

14. **REVISED** - When does the the Zoo Phase II contractor take ownership of the concrete barrier LIP from Phase I? Bid item 1089 - Maintain and Remove Concrete Barrier Temporary Precast. Part C requires the contractor to maintain the barrier including re-aligning the wall as needed after snow plow operations, to maintain reflectors and hardware in a condition similar to when new on the project, and to keep drainage/lifting slot holes free from debris. Is it the departments intent to require the Phase 1 contractor to leave the barrier in the correct alignment; have reflectors, hardware and glare screen in a like new condition, and have the drainage/lifting slots free from debris when the Phase II contractor assumes responsibility? If deficiencies exist, will they be corrected prior to the Phase 2 contractor assuming responsibility, so that Phase 1 deficieincies are addressed in the Phase 1 contract?

Yes, it is the Department's intent to have all temporary precast barrier conforming to the specs at the time the barrier is transferred to the Core 2 contractor.

REVISED - The Phase II contractor takes ownership of the barrier upon Notice to Proceed per the contract special provisions.

20. **REVISED** - Bid item 1089 - "Maintain and Remove Concrete Barrier Temporary Precast" has a quantity of 54,736 LF. Can the contractor rely on all 54,736 LF of barrier being acceptable for reuse on this or other projects? If not, please provide the LF of barrier that are not fit for reuse.

It is our expectation that the barrier will be available for use on this or other projects.

REVISED - The barrier will meet current specs. The Department cannot guarantee the barrier will meet future state requirements due to revisions to standard specifications, Standard Detail Drawings, etc.

35. We have one last bit of clarification on the Architectural Surface Treatment. The contract plans list dimensions for the stone layout, however it is not very clear what is expected. The plans say the ashlar look will be "Random split edge ashlar pattern. The pattern shall consist of random sized pieces ranging from a minimum of 1 ½" high by 4" long to a maximum of 10" high by 31" long with a maximum relief of 1 ½"." There are no standard urethane (used for MSE) patterns that meet the exact dimensions. Can you please offer a range of pattern #'s that you would accept? The closest to meeting all of the dimensional requirements that I have found are: Architectural Polymers Ashlar #905 (exception: longest brick is 32" long) & Custom Rock International Ashlar Pattern 12020 (exception: shortest brick is 3" tall).

Architectural Polymers Small Aged Ashlar Stone #905 and Custom Rock Milwaukee River Ashlar Pattern 12030 (note corrected pattern number) are both acceptable.

36. How is bid item 1074 - "Removing Concrete Barrier Precast" different from bid item 1089 - "Maintain and Remove Concrete Barrier Temporary Precast"? The quantity tabulations indicate the barrier in bid item 1074 is not removed immediately from the project, so should bid item 1074 be deleted and the quantity added to bid item 1089?

The "Maintain and Remove Concrete Barrier Temporary Precast" item is intended to include temporary barrier placed in the current Zoo Interchange program, under previous projects. The "Removing Concrete Barrier Precast" item is intended to include temporary barrier placed prior

to the current Zoo Interchange projects (this barrier is unlikely to be constructed to current standards and should not be assumed to be fit for reuse on future projects).

37. If temporary shoring is required to protect roadways, utilities or right-of-way due to temporary construction access requirements that are not currently included in the bid items, will the shoring be reimbursed by the department via change order?

Per Standard Specification 511.5 (3), The Department will not pay for temporary shoring for locations the plans do not show.

38. For Item 1157: Removing Adler Utility Tunnel; please clarify how the temporary shoring and/or temporary wire walls to facilitate the tunnel removal and construction of R-40-545 will be compensated. The special provision does not address either of these items.

No temporary shoring or wire walls are anticipated with this work. If the contractor prefers the use of shoring or wire walls, this work would be incidental to the Removing Adler Utility Tunnel item.

39. On pg 279 of the specification it states "The Department will pay up to 50% of the contract value of the work completed until meeting all of the requirements of the contract specification including testing..." We respectfully request this holdback be removed from the contract due to the following:

- a. We have always taken exception to the salt-scale test as it is not applicable for a porous cementitious material (absorptive Noise Barrier) in a vertical application but rather developed for non-porous precast in a horizontal application. However, we understand that ASTM C672 is a quasi -industry standard and at least has been thoroughly vetted and approved by ASTM. The modifications of the Salt Scale test in section B.3.2 are a deviation from the accepted ASTM C672 test and therefore have not been fully vetted by the industry as to the efficacy of the results or the procedure. ASTM methods and the like are specifically used to determine the suitability of a material for use in a certain application because industry experts spend the time and use a scientific method and approach to determine; what results constitute a pass / fail, what is the best test method/procedure to indicate desired results, round-robin testing to validate and verify results between labs and most importantly a detailed analysis of the failure mechanisms brought about from the test procedure. It is our opinion that the modifications to ASTM C672 do not allow the sample to thaw in the freeze-thaw portion of the test and therefore ice lensing occurs. A phenomenon that will not happen in a vertical noise barrier application. We request the modifications to ASTM C672 be rescinded until it has been properly peer reviewed by the ASTM subcommittee C9 that is in charge of ASTM C672. Having any modification peer reviewed and formally accepted by ASTM protects the integrity of the process by allowing decisions based on sound-science and a proven scientific method to be the basis for any change. This not only protects WISDOT, but the supplier and more importantly the residents of WI.
 - i. Note – If the Department is willing we would offer our resources and expertise to co-develop a test method to assess the suitability of absorptive noise barriers to de-ice salts and freeze - thaw plus any other criteria the Department would like to measure. We could then petition ASTM to vet and accept as a standard test method.

The modified C672 testing procedure and acceptance criteria are appropriate and will not change.

- b. A 50% holdback places undue hardship on the manufacturer who will have to carry cost for a significant period of time even after delivery of the product to the project site. A 50% holdback is a significant burden for smaller businesses and unfairly gives a competitive advantage to large corporations who have the funding to burden the additional costs.

The holdback has been revised in Addendum #3.

40. There is a discrepancy between the specifications and the plan sheets. Section B.1. of the specification states the system must be prequalified and shows approval for composite concrete absorptive panels that were qualified and approved by the DOT based on bending strength reports. These reports are the actual performance of the panels and not theoretical calculations. The plans show a note in a number of places, but specifically 3944, Structure N-40-61 sheet 7 of 10, states "...the concrete core shall be designed to resist the loads without considering any composite action from other material in the panel" A real world bending test is more accurate than a theoretical calculation however it inherently incorporates the composite action of the panel.
- a. Will the Department confirm that **actual** bending test reports are still the most accurate determination for the suitability of the material to meet the required windload and they will continue to accept this data as they have for the last 20 years and millions of square feet of installed wall without failure due to deflection or stress in situ?
 - b. However, if **ONLY** bending test calculations -will be allowed as per item 2 above, has the Department considered the additional weight of the panels? The resultant panels will be significantly thicker and at a minimum 65psf but may reach 75 to 80psf. Have the RW and structures been designed for this load? Our experience on previous projects is the dead load used for design has been 50psf as the currently approved system weighs 45psf.
 - c. This requirement will add significant cost to the system and due to the additional weight requirement. Has the Department figured this additional cost in their engineering estimate?

The noise barrier manufacturer must currently be on the pre-approved list and will have to modify their currently approved product to meet the new requirements on the plans. The calculations need to show that the concrete core is designed to resist the applied loads without considering composite action from other material in the panel. Since an actual bending test incorporates the composite action of the panel, bending test reports will not be accepted over design calculations. Also, the tests cannot predict how the composite action of the panel will perform over its 75 year design life. It is understood that the resultant panels will have a weight increase over previously installed panels. Structures supporting noise barriers have been designed for a 60 psf dead load weight of the noise barrier. Increased costs have been estimated for the noise barrier panels.

41. On the same plan sheet as referenced above it states" Bottom noise barrier panels shall be designed to support the dead load of the panels directly above it..." This requirement will not

prevent a shear failure at the panel edge due to an improper washer stack-up during installation. The current design has been used for 20 years without failure. Has the Department considered the additional cost this requirement incurs for no additional benefit to the performance of the noisewall?

Increased costs have been estimated for the noise barrier panels.

42. As stated on page 40 of the contract Special Provisions, the Interim Completion Date of 11/22/16 requiring: “to open IH 94 to 3 traffic lanes in each direction as shown in Stage 5 of the traffic control plans”, needs to be clarified. Per the traffic control plans, the 3 lanes on IH 94 open in each direction, as required by the aforementioned 11/22/16 milestone, does not occur until Stage 6A. Furthermore, as shown in the stage 6A traffic control plans, the system ramp W-N movement is now open, which ties to The Interim Completion Date of 5/25/17. Therefore, based on the stage 6A traffic control drawings, 5/25/17 is when 3 lanes of traffic in each direction will be open on IH 94, and not at the commencement of Stage 5, which starts on 11/23/16. Please Clarify.

The Traffic Control plans show 3 lanes in each direction of IH 94 in Stage 5, see pages 1372-1379. It is anticipated that Ramp WN will reopen during Stage 6A.

43. For Bid Items 0059 to 0070, Removing Storm Sewer, there is no information given regarding pipe invert elevations or depths of pipe. Granular Backfill for Removing Storm Sewer items is currently incidental. It is not practical for the contractor to physically inspect each structure to determine invert elevations due to limited access. 1). Can pipe depth information or structure inverts at each removal location be provided? 2). Can a Granular Backfill bid item be provided in the bid to cover the granular backfill required to backfill the voids left by the storm sewer removal? This option offers a fair method of compensation so the contractor gets paid for work performed and WDOT pays only for work performed. We request WDOT institute one of these two options for Storm Sewer Removal items prior to bidding.

A 3D cad drawing will be added to the HCCI website (.dwg and .dgn formats). The page can be found here: <http://wisconsin.gov/Pages/doing-bus/contractors/hcci/prelim-plan-se.aspx>. Pipe/structure elevations are given to the outside of the pipe/structure.

44. The estimated quantities in the B-40-860 bridge plans show 54W” prestressed girders (and corresponding bid item number), whereas the rest of the plan details identify the girders as 45W”. Based on the span length and girder spacing, it appears that 45W” is correct, however this should be confirmed by the designer and an addendum should be issued.

The bid item name and number will be corrected to “Prestressed Girder Type I 45W-Inch” in addendum No. 3.

45. Structure R-40-532 calls out wall pay limits on page 4337 at *bottom* of leveling pad at 2' below grade. The details show 2' to *top* of leveling pad below grade. The square foot given for the wall does not seem to agree with either one.

The note and quantity will be updated in addendum No. 3 to require top of leveling 2' minimum below grade.

46. There is a quantity discrepancy for bid item 0057 Removing Manholes. The MQ's have a total quantity of 71 EACH between the core project and the auxiliary lane project, and the EOQ's state that there are to be 91 EACH. In instances where quantities are listed in other places, the MQ's have a note stating so, and there is no indicator of quantities reported somewhere else. Please advise on the difference in quantities between the MQ's and EOQ's.

Please see page 1642, Category 1000 for 71 EACH. See page 1902, Category 1300 for 18 EACH. See ID 1060-34-82, page 115, Category 1300 for 2 EACH.

47. In Zoo Core Phase 1, behind a portion of the R-40-525 wall, LFCF gets installed. As you know, the LFCF within the strap zone is incidental to the MSE Wall. A surcharge is installed over the LFCF. In Zoo Core Phase 2, we are to remove the surcharge and R-40-498 gets built on top of the LFCF. I am assuming that the surcharge is to speed up the settling process and that settlement is expected. Is the Zoo Core Phase 2 contractor expected to fill the settlement void with LFCF? If so, how are we to be paid since the settlement will occur within the strap zone as well as outside the strap zone? Also, walls R-40-497, 498, & 527 are all built in Phase 2. The plans for these walls indicate that the leveling pads are embedded in the LFCF. Does the department anticipate that we excavate into the Phase 1 LFCF for the leveling pads or can the LFCF act as the leveling pads. This will affect approximately 2500 LF of leveling pads in Phase 2. Please clarify.

The surcharge was placed in the Zoo Phase 1 contract to accelerate anticipated settlement. The settlement is predicted to be in the 2" to 3" range at the time of Zoo Phase 2 construction of R-40-498 and adjacent LFCF roadway embankment.

The Granular Backfill, 6-inch placed under Zoo Core Phase 1 is intended to protect the damproofing during surcharge removal. This is particularly important where the roadway pavement structure is placed directly over the damproofing. This Granular Backfill material may be used to make up the difference in elevation due to settlement, in the area under the roadway pavement structure. Where additional MSE wall with LFCF backfill and LFCF roadway embankment are placed above Phase 1 LFCF limits, the void due to settlement must be measured and documented by the Contractor. The difference will be paid for as an adjustment to quantity for Lightweight Foamed Concrete Fill Grade 1.

The leveling pads are not required to be excavated and placed into the previously constructed LFCF. The pads may be placed directly on the LFCF but some trimming and adjustments should be anticipated to make the bottom of wall compatible with previously placed LFCF surface. Leveling pads are required and panels must not be set directly on the LFCF.

48. On plan sheet 4336 (Structure R-40-532) there is an existing retaining wall that must be removed and is incidental to "Wall Concrete Panel Mechanically Stabilized Earth LRFD/QMP". Is this wall a WDOT retaining wall or is the wall a RR wall. If it is a WDOT Wall, what is the structure number? We would like to get the existing plans to assist in the removal takeoff.

The existing wall number is R-40-0032. Plans are available upon request from Jeff Bohlen at jeff.bohlen@dot.wi.gov (414) 750-2928. The plans indicate that this is a galvanized metal bin wall approximately 205' long and 10' high. Contractors are encouraged to visit the site to assess existing conditions and confirm wall type and extents.

49. Plan sheets 819 & 820 show the lining of the existing 96" tunnel. Can you forward us the as-built information of the tunnel? The outer dimensions of this tunnel will help us in determining the size of the shaft required. It will also assist us on the design of the poured in place structure. Can DOT put a cross sectional drawing detail together for us regarding the lining?

The as-builts are available upon request from Jeff Bohlen at jeff.bohlen@dot.wi.gov (414) 750-2928.

50. Typically when we look at a lining project, the owner provides video tape of the current condition of the pipe intended to be lined. This way we can assess safety measures, amount of cleaning necessary, and current condition of the existing pipe. Can WDOT provide this information to us prior to the bid date?

The Department will provide the video upon request to Jeff Bohlen at jeff.bohlen@dot.wi.gov (414) 750-2928.

51. In order for liner plates to fit into the existing 96" pipe and achieve a final minimum diameter of 90", it appears you are going to have to relax a portion of your specification. Either you will have to allow a final ID to be less than 90" or you will have to only require a paved invert to be only the bottom 120 degrees. Typically when we slipline we go down by 6" in nominal diameter to allow for pipe to be placed in-line(as most pipe are not perfectly round or straight) and this specification requires a paved invert around the entire circumference which constricts the ID by another 3" minimum.

The nominal diameter was revised in Addendum #3.

52. For Structure R-40-540, is the standard wall panel size intended to be 5' x 5'? No mention of size is given in the general notes, only the scale of the aesthetic drawing on sheet 35 (p. 4422).

Nominal 5' high x 5' wide panels are acceptable for R-40-540 but not required. Nominal 5' high x 10' wide panels are also acceptable as allowed by the special provisions.

53. The bid quantity for #1193 Special 4770.Temp Wall Wire Faced MSE LRFD/QMP is listed as 11,937 SF. I have gone through the plans and Addenda #1 & #2. I come up with the following temporary wire wall quantities:

R-40-507	554 SF
R-40-524	1830 SF
R-40-532	1512 SF
R-40-534	1640 SF
R-40-540	2325 SF
R-40-545	276 SF
B-40-869	800 SF
B-40-870	<u>1600 SF</u>
TOTAL	10,537 SF

Could you please clarify where the missing 1400 SF of Temporary wire wall is listed/located?

Please see sheet 3806, B-40-872, for the additional 1400 SF of wire wall.

54. Plan sht. 1667 – Earthwork Summary Table – Note 5 “The backfill needed to construct the mechanically stabilized earth walls has been estimated. The MSE backfill quantity has been subtracted from the fill volume in all end area calculations. The width of MSE backfill off the back of the MSE wall has been estimated as 0.8 times the height of the retaining walls.” Could the department please provide what that volume is?

Please bid per the information given on the plans, the volume will not be provided.

55. Section 87 Steel Bridge Construction Plan subsection A.2 Structures states the Contractor must “Submit the Steel Bridge Construction Plan, signed and sealed by a professional engineer registered in the State of Wisconsin, at least 14 days before structural steel transport, delivery and erection or as otherwise agreed to by the engineer.” Section 87 Steel Bridge Construction Plan subsection A.4 Fabrication Shop Drawings states “The contractor’s steel bridge construction plan is in addition to, and not in lieu of, fabrication shop drawings. Submit fabrication shop drawings per standard spec 506.” Section 87 Steel Bridge Construction Plan subsection C.1 states “The contractor’s construction plan shall include: Fabrication procedures, including camber values and method of cambering and curving horizontally curved girders. Fabrication procedures may be included and shown on the submitted fabrication shop drawings. If included in the submitted fabrication shop drawings, this should be noted in the submitted construction plan.” Please confirm that the Fabrication Shop Drawings is a separate submittal from the Steel Bridge Construction Plan, and that these shop drawings do not need to be signed and sealed by a professional engineer registered in the State of Wisconsin.

Fabrication Shop Drawings are a separate submittal from the Steel Bridge Construction Plan. As noted in paragraph C.1 of Article 87, Fabrication Drawings may be re-submitted or referenced as part of the more comprehensive Steel Bridge Construction Plan. Fabrication Shop Drawings do NOT require a P.E. stamp, however form DT2333 DOES require a professional engineer seal, but registration from states other than Wisconsin will be accepted.

56. Please confirm that WISDOT form DT2333 will not be required to be submitted with the Steel Shop Drawings.

WISDOT form DT2333 will be required with the Steel Shop Drawing submittals. This is required by Additional Special Provision 6 (ASP 6), 506.3.2, of the contract documents. Note that form DT2333 requires the General Contractor’s certification signature along with the seal of the professional engineer responsible for the structural steel shop drawings.

57. Extensive soil testing has been performed on the Zoo Interchange Core 1 project that suggests 0.97 as the average soil expansion factor for this project. While 0.97 may not be the “exact number”, it was empirically derived and WisDOT had input to the testing methodology, so it is arguably the “best number”. An expansion factor of 1.10 was not derived empirically and therefore cannot be viewed with confidence in representing the character of the Common Excavation.

Attached find earthwork summary tables recomputed using soil expansion factors of 0.97 and 1.10 in calculating the export volumes. A look at the resulting export volumes is summarized as follows:

Soil Expansion Factor	Export Quantity
0.97	212,507 CY
1.10	103,025 CY
Additional Export	109,482 CY

The table that is based on an expansion factor of 1.10 implies 109,482 CY less export than the table based on an expansion factor of 0.97.

By your earlier response, WisDOT is including the following note in the bid documents, "The soil expansion factor will be revised to 1.10 as part of Addendum #3. A soil expansion factor of 1.1 was used to generate estimated earthwork quantities. Due to potential soil variability, actual quantities may vary. No quantity adjustments will be made for differing soil expansion factors encountered in the field." WisDOT is telling the contractor to make their own assessment of the actual field conditions. For fairness in the bid process and for fairness in eventual compensation, would it not make sense to use the best available factor? Please consider using .97 as the expansion factor.

Please see addendum #3.

58. A. Will it be acceptable to have the leveling pad sloping to follow the final grade at the gutter line?

Yes, the design allows the panels to be rectangular and normal to the top slope of the wall. This would result in a sloped leveling pad at a minimum depth below finished grade.

B. Will it be acceptable to design the Wall Segments With Traffic Barrier as rectangular units (90 degree corners) to be erected perpendicular to the sloping leveling pad? This would result in the vertical panel joints not being true plumb but rather perpendicular to the final grade/leveling pad?

Yes, it is acceptable for the panel joints to be erected perpendicular to a sloped leveling pad and therefore not plumb. As part of the plan sets for R-40-527, R-40-545, and R-40-547 a transition detail was included to transition the wall concrete panel with traffic barrier to a MSE concrete facing wall (which will have plumb joints). See SLIP JOINT COVER ELEVATION detail on sheet 4317 for an example.

C. Also, the Architectural Surface Treatment consisting of "A" and "B" vertical relief patterns would not be true plumb but rather parallel to the panel joints. (See example preliminary wall elevation for R-40-470 attached) Please verify if this is acceptable.

Yes, this is acceptable. The architectural surface treatment is intended to be parallel to the panel joint, not from true plumb.

59. The State of Wisconsin, Bureau of Structures has a different list of acceptable products for coatings on handrails. Can you please update the acceptable list in the contract special provisions to match the Bureau's list?

The special provision will be updated in an upcoming addendum.