

HEAVY LIFT ABC PROJECT, PLANNING ITEMS, PLAN SHEET REQUIREMENTS, ENGINEERING CHECKS, REVIEW GUIDELINES AND SHOP DRAWING SHEET REQUIREMENTS

Name of Project: _____ Input data
 initials _____ Date: _____
 Name of Structure: _____ Input data
 initials _____ Date: _____
 Structure Number: _____ Input data
 Project Number: _____ Input data
 PIN: _____ Input data

Originator: _____ Input name and

Checker: _____ Input name and

Instructions

Use these checklists to develop and evaluate projects with a heavy lift or move component. Heavy lift ABC projects include structures moved with SPMTs or similar equipment, lateral structure slides, structures trucked in and placed with cranes, and structures longitudinally launched.

These checklists are not all inclusive, but attempt to address basic requirements as well as address common concerns. These checklists assume that traffic conditions warrant the use of ABC construction.

Contractors, heavy lifters, and contractor's engineers should review the lists identified as Engineer of Record or Geotechnical Engineer. Not all projects provide the same level of detail in plan sets and some projects permit the contractor's team to set criteria. These items will be marked as NA in the Item Addressed column in the Engineer of Record or Geotechnical Engineer checklists. An NA in these columns indicates that the contractor's team must address the item.

SCOPING ENGINEER OR ENGINEER OF RECORD	ITEM ADDRESSED (Y/N/NA)	UDOT REVIEW REQUIRED (Y/N)	DATE UDOT REVIEW COMPLETE	COMMENTS
Stage 1, Scoping Identify potential heavy lift ABC project, possible structure staging area, and travel path.				
Identify potential structure staging areas.				
Verify space is adequate for construction activities. The structure staging area requires space to build the entire structure, move equipment in and out of the structure staging area and maintain required traffic around the structure staging area. List assumptions used to determine required space.				
Identify potential grade impacts along the structure travel path. Examine grades along the travel path and grades along the supports.				
Identify potential obstacles such as utilities (buried or overhead) or existing structures along or under the travel path.				
Stage 2, Geometry Investigate final structure location, possible structure staging area, and travel path.				
Select structure type				
Determine the type of structure.				
Identify approximate dimensions of structure.				
Identify approximate weight of structure.				
List assumed weight and dimensions of lifting system during lift and transport.				

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Coordinate with UDOT Structures and the Project Manager to determine the required level of detail for a Design Bid Build plan set.				
Initiate geotechnical report. Coordinate with the geotechnical engineer to ensure the geotechnical investigation includes potential impact areas. Include areas of influence beneath the loaded move equipment, jacking towers, carrier beam towers, various other support structures, and the permanent foundation.				
Identify travel path				
Assess potential structure staging areas and travel paths. Identify potential areas of improvement for ground bearing capacity or slope stability. Consider the areas of influence beneath the move equipment at the lift location, along the travel path and at the final location.				
Conduct Subsurface Utility Engineering (SUE) of potential structure staging areas and travel paths. Identify the utility owner and obtain the type, size, location, and depth of any buried utility lines.				
Review and prepare for potential traffic impact as the structure moving equipment proceeds along the travel path.				
Consider the impact to the project of any local restrictions such as site protection, noise restrictions, structures and roadways driven over, etc.				
Verify that proposed structure staging area provides suitable access to the travel path.				
Coordinate with the roadway design team to determine the type of ground surface model required to evaluate the travel path in stage 4.				
Stage 3, Plan-in-Hand Review and accept heavy lift ABC project concept and preliminary plans				
Provide S&L.		Y		
Attend onsite review meeting and coordinate with other disciplines. Document additional findings or concerns raised by the plan-in-hand review team.				
Stage 4, PS&E Provide design and detailing to accommodate the heavy lift ABC project.				
Coordinate with Geotechnical Engineer. Obtain, review and use the geotechnical report.				

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Coordinate with other disciplines to obtain required design information.				
Design the structure staging area and travel path				
Verify that the travel path is within the SPMT's or slide system tolerances for grade.				
Specify requirements for mitigation of ground-bearing capacity at area of influence beneath the move equipment along the entire travel path length.				
Document areas where carousel movements or sharp turns are required. These areas require special preparation to assure wheels do not auger in.				
Provide slope stabilization details where required.				
Coordinate with utility owners at the structure staging area, along the travel path, and at the final structure location. Confirm depth, size, location, and type of utility. Estimate the amount of time that the SPMT or slide system will spend over the utility and the effect on the applied load. Identify utilities requiring mitigation during the move. List the utility owners' conditions for mitigating sensitive underground utilities at the structure staging area and along the travel path. Obtain written agreements from utility owners confirming permission to drive over utilities and limits for planned or emergency parking over utilities. Verify that the proper level within the utility organization has provided the written agreement.				
Specify requirements for mitigation of above ground obstructions such as signs, trees, power lines and poles, light poles, buildings, etc. Ensure adequate vertical and horizontal clearance for structure and move equipment.				
Define requirements for load ratings of structures along the travel path. Define required rating levels required for the owner of the structure to grant the heavy lifter permission to cross the structure.				
Prepare final plans and specifications				

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Provide plans for any site preparation required to accommodate the move equipment along the travel path, including mitigation of any clearance issues and fit issues between the structure superstructure and the permanent abutments or obstacles along the travel path.				
Provide plans for mitigating geotechnical and utility issues.				
Identify components built in place.				
Identify components built elsewhere and moved into place.				
Identify pick-points. List reactions at pick points. Provide pick points and design details required to meet the requirements of SDDM Chapter 20.				
Incorporate any commitments made in clearing the travel path on the plan set, in the specifications or within the limitations of operations.				
Prepare or modify specifications defining and specifying project requirements including any stress or deflection requirements during the move.				
Provide the allowable maximum twist in terms of the amount (in decimal feet) that one corner of the span may deflect up or down relative to the plane defined by the other three corners. Provide this information at the centerline of the lift point at the exterior girders for each support location.				
Provide the anticipated deflections at all final support points, pick-points, and midpoints between supports under all structural and superimposed dead loads when the SPMT or slide system lifts the structure. See the sample deflection table at the end of this document.				
Conduct industry review				
Solicit input from contractors and contractors' engineers on the proposed plan and specifications.				
Consult with heavy lifters to verify pick-points are accessible by move equipment. Obtain heavy lifters performance specification ("operational envelope") and a list of references to confirm the move equipment is capable of performing the maneuvers detailed in the plan and according to the planned pick-points.				
Complete structure project documents				
Submit structure project documents.		Y		
Submit information on the potential structure staging areas, travel paths, or other pertinent information when these items are not included in the plan set.				

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Include existing plan set when demolition of an existing structure is required.				
Attend PS&E review meeting.				
Stage 5, Advertising				
Finalize plan set per the PS&E comments.				
Stage 6, Construction				
Provide design support during construction.				
Attend Pre-bid Meeting(s).				
Review working drawings				
Verify that the contractor supplied temporary supports meet code for the <i>AASHTO Guide Design for Bridge Temporary Works</i> , current edition.				
Confirm that working drawings for the structure staging area, travel path, temporary abutments, lifting apparatus and pick-points, etc. meet the requirements specified in the project plans.				
Review all required submittals before final move activities begin, including demolition of existing structures when required.				
Review monitoring plan and placement plan				
Review the monitoring plan. The monitoring plan details the measuring equipment, procedures and locations of geometry control reference points on the superstructure, in the staging area and at the structure site.				
Verify the monitoring plan includes a geometry control procedure for monitoring the distortion (twist) and relative deflections at support locations of the as-constructed concrete surface of each span.				
Verify the placement plan includes lateral and longitudinal location reference points on the superstructure that correspond to, or can reference, appropriate lateral and longitudinal location reference points at the erection site.				
Verify the experience and qualifications of the supervisory and survey instrument operating personnel, particularly with regard to the observational precision required.				
Perform field walk through and final assessment				
Inspect the structure after placement in final location.				

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GEOTECHNICAL ENGINEER	ITEM ADDRESSED (Y/N)	UDOT REVIEW REQUIRED (Y/N)	DATE UDOT REVIEW COMPLETE	COMMENTS
Stage 1, Scoping Identify potential heavy lift ABC project, possible structure staging area, and travel path.				
Conduct preliminary geotechnical investigation. Identify issues regarding ground bearing capacity, slope stability, and underground utilities. Assume structure move equipment exerts a maximum force of 2 ksf for preliminary investigations.				
Stage 2, Geometry Investigate final structure location, possible structure staging area, and travel path.				
Conduct a thorough survey of the structure staging area, final structure site and travel path by taking borings or other soil samples and conducting necessary monitoring of ground conditions to provide a complete assessment of the geotechnical profile.				
Coordinate with UDOT Structures and the Project Manager to determine the required level of detail for a Design Bid Build plan set.				
Stage 3, Plan-in-Hand Review and accept heavy lift ABC project concept and preliminary plans				
Attend on site review meeting and coordinate with other disciplines. Document additional findings or concerns raised by the plan-in-hand review team.				
Stage 4, PS&E Provide design and detailing to accommodate the heavy lift ABC project.				
Provide draft geotechnical report.				
Investigate ground conditions at the structure staging area. Provide soil settlement estimates for the area of influence beneath the SPMT or slide system before, during, and after lifting the span from the temporary abutments.				
Investigate ground conditions at jacking towers if used to lift span to setting height. Provide soil settlement estimates for area of influence beneath jacking towers.				
Investigate ground conditions along the travel path. Provide soil settlement estimates for the area of influence beneath the wheel lines of the structure move equipment.				
Design mitigation for any areas where the ground is insufficient to resist the forces exerted by the structure move equipment, the span, and/or any supports.				

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GEOTECHNICAL ENGINEER	ITEM ADDRESSED (Y/N)	UDOT REVIEW REQUIRED (Y/N)	DATE UDOT REVIEW COMPLETE	COMMENTS
Perform SUE at the structure staging area, along the travel path, and the final structure site.				
Develop mitigation to alleviate forces acting upon any utilities driven over or parked on.				
Develop contingencies for any emergency stopping over vulnerable utilities.				
Stage 5, Advertising				
Finalize plan set per the PS&E comments.				
Stage 6, Construction				
Provide design support during construction.				
Attend pre-bid meeting(s).				
Review working drawings.				

All contractor team activities are Stage 6 activities. Review the previous lists. The contractors' team must address items marked NA.

CONTRACTOR	ITEM ADDRESSED (Y/N)	UDOT REVIEW REQUIRED (Y/N)	DATE UDOT REVIEW COMPLETE	COMMENTS
Attend industry review.				
Attend pre-bid meeting.				
Select heavy lifter.				
Submit bid.				
Conduct supplemental geotechnical analysis of the structure staging area, travel path, and final structure location.		Y		<i>Refer to Contractor's Engineer section for requirements.</i>
Design temporary supports and temporary works. Meet all specification requirements.		Y		<i>Refer to Contractor's Engineer section for requirements.</i>
Design the travel path, utility protection, temporary shoring or any other elements required to complete the move.		Y		<i>Refer to Contractor's Engineer section for requirements.</i>
Submit shop drawings, erection plans, and moving plans to the Engineer of Record.		Y		<i>Refer to the project specifications for required review times.</i>
Submit structure calculations and required modifications when the lift points do not match the bid set.		Y		<i>Refer to the project specifications for required review times.</i>
Complete Construction activities				

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Provide survey control throughout the project and verify geometry and elevations at major steps.				
Provide any special details required per the selected move method or construction method including any elements required for monitoring.				
Build permanent foundations and support system per plans or as modified through approved shop drawings.				
Develop contingency plans				
Provide a timeline for all events related to the structure move.				
Identify potentially disruptive events and provide contingency plans for each.				
Identify individuals involved in the structure move and risks they may encounter. Define the communication plan, including roles.				
Develop safety plan				
Review the safety plan with all personnel involved in the structure move.				
Set schedule of operations.				
Set organization of machinery.				
Set requirements for safety gear.				
Establish perimeters.				
Conduct a safety meeting within hours of the move to incorporate variable factors, such as weather conditions, into the safety plan.				
Perform final walk through				
Conduct final walk through. Include: - Contractor - Engineer of Record - Safety Supervisor - Heavy Lift Engineer - Contractor's Engineer - Resident Engineer - Structures Division Representative				
Mark the travel path using paint, tape, barrels, etc. as required per the plans.				
Identify and provide contact information for the following personnel: - SPMT or slide system Supervisor - Contractor Supervisor - Safety Supervisor - Engineer of Record - Contractor's Engineer - Heavy Lift Engineer - Structures Division Representative - Resident Engineer - Public Involvement Liaison Provide additional contact information for other key personnel as needed.				
Remove existing structure				

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Demolish existing structure on site, if applicable/specified in contract.				
Remove existing structure using structure move equipment and take it to the demolition site, if applicable/specified in contract. Meet project specification requirements for structure removal operations.				<i>Contractor may waive serviceability requirements for the removed structure.</i>
Dispose of existing structure by means specified in the contract.				
Move structure – lift, transport, and setting plan				
Confirm that the ground and travel path are clear of damage or unexpected defects.				
Verify that the move system matches the shop drawings.				
Before moving the span, check the clearances at the installation site (vertical, horizontal, and skew) to ensure span can properly enter the intended permanent in-place location.				
Conduct a diagnostic of the move system.				
Record measurements as required per the monitoring plan.				
Engage the move system and slowly take the load off the temporary substructure.				
Ensure that there is even lift-off at all bearings.				
Check the engaged weight against the anticipated weight given on shop drawings.				
Compare the span's actual performance during the lift from its temporary shoring to the required jack stroke estimates, the maximum anticipated deflection, and the maximum allowable deflection.				
Follow the lift plan's specified procedures if the span either does not perform as expected or approaches critical tolerances.				
Follow the lift plan's specified contingency procedures to address any issues with the structure, supports, lift system, or ground.				
Move the structure to the structure site after successfully lifting the span and verifying that all monitoring devices are within tolerance limits.				
Immediately stop the structure move and refer to contingency plans if twist or deflections appear likely to exceed allowable limits during transport.				
Coordinate with move monitors				<i>Real-time communication is possible via two-way radio, hand signal, cell phone, text messaging, etc.</i>

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Check that all the bearings are at planned elevations and match the underside elevations, slope and profile of the already completed span.				<i>Determine necessary shimming prior to lifting the span. Any shim installation not specified in the design and taking place immediately prior to setting the span can result in disincentives and/or delay-related penalties.</i>
Bring the span into close proximity in elevation and location.				
Record monitoring system measurements when structure is aligned and ready for placement but is not in contact with the final supports.				
Set the structure on the bearings.				
Notify UDOT of any errors or out-of-tolerance situation. Propose and seek approval for rectification or rectify in accordance with previously approved concepts involving shim plates.				<i>This may involve the re-lifting and re-setting of the span.</i>
Record a final set of monitoring system observations after setting the span in its permanent location. Verify that tolerances are within the anticipated and allowable limits shown in the specifications for permanent elevations.				
Perform final assessment				
Remove all temporary structure attachments.				
Visually inspect the deck, the abutment backwalls, the abutments and bents.				
Provide measurements confirming that the structure is resting within tolerable limits for position (X, Y, and Z-axis).				
Identify required repairs				
Identify all spalling and cracking.				
Perform approved repairs				
Repair spalling and cracking according to project specifications.				
Remediate final site				
Restore conditions at the structure staging area.				
Restore conditions at the travel path.				
Restore conditions at the installation site.				
Restore conditions at the demolition site.				
Restore normal traffic service.				

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CONTRACTOR'S ENGINEER	ITEM ADDRESSED (Y/N)	UDOT REVIEW REQUIRED (Y/N)	DATE UDOT REVIEW COMPLETE	COMMENTS
Design temporary supports for the structure in the structure staging area. Include pilings, spread footings or other foundation, and all geotechnical investigation and calculations for the foundation of temporary abutments. Use the current edition of the <i>AASHTO Guide Design Specifications for Bridge Temporary Works</i> or current <i>AASHTO LRFD Bridge Design Specifications</i> for all design activities. Meet all project specification requirements for submittal documents.				<i>Note: This checklist assumes the contractor's engineer is responsible for the design of temporary supports in the staging area, the design of the travel path, and modifications to the structure to accommodate the move. This checklist assumes that the heavy lift engineer designs the support works on the structure move system, and the contractor's engineer is responsible for verifying the actual support lengths and bearing area meet design requirements. Clearly define and show limits of design responsibility on shop drawings.</i>
Design temporary supports				
Analyze the different support conditions of the structure and explore different scenarios concerning the chosen means and methods of fabrication, transportation, and erection.				
Design temporary support types and locations best suiting the chosen construction methods and conditions at the structure staging area.				<i>An engineer licensed by the State of Utah must seal the design of temporary abutments.</i>
Submit sealed designs for all temporary abutments and falsework for use during construction for review.				<i>The recommended practice is to cast the span in the same orientation as the in-service condition</i>
Verify structure capacity during move and provide plans listing any changes to the structure required to move the structure				

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Provide plans indicating dimensional, structural or other physical changes to the superstructure required to meet requirements defined in project documents and necessitated by the Contractor's construction method. Typical changes include: • Revised pick point locations • Relocation of construction joints • Additions or changes in location of stiffeners • Revised reinforcing locations and spacing • Additional reinforcing • Revised member sizes • Addition of temporary elements during move. (external PT, internal PT, external reinforcing beams, etc.) Modify the existing plan set and indicate revisions using the NDC process.				
Provide calculations for the proposed changes showing that stress levels or displacements do not exceed requirements defined in project documents.				
Provide details of changes to structure camber caused by changes in construction sequence, changes to the structure or changes to construction bearing locations. Provide appropriate adjustments in the setting of deck forms if necessary.				
Indicate changes to any concrete pouring sequences.				
Provide weights and quantities of pay items.				
Design attachments and movement systems				
Meet the requirements of the SDDM, project specifications and other documents listed in the project documents				
Show the lift points on the plans.		Y		
Show the required bearing area at the structure lift points.		Y		

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Provide the anticipated deflections at all final support points, pick-points, and midpoints between supports under all structural and superimposed dead loads when the SPMT or slide system lifts the structure. Provide the permissible structure twist in terms of the amount (in decimal feet) that one corner of the span may deflect up or down relative to the plane defined by the other three corners or define maximum differential deflections per the monitoring plan. See the sample deflection table at the end of this document.		Y		
Show the location of any other attachments to the structure and define anticipated loads through the attachments.				
Verify agreement among all parties that the attachments are adequate for the anticipated forces acting on the structure.				
Verify agreement among all parties that the attachments will accommodate any structure rotation and translation anticipated during the move.				
Engage the ENGINEER OF RECORD, Geotechnical Engineer, Heavy Lift Engineer, and any other specialty engineers to ensure that all means and methods are sufficient to account for all forces without causing any harm to people, above- and below- ground property, or the structure itself.				
Verify that the rigging attachment to the structure meets plan requirements.				
Provide a monitoring plan. Define materials and locations of monitoring instruments.				
List warning levels for measured values. List minimum and maximum values of the measured values. Exceeding warning levels does not require remedial action. Take remedial action prior to exceeding maximum or minimum values.				
Confirm the proper installation and location of all monitoring devices (and/or reference points). Confirm that all monitoring devices are providing data.				
Review the quantities used to verify or estimate the as-built weight of the structure.				

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Provide details of adjustments to the elevations or positions of abutment and pier bearings as necessary to accommodate the superstructure. Define the adjustment mechanism, material properties and placement details. The adjustment mechanism must not impede future maintenance of the bearing pads.		Y		
Conduct supplemental geotechnical analysis of structure staging area, travel path, and final structure location				
Verify geotechnical assessments performed by the Engineer of Record with sealed drawings and calculations ensuring that the proposed structure staging area and travel path are suitable for the Contractor's selected means and methods.				
Confirm stability of nearby slopes; anticipated settlement beneath the actual locations of temporary abutments; beneath the structure move equipment during lift, transport, and setting; beneath the permanent foundation; and beneath temporary falsework at the final structure location.				
Design the means of mitigating ground stability, slope stability, and submerged utility issues.		Y		
Consult the heavy lift firm concerning the use of steel plating or mats in areas where the structure move equipment makes sharp turns.				
Design the travel path, utility protection, temporary shoring or any other elements required to complete the move				
Provide plans for the travel path including mitigation details for all ground stability, utility protection, above ground clearance, shoring of structures travelled over, etc.		Y		

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Evaluate the compatibility of the pick points designed by the Engineer of Record with the chosen movement system.		Y		
Determine the required pick point location based on the proposed move system. Coordinate with the contractor's engineer when pick point locations are changed.		Y		

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Coordinate with the contractor to verify that the existing profiles and cross slope conditions at the proposed wheel lines are within the limits of the move system.				<i>Inconsistencies between the planned and actual profiles of the terrain along the travel path can affect the performance of the move system.</i>
Review geotechnical evaluations of (the) soil settlements.				
Engage the Engineer of Record, Geotechnical Engineer, and any other specialty engineers to ensure that all means and methods are sufficient to account for all forces without causing any harm to people, above and below ground property, or the structure itself.				
Provide the anticipated ground load and the machinery capability information to the contractor for ground stability checks and ground mitigation.				
Define lift requirements				
Provide a plan view of the path from staging area to final location.				
Clearly define the travel path and provide dimensions to fixed elements when the plans require a specific move path.				
Identify potential obstacles along path.				
Identify items requiring temporary removal and replacement.				
Identify utility crossings and mitigation measures. List utility owner, size of utility, and depth or overhead clearance of utility. Fiber optic and buried electric lines do not require identification lines. Coordinate with the gas and water providers and identify utilities as required by the owner. Provide utility sign off.				
Identify areas along the path requiring plating or other soft soil mitigation measures.				
Identify any structures crossed. List the structure number and provide a load rating of the structure for the load crossing the structure.				
Provide plan and elevation views defining the location, geometry and materials used in the temporary structure supports.				
Show the outline of the structure and the outline of the supporting structure used in the move.				
Identify the hydraulic groups.				
Identify the location of the CG of the load.				

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Provide a table listing the estimated loads used in the design of the system. A sample table is provided at the end of this document. The sample table is not all inclusive or a required template for the table. The primary purpose of the table is to summarize the calculations used to design the system and to show the owner the design loads and impacts of external loading.				
Provide a detail of the bearing area clearly defining the required width and length of the bearing area. Define the material used for the bearing. Define the maximum height of the bearing material when a specific height is not set and the material consists of shims or stacked pieces.				
Define column, beam or girder sizes and material or capacity.				
Show locations of lateral bracing and/or bracing/guy lines attached to the structure. Define lateral bracing sizes and material or capacity.				
Define the minimum bearing area required between the structure and the support elements.				
Provide elevation views to define the location, geometry, element size and element materials used to lift the structure.				
Provide dimensions from ground to deck, deck to top of support and top of support to top of blocking at the initiation of the lift. Provide tolerances for dimensions permitted to vary.				
Show and define any bracing. Show locations and capacities of any elements connected to the structure. List the design load for the bracing elements.				
Define a maximum deviation from vertical of supporting elements permitted during the move.				
Develop shop drawings				
Submit a sealed design of the SPMT or slide system Blocking, including the SPMT's or slide systems location and means of attachment to the structure, to the Engineer of Record for approval.				
Ensure that the construction of the SPMT or slide system movement system and all related apparatus follows the current plan set.				
Develop move system contingency plan				

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Prepare a contingency plan. Include a timeline for all events related to the structure move. Indicate potential events that could impact the schedule. Identify individuals involved in the structure move, define responsibilities and define risks. Dictate required actions in case the defined potential events occur. Common elements contingency plans address include: • Mechanical breakdown of equipment • Soft soils • Inability to clear the temporary supports when leaving the staging area • Inability to clear the final supports when approaching the final location • Inability to completely unload the structure at the final location • Detour routes for extended closures • Weather delays				
Define key personnel and responsibilities.				
List backup equipment on site and local contacts for replacement parts or service.				
Provide detour plan in event road will not reopen as scheduled.				
List actions or procedures to correct any structure deformations exceeding the warning limit and actions to take when deformations exceed the maximum limit.				
Develop lift, transport, and setting plan				
Provide the Resident Engineer supporting measurements showing anticipated clearances between all obstacles along the travel path (during the walk through).				
Indicate when chains/connections should be tightened or loosened.				
Verify that the support locations and sizes meet the plan requirements.				
Inspect the connections between lift and support points, ensuring the integrity of all welds, etc.				
Check the attachments between the structure and the SPMT or slide system supports.				
Confirm that the ground and travel path are clear of damage or unexpected defects since being prepared.				
Confirm mitigation of all above ground obstacles per the plans.				
Conduct a diagnostic of the move system.				
Confirm that the exact travel path is marked when an exact travel path is required per the plans.				
Engage the move system and slowly transfer the load from temporary supports to move system supports.				

**HEAVY LIFT ABC PROJECT, PLANNING ITEMS, PLAN SHEET REQUIREMENTS, ENGINEERING CHECKS,
REVIEW GUIDELINES AND SHOP DRAWING SHEET REQUIREMENTS**

CONTRACTOR'S HEAVY LIFT ENGINEER	ITEM ADDRESSED (Y/N)	UDOT REVIEW REQUIRED (Y/N)	DATE UDOT REVIEW COMPLETE	COMMENTS
Ensure that lift-off of bearings meets the plan requirements.				
Check estimate of engaged weight against anticipated weight given on Shop Drawings.				
Compare the span's actual performance during the lift from its temporary shoring to the required jack stroke estimates, the maximum anticipated deflection, and the maximum allowable deflection.				
Follow the lift plan's specified procedures if the span either does not perform as expected or approaches critical tolerances.				
Follow the lift plan's specified contingency procedures to address any issues with the structure, supports, lift system, or ground.				
Move the structure to the structure site after successfully lifting the span and verifying that all monitoring devices are within tolerance limits.				
Immediately stop the structure move and refer to contingency plans if twist distortion appears likely to exceed allowable limits during transport.				
Check the clearances at the installation site (vertical, horizontal, and skew) to ensure span can properly enter the intended permanent location.				

Example Table (also see Sample Sheet)

DESIGN DATA AND ESTIMATED WHEEL LOADS					
LOAD DESCRIPTION	LOAD, KIPS OR % OF LIFTED LOAD	APPLICATION POINT	HYDRAULIC GROUP 1 KIPS	HYDRAULIC GROUP 2 KIPS	HYDRAULIC GROUP 3 KIPS
SPMT	96.6	COG OF STRUCTURE MOVE EQUIPMENT	2.3	2.3	2.3
SUPPORTS	84.0	COG OF STRUCTURE MOVE EQUIPMENT	2.0	2.0	2.0
STRUCTURE	480	COG OF STRUCTURE	12.0	12.0	12.0
TRANSVERSE WIND	40.0	COG OF WIND LOAD	+/-1.0	+/-1.0	+/-1.0
LONGITUDINAL WIND	20.0	COG OF WIND LOAD	+/-0.10	+/-0.10	+/-0.10
ACCEL/DECEL	5.0%	COG OF SYSTEM	LESS THAN +/-0.1	LESS THAN +/-0.1	LESS THAN +/-0.1
MAXIMUM WHEEL LOAD	NA	NA	17.3	17.3	17.3
MINIMUM WHEEL LOAD	NA	NA	15.3	15.3	15.3
RATED WHEEL LOAD	NA	NA	19.8	19.8	19.8
GEOTECHNICAL CAPACITY, PAVEMENT	NA	NA	24.0	24.0	24.0
GEOTECHNICAL CAPACITY, PLATED OR PREPARED FILL AREAS	NA	NA	20.0	20.0	20.0

[illegible]