IMWO
International Marine Work Organization

DREDGING / PROCUREMENT AND PRODUCTION

The Cost of Completing a Campaign

Seasonal plant moves, material credits and the surveyed location that releases payment.

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New Haven / Mumbai / Lulea

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The estimate needs a production calendar and a receipt calendar

At Mumbai, a July tender amendment introduced a credit for reusable dredged material into the lowest-price calculation. At New Haven, four bidders placed markedly different prices on two seasonal plant moves and rock removal. At Lulea, an over-budget procurement led the owner to change the fairway design before returning to the market. Each decision changes what a dredging price contains and how the contractor earns it.

These cases expose three estimating choices. The commercial team must identify the operation behind each payment item, the productive time available to carry it out, and the event that releases revenue. Material reuse adds a fourth account: the value realised from the excavated material after processing, transport and outlet costs. A competitive quotation can depend heavily on one of those accounts while offering little room for error in another.

For owners, the practical question is whether the evaluated bid rewards an executable campaign. For contractors, it is whether the proposed vessel sequence can carry the expenditure until the relevant quantities or completed locations become payable. The comparison below follows the actual bid lines, dated amendments, measurement rules and redesign decisions that govern those choices.

Case	Priced or specified operation	Commercial decision
New Haven	Two separately priced seasonal mobilisations; ordinary material, sand and rock items	Test the cost of a return season and the contribution of each material class to the evaluated total.
Mumbai	Assured-depth lump sums, measured-volume work and a material-value deduction	Price the complete area, its return visit and its net receipt after the quoted deduction.
Lulea	A redesigned fairway and a multi-season, mixed-ground excavation campaign	Reconcile the shipping requirement with the excavation design and the seasonal plant plan.

New Haven puts a price on returning for another season

The New Haven bid abstract opened on 17 July 2026 lists mobilisation and demobilisation as two separate job items. Great Lakes quoted USD 3.750 million for the first and USD 7.989 million for the second. Curtin quoted USD 5.655 million and USD 1.335 million respectively. The second move therefore carries a different share of each bidder's commercial plan. [1]

The federal contract announcement of 24 August subsequently named Great Lakes for a USD 68.8692 million firm-fixed-price award, with that amount obligated and completion estimated for 31 March

2028. For subsequent changes, the commercial account should reconcile the affected quantities and selected items with the executed award schedule and its adjustment provisions. [11]

Across both moves, Great Lakes' quotation is USD 4.749 million above Curtin's. Its evaluated total, including the listed options, is nevertheless USD 14.483 million lower. Rock drilling, blasting, dredging and reef placement account for USD 15.756 million of that advantage at the abstract's estimated quantities. The ordinary-material, sand and option accounts make up the remaining differences. This distribution identifies where quantity changes would alter the relative price of the two offers. [1]

An owner assessing such bids should rerun the extensions against the credible range of rock and ordinary-material quantities, preserving the specified measurement and option rules. A contractor should run the corresponding vessel and subcontract plan. The rock item combines several operations; the expected drilling rate, blast clearance, excavation method, transport and reef placement need a common production sequence. The quoted item price has to fund those operations and their contingencies.

The original USACE industry-day presentation explains why the receiving end belongs in the estimate. It identifies different routes for ordinary material, shellfish-habitat sand and rock, together with receiving-area access and seasonal restrictions. The forecast cycle must carry the loaded vessel through the actual approach and placement operation, then back to an available excavation section. A nominal hopper output leaves out that receiving-side occupation. [2]

The commercial consequence of slipping a section into the following season depends on the operative contract and instructions. The two bid job items provide a concrete pricing signal for the scheduled returns. When testing a changed sequence, retain the plant move, supporting vessels, surveys, permitted placement window and outstanding work in the same scenario. Spreading the combined mobilisation price across every cubic yard hides which unfinished section carries the cost of returning.



Figure 1. Original bid-price comparison at the abstract's estimated quantities. USD million; amounts describe quoted prices. Source: USACE certified bid abstract, 20 July 2026. Graphic: IMWO.

Mumbai makes material value part of the payable rate

Mumbai Port Authority's tender E.47/2026 covers three years of maintenance dredging from 2026-27. The June documents separate performance-based lump-sum work under Item 1 from measured cubic-metre work under Item 2. Corrigendum IV, dated 24 July, adds a second part for the bidder's valuation of reusable dredged material. The winning price is the dredging amount less that material valuation; the corresponding net item rates govern payment. [3,4,5]

The amendment permits a zero material valuation where the bidder finds the material unsuitable for reuse. A bidder offering a larger credit reduces the owner's evaluated and payable amount. That credit therefore needs its own engineering and commercial basis: usable material fraction, specification, processing losses, handling, transport, destination capacity and the timing of recovery. Any margin attributed to reuse has to survive those costs.

An established outlet can support a genuinely lower net dredging price. An optimistic valuation can also lower the bid while leaving the contractor dependent on a later material transaction. The relevant distinction is the recoverable net value supported by the actual material and outlet arrangement. A bid comparison should test how much of each offer's advantage comes from dredging efficiency and how much comes from that separate recovery assumption.

Corrigendum III describes the revised second BOQ part as rebate items for taking away dredged material. The original technical specification separately assigns ownership to the employer, directs

disposal and requires records of discharge positions and times. The removal proposal needs an agreed route through those directions, the applicable permissions and the allocation of title and responsibility. A quoted credit alone supplies none of those operating arrangements. [3,6]

For estimating purposes, keep a material-credit account beside the dredging estimate. Start with the quoted deduction for each location. Set against it the expected usable quantity and net recovery under the proposed outlet arrangement, then run lower usable yield, higher handling cost and slower recovery. The amount paid by the owner has already been reduced by the quoted credit; the bidder carries the consequences when the recovery account falls short.

The surveyed location controls Mumbai's revenue

The June financial preamble links payment to completion and taking over of each individual location. It includes siltation occurring between the pre-dredge survey and the final accepted post-dredge survey in the contractor's price. Responsibility for subsequent siltation ends at the post-dredge survey and taking over under that provision. The survey and handover dates therefore control both the amount of potentially repeated excavation and the location's route to payment. [4, page 4]

The technical specification applies completion separately to each area and requires the whole area to reach its specified deepened level. It also requires correction, at the contractor's cost, of siltation caused by its methods outside the dredging limits. The production estimate should separate initial excavation, anticipated re-siltation before acceptance and contractor-caused deposition outside the boundary. They call for different assumptions even when the same plant removes the material. [3, page 86]

BPX, BPS and East Mole require particular treatment. The specification attributes persistent siltation to eddy conditions, accentuated during the monsoon. It calls for an operation after mobilisation and another before demobilisation in each annual cycle. Achieving the assured depth through those two operations counts as one occasion for payment. The costed work plan needs both visits, the intervening siltation exposure and the final area handover. [3, page 86]

The survey specification gives the measurement account a precise technical basis. Payment depths and volumes use 210 kHz recordings reduced to Chart Datum; the clause sets sounding-line spacing, verification and signed records. Daily bar checks control acceptance of the soundings. Failed checks require rejection and a fresh survey. Survey availability, calibration and correction work belong in the completion programme because they govern when a dredged location can be accepted. [3, page 97]

Clause 60.2 provides fourteen days for the engineer to determine and certify the amount due after receiving the monthly statement, subject to its security and minimum-value conditions. Joint measurement approval precedes invoice submission in the SRM process. A receipt forecast should therefore show area completion, accepted survey, taking over, approved measurement, statement, certificate and expected cash receipt as dated events. The fourteen-day certificate period starts partway through that sequence. [3, pages 65-67]

The same documents embed mobilisation and demobilisation in the individual prices and delete the mobilisation-advance clause. They prescribe monthly payment as the intended interval, include

restrictions on delay claims and interest, and require payroll and statutory-contribution records with bills. Those provisions place working-capital demands alongside the technical acceptance task. A vessel committed for an annual campaign needs funding through the actual location-by-location receipt schedule. [3, pages 66-67 and 80; 4, pages 5-6]

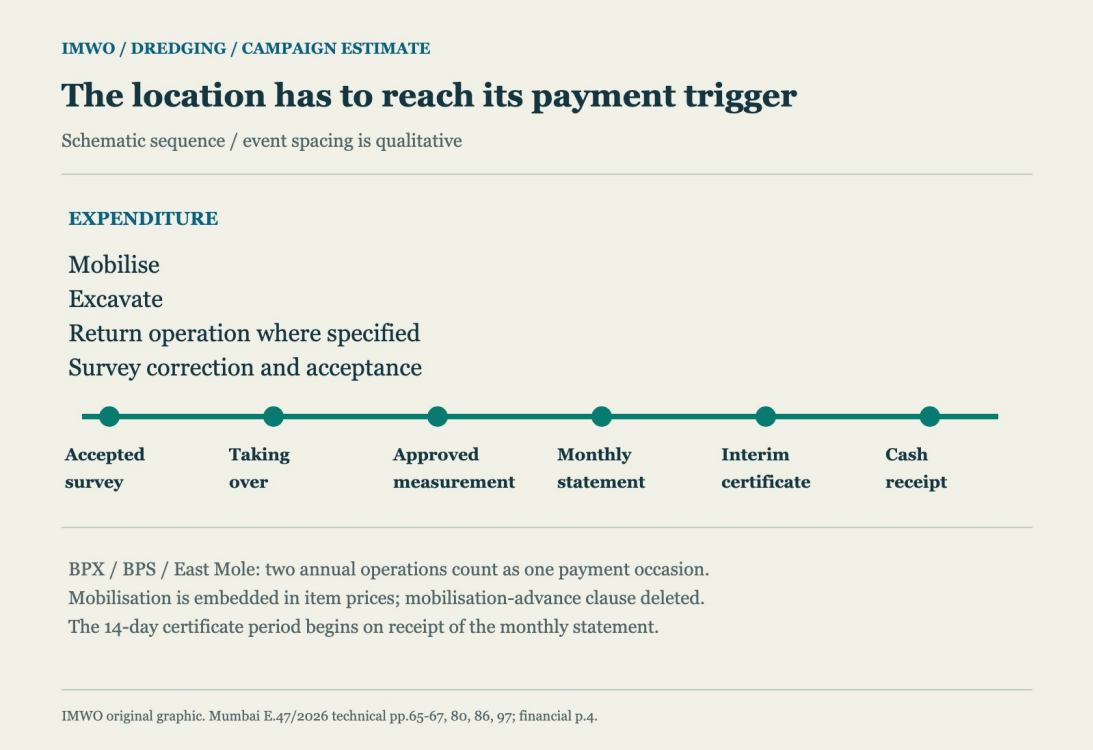


Figure 2. The Mumbai estimate needs an expenditure programme and a location-specific receipt programme. BPX, BPS and East Mole have a specified second operation within the annual cycle. Elapsed times in this schematic are qualitative. Sources: technical specification pages 65-67, 80, 86 and 97; financial preamble page 4. Graphic: IMWO.

Seventy-two idle hours can produce three different accounts

Mumbai's suspension provision makes the distribution and cause of idle time commercially important. Clause 40.2(b) sets a maximum dredging idling rate of INR 1 million per twenty-four hours, based on the specified maximum hopper capacity, with proportionate payment for two TSHDs. It requires written engineer confirmation within twenty-four hours of each occurrence. For a continuous interruption exceeding forty-eight hours, the reckoned idle time is the continuous period less twenty-four hours. Shorter interruptions below forty-eight hours are included in the quoted rates. [3, page 57]

Consider a hypothetical seventy-two-hour interruption that satisfies the clause's other conditions and attracts the full daily ceiling. Deducting twenty-four hours leaves forty-eight reckonable hours: a ceiling of INR 2 million. Three separate twenty-four-hour interruptions produce the same total idle time, but each falls below the continuous-duration threshold. Under the stated rule, all three are included in the rates. The example calculates a contractual ceiling, before establishing any actual entitlement or amount paid.

Navigation has a separate allocation. Specification clause 25 gives the employer discretion over navigation priority and excludes claims arising from the associated restriction on contractors' floating craft. An interruption in that category therefore needs to remain in the navigation account when the estimator tests idle-time recovery. Its duration alone does not move it into the suspension-payment account. [3, page 98]

Event	Total idle hours	Treatment under the cited provision
One qualifying continuous suspension	72	48 reckonable hours after the 24-hour deduction; INR 2 million at the full ceiling.
Three separate 24-hour interruptions	72	Each is below 48 continuous hours; included in quoted rates.
Navigation-priority restriction	72	Clause 25 excludes associated claims; the suspension ceiling cannot be assumed.

The estimator needs an event-duration model alongside the total utilisation allowance. The site team needs a corresponding contemporaneous record: start, finish, cause, affected vessel, navigation instruction, engineer confirmation and restart. Those fields determine which hours sit in productive time, priced ordinary interruption or a potentially compensable suspension. Combining all downtime in one daily average loses the information the clause uses.

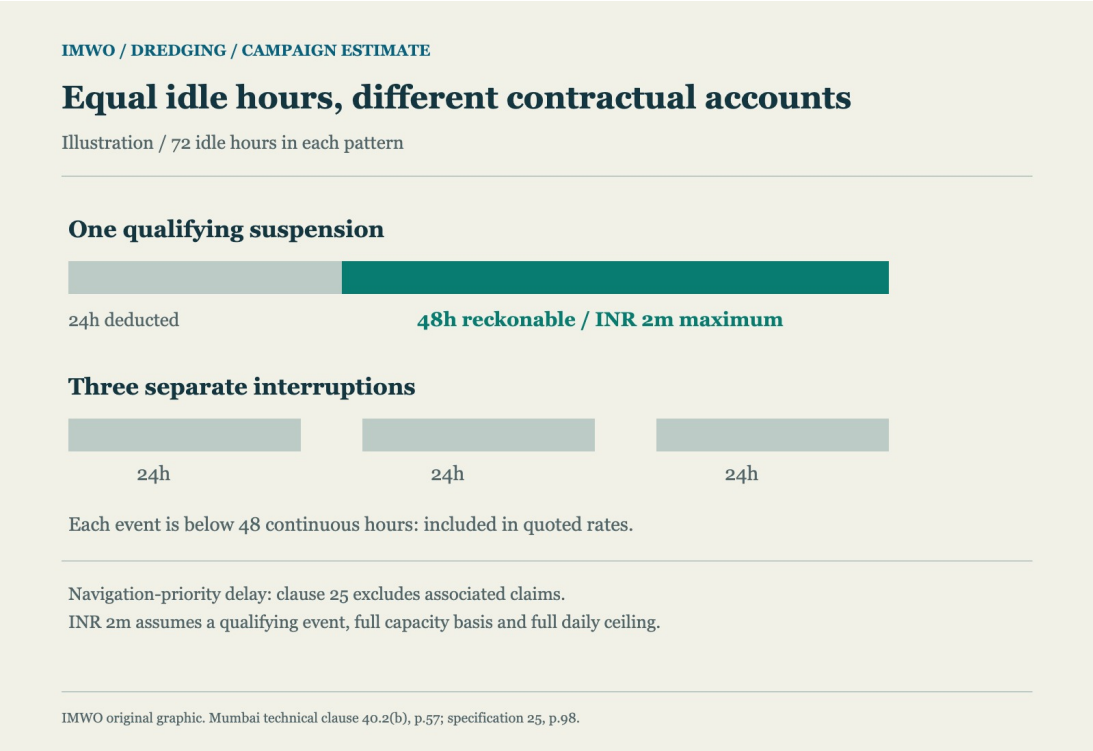


Figure 3. Equal total idle time can have different contractual treatment. The INR 2 million example assumes a qualifying event, full capacity basis and the full maximum daily rate. Source: technical bid clause 40.2(b) and specification clause 25. Graphic: IMWO.

Lulea changed the required fairway before buying the campaign

Malmporten's cost response began with the design requirement. The Swedish Maritime Administration records cancellation of the earlier dredging and quay procurements in February 2025 because bids exceeded the budget. Its March 2026 procurement update describes design optimisation and a new procurement issued in September 2025. [10]

The project's dated June 2025 design account explains an actual change: the summer Sandoleden design-vessel draught moved from 15.0 to 14.7 metres and fairway width was adjusted. The winter Sandgronnleden requirement remained 13.5 metres. The owner connected the revised summer requirement with more local processing of cargo and a future pattern of smaller, more frequent ships. The shipping requirement and the excavation purchase were being revised together. [7]

The owner reports that the optimisation reduced costs. The change from 15.0 to 14.7 metres concerns design-vessel draught; excavation quantities depend on the revised channel geometry, under-keel-clearance design, tolerances and surveyed ground. An estimate should reconstruct those quantities from the revised design surfaces and ground classes. Applying a uniform 0.3-metre reduction across the old footprint would substitute an assumed excavation geometry for that design work.

On 2 July 2026 the Maritime Administration announced the signed remaining dredging contract with Malmporten Dredging Contractors, the Boskalis-Van Oord venture, at approximately SEK 5.7 billion. Boskalis describes about EUR 500 million, shared equally between the partners. Each amount retains the reporting currency and scope given by its source. [8,9]

The contractor describes removal of roughly 14 million cubic metres, spanning sand, silt, clay, moraine, boulders and fresh rock, with partial reuse for reclamation. Its announced plant mix includes TSHDs, backhoe and grab dredgers and drilling-and-blasting platforms. Planned delivery starts in spring 2027 and extends across ice-free seasons to before mid-August 2030. That commitment ties the estimate to the release of ground types and the availability of several plant classes over successive seasons. [9]

For the owner's commercial review, the useful cost breakdown follows the redesigned work packages: ordinary excavation, difficult ground, drilling and blasting, transport, reclamation and environmental controls. For the contractor, the corresponding question is which released sections keep each plant productive before winter. A change in the rock sequence can leave a hopper occupied elsewhere while a drilling platform waits, or defer a receiving operation into another season. The programme should test those transitions against the actual tender ground data and work restrictions.

A campaign account for the bid decision

IMWO proposes a location-and-season campaign account that connects the quantities being bought to the resources occupying the site and the receipts funding them. The estimator builds it before final pricing; the planner and commercial manager keep the same boundaries during execution. Its purpose is to expose the cost of a specific changed sequence while there is still time to choose another one.

Account entry	Responsible lead	Decision it supports
Released location, ground class, survey basis and receiving route	Designer and supervising engineer	Which operation can start and what accepted quantity or condition it must deliver.
Plant move, productive cycle, interruptions and seasonal exit	Marine planner	Whether the vessel plan can complete that location within the available window.
Completion, survey, transfer, measurement and certificate dates	Commercial manager with supervising engineer	When each priced operation becomes certifiable and enters the receipt forecast.
Material credit, usable yield, handling and outlet arrangement	Estimator and materials lead	Whether the net recovery supports the deduction offered to the owner.
Expenditure, receipt, retention and funding headroom	Contractor finance team	The peak amount and duration of funding required by the selected sequence.

Use that account to compare complete executable alternatives. At New Haven, test moving a defined unfinished section into the second season with its plant return and receiving window. At Mumbai, compare location sequences through the final survey and payment trigger, including the specified return operations. At Lulea, compare the plant commitment against the released difficult-ground and reclamation fronts across the winter breaks. Preserve the same acceptance scope when pricing the alternatives.

Owners should publish the measurement, transfer and payment boundaries with the work package, together with the drawings and ground records needed to price them. Where material credits affect the evaluated bid, identify the removal rights, approved route and required evidence behind the credit. A lower net offer becomes easier to assess when its dredging operation and recovery assumption can each be examined.

Contractors should give the bid review a downside receipt curve as well as a downside production curve. Delay the location survey, apply the contractual interruption rules, reduce usable material yield

and test the next seasonal exit. The finance team can then determine whether available facilities cover the resulting peak exposure and whether the quoted contingency pays for the chosen risk.

During execution, retain the same location, vessel, event and survey identifiers in the daily log, quantity account and payment forecast. This gives the commercial team a traceable explanation when the physical operation and the receipt date diverge. It also gives the owner a costed choice between accepting a changed sequence, releasing another work front or paying for an instructed interruption under the operative terms.

Basis of the comparison

The New Haven figures are extensions of published bid rates at the certified abstract's quantities. Mumbai's analysis follows the June technical and financial documents and the dated July amendments, using the stated clauses as estimating cases. Lulea combines the owner's cancellation and redesign accounts with the July signature and contractor scope announcements. The observations retain their source dates, price bases and planned work periods. The operative Mumbai reply set, revised workbook and agreed removal route govern a project-specific bid or executed-contract assessment.

The numerical examples use the New Haven bid arithmetic and Mumbai's written suspension rule. The proposed campaign account is IMWO's analytical method. The cases compare how identifiable terms and engineering sequences affect price and funding; they preserve each project's units, currency, material classification and commercial trigger.

Sources

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2. USACE New England District. New Haven Harbor Improvement industry-day presentation. 30 June 2025. Planning scope and receiving routes.

3. Mumbai Port Authority. E.47/2026 technical bid. 18 June 2026. Clauses 40.2, 60, 89 and 90; specification sections 1.3-1.6 and 23-26.

4. Mumbai Port Authority. E.47/2026 financial bid. June 2026. Financial preamble, pages 4-6.

5. Mumbai Port Authority. Corrigendum IV. Dated 24 July 2026; published 25 July. Amended ITB 13.2 and associated provisions.

6. Mumbai Port Authority. Corrigendum III. Dated 24 July 2026; published 25 July. Notice of the revised BOQ and rebate part.

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8. Swedish Maritime Administration. Sweden's largest dredging project to be implemented from summer 2027. 2 July 2026. Signed contract announcement.

9. Boskalis. Boskalis and Van Oord awarded large dredging contract for the expansion of the Port of Lulea. 2 July 2026.

10. Swedish Maritime Administration. Project Malmporten status and next steps. 31 March 2026.

11. Contracts for 24 August 2026: New Haven dredging award. U.S. Department of War. 24 August 2026.