THE ILLINOIS STATE TOLL HIGHWAY AUTHORITY

October 24, 2014

DESIGN BULLETIN No. 14-17

SUBJECT: TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT and TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)

Effective immediately no new installations of the Traffic Barrier Terminal, Type T1 (Special) Tangent or the Traffic Barrier Terminal, Type T1-A (Special) model ET-31 manufactured by Trinity Industries, Inc. will be allowed on the Tollway system.

The Recurring Special Provisions (attached) have been updated to eliminate the ET-31 from the table indicating the approved models and manufacturers.

Design Section Engineers (DSE) are hereby directed to immediately utilize the revised Tollway Recurring Special Provisions for all contracts currently being advertised for sealed bids and all future contract advertisements.

Paul D. Kovacs, P.E.
Chief Engineer

10/24/14
Date

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TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL) (Tollway Recurring)

Effective: June 14, 2010
Revised: October 24, 2014

Description: This work shall consist of furnishing and erecting traffic barrier terminal as shown in the Plans and/or directed by the Engineer. The Type T1-A (Special) terminal is used to shield the upstream end of a galvanized steel plate beam guardrail barrier system on ramps with design speed of 40 mph or less.

Materials: Materials shall be in accordance with Article 631.02 of the Standard Specifications.

Construction Requirements.

General. General requirements for traffic barrier terminal shall be according to the following Article 631.03 of the Standard Specifications, except as modified herein:

Add the following to Article 631.03. The rail elements shall be of uniform section. Warped or deformed elements will be rejected. The edges of the elements shall be rolled or rounded so that they present no sharp edges. All connections and splices shall be made with button head bolts with oval shoulders in such a manner that there will be no appreciable projection on the road side of the guard rail.

Traffic Barrier Terminal, Type T1-A (Special). This terminal shall meet the testing criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350 and be approved by the Tollway.

The terminal shall conform to the individual manufacturer's specifications and shall be installed according to the manufacturer's instructions. The terminal shall be installed at the taper rate shown on Tollway Standard Drawing C12.

The terminal shall be delineated with a terminal marker direct applied. No other guardrail delineation shall be attached to the terminal section.

The traffic barrier terminals shall be as described in the following table.

Terminal	NCHRP 350 Test Level	Model No.	Manufacturer
Traffic Barrier Terminal, Type T1-A (Special)	2	SKT-SP-MGS TL-2	Road Systems, Inc.

Fabrication. The plates for the rail element shall be blanked to proper shape, fabricated, and ready for assembly when received. No punching, drilling, cutting, or welding will be permitted in the field.

Plates in lap splices shall make contact throughout the entire area of the splice.

Erection. Materials or hardware, on which the galvanizing has been damaged shall be replaced with new materials having properly galvanized surfaces, except that, subject to the approval of the Engineer, minor damage to galvanized surfaces may be repaired by field galvanizing in accordance with the recommendations of the American Hot Dip Galvanizers Association.

The rail and post elements shall be erected to the required elevation. The top of the rail shall be visually straight in horizontal alignment and shall be continuously parallel to the roadway profile grade in vertical alignment. If insufficient adjustment is available in the holes, posts shall be reset, at no additional cost to the Tollway, until the traffic barrier terminal is properly aligned. The brackets may be loosely bolted to the posts and, after erection of rail elements, the rail shall be carefully aligned and the bolts then fully tightened. Nuts shall be drawn up tight on all bolts.

Posts. Terminal posts (end and line) shall be a steel system. Wood posts shall not be permitted. Posts Number 3 thru downstream terminal limit shall be standard line posts. Posts shall be erected according to Article 634.05.

Block-outs. All block-outs shall be wooden. Plastic and/or steel block-outs shall not be permitted.

Contractor's Responsibility For Underground Facilities. It shall be the Contractor's responsibility to ascertain in advance of any work, by any and all possible means, the presence of underground electrical or telecommunications cables in or near the vicinity of the work. It shall be the Contractor's further responsibility to notify the Tollway at least ten days in advance of setting new posts when working near underground electrical or telecommunications cables. Tollway technicians will then locate any such cables which may be in jeopardy. It shall be the Contractor's responsibility to preserve cable location markings and all information relating thereto given to him, and to effectively communicate such information to his workers. If the Contractor cuts or damages any such cables, either through carelessness or failure to follow the foregoing procedures, he will then be held responsible for repairing all damages or replacing the cable without splicing, at the Tollway's option, and all at no cost to the Tollway or cause for the Contractor claiming delay.

Such repair or replacement shall include the immediate installation by the Contractor, without further notice to him, of temporary cables satisfactory to the Tollway, the temporary cables to remain in service until the directed repairs or replacements are made. Stringing temporary cables on the ground will not be allowed in any circumstances. Temporary cables shall be:
(a) Suitable for direct burial installation, acceptable to the Tollway, and shall be buried to a depth not less than 12 inches;
or
(b) Weather-proof cable, acceptable to the Tollway, and shall be suspended not less than 8 feet above the highest point of terrain between supports, unless otherwise directed by the Tollway. Suspended temporary cables may be attached to existing poles, or, in their absence, shall be attached to supports acceptable to the Engineer, furnished and installed by the Contractor.

Any posts that are to be located near or over any buried cable shall be installed by first digging a hole by hand, and then installing the post and backfilling the hole. No posts

shall be driven under such conditions. Care shall be taken while digging by hand so as not to damage the cable.

All efforts on the Tollway's part to advise the Contractor as to the locations of underground cables notwithstanding, it shall be understood that such locations are at best approximate, may be in error, and that such efforts by the Tollway shall not relieve the Contractor of any responsibility for restoring damage resulting from the activities of any employee, Subcontractor, agent, or representative of the Contractor.

The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Method of Measurement: This work will be measured for payment, complete in place, in units of each.

The pay limits between the traffic barrier terminal and the adjacent guardrail shall be as shown on Tollway Standard Drawing C12.

Basis of Payment: This work will be paid for at the contract unit price per each, for TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL), which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, block-outs and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

Terminal markers-direct applied will be paid for separately.

Pay Item Number	Designation	Unit of Measure
JI631112	TRAFFIC BARRIER TERMINAL, TYPE T1-A (SPECIAL)	EACH

TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT
(Tollway Recurring)

Effective: October 1, 2009
Revised: October 24, 2014

Description: This work shall consist of furnishing and erecting traffic barrier terminal as shown in the Plans and/or directed by the Engineer.

Materials: Materials shall be in accordance with Article 631.02 of the Standard Specifications.

Construction Requirements.

General. General requirements for traffic barrier terminal shall be according to the following Article 631.03 of the Standard Specifications, except as modified herein:

Add the following to Article 631.03. The rail elements shall be of uniform section. Warped or deformed elements will be rejected. The edges of the elements shall be rolled or rounded so that they present no sharp edges. All connections and splices shall be made with button head bolts with oval shoulders in such a manner that there will be no appreciable projection on the road side of the guard rail.

Traffic Barrier Terminal, Type T1 (Special). This terminal shall meet the testing criteria contained in the National Cooperative Highway Research Program (NCHRP) Report 350 and be approved by the Tollway.

The terminal shall conform to the individual manufacturer's specifications and shall be installed according to the manufacturer's instructions. The terminal shall be installed at the taper rate shown on Tollway Standard Drawing C6.

The terminal shall be delineated with a terminal marker direct applied. No other guardrail delineation shall be attached to the terminal section.

The traffic barrier terminals shall be as described in the following table.

Terminal	NCHRP 350 Test Level	Model No.	Manufacturer
Traffic Barrier Terminal, Type T1 (Special)	3	SKT-SP-MGS	Road Systems, Inc.

Fabrication. The plates for the rail element shall be blanked to proper shape, fabricated, and ready for assembly when received. No punching, drilling, cutting, or welding will be permitted in the field.

Plates in lap splices shall make contact throughout the entire area of the splice.

Erection. Materials or hardware, on which the galvanizing has been damaged shall be replaced with new materials having properly galvanized surfaces, except that, subject to the approval of the Engineer, minor damage to galvanized surfaces may be repaired by field galvanizing in accordance with the recommendations of the American Hot Dip Galvanizers Association.

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Posts. Terminal posts (end and line) shall be a steel system. Wood posts shall not be permitted. Posts Number 3 thru downstream terminal limit shall be standard line posts. Posts shall be erected according to Article 634.05.

Block-outs. All block-outs shall be wooden. Plastic and/or steel block-outs shall not be permitted.

Contractor's Responsibility For Underground Facilities. It shall be the Contractor's responsibility to ascertain in advance of any work, by any and all possible means, the presence of underground electrical or telecommunications cables in or near the vicinity of the work. It shall be the Contractor's further responsibility to notify the Tollway at least ten days in advance of setting new posts when working near underground electrical or telecommunications cables. Tollway technicians will then locate any such cables which may be in jeopardy. It shall be the Contractor's responsibility to preserve cable location markings and all information relating thereto given to him, and to effectively communicate such information to his workers. If the Contractor cuts or damages any such cables, either through carelessness or failure to follow the foregoing procedures, he will then be held responsible for repairing all damages or replacing the cable without splicing, at the Tollway's option, and all at no cost to the Tollway or cause for the Contractor claiming delay.

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or
(b) Weather-proof cable, acceptable to the Tollway, and shall be suspended not less than 8 feet above the highest point of terrain between supports, unless otherwise directed by the Tollway. Suspended temporary cables may be attached to existing poles, or, in their absence, shall be attached to supports acceptable to the Engineer, furnished and installed by the Contractor.

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The Contractor shall also be responsible for notifying owners of other cables and underground facilities which may be jeopardized by the Contractor's operations in the same manner as required for notice to the Tollway.

Method of Measurement: This work will be measured for payment, complete in place, in units of each.

The pay limits between the traffic barrier terminal and the adjacent guardrail shall be as shown on Tollway Standard Drawing C6.

Basis of Payment: This work will be paid for at the contract unit price per each, for TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT, which payment shall constitute full compensation for furnishing and installing all material, including rail, posts, block-outs and hardware; and for all labor, equipment, tools and incidentals necessary to complete the work as specified.

Terminal markers-direct applied will be paid for separately.

Pay Item Number	Designation	Unit of Measure
JI631110	TRAFFIC BARRIER TERMINAL, TYPE T1 (SPECIAL) TANGENT	EACH