

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	3
Scenario Name	Fabric Roof over Concrete WSF
Scenario Description	Hoop structure with fabric cover with steel trusses installed over a rectangular WSF (PS 313) or other approved practice with timber or concrete walls. Roof system is mounted on top an "engineered" wall which is designed to support roof an associated wind and snow loads. Excess precipitation can cause premature filling of storages or cause nutrients to leach from solid manure piles leading to uncontrolled runoff as well as odor issues. Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.
Before Practice Situation	Applicable where the exclusion of precipitation from a waste storage facility, compost facility, or other appropriate application will improve of an existing or planned system. Excess precipitation can cause manure laden runoff and impact surface and ground water resources.
After Practice Situation	Hoop structure with fabric cover with steel trusses installed over a concrete or timber WSF(separate practice). Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet. Roof or cover is typically installed over a waste storage facility or other practice as an approved component of a CNMP. WSF is designed to support the roof and associated wind and snow loads. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of the building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$35,555.52	\$8.14
Equipment/Installation	\$0.00	\$0.00
Labor	\$1,423.80	\$0.33
Mobilization	\$700.58	\$0.16
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$37,679.90	\$8.63

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1668	Roof, Hoop Truss Arch Structure, 30-60' wide	Hoop Truss Arch Structure with fabric cover - 30' to 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$8.14	4368	\$35,555.52
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$25.71	40	\$1,028.40
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.54	10	\$395.40
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	2	\$548.66

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	2
Scenario Name	Fabric Roof w/ Concrete Foundation
Scenario Description	<p>Hoop structure with fabric cover with steel trusses and supporting foundation. In locations where post embedment cannot be obtained due to shallow bedrock conditions, concrete "knee wall" is installed as a foundation. Timber posts are mounted on top of the wall and steel trusses are attached to the top of the posts. Or, steel trusses are extended down and mounted directly to the top of the "knee wall". Excess precipitation can cause manure laden runoff and cause nutrients to leach into surface and ground water resources</p> <p>Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.</p>
Before Practice Situation	Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot), secondary fuel containment facilities or other appropriate application will improve an existing or planned system. Excess precipitation can cause manure laden runoff and impact surface and ground water resources.
After Practice Situation	Hoop structure with fabric cover with steel trusses and supporting timber/concrete foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet. Roof or cover is typically installed over an approved barnyard or feedlot or other practices as an approved component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of the building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$37,347.52	\$8.55
Equipment/Installation	\$31,413.66	\$7.19
Labor	\$1,472.80	\$0.34
Mobilization	\$426.25	\$0.10
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$70,660.23	\$16.18

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1668	Roof, Hoop Truss Arch Structure, 30' 60' wide	Hoop Truss Arch Structure with fabric cover - 30' to 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$8.14	4368	\$35,555.52
Materials	1609	Lumber, planks, posts and timbers, treated	Treated dimension lumber with nominal thickness greater than 2". Includes lumber and fasteners. Does not include labor.	Board Foot	\$1.28	1400	\$1,792.00
Equipment/Installation	50	Earthfill, Manually Compacted	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$5.34	162	\$865.08
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$94.05	20	\$1,881.00
Equipment/Installation	38	Concrete, CIP, formed reinforced	Steel reinforced concrete formed and cast-in-place in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$502.94	57	\$28,667.58
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$34.10	20	\$682.00
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.54	20	\$790.80
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33

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Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	1
Scenario Name	Fabric Roof w/ Timber Foundation
Scenario Description	Hoop structure with fabric cover with steel trusses and supporting foundation. Steel trusses are supported in 10' x10' PT timber posts embedded in the ground 6' and extending 8' above the ground. Posts are placed on 18" footings and are encased in concrete. Excess precipitation can cause manure laden runoff and cause nutrients to leach into surface and ground water resources Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.
Before Practice Situation	Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot), secondary fuel containment facilities or other appropriate application will improve an existing or planned system. Excess precipitation can cause manure laden runoff and impact surface and ground water resources.
After Practice Situation	Hoop structure with fabric cover with steel trusses and supporting timber foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet. Roof or cover is typically installed over an approved barnyard or feedlot or other practices as an approved component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of the building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$39,737.28	\$9.10
Equipment/Installation	\$11,633.94	\$2.66
Labor	\$3,015.40	\$0.69
Mobilization	\$700.58	\$0.16
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$55,087.20	\$12.61

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1668	Roof, Hoop Truss Arch Structure, 30' 60' wide	Hoop Truss Arch Structure with fabric cover - 30' to 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$8.14	4368	\$35,555.52
Materials	1609	Lumber, planks, posts and timbers, treated	Treated dimension lumber with nominal thickness greater than 2". Includes lumber and fasteners. Does not include labor.	Board Foot	\$1.28	3267	\$4,181.76
Equipment/Installation	2049	Auger, Truck Mounted	Truck mounted auger for large diameter excavation. Includes equipment and labor.	Hour	\$337.37	10	\$3,373.70
Equipment/Installation	50	Earthfill, Manually Compacted	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$5.34	20	\$106.80
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$94.05	20	\$1,881.00
Equipment/Installation	36	Concrete, CIP, formless, non reinforced	Non reinforced concrete cast-in-placed without forms by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$155.38	8	\$1,243.04
Equipment/Installation	38	Concrete, CIP, formed reinforced	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$502.94	10	\$5,029.40
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$25.71	60	\$1,542.60
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$34.10	20	\$682.00

Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.54	20	\$790.80
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	2	\$548.66

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Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	8
Scenario Name	Permeable Composite or Inorganic Cover
Scenario Description	Permeable organic or inorganic cover applied to the liquid surface of a waste storage or treatment facility. Permeable organic or inorganic cover to reduce radiation and wind velocity over the surface of a manure storage to reduce transmission of odors and act as a medium for growth of microorganisms that utilize carbon, nitrogen, and sulfur to decompose odorous compounds. Associated practices include Waste Storage Facility (313).
Before Practice Situation	Applicable where the bio-treatment of emissions from an existing or planned waste storage or treatment facility will improve air quality.
After Practice Situation	Permeable composite or inorganic cover applied to the liquid surface of a waste storage or treatment facility.
Scenario Feature Measure	Storage Surface Area at Normal Full Level
Scenario Unit	Square Foot
Scenario Typical Size	10,000

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$43,200.00	\$4.32
Equipment/Installation	\$0.00	\$0.00
Labor	\$0.00	\$0.00
Mobilization	\$526.38	\$0.05
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$43,726.38	\$4.37

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1860	Composite Cover, floating cover, > 5,000 square feet	Composite material that is used to cover open storages with an area greater than 5,000 sf. Example, Hexa-Cover. Materials only.	Square Foot	\$4.32	10000	\$43,200.00
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1138	Mobilization, small equipment	Equipment <70 HP but can't be transported by a pick-up truck or with typical weights between 3,500 to 14,000 pounds.	Each	\$187.23	2	\$374.46

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Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	7
Scenario Name	Steel Frame and Cover with Concrete Foundation
Scenario Description	A steel framed building with steel sheet roof and supporting foundation. Manure is stored as a liquid in basins, tanks, and as a solid on concrete and earthen surfaces. Excess precipitation can cause premature filling of storages or cause nutrients to leach from solid manure piles leading to uncontrolled runoff as well as odor issues. Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.
Before Practice Situation	Applicable where the exclusion of precipitation from an animal waste storage and/or treatment facility will improve of an existing or planned system. Manure is stored as a liquid in basins, tanks, and as a solid on concrete and earthen surfaces. Excess precipitation can cause premature filling of storages or cause nutrients to leach from solid manure piles leading to uncontrolled runoff as well as odor issues.
After Practice Situation	A steel framed building with steel "sheet" roof and supporting foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet and is over an approved barnyard or feedlot as a component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$32,672.64	\$7.48
Equipment/Installation	\$34,572.10	\$7.91
Labor	\$682.00	\$0.16
Mobilization	\$700.58	\$0.16
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$68,627.32	\$15.71

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1677	Roof, Steel Frame Monoslope Building, greater than 60' wide	Steel Frame Monoslope Building, greater than 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$7.48	4368	\$32,672.64
Equipment/Installation	38	Concrete, CIP, formed reinforced	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$502.94	65	\$32,691.10
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$94.05	20	\$1,881.00
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$34.10	20	\$682.00
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	2	\$548.66

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	5
Scenario Name	Timber Framed Roof with Concrete Foundation
Scenario Description	<p>Timber framed building with timber trusses and supporting foundation. Trusses are supported on a 8' concrete wall with a 9.5' wide footing. PT Timber Posts are attached to the top of the wall. Excess precipitation can cause manure laden runoff and cause nutrients to leach into surface and ground water resources</p> <p>Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.</p>
Before Practice Situation	Applicable where the exclusion of precipitation from an animal waste storage, heavy use area (barnyard or feedlot), treatment facility or other appropriate application will improve of an existing or planned system. Excess precipitation can cause manure laden runoff and impact surface and ground water resources.
After Practice Situation	Timber framed building with timber trusses and supporting concrete foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet and is over an approved barnyard or feedlot as a component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of the building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$33,145.28	\$7.59
Equipment/Installation	\$33,645.78	\$7.70
Labor	\$1,472.80	\$0.34
Mobilization	\$426.25	\$0.10
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$68,690.11	\$15.73

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1609	Lumber, planks, posts and timbers, treated	Treated dimension lumber with nominal thickness greater than 2". Includes lumber and fasteners. Does not include labor.	Board Foot	\$1.28	1120	\$1,433.60
Materials	1676	Roof, Post Frame Building, 30' to 60' wide	Post Frame Building, no sides, - 30' to 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$7.26	4368	\$31,711.68
Equipment/Installation	50	Earthfill, Manually Compacted	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$5.34	580	\$3,097.20
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$94.05	20	\$1,881.00
Equipment/Installation	38	Concrete, CIP, formed reinforced	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$502.94	57	\$28,667.58
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$34.10	20	\$682.00
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.54	20	\$790.80
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	1	\$274.33

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	4
Scenario Name	Timber Framed Roof with Timber Foundation
Scenario Description	<p>Timber framed roof system with timber trusses and supporting timber foundation. Trusses are supported on 10' x 8" PT Timber Posts embedded in the ground 6' and extend 8' above the ground. Posts are placed on 18" footings and are encased in concrete. Excess precipitation can cause manure laden runoff and cause nutrients to leach into surface and ground water resources.</p> <p>Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.</p>
Before Practice Situation	Applicable where the exclusion of precipitation from an animal waste storage, composting facilities, heavy use area (barnyard or feedlot), secondary fuel containment facilities or other appropriate application will improve an existing or planned system. Excess precipitation can cause manure laden runoff and impact surface and ground water resources.
After Practice Situation	Timber framed roof system with timber trusses and supporting timber foundation. Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet and is over an approved barnyard or feedlot as a component of a CNMP. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of the building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$35,056.32	\$8.03
Equipment/Installation	\$11,633.94	\$2.66
Labor	\$3,015.40	\$0.69
Mobilization	\$700.58	\$0.16
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$50,406.24	\$11.54

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1609	Lumber, planks, posts and timbers, treated	Treated dimension lumber with nominal thickness greater than 2". Includes lumber and fasteners. Does not include labor.	Board Foot	\$1.28	2613	\$3,344.64
Materials	1676	Roof, Post Frame Building, 30' to 60' wide	Post Frame Building, no sides, - 30' to 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$7.26	4368	\$31,711.68
Equipment/Installation	2049	Auger, Truck Mounted	Truck mounted auger for large diameter excavation. Includes equipment and labor.	Hour	\$337.37	10	\$3,373.70
Equipment/Installation	50	Earthfill, Manually Compacted	Earthfill, manually compacted, includes equipment and labor	Cubic yard	\$5.34	20	\$106.80
Equipment/Installation	931	Hydraulic Excavator, 1 CY	Track mounted hydraulic excavator with bucket capacity range of 0.8 to 1.5 CY. Equipment and power unit costs. Labor not included.	Hour	\$94.05	20	\$1,881.00
Equipment/Installation	36	Concrete, CIP, formless, non reinforced	Non reinforced concrete cast-in-placed without forms by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$155.38	8	\$1,243.04
Equipment/Installation	38	Concrete, CIP, formed reinforced	Steel reinforced concrete formed and cast-in-placed in formed structures such as walls or suspended slabs by chute placement. Typical strength is 3000 to 4000 psi. Includes materials, labor and equipment to transport, place and finish.	Cubic yard	\$502.94	10	\$5,029.40
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$25.71	60	\$1,542.60
Labor	233	Equipment Operators, Heavy	Includes: Cranes, Hydraulic Excavators >=50 HP, Dozers, Paving Machines, Rock Trenchers, Trenchers >=12", Dump Trucks, Ag Equipment >=150 HP, Scrapers, Water Wagons.	Hour	\$34.10	20	\$682.00
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.54	20	\$790.80

Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	2	\$548.66

Scenario Worksheet

Practice and Scenario Description:

Information Type	Data
Region	New England
State	Connecticut
Discipline Group	Environmental Engineering
Practice Code/Name	367 - Roofs and Covers
Scenario ID	6
Scenario Name	Timber Framed Roof over Concrete WSF
Scenario Description	Timber roof systems with timber trusses installed over a rectangular WSF (PS 313) or other approved practice with timber or concrete walls. Roof system is mounted on top an "engineered" wall which is designed to support roof and associated wind and snow loads. Excess precipitation can cause premature filling of storages or cause nutrients to leach from solid manure piles leading to uncontrolled runoff as well as odor issues. Associated practices include Heavy Use Area Protection (561), Secondary Fuel Containment Facility (710), Waste Storage Facility (313), Animal Mortality Facility (316), Composting Facility (317), Roof Runoff Structure (558), and other practices requiring a roof.
Before Practice Situation	Applicable where the exclusion of precipitation from an animal waste storage, heavy use area (barnyard or feedlot), treatment facility or other appropriate application will improve of an existing or planned system. Excess precipitation can cause manure laden runoff and impact surface and ground water resources.
After Practice Situation	Timber framed building with timber trusses installed over a concrete WSF (separate practice). Roof or cover will be engineered and installed in accordance with appropriate building codes and permits. Typical size is 104'x42' or 4,368 square feet and is over an approved WSF as a component of a CNMP. Additional structural concrete is added to accommodate the extra concrete that is needed in the WSF footing and walls to support the dead, wind and snow loads of the proposed roof. The system is designed to exclude precipitation and allow proper management of animal wastes (manure or compost streams), thus mitigating the negative factors from the "before practice implementation".
Scenario Feature Measure	Footprint of the building
Scenario Unit	Square Foot
Scenario Typical Size	4,368

Cost Summary:

Cost Category	Scenario Cost	Scenario Cost/Unit
Materials	\$31,711.68	\$7.26
Equipment/Installation	\$0.00	\$0.00
Labor	\$1,423.80	\$0.33
Mobilization	\$700.58	\$0.16
Acquisition of Technical Knowledge	\$0.00	\$0.00
Foregone Income	\$0.00	\$0.00
Total	\$33,836.06	\$7.75

Cost Details:

Cost Category	Component ID	Component Name	Component Description	Unit	Price (\$/unit)	Quantity	Cost
Materials	1676	Roof, Post Frame Building, 30' to 60' wide	Post Frame Building, no sides, - 30' to 60' width, includes materials, equipment, and installation. Does not include foundation preparation.	Square Foot	\$7.26	4368	\$31,711.68
Labor	231	General Labor	Labor performed using basic tools such as power tool, shovels, and other tools that do not require extensive training. Ex. pipe layer, herder, concrete placement, materials spreader, flagger, etc.	Hour	\$25.71	40	\$1,028.40
Labor	230	Skilled Labor	Labor requiring a high level skill set: Includes carpenters, welders, electricians, conservation professionals involved with data collection, monitoring, and or record keeping, etc.	Hour	\$39.54	10	\$395.40
Mobilization	1137	Mobilization, very small equipment	Equipment that is small enough to be transported by a pick-up truck with typical weights less than 3,500 pounds. Can be multiple pieces of equipment if all hauled simultaneously.	Each	\$75.96	2	\$151.92
Mobilization	1139	Mobilization, medium equipment	Equipment with 70-150 HP or typical weights between 14,000 and 30,000 pounds.	Each	\$274.33	2	\$548.66