CEDAR RIDGE PROVIDES	**Per printer, ready by February 19, 2027**
POWER	208 V 3-phase 30 A dedicated circuit
FLOOR	3.2 m × 2.4 m footprint
AMBIENT	18 to 28 °C
NETWORK	One network drop

QUALIFICATION IN THREE STEPS

IQ — MAR 12, 2027

Installation qualification

Delivered, placed, connected to power, air and network as specified; calibrated; software installed; serial numbers and utilities recorded.

OQ — MAR 19, 2027

Operational qualification

A calibration artifact is built in each of the three materials on each printer (six builds) and measured.

Pass: every measured feature within ±0.15 mm or ±0.0015 mm/mm, whichever is greater.

PQ — APR 16, 2027

First-article production

Northline's AM specialist and Cedar Ridge's tool designers design and print five real tools, each inspected against its drawing and put to work on the line.

THE PRINTER TRACK, WEEK BY WEEK

WEEK	DATES (2027)	STEP
8	Mar 1 to Mar 5	Delivery & uncrating
9	Mar 8 to Mar 12	Installation & calibration; IQ (sign-off Mar 12)
10	Mar 15 to Mar 19	OQ test builds (sign-off Mar 19)
11	Mar 22 to Mar 26	Operator (3 d) + design-for-AM (2 d) training
12 to 14	Mar 29 to Apr 16	First-article builds of 5 starter tools; PQ (sign-off Apr 16)

THE FIRST FIVE TOOLS

TOOL 1
Drill jig
Gauge-wheel arm

TOOL 2
Weld fixture
Row-unit mounting bracket

TOOL 3
Go/no-go check gauge
Tillage shank

TOOL 4
Assembly nest
Seed meter housing

TOOL 5
Soft jaws
CNC hub machining

08 THE PEOPLE

Six named Northline people, each owning one part of the work.

NORTHLINE INDUSTRIAL 3D · SAMPLE NAMES

Karen Voss

KV

ENGAGEMENT LEAD

Accountable for the engagement and the commercial relationship. Chairs the monthly steering committee with Dale Hendricks. Your escalation point.

Marcus Delgado, PMP

MD

PROJECT MANAGER

Runs the plan day to day: weekly status every Tuesday, the risk and issue log, change control, and milestone acceptance packets. On site at kickoff, each phase gate and each go-live.

Ana Lindqvist

AL

LEAD MIGRATION ENGINEER

Owns extraction, conversion and validation, signs the migration validation report with Rachel Moen, and leads the 120 priority rebuilds. Runs the delta migration before each wave.

Tom Brekke

TB

APPLICATIONS ENGINEER

Configures the platform and Vault to Cedar Ridge's standards, coaches the pilot group, and sits on the floor for two weeks after every go-live. Stays on as your named engineer under Premier Support.

Jamal Reyes

JR

AM PRINTER SPECIALIST

Installs, calibrates and qualifies both HX-900 printers, trains the tooling shop, and co-designs the five starter tools.

Lisa Okafor

LO

TRAINING LEAD

Builds the course exercises from Cedar Ridge parts and leads the 39 instructor days.

CEDAR RIDGE COUNTERPARTS · SAMPLE NAMES

Dale Hendricks VP Engineering (Executive Sponsor)	**Rachel Moen** Engineering Manager (Project Owner)	**Steve Kowalski** CAD Administrator	**Ben Ortiz** IT Infrastructure Lead	**Gary Lund** Tooling Shop Supervisor	**Megan Tate** Procurement Lead

1,310	1,040	270	39
SERVICE HOURS IN THE PLAN	ENGINEERING HOURS	PROJECT MANAGEMENT HOURS	INSTRUCTOR DAYS

HOW WE RUN IT

EVERY TUESDAY

Weekly status

Marcus Delgado and Rachel Moen

MONTHLY

Steering committee

Karen Voss and Dale Hendricks

EVERY PHASE

Written acceptance

Against criteria agreed in the Statement of Work

09 INVESTMENT

Year 1 investment

All prices in US dollars
Pricing valid through December 18, 2026

ITEM	QTY	UNIT PRICE	AMOUNT
A Software subscription Year 1			
Keelson Design Professional, annual subscription	46	$3,800	$174,800
Keelson Design Premium, annual subscription	14	$5,400	$75,600
Keelson Vault editor license, annual	60	$1,200	$72,000
Keelson Vault Server, annual	1	$6,500	$6,500
Competitive transition credit (10% of Year 1 list, with 3-year term)			−$32,890
SUBTOTAL A			**$296,010**
B Printers & installation			
Halden HX-900 production printer	2	$172,000	$344,000
HX-900 starter materials kit	2	$9,800	$19,600
Halden SR-2 support removal station	2	$7,400	$14,800
Installation, calibration and IQ/OQ qualification	2	$8,500	$17,000
SUBTOTAL B			**$395,400**
C Professional services Fixed fee, billed at milestone acceptance			
Discovery & migration assessment		80 hours	$14,800
Platform standup & Vault configuration		140 hours	$25,900
Data migration: extract, convert, validate, 120 priority rebuilds		420 hours	$77,700
Pilot coaching & standards		100 hours	$18,500
Training delivery		39 instructor days	$93,600
Certification vouchers		60 Associate, 10 Professional	$7,430
Rollout floor support		4 waves × 2 weeks	$29,600
AM applications onboarding		5 starter tools	$11,100
Hypercare		6 weeks	$14,800
Project management & governance		9 months	$54,000
Travel & living (at actuals, not to exceed)			$12,600
SUBTOTAL C			**$360,030**
D Support Year 1			
Northline Premier Support, 12 months			$14,400
Halden printer warranty, 12 months on-site parts & labor			Included
SUBTOTAL D			**$14,400**

A · SOFTWARE	B · PRINTERS & INSTALLATION	C · PROFESSIONAL SERVICES	D · SUPPORT	TOTAL YEAR 1 INVESTMENT
$296,010	$395,400	$360,030	$14,400	$1,065,840

Services are fixed fee, billed at milestone acceptance; project management is billed monthly. Travel is billed at actuals up to the cap shown.

All prices in US dollars, excluding applicable sales tax. Pricing valid through December 18, 2026. Years 2 and 3 and optional add-ons follow overleaf and are not in this total.

09 INVESTMENT, BEYOND YEAR 1

Price-locked for three years. Options priced, kept separate.

Years 2 and 3

NOT IN THE YEAR 1 TOTAL

PER YEAR	
Software subscription at Year 1 list rates	$328,900
Northline Premier Support	$14,400
Halden Care service plan, 2 printers	$33,600
Annual, Years 2 and 3	**$376,900**

3-YEAR TOTAL COST OF OWNERSHIP **$1,819,640**

Price-locked: Year 2 and Year 3 rates will not increase.

Optional add-ons

NOT IN ANY TOTAL

ADD-ON	PRICE
Additional native rebuild block, 100 parts	$27,750
Vault-to-ERP BOM integration	$38,850
Keelson View licenses for manufacturing & quality, 25 seats	$10,500 per year
Extended hypercare, additional 6 weeks	$14,800
Third Halden HX-900 with materials kit, SR-2 and IQ/OQ	$197,700

10 WHAT'S INCLUDED, WHAT ISN'T

Included

YEAR 1 SCOPE

- ✓ 60 Keelson Design seats (46 Professional, 14 Premium) and 60 Vault editor licenses, Year 1
- ✓ Keelson Vault installed and configured on Cedar Ridge's server
- ✓ Migration of the 41,200-file active set with automated validation of every converted part
- ✓ Native rebuild of the 120 parts on the Priority Rebuild List
- ✓ Archive of 170,800 inactive files as read-only STEP and PDF with searchable metadata
- ✓ Delta migration before each of the four rollout waves
- ✓ Two HX-900 printers, starter materials, SR-2 stations, installation and IQ/OQ/PQ qualification
- ✓ Five role-based training waves, 39 instructor days, 70 certification vouchers
- ✓ Two weeks of floor support after every go-live, then six weeks of hypercare
- ✓ Premier Support and printer warranty for Year 1

Not included

AVAILABLE SEPARATELY WHERE MARKED

- — Integration between Keelson Vault and Cedar Ridge's ERP ADD-ON
- — Native rebuild beyond the 120 priority parts ADD-ON, BLOCKS OF 100
- — Viewer licenses for manufacturing, quality or service ADD-ON
- — Workstation, server or network hardware and electrical work
- — Associative re-creation of legacy drawings before the part next changes
- — Custom programming, macros or API automation
- — Printer materials beyond the starter kits; production printing services
- — Terminating or decommissioning the incumbent system's licenses
- — Updates to Cedar Ridge quality procedures (e.g., ISO 9001 documents)

The Statement of Work NI3D-SOW-2026-1147 carries the binding version of this list.

11 NEXT STEPS

Three dates between this proposal and kickoff.

By December 4, 2026
REVIEW

Northline and Cedar Ridge review the Statement of Work NI3D-SOW-2026-1147 line by line **(Rachel Moen, Megan Tate, Marcus Delgado)**.

By December 14, 2026
SIGNATURE

Signature of the SOW and the order; **printers ordered the same week** to hold the March 1 delivery.

January 11, 2027
KICKOFF

Kickoff on site in Marshalltown.

YOUR CONTACT

Karen Voss, Engagement Lead
Northline Industrial 3D · Rockford, Illinois
karen.voss@northline-sample.example

THIS PROPOSAL

NI3D-P-2026-1147 · November 16, 2026
Valid through December 18, 2026

SAMPLE · ILLUSTRATIVE WORK

This is a sample proposal made to show how Northline Industrial 3D structures an engagement. Both companies, all people, products, prices and dates are invented.