

OWNER

Basis of Estimate

AACE Class 3 Capital Cost Estimate



Document No.: [REDACTED] EST-EST-001

Rev. A, Issued for Review

Date: September 29, 2026

Project: [REDACTED] [REDACTED]



TORUS

[REDACTED], [REDACTED] County, [REDACTED]

N O T I C E

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ISSUE SUMMARY AND APPROVAL

This page records each issue of EST-EST-001. The preparer, reviewer and approver sign for each revision.

Rev.	Date	Issue purpose	Description
A	2026-09-29	Issued for Review	First issue

Contributors

Rev.	Discipline	Prepared by	Reviewed by	Approved by
A	Estimate			

CONTENTS

1.	INTRODUCTION	1
1.1.	PURPOSE.....	1
1.2.	SCOPE AND EXCLUSIONS	1
1.3.	RESULT.....	1
2.	GENERAL INFORMATION.....	3
3.	SCOPE	4
4.	METHODOLOGY	5
5.	ESTIMATE CLASSIFICATION	6
6.	QUANTITY DEVELOPMENT	7
7.	STRUCTURE AND CODING	8
8.	DIRECT COSTS	9
8.1.	MATERIAL AND EQUIPMENT PRICING	9
8.2.	LABOR RATES	9
8.3.	PRODUCTIVITY	11
8.4.	FREIGHT AND SALES TAX.....	13
9.	GENERAL CONDITIONS.....	14
10.	PROJECT INDIRECTS.....	15
10.1.	CONTRACTOR MARKUPS.....	15
10.2.	OWNER COSTS.....	15
11.	CONTINGENCY.....	17
12.	ESCALATION	18
13.	CONTRACTING APPROACH	19
14.	EXCLUSIONS	20
15.	NOTES AND ASSUMPTIONS	21
16.	SUMMARY AND CONCLUSIONS	22

FIGURES AND TABLES

Table 1-1: Estimate Summary	1
Table 2-1: General Estimate Information.....	3
Table 5-1: AACE Estimate Classes for the Process Industries (RP 18R-97)	6
Table 6-1: Take-off Rows Carried into the Estimate	7
Table 7-1: Estimate Code Structure	8
Table 8-1: Material and Equipment Pricing Basis.....	9



Table 8-2: Craft Labor Rates, 2026 (USD per hour) 9

Table 8-3: Crew Composition and Composite Rates 10

Table 8-4: Site Productivity Factor 11

Table 8-5: Butt Weld Man-hours (1.10 MH per Diameter-inch in the Field, 0.72 in the Shop) 11

Table 8-6: Other Unit Man-hours (Base, Before the Productivity Factor) 12

Table 9-1: Contractor Field Staff 14

Table 9-2: General Conditions Summary 14

Table 10-1: Contractor Markups.....15

Table 10-2: Owner Costs..... 15

Table 12-1: Escalation Rates 18

1. INTRODUCTION

1.1. PURPOSE

This report is the basis of estimate for the capital cost of the (), a 120 MMSCFD custody transfer receipt station that will deliver treated natural gas from the Owner's 12 in lateral into the () operated by (), the receiving pipeline operator. It records what the estimate includes, how each cost was developed, the rates and productivity behind the labor, the allowances, and the contingency and escalation that complete it. The Owner will use the estimate for funding approval and as the engineer's estimate when construction bids are evaluated. It follows the structure of AACE International Recommended Practice 34R-05, Basis of Estimate.

1.2. SCOPE AND EXCLUSIONS

The estimate covers the complete station between insulating joints IJ-101 and IJ-102, the site, the analyzer shelter and the control and electrical building, power, communications and cathodic protection, and the Owner's buried 12 in outlet lateral to the tap valve flange. It also carries allowances for the hot tap, tap valve and remote terminal unit that the receiving pipeline operator will install at the Owner's cost, and for the electric cooperative's line extension. The upstream lateral, engineering spent before the Issued for Review package, and operating costs are excluded; Section 14 lists every exclusion.

1.3. RESULT

The base estimate, escalated to the months of spend and before contingency, is \$15.65 million. With contingency set by the risk analysis in () EST-EST-003, Risk Register and Contingency Analysis, the total installed cost is \$17.57 million at 50 % confidence (P50) and \$18.24 million at 80 % confidence (P80). TORUS recommends that the Owner approve funding at P80. Table 1-1 summarizes the estimate.

Table 1-1: Estimate Summary

Element	Cost (USD)	Share of P80
Direct cost, including freight, contractor material tax and allowances	9,974,698	54.7 %
Contractor general conditions, overhead, profit, bonds and insurance	2,220,802	12.2 %
Owner costs, including tax on Owner-furnished material	2,940,676	16.1 %
Escalation from September 2026 to the month of spend	512,558	2.8 %
Base estimate	15,648,734	85.8 %
Contingency to P50	1,923,780	10.5 %
Total installed cost, P50	17,572,514	96.3 %
Additional contingency, P50 to P80	671,752	3.7 %
Total installed cost, P80 (recommended for funding)	18,244,266	100.0 %

Per unit of design capacity the station costs \$146 thousand per MMSCFD at P50 and \$152 thousand per MMSCFD at P80.



2. GENERAL INFORMATION

Table 2-1 sets out the general parameters of the estimate.

Table 2-1: General Estimate Information

Parameter	Value
Project	()
Location	County, () Basin, about 34.95 N, 97.93 W; site to be fixed by survey, HOLD H-02)
Facility type	Custody transfer with filtration, dual ultrasonic metering, gas quality analysis, line heating, flow and pressure control and overpressure protection
Design capacity	120 MMSCFD at 900 to 1,150 psig inlet; station design pressure 1,440 psig (ASME Class 600)
Delivery point	12 in hot tap on the receiving pipeline operator's 24 in trunkline
Estimate class	AACE Class 3 (Section 5)
Base date	September 2026
Currency	United States dollars; no foreign exchange exposure
Units	US customary
Estimate number	EST-EST-002, Detailed Cost Estimate, with its workbook
Schedule basis	EST-SCH-001, Project Schedule; performance test February 7, 2028

3. SCOPE

The station scope follows GEN-DB-001, Basis of Design, as amended by GEN-RPT-002, Design Decisions Register. It comprises the inlet pig receiver PR-101, filter separator V-101, meter skid SK-110 with two 100 % NPS 10 ultrasonic meter runs, analyzer shelter B-101 with its gas chromatograph and moisture, H₂S and oxygen analyzers, line heater H-101, fuel gas skid FG-101 with its electric preheater E-161, two flow control valves with low-noise trim, the inlet, overpressure and outlet shutdown valves, liquids tank T-101, vent stack VS-101, control and electrical building B-102, standby generator G-101, the station piping, civil works, electrical, instrumentation, telecommunications and cathodic protection, and the outlet lateral.

Three interfaces are carried as allowances rather than as priced scope, because the design of each belongs to another party. The receiving pipeline operator will design and install the hot tap fitting, tap valve and its remote terminal unit, reimbursed by the Owner under the Interconnect and Operating Agreement (HOLD H-01, H-04). The electric cooperative will extend its line and set the transformer, for which it will charge the Owner a contribution in aid of construction (HOLD H-10). Programming of the remote terminal unit and safety programmable logic controller, SCADA host integration and the safety instrumented system validation will be bought directly by the Owner from a system integrator, as the construction scope of work CON-RPT-002 requires, and are priced as Owner-direct services.

4. METHODOLOGY

TORUS prepared the estimate bottom up. Every row of the five discipline material take-offs (mechanical, civil and structural, electrical and cathodic protection, instrumentation, and measurement) became one line of the estimate, priced with a unit material cost, unit man-hours, a crew, construction equipment and, where the work is subcontracted, a subcontract unit price. Man-hours were adjusted from a Gulf Coast norm to this site with a productivity factor and priced at crew composite rates built from craft wages. Items that no take-off carries, such as the meter skid fabrication, pre-commissioning and commissioning support, and the specialty subcontracts, were added as estimator lines with their basis stated.

Contractor general conditions and Owner costs were derived from the Level 3 critical path schedule in EST-SCH-001, so that time-dependent costs follow the actual construction and project durations. The schedule itself takes its construction durations from the estimate man-hours. Costs were then loaded onto the schedule activities to produce the monthly cash flow in EST-SCH-002, Cash Flow Forecast, and escalation was calculated month by month on that cash flow. Contingency was set by a Monte Carlo risk analysis that ranges the cost groups, adds the discrete risks and runs their delays through the schedule network.

The detailed estimate is maintained as a workbook in which quantities, unit prices, unit man-hours, rates and schedule durations are inputs and every total is a live formula. Before issue TORUS recomputed all 8572 formulas independently; the results agreed with the estimate to the dollar.

5. ESTIMATE CLASSIFICATION

AACE International Recommended Practice 18R-97 classifies an estimate by the maturity of the project definition behind it. Table 5-1 reproduces the classification for the process industries.

Table 5-1: AACE Estimate Classes for the Process Industries (RP 18R-97)

Class	Maturity of definition	End use	Methodology	Expected accuracy range
5	0 % to 2 %	Concept screening	Capacity factored, parametric, judgment	Low -20 % to -50 %; high +30 % to +100 %
4	1 % to 15 %	Study or feasibility	Equipment factored, parametric	Low -15 % to -30 %; high +20 % to +50 %
3	10 % to 40 %	Budget authorization or control	Semi-detailed unit costs with assembly-level line items	Low -10 % to -20 %; high +10 % to +30 %
2	30 % to 75 %	Control or bid / tender	Detailed unit cost with forced detailed take-off	Low -5 % to -15 %; high +5 % to +20 %
1	65 % to 100 %	Check estimate or bid / tender	Detailed unit cost with detailed take-off	Low -3 % to -10 %; high +3 % to +15 %

Note 1: The accuracy range applies to a stated confidence interval around the point estimate including contingency.

The Issued for Review package defines the station well: a reconciled basis of design, piping and instrument diagrams, a heat and material balance, process and mechanical datasheets for every major item, a line list and piping material specification, the plot plan and piping general arrangements, foundation and grading calculations, a one-line diagram, cable and input/output lists, and take-offs drawn from those drawings (1,003 estimate lines). That is about 30 to 40 % of complete definition, which supports Class 3.

It is not Class 2, for two reasons. No vendor has quoted any package yet (HOLD H-15), so all prices are TORUS's judgment of the 2026 Mid-Continent market; and several inputs that move quantities are open: the geotechnical report (H-07), the final survey (H-02, H-03), the receiving pipeline operator's technical requirements (H-01, H-04, H-13, H-14) and the utility service design (H-10). The two allowances for the hot tap and the utility are Class 4 in quality on their own. TORUS therefore places the estimate at the wide end of Class 3, with an expected range of -10 % to -20 % and +10 % to +30 %. The project-specific risk analysis gives a narrower band (P10 \$16.65 million, P90 \$18.60 million) because it only captures the risks that could be modeled; the generic range remains the reference for what was not.

Budget quotations for the line heater, filter separator, meter skid with its meters, the actuated API 6D valves, the flow control valves, both buildings and the control panels would move the estimate toward the narrow end of the range. Together these packages are 31 % of the direct line-item cost (HOLD H-EST-03).

6. QUANTITY DEVELOPMENT

All quantities come from the discipline material take-offs, which were measured from the Issued for Review drawings and the piping model with stated allowances (typically 5 % on pipe and 10 % on cable and conduit). Table 6-1 shows how every take-off row was carried into the estimate.

Table 6-1: Take-off Rows Carried into the Estimate

Take-off	Rows	Rows priced	Rows carried at zero value	Direct cost (USD)
Mechanical and piping	259	216	43	3,870,562
Civil and structural	116	111	5	1,016,539
Electrical and cathodic protection	181	175	6	690,375
Instrumentation and controls	364	199	165	1,741,323
Measurement	51	51	0	786,528

Note 1: A row carried at zero value is priced in another line: content of a vendor package (for example the skid piping inside the meter skid price), an item listed by two disciplines, or scope by others. Each carries its reason in the workbook.

Where two take-offs listed the same item, TORUS priced it once and chose the discipline that owns the item. The crushed rock in the electrical area, the antenna mast (priced as the vendor-designed breakpoint monopole, with its foundation in civil), the vent stack strakes (inside the vent stack price) and the pipe support isolation pads are examples. The civil take-off of support steel was compared with the mechanical pipe support weights; the mechanical lines carry the support fabrication and installation, and the civil line carries only the additional tonnage for stanchion extensions and skid cap plates.

Two scope items were missing from the take-offs and were added: the Class 900 companion flanges, gaskets, bolting and test blinds at the line heater coil nozzles, which the heater's Class 900 nozzles require; and the contractor's calibration and loop checks for the 192 input/output points, electrical acceptance testing, pre-commissioning, commissioning support, the final tie-in and a standby crew allowance, which the bid form carries as pay items. The meter skid was built up from its own take-off rows, five motor-operated valve bodies, about 9,000 lb of skid steel, the shop welding man-hours and an allowance for engineering, factory acceptance testing and the data book.

7. STRUCTURE AND CODING

The estimate is coded by area of work, so that each code can be compared with a bid item and later controlled as a cost account. Table 7-1 lists the codes. Each estimate line carries a code of the form AA.NNN, where AA is the area and NNN the line within it.

Table 7-1: Estimate Code Structure

Code	Area	Content
10	Sitework, Earthwork, Roads and Fencing	Sitework, earthwork, roads, drainage, fencing
20	Concrete Foundations and Structural Steel	Concrete foundations and structural steel
30	Major Mechanical Equipment	Major mechanical equipment (supply and setting)
40	Station Piping	Station piping, valves, welding, NDE, coating, hydrotest
50	Measurement and Analyzers	Measurement, analyzers and sampling
60	Electrical and Control Building	Electrical power, grounding, lighting, B-102 building
65	Cathodic Protection	Cathodic protection
70	Instrumentation, Controls and Telecom	Instrumentation, controls, SIS, telecom and integration
80	Specialty Subcontracts and Pre-commissioning	Specialty subcontracts and contractor pre-commissioning
82	Receiving Pipeline Operator Reimbursables	Receiving pipeline operator () reimbursables
85	Utility Service	Utility service line extension (HOLD H-10)
90	Contractor General Conditions and Markups	Field supervision, temporary facilities, general equipment, small tools, mobilization, overhead, profit, bonds
95	Owner Costs	Engineering, procurement, construction management and inspection, permits, land, commissioning, spares, project team, tax on Owner-furnished material
97	Escalation	Escalation from the base date to the month of spend
99	Contingency	Contingency to P50 and from P50 to P80

Within each code the cost is split by type: subcontract, permanent equipment, bulk material, man-hours, labor and construction equipment. Each line is also marked by its supply route: Owner-furnished (bought by the Owner and installed by the contractor), contractor-furnished, subcontract, or Owner-direct service.

8. DIRECT COSTS

8.1. MATERIAL AND EQUIPMENT PRICING

No vendor quotations exist at this issue. TORUS priced equipment and bulk materials at 2026 Mid-Continent market levels, checking pressure equipment by weight against recent comparable orders. Table 8-1 states the basis for each group.

Table 8-1: Material and Equipment Pricing Basis

Group	Basis
Pressure vessels (V-101, PR-101)	Weight-based check: V-101 about \$17.6 per lb with 1.75 in PWHT shell and quick-opening closure; PR-101 about \$21.6 per lb
Line heater H-101	6.0 MMBtu/h water-bath package with Class 900 coil nozzles and a SIL 2 burner management system
Meter skid and meters	NPS 10 multipath ultrasonic meters at \$98,000 each; flow calibration at an accredited laboratory at \$34,000 per meter; skid built up from its parts
Valves and actuators	Price by size, class and type; NPS 12 Class 600 trunnion ball valves at \$29,500 (manual) and \$34,000 plus \$32,000 to \$41,000 electro-hydraulic actuator (shutdown)
Line pipe and fittings	By weight: API 5L X52 PSL2 \$1.48 per lb, A106 B \$2.40 per lb, A312 304/304L \$6.90 per lb; high-yield fittings \$8.50 per lb
Electrical and instrument bulks	Distributor pricing per foot and per item, with hazardous-location fittings at Division 1 and 2 levels
Civil bulks	Ready-mixed concrete \$190 per CY delivered, reinforcing steel \$1.05 per lb, aggregate \$28 per ton delivered to County

Note 1: All prices are estimator judgment pending quotations (HOLD H-15).

8.2. LABOR RATES

Labor is priced at open-shop wages for 2026 on a 10 h by 5 d week, which the construction execution plan CON-RPT-001 sets and which is common for rural midstream work because it holds crews that travel. The 10 overtime hours each week are paid at time and a half, which raises the average wage by a factor of 1.10. The all-in cost rate adds statutory burden (10.35 % for Social Security and Medicare, federal and unemployment), workers' compensation and liability by craft, fringe benefits of \$9.50 per hour, and per diem of \$165 per working day for the 70 % of hours worked by non-local craft. Table 8-2 gives the resulting rates. Contractor overhead and profit are applied separately (Section 10).

Table 8-2: Craft Labor Rates, 2026 (USD per hour)

Craft	Base wage	Workers' comp. and liability	Wage with overtime	Burden, fringe and per diem	All-in rate
General foreman	52.00	8.5 %	57.20	31.83	89.03

Craft	Base wage	Workers' comp. and liability	Wage with overtime	Burden, fringe and per diem	All-in rate
Craft foreman	47.00	8.5 %	51.70	30.80	82.50
Pipe welder (6G)	46.00	9.5 %	50.60	31.09	81.69
Pipefitter	41.00	9.5 %	45.10	30.00	75.10
Helper	24.00	9.5 %	26.40	26.29	52.69
Equipment operator	35.00	8.0 %	38.50	28.11	66.61
Laborer	22.50	9.0 %	24.75	25.84	50.59
Truck driver	27.00	8.0 %	29.70	26.50	56.20
Electrician	39.00	5.5 %	42.90	27.85	70.75
Instrument technician	41.00	5.5 %	45.10	28.20	73.30
Ironworker	36.00	11.0 %	39.60	29.50	69.10
Carpenter	31.00	8.5 %	34.10	27.48	61.58
Concrete finisher	31.00	8.5 %	34.10	27.48	61.58
Millwright	40.00	8.0 %	44.00	29.12	73.12
Painter / coater	30.00	9.0 %	33.00	27.44	60.44

Every man-hour is priced at the composite rate of the crew that does the work. Table 8-3 lists the crews and the construction equipment carried with each man-hour (welding machines, sideboom or excavator, hydraulic crane, trucks, compaction and drilling equipment).

Table 8-3: Crew Composition and Composite Rates

Crew	Composition	Size	Labor (/MH) Equipment (/MH)	
Civil / earthwork crew	1 craft foreman, 4 equipment operator, 3 laborer, 1 truck driver	9	61.88	48.00
Concrete crew	1 craft foreman, 3 carpenter, 2 ironworker, 2 concrete finisher, 3 laborer, 1 equipment operator	12	62.25	14.00
Structural steel crew	1 craft foreman, 4 ironworker, 1 equipment operator, 1 helper	7	68.32	20.00
Piping / welding crew	0.25 general foreman, 1 craft foreman, 3 pipe welder (6g), 3 pipefitter, 4 helper, 1 equipment operator, 1 laborer	13.25	68.16	24.00
Equipment setting crew	1 craft foreman, 3 millwright, 1 pipefitter, 1 equipment operator, 2 helper	8	68.62	26.00
Electrical crew	1 craft foreman, 4 electrician, 2 helper	7	67.27	6.00

Crew	Composition	Size	Labor (/MH)\Equipment(/ MH)	
Instrument crew	1 craft foreman, 3 instrument technician, 1 electrician, 1 helper	6	70.97	5.00
Cathodic protection crew	1 craft foreman, 2 electrician, 1 helper	4	69.17	12.00
Painting / coating crew	0.5 craft foreman, 3 painter / coater, 1 helper	4.5	61.17	9.00
Spool fabrication shop	Shop crew, shop overhead included	8	98.00	0.00

8.3. PRODUCTIVITY

Unit man-hours were set at a Gulf Coast norm and multiplied by the site productivity factor in Table 8-4. Each adjustment reflects a condition of this site: the rural location and the travel it imposes on crews, s summer heat and spring storm season, fatigue on a 50 h week, and the permits and standby needed near the receiving pipeline operator's right-of-way.

Table 8-4: Site Productivity Factor

Adjustment	Factor
Location (rural County, craft availability, travel)	1.05
Weather (heat, wind, rain and tornado-season stand-downs)	1.05
Extended workweek 10 h x 5 d (fatigue)	1.04
Work near live receiving-pipeline ROW (permits, standby)	1.01
Combined factor	1.158

Pipe welding dominates the mechanical man-hours, so it was estimated weld by weld by diameter-inch, adjusted for wall thickness and material. Table 8-5 shows the rates, and Table 8-6 the other main unit man-hours.

Table 8-5: Butt Weld Man-hours (1.10 MH per Diameter-inch in the Field, 0.72 in the Shop)

Size	Wall and material	Wall factor	Material factor	Field MH, base	Field MH, at site	Shop MH, base
NPS 12	Standard 0.375 in	1.00	1.00	13.2	15.3	8.6
NPS 12	0.500 in (outlet lateral, riser bends)	1.25	1.00	16.5	19.1	10.8
NPS 8	Schedule 80, carbon steel	1.25	1.00	11.0	12.7	7.2

Size	Wall and material	Wall factor	Material factor	Field MH, base	Field MH, at site	Shop MH, base
NPS 8	Schedule 40S stainless (vent header)	1.00	1.45	12.8	14.8	8.4
NPS 4	Schedule 40S stainless	1.00	1.45	6.4	7.4	4.2
NPS 3	Schedule 80, carbon steel (drains)	1.10	1.00	3.6	4.2	2.4
NPS 2	Schedule 80, carbon steel	1.10	1.00	2.4	2.8	1.6
NPS 2	Schedule 40S stainless	1.10	1.45	3.5	4.1	2.3

Note 1: Stainless welding carries a factor of 1.45 for purging, interpass control and positive material identification.

Table 8-6: Other Unit Man-hours (Base, Before the Productivity Factor)

Activity	Unit man-hours
Socket weld, NPS 1 and 3/4	1.30 and 1.10 MH each
Branch connection weld (weldolet or sockolet)	2.2 MH each
Pipe handling and erection, NPS 12, 8, 2	0.50, 0.38, 0.14 MH per ft; stainless x 1.25
Buried station pipe, extra for trench, bedding, lowering-in and backfill, NPS 12	0.55 MH per ft
Flange bolt-up with torque record, NPS 12, 8, 2 Class 600	4.0, 3.0, 1.2 MH per joint
Concrete: drilled piers, slabs, equipment mats, pier caps, containment	2.5, 5.0, 6.0, 7.0, 10.0 MH per CY
Reinforcing steel	20 MH per ton
Structural steel erection	20 MH per ton
Earthwork: strip, cut, compacted fill	0.035, 0.040, 0.035 MH per CY
Power cable, 600 V, including terminations	0.016 to 0.025 MH per ft
Instrument cable pulling; terminations	0.013 to 0.042 MH per ft; 0.07 MH per conductor end
Transmitter installation with stand and hook-up	8 MH each
Loop check and calibration	2.5 MH per input/output point
Three-coat painting including blasting	0.075 MH per sq ft

The estimate totals 20,738 field man-hours and 1,375 spool shop man-hours. The schedule converts these into construction durations (EST-SCH-001).

8.4. FREIGHT AND SALES TAX

Freight on Owner-furnished material is 4 % of equipment value, 3 % of bulk and 2 % of electrical and instrument material. The three heaviest loads (H-101, SK-110 and V-101) exceed legal width or weight and carry a further \$63,000 for heavy haul, oversize and overweight permits and escorts. Contractor-furnished material is priced delivered.

The estimate carries sales and use tax at a combined 5.5 % (the 4.5 % state rate plus a 1.0 % allowance for the County and local rate at the delivery point) on all permanent material, a total of \$333,088. A contractor that installs material into real property is treated as its consumer. Whether any exemption applies to the pipe, valves and station equipment, for example under an exemption permit the Owner already holds for its gathering or processing operations, has not been assumed and needs the Owner's tax review (HOLD H-EST-01). The risk analysis allows for both outcomes.

9. GENERAL CONDITIONS

The contractor's general conditions are time-based. The schedule places the contractor on site from July 8, 2027 to February 21, 2028, 31.4 weeks. Table 9-1 shows the field staff, temporary facilities and general equipment over that period. Mobilization and demobilization are 3 % of the contractor's direct cost, inside the 5 % cap in the bid form, and small tools and consumables are 6 % of craft labor.

Table 9-1: Contractor Field Staff

Position	Share of field duration	All-in rate (\$/h)	Cost (USD)
Construction superintendent	1.00	118.00	185,260
Project manager (contractor)	0.35	135.00	74,182
QA/QC manager	1.00	98.00	153,860
HSE coordinator	1.00	90.00	141,300
Field engineer / scheduler	0.60	92.00	86,664
Materials coordinator / warehouse	0.60	70.00	65,940
Document control / field clerk	0.50	55.00	43,175
Welding QC inspector (contractor CWI)	0.45	100.00	70,650

Note 1: Rates include per diem and a vehicle.

Table 9-2: General Conditions Summary

Item	Cost (USD)
Field supervision and staff	821,032
Temporary facilities	98,432
General construction equipment	184,777
Small tools and consumables (6 % of craft labor)	82,925
Mobilization and demobilization (3 % of contractor direct)	118,539
Total general conditions	1,305,705

10. PROJECT INDIRECTS

10.1. CONTRACTOR MARKUPS

Contractor home office overhead of 8 % and profit of 10 % are applied to labor, construction equipment and general conditions. Contractor-furnished material carries 10 % for handling and margin, and the contractor's own subcontracts 7 %. Bonds and insurance are 1.8 % of the contract value. Table 10-1 gives the amounts; they bring the construction contract to \$6.17 million.

Table 10-1: Contractor Markups

Markup	Cost (USD)
Contractor home office overhead	264,423
Contractor profit	356,971
Handling and margin on CFM	153,289
Markup on contractor subcontracts	29,317
Bonds and insurance	111,098
Total	915,097

10.2. OWNER COSTS

Owner costs cover the work the Owner will carry out or buy directly. Table 10-2 summarizes them. Engineering covers the work from the Issued for Review package to Issued for Construction, construction support and as-built drawings (3,860 hours at a blended \$172 per hour). Construction management and inspection provides a construction manager and an electrical, instrumentation and civil inspector for the full field period, a welding inspector for the piping and hydrotest period, part-time coating inspection and radiographic film review, and a cathodic protection specialist. Commissioning covers the Owner's commissioning team, vendor field service, and the nitrogen purge and pre-pressurization that a winter gas-in requires.

Table 10-2: Owner Costs

Cost	Cost (USD)
Engineering (IFR to IFC, construction support, as-builts)	663,920
Procurement, expediting and shop inspection	219,100
Construction management and inspection	497,935
Permitting (fees and consultants)	63,500
Land, lease and easements	76,650
Commissioning and startup	389,500
Spare parts, first fills and operating tools	275,776
Owner's project team	501,120

Cost	Cost (USD)
Sales/use tax on Owner-furnished material (HOLD H-EST-01)	253,175
Total Owner costs	2,940,676

Note 1: Spare parts include 1 % of Owner-furnished equipment for commissioning spares, 2 % for two-year operating spares, a spare set of filter elements, and the spares, tools and calibration gases listed in the take-offs. First fills include about 3,100 gal of inhibited ethylene glycol for the line heater bath.



11. CONTINGENCY

Contingency was set by the risk analysis in EST-EST-003. It ranges every cost group, adds sixteen discrete risks, and runs the resulting delays through the schedule so that time-dependent costs grow with them. Reaching P50 needs \$1.92 million (12.3 % of the base estimate); reaching P80 needs \$2.60 million (16.6 %). Contingency covers estimate uncertainty and the identified risks within the defined scope. It does not cover scope changes, the exclusions in Section 14, or management reserve.

12. ESCALATION

Escalation was calculated from the September 2026 base date to the month in which each cost is spent, compounded annually, at the rates in Table 12-1. The rates reflect producer price and craft wage trends in 2025 and 2026; bulk material carries the highest rate because steel and copper have been the most volatile.

Table 12-1: Escalation Rates

Cost category	Annual rate
Equipment	3.5 %
Bulk	4.5 %
Labor	4.0 %
Subcontract	3.8 %
Indirect	3.8 %
Owner	3.5 %
	3.5 %
Utility	4.0 %

Total escalation is \$0.51 million, 3.4 % of the unescalated estimate. The construction midpoint is October 27, 2027.

13. CONTRACTING APPROACH

The estimate follows the execution strategy of CON-RPT-001, Construction Execution Plan, and CON-RPT-002, Contractor Scope of Work and Bid Form. The Owner will buy the long-lead equipment, valves, line pipe and instruments and free-issue them to one construction contractor under a lump-sum and unit-price contract bid after the Issued for Construction package. The Owner-furnished route was chosen because the meter skid, filter separator, actuated valves and standby generator have lead times of 35 to 45 weeks; ordering them at design approval, rather than waiting for a contractor, keeps them off the critical path.

The contractor will furnish the piping bulks, civil materials, electrical and instrument bulks and its own subcontracts (survey, NDE, coating inspection, fencing, crane and hydrotest water). The schedule shows that the contractor's 18-week lead time on high-yield fittings then drives spool fabrication; alternate ALT-3 in EST-EST-004, Alternates and Options Pricing, moves those fittings to Owner purchase and is recommended. For bid evaluation, EST-EST-002 maps the contractor's scope onto the pay items of the bid form.

14. EXCLUSIONS

The estimate excludes:

- the upstream Owner 12 in lateral to IJ-101, which is a separate project;
- engineering spent up to the Issued for Review package, which is a sunk cost;
- line pack, purge and commissioning gas, which is Owner gas, and all operating costs (fuel gas, power, lease rental, operations and maintenance staff);
- scope changes after this issue, management reserve, financing and interest during construction, and the Owner's corporate overheads;
- contaminated soil, archaeological finds and wetland mitigation, which the environmental review REG-RPT-003 screened out;
- force-account work and the unit-price evaluation allowances of the bid form (rock, undercut, lime stabilization, pier length, extra NDE, standby hours), whose expected values are inside the contingency;
- tank vapor control and the other bid alternates, which are priced in EST-EST-004;
- rupture-mitigation valves or control room management upgrades if the station is classified as transmission (HOLD H-18), which is a quantified risk; and
- builder's risk insurance bought by the Owner.

15. NOTES AND ASSUMPTIONS

1. The Owner authorizes permitting and releases the early requests for quotation when the Issued for Review package is approved. *Verification required.*
2. The site is reached from the county road over the new 600 ft access road, and the soils are the lean red-bed clay of the basis of design with 2,000 psf allowable bearing. *Verification required (HOLD H-07).*
3. The electric cooperative energizes the service before pre-commissioning. The application is filed at design approval; if power is late, the standby generator and a rental generator bridge the gap. *Verification required (HOLD H-10).*
4. The receiving pipeline operator makes the hot tap within a two-week window before the final tie-in, independently of station construction. *Verification required (HOLD H-01, H-04).*
5. Hydrotest water is bought from a rural water district and hauled to a permitted disposal facility. *Verification required (HOLD H-17).*
6. Gas-in falls in winter, so nitrogen purge and pre-pressurization are carried.
7. Vendor field service is paid by the Owner.
8.
 sales and use tax is carried at 5.5 % on all permanent material. *Verification required (HOLD H-EST-01).*
9. The utility line extension is assumed to be 2,640 ft of three-phase overhead line. *Verification required (HOLD H-EST-02).*



16. SUMMARY AND CONCLUSIONS

The
 is estimated at \$17.57 million at P50 and \$18.24 million at P80, in 2026 dollars escalated to the months of spend. The estimate is Class 3. The largest single costs are the line heater, the filter separator, the meter skid with its calibrated meters and the NPS 12 valves; the largest uncertainties are equipment prices, the contractor market and design growth as the holds close.

TORUS recommends that the Owner approve funding at P80. Before the funds are released, the Owner should obtain budget quotations for the major packages (HOLD H-EST-03), complete its tax review (H-EST-01), commission the geotechnical investigation (H-07) and obtain the transmission or gathering determination (H-18). TORUS also recommends that the Owner buy the high-yield fittings early (ALT-3). The estimate will be updated at Issued for Construction with the quotations and the closed holds.

