



U.S. Department
of Transportation
**Federal Highway
Administration**

1200 New Jersey Ave., S.E.
Washington, DC 20590

February 12, 2008

In Reply Refer To: HSSD/SS-158

Mr. Todd Jackson
Deputy Director of Engineering
ACS Inc.
12410 Milestone Center Drive, Suite 400
Germantown, MD 20876

Dear Mr. Jackson:

Your mail correspondence of September 3, 2007, was received by our office via courier service on December 18, 2007, and requested Federal Highway Administration (FHWA) acceptance of your company's ACS Red Light Camera mounted on the previously accepted breakaway sign post, the Pelco GS-11 pole and base support. You requested acceptance for use of your product on the National Highway System (NHS) under the provisions of the National Cooperative Highway Research Program (NCHRP) Report 350 "Recommended Procedures for the Safety Performance Evaluation of Highway Features". Accompanying your letter was a report of the crash test results prepared by E-Tech Testing Services, an accredited laboratory. The summary of crash test results and a drawing of the ACS Red Light Camera are enclosed.

The tested installation included an ACS Red Light Camera mounted on a Pelco GS-11 pole and base. The installation system includes the 15 inches (380 mm) high cast aluminum Pelco base with PB-5325 reinforcing collar, 4.5 inch (114 mm) diameter by 0.43 inch (11 mm) thick spun aluminum pole, ACS GS-11 camera unit (mounting height of (10 feet (3.05 m)), 2 feet (610 mm) diameter by 4 feet (1220 mm) deep reinforced concrete pile foundation (3.94 inches (100 mm) above grade), and accompanying 0.984 inch (25 mm) diameter 90 degree anchor bolts with washers and locking nuts mounting hardware. A steel weight was secured inside the GS-11 camera enclosure to simulate the mass of the corresponding 18 kg red light camera. The total test article mass was 110 kg. This installation was assembled and positioned according to the manufacturer's instructions.

Testing of the Pelco GS-11 pole and base was previously conducted for the NCHRP Report 350 Test 2-60 and accepted by the FHWA in May 1992. You recently conducted Test 2-61 to meet test level 2 (TL-2) acceptance criteria and to verify the performance of the breakaway pole with the ACS Red Light Camera mounted to it. During the test, the vehicle bumper contacted the lower portion of the support approximately 17 inches (432 mm) above grove ground level. The Pelco base fractured near the foundation level and the support pole flipped above the vehicle while the vehicle passed underneath it without further contact. The Pelco GS-11 pole and base



activated in a predictable manner by fracturing and breaking away and the remaining stub height did not exceed 4 inches (102 mm). The ACS Red Light Camera remained securely mounted to the pole.

The maximum occupant impact velocity was 3.0 m/s and the maximum occupant ridedown acceleration was 7.3 g's.

When the ACS Red Light Camera mounted on a Pelco GS-11 pole and base are installed as described above, this is acceptable for use at all appropriate locations on the NHS as a TL-2 device under the provisions of NCHRP Report 350 when selected by the contracting authority.

Please note the following standard provisions that apply to the FHWA letters of acceptance:

- This acceptance is limited to the crashworthiness characteristics of the devices and does not cover their structural features, nor conformity with the Manual on Uniform Traffic Control Devices.
- Any changes that may adversely influence the crashworthiness of the device will require a new acceptance letter.
- Should the FHWA discover that the qualification testing was flawed, that in-service performance reveals unacceptable safety problems, or that the device being marketed is significantly different from the version that was crash tested, it reserves the right to modify or revoke its acceptance.
- You will be expected to supply potential users with sufficient information on design and installation requirements to ensure proper performance.
- You will be expected to certify to potential users that the hardware furnished has essentially the same chemistry, mechanical properties, and geometry as that submitted for acceptance, and that they will meet the crashworthiness requirements of the FHWA and the NCHRP Report 350.
- To prevent misunderstanding by others, this letter of acceptance designated as number SS-158 shall not be reproduced except in full. This letter and the test documentation upon which this letter is based is public information. All such letters and documentation may be reviewed at our office upon request.
- The ACS Red Light Camera and the Pelco GS-11 pole are patented products and considered proprietary. If proprietary devices are specified by a highway agency for use on Federal-aid projects, except exempt, non-NHS projects, they: (a) must be supplied through competitive bidding with equally suitable unpatented items; (b) the highway agency must certify that they are essential for synchronization with the existing highway facilities or that no equally suitable alternative exists; or (c) they must be used for research or for a distinctive type of construction on relatively short sections of road for experimental purposes. Our regulations concerning proprietary products are contained in Title 23, Code of Federal Regulations, Section 635.411.
- This acceptance letter shall not be construed as authorization or consent by the FHWA to use, manufacture, or sell any patented device for which the applicant is not the patent holder. The acceptance letter is limited to the crashworthiness characteristics of the candidate device, and

the FHWA is neither prepared nor required to become involved in issues concerning patent law. Patent issues, if any, are to be resolved by the applicant.

Sincerely yours,

David A. Nicol, P.E.
Director, Office of Safety Design
Office of Safety

Enclosures

FHWA:HSSD:MLupes:tb:x66994:1/31/08

File: s://directory folder/mlupes/SS158-ACSredlightcamera_pelco pole.doc

cc: HSSD (Reader, HSA; Chron File, HSSD; M.Lupes, HSSD;
M.Bloschock, HSSD; M.McDonough, HSSD)



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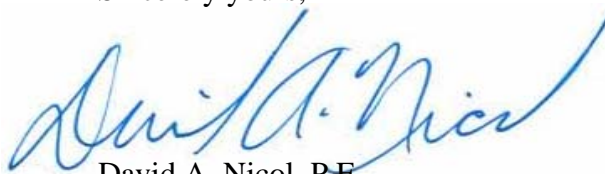
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Sincerely yours,

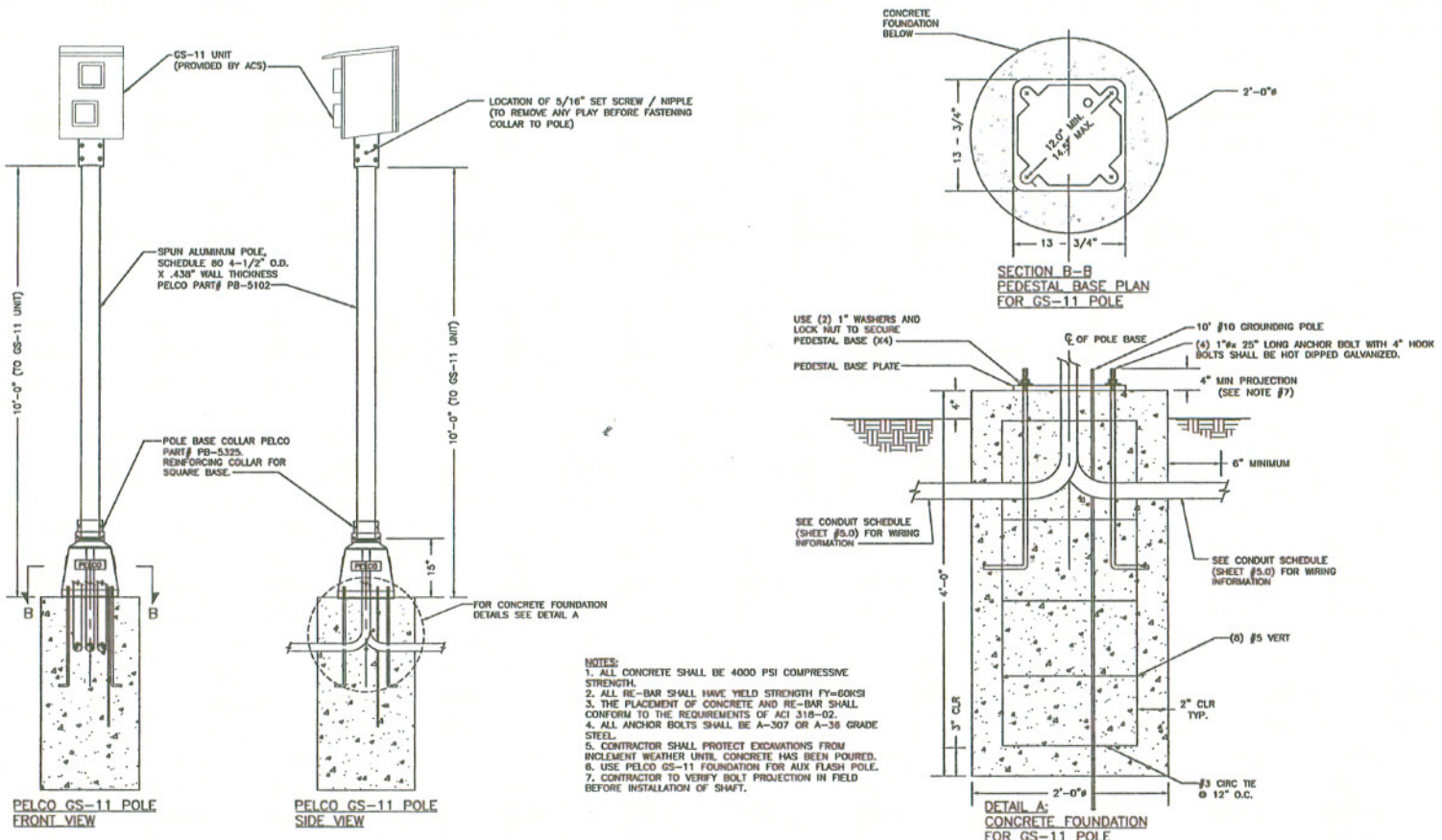
A handwritten signature in blue ink, appearing to read "David A. Nicol". The signature is fluid and cursive, with a large initial "D" and "N".

David A. Nicol, P.E.
Director, Office of Safety Design
Office of Safety

Enclosures



Illustration 1. Red Light Camera Installation Standard Detail (1 of 1)



- NOTES:
1. ALL CONCRETE SHALL BE 4000 PSI COMPRESSIVE STRENGTH.
 2. ALL RE-BAR SHALL HAVE YIELD STRENGTH FY=60KSI
 3. THE PLACEMENT OF CONCRETE AND RE-BAR SHALL CONFORM TO THE REQUIREMENTS OF ACI 318-02.
 4. ALL ANCHOR BOLTS SHALL BE A-307 OR A-36 GRADE STEEL.
 5. CONTRACTOR SHALL PROTECT EXCAVATIONS FROM INCIDENT WEATHER UNTIL CONCRETE HAS BEEN POURED.
 6. USE PELCO GS-11 FOUNDATION FOR AUX FLASH POLE.
 7. CONTRACTOR TO VERIFY BOLT PROJECTION IN FIELD BEFORE INSTALLATION OF SHAFT.

REVISION	DATE	APPROVED



12410 MILESTONE CENTER DRIVE
4TH FLOOR
GERMANTOWN, MD 20876

CONTRACT NO.	
ENGINEER	M. CANTELLI
DATE	05/14/07
DRAWN	JJZ
APPROVAL	M. CANTELLI
APPROVAL	

RED LIGHT CAMERA INSTALLATION STANDARD DETAIL PELCO POLE & BASE DETAILS	
SCALE	AS SHOWN
SHEET	1 OF 2
DATE	7/26/2007 2:48:21 PM, ACS



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t = 0.096 sec



t = 0.192 sec



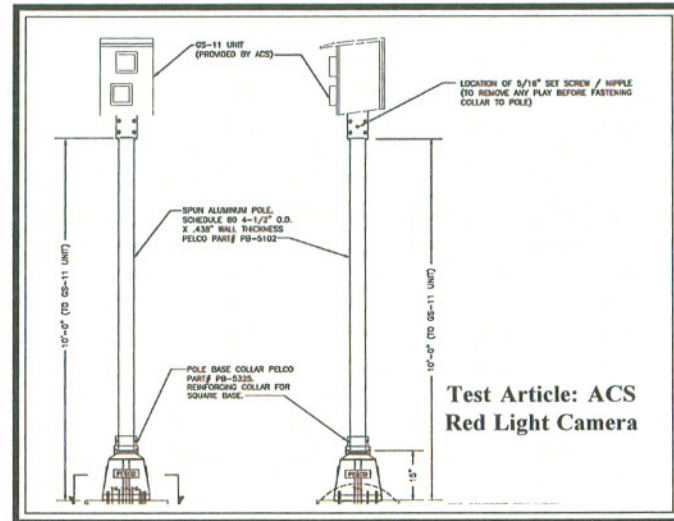
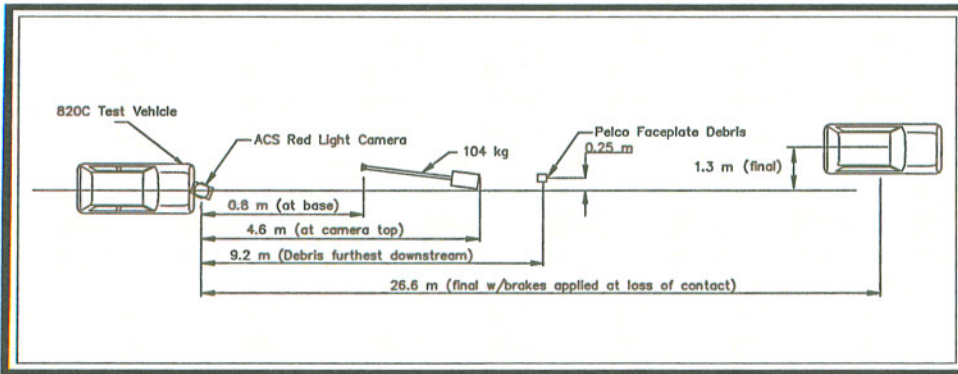
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E-TECH Testing Services, Inc.
 3617 B Chindramathi Avenue
 Rocklin, CA 95765
 PHONE (916) 845-8188
 FAX (916) 845-3653

General Information

Test Agency E-TECH Testing Services, Inc.
 Test Designation NCHRP 350 Test 2-61
 Test No. 68-7638-001
 Date 7/27/07

Test Article

Type Affiliated Computer Services, Inc.
 ACS Red Light Camera System with
 Pelco GS-11 Base and Pole
 Impact Orientation Normal, centerline

Size and/or dimension and material
 of key elements Pelco base 380 mm high cast
 aluminum; upright pole 114 mm dia,
 11 mm thick spun aluminum
 Foundation 610 mm dia by 1220 mm
 deep reinforced concrete
 Mounting hardware 25 mm 90 deg
 anchor bolts, washers, and lock nuts
 Mass - 110 kg

Test Vehicle

Type Production Model
 Designation 820C
 Model 1988 Ford Festiva
 Mass (kg)
 Curb 808
 Test inertial 816
 Dummy 75
 Gross Static 891

Impact Conditions

Speed (km/h) 70.3
 Angle (deg) 20
 Impact Severity (kJ) 155.6

Exit conditions

Speed (km/h) 59.5
 Angle (deg) 0

Occupant Risk Values

Impact Velocity (m/s)
 x-direction 3.0
 y-direction -0.4
 Ridedown Acceleration (g's)
 x-direction -2.9
 y-direction 7.3

European Committee for Normalization (CEN) Values

THIV (km/h) 10.9
 PHD (g's) 7.3
 ASI 0.6

Test Article

Maximum Stub Height (mm) 100 mm
 (above foundation)

Vehicle Damage

Exterior
 VDS FC-1
 CDC 12FCEN1
 Interior
 OCDI AS0000000
 Maximum Deformation (mm) Negligible

Post-Impact Vehicular Behavior (deg - rate gyro)

Maximum Roll Angle 2.6
 Maximum Pitch Angle 8.2
 Maximum Yaw Angle -14.6

Figure 1. Summary of Results - ACS Red Light Camera Test 68-7638-001