UNDERGROUND UTILITIES
TWO WORKING DAYS
BEFORE YOU DIG
CALL TOLL FREE 1-800-362-2764
OHIO UTILITIES PROTECTION SERVICES
NON-MEMBERS
MUST BE CALLED DIRECTLY

CITY OF MASSILLON

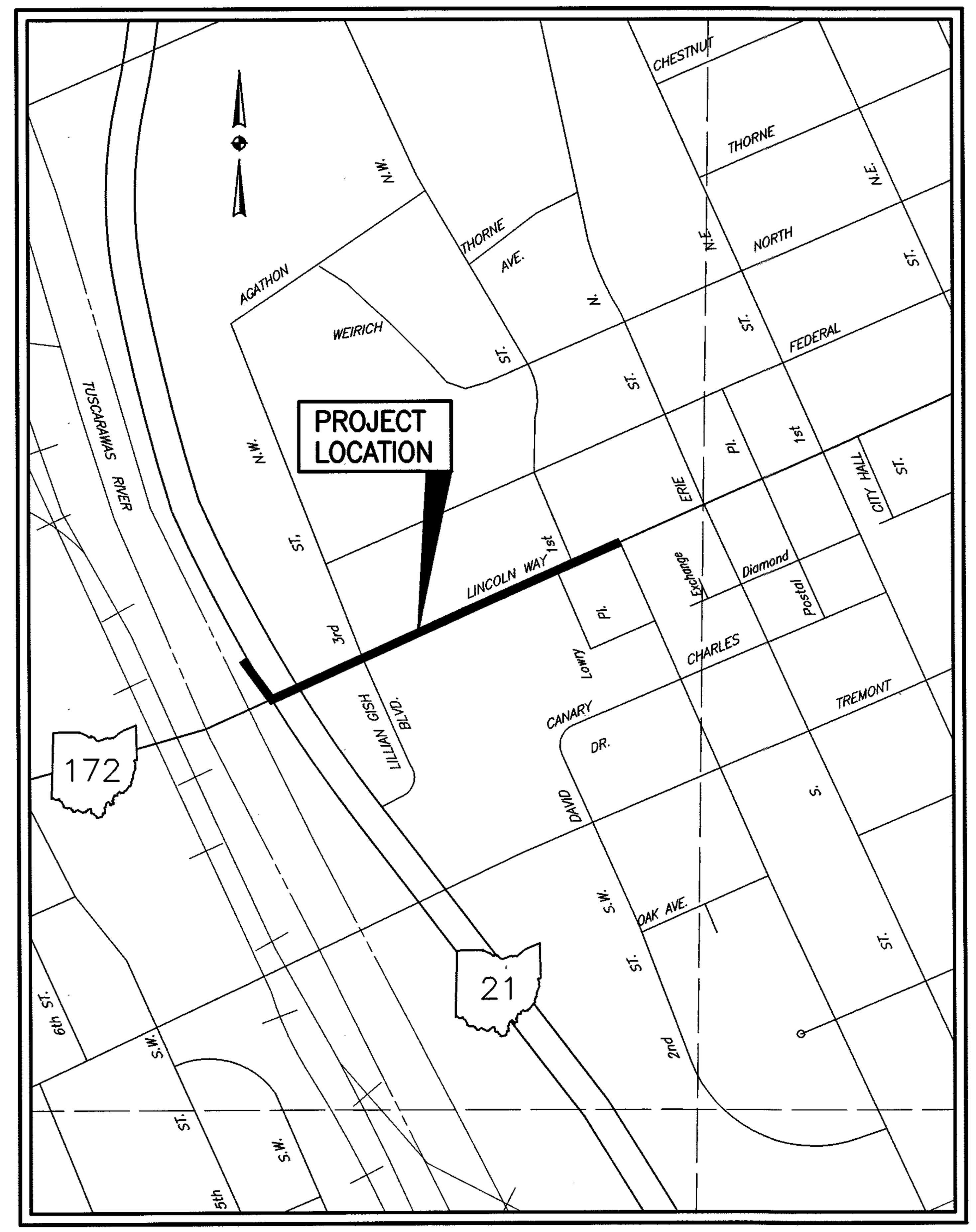
LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE

STARK COUNTY, OHIO

INDEX OF SHEETS

CONVENTIAL SIGNS

RIGHT OF WAY	EXISTING: ——— , PROPOSED: ———
COUNTY LINE	— — — — —
TOWNSHIP LINE	— — — — —
CORPORATION LINE	———
FENCE LINE	EXISTING: —x— , PROPOSED: —x—
GUARDRAIL	EXISTING: —o—o— , PROPOSED: —●—●—
MANHOLES	EXISTING: ○ , PROPOSED: ○
CATCH BASINS	EXISTING: ▭ , PROPOSED: ▬
SIGNS	EXISTING: ⊣
EXISTING POLES	POWER: ∅, TELEPHONE: ∅, LIGHT: ∅, SPAN: ∅
PROPOSED POLES	POWER: ●, TELEPHONE: ●, LIGHT: ●, SPAN: ●
EXIST. UTILITIES	VALVE: ⊕ , HYDRANT: ♉, CURB STOP: ♁, GUY: ⊥
	METERS: ▣ / ▣



LOCATION MAP
SCALE IN FEET
0 300 600 1200

OFFICIALS

FRANCIS H. CICCHINELLI, Jr.	MAYOR
ALAN W. CLIMER	DIRECTOR OF PUBLIC SAFETY & SERVICE
STEVEN D. HAMIT, P.E.	CITY ENGINEER
JOHN D. FERRERO, Jr.	LAW DIRECTOR/PROSECUTOR
DOLORES B. LOOMIS	AUDITOR
BILL H. HAMIT	TREASURER
SHARON K. HOWELL	CLERK OF COUNCIL

COUNCIL

DENNIS HARWIG	PRESIDENT
RON MANG	1 st. WARD
BILL AMAN	2 nd. WARD
CLAUDETTE O. ISTNICK	3 rd. WARD
GLORIA A. AUTREY	4 th. WARD
GLENN E. GAMBER	5 th. WARD
PAUL F. LAMBERT	6 th. WARD

COUNCIL AT LARGE

MIKE LOUDIANA
TIM BRYAN
JAMES D. FILHOUR

APPROVALS

Alan W Climer — 1-7-02
DIRECTOR OF PUBLIC SAFETY & SERVICE ALAN W. CLIMER — DATE

Steven D. Hamit — 1/7/02
CITY ENGINEER STEVEN D. HAMIT, P.E. — DATE

David L Rinehart — 1-15-02
DAVID L. RINEHART — DATE
PROFESSIONAL ENGINEER No. E-55967
RICHLAND ENGINEERING LIMITED

PREPARED AND RECOMMENDED BY
RICHLAND ENGINEERING LIMITED
CONSULTING ENGINEERS
29 NORTH PARK STREET , MANSFIELD , OHIO 44902 (419) 524-0074

Job No. 100121ts Date 11/08/00 Drawn By REH

100121

GENERAL NOTES

PROHIBITIONS

Roof drains, foundation drains and other clean water connections to the sanitary sewer system are prohibited.

CONSTRUCTION SPECIFICATIONS & STANDARDS

All construction to be City of Massillon specifications and standards, the latest edition of the State of Ohio, Department of Transportation, construction and material specifications and follow all OSHA and ADA regulations requirements.

MAINTAINING TRAFFIC

The Contractor shall be responsible for maintaining and controlling traffic on all streets and roads affected by construction and shall, prior to any construction, submit a construction schedule and maintenance of traffic plan to the City Engineer for approval indicating dates and duration of each phase of construction.

The Contractor shall notify the Safety–Service Director, City Engineer, City Police and Fire Departments and the local (Massillon, Jackson & Perry) school district Transportation Supervisor at least 48 hours prior to making any changes in traffic patterns or street closing.

All construction signs and temporary traffic control and protection devices shall be erected and maintained in accordance with "Ohio Department of Transportation Manual of Uniform Traffic Control Devices for Streets and Highways," and O.D.O.T. Item 614 – Maintaining Traffic.

Local motorists shall have access to their respective residences at all times, except during periods of sewer or water line construction or pavement repair which temporarily blocks access.

The Contractor shall give 24 hour prior notice to property owners before closing any private drives. No private drives may be closed for more than seven (7) consecutive hours and shall be open to traffic at the beginning and end of each working day.

TEMPORARY SURFACES

Temporary surfaces where excavations are located in streets, drives and parking areas shall be furnished and placed by the Contractor and shall be fully maintained to minimize inconvenience to the public at no additional cost to the City.

The above described work shall be considered incidental to the completion of all work and shall not be a separate pay item.

ALIGNMENT CONTROL

The Contractor shall use a laser type instrument to secure both horizontal and vertical control for the actual installation of each piece of sewer pipe. The laser instrument shall project a light beam either along the grade of the centerline of the sewer or along a line parallel to the sewer grade and at a fixed known distance above the sewer grade. The laser equipment shall include the laser gun, targets and other accessories. The Contractor, as a minimum shall provide, by conventional methods, an offset hub at each manhole location and determine the amount of "cut" to the invert of the sewer for setting and adjusting the laser instrument.
The laser instrument, its operation, control and verification procedures are all subject to approval by the Engineer.

TRENCH PROTECTION AND BACKFILLING

The Contractor shall support all trenches and excavations in accordance with Rule 4121: 1–3–13 and Appendix to Rule 4121: 1–3–13 of the specific safety requirements of The Ohio Bureau of Workers Compensation relating to construction, latest edition.
Backfilling shall follow immediately behind construction and only the minimum length of trench required for construction shall be open at any given time.

UTILITY NOTIFICATION

Listed below are all the known utilities located within the City corporation limits together with their respective owners:

Ameritech
50 W. Bowery, 6th. floor
Akron, Oh. 44308
800–290–2242
Rick Marsili

Consumer Ohio
Water Company
P.O. Box 584
Massillon, Oh. 44648
(330) 833–4156

Ohio Edison
Stark Division
2600 S. Erie St.
Massillon, Oh. 44545
(330) 833–3141

Great Lakes Energy
Partners
P.O. Box 550
Hartville, Oh. 44632
(330) 877–6747

AT&T Communications
2535 E. 40th. Ave.
Denver, Co. 80205–3601
(800) 852–3786

Massillon Cable TV
P.O. Box 814
Massillon, Oh. 44648
(330) 833–4134

City of Massillon
Sanitary Sewer
151 Lincoln Way East
Massillon, Oh. 44646
(330) 830–1722

The East Ohio
Gas Company
4725 Southway St. S.W.
Canton, Oh. 44706
(330) 478–3142
Nancy Kovach

Northeast Ohio Natural
Gas Corp.
1425 N. Wooster Ave.
Strasburg, Oh.
44680–9766
(330) 878–5589

The Contractor shall notify all utilities 48 hours prior to any work.

The location of the underground utilities shown on the plans are shown at approximate locations and where obtained as required from the owners as required by Section 153.64 O.R.C.

O.U.P.S. – 1–800–362–2764

UNDERGROUND UTILITIES

The locations of the underground utilities shown on the plans have been obtained by diligent field checks and searches of all available records. It is believed that they are essentially correct, but neither the City nor the Engineer guarantees their accuracy or completeness.

The Contractor shall verify with the owners the locations of all public and private utilities which may be affected by construction. The location of utilities and structures, both surface and subsurface, are shown on the drawings from data available at time of survey and is not necessarily complete or correct. The exact location and protection of utilities and structures is the responsibility of the Contractor.

PROTECTION OF EXISTING UTILITIES AND PIPES

The Contractor shall be required, at his own expense, to do everything necessary to protect, support and sustain all storm sewers, water or gas pipes, service pipes, electric lights, power and telephone poles, conduit and other fixtures laid across or along the site of the work. The Engineer as well as the company or corporation owning said pipes, poles or conduits must be notified of the same by the Contractor before any such fixtures are removed or disturbed. In case any of the said sewer, gas or water pipes, service pipes, electric light, power and telephone poles, conduits or other fixtures are damaged, they shall be repaired by the authorities having control of the same, and the expense of said repairs shall be deducted from the monies which are due or to become due the Contractor under this contract.

Should it become necessary to change the position, or temporarily remove any storm sewers, sanitary sewer, electric conduits, water pipes, gas pipes or other pipes or wires in order to permit the Contractor to use a particular method of construction or in order to clear the structures being built, the Contractor shall notify the Engineer of the location and circumstances and shall cease work, if necessary, until satisfactory arrangements have been made by the owners of said pipes or wires to properly care for the same, no claims for damages will be allowed on account of any delay occasioned thereby. The entire cost of the changes or temporary removal must be included in the prices stipulated for the various items of work to be done under this contract.

No surface, ground or trench water shall be allowed to flow into existing sanitary sewers. Connections of new and existing sanitary sewers shall be kept plugged until acceptance of the new lines.

MONUMENTS, PROPERTY CORNERS AND BENCH MARKS

The Contractor shall preserve all cornerstones, iron pins, concrete monuments, and any type of land monument. He shall have all land monuments in the proximity of the work referenced. He shall replace destroyed or damaged monuments and shall furnish a certification by an Ohio Registered Surveyor that all monuments have been restored.

CLEARING AND GRUBBING

This item shall include all clearing, grubbing, scalping and the removal and satisfactory disposal of trees, stumps, vegetation and debris as may be necessary for the completion of the work.

The Contractor shall take all necessary precautions to protect and save all trees which are adjacent to the line of work and shall remove only those trees which are designated for removal on the plans or directed by the Engineer. Tree roots and overhanging branches shall not be cut, except with special permission of the Engineer. When required, the cutting of roots and branches shall be done in a manner to leave a smooth end without splitting or crushing. The cut end shall be neatly trimmed and covered with grafting wax. All damage shall be repaired by the Contractor at his own expense to the satisfaction of the Engineer. Where miscellaneous small trees and shrubs are noted to be removed and reset, the cost of such work shall be considered incidental to the completion of the project. No separate payment will be made.

REMOVAL AND RESETTING OF MISCELLANEOUS ITEMS

The Contractor shall remove any mailboxes, street signs, yard lights, fences, lawn ornaments, etc. which could be damaged during the course of construction and reset same after construction has passed the area. The Contractor shall be responsible for any damage to private property. The cost of this work shall be considered incidental to the various bid items in the project. No separate payment will be made.

MANHOLES, CATCH BASINS, INLETS AND PIPES REMOVED OR ABANDONED

All castings and pipes shall be carefully removed and stored within the right–of–way for salvage by the City. Contact the City of Massillon Street Superintendent – Mark Lightfoot at (330) 833–5746.

Payment for all of the above shall be included in the contract price for the pertinent 202 Item.

PAVEMENT, CURBING AND SIDEWALK REMOVAL

The Contractor shall remove and dispose of all existing pavement, curbing and sidewalks as necessary for the construction of the improvements herein. The broken pieces of pavement, curbing and sidewalks shall be disposed of by the Contractor, and shall not be offered as backfill for any portion of the project. Curbing, sidewalks and pavement edges shall be sawed in a neat, straight line.

The cost of sawing, removing and disposing of pavement, curbing, and sidewalks as necessary for the construction of the project shall be considered incidental to the other various bid items in the project. No separate payment will be made.

SAWED JOINTS

In removing the portions of existing rigid type pavement for the construction of the project and where the existing joints are not reasonably close, a neat sawed joint with a minimum depth of four inches (4") shall be cut with an approved power saw. Payment for additional costs involved in this operation shall be included in the price bid for the respective pavement replacement item.

CONVERSION OF STANDARD CONSTRUCTION DRAWINGS

The metric standard drawings referenced in this plan shall be converted to English Units using the SI (Metric to Engish Conversion factors provided in section 109.011 of the 1997 construction and materials specifications.
The appendix of ASTM E 380 shall be utilized for any additional conversion factors required. Conversions shall be appropriately precise and shall reflect standard industry english values where suitable.

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GENERAL NOTES

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

1
40

JOB NO. 100121GN DATE 01/14/02 DRAWN BY REH,SCB,HN

100121

GENERAL NOTES

CLEANING STREETS AND ROADWAYS

Before the work herein specified is accepted, the Contractor shall, upon notice from the Engineer, thoroughly clean all streets, roads, sidewalks, driveways and lawns free from all debris and dirt accumulating from the construction work, and on all improved streets and roads, and shall completely shape up the entire roadway within the limits of the herein specified work.

The notice to clean and shape the streets or roadways will ordinarily be given as soon as sections of the work are completed and tested. Upon completion of said cleaning up to the satisfaction of the Engineer, the Contractor shall be relieved from further responsibility for the condition of the streets, excepting such conditions as may be traceable to settlement of backfill over the work or appurtenances thereof, or for any damage traceable to such settlement.

When the work is built in paved or unpaved streets, the Contractor will be required to remove dirt accumulating from his operations upon said street, or upon intersecting streets, lawns or sidewalks, as often as may be ordered by the Engineer. When the work is finally completed and before its final acceptance, the Contractor, upon written order from the Engineer shall thoroughly clean the whole of said street or streets to the satisfaction of the Engineer. No extra payment will be made for the work involved in this preliminary and final cleaning of paved or unpaved streets, but the cost of the same shall be considered as included in the prices stipulated for the various items of work to be under this contract.

Should the completion of the work occur at such a time that the final shaping and cleaning of the streets would come in the winter months, the cleaning and shaping may, by permission of the Engineer, be postponed until the following spring, and the amount sufficient to do the work will be retained from the monies due or to become due to the Contractor.

Should the Contractor fail to do the shaping and cleaning of the streets, within the limits of the herein specified work within seven (7) days after receipt of written notice from the Engineer to do so, the Owner will have the right to have said work done and the cost thereof deducted from the monies due or to become due to the Contractor.

EXCESS EXCAVATION MATERIAL

All excavated material and all material used in construction of the work shall be piled in a manner that will not endanger the work and that will leave driveways or other controls unobstructed and accessible while the work is to be completed. Satisfactory provisions shall be made for the street drainage, and natural water-courses shall not be obstructed. During the progress of the work, all material piles shall be kept trimmed up and maintained in a neat manner. All excavated waste material shall be removed from the project site, as directed by the Engineer. The waste site is to be provided by the Contractor at no cost to the city, unless otherwise noted in the specifications. Contractor shall provide a letter from the proposed waste site owner permitting such and holding the city harmless.

The Contractor shall be responsible for the complete restoration of all waste areas used in the course of this contract. The restoration work shall include cleanup, shaping and grading and establishment of vegetative cover by seeding and mulching in accordance with O.D.O.T. specification item 659. The final grading of waste areas shall be properly sloped to provide drainage runoff. All rocks, boulders, concrete chunks, broken pipe, etc. shall be buried within the waste area to a depth of at least two (2) feet and shall not be visible at completion.

The cost of herein described work, including seeding and mulching, necessary to secure these results shall be considered incidental to the other various items of work in this contract. No separate payment will be made.

MAINTENANCE OF SEWER FLOWS

The Contractor shall conduct his operations so as to maintain at all times storm/sanitary sewer flows through existing sewers to remain in place and through existing sewers to be replaced until new sewers are completed and placed in use.

Payment for any additional costs involved in maintaining these flows by pumping or by any other means approved by the Engineer shall be included in the unit price bid for the several items in the contract. No separate payment will be made.

ODOT 304 - GRANULAR MATERIAL FOR TRENCH BACKFILL

Granular backfill material, type 1 as specified under Ohio Department of Transportation specification (ODOT) Item 703.11 shall be compacted per ODOT 603.081 at all locations where the proposed water line, sewer line, sewer lateral pipe, storm sewer or culvert pipe crosses existing streets, roadways, drives and parking areas, as shaded on the drawings or locations as directed by the Engineer. Granular backfill shall extend five (5) feet beyond edges of paved areas.

Payment for granular backfill shall be based on the actual number of cubic yards incorporated in work within the limits shown on the standard drawings. No payment will be made for granular backfill outside of the allowable trench width limit. Quantities shall be determined by actual measurement of quantity placed in the work within the allowable limits or by delivery tickets, whichever results in the smaller quantity. When quantities are tabulated from delivery tickets, the weight conversion shall be based on an average dry rodded weight of 4000 lbs. per cu. yd.

ESTIMATED QUANTITIES

Specific locations and usage of estimated quantities set up on this plan to be used "as directed by the Engineer" shall be made a matter of record by incorporation into the final change order governing completion of this project. Estimated quantities of materials shall not be ordered for delivery to the project unless authorized by the Engineer.

DITCH RESTORATION

The final grading of the completed work on this project shall be accomplished in such a manner as to restore existing roadside ditches and other ditches as shown in the plans. Slight swales shall be installed to channel run-off water to the proposed or existing catch basins and inlets. The cost of all work involved in restoring existing ditchs, grading existing slopes and forming drainage swales shall be considered incidental to the other various items of work in this contract. No separate payment will be made.

FINAL GRADING

The final grading of the completed work on this project shall be accomplished in such a manner as to restore all disturbed areas, including lawn areas, ditches and other areas adjacent to berms and roadways. The disturbed areas shall be fine graded and shaped to a condition suitable to be seeded and mulched. The Contractor must obtain the Engineer's approval of the final grading prior to commencing any seeding work. The cost of all work involved in the final grading shall be considered incidental to the other various items of work in the contract. No separate payment will be made.

SUBSURFACE CONDITION

It is the obligation and responsibility of the bidder to make his own investigations of subsurface conditions prior to submitting his proposal. The bidder may examine any existing records of borings, test excavations and other subsurface investigations, for his own information. Any available records of borings, test excavations or other subsurface investigations are considered incomplete and are not a part of the contract documents. The Contractor agrees that he will make no claim against the owner or the Engineer, if in carrying out the work, he finds that the actual subsurface conditions encountered do not conform to those indicated by said borings, test excavations or other subsurface investigations. See paragraph 4.02 of the General Conditions.

ROCK EXCAVATION

The bidder shall satisfy himself as to the presence of rock or rock formations and the extend of rock removal required to complete the project. Payment for the removal and disposal of any rock encountered shall be included in the unit prices bid for various sewer pipe items. No separate payment will be made for rock removal.

DATUM ELEVATION

All benchmarks are based on reference benchmarks provided by the City of Massillon.

STATIONING

All stationing shown is referenced to the baseline.

CONSTRUCTION STAKING

Contractor is responsible for all construction layout and upon completion of project as-built drawings are required.

This work shall include all labor and materials.

This work is to be under Item 623 Construction Staking.

TEMPORARY SOIL EROSION CONTROL

The contractor shall be responsible for all erosion control and shall meet the requirements of 108.04.

ENVIRONMENTAL COMMITMENTS

Best management practices for erosion and sediment control shall be utilized during all project phases. Therefore, the specifications set forth in the most current version of ODOT's Construction and Material Specifications. Location and Design Manual and Standard Drawings will be used to ensure adequate erosion and sediment control during construction. The Contractor will be required to follow these practices as part of the contract plans.

All unavoidable trees will be removed after September 15th and prior to April 15th in order to avoid affecting any Indiana Bats which might be using trees in the area for habitat.

The Tuscarawas River will not be impacted by the project and is identified as a resource to be avoided.

MAINTAINING TRAFFIC

Two lanes of traffic in each direction shall be maintained at all times on State Route 21, except for periods noted herein when one lane of traffic will be maintained.

For construction of the rear abutment, piers 1 and 2, and spans 1 and 2, the adjacent pavement lane may be closed to traffic using drums as per Standard Drawing MT-95.30M. The lane closures shall be limited to the following restricted periods:

1. Weekdays between the hours of 9:00 A.M. and 3:00 P.M.
2. At night between 9:00 P.M. and 6:00 A.M.
3. All day Saturday.

For erection of span 3, the southbound left turn lane and adjaccent through lane may be closed to traffic for staging equipment and materials. All traffic on State Route 21 shall be stopped, for a period not to exceed 20 minutes between the hours of 9:00 P.M. and 6:00 A.M., for the actual erection of the truss span.

In addition to the requirements of 614 and the latest edition of the Ohio Manual of Uniform Traffic Control Devices, a uniformed law enforcement officer and official patrol car with working top-mounted emergency flashing lights shall be provided for controlling traffic during initial set up and tear down periods of lane closures and for traffic stoppages during erection of Span 3.

Payment for all labor, equipment, and materials shall be included in the lump sum price for Item 614-Maintaining Traffic.

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GENERAL NOTES

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

2
40

JOB NO. 100121GN DATE 01/14/02 DRAWN BY REH;SCB;HN

100121

GENERAL NOTES

TACK COAT

The rate of application of the 407 tack coat shall be subject to adjustment as directed by the Engineer. Quantities indicate an average application rate of 0.08 gallons of tack coat per square yard for estimating purposes only.

BITUMINOUS PRIME COAT

The rate of application of the 408 prime coat shall be subject to adjustment as directed by the Engineer. Quantities indicate an average application rate of 0.40 gallons of prime coat per square yard for estimating purposes only.

TRAFFIC CONTROL DEVICES

Contractor shall contact the City Garage (John Hauser) (330) 832-1176 for the supervision of the installation of all traffic control devices.

EXISTING DATA

Each Contractor shall visit the site personally to ascertain the nature of the work and become thoroughly familiarized with the site prior to bid submission.

Existing structures, grades, piping, etc. are indicated in approximate location on the plan. Information shown is not guaranteed to be correct and complete. The data shall be verified in the field by the Contractor. The existence of facilities above or below ground, which may not be shown, will not be a basis for a claim for extra work.

Existing underground utilities shown are records provided by utility companies and are approximate only. Service laterals are not shown.

It is the responsibility of the Contractor to notify the city, prior to bid opening, non-conforming or conflicting information.

CONTRACTOR AVAILABILITY

The Contractor shall supply the Engineer with a 24 hour phone number where the Contractor, shall be available for emergencies.

FINAL APPROVAL

A video tape will be made by the Contractor and submitted to the city prior to the project pre-construction meeting. After the final invoice is received the site will be video taped again by the Contractor. Any discrepancies will be resolved prior to final payment.

CONDUITS

1. All conduits shall be encased in Class "C" concrete, a 3" minimum envelope shall be required.

2. Minimum depth of cover shall be 24". Ohio Edison primary circuit conduits shall have a minimum cover of 36".

3. All conduits shall be color coded as follows;

Ohio Edison, 4" & 6" conduits – Black

Lighting, 2" conduits – Orange

Receptacle, 2" conduits – Red

Communications, 1 1/4" conduits – White

Traffic, 2" & 3" conduits – Yellow

Video, 2" conduits – Yellow

Traffic Interconnect, 2" conduits – Blue

Video Interconnect, 2" conduits – Blue

Re-synch, 2" conduits – Blue

OHIO EDISON GENERAL NOTES

1. All conduit shall be PVC, Type DB-120 or equivalent.

2. Concrete for the encasement of the conduit shall be class "C". A 3" concrete envelope shall be maintained around the conduits.

3. Conduit stubs for customer service shall not be encased.

4. All conduit bends shall have a minimum radius of 24" unless otherwise noted.

5. Handholes shall be reinforced polymer mortar (RPM type) with two stainless steel pentahead bolts, imprinted with "ELECTRIC" and "OHIO EDISON CO." for use in concrete and shall be rated to withstand AASHTO H-10 load conditions. Cover size shall be 17" x 30", with a depth of 18". The following are Ohio Edison approved suppliers;

CDR Systems
D.R. Folzine & Assoc.
P.O. Box 45369
Phone: 216-899-0884
Fax: 216-899-1185

Armorcast Co.
C/O Ken Tamm
Burns Electric Co.
P.O. Box 541
100 Oaks Street
Irwin, Pa. 15642
Phone: 412-864-9282

6. Contractor shall be responsible for the labor and materials to install all power source conduit and handholes per Ohio Edison's specifications. At the appropriate phase of construction, Ohio Edison will install the proper cable and connections from the proposed Ohio Edison pole at Sta. 9+72, 90.7'Rt. through RPM handhole at Sta. 9+77, 71.5'Lt. to the proposed Ohio Edison transformer at Sta.9+32, 64.2'Lt., at which point Ohio Edison's cable responsibility shall terminate. The cable and connections between the transformer and the meter base shall be the Contractor's responsibility. The Contractor shall be responsible for the labor and material to install all the proposed street light, traffic light, traffic control, Christmas light, audio circuits and concert power. Existing Ohio Edison poles and overhead wires shall be removed by the Ohio Edison Co., as noted on the plans.

7. Final inspection – a final inspection of the conduit system shall be performed prior to acceptance by the Ohio Edison Company. All conduits shall be brushed and mandrelled. A pull string (jet line) rated 200 lb. min. shall be placed in each conduit.

DOMINION EAST OHIO GAS GENERAL NOTES

1. One-foot minimum vertical clearance and three-feet minimum horizontal clearance from DEO gas facilities must be maintained.

2. Adequate support of the ditch is the responsibility of the Contractor when near DEO gas facilities.

3. Support must be provided by the Contractor when DEO gas facilities are affected by an open ditch(i.e. tie-off, support timbers, etc.)

4. Care should be taken not to dent or chip the coating on steel pipe.

5. Notify DEO so that repairs can be made if the line is damaged. Call(330)736-6651.

VIDEO DETECTION EQUIPMENT

Video detection equipment furnished for this project shall be the "Vantage Plus" model as manufactured by: Odectics, 1585 South Manchester Avenue, Anaheim, California 92802. Telephone (714) 780-7680, Fax (714) 780-7649.

The equipment furnished shall form a complete functional video detection system, including cameras, processors and monitors, equal to the system currently in service by the City of Massillon.

All equipment and installation shall meet with the approval of the City Engineer. Contractor shall be required to submit shop drawings to the City Engineer's office for review and approval prior to ordering the specified video detection equipment.

Payment shall be made under the lump sum item "Video Detection Equipment, Per each (Intersection)".

TRAFFIC CONTROLLER EQUIPMENT

This work shall consist of furnishing and installing two Eagle Epak 4 Phase controllers. The controllers shall have all standard functions and meet NEMA Standard Publication Number TS-1-1983. In addition the controllers shall be furnished with coordinating module, telemetry module and pre-emption module. Coordination shall be by hardwire interconnection as shown on the plans.

Interconnection shall be from First Street to Third Street. The controllers shall have standard built-in features including preempt, time base coordination, volume density diamond sequencing and external hardwire coordinating capabilities. Where required for a functional interconnection and coordination the Contractor shall furnish, install, test and bring into operation coordinating units for the First Street and Third Street interconnection.

The controller at Third Street shall be programed/pretimed as shown on the plan and shall function as the system's master controller.

Measurement of accepted controllers shall be made as specified in Section 633.1.

Item 633 – Each – Controller, actuated, four phase, solid state, digital microprocessor, as per plan.

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GENERAL NOTES

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

3
40

JOB NO. 100121GN DATE 01/14/02 DRAWN BY REH,SCB,HN

100121

GENERAL NOTES

SCOPE OF WORK FOR TRAFFIC SIGNAL SYSTEM

This work shall consist of furnishing and installing traffic signal equipment and removal for storage of existing equipment when no longer needed at the locations specified on the plans. All material, equipment and workmanship shall be new, high quality, complete, tested and ready for service in conformance with the requirements stipulated. The work shall include installing vehicular and pedestrian traffic signal heads, associated detection, support and control system on Lincoln Way West at the intersecting streets of First Street and Second Street. Existing equipment when no longer needed for interim traffic control shall be removed for storage and pick up by city forces.

The intersection shall be hardwire interconnected and programmed as shown on the plans. All control equipment, controllers, monitors, coordinating modules; load switches, back panels, relays, auxiliary equipment and incidentals shall be completely wired, tested and ready for service.

In addition to the ODOT Standard Drawings listed on the Title Sheet and Contract Specifications, all applicable State Of Ohio, Department Of Transportation Construction and Material Specifications of January 1, 1997 are herewith incorporated into the project.

STREET LIGHTING AND GENERAL ELECTRICAL WORK

This work shall consist of furnishing and installing a complete and functional ornamental street lighting and electric power distribution system. In executing the specified work and for the fabrication, installing and testing of work, the Contractor shall employ only trained and experienced workmen completely familiar with the items required and with the manufacturers recommended method of installation.

The Contractor shall furnish materials and equipment which are new, of the design, manufacture specifications, and which conform to the standards in design, manufacture, ratings and details. As a minimum the following standards shall be complied with: and tests. and quality specified, a product of reputable manufacturers listed in the plans

1. American National Standards Institute (ANSI)
2. Edison Electric Institute (EEI)
3. Institute of Electrical and Electronic Engineers (IEEE)
4. Insulated Power Cable Engineers Association (IPCEA)
5. National Electrical Manufacturers Association (NEMA)
6. Underwriters Laboratories, Inc. (UL)
7. Ohio Edison Company applicable standards and complying with the following;

    7.1 National Electric Code (NEC)
    7.2 National Electric Safety Code (NESC)
    7.3 National Fire Protection Association (NEPA)
    7.4 The Occupational Safety and Health Act (OSHA)
    7.5 Federal, State and City of Massillon Codes
    7.6 Local Utility Companies Regulations
    7.7 Ohio Department of Transportation Construction and Material Specifications and Supplemental

COMMUNICATION-SOUND SYSTEM

This work shall consist of providing and installing an underground conduit and cabling system to extend the existing communication and sound system. The Contractor shall furnish and install, extend, remove and/or relocate existing communications circuitry into a complete operating sound system. The work shall also include to field coordinate existing requirements to access the existing system, locate alternative building exit routing with concealed conduit for the extended system when required.

SPECIAL EVENTS POWER SYSTEM

This work shall consist of furnishing and installing a complete underground conduit and cabling power distribution system from the power distribution panel to the pole mounted special events receptacles. The special events power system shall have the capability to furnishing individual electric power from permitted panelboards.

ITEM 632 - REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION

When no longer needed the Contractor shall remove all existing traffic signal equipment in accordance with applicable ODOT specification 632.25. The following items shall be removed for reuse and storage:

All traffic controllers including cabinets and associated back panel wiring and auxiliary equipment.

All vehicular signal heads and pedestrian signals.

All traffic signal poles and pedestrian signal pedestals, associated push buttons and signs.

All street name signs, regulatory, warning and routing signs, including overhead or ground mounted sign supports.

All above specified items shall be carefully disassembled for reuse and storage. The Contractor shall store and protect all salvaged items for pick up by City of Massillon Forces. When the salvaged items are available for pick up, the Contractor shall notify the Engineer 48 hours in advance to the anticipated pick up date. The Contractor shall also be responsible to load any of the specified salvaged items onto City of Massillon trucks.

RPM/HANDHOLES AND PULLBOXES

The following product numbers for 24"x36" RPM/Handholes are approved for use within this project;

CDR Systems #PA10-2436-18
Electrolite #ECAB-2436-18-DO-EH

Product numbers for Pullboxes approved for use within this project are;

Electrolite #ECAB-1324-18-DO-EH (13"x24") - Item 625 Pull Box #1
Electrolite #ECAB-1836-18-DO-EH (18"x36") - Item 625 Pull Box #2
Electrolite #ECAB-2436-18-DO-EH (24"x36") - Item 625 Pull Box #3

DEPARTMENT OF INDUSTRIAL RELATIONS, INSPECTION

There is a rule that all new or related electric service enclosures are to be inspected by a licensed state inspector prior to connection to a utility distribution line. This rule is now being enforced by the utility companies and the Ohio Department of Industrial Relations.
State inspections are now required for traffic control devices and lighting installations. The Contractor shall apply for the Industrial Relations inspection(s); pay the appropriate fee(s) to the Industrial Relations Department and advise the City Garage (John Hauser, (330)832-1176) of the time of the inspection(s), so that he may have a representative in attendance. It is to be noted that the Industrial relations inspection is not a substitute for final inspection by the City of Massilon, nor does it supercede requirements of the plans and specifications.

The cost of the industrial relations inspections estimated at $100.00 shall be considered as incidental to and included in the contract unit price of the various item making up the lighting installations or traffic control devices.

WIRING SIZES

Lighting - Distribution Cables No. 4 AWG & smaller, 600V, Type THWN, Stranded Copper Wire.

All cables rated 75 Degrees C.

Receptacle - Distribution Cables No. 6 AWG & smaller, 600V, Type THWN, Stranded Copper Wire.

All cables rated 75 Degrees C.

Communications - 1 Pair (2/C) Shielded, Jacketed #16 AWG Copper Audio Cable, Belden No. 8719 or West Penn. equivalent.

Power - Distribution Cables, Misc: 500 Kc MCM

Video - Per Video Camera Manufacturer's Recommendation

Traffic Signal - 5 Conductor, No. 14 AWG

Traffic Interconnect - 6 Pair, No. 19 AWG, Solid, REA (PE-39)

Video Interconnect - 6 Fiber-Optic Cable Bundle, International Networking Systems Ltd., or Shaxon Industries, Inc.

Traffic Power - Distribution Cables No. 8 AWG & smaller, 600V, Type THWN, Stranded Copper Wire. All cables rated 75 Degrees C.

CALCULATED | CHECKED

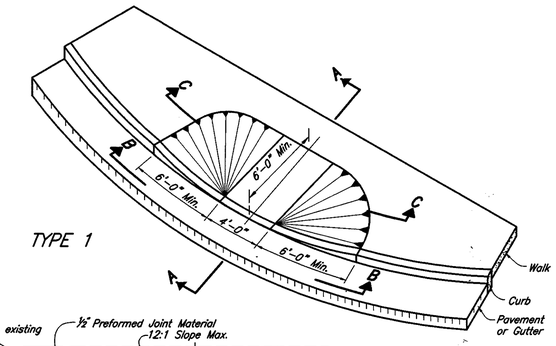
GENERAL NOTES

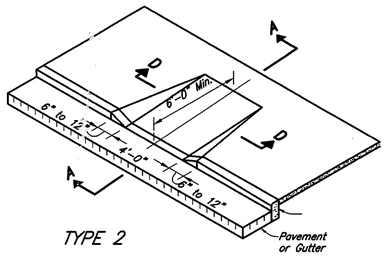
LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

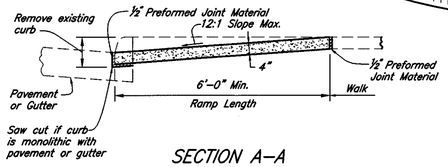
4
40

JOB NO. 1001216N DATE 01/14/02 DRAWN BY REH,SCB,HN

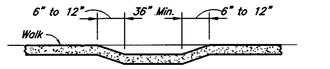
100121



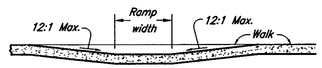




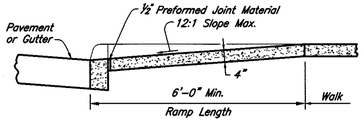
SECTION A–A
EXSITING WALK DETAIL



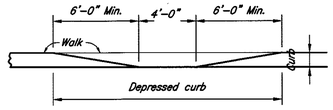
SECTION D–D



SECTION C–C



SECTION A–A
NORMAL DETAIL

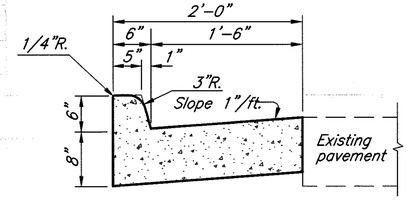


VIEW B–B

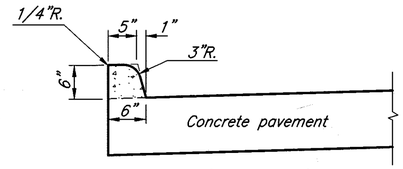
CURB RAMPS

RICHLAND ENGINEERING LIMITED
CONSULTING ENGINEERS
29 NORTH PARK ST., MANSFIELD OHIO 44902

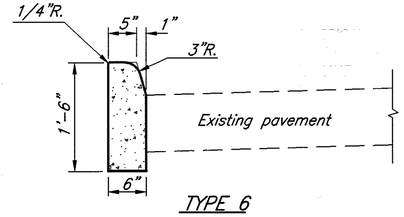
STANDARD DWG. NO. 45



TYPE 2 (MODIFIED)



TYPE 2–A (INTERGRAL)



TYPE 6

CURB REPLACEMENT DETAILS

RICHLAND ENGINEERING LIMITED
CONSULTING ENGINEERS
29 NORTH PARK ST., MANSFIELD OHIO 44902

STANDARD DWG. NO. 35

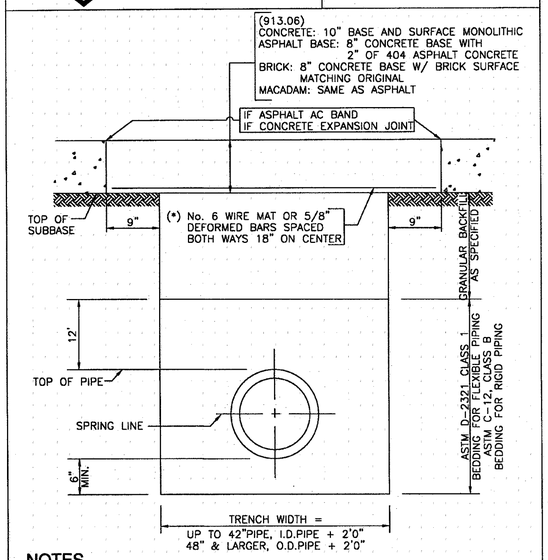
CALCULATED | CHECKED

STANDARD DRAWINGS

Francis H. Cicchinelli, Jr.
Mayor
Massillon Means More!

CITY OF MASSILLON ENGINEERING
151 LINCOLN WAY EAST
MASSILLON, OHIO (330)830-1722
FAX: (330)830-1786

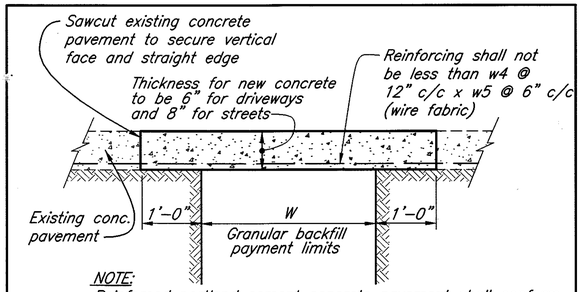
OPEN CUT DETAIL



NOTES

(*) MUST BE USED WHEN WIDTH OF TRENCH IS GREATER THAN 3' AT THE SUBBASE LEVEL

CONCRETE BASE SHALL BE OF 1:2:4, 6 BAG MIX, PORTLAND CEMENT CONCRETE USING HIGH EARLY STRENGTH CEMENT AND IT MUST BE CURED AT LEAST 48 HRS.



NOTE:
Reinforced portland cement concrete pavement shall conform to O.D.O.T. Item 451
Plain Portland cement concrete pavement shall conform to O.D.O.T. Item 452

MAXIMUM WIDTH OF PAYMENT FOR GRANULAR BACKFILL	
Pipe size	W Trench width
4"	2'-4"
6"	2'-6"
8"	2'-8"
10"	2'-10"
12"	3'-0"
14"	3'-2"
15"	3'-3"
16"	3'-4"
18"	3'-6"
20"	3'-8"
21"	3'-9"
24"	4'-0"
27"	4'-9"
30"	5'-0"
Over 30"	Pipe I.D. +3'
Maximum Width of Payment for Pavement Replacement = Trench Width +2'(W+2')	

CONCRETE PAVEMENT REPLACEMENT DETAIL

RICHLAND ENGINEERING LIMITED
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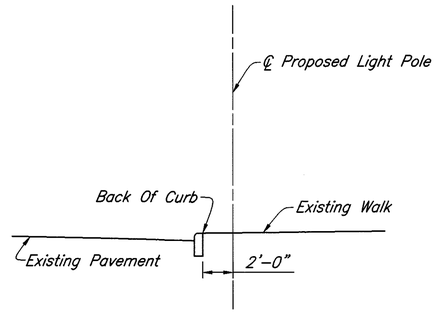
STANDARD DWG. NO. 10



LIGHT POLE LOCATION DETAIL

Scale: 1"=5'

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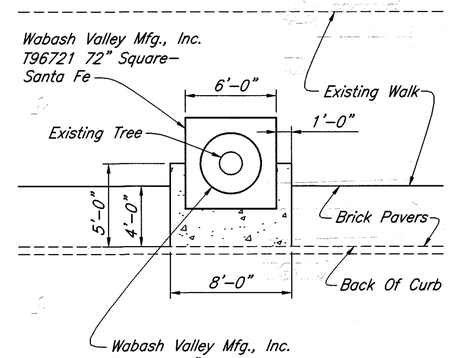
29 NORTH PARK ST., MANSFIELD OHIO 44902



TREE GRATE DETAIL

Scale: 1"=5'

RICHLAND ENGINEERING LIMITED
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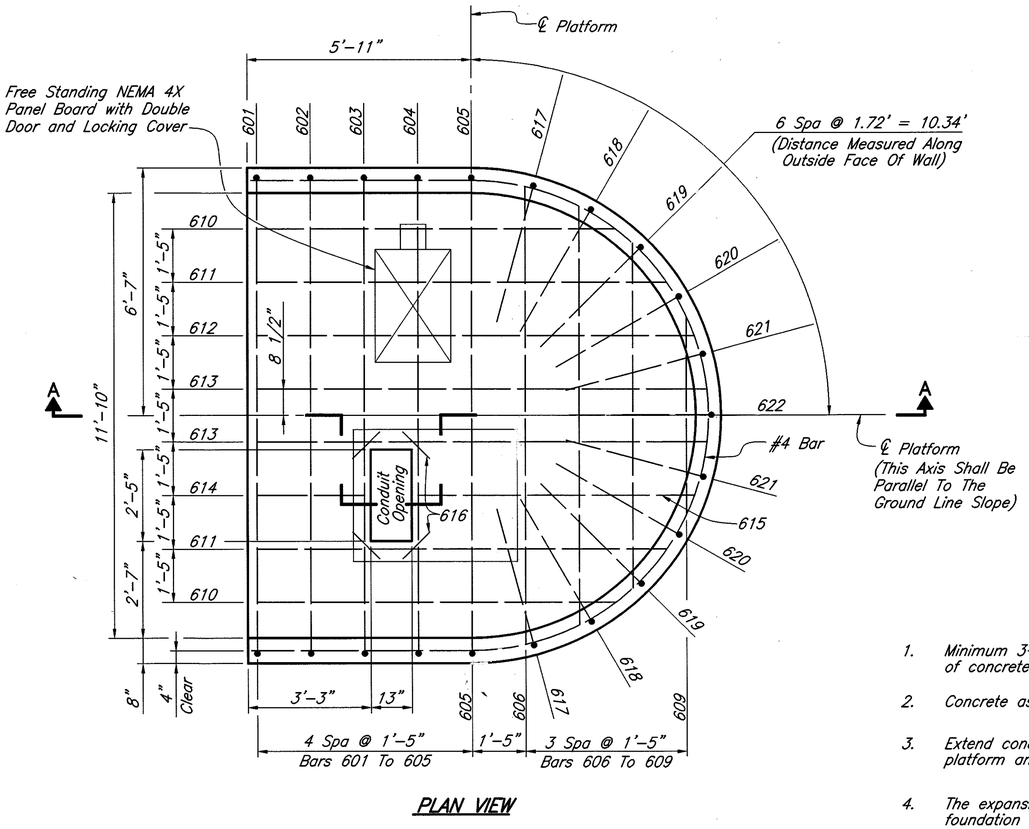
LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

5
40

Job No. 100121sd Date 11/15/00 Drawn By REH

100121

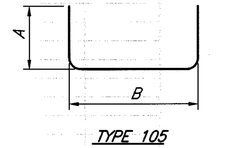


PLAN VIEW

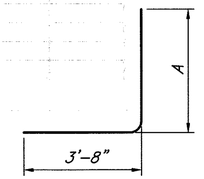
NOTES

1. Minimum 3-inch clearance from rebar to surface of concrete unless noted.
2. Concrete as per 499, Class C.
3. Extend conduit ells 12-inch minimum beyond platform and slope to drain away.
4. The expansion joint between the platform and foundation shall be 1-inch and filled with a filler meeting the requirements of 705.04.

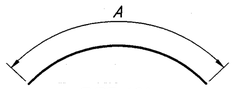
FOUNDATION ~ TYPE 'C' REBAR LIST						
MARK	NO.	LENGTH	TYPE	A	B	R
401	1	25'-5"	144	19'-11"	6'-3"	6'-3"
402	1	24'-7"	144	19'-11"	6'-3"	6'-3"
404	1	21'-11"	121	19'-11"	6'-3"	6'-3"
406	1	18'-9"	121	18'-9"		6'-3"
408	1	13'-8"	121	13'-8"		6'-3"
410	1	5'-10"	121	5'-10"		6'-3"
601	1	12'-7"	105	0'-5"	12'-6"	
602	1	13'-3"	105	1'-1"	12'-6"	
603	1	13'-11"	105	1'-9"	12'-6"	
604	1	14'-7"	105	2'-5"	12'-6"	
605	1	15'-3"	105	3'-1"	12'-6"	
606	1	12'-2"	STR.			
607	1	11'-2"	STR.			
608	1	9'-2"	STR.			
609	1	5'-3"	STR.			
610	2	9'-6"	STR.			
611	2	10'-10"	STR.			
612	2	11'-6"	STR.			
613	2	11'-11"	STR.			
614	1	2'-10"	STR.			
615	1	7'-3"	STR.			
616	4	1'-0"	STR.			
617	2	7'-1"	108	3'-7"		
618	2	7'-9"	108	4'-3"		
619	2	8'-5"	108	4'-11"		
620	2	8'-9"	108	5'-3"		
621	2	9'-1"	108	5'-7"		
622	1	9'-5"	108	5'-11"		



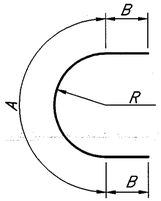
TYPE 105



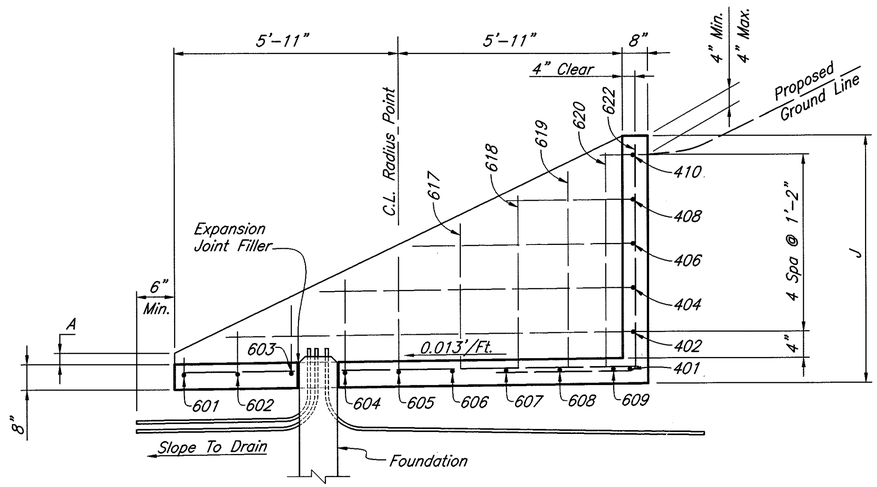
TYPE 108



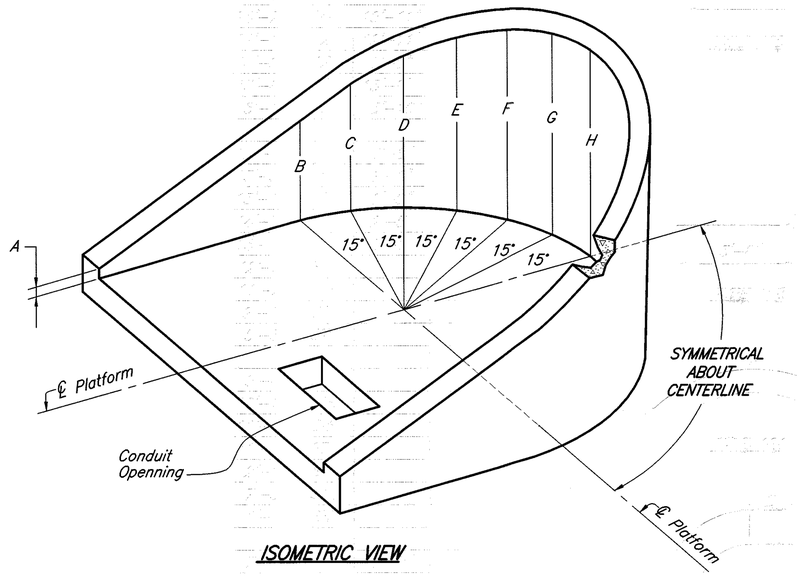
TYPE 121



TYPE 144



SECTION A-A



ISOMETRIC VIEW

PLATFORM GROUPING		WALL ELEVATION DATA								
TYPE	SLOPE	A	B	C	D	E	F	G	H	J
C	2.0:1 TO 2.49:1	3 1/2"	2'-11"	3'-8 1/2"	4'-5 1/4"	5'-0 1/4"	5'-6 1/4"	5'-9 3/4"	5'-10 3/4"	6'-6 1/4"

CALCULATED | CHECKED

STANDARD DRAWINGS

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

6
40

Job No. 100121SDR Date 01/14/02 Drawn By SCB,HN

100121

SHEET NO.												ITEM	ITEM EXT.	GRAND TOTAL	UNIT	DESCRIPTION	AS PER PLAN SHEET NO.
		15	16		22	23											
																ROADWAY	
		312.1										202		312.1	L.F.	Curb removed	
		2043.7										202		2043.7	S.F.	Walk Removed	
		14										202		14	Each	Light Pole Removed for Storage	
		14										202		14	Each	Light Pole Foundation Removed	
		51.6										202		51.6	S.Y.	Pavement Removed	
		58.9										203		58.9	C.Y.	Excavation Not Including Embankment	
		746.4										203		746.4	C.Y.	Embankment	
		12.8										301		12.8	C.Y.	Bituminous Aggregate Base	
		8.6										304		8.6	C.Y.	Aggregate Base	
		2.2										402		2.2	C.Y.	Asphalt Concrete	
												404		2.2	C.Y.	Asphalt Concrete	
		5										407		5	Gal.	Tack Coat	
		21										408		21	C.Y.	Bituminous Prime Coat	
		133										451		133	S.Y.	Asphalt Concrete	
		269.9										601		269.9	S.Y.	Concrete Slope Protection, With W4xW4 Reinforcing	
		160										607		160	L.F	Fence, Wood, As Per Plan	
			8026.5									608		8026.5	S.F.	4" Concrete Walk	
			11									608		11	Each	Curb Ramp	
			238									609		238	L.F.	Curb, Type 6	
			74.1									609		74.1	L.F	Combination Curb & Gutter	
			204.8									690		204.8	S.Y.	Geotextile Fabric, Per 712.09	
			204.8									Spec.		204.8	S.Y.	Precast Concrete Paver System	
			5.4									Spec.		5.4	C.Y.	Sand Base	
			22.7									Spec.		22.7	C.Y.	Compacted Thickness 4D Limestone	
			6									Spec.		6	Each	Tree Grates	
																LIGHTING AND TRAFFIC	
					72							625		72	Each	Connector kit, Type II	
					36							625		36	Each	Connector kit, Type III	
					16							625		16	Each	Light Pole, Misc.: Nostalgia	
					13							625		13	Each	Light Pole Foundation, 24" x 6' Deep	
					1							625		1	Each	Light Tower Maintenance Platform, Type C, As Per Plan	
					3740							625		3740	L.F.	No. 6 AWG, 600 Volt Distribution Cable	
					7480							625		7480	L.F.	No. 4 AWG, 600 Volt Distribution Cable	
					5468							625		5468	L.F.	Distribution Cable, Misc.: 500 Kc MCM	
					3400							625		3400	L.F.	No. 10 AWG, Pole and Bracket Cable	
					1490							625		1490	L.F.	Conduit, 1 1/4", 713.07	
					4339							625		4339	L.F.	Conduit, 2", 713.07	
					71							625		71	L.F.	Conduit, 3", 713.07	
					1080							625		1080	L.F.	Conduit, 4" 713.07	
					416							625		416	L.F.	Conduit, 6", 713.07	
					40							625		40	Each	Luminaire, Misc.: Nostalgia	
					1455							625		1455	L.F.	Trench	
					857							625		857	L.F.	Trench in Paved Areas, Type A	
					590							625		590	L.F.	Trench in Paved Areas, Type B	
					5							625		5	Each	Pull Box, Misc.: 13 x 24	
					2							625		2	Each	Pull Box, Misc.: 18 x 36	
						8						625		8	Each	Pull Box, Misc.: 24 x 36	
						11						625		11	Each	Pull Box, Misc.: 24 x 36 (Ohio Edison)	
						27						625		27	Each	Ground Rod	
						1						625		1	Each	Power Service	
						2						625		2	Each	Power Service, As Per Plan	
						14						632		14	Each	Vehicular Signal Head , 3 Section, 12" Lens, 1 Way	
						3						632		3	Each	Vehicular Signal Head , 3 Section, 12" Lens, 2 Way	
						16						632		16	Each	Pedestrian Signal Head	
						8						632		8	Each	Pedestrian Pushbutton	
						2476						632		2476	Each	Signal Cable, 5 Conductor, No. 14 AWG	
						4701						632		4701	L.F.	Signal Cable, Misc.: Video Cable	
						1159						632		1159	L.F.	Signal Cable, Misc.: Communications Cable	
						1017						632		1017	L.F.	Interconnect Cable, 6 Pair, No. 19 AWG, Solid, REA (PE-39)	
						956						632		956	L.F.	Interconnect Cable, Misc.: 6 Fiber-Optic Cable Bundle	
						8						632		8	Each	Signal Support Foundation	
						4						632		4	Each	Signal Support, Misc.: Nostalgia	
						4						632		4	Each	Combination Signal Support, Misc.: Nostalgia	
						2						632		2	Each	Removal of Traffic Signal Installation For Storage	
						2						633		2	Each	Controller, Actuated, 4-Phase, Solid State Digital Microprocessor, As Per Plan	
						Lump						644		Lump	Lump	Thermoplastic Pavement Marking	
						Lump						Spec.		Lump	Lump	Video Detection Equipment - Third Street	
						Lump						Spec.		Lump	Lump	Video Detection Equipment - First Street	

CALCULATED JS 9/01
REH 9/01
CHECKED DLR

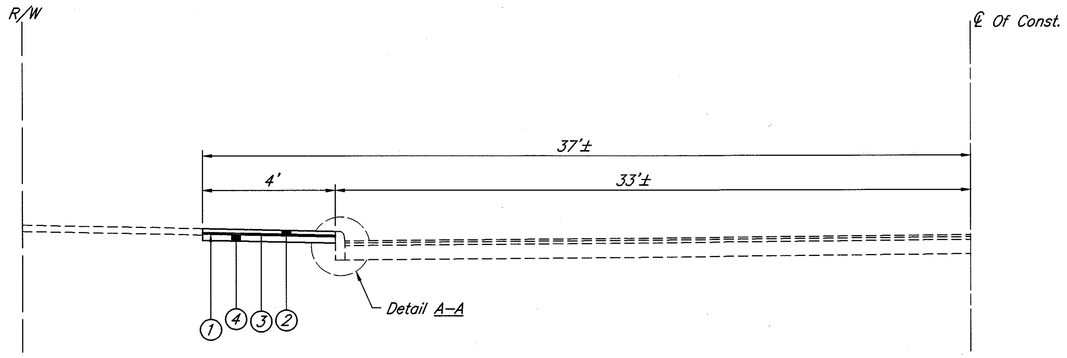
GENERAL SUMMARY

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

7
40

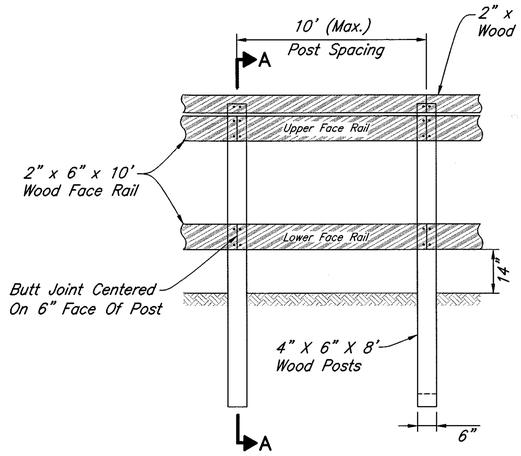
100121GSUM
JOB NO. 100121 DATE 01/15/02 DRAWN BY REH,RB,HN

110121

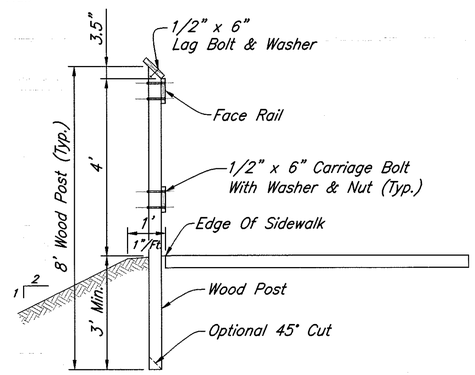


LINCOLN WAY WEST 100' R/W – PROPOSED TYPICAL SECTION – BRICK PAVERS

Sta. 10+37.64 To Sta. 17+98.17 Lt.
Sta. 16+17.86 To Sta. 17+48.51 Rt.
Left & Right Typical



ELEVATION VIEW



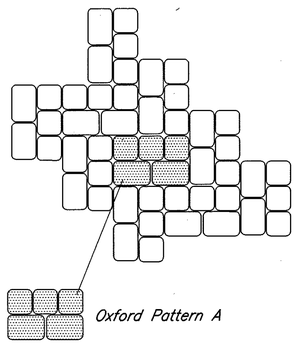
SECTION A–A

WOOD FENCE DETAIL

N.T.S.

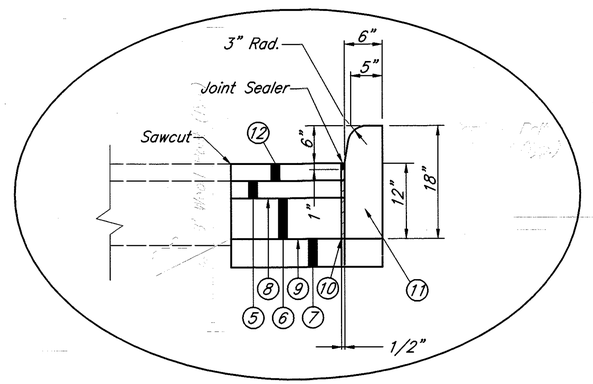
PROPOSED LEGEND

(1) – *Item 712–Fabric, 712.09 Type D*
(2) – *Item Spec.–2 3/8" Thick Precast Concrete Paver System*
(3) – *Item Spec.–1" Thick Sand Base*
(4) – *Item Spec.–4" Compacted Thickness 4d Limestone*
(5) – *Item 402–1 1/2" Asphalt Concrete*
(6) – *Item 301–9" Bituminous Aggregate Base*
(7) – *Item 304–6" Aggregate Base*
(8) – *Item 407–Tack Coat*
(9) – *Item 408–Prime Coat*
(10) – *Item 705–Preformed Fillers*
(11) – *Item 609–Cast In Place Concrete Curb–6"x18"*
(12) – *Item 404–1 1/2" Asphalt Concrete*



PRECAST CONCRETE PAVER SYSTEM

NOTE: COLOR = SARATOGA



DETAIL A–A
CURB REPLACEMENT
& ASPHALT PATCHING

HORIZONTAL SCALE IN FEET
0 4 8

CALCULATED REH
CHECKED DLR

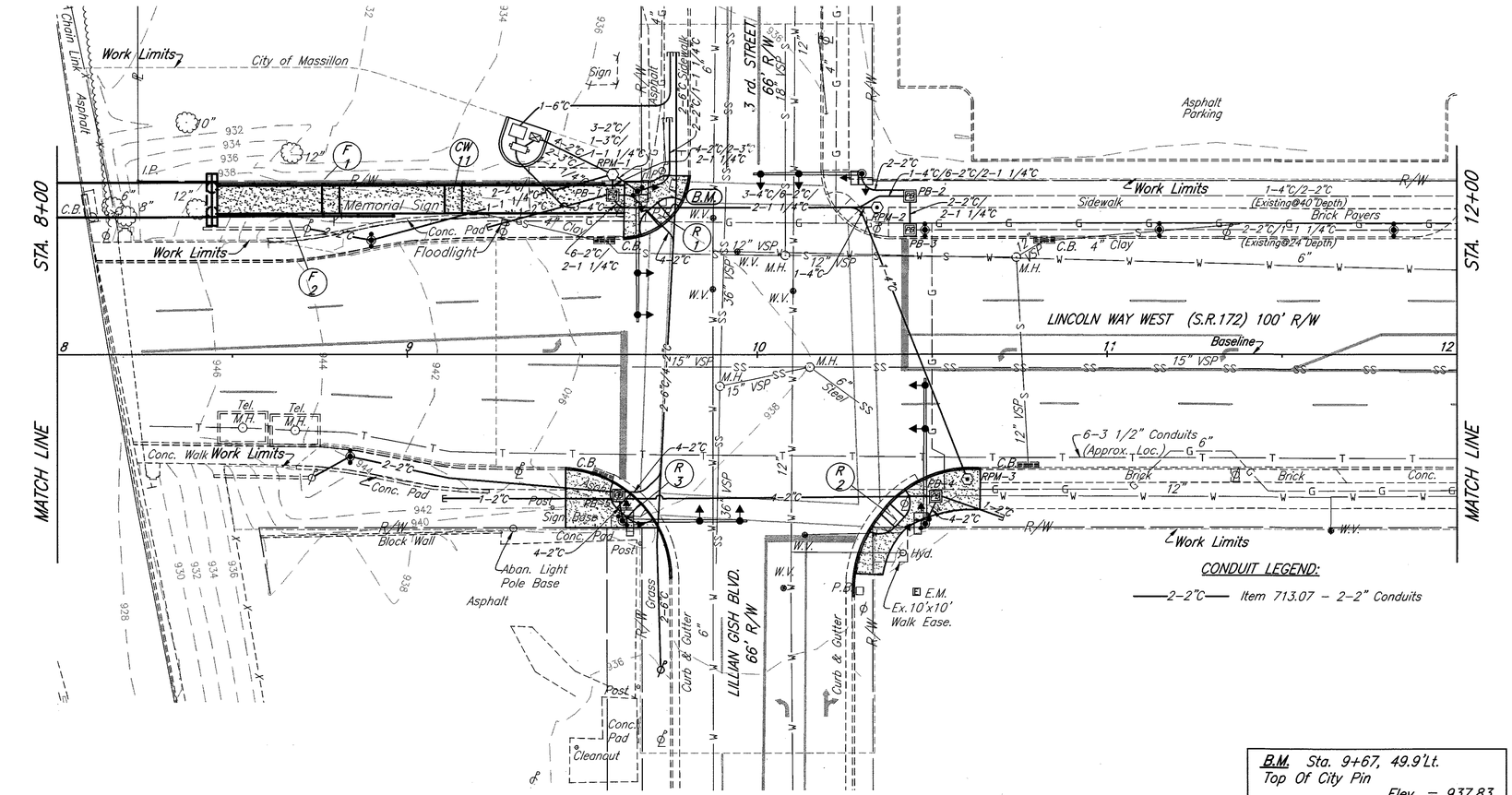
TYPICAL SECTION BRICK PAVER SYSTEM & WOOD FENCE DETAILS

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

8
40

100121TYP
JOB NO. 100121 DATE 01/15/02 DRAWN BY REH,SCB,HN

100121



PLAN AND PROFILE
STA. 8+00 TO STA. 12+00

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

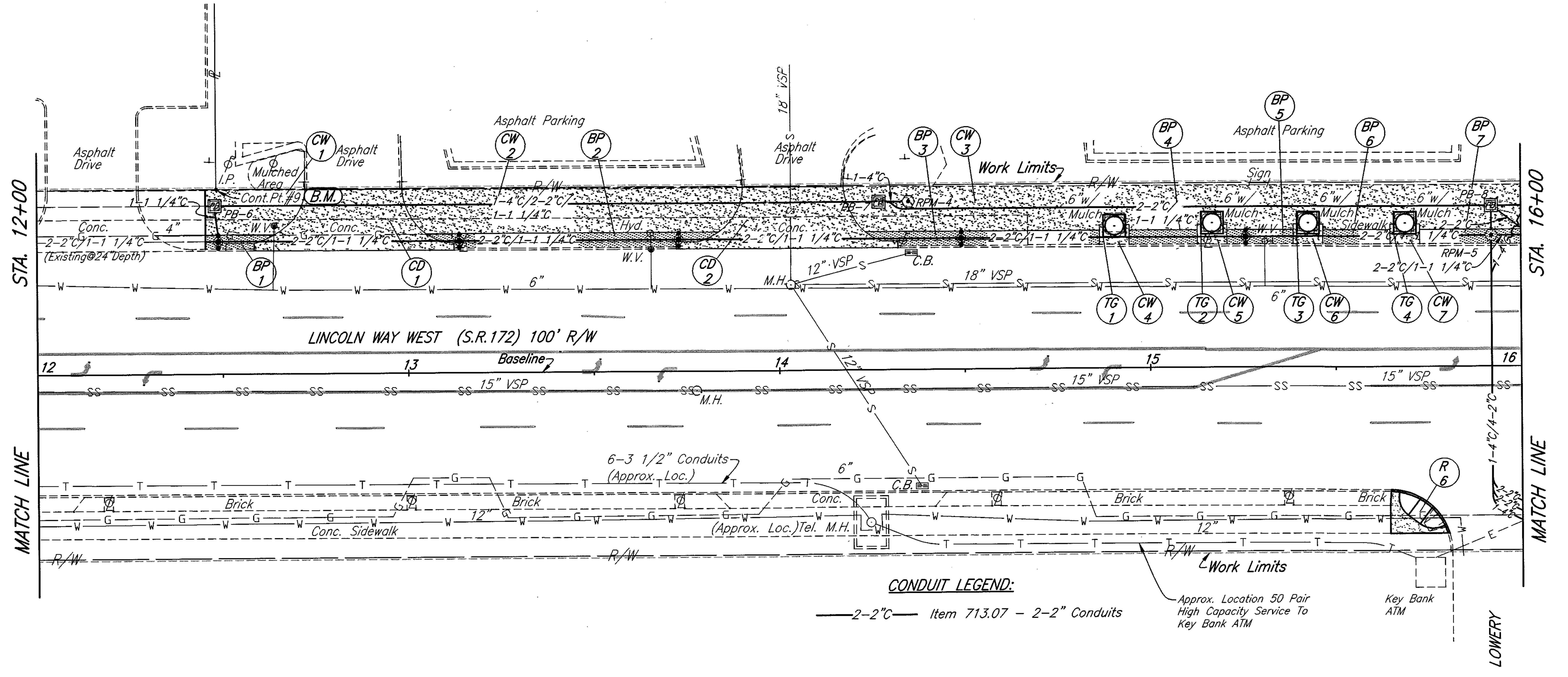
CALCULATED REH
CHECKED DLR

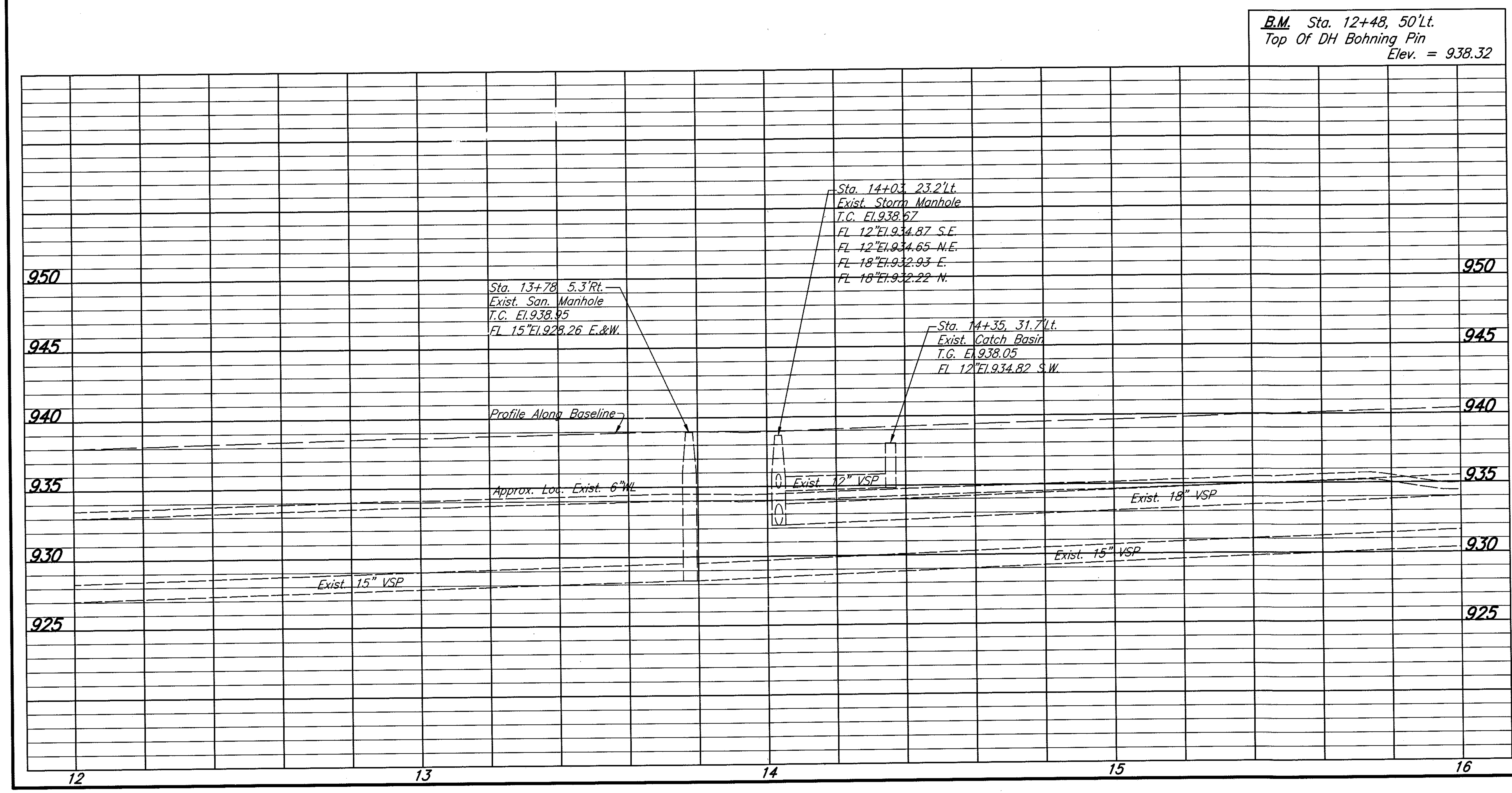
HORIZONTAL SCALE IN FEET
0 20 40

9
40

Job No. 100121pe1 Date 11/08/00 Drawn By REH

100121





NOTE:
For Quantity Subsummary
See Sheet No. 15 &16

ODOT 451 Reinforced Portland Cement Concrete Pavement 6" Tk. As Required
ODOT 608 Concrete Walk 4" Tk. As Required

Precast Concrete Paver System, Oxford Pattern A, Saratoga Color, See Detail, Sheet 8 of 39.

HORIZONTAL SCALE IN FEET: 0 20 40

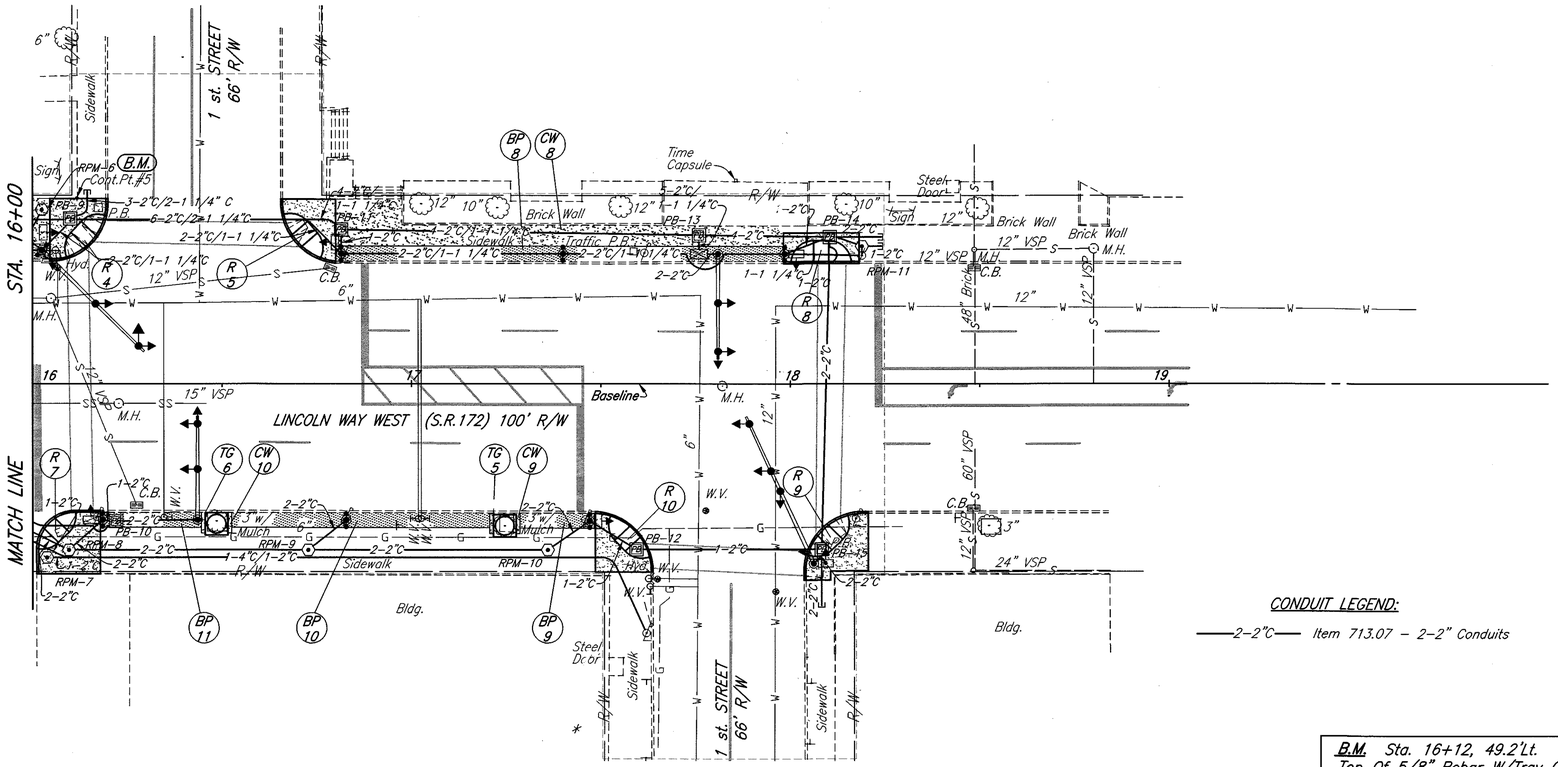
CALCULATED REH
CHECKED DLR

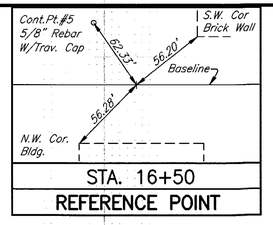
PLAN AND PROFILE
STA. 12+00 TO STA. 16+00

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

Job No. 100121pp2 Date 11/08/00 Drawn By REH

100121





NOTE:
For Quantity Subsummary
See Sheet No. 15 & 16

ODOT 451 Reinforced Portland Cement Concrete Pavement 6" Tk. As Required
ODOT 608 Concrete Walk 4" Tk. As Required

Precast Concrete Paver System, Oxford Pattern A, Saratoga Color, See Detail, Sheet 8 of 39.

CONDUIT LEGEND:

—2–2"C— Item 713.07 – 2–2" Conduits

B.M. Sta. 16+12, 49.2'Lt.
Top Of 5/8" Rebar W/Trav Cap
Elev. = 939.82

N

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED REH
CHECKED DLR

PLAN AND PROFILE
STA. 16+00 TO STA. 19+00

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

11
40

Job No. 100121bp3 Date 11/08/00 Drawn By REH

100121

SEEDING	
END WIDTH	SQ. YDS.

40 30 20 10 0 10 20 30 40

950
945
940
935
930
925

946.48
2+50.00
939.3

950
945
940
935
930
925

935.4
2+25.00
936.4

930
925

2+00.00
928.9

40 30 20 10 0 10 20 30 40

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	274.5		
		8.5	143.8
18.3	36		
		8.5	16.7
0	0		

CALCULATED REH
CHECKED DLR

CROSS SECTIONS
BRIDGE STA. 2+00 TO 2+50

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

12
40

Job No. 100121xs Date 09/21/01 Drawn By REH

100121

SEEDING	
END WIDTH	SQ. YDS.

40 30 20 10 0 10 20 30 40

945
940
935
930

941.10
3+25.00
940.2

945
940
935
930

942.73
3+00.00
941.1

950
945
940
935
930

944.50
2+75.00
942.1

40 30 20 10 0 10 20 30 40

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	39		
		0	227
0	88.1		
		0	114.9
0	160.0		
		0	201.2

CALCULATED REH
CHECKED DLP

CROSS SECTIONS
BRIDGE STA. 2+75 TO 3+25

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

13
40

100121

Job No. 100121xs Date 09/21/01 Drawn By REH

SEEDING	
END WIDTH	SQ. YDS.

40 30 20 10 0 10 20 30 40

TOTAL CUT 17.0 C.Y.
TOTAL FILL 746.4 C.Y.

940
935
940
935
930
939.62
3+50.00
939.1
3+75.00
938.2

END AREA		VOLUME	
CUT	FILL	CUT	FILL
0	0		
		0	12.4
0	26.7		
		0	30.4

CALCULATED REH
CHECKED DLR

CROSS SECTIONS
BRIDGE STA. 3+50 TO 3+75

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

14
40

Job No. 100121xs Date 09/21/01 Drawn By REH

100121

REF. NO.	STATION FROM	STATION TO	SIDE	202 Curb Removed	202 Walk Removed	202 Light Pole Removed for Storage	202 Light Pole Foundation Removed	202 Pavement Removed	203 Excavation Not Incl. Embank.	203 Embank.	301 Bituminous Aggregate Base	304 Aggregate Base	402 Asphalt Concrete	404 Asphalt Concrete	407 Tack Coat	408 Bituminous Prime Coat	451 Reinforced Portland Cement Concrete Pavement	601 Concrete Slope Protection, With W4xW4 Reinforcing	607 Fence, Wood, As Per Plan
				L.F.	S.F.	Each	Each	S.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	C.Y.	Gal.	Gal.	S.Y.	S.Y.	L.F.
R1	9+74.9		38.7'Lt.	31.2	183.5			4.8			1.2	0.8	0.2	0.2					
R2	10+38		45.2'Rt.	58.6	419.4			9.8			2.4	1.6	0.4	0.4					
R3	9+66.7		42.6'Rt.	48.5	144.4			8.1			2.0	1.3	0.3	0.3					
R4	16+15.9		37.5'Lt.	25.3	191.5			4.2			1.1	0.7	0.2	0.2					
R5	16+69.4		37.6'Lt.	24.6	178.9			4.1			1.0	0.7	0.2	0.2					
R6	15+74.3		36.6'Rt.	21	248.2			3.5			0.9	0.6	0.2	0.2					
R7	16+04		36.9'Rt.	29.4	127.9			4.9			1.2	0.8	0.2	0.2					
R8	18+08.2		32.1'Lt.	20	149.9			3.3			0.8	0.6	0.1	0.1					
R9	18+08.2		38.5'Rt.	28.6	220			4.8			1.2	0.8	0.2	0.2					
R10	17+59.4		39'Rt.	24.9	180			4.1			1.0	0.7	0.2	0.2					
BP1	12+45.4	12+64.1	Lt.						1.3										
BP2	13+04.9	13+83.8	Lt.						6.3										
BP3	14+23.3	14+86.5	Lt.						5.3										
BP4	14+94.5	15+12.8	Lt.						1.7										
BP5	15+20.8	15+38.7	Lt.						1.6										
BP6	15+46.7	15+64.8	Lt.						1.6										
BP7	15+72.8	16+04.6	Lt.						2.9										
BP8	16+80	17+98.2	Lt.						10.8										
BP9	17+28.6	17+48	Rt.						1.8										
BP10	16+52.5	17+20.6	Rt.						6.2										
BP11	16+17.9	16+44.5	Rt.						2.4										
CW1	12+45.4	12+72.4	Lt.																
CW2	12+98.5	13+90.3	Lt.																
CW3	14+17.4	16+03.8	Lt.																
CW4	14+86.5	14+94.5	Lt.																
CW5	15+12.8	15+20.8	Lt.																
CW6	15+38.6	15+46.6	Lt.																
CW7	15+64.7	15+72.7	Lt.																
CW8	16+80	17+97.9	Lt.																
CW9	17+20.6	17+28.6	Rt.																
CW10	16+44.5	16+52.5	Rt.																
CW11	8+43.3	9+62	Lt.						17	746.4									
TG1	14+88.9		36.9'Lt.																
TG2	15+15.2		37.5'Lt.																
TG3	15+41.1		37.4'Lt.																
TG4	15+68.3		36.7'Lt.																
TG5	17+22.5		38.6'Rt.																
TG6	16+48.5		37.3'Rt.																
CS1	7+16.4	7+42.4	44.5'Lt.															238.2	
CS2	8+21.9	8+42.3	44.5'Lt.															31.7	
CD1	12+72.4	12+98.5	Lt.														65.7		
CD2	13+90.3	14+17.4	Lt.														67.3		
F1	8+46	9+56	48.8'Lt.																110
F2	8+46	8+96	40.2'Lt.																50
PR2	9+60.5		41.7'Lt.			1	1												
PR3	10+34.2		36.1'Lt.			1	1												
PR4	11+34.2		35.0'Lt.			1	1												
PR6	13+14.8		34.8'Lt.			1	1												
PR7	14+33.5		35.0'Lt.			1	1												
PR8	15+15.6		34.4'Lt.			1	1												
PR9	16+03.2		34.1'Lt.			1	1												
PR10	16+82.4		34.3'Lt.			1	1												
PR11	17+61.5		34.9'Lt.			1	1												
PR13	9+60.4		40.6'RT.			1	1												
PR14	10+42.1		43.1'Rt.			1	1												
PR15	16+16.9		35.4'RT.			1	1												
PR16	16+82.9		35.6'Rt.			1	1												
PR17	17+45.8		36.1'Rt.			1	1												
TOTALS CARRIED TO GENERAL SUMMARY				312.1	2043.7	14	14	51.6	58.9	746.4	12.8	8.6	2.2	2.2	5	21	133	269.9	160

CALCULATED REH 9/01
CHECKED DLR 1/02

ROADWAY SUBSUMMARY

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

15
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100121PP-SSUM
JOB NO. 100121 DATE 01/15/02 DRAWN BY REH,HN

100121

REF. NO.	STATION FROM	STATION TO	SIDE	608 Concrete Walk	608 Curb Ramps	609 Curb Type 6	609 Comb. Curb & Gutter	690 Geotextile Fabric, Per 712.09	Spec. Precast Concrete Paver System	Spec. Sand Base	Spec. Compacted Thickness 4D Limestone	Spec. Tree Grates	
				S.F.	Ea.	L.F.	L.F	S.Y.	S.Y.	C.Y.	C.Y.	Ea.	
R1	9+74.9		38.7'Lt.	229.5	1	31.2							
R2	10+38		45.2'Rt.	419.4	1	19	39.6						
R3	9+66.7		42.6'Rt.	310.4	1	14	34.5						
R4	16+15.9		37.5'Lt.	191.5	1	25.3							
R5	16+69.4		37.6'Lt.	178.9	1	24.6							
R6	15+74.3		36.6'Rt.	127.9	1	21							
R7	16+04		36.9'Rt.	248.2	1	29.4							
R8	18+08.2		32.1'Lt.	149.9	1	20							
R9	18+08.2		38.5'Rt.	220	1	28.6							
R10	17+59.4		39'Rt.	180	1	24.9							
BP1	12+45.4	12+64.1	Lt.					6.5	6.5	0.2	0.7		
BP2	13+04.9	13+83.8	Lt.					30.7	30.7	0.8	3.4		
BP3	14+23.3	14+86.5	Lt.					26.1	26.1	0.7	2.9		
BP4	14+94.5	15+12.8	Lt.					8.1	8.1	0.2	0.9		
BP5	15+20.8	15+38.7	Lt.					7.9	7.9	0.2	0.9		
BP6	15+4[illegible].7	15+64.8	Lt.					8	8	0.2	0.9		
BP7	15+72.8	16+04.6	Lt.					14.2	14.2	0.4	1.6		
BP8	16+80	17+98.2	Lt.					52.5	52.5	1.4	5.8		
BP9	17+28.6	17+48	Rt.					8.9	8.9	0.2	1.0		
BP10	16+52.5	17+20.6	Rt.					30	30	0.8	3.3		
BP11	16+17.9	16+44.5	Rt.					11.9	11.9	0.3	1.3		
CW1	12+45.4	12+72.4	Lt.	294.3									
CW2	12+98.5	13+90.3	Lt.	1052.8									
CW3	14+17.4	16+03.8	Lt.	2117.3									
CW4	14+86.5	14+94.5	Lt.	24.3									
CW5	15+12.8	15+20.8	Lt.	28.3									
CW6	15+38.6	15+46.6	Lt.	27.9									
CW7	15+64.7	15+72.7	Lt.	27.7									
CW8	16+80	17+97.9	Lt.	765.6									
CW9	17+20.6	17+28.6	Rt.	13.6									
CW10	16+44.5	16+52.5	Rt.	11.5									
CW11	8+43.3	9+62	Lt.	1178									
TG1	14+88.9		36.9'Lt.									1	
TG2	15+15.2		37.5'Lt.									1	
TG3	15+41.1		37.4'Lt.									1	
TG4	15+68.3		36.7'Lt.									1	
TG5	17+22.5		38.6'Rt.									1	
TG6	16+48.5		37.3'Rt.									1	
CS1	7+16.4	7+42.4	44.5'Lt.										
CS2	8+21.9	8+42.3	44.5'Lt.										
CD1	12+72.4	12+98.5	Lt.										
CD2	13+90.3	14+17.4	Lt.										
F1	8+46	9+56	48.8'Lt.										
F2	8+46	8+96	40.2'Lt.										
TOTALS CARRIED TO GENERAL SUMMARY				8,026.5	11	238	74.1	204.8	204.8	5.4	22.7	6	

100121PP-SSUM
JOB NO. 100121 DATE 01/15/02 DRAWN BY REH,HN

CALCULATED REH 9/01
CHECKED DLR 1/02

ROADWAY SUBSUMMARY

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

16
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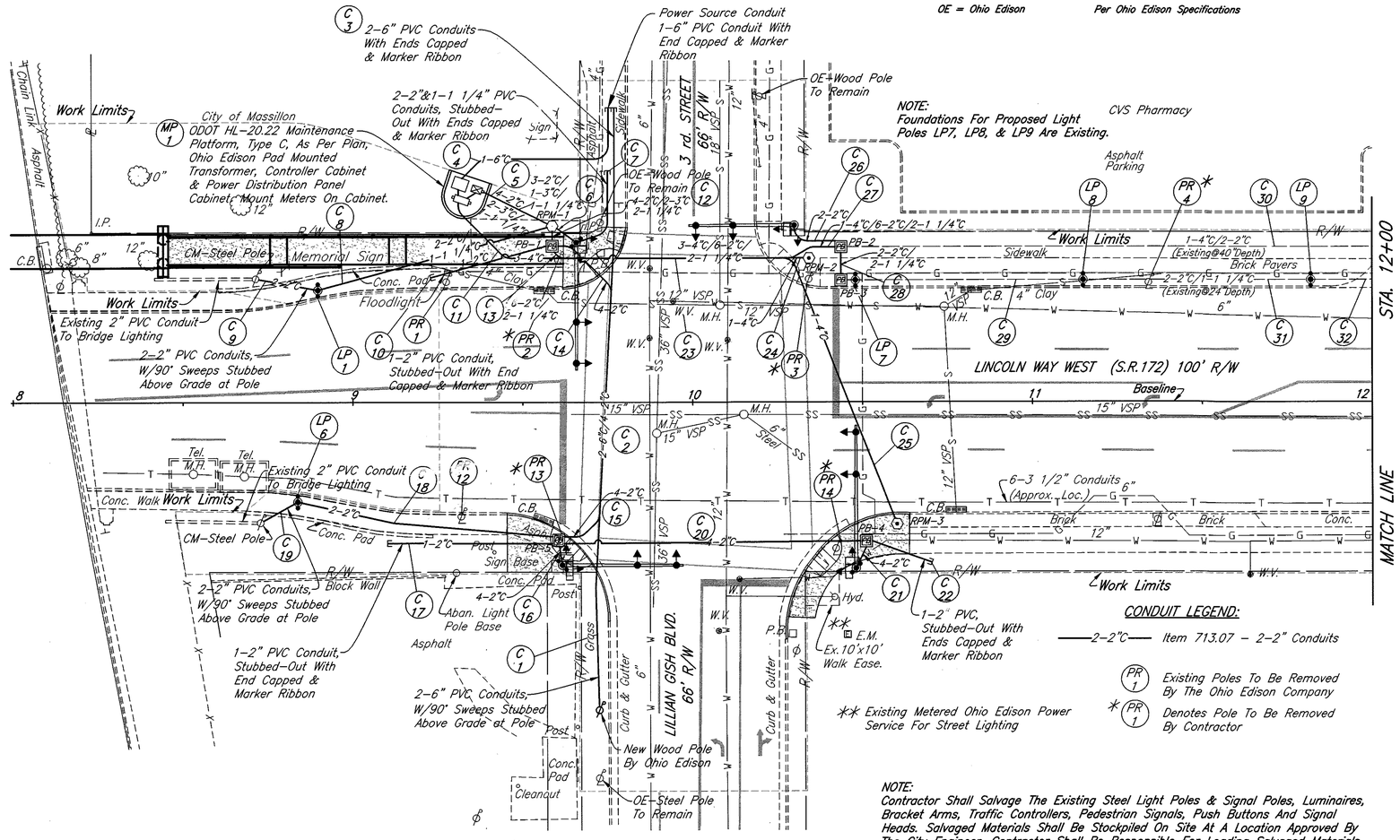
100121

CIRCUIT LEGEND:

L = Lighting	No. 4 AWG 600 Volt Distribution Cable (2) & No. 6 AWG 600 Volt Distribution Cable
R = Receptacle	No. 4 AWG 600 Volt Distribution Cable (2) & No. 6 AWG 600 Volt Distribution Cable
C = Communications	Signal Cable, Misc.: Communications Cable
P = Power	Distribution Cable, Misc.: 500 Kc MCM (4)
V = Video	Per Manufacturer's Recommendation
T = Traffic Signal	Signal Cable, 5 Conductor, No. 14 AWG
TI = Traffic Interconnect	Interconnect Cable, 6 Pair, No. 19 AWG, Solid, REA (PE-39)
VI = Video Interconnect	Interconnect Cable, Misc.: 6 Fiber-Optic Cable Bundle
TP = Traffic Power	Power Cable, 3 Conductor, No. 8 AWG
RS = Re-synch	Empty (For Future Use)
OE = Ohio Edison	Per Ohio Edison Specifications



CONDUIT LEGEND:

2-2"C — Item 713.07 - 2-2" Conduits

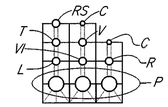
(PR 1) Existing Poles To Be Removed By The Ohio Edison Company

* (PR 1) Denotes Pole To Be Removed By Contractor

NOTE:
Contractor Shall Salvage The Existing Steel Light Poles & Signal Poles, Luminaires, Bracket Arms, Traffic Controllers, Pedestrian Signals, Push Buttons And Signal Heads. Salvaged Materials Shall Be Stockpiled On Site At A Location Approved By The City Engineer. Contractor Shall Be Responsible For Loading Salvaged Materials For Transport By The City Of Massillon Street Department.

NOTE:
The Cost For Removing And Resetting Brick Pavers To Permit The Installation/Removal Of Light Poles And Ground Mounted Signs From Station 10+38 Lt. To 12+45 Lt. Shall Be Included In The Respective Work Items. No Separate Payment Shall Be Made.

DUCT BANK DETAILS

Ref. No. C23


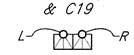
3-4"C/6-2"C/2-1 1/4"C

Ref. No. C29,* C31* & C32*

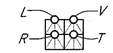

2-2"C/1-1 1/4"C

Ref. No. C30*


1-4"C/2-2"C

Ref. No. C9, C18 & C19


2-2"C

Ref. No. C14, C15, C16, C20 & C21


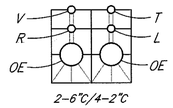
4-2"C

Ref. No. C10, C17 & C22


1-2"C

Ref. No. C26

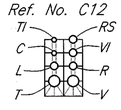

2-2"C

Ref. No. C2


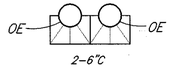
2-6"C/4-2"C

Ref. No. C24 & C25

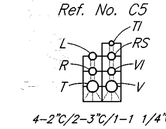

1-4"C

Ref. No. C12


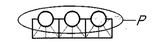
2-3"C/4-2"C/2-1 1/4"C

Ref. No. C1 & C3


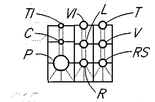
2-6"C

Ref. No. C5


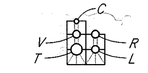
4-2"C/2-3"C/1-1 1/4"C

Ref. No. C11


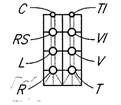
3-4"C

Ref. No. C27


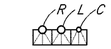
1-4"C/6-2"C/2-1 1/4"C

Ref. No. C6


3-2"C/1-3"C/1-1 1/4"

Ref. No. C13


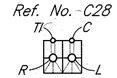
6-2"C/2-1 1/4"C

Ref. No. C7, C8


2-2"C/1-1 1/4"C

Ref. No. C4


1-6"C

Ref. No. C28


2-2"C/2-1 1/4"C

* Existing Conduits

NOTE:
For Quantity Subsummary See Sheet No. 22 & 23

N

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED HS
CHECKED DLR

LIGHTING PLAN
STA. 8+00 TO STA. 12+00

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

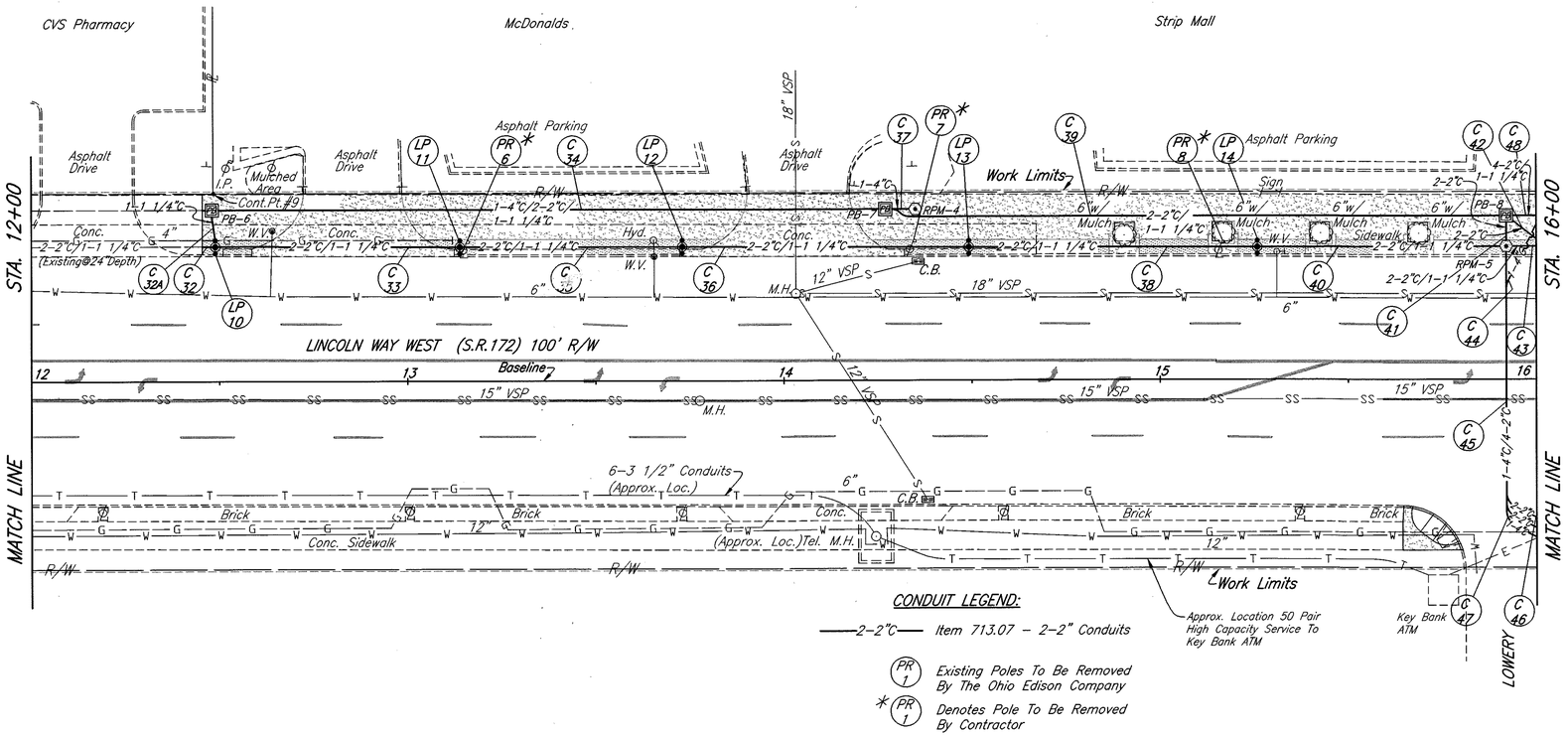
17
40

Job No. 100121Int_1 Date 09/25/01 Drawn By REH,SCB

100121

CIRCUIT LEGEND:

L = Lighting	No. 4 AWG 600 Volt Distribution Cable (2) & No. 6 AWG 600 Volt Distribution Cable
R = Receptacle	No. 4 AWG 600 Volt Distribution Cable (2) & No. 6 AWG 600 Volt Distribution Cable
C = Communications	Signal Cable, Misc.: Communications Cable
P = Power	Distribution Cable, Misc.: 500 Kc MCM (4)
V = Video	Per Manufacturer's Recommendotion
T = Traffic Signal	Signal Cable, 5 Conductor, No. 14 AWG
TI = Traffic Interconnect	Interconnect Cable, 6 Pair, No. 19 AWG, Solid, REA (PE-39)
VI = Video Interconnect	Interconnect Cable, Misc.: 6 Fiber-Optic Cable Bundle
TP = Traffic Power	Power Cable, 3 Conductor, No. 8 AWG
RS = Re-synch	Empty (For Future Use)
OE = Ohio Edison	Per Ohio Edison Specifications



CONDUIT LEGEND:

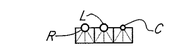
——2-2"C—— Item 713.07 - 2-2" Conduits

(PR 1) Existing Poles To Be Removed By The Ohio Edison Company

* (PR 1) Denotes Pole To Be Removed By Contractor

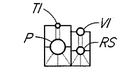
DUCT BANK DETAILS

Ref. No. C33, C35, C36, C38, C40, C43



2-2"C/1-1 1/4"C

Ref. No. C34

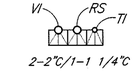


1-4"C/2-2"C/1-1 1/4"C

Ref. No. C37, C44 & C47

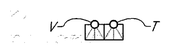
1-4"C

Ref. No. C39



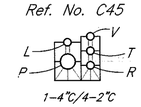
2-2"C/1-1 1/4"C

Ref. No. C41, C42 & C46



2-2"C

Ref. No. C45

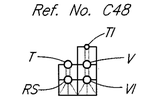


1-4"C/4-2"C

Ref. No. C32A

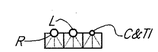
1-1 1/4"C

Ref. No. C48



4-2"C/1-1 1/4"C

Ref. No. C32



2-2"C/1-1 1/4"C

NOTE:
For Quantity Subsummary See Sheet No. 22 & 23

HORIZONTAL SCALE IN FEET
0 20 30 40

CALCULATED HS
CHECKED DLR

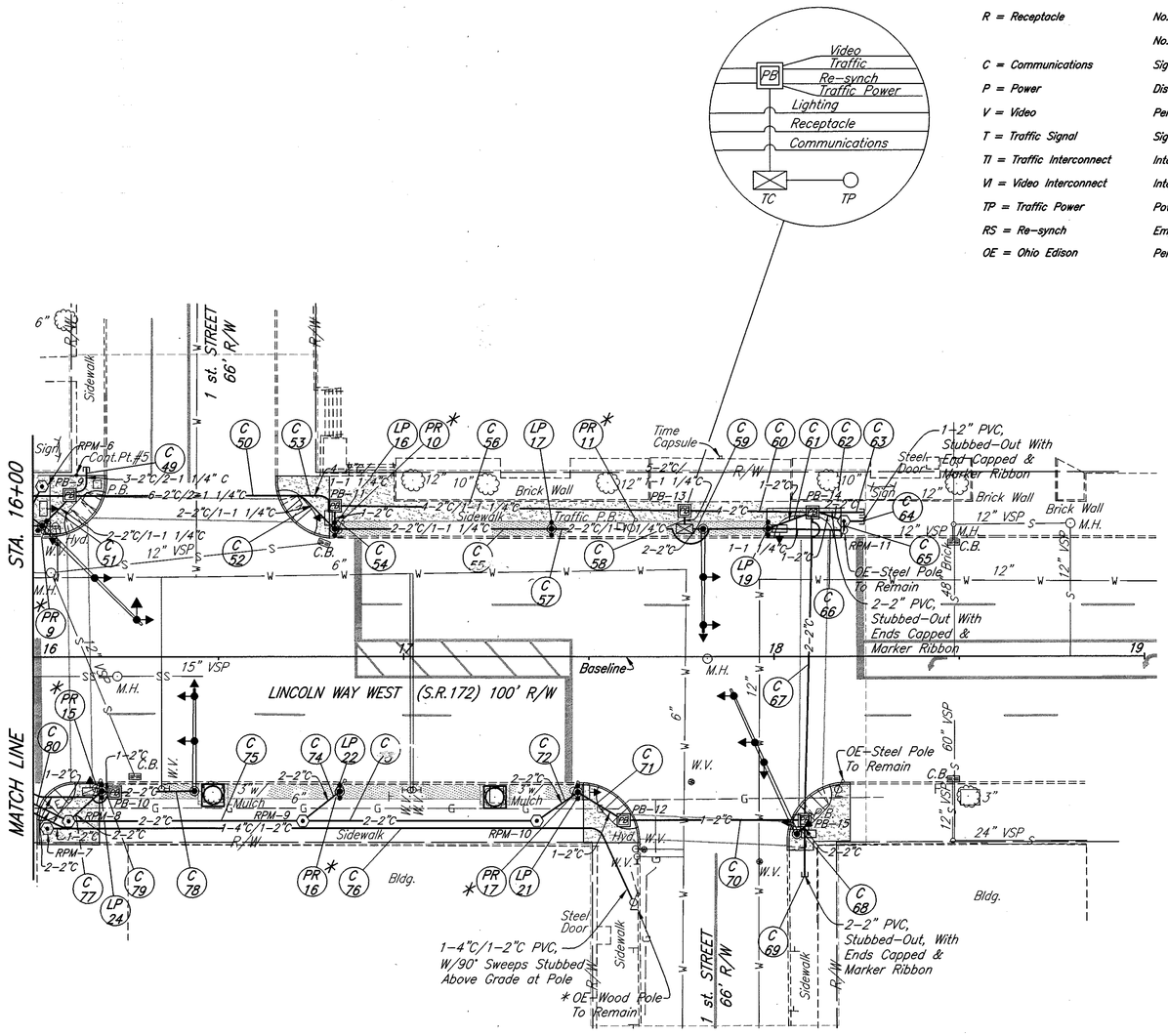
LIGHTING PLAN
STA. 12+00 TO STA. 16+00

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

18
40

Job No. 100121thL_2 Date 09/25/01 Drawn By REH,SCB

100121



CIRCUIT LEGEND:

L = Lighting	No. 4 AWG 600 Volt Distribution Cable (2) & No. 6 AWG 600 Volt Distribution Cable
R = Receptacle	No. 4 AWG 600 Volt Distribution Cable (2) & No. 6 AWG 600 Volt Distribution Cable
C = Communications	Signal Cable, Misc.: Communications Cable
P = Power	Distribution Cable, Misc.: 500 Kc MCM (4)
V = Video	Per Manufacturer's Recommendation
T = Traffic Signal	Signal Cable, 5 Conductor, No. 14 AWG
TI = Traffic Interconnect	Interconnect Cable, 6 Pair, No. 19 AWG, Solid, REA (PE-39)
VI = Video Interconnect	Interconnect Cable, Misc.: 6 Fiber-Optic Cable Bundle
TP = Traffic Power	Power Cable, 3 Conductor, No. 8 AWG
RS = Re-synch	Empty (For Future Use)
OE = Ohio Edison	Per Ohio Edison Specifications

CONDUIT LEGEND:

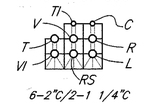
——2-2"C—— Item 713.07 - 2-2" Conduits

(PR 1) Existing Poles To Be Removed By The Ohio Edison Company

* (PR 1) Denotes Pole To Be Removed By Contractor

DUCT BANK DETAILS

Ref. No. C50



6-2"C/2-1 1/4"C

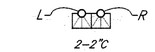
Ref. No. C51, C52, C55 & C57

2-2"C/1-1 1/4"C

Ref. No. C54, C61, C70, C71 & C79

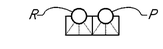
1-2"C

Ref. No. C72, C73, C74, C75, C77 & C80



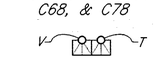
2-2"C

Ref. No. C76



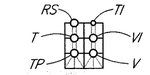
1-4"C/1-2"C

Ref. No. C59, C67, C68, & C78



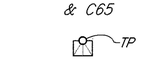
2-2"C

Ref. No. C58



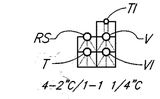
5-2"C/1-1 1/4"C

Ref. No. C62, C64 & C65



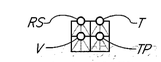
1-2"C

Ref. No. C53 & C56



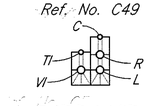
4-2"C/1-1 1/4"C

Ref. No. C60



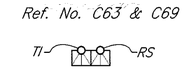
4-2"C

Ref. No. C49



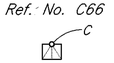
3-2"C/2-1 1/4"C

Ref. No. C63 & C69



2-2"C

Ref. No. C66



1-1 1/4"C

NOTE:
Contractor Shall Redirect The Customer Owned ATM Electric Service To The Proposed RPM-7. The Location To RPM-7 Shall Be Coordinated With The Relocation Of The Existing Electric Sevice. Cost To Be Included In The Unit Price Bid For Pull Box, As Per Plan.

* **NOTE:**
Concert & Festival Power To RPM Shall Be Furnished From OE-Wood Pole. Install 100 AMP Non Lighting Service Meter And NEMA 4X Type SC-100 3 Phase, 3 Pole, Fused Switch & Enclosure With 120V Switchable Bypass Circuit To RPM-7 For ATM Service As Per ODOT Standard Drawing HL-40.10 Dated 7/20/01 & HL-60.31 Dated 7/20/01.

NOTE:
For Quantity Subsummary See Sheet No. 22 & 23

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED HS
CHECKED DLR

LIGHTING PLAN
STA. 16+00 TO STA. 19+00

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

19
40

Job No. 100121lht_3 Date 09/25/01 Drawn By REH,SCB

100121

SIGNAL INTERVAL AND FACE DISPLAY

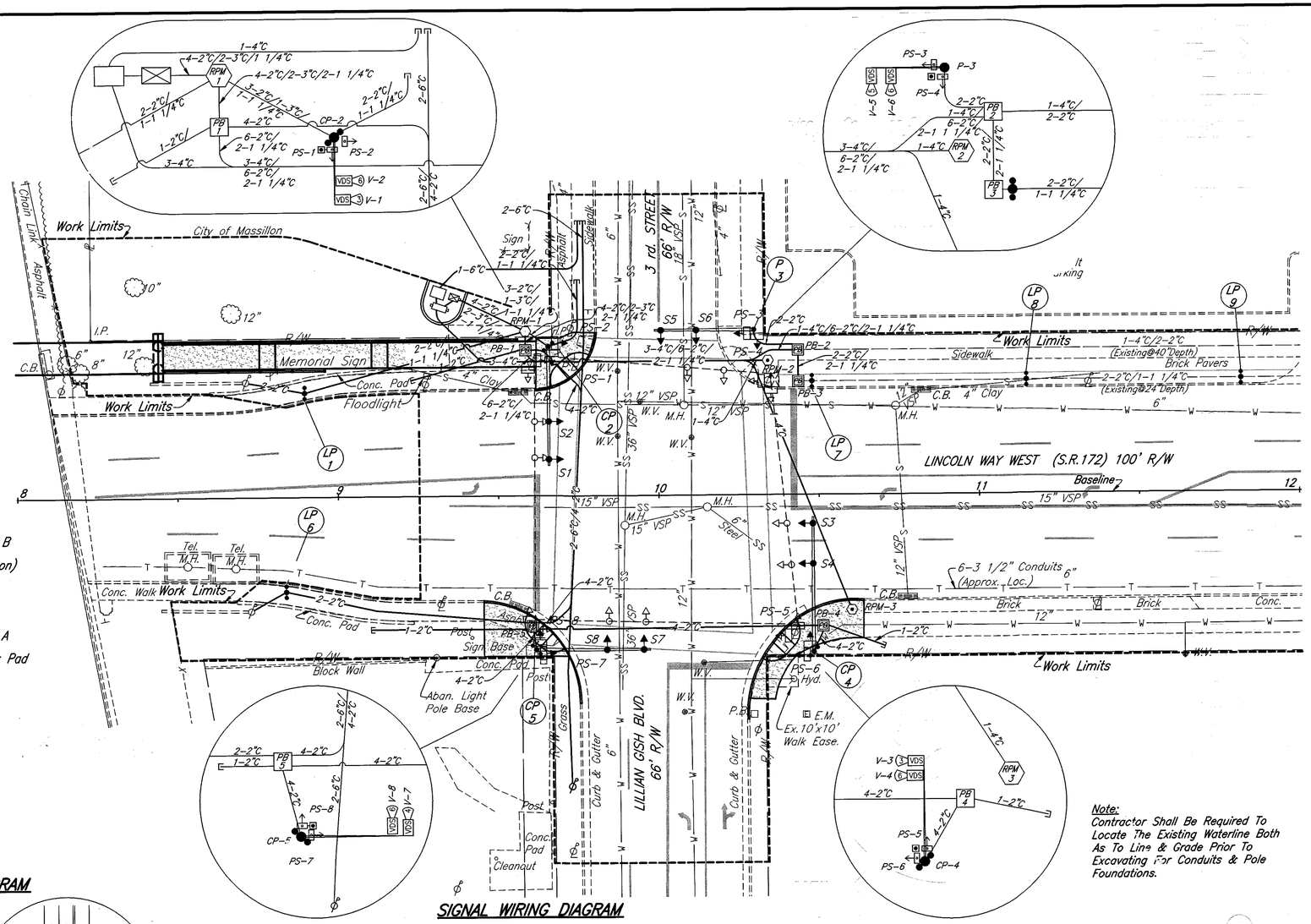
SIGNAL REF. NO.	LOCATION	SIGNAL TYPE	PHASE 1 INTERVAL			PHASE 2 INTERVAL		
			1	2	3	1	2	3
S-1	P-1	A	G	Y	R	R	R	R
S-2	P-1	A	G	Y	R	R	R	R
S-3	P-3	A	G	Y	R	R	R	R
S-4	P-3	A	G	Y	R	R	R	R
S-5	P-2	A	R	R	R	G	Y	R
S-6	P-2	A	R	R	R	G	Y	R
S-7	P-4	A	R	R	R	G	Y	R
S-8	P-4	A	R	R	R	G	Y	R
PS-1	P-1	B	DW	DW	DW	W	FDW	DW
PS-2	P-1	B	W	FDW	DW	DW	DW	DW
PS-3	P-2	B	W	FDW	DW	DW	DW	DW
PS-4	P-2	B	DW	DW	DW	W	FDW	DW
PS-5	P-3	B	DW	DW	DW	W	FDW	DW
PS-6	P-3	B	W	FDW	DW	DW	DW	DW
PS-7	P-4	B	W	FDW	DW	DW	DW	DW
PS-8	P-4	B	DW	DW	DW	W	FDW	DW

PAVEMENT MARKING LEGEND

- Proposed Crosswalk Line
- Exist. Crosswalk Line
- Exist. Centerline
- Exist. Stop Line
- Exist. Lane Line
- Exist. Lane Arrow

LIGHTING, ELECTRIC, TRAFFIC SIGNAL LEGEND

- Existing Light Circuit OE (Ohio Edison)
- Primary Power Circuit OE
- Electric Power Duct OE
- Existing Light Pole/Power Pole OE
- Existing Light Pole CM (City of Massillon)
- Existing Traffic Signal Pole CM
- Existing Pull Box
- Proposed Nostalgic Light Pole
- Proposed Pull Box (Size As Shown)
- Proposed Conduit in Trench
- Mast Arm City Massillon Standard
- Pedestrian Signal Head(s) Type B
- Pedestrian Activated (Push Button)
- RPM Handhole (Ohio Edison)
- RPM Handhole, Concert/Power
- Vehicular Signal (Heads) Type A
- Traffic Controller/Concrete Work Pad
- VDS 3 — Proposed Video Detector; 3=Lens Type, Defines Horizontal View Limits
- Existing Pedestrian Signal
- Existing Vehicular Signal Head
- Existing Traffic Controller



ACTUATED

TRAFFIC SIGNAL CONTROLLER TIMING CHART
INTERSECTION LINCOLN WAY (S.R.172) & THIRD STREET
MAINTAINING AGENCY CITY OF MASSILLON SIGNAL MAINT. DEPT.

START UP
START IN: Y/R__ : ALL RED X
TIME FOR FLASH OR ALL RED__
FIRST PHASE(S) # 1 & #__
COLOR DISPLAYED:
GREEN__ : YELLOW X

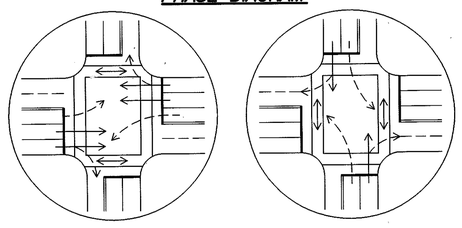
DUAL ENTRY __
REST IN RED:
RING 1 __; RING 2 __

OVERLAP PHASES: A B C D

INTERVAL OR FEATURE	CONTROLLER MOVEMENT NO. 1	2	3	4	5	6
INTERSECTION MOVEMENT	1	2				
MAXIMUM GREEN (INITIAL) (SEC.)	10	10				
ADDED INITIAL * (SEC/ACTUATION)	4	4				
PASSAGE TIME (PRESET GAP) (SEC.)	5	5				
TIME BEFORE REDUCTION * (SEC.)	10	10				
MINIMUM GAP * (SEC.)	3	3				
TIME TO REDUCE * (SEC.)	–	–				
MAXIMUM GREEN I * (SEC.)	40	21				
MAXIMUM GREEN II * (SEC.)	64.5	30				
YELLOW CHANGE (SEC.)	3.0	3.0				
ALL RED CLEARANCE (SEC.)	1.5	1.5				
WALK (SEC.)	10	10				
PEDESTRIAN CHANGE (SEC.)	18	21				
RECALL MAXIMUM (ON/OFF)	ON	OFF				
RECALL MINIMUM (ON/OFF)	ON	OFF				
RECALL PEDESTRIAN (ON/OFF)	ON	OFF				
MEMORY (ON/OFF)	OFF	ON				
CALL TO NON-ACTIVATED NO.1 NO.2						

* VOLUME DENSITY CONTROLS

PHASE DIAGRAM



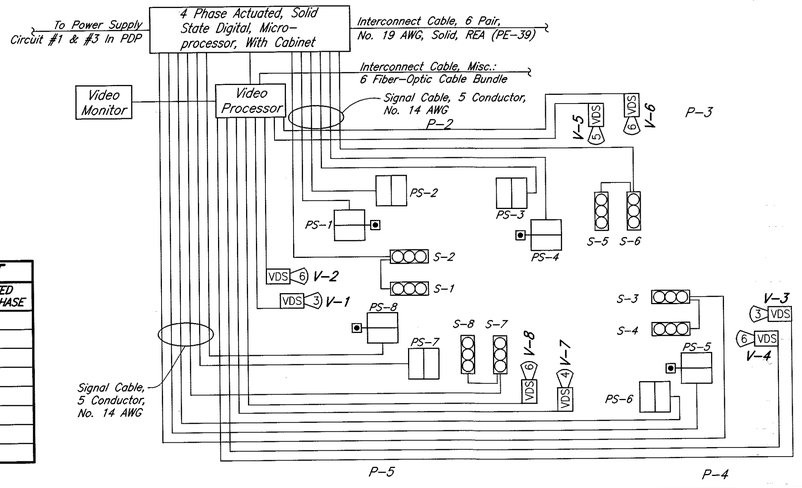
PHASE 1
RECALL/RESET

PHASE 2
VEHICLE & PEDESTRIAN ACTIVATED

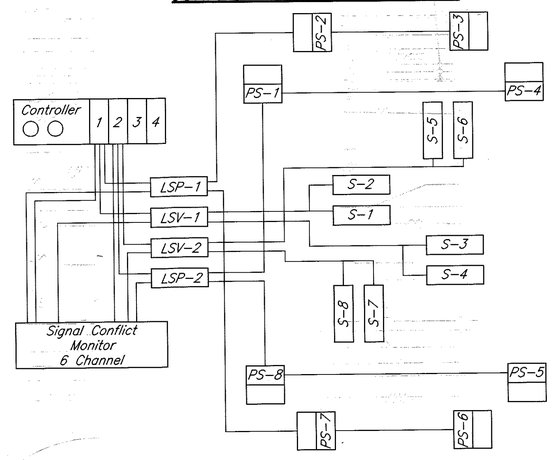
VIDEO DETECTION SYSTEM @ THIRD STREET

VDS DESIGNATION	LENS TYPE	DETECTION TYPE	CALLING RELAY	DELAY OR EXTENSION	OVERRIDE PHASE	ASSOCIATED CONTROL PHASE
V-1	3	PRESENCE	YES	+4	N.A.	1
V-2	6	PULSE	YES	+8	N.A.	1
V-3	3	PRESENCE	YES	+4	N.A.	1
V-4	6	PULSE	YES	+8	N.A.	1
V-5	3	PRESENCE	YES	–8	N.A.	2
V-6	6	PULSE	YES	–8	N.A.	2
V-7	4	PRESENCE	YES	–8	N.A.	2
V-8	6	PULSE	YES	–8	N.A.	2

SIGNAL WIRING DIAGRAM



CONFLICT MONITORING DIAGRAM



Note:
Contractor Shall Be Required To Locate The Existing Waterline Both As To Line & Grade Prior To Excavating For Conduits & Pole Foundations.

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED HS 8/01
CHECKED DLR 1/02

TRAFFIC SIGNAL PLAN
LINCOLN WAY WEST AND LILLIAN GISH BLVD./3 RD. ST.

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

20
40

Job No. 100121sigdtl_1 Date 09/25/01 Drawn By REH.SCB

100121

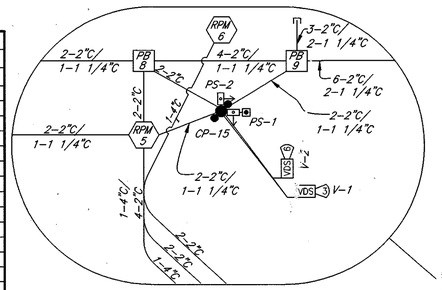
SIGNAL INTERVAL AND FACE DISPLAY

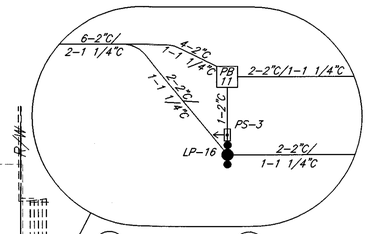
SIGNAL REF. NO.	LOCATION	SIGNAL TYPE	PHASE 1 INTERVAL			PHASE 2 INTERVAL			PHASE 3 INTERVAL		
			1	2	3	1	2	3	1	2	3
S-1	LP-13	A	G	G	G	G	Y	R	R	R	R
S-2	LP-13	A	G	Y	R	G	Y	R	R	R	R
S-3	P-19	A	G	Y	R	R	R	R	R	R	R
S-4	P-19	A	G	Y	R	R	R	R	R	R	R
S-11	P-15	A	G	Y	R	R	R	R	R	R	R
S-12	P-15	A	G	Y	R	R	R	R	R	R	R
S-13	P-17	A	G	G	G	G	Y	R	R	R	R
S-14	P-17	A	G	G	G	G	Y	R	R	R	R
S-5	LP-13	A	R	R	R	R	R	R	G	Y	R
S-6	P-19	A	R	R	R	R	R	R	G	Y	R
S-7	P-15	A	R	R	R	R	R	R	G	Y	R
S-8	P-17	A	R	R	R	R	R	R	G	Y	R
PS-2	LP-13	B	W	FDW	DW	DW	DW	DW	DW	DW	DW
PS-3	LP-14	B	W	FDW	DW	DW	DW	DW	DW	DW	DW
PS-7	P-17	B	W	FDW	DW	DW	DW	DW	DW	DW	DW
PS-8	LP-18	B	W	FDW	DW	DW	DW	DW	DW	DW	DW
PS-1	LP-13	B	DW	DW	DW	DW	DW	DW	W	FDW	DW
PS-4	LP-20	B	DW	DW	DW	DW	DW	DW	W	FDW	DW
PS-5	LP-16	B	DW	DW	DW	DW	DW	DW	W	FDW	DW
PS-6	P-17	B	DW	DW	DW	DW	DW	DW	W	FDW	DW

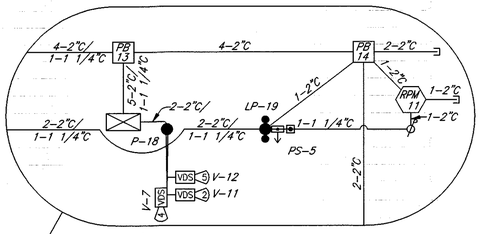
VIDEO DETECTION SYSTEM @ FIRST STREET

VDS DESIGNATION	LENS TYPE	DETECTION TYPE	CALLING RELAY	DELAY OR EXTENSION	OVERRIDE PHASE *	ASSOCIATED CONTROL PHASE
V-1	3	PRESENCE	YES	+4		1 & 2
V-2	6	PULSE	YES	−8		3
V-3	2	PRESENCE	YES	+4	P.A.	1
V-4	6	PULSE	YES	+8	P.A.	1
V-6	4	PRESENCE	YES	+4		1 & 2
V-7	4	PRESENCE	YES	+4	P.A.	3
V-8	6	PULSE	YES	+8	P.A.	3
V-11	2	PRESENCE	YES	+4	P.A.	1
V-12	5	PULSE	YES	+8	P.A.	1
V-13	2	PRESENCE	YES	+4		1 & 2
V-14	6	PULSE	YES	+8		1 & 2

* PEDESTRIAN ACTIVATED OVERRIDE PHASE TIMING

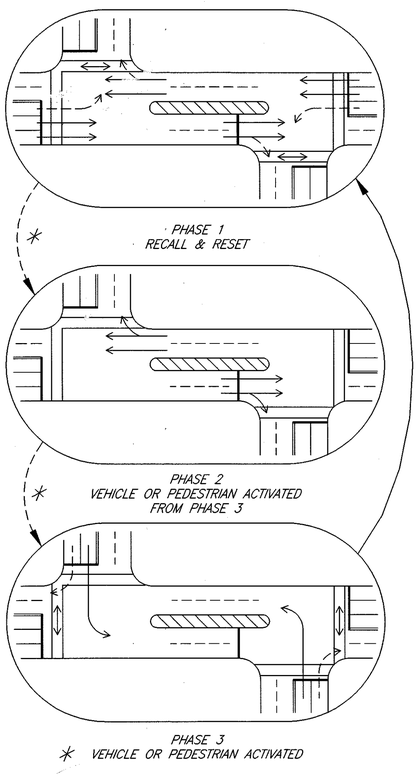






Existing Customer-Owned Electric Service To ATM Machine Owned By Key Bank (Exact Route Unknown). To Be Redirected To Proposed RPM-7 With 4"PVC, Item 625 – Trench In Paved Area, Type "B"

PHASE DIAGRAM



ACTUATED

TRAFFIC SIGNAL CONTROLLER TIMING CHART
INTERSECTION LINCOLN WAY (S.R.172) & THIRD STREET
MAINTAINING AGENCY CITY OF MASSILLON SIGNAL MAINT. DEPT.

START UP
START IN: Y/R__ ; ALL RED X
TIME FOR FLASH OR ALL RED__
FIRST PHASE(S) # 1 & #__
COLOR DISPLAYED:
GREEN__ ; YELLOW X

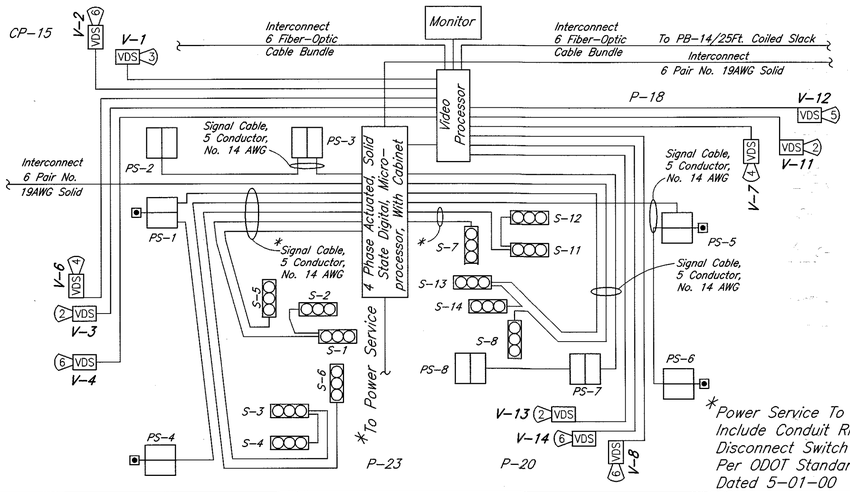
DUAL ENTRY __
REST IN RED:
RING 1 __; RING 2 __

OVERLAP PHASES	A	B	C	D

INTERVAL OR FEATURE	CONTROLLER MOVEMENT NO. 1	2	3	4	5	6
INTERSECTION MOVEMENT	1	2	3			
MAXIMUM GREEN (INITIAL) (SEC.)	10	6	10			
ADDED INITIAL * (SEC/ACTUATION)	–	–	4			
PASSAGE TIME (PRESET GAP) (SEC.)	–	–	5			
TIME BEFORE REDUCTION * (SEC.)	–	–	10			
MINIMUM GAP * (SEC.)	–	–	3			
TIME TO REDUCE * (SEC.)	–	–	–			
MAXIMUM GREEN I * (SEC.)	40	6	21			
MAXIMUM GREEN II * (SEC.)	64.5	6	27			
YELLOW CHANGE (SEC.)	3.0	3.0	3.0			
ALL RED CLEARANCE (SEC.)	1.5	1.0	1.5			
WALK (SEC.)	10	–	10			
PEDESTRIAN CHANGE (SEC.)	15	–	17			
RECALL MAXIMUM (ON/OFF)	ON	–	OFF			
RECALL MINIMUM (ON/OFF)	ON	–	OFF			
RECALL PEDESTRIAN (ON/OFF)	ON	–	OFF			
MEMORY (ON/OFF)	OFF	OFF	ON			
CALL TO NON-ACTIVATED NO.1 NO.2						

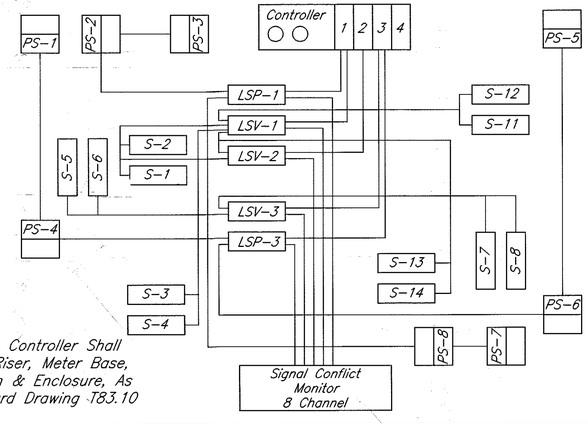
* VOLUME DENSITY CONTROLS

SIGNAL WIRING DIAGRAM



*Power Service To Controller Shall Include Conduit Riser, Meter Base, Disconnect Switch & Enclosure, As Per ODOT Standard Drawing T83.10 Dated 5-01-00

CONFLICT MONITORING DIAGRAM



Job No. 100121sigdtl_2 Date 09/25/01 Drawn By REH,SCB

CALCULATED HS 8/01 | CHECKED DLR 1/02

0 20 40 HORIZONTAL SCALE IN FEET

TRAFFIC SIGNAL PLAN
LINCOLN WAY WEST AND 1 ST. STREET

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE MASSILLON, OHIO

21 / 40

100121

REF. NO.	STATION FROM	STATION TO	SIDE	625 Connector kit, type II EACH	625 Connector kit, type III EACH	625 Light pole, misc.: nostalgia EACH	625 Light pole foundation, 24" x 6' deep EACH	625 Light tower maintenance platform, type C, as per plan EACH	625 No. 6 awg, 600 volt distribution cable LF	625 No. 4 awg, 600 volt distribution cable LF	625 Distribution cable, misc.: 500 kc mcm LF	625 No. 10 awg, pole and bracket cable LF	625 Conduit, 1 1/4", 713.07 LF	625 Conduit, 2", 713.07 LF	625 Conduit, 3", 713.07 LF	625 Conduit, 4", 713.07 LF	625 Conduit, 6", 713.07 LF	625 Luminaire, misc.: nostalgia EACH	625 Trench LF	625 Trench in paved areas, type A LF	625 Trench in paved, type B LF	625 Pull box, misc.: 13 x 24 EACH	625 Pull box, misc.: 18 x 36 EACH
C1	9+71.29	9+72.34	RT.														114		40		17		
C2	9+71.29	9+76.92	RT./LT						136	272				136			136				68		
C3	9+76.92	9+76.92	LT.														106			43	10		
C4	9+31.20	9+76.92	LT.					1									60		45	15			
C5	9+36.60	9+58.73	LT.						70	140			25	100	50				25				
C6	9+58.73	9+65.84	LT.	2	1				38	76		170	9	18	9			2		9			
C7	9+65.84	9+75.20	LT.										27	54						27			
C8	8+89.75	9+58.73	LT.	4	2	1	1		164	328		170	72	144				2	42	30			
C9	8+71.40	8+89.75	LT.						58	116				38					5	14			
C10	9+23.00	9+58.73	LT.																	38			
C11	9+31.20	9+62.70	LT.								576					129			15	28			
C12	9+58.73	9+58.73	LT.						32	64			12	24	12					6			
C13	9+58.73	9+62.70	LT.						24	48			14	28						7			
C14	9+58.73	9+76.92	LT.						58	116				48						18	6		
C15	9+60.40	9+72.34	RT.						44	88				34							17		
C16	9+60.40	9+61.50	RT.	2	1				36	72		170		16				2		8			
C17	9+10.40	9+60.40	RT.																35	15			
C18	8+83.69	9+60.40	RT.	4	2	1	1		176	352		170		156				2		78			1
C19	8+72.60	8+83.69	RT.						46	92				26					6	7			
C20	9+60.40	10+51.00	RT.						202	404				182						17	74		1
C21	10+48.00	10+51.00	RT.	2	1				38	76		170		18				2		9			
C22	10+51.00	10+70.20	RT.																	20			
C23	9+62.70	10+26.60	LT.						128	256	768		128	256		192				19	45		
C24	10+26.60	10+34.32	LT.								52					8				8			
C25	10+26.60	10+60.00	RT./LT								364					86				14	72		
C26	10+30.00	10+48.00	LT.																	18			
C27	10+26.60	10+48.00	LT.						46	92	92		36	72		18				18			
C28	10+48.00	10+48.00	LT.	4	2	1			40	80		170	20	20				2		10		1	
C29	10+48.00	11+14.97	LT.	4	2	1			154	308		170						2					
C30	10+48.00	12+48.00	LT.								840			6		3			3				
C31	11+14.97	11+81.93	LT.	4		1			154	308		170						2					
C32	11+81.93	12+48.89	LT.	4	2	1	1		154	308		170	3	6				2	3				
C32A	12+48.00	12+48.89	LT.										10						10				
C33	12+48.89	13+13.89	LT.	4	2	1	1		150	300		170	65	130				2	65				
C34	12+48.00	14+27.00	LT.								756		179	358		179			179				
C35	13+13.89	13+72.98	LT.	4	2	1	1		138	276		170	59	118				2	59				
C36	13+72.98	14+49.18	LT.	4	2	1	1		174	348		170	77	154				2	77				
C37	14+27.00	14+35.00	LT.								72					8			8				
C38	14+49.18	15+25.84	LT.	4	2	1	1		172	344		170	76	152				2	76				
C39	14+27.00	15+92.00	LT.										165	330					165				
C40	15+25.84	15+92.00	LT.						152	304			66	132					66				
C41	15+92.00	15+92.00	LT.																8				
C42	15+92.00	16+02.50	LT.																14				
C43	15+92.00	16+02.50	LT.	2	1				42	84		170	11	22				2	11				
C44	15+92.00	16+02.45	LT.								120					25			15		10		
C45	15+92.00	15+92.00	RT./LT						142	284	284			142		71			2		69		
C46	15+92.00	16+22.00	RT.																	18	15	1	
C47	15+92.00	16+10.00	RT.								104					21				8	13		
C48	15+92.00	16+09.24	LT.										18	36					18				
C49	16+09.24	16+14.00	LT.										16	24						8			
C50	16+09.24	16+70.09	LT.						134	268			124	248					14		48		
C51	16+02.50	16+09.24	LT.						44	88			12	24					12				
C52	16+70.90	16+81.50	LT.	4	2	1	1		40	80		170	15	30				2	15				
C53	16+70.90	16+81.50	LT.										12	24					12				
C54	16+81.50	16+81.50	LT.																7				
C55	16+81.50	17+40.00	LT.	4	2	1	1		138	276		170	59	118				2	59				
C56	16+81.50	17+75.88	LT.										95	190					95				
C57	17+40.00	17+98.50	LT.	4	2	1	1		138	276		170	59	118				2	59				
C58	17+75.88	17+75.88	LT.										5	15					5				
C59	17+75.88	17+80.91	LT.																5				
C60	17+75.88	18+10.50	LT.											70					35			1	
C61	17+98.50	18+10.50	LT.																13				
C62	18+10.50	18+18.50	LT.											10					10				
C63	18+10.50	18+24.00	LT.											28					7	7			
C64	18+18.50	18+24.20	LT.											5						5			
C65	18+18.50	18+18.50	LT.											3						3			
C66	17+98.50	18+18.50	LT.										21						21				
C67	18+08.24	18+10.50	RT./LT																12		71	1	
C68	18+06.16	18+08.24	RT.																5				
C69	18+08.24	18+08.24	RT.											30					7	8.			
C70	17+59.33	18+08.24	RT.											49					6		43	1	
C71	17+47.00	17+59.33	RT.											15					15				
C72	17+35.94	17+47.00	RT.	4	2	1	1		48	96		170		28				2		14			
C73	16+72.74	17+35.94	RT.						146	292				126						63			
C74	16+72.74	16+82.74	RT.	4	2	1	1		48	96		170		28				2		14			
C75	16+09.54	16+72.74	RT.						146	292				126						63			
C76	16+03.77	17+62.00	RT.								1440					340				170			
C77	16+09.54	16+18.50	RT.						46	92				26					13				
C78	16+22.00	16+43.50	RT.																22				
C79	16+18.50	16+22.00	RT.	4	2	1	1					170		4				2	4				
C80	15+92.00	16+09.54	RT.						44	88				44					10		12		
TOTALS CARRIED TO GENERAL SUMMARY				72	36	16	13	1	3740	7480	5468	3400	1490	4339	71	1080	416	40	1455	857	590	5	2

*ITEMS FOR INSTALLATION BY OHIO EDISON

CALCULATED JS 11/01
CHECKED DLR 1/02

LIGHTING AND TRAFFIC SUBSUMMARY

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

22
40

JOB NO. 10012\lhl_Ssum DATE 01/14/02 DRAWN BY REH

100121

LIGHTING AND TRAFFIC SUBSUMMARY

REF. NO.	STATION FROM	STATION TO	SIDE	625 Pull box, misc.: 24 x 36 (EACH)	625 Pull box, misc.: 24 x 36 (Ohio Edison) (EACH)	625 Ground rod (EACH)	625 Power service (EACH*)	625 Power service, as per plan (EACH)	625 Vehicular signal head 3 section, 12" lens, 1-way (EACH)	625 Vehicular signal head 3 section, 12" lens, 2-way (EACH)	625 Pedestrian signal head (EACH)	625 Pedestrian pushbutton (EACH)	625 Signal cable, 5 misc.: conductor, no. 14 awg (LF)	625 Signal cable, video cable (LF)	625 Signal cable, misc.: communications cable (LF)	625 Interconnect cable, 6 pair, no. 19 awg, solid, REA PE-39) (LF)	625 Interconnect cable, misc.: 6 fiber-optic cable bundle (LF)	625 Signal support foundation (EACH)	625 Signal support, misc.: nostalgia (EACH)	625 Combination signal support, misc.: nostalgia (EACH)	625 Removal of traffic signal installation for storage (EACH)
C1	9+71.29	9+72.34	RT.																		
C2	9+71.29	9+76.92	RT./LT.										68	272							
C3	9+76.92	9+76.92	LT.																		
C4	9+31.20	9+76.92	LT.																		
C5	9+36.60	9+58.73	LT.		1	1		1					420	280		35	35				
C6	9+58.73	9+65.84	LT.						2		2	1	92	154	19			1		1	
C7	9+65.84	9+75.20	LT.																		
C8	8+89.75	9+58.73	LT.			1									82						
C9	8+71.40	8+89.75	LT.																		
C10	9+23.00	9+58.73	LT.																		
C11	9+31.20	9+62.70	LT.																		
C12	9+58.73	9+58.73	LT.										16	96	16	16	16				
C13	9+58.73	9+62.70	LT.										12	24	12	12	12				
C14	9+58.73	9+76.92	LT.	1									29	116							
C15	9+60.40	9+72.34	RT.										22	88							
C16	9+60.40	9+61.50	RT.						2		2	1	89	148				1		1	
C17	9+10.40	9+60.40	RT.																		
C18	8+83.69	9+60.40	RT.			1															
C19	8+72.60	8+83.69	RT.																		
C20	9+60.40	10+51.00	RT.										101	202							
C21	10+48.00	10+51.00	RT.						2		2	1	96	162				1		1	
C22	10+51.00	10+70.20	RT.																		
C23	9+62.70	10+26.60	LT.										64	128	64	64	64				
C24	10+26.60	10+34.32	LT.		1	1															
C25	10+26.60	10+60.00	RT./LT.		1	1															
C26	10+30.00	10+48.00	LT.	1		1			2		2	1	94	158				1	1		1
C27	10+26.60	10+48.00	LT.										23	46	23	23	23				
C28	10+48.00	10+48.00	LT.			1									20	20					
C29	10+48.00	11+14.97	LT.			1									77	77					
C30	10+48.00	12+48.00	LT.	1													210				
C31	11+14.97	11+81.93	LT.			1									77	77					
C32	11+81.93	12+48.89	LT.			1									77	77					
C32A	12+48.00	12+48.89	LT.													20					
C33	12+48.89	13+13.89	LT.			1									75						
C34	12+48.00	14+27.00	LT.	1												189	189				
C35	13+13.89	13+72.98	LT.			1									69						
C36	13+72.98	14+49.18	LT.			1									87						
C37	14+27.00	14+35.00	LT.		1	1															
C38	14+49.18	15+25.84	LT.			1									86						
C39	14+27.00	15+92.00	LT.	1												175	175				
C40	15+25.84	15+92.00	LT.		1										76						
C41	15+92.00	15+92.00	LT.										18	54							
C42	15+92.00	16+02.50	LT.										24	48							
C43	15+92.00	16+02.50	LT.						1	1	2	1	131	116	21			1		1	
C44	15+92.00	16+02.45	LT.		1																
C45	15+92.00	15+92.00	RT./LT.										71	213							
C46	15+92.00	16+22.00	RT.										38	114							
C47	15+92.00	16+10.00	RT.																		
C48	15+92.00	16+09.24	LT.	1									28	140		28	28				
C49	16+09.24	16+14.00	LT.																		
C50	16+09.24	16+70.09	LT.										67	335	67	67	67				
C51	16+02.50	16+09.24	LT.												22						
C52	16+70.90	16+81.50	LT.			1					1				20						
C53	16+70.90	16+81.50	LT.	1									17	85		17	17				
C54	16+81.50	16+81.50	LT.										17								
C55	16+81.50	17+40.00	LT.			1									69						
C56	16+81.50	17+75.88	LT.	1									105	525		105	105				
C57	17+40.00	17+98.50	LT.			1					1	1	15		69						
C58	17+75.88	17+75.88	LT.			1							150	120		15	15				
C59	17+75.88	17+80.91	LT.			1			1	1			111	189				1	1		1
C60	17+75.88	18+10.50	LT.										45	135							
C61	17+98.50	18+10.50	LT.										23								
C62	18+10.50	18+18.50	LT.		1																
C63	18+10.50	18+24.00	LT.																		
C64	18+18.50	18+24.20	LT.																		
C65	18+18.50	18+18.50	LT.				1														
C66	17+98.50	18+18.50	LT.												31						
C67	18+08.24	18+10.50	RT./LT.										93	279							
C68	18+06.16	18+08.24	RT.			1			3		2	1	156	234				1	1		
C69	18+08.24	18+08.24	RT.																		
C70	17+59.33	18+08.24	RT.										59								
C71	17+47.00	17+59.33	RT.										25								
C72	17+35.94	17+47.00	RT.			1					1										
C73	16+72.74	17+35.94	RT.		1																
C74	16+72.74	16+82.74	RT.			1															
C75	16+09.54	16+72.74	RT.		1																
C76	16+03.77	17+62.00	RT.		1	2		1													
C77	16+09.54	16+18.50	RT.																		
C78	16+22.00	16+43.50	RT.			1			1	1			128	240				1	1		
C79	16+18.50	16+22.00	RT.			1					1	1	29								
C80	15+92.00	16+09.54	RT.		1																
TOTALS CARRIED TO GENERAL SUMMARY				8	11	27	1	2	14	3	16	8	2476	4701	1159	1017	956	8	4	4	2

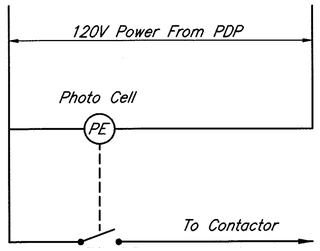
*ITEMS FOR INSTALLATION BY OHIO EDISON

CALCULATED JS 11/01
CHECKED DLR 1/02

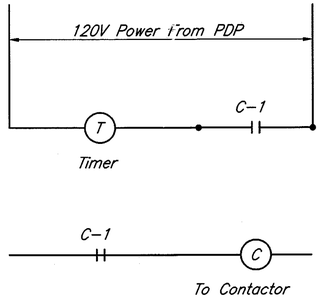
LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

JOB NO. 100121lht_Ssum DATE 01/14/02 DRAWN BY REH

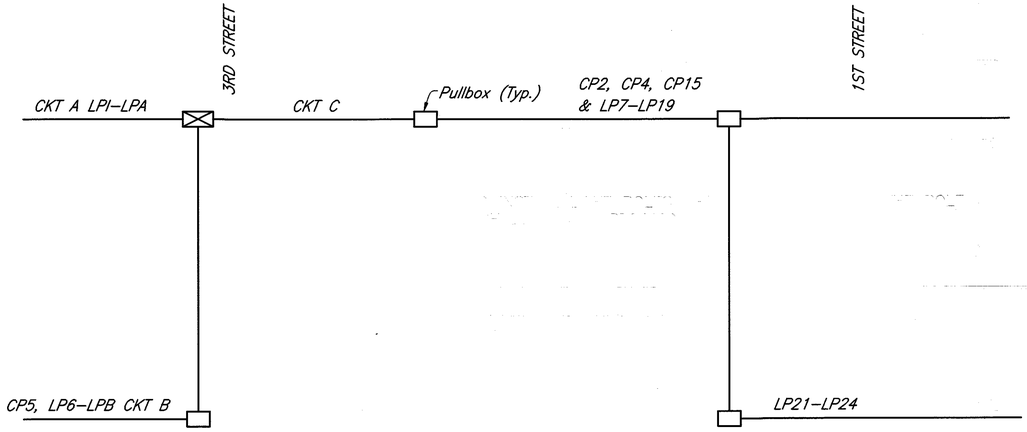
100121



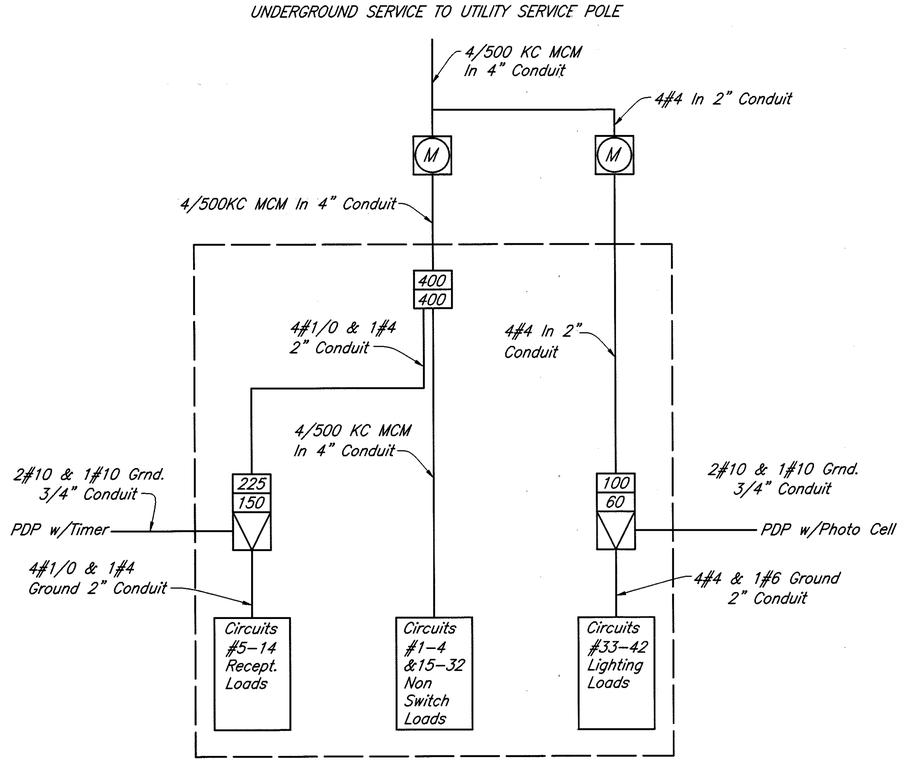
LIGHTING CIRCUIT PHOTOCELL CONTROL DIAGRAM



RECEPTACLE CIRCUITS TIMER CONTROL DIAGRAM



CIRCUIT DIAGRAM



(PDP) POWER SERVICE SINGLE LINE DIAGRAM

In addition to the requirements of 625.18 Power Service the Contractor shall furnish a control center housing NEMA 4X with single or double doors and locked handle(s). Payment for this work shall be made under Item 625 Power Service, As per Plan.

Trim: See Std. Dwg. Details
w/Ground Bus
w/100% Solid Neutral
w/Main Lugs only

POWER DISTRIBUTION PANEL

225 MAIN LUG RATING
120/208 VOLT 3Ø, 4 WIRE, 60HZ

A	B	C	LOAD	WS	CB/P	C#	C#	CB/P	WS	LOAD	A	B	C
1050			3rd Street	8	20/2	1	2	20/2	8	Space			
	1050		Traffic Cont.	8	20/2	3	4	20/4	8	Space			
		--	Space			5	6			Space			--
		1035	Pole Rec. A	4	20/1	7	8	20/1	4	Pole Rec. C			1035
1035			Pole Rec. A	4	20/1	9	10	20/1	4	Pole Rec. C	1035		
	1035		Pole Rec. B	4	20/1	11	12	20/1	4	Spare		1035	
		1035	Pole Rec. B	4	20/1	13	14	20/1	4	Spare			1035
--			Spare			15	16			Spare	--		
	--		Spare			17	18			Spare		--	
		100	Timer & Pe		20/1	19	20			Spare			--
9600			Fest RPM 4	500	100/3	21	22	100/3	500	Fest RPM 2	9600		
	9600		Fest RPM 4	500	100/3	23	24	100/3	500	Fest RPM 2		9600	
		9600	Fest RPM 4	500	100/3	25	26	100/3	500	Fest RPM 2			9600
			Space			27	28	100/3	500	Fest RPM 3	9600		
			Space			29	30	100/3	500	Fest RPM 3		9600	
			Space			31	32	100/3	500	Fest RPM 3			9600
1035			Pole Light A	4	20/2	33	34	20/2	4	Pole Light C	1050		
	1035		Pole Light A	4	20/2	35	36	20/2	4	Pole Light C		1050	
		1035	Pole Light B	4	20/2	37	38	20/2	4	Spare			1050
1035			Pole Light B	4	20/2	39	40	20/2	4	Spare	1050		
			Space			41	42			Space			

PANEL SCHEDULE NOTES:

1. The panel schedules indicate total panel loads. The panel may contain multiple sub panels to accommodate breakers as indicated on the single line diagram.

2. The branch breakers shall be series rated with the main breakers.

POWER DIAGRAMS

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

24
40

100121

100121DTL_4
JOB NO. 100121 DATE 01/15/02 DRAWN BY REH,HN

NOTES:

LIGHT POLE, MISC.: NOSTALGIA SHALL BE NOSTALGIA SERIES "LINCOLNWAY", DESIGN B 895–53T, AS MANUFACTURED BY UNION METAL CORPORATION, P.O. BOX 9920, CANTON, OHIO 44711. TELEPHONE (330)456–7653 FAX (330)456–0196. THE LIGHT POLE SHALL BE FINISH PAINTED BLACK.

THE UNIT PRICE BID PER POLE SHALL INCLUDE ALL MATERIALS, EQUIPMENT, AND LABOR NECESSARY TO INSTALL THE LIGHT POLE, INCLUDING ALL APPURTENANCES DETAILED.

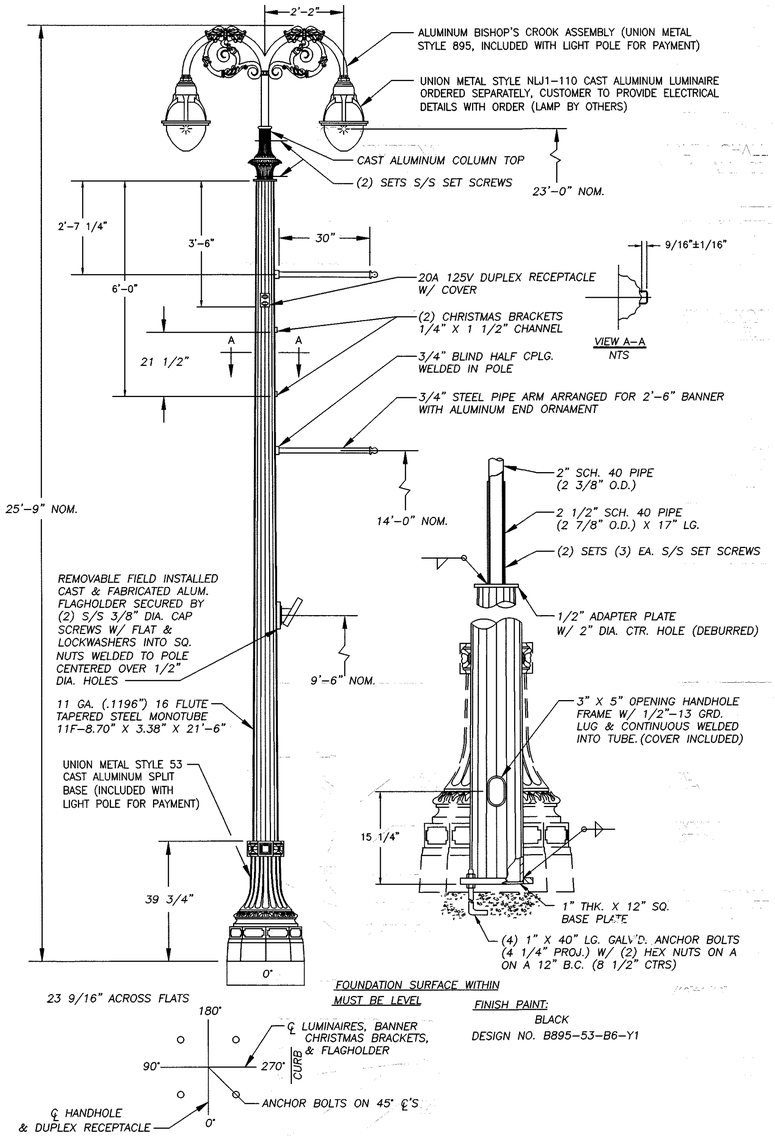
LUMINAIRE, MISC.: NOSTALGIA SHALL BE UNION METAL STYLE NLJ1–110.

SIGNAL SUPPORT, MISC.: NOSTALGIA SHALL BE AS DETAILED, INCLUDING TAPERED 16–FLUTE STEEL MONOTUBE POLE, TAPERED STEEL MONOTUBE MAST ARM, CAST ALUMINUM BASE (UNION METAL STYLE 729), AND ALL APPURTENANCES DETAILED. THE SIGNAL SUPPORT SHALL BE FINISH PAINTED BLACK.

COMBINATION SIGNAL SUPPORT, MISC.: NOSTALGIA SHALL BE AS DETAILED, INCLUDING TAPERED 16–FLUTE STEEL MONOTUBE POLE, TAPERED STEEL MONOTUBE MAST ARM, CAST ALUMINUM BASE (UNION METAL STYLE 729), ALUMINUM CROOK ARM (UNION METAL) STYLE 895), AND ALL APPURTENANCES DETAILED. THE COMBINATION SIGNAL SUPPORT SHALL BE FINISHED PAINTED BLACK.

POLE REF. NO.	STATION	OFFSET	PUSH BUTTON REF. ANGLE	PEDEST. SIGNAL CONDUIT NIPPLE REF. ANGLE
LP1	8+89.75	LT.		
LP6	8+83.69	RT.		
LP7	10+48.00	LT.		
LP8	11+14.97	LT.		
LP9	11+81.93	LT.		
LP10	12+48.89	LT.		
LP11	13+13.89	LT.		
LP12	13+72.88	LT.		
LP13	14+49.18	LT.		
LP14	15+25.84	LT.		
LP16	16+81.50	LT.		90°
LP17	17+40.00	LT.		
LP19	17+98.50	LT.	180°	180°
LP21	17+47.00	RT.		90°
LP22	16+82.74	RT.		
LP24	16+18.50	RT.	180°	180°

NOTES:
1. CENTERLINE PEDESTRIAN PUSH BUTTON SHALL BE INSTALLED 4'–0" ABOVE THE FOUNDATION SURFACE.
2. BOTTOM OF PEDESTRIAN SIGNAL SHALL BE 9'–0" ABOVE THE FOUNDATION SURFACE.
3. 1 1/2" NIPPLES FOR THE PEDESTRIAN SIGNAL CONDUITS SHALL BE INSTALLED BY WELDING OR TAP DRILLING.



LIGHT POLE, MISC.: NOSTALGIA

NOTES:

ALL APPURTENANCES TO INSTALL LIGHT POLES SHALL BE INCLUDED IN THE POLE PRICE. FOUNDATIONS SHALL BE AS SPECIFIED BY MANUFACTURER.

N

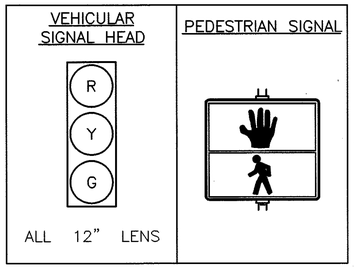
LIGHT POLE DETAILS

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

25
40

Job No. 100121dtl_2 Date 11/09/00 Drawn By REH

100121



NOTES:
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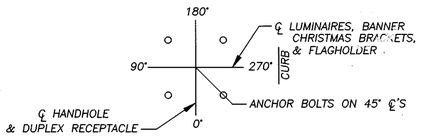
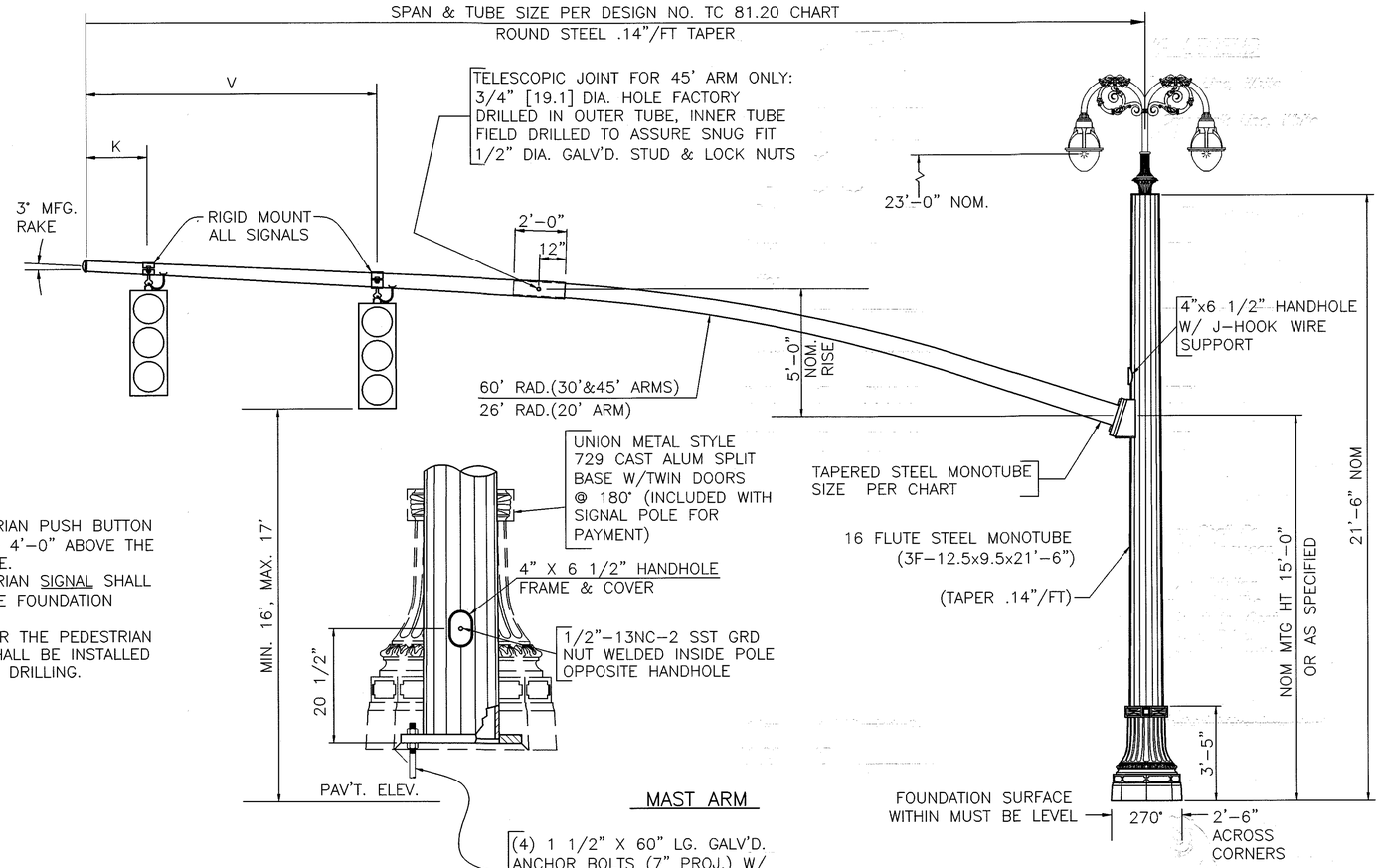
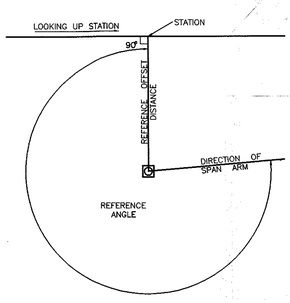
2. BOTTOM OF PEDESTRIAN SIGNAL SHALL BE 9'–0" ABOVE THE FOUNDATION SURFACE.
3. 1 1/2" NIPPLES FOR THE PEDESTRIAN SIGNAL CONDUITS SHALL BE INSTALLED BY WELDING OR TAP DRILLING.





COMBINATION SIGNAL SUPPORT, MISC.: NOSTALGIA
SIGNAL SUPPORT, MISC.: NOSTALGIA SIMILAR, WITHOUT CROOK AND LUMINAIRES

POLE REF. No.	℄ OF CONST.	STATION	OFFSET	PUSH BUTTON REF. ANGLE	PEDESTRIAN SIGNAL CONDUIT NIPPLE REF. ANGLE		POLE DESIGN TYPE	REFERENCE ANGLE	SIGNAL SPACING		SPAN	MAST ARM TUBE SIZE	TENON LOCATION (SECTION Z–Z)
									K	V			
CP2	THIRD ST. N.W.	9+65.8	47'LT.	270°	180°	270°	MAST ARM	360°	1.5'	13'	38	MANUFACTURE DESIGN	MANUFACTURE DESIGN
P3	THIRD ST. N.W.	10+30	52'LT.	270°	0°	270°	MAST ARM	90°	1.5'	13'	31	MANUFACTURE DESIGN	MANUFACTURE DESIGN
CP4	THIRD ST. N.W.	10+48	49'RT.	270°	180°	270°	MAST ARM	360°	1.5'	13'	42	MANUFACTURE DESIGN	MANUFACTURE DESIGN
CP5	THIRD ST. N.W.	9+61.5	48'RT.	270°	0°	270°	MAST ARM	270°	1.5'	13'	36	MANUFACTURE DESIGN	MANUFACTURE DESIGN
CP15	FIRST ST. N.W.	16+02.5	35.5'LT.	180°	180°	90°	MAST ARM	315°	1.5'	17.5'	38	MANUFACTURE DESIGN	MANUFACTURE DESIGN
P23	FIRST ST. N.W.	16+43.5	36.2'RT.				MAST ARM	360°	1.5'	13'	28	MANUFACTURE DESIGN	MANUFACTURE DESIGN
P18	FIRST ST. S.W.	17+80.9	34.6'LT.				MAST ARM	360°	1.5'	13'	28	MANUFACTURE DESIGN	MANUFACTURE DESIGN
P20	FIRST ST. S.W.	18+06.2	47.9'RT.	0°	0°	270°	MAST ARM	24°12'54"	1.5',	15',22'	43	MANUFACTURE DESIGN	MANUFACTURE DESIGN



NOTES:
ALL APPURTENANCES TO INSTALL TRAFFIC POLES SHALL BE INCLUDED IN THE POLE PRICE. FOUNDATIONS SHALL BE AS SPECIFIED BY THE MANUFACTURER.

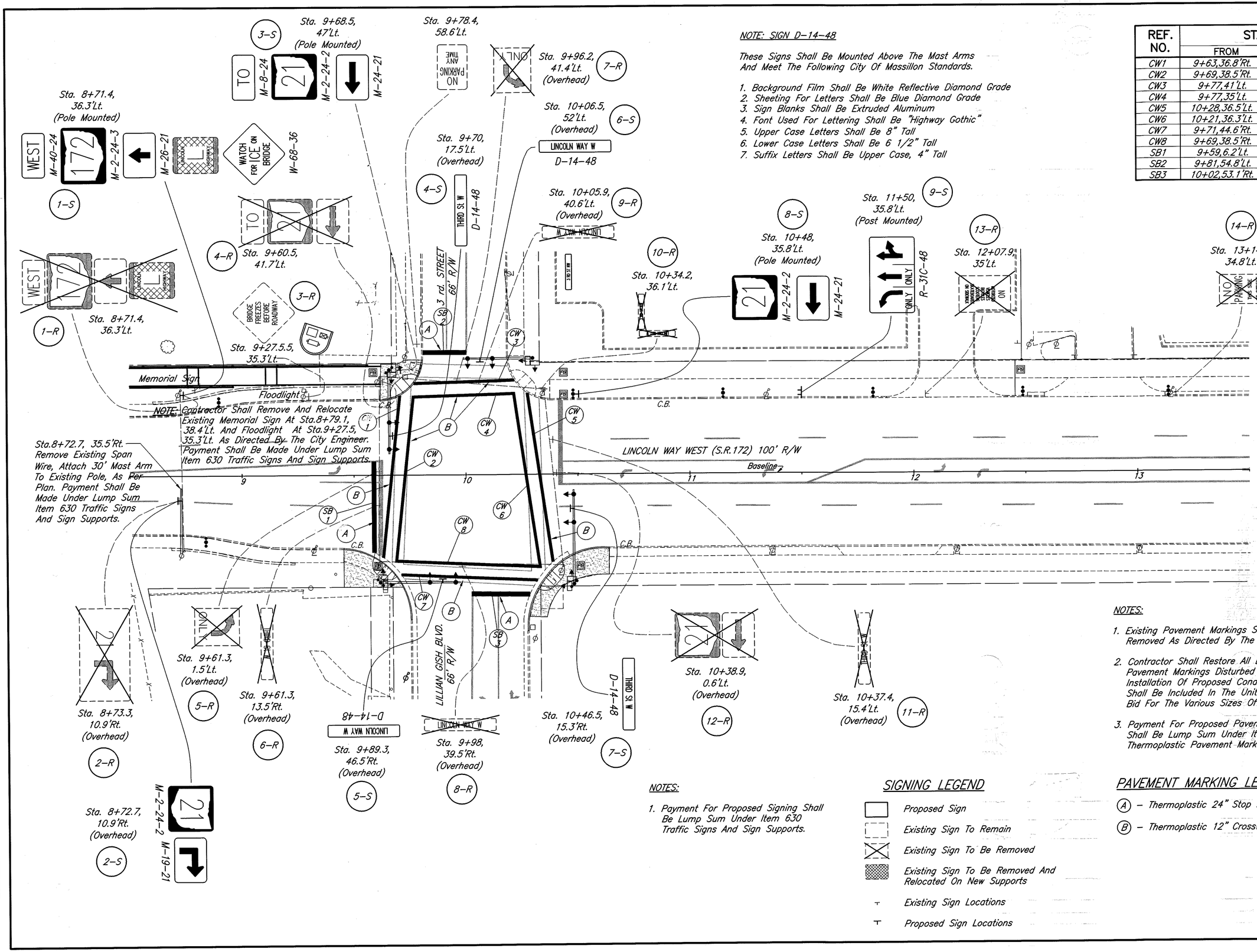
TRAFFIC POLE DETAILS

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

26
40

Job No. 100121dtl_1 Date 11/09/00 Drawn By REH

100121



NOTE: SIGN D-14-48

These Signs Shall Be Mounted Above The Mast Arms And Meet The Following City Of Massillon Standards.

1. Background Film Shall Be White Reflective Diamond Grade
2. Sheeting For Letters Shall Be Blue Diamond Grade
3. Sign Blanks Shall Be Extruded Aluminum
4. Font Used For Lettering Shall Be "Highway Gothic"
5. Upper Case Letters Shall Be 8" Tall
6. Lower Case Letters Shall Be 6 1/2" Tall
7. Suffix Letters Shall Be Upper Case, 4" Tall

REF. NO.	STATION	
	FROM	TO
CW1	9+63,36.8'Rt.	9+71,35.6'Lt.
CW2	9+69,38.5'Rt.	9+77,35'Lt.
CW3	9+77,41'Lt.	10+22,42.3'Lt.
CW4	9+77,35'Lt.	10+21,36.3'Lt.
CW5	10+28,36.5'Lt.	10+39,39.1'Rt.
CW6	10+21,36.3'Lt.	10+33,41.3'Rt.
CW7	9+71,44.6'Rt.	10+32,47.2'Rt.
CW8	9+69,38.5'Rt.	10+33,41.3'Rt.
SB1	9+59,6.2'Lt.	9+59,34.6'Rt.
SB2	9+81,54.8'Lt.	10+00,54.8'Lt.
SB3	10+02,53.1'Rt.	10+28,53.4'Rt.

NOTES:

1. Payment For Proposed Signing Shall Be Lump Sum Under Item 630 Traffic Signs And Sign Supports.

SIGNING LEGEND

- Proposed Sign
- Existing Sign To Remain
- Existing Sign To Be Removed
- Existing Sign To Be Removed And Relocated On New Supports
- Existing Sign Locations
- Proposed Sign Locations

NOTES:

1. Existing Pavement Markings Shall Be Removed As Directed By The Engineer.
2. Contractor Shall Restore All Existing Pavement Markings Disturbed By The Installation Of Proposed Conduits. Cost Shall Be Included In The Unit Prices Bid For The Various Sizes Of Conduits.
3. Payment For Proposed Pavement Markings Shall Be Lump Sum Under Item 644 Thermoplastic Pavement Marking.

PAVEMENT MARKING LEGEND

- (A) – Thermoplastic 24" Stop Line, White
- (B) – Thermoplastic 12" Crosswalk Line, White

HORIZONTAL SCALE IN FEET
0 20 40

CALCULATED REH 7/01
CHECKED DLR 1/02

SIGNING AND PAVEMENT MARKING PLAN

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

27
40

Job No. 100121mrkpln Date 11/16/00 Drawn By REH

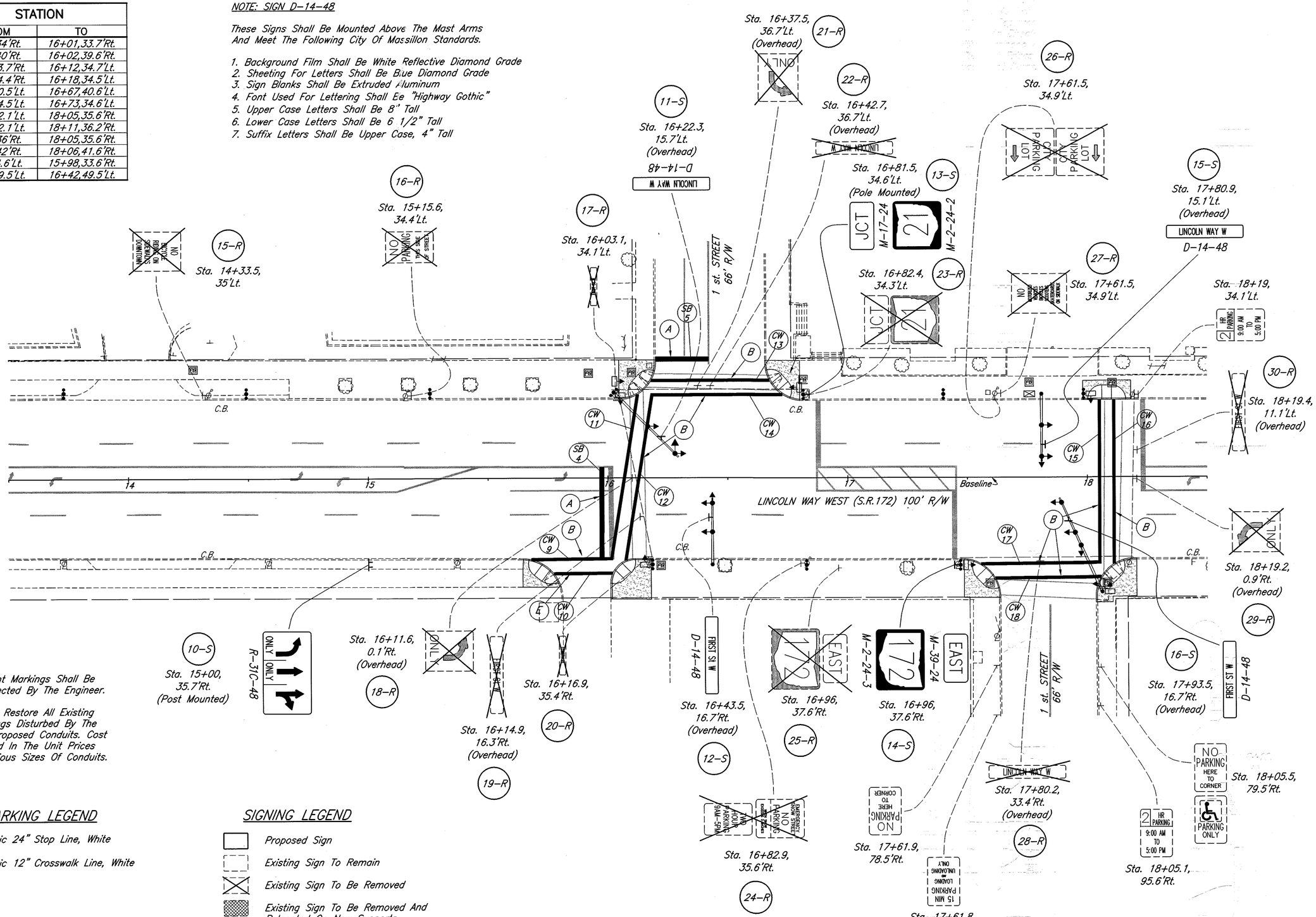
100121

REF. NO.	STATION	
	FROM	TO
CW9	15+68,34'Rt.	16+01,33.7'Rt.
CW10	15+77,40'Rt.	16+02,39.6'Rt.
CW11	16+01,33.7'Rt.	16+12,34.7'Lt.
CW12	16+07,34.4'Rt.	16+18,34.5'Lt.
CW13	16+18,40.5'Lt.	16+67,40.6'Lt.
CW14	16+18,34.5'Lt.	16+73,34.6'Lt.
CW15	18+05,32.1'Lt.	18+05,35.6'Rt.
CW16	18+11,32.1'Lt.	18+11,36.2'Rt.
CW17	17+56,36'Rt.	18+05,35.6'Rt.
CW18	17+62,42'Rt.	18+06,41.6'Rt.
SB4	15+98,4.6'Lt.	15+98,33.6'Rt.
SB5	16+20,49.5'Lt.	16+42,49.5'Lt.

NOTE: SIGN D-14-48

These Signs Shall Be Mounted Above The Mast Arms And Meet The Following City Of Massillon Standards.

1. Background Film Shall Be White Reflective Diamond Grade
2. Sheeting For Letters Shall Be Blue Diamond Grade
3. Sign Blanks Shall Be Extruded Aluminum
4. Font Used For Lettering Shall Ee "Highway Gothic"
5. Upper Case Letters Shall Be 8" Tall
6. Lower Case Letters Shall Be 6 1/2" Tall
7. Suffix Letters Shall Be Upper Case, 4" Tall



NOTES:

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2. Contractor Shall Restore All Existing Pavement Markings Disturbed By The Installation Of Proposed Conduits. Cost Shall Be Included In The Unit Prices Bid For The Various Sizes Of Conduits.

PAVEMENT MARKING LEGEND

(A) – Thermoplastic 24" Stop Line, White

(B) – Thermoplastic 12" Crosswalk Line, White

SIGNING LEGEND

- Proposed Sign
- Existing Sign To Remain
- Existing Sign To Be Removed
- Existing Sign To Be Removed And Relocated On New Supports
- Existing Sign Locations
- Proposed Sign Locations

N

HORIZONTAL SCALE IN FEET 0 20 40

CALCULATED REH 7/01
CHECKED DLR 1/02

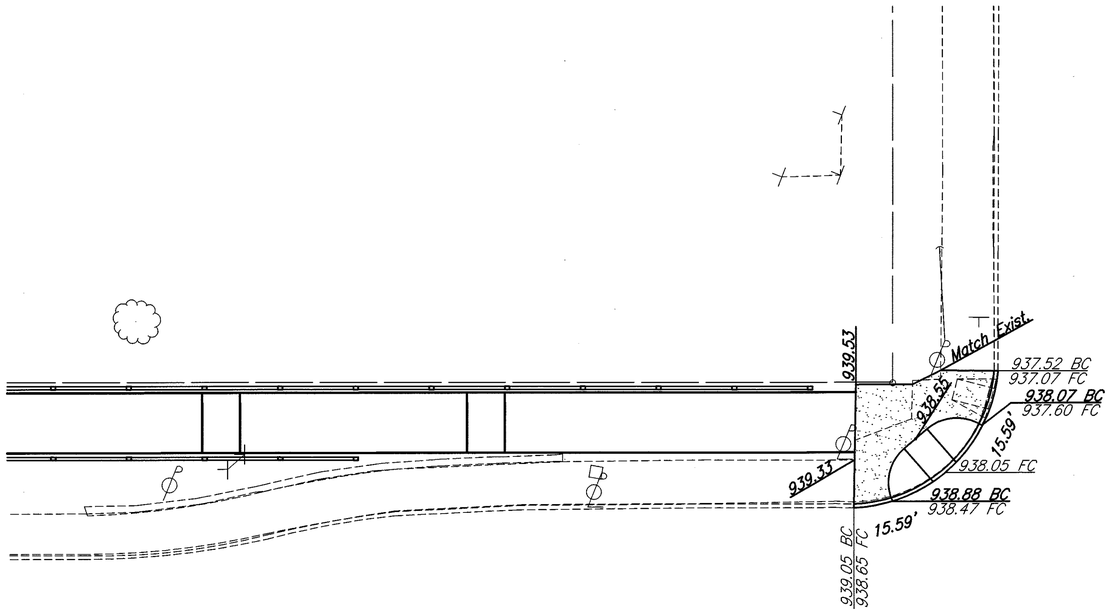
SIGNING AND PAVEMENT MARKING PLAN

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

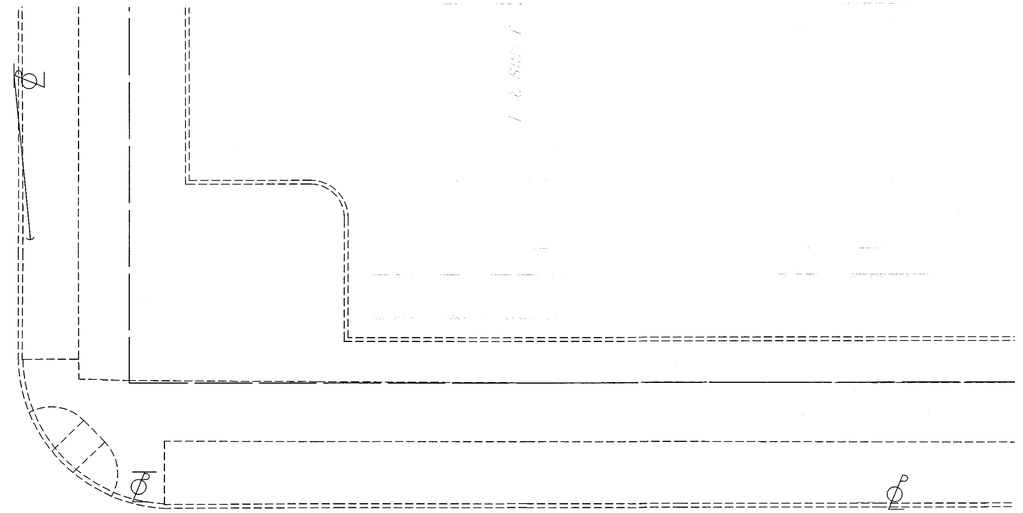
28
40

Job No. 100121markpln Date 11/16/00 Drawn By REH

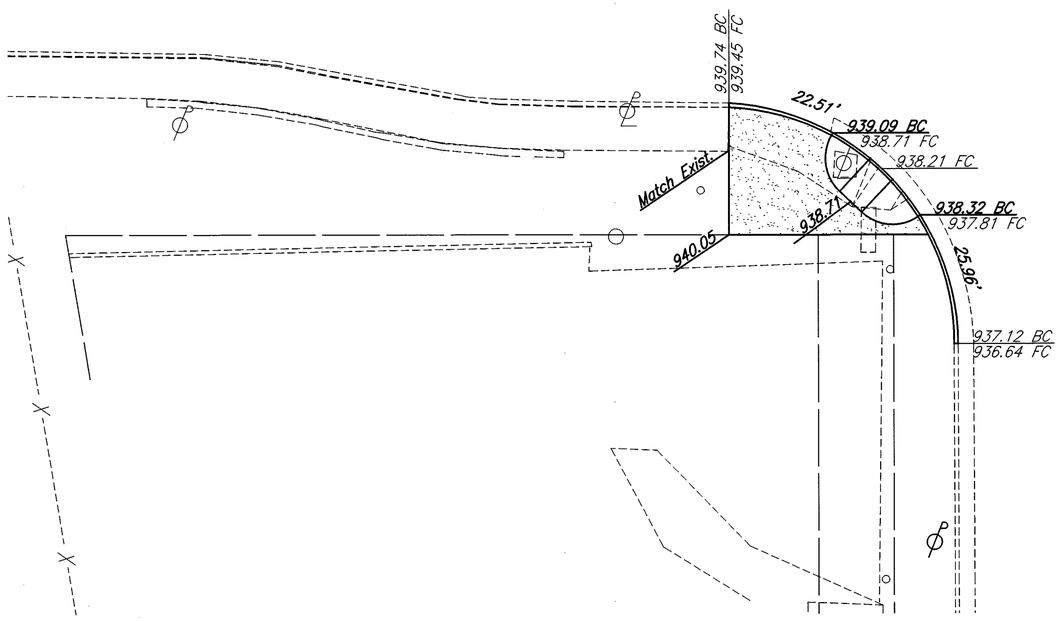
100121



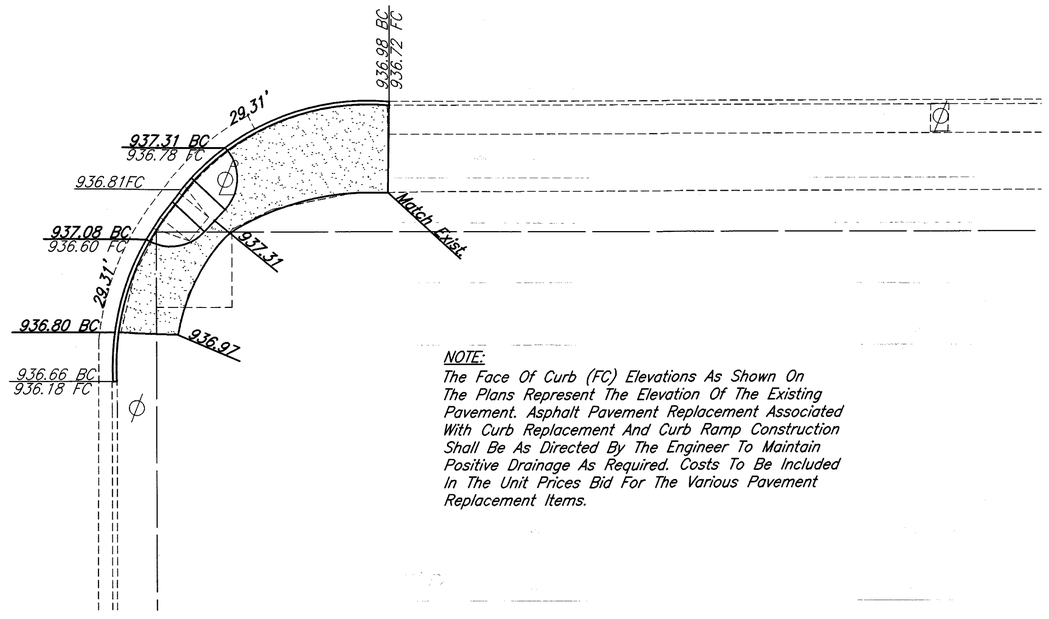
3 rd. STREET



9 10 ℄ LINCOLN WAY WEST (S.R. 172) 100' R/W 11



LILLIAN GISH BLVD. 66' R/W



NOTE:
The Face Of Curb (FC) Elevations As Shown On The Plans Represent The Elevation Of The Existing Pavement. Asphalt Pavement Replacement Associated With Curb Replacement And Curb Ramp Construction Shall Be As Directed By The Engineer To Maintain Positive Drainage As Required. Costs To Be Included In The Unit Prices Bid For The Various Pavement Replacement Items.

N

0 10 20
HORIZONTAL SCALE IN FEET

CALCULATED REH
CHECKED DLR

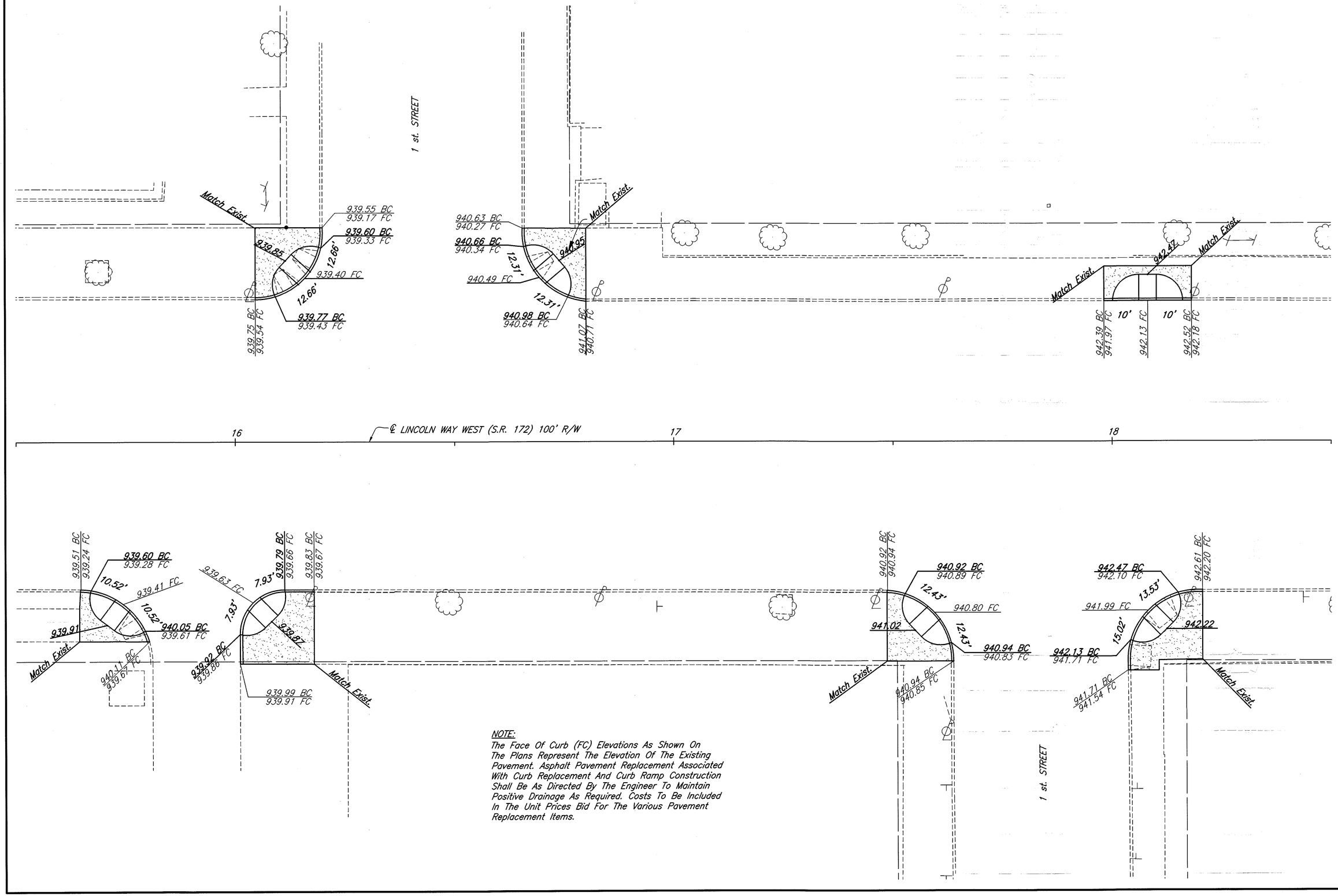
INTERSECTION & CURB RAMP DETAILS

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

29
40

Job No. 100121dtl_3 Date 08/09/01 Drawn By REH,SCB

100121



NOTE:
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N

0 10 20
10
HORIZONTAL SCALE IN FEET

CALCULATED REH
CHECKED DLR

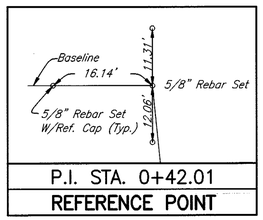
INTERSECTION & CURB RAMP DETAILS

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

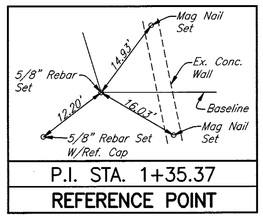
30
40

Job No. 100121dtl_3 Date 08/09/01 Drawn By REH,SCB

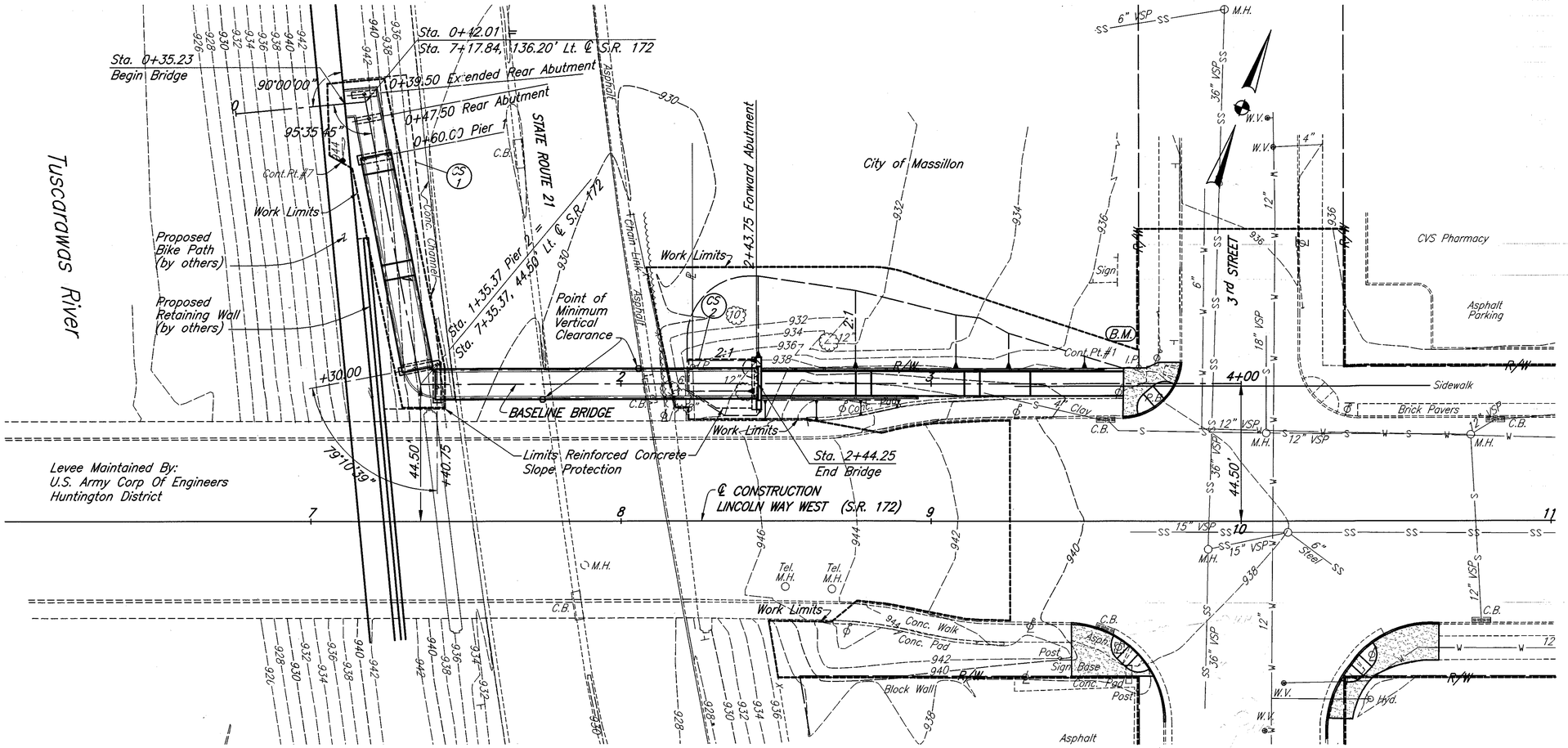
100121



P.I. STA. 0+42.01
REFERENCE POINT



P.I. STA. 1+35.37
REFERENCE POINT



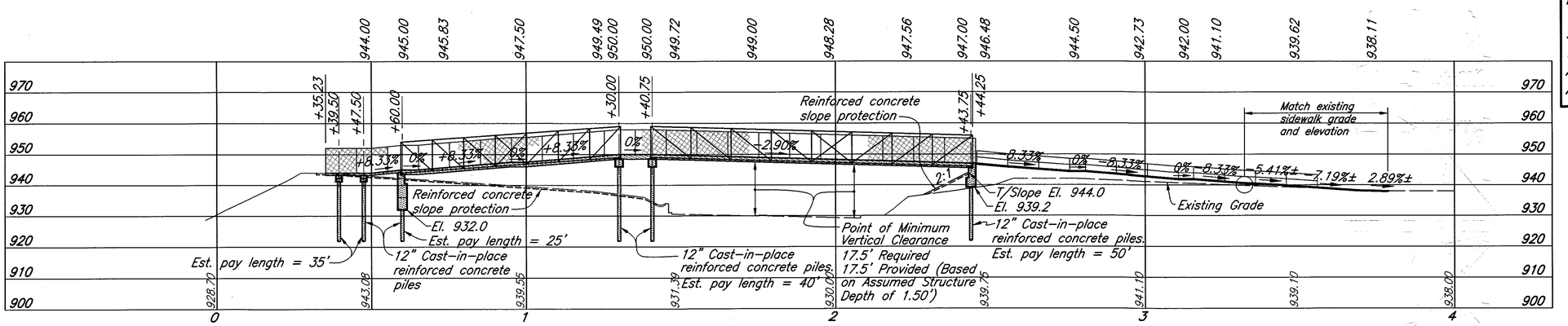
PLAN

B.M. Sta. 3+67, 5.4' Lt.
Top of City Pin
Elev. = 937.83

PROPOSED STRUCTURE

TYPE: Two simple span prefabricated steel trusses on reinforced concrete abutments on concrete filled pipe pile foundations and capped concrete filled pipe pile piers.

SPAN: 12'–6"; 70'–0"; 103'–0"
ROADWAY: 8'–0" f/f Railing
LOADING: 85 psf Pedestrian Loading and 5 Ton Vehicle
SKEW: 0° to Substructure
WEARING SURFACE:
APPROACH SLABS: None
ALIGNMENT: Tangent



PROFILE ALONG BASELINE BRIDGE CONSTRUCTION

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED JDB | DRAWN RB | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

STARK COUNTY
STA. 0+35.23
STA.2+44.25

SITE PLAN
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

1 / 10

31
40

Job No. 100121sp Date 7/21/01 Drawn By CEO

REFERENCE SHALL BE MADE TO THE FOLLOWING ODOT STANDARD DRAWINGS:

VPF-1-90M (Revised 12-19-94)

AND THE FOLLOWING SUPPLEMENTAL SPECIFICATIONS:

842 (Dated 1-6-99)
863 (Dated 10-12-99)
899 (Dated 10-21-98)

DESIGN SPECIFICATIONS: This structure conforms to "Standard Specifications for Highway Bridges" adopted by the American Association of State Highway and Transportation Officials (AASHTO), 1996, including the 1997, 1998, and 1999 Interim Specifications; "Guide Specifications for Design of Pedestrian Bridges," AASHTO, 1997; and the ODOT Bridge Design Manual, 2000.

DESIGN LOADING: 85 pounds per square foot of roadway,
or
10,000 pound vehicle loading, which ever is greater.

No impact factor shall be used regardless of span length. Loadings shall be at 100 percent of basic unit stresses.

DESIGN DATA: New materials incorporated in the structure conform to the following:

Concrete Class C – Unit Stress 1333 P.S.I. (substructure)
Reinforcing Steel – ASTM A615, A616, or A617, Grade 60 – Unit stress 24,000 P.S.I.
Spiral reinforcement may be plain bars, ASTM A82 or A615

Structural Steel ASTM A709, Grade 50W – Unit Stress 27,000 P.S.I.

ITEM 503 UNCLASSIFIED EXCAVATION, AS PER PLAN:
Unclassified excavation shall be in accordance with 503 except that the backfill material behind the abutments shall be 203 granular material placed in 6 inch lifts, and compacted in accordance with 304.04.

PILE DESIGN LOADS (ULTIMATE BEARING VALUE):
The ultimate bearing value is 26 tons per pile for the 12" cast-in-place reinforced concrete rear abutment piles. The ultimate bearing value is 20 tons per pile for the 12" cast-in-place reinforced concrete pier 1 piles. The ultimate bearing value is 42 tons per pile for the 12" cast-in-place reinforced concrete pier 2 piles. The ultimate bearing value is 48 tons per pile for the 12" cast-in-place reinforced concrete forward abutment piles.

REAR ABUTMENT PILES:
2 piles 35 feet long, estimated length
2 piles of order length 40 feet long
1 splice

PIER 1 PILES:
2 piles 25 feet long, estimated length
2 piles of order length 30 feet long
1 splice

PIER 2 PILES:
3 piles 40 feet long, estimated length
3 piles of order length 45 feet long
2 splice

FORWARD ABUTMENT PILES:
2 piles 50 feet long, estimated length
2 piles of order length 55 feet long
1 splice

ITEM 607-VANDAL PROTECTION FENCE, 6 FOOT STRAIGHT, COATED FABRIC:
Vandal protection fence shall be installed on top of the concrete curbs in accordance with the details on sheet 9/10. The fence post layout is detailed on sheet 8/10. The color of the fence coating shall be the same as used on the prefabricated steel truss bridges, or as directed by the Massillon City Engineer.

ESTIMATED QUANTITIES

CALCULATED DLR DATE 7/01
CHECKED JLS DATE 1/02

ITEM	TOTAL	UNIT	DESCRIPTION
503	Lump	Lump	Cofferdams, cribs and sheeting
503	Lump	Lump	Unclassified excavation, as per plan
505	Lump	Lump	Pile driving equipment mobilization
507	340	Lin.Ft.	12" cast-in-place reinforced concrete piles, driven
507	385	Lin.Ft.	12" cast-in-place reinforced concrete piles, furnished
507	5	Each	Steel pile splices
518	Lump	Lump	Porous backfill with filter fabric
518	18	Lin.Ft.	6" Perforated corrugated plastic pipe
518	12	Lin.Ft.	6" Non-perforated corrugated plastic pipe, including specials
Special	Lump	Lump	Structure, misc.: Prefabricated steel truss bridge, 70 feet long
Special	Lump	Lump	Structure, misc.: Prefabricated steel truss bridge, 103 feet long
607	63	Lin.Ft.	Vandal protection fence, 6 foot straight, coated fabric
842	17	Cu. Yd.	Class C concrete, pier cap
842	13	Cu. Yd.	Class C concrete, abutment including footing
842	13	Cu. Yd.	Class C concrete, bridge deck
863	16	Each	Structural steel, misc.: Swedge anchor bolt, including nut and washer

CONTRACTOR'S ACCESS:
Equipment required for construction of the rear abutment, piers, and superstructure of the pedestruan bridge over State Route 21 shall be restricted to the top of the levee, and to State Route 21 (as noted in the Item 614-Maintaining Traffic note in sheet 2 of 40).

Access to the top of the levee shall be from the Cherry Street intersection. Cuts into the levee, other than for construction of the structure, are prohibited.

At the completion of construction, all disturbed areas used for Contractor's access shall be regraded as necessary, and seeded and mulched.

All work shall comply with the requirements of the project's environmental commitments general note on sheet 2 of 40.

All the above work shall be considered incidental to the construction of the pedestrian bridge. No separate payment shall be made.

Job No. 10012/EQ Date 7/21/01 Drawn By HN

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED JDB | DRAWN HN | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

GENERAL NOTES AND ESTIMATED QUANTITIES
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN BRIDGE & STREET SCAPE
MASSILLON, OHIO

2 / 10

32
40

GENERAL NOTES

ITEM 530 – STRUCTURE, MISC.: PREFABRICATED STEEL TRUSS BRIDGE

1. General Specifications

Bridges shall be engineered and designed, and drawings and calculations sealed, by a professional engineer registered in the State of Ohio. Structures shall be shop manufactured, simple span bridges constructed to the line and grade as indicated in the plans. Bridges shall be of welded steel construction. Style shall be uniform for all spans contained in these plans and specifications.

2. Geometry

Inside deck width shall be 8 feet clear measured between railings. Refer to plans for specific span lengths, grades, and abutment elevations.

Bridge superstructure shall be a through truss design. Refer to plans for top of deck grade and elevations.

Truss may be designed with one or two diagonals per panel.

Bridge shall be cambered such that the bridge grade matches the grades as indicated in the plans with full dead load applied. All vertical truss members shall be perpendicular to the ground (horizon) after the bridge is erected and all dead loads applied.

3. Loading Criteria

Bridges shall be designed for a load of 85 pounds per square foot (psf) pedestrian loading. Bridges shall also be designed for a 10,000 pound vehicle loading (AASHTO H5 truck) without impact.

Railings shall be designed for 50 pounds per linear foot transverse and vertical loading acting simultaneously on each rail.

Railing posts shall be designed for a load of 50 x L pounds, where L is the post spacing. Load shall be applied at the center of gravity of the upper rail, but not higher than 54 inches.

Bridges shall be designed for wind loads based on the more restrictive of the following:

i. 75 psf on the exposed area along the longitudinal axis for all truss members and 50 psf on the exposed area along the longitudinal axis for girders and beams.

or

ii. 35 psf on the entire vertical surface of the structure as if it were fully enclosed.

All wind loads shall be applied perpendicular to the vertical, longitudinal plane of the structure, regardless of skew angle.

4. Design

Bridges shall be designed in accordance with the "Specification for the Design, Fabrication and Erection of Structural Steel for Buildings" by the American Institute of Steel Construction, and the "Standard Specifications for Highway Bridges" and the "Guide Specifications for Design of Pedestrian Bridges" as adopted by the American Association of State Highway and Transportation Officials.

The latest edition of each publication shall be used. If conflicting or dissimilar design data exists between the two publications, the more stringent codes shall be used.

Welded Tubular Structure Design shall be in accordance with the "Structural Welding Code," (ANSI/AWS D1.1–90), Chapter 10, Tubular Structures.

5. Materials

Bridges shall be constructed of unpainted self–weathering steel. Plates and structural steel shapes shall meet the requirements of ASTM A242 or ASTM A709, Grade 50W. Cold–formed welded square or rectangular tubing shall meet the requirements of ASTM A847 or ASTM A606. The minimum yield strength shall be greater than 50,000 psi. Field splices shall be bolted with High Strength ASTM A325 or A490, Type 3.

Welding materials shall be in strict accordance with the American Welding Society (AWS) structural welding code D1.1. Filler Material as specified in 4.1 shall be used for the particular welding process required. Welders will be certified in accordance with AWS D1.1.

All exposed steel members, railings, and sharp corners shall be ground smooth.

Deck and rubrail shall be of wood construction. Wood shall be No. 1 Grade Southern Yellow Pine or Douglas Fir and shall be treated with either Ammoniacal Copper Arsenate or Chromated Copper Arsenate to a total absorption of 0.40 pounds per cubic foot of wood or to refusal. Decking shall be designed per the loading criteria in Item 3.

6. Fabrication

Workmanship, fabrication, and shop connections shall be in accordance with AASHTO.

Welding operators shall be properly accredited experienced operators, each of whom shall submit satisfactory evidence of experience and skill in welding structural steel with the kind of welding to be used in the work, and who have demonstrated the ability to make uniform good welds meeting the size and type of weld required.

All welding shall utilize E70 or E80 series electrodes.

7. Railings and Accessories

All railings shall have a smooth inside surface with no protrusions or depressions. All ends of angles and tubes shall be closed and ground smooth. In accordance with AASHTO, railings for pedestrian use should be a minimum of 42 inches above the floor deck.

A 5–inch steel channel shall be located 2 inches above the floor deck.

Chain link fencing shall be factory installed on the bridge to meet AASHTO and ODOT requirements for highway overpasses. The fence shall be located on both sides and the top of the bridge. The chain link fencing shall be galvanized and vinyl coated, with a maximum opening of 1 inch. The vinyl coating shall be the same color as used on the vandal protection fence.

8. Finishes

All exposed surfaces of steel shall be cleaned in accordance with "Steel Structures Painting Council" Surface Preparation Specifications No. 6, Commercial Blast Cleaning, SSPC–SP 6–63.

9. Delivery and Erection

Bridges will be delivered by truck to a location indicated by the Contractor. Hauling permits and freight charges shall be included in the bid price.

The Manufacturer shall indicate, with the shop drawing submittal, the actual lifting weights, attachment points and all necessary information to install the bridge. Unloading, splicing, bolting, and proper lifting equipment is the responsibility of the Contractor.

The construction of the bridge abutments and piers shall be by the Contractor. The Contractor shall install the anchor bolts in accordance with the Manufacturer's anchor bolt size and location recommendations. For bidding purposes, 16 anchor bolts are included in Item 863, Structural Steel, Misc.: Swedge anchor bolts, including washer and nut. Payment shall be made, however, only for the actual number of anchor bolts installed.

10. Shop Drawings and Submittals

For the purposes of this specification, the Owner is City of Massillon, Municipal Government Annex, 151 Lincoln Way East, Massillon, Ohio 44646.

The following preliminary design drawings shall be submitted to the Owner, to the attention of the City Engineer, for review prior to detailed design:

1. Truss configuration indicating height of truss, deck location, panel length, diagonal positions, bearing type and locations, and anchor bolt sizes and locations.

2. Railing details indicating type and size of members, and their connection method.

Final design drawings shall be prepared indicating member sizes, bridge reactions, and general design notes. Complete shop drawings shall also be submitted to the Owner for approval.

Design calculations shall be submitted to the Owner in a bound, indexed format. Calculations shall be summarized to indicate minimum/maximum stresses in structural members and bearing reactions. Separate listings for dead load and live load shall be provided.

11. Method of Measurement

Item 530 – Structure, misc.: Prefabricated steel truss bridge shall be measured by the lump sum. The lump sum price bid shall include the cost of the prefabricated steel truss bridge, including bearings, floorbeams, beams, deck, fence, and railing, installed in conformance with these specifications and manufacturer's recommendation.

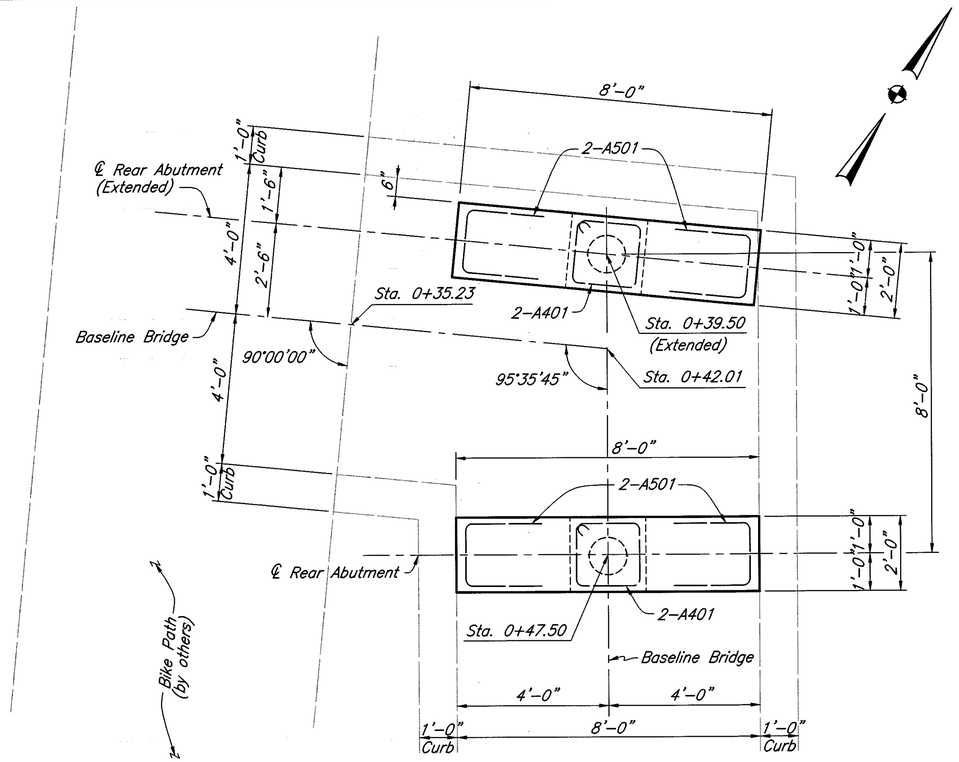
Job No. 100121GN1 Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

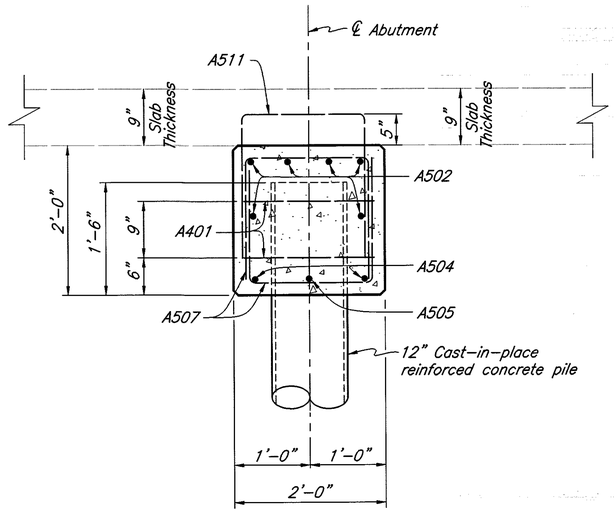
DESIGNED JDB | DRAWN RB | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

GENERAL NOTES
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

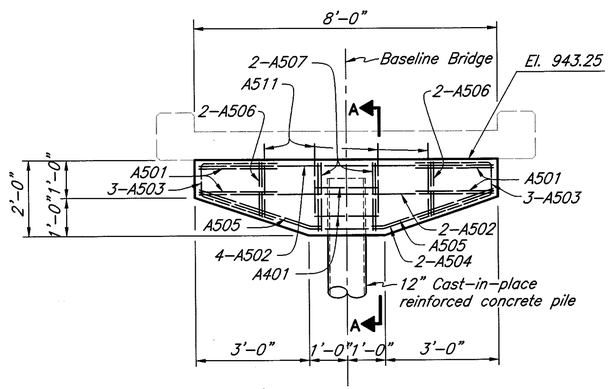
LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO



PLAN



SECTION A-A



ELEVATION

NOTES:

REINFORCING STEEL SPLICE LENGTHS shall be 2'-0" for #5 bars.

Job No. 10012RA Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED JDB | DRAWN KH | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

REAR ABUTMENT
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

4 / 10

34
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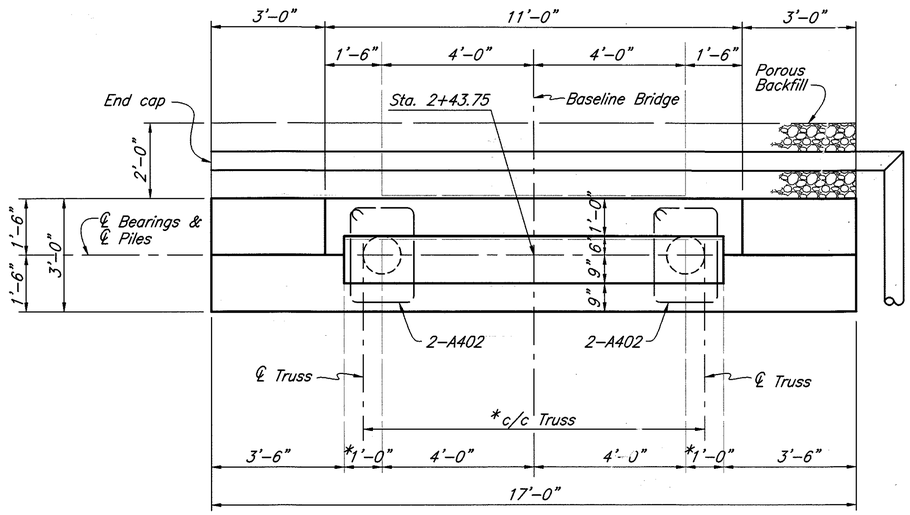

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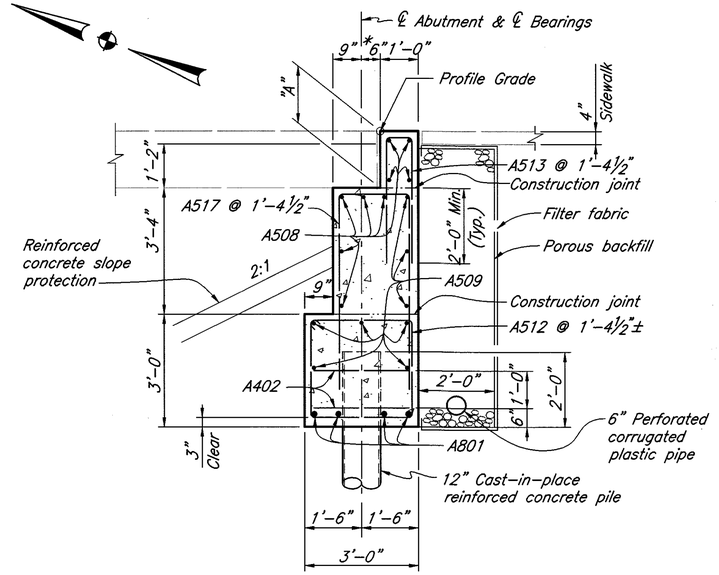
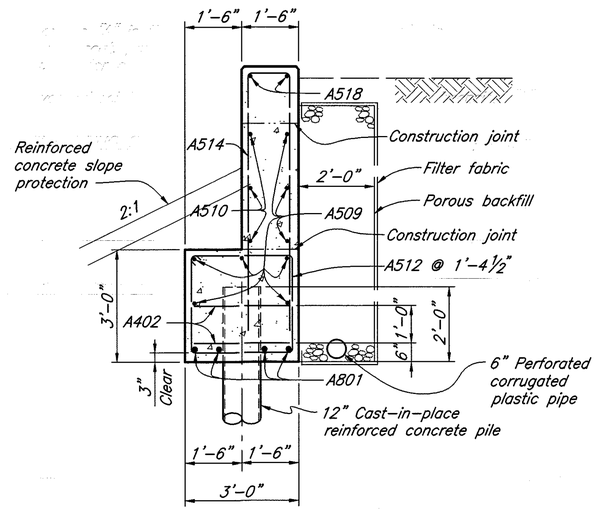
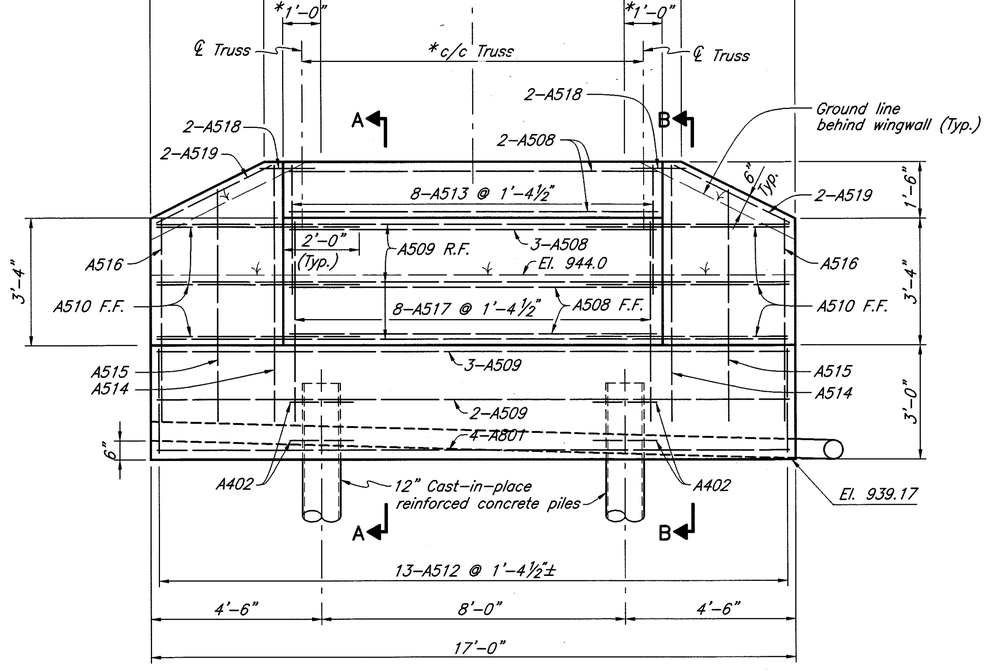


SECTION A–A



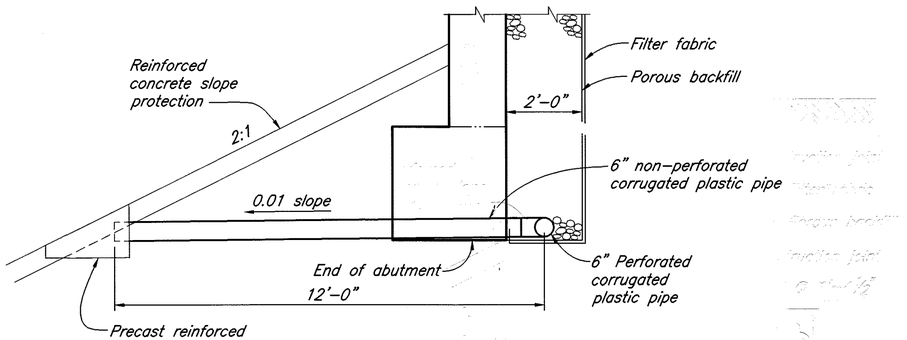
SECTION B–B



ELEVATION

*Per the manufacturer (Dimensions shown are assumed for estimating and bidding purposes)

Note:
Rebar clearance to be 2" unless otherwise shown.



TERMINATION OF 6" CORRUGATED PLASTIC PIPE

NOTES:

Dimension "A" is the distance from the Profile Grade to the abutment seat, per the manufacturer. (18" is assumed for estimating and bidding purposes.)

All vertical reinforcing steel lengths are based on the dimension "A".

REINFORCING STEEL SPLICE LENGTHS shall be 2'-0" for #5 bars.

NOTATION: F.F. – Front Face
R.F. – Rear Face

Job No. 100121FA Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

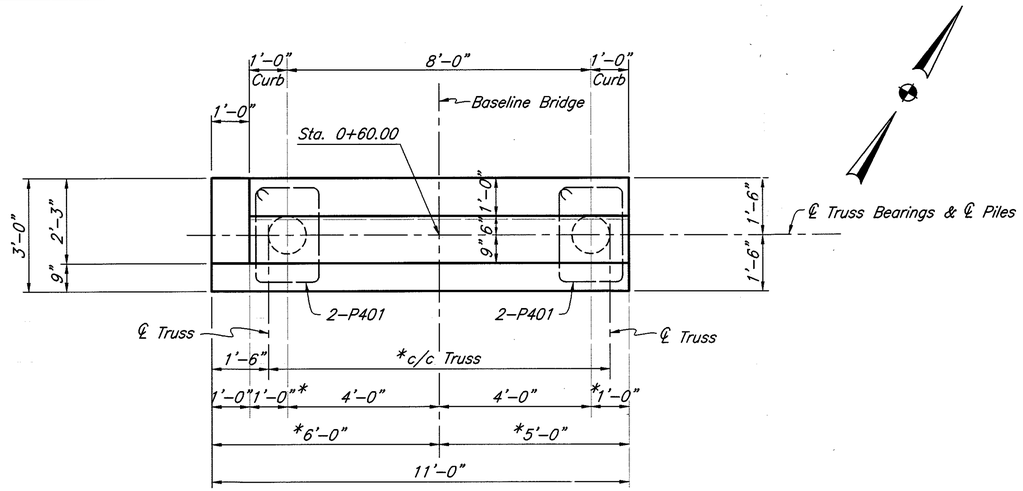
DESIGNED	DRAWN	REVIEWED	DATE
JDB	KH	DLR	1/02
CHECKED	REVISED	STRUCTURE FILE NO.	
DLR		7600445	

FORWARD ABUTMENT
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

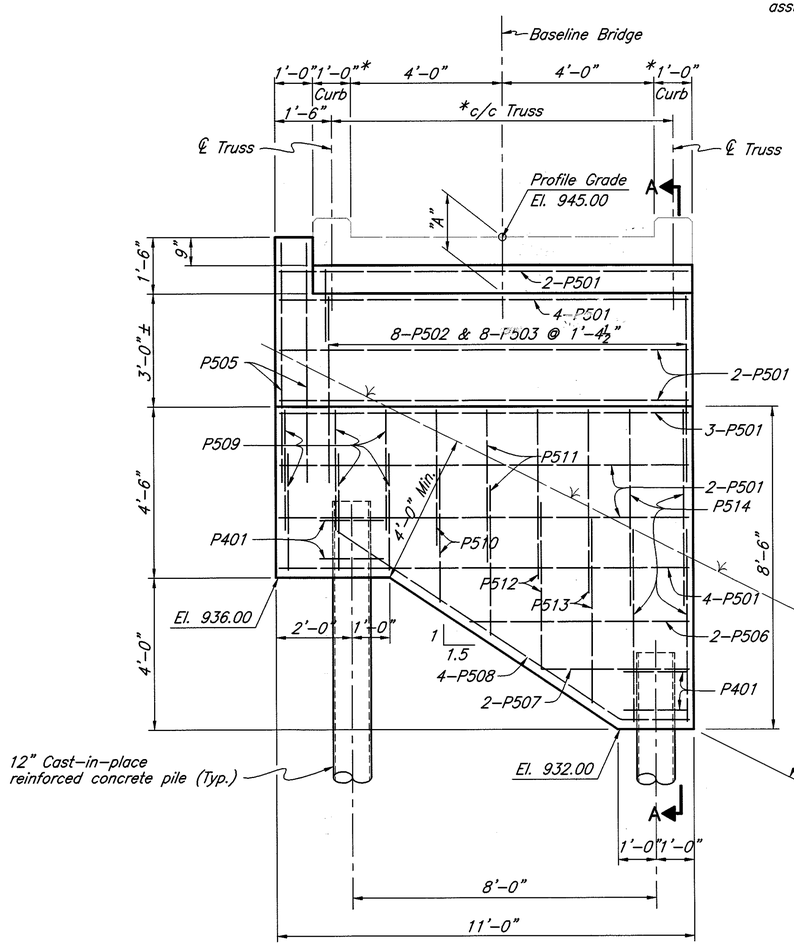
5 / 10

35
40

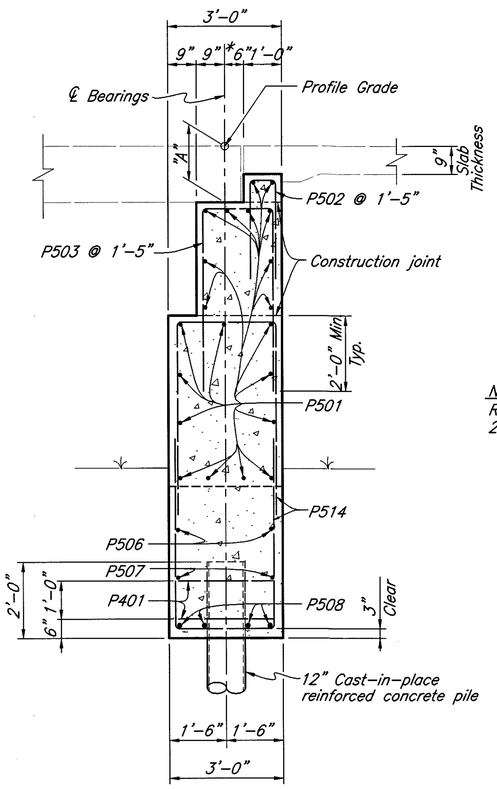


PLAN

* Per the manufacturer (Dimensions shown are assumed for estimating and bidding purposes)



ELEVATION



SECTION A–A

Note:
Rebar clearance to be 2" unless otherwise shown.

NOTES:

Dimension "A" is the distance from the Profile Grade to the pier seat, per the manufacturer. (18" is assumed for estimating and bidding purposes.)

All vertical reinforcing steel lengths are based on the dimension "A".

REINFORCING STEEL SPLICE LENGTHS shall be 2'-0" for #5 bars.

Job No. 100121P1 Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED JDB | DRAWN KH | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

PIER 1
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

6 / 10

36
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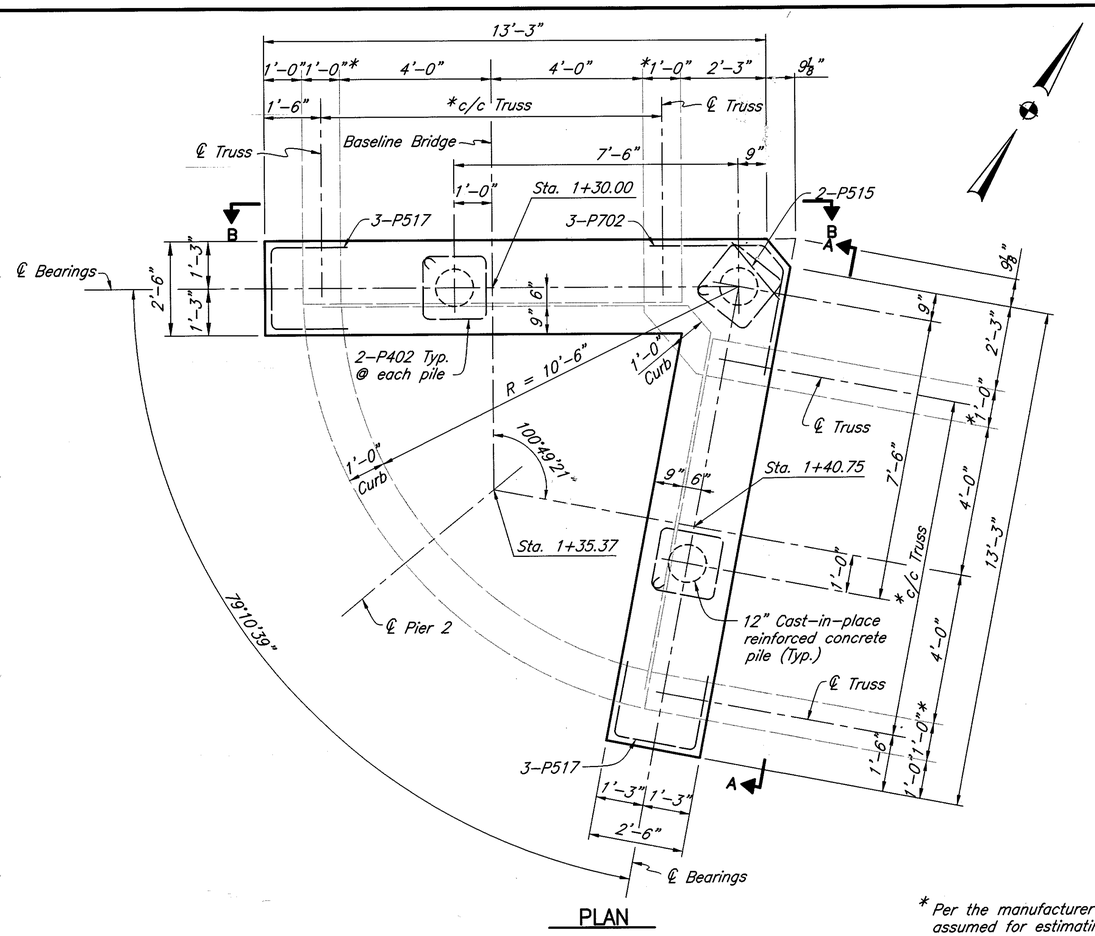

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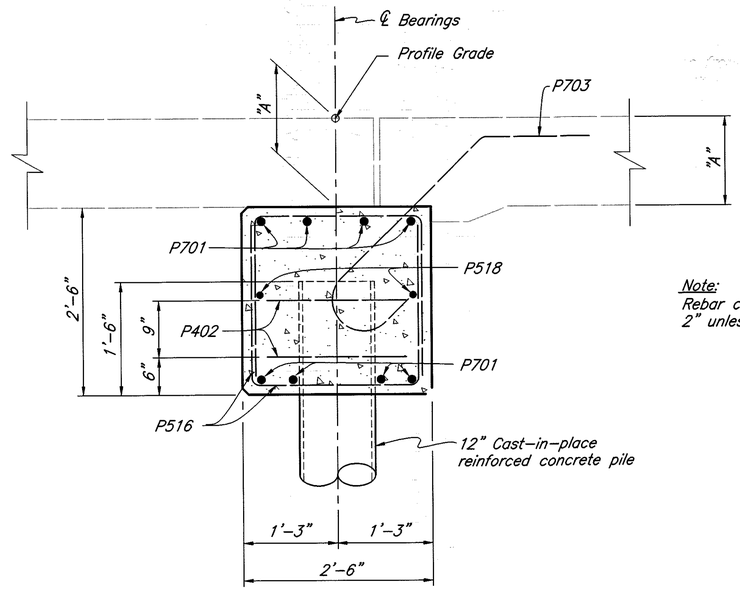
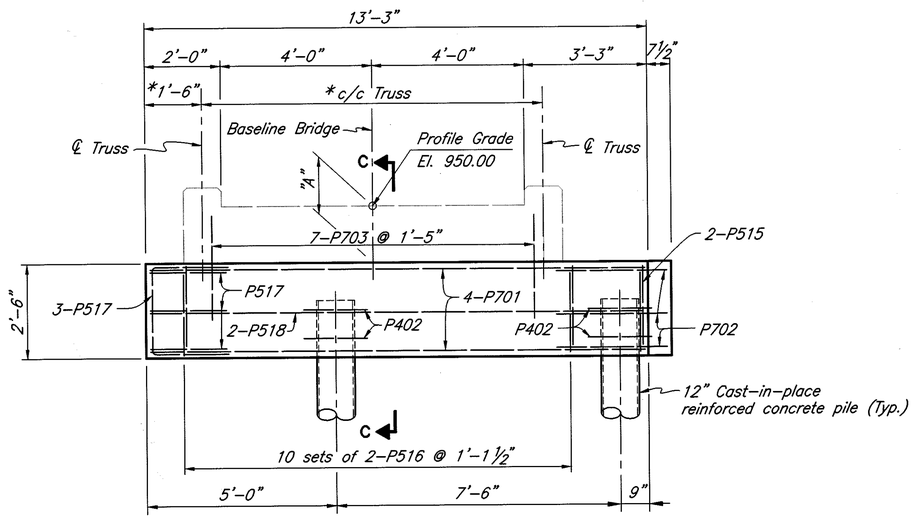


SECTION C-C

Note:
Rebar clearance to be 2" unless otherwise shown.



VIEW A-A
(As Shown)

VIEW B-B
(Opposite Hand)

* Per the manufacturer (Dimensions shown are assumed for estimating and bidding purposes)

NOTES:

Dimension "A" is the distance from the Profile Grade to the pier seat, per the manufacturer. (18" is assumed for estimating and bidding purposes.)

All vertical reinforcing steel lengths are based on the dimension "A".

REINFORCING STEEL SPLICE LENGTHS shall be 2'-0" for #5 bars.

Job No. 100121P2 Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED JDB | DRAWN KH | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

PIER 2
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

7 / 10

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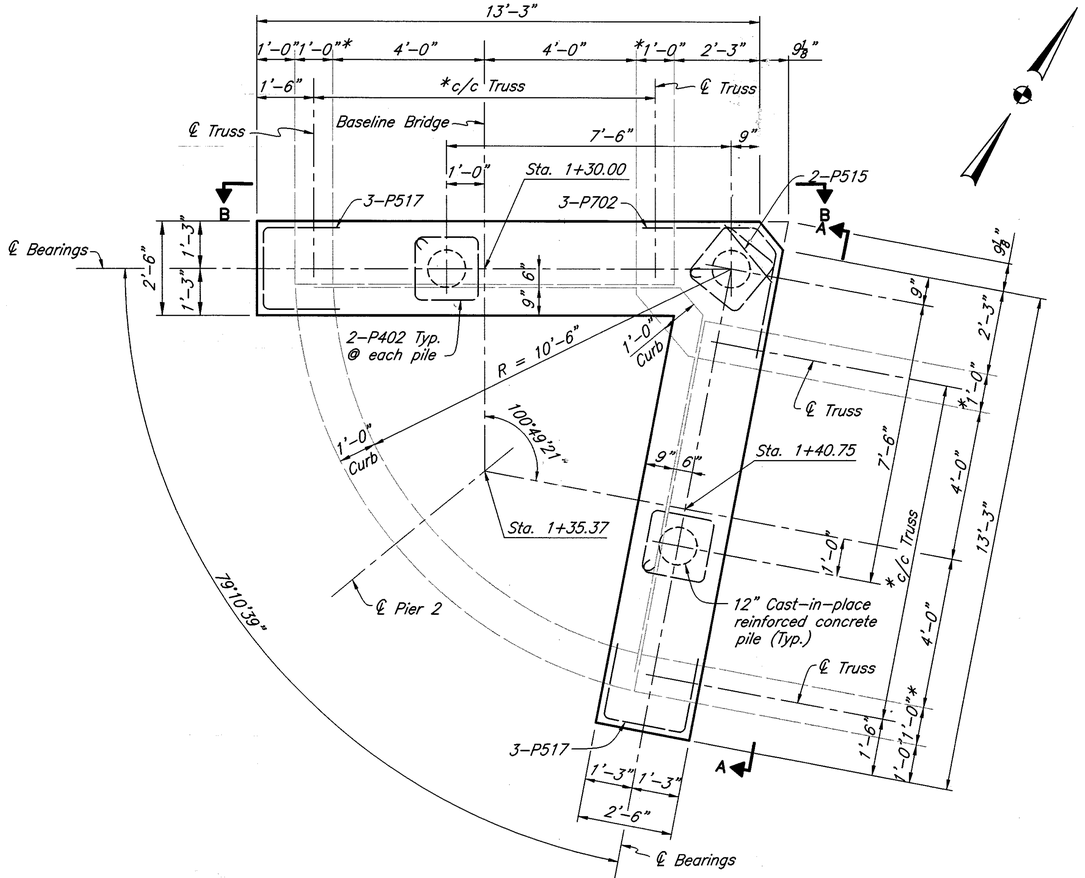
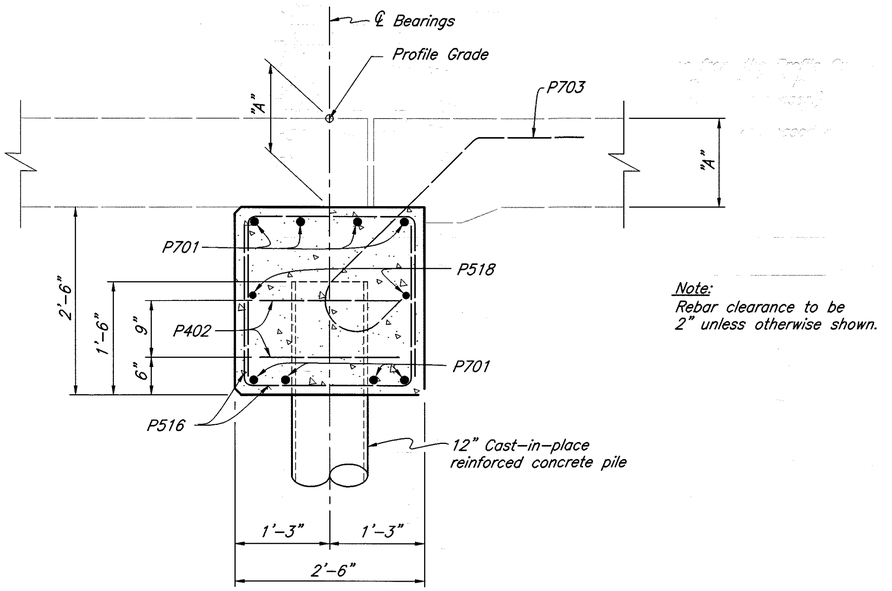


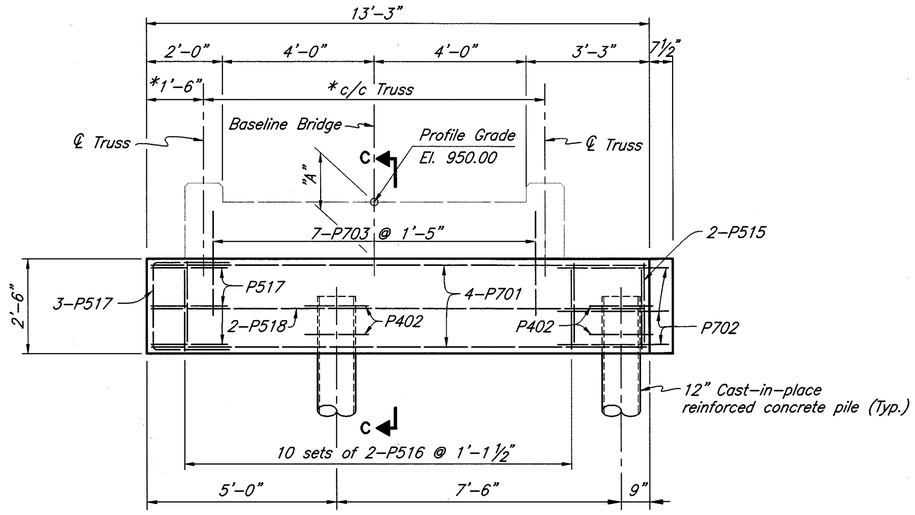
PLAN

* Per the manufacturer (Dimensions shown are assumed for estimating and bidding purposes)



SECTION C-C

Note:
Rebar clearance to be
2" unless otherwise shown.



VIEW A-A
(As Shown)

VIEW B-B
(Opposite Hand)

NOTES:

Dimension "A" is the distance from the Profile Grade to the pier seat, per the manufacturer. (18" is assumed for estimating and bidding purposes.)

All vertical reinforcing steel lengths are based on the dimension "A".

REINFORCING STEEL SPLICE LENGTHS shall be 2'-0" for #5 bars.

Job No. 100121P2 Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED	DRAWN	REVIEWED	DATE
JDB	KH	DLR	1/02
CHECKED	REVISED	STRUCTURE FILE NO.	
DLR		7600445	

PIER 2
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

7 / 10

37
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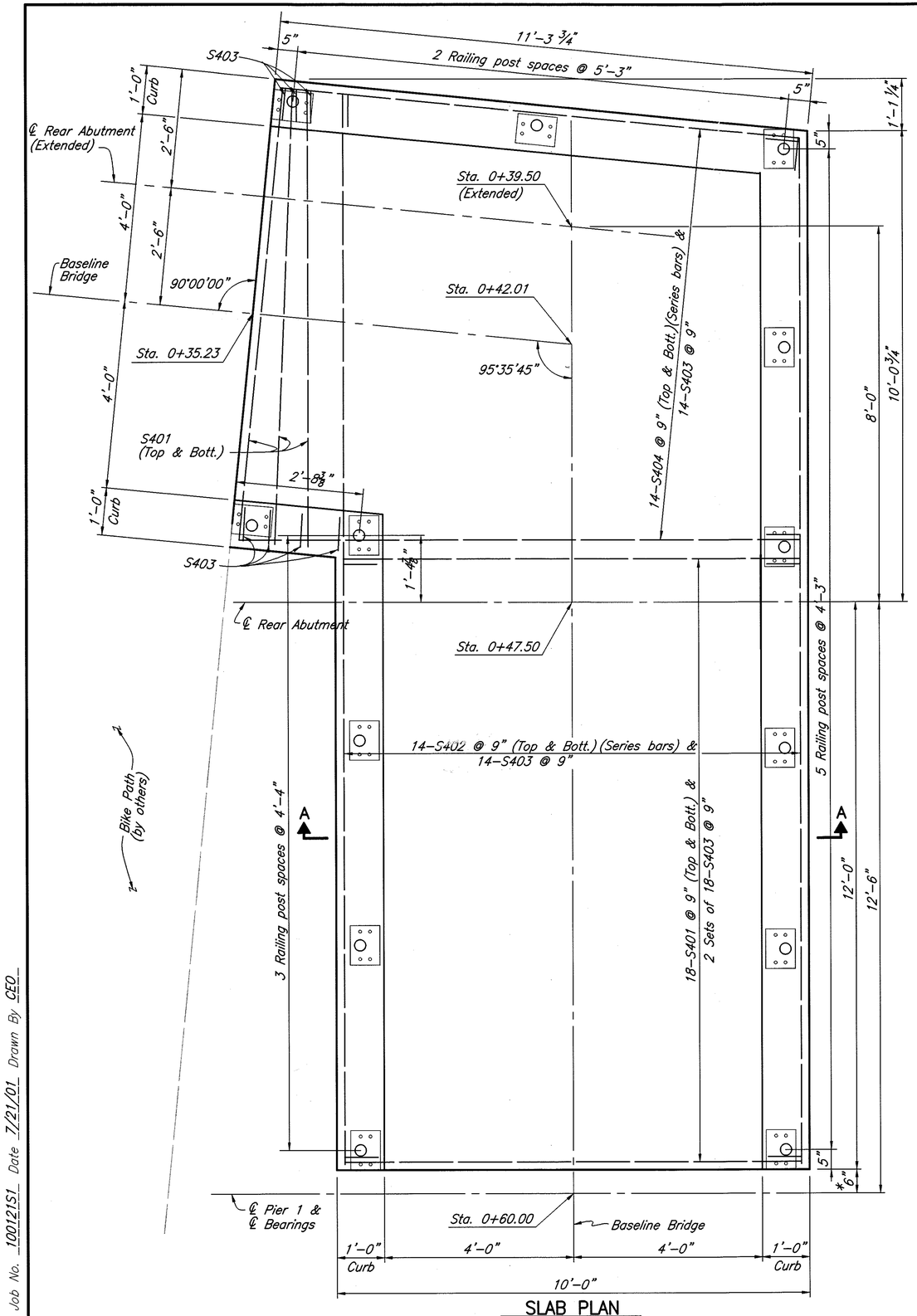
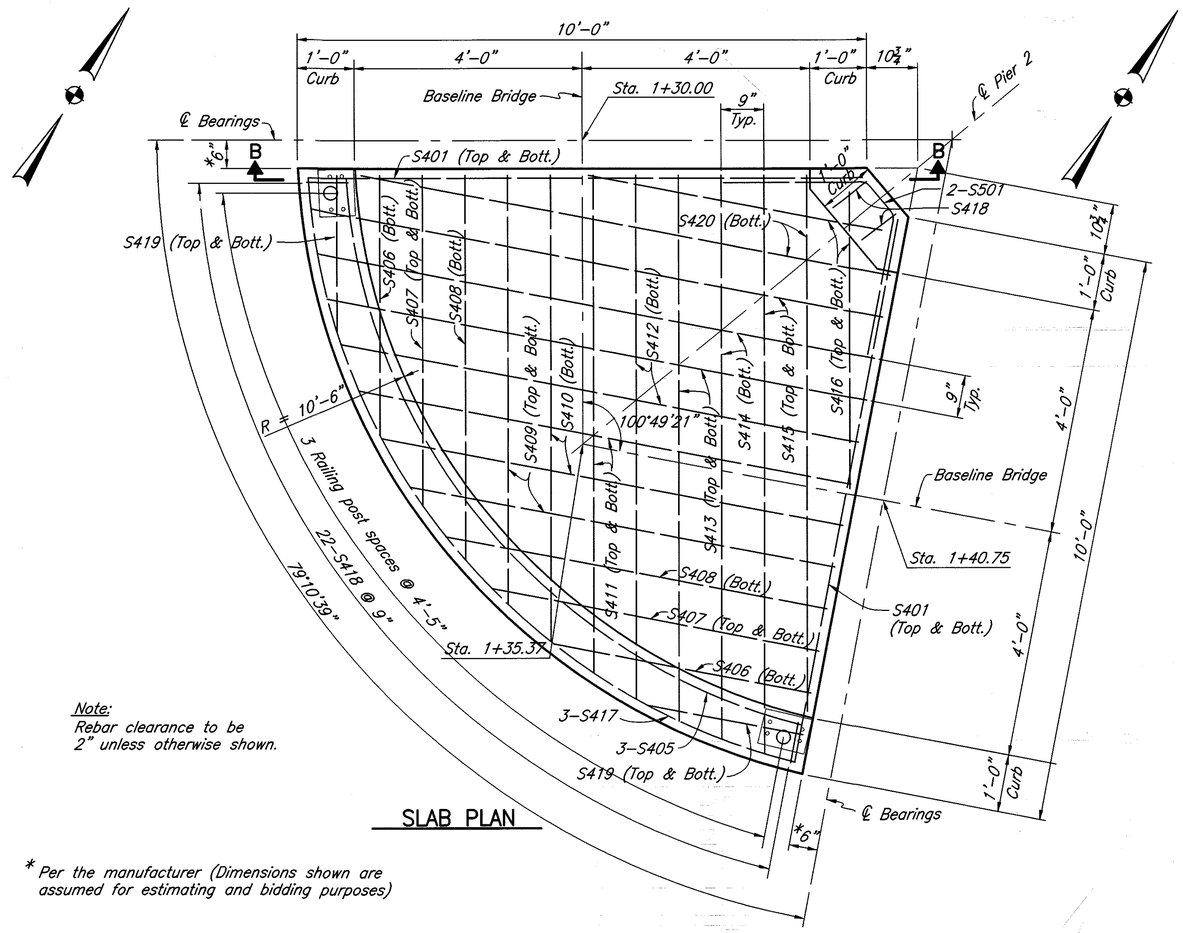
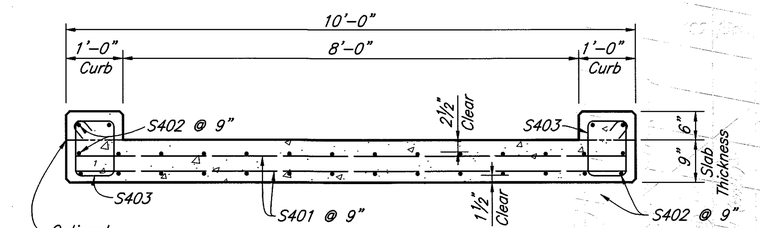


SLAB PLAN

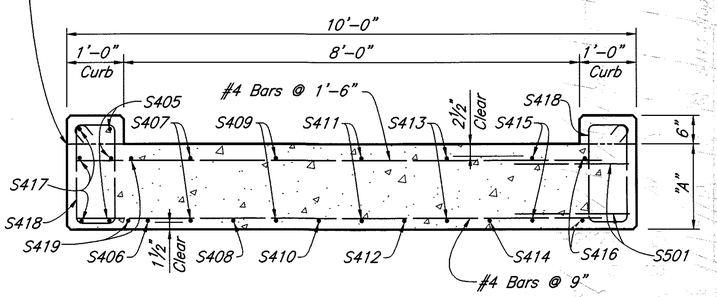


Note:
Rebar clearance to be 2" unless otherwise shown.

* *Per the manufacturer (Dimensions shown are assumed for estimating and bidding purposes)*



SECTION A–A



SECTION B–B

NOTES:

Dimension "A" is the distance from the Profile Grade to the pier seat, per the manufacturer. (18" is assumed for estimating and bidding purposes.)

All vertical reinforcing steel lengths are based on the dimension "A".

Job No. 100121S1 Date 7/21/01 Drawn By CEO

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

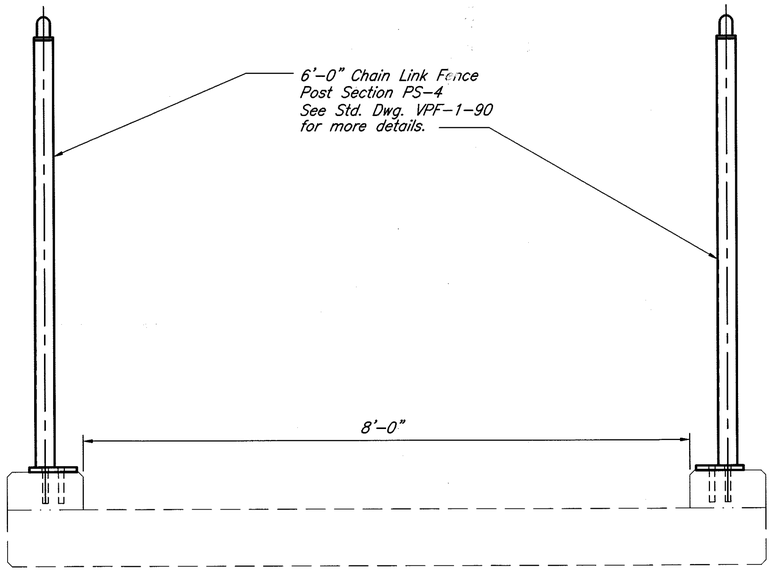
DESIGNED	DRAWN	REVIEWED	DATE
JDB	KH	DLR	1/02
CHECKED	REVISED	STRUCTURE FILE NO.	
DLR		7600445	

SLAB PLAN
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

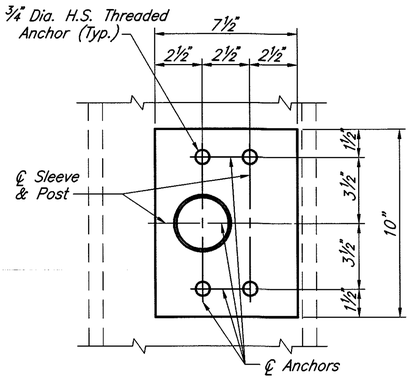
LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

8 / 10

38
40



TRANSVERSE SECTION SHOWING FENCE



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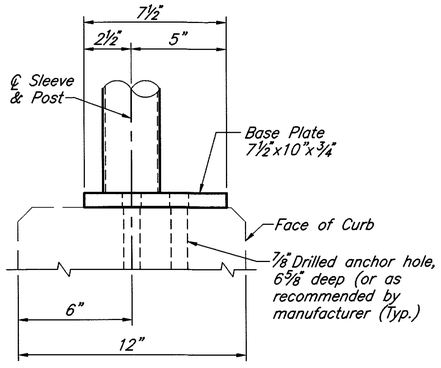
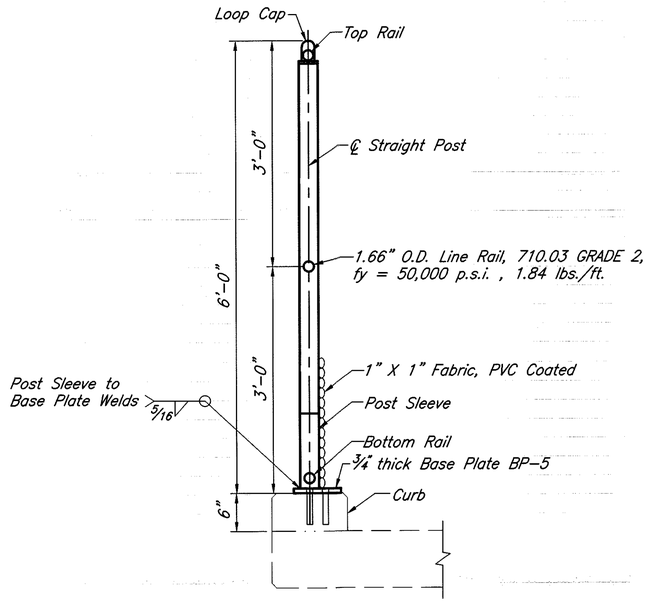


END VIEW



POST SECTION

Job No. 10012IVPF Date 9/26/01 Drawn By SJK

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

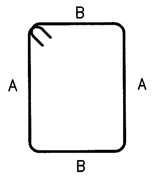
DESIGNED JDB | DRAWN SJK | REVIEWED DLR | DATE 1/02
CHECKED DLR | REVISED | STRUCTURE FILE NO. 7600445

VANDAL PROTECTION FENCE DETAILS
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

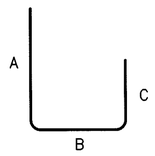
LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

9 / 10

39
40

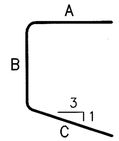


TYPE 1



TYPE 2

TYPE 3



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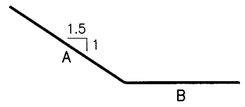
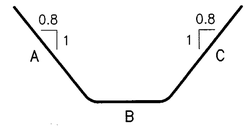
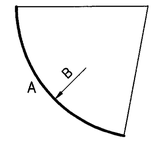


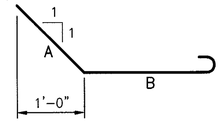
TYPE 5



TYPE 6



TYPE 7



TYPE 8

ABUTMENTS

CALCULATED KH DATE 01/01
CHECKED ____ DATE ____

MARK	REAR	FWD.	NO.	LENGTH	TYPE	A	B	C	INC.
A401	4		4	7'-2"	1	1'-8"	1'-8"		
A402		4	4	9'-0"	1	2'-6"	1'-9"		
A501	8		8	5'-5"	2	2'-0"	1'-8"	2'-0"	
A502	12		12	7'-8"	Str.				
A503	12		12	4'-6"	4	2'-0"	0'-8"	2'-0"	
A504	4		4	8'-0"	3	3'-1"	1'-10"	3'-1"	
A505	4		4	3'-5"	3	3'-1"	0'-4"	0	
A506	8		8	3'-11"	2	1'-3"	1'-8"	1'-3"	
A507	8		8	4'-9"	2	1'-8"	1'-8"	1'-8"	
A508		9	9	9'-8"	Str.				
A509		8	8	16'-8"	Str.				
A510		6	6	5'-4"	Str.				
A511	8		8	5'-5"	2	2'-0"	1'-8"	2'-0"	
A512		13	13	11'-1"	1	2'-7"	2'-8"		
A513		8	8	7'-1"	2	3'-4"	0'-8"	3'-4"	
A514		2	2	14'-3"	2	6'-8"	1'-2"	6'-8"	
A515		2	2	13'-1"	2	6'-1"	1'-2"	6'-1"	
A516		2	2	11'-7"	2	5'-4"	1'-2"	5'-4"	
A517		8	8	12'-0"	2	5'-2"	1'-11"	5'-2"	
A518		4	4	1'-4"	Str.				
A519		4	4	3'-4"	Str.				
A801		4	4	16'-8"	Str.				

PIERS

CALCULATED KH DATE 01/01
CHECKED ____ DATE ____

MARK	PIER 1	PIER 2	NO.	LENGTH	TYPE	A	B	C	INC.
P401	4		4	9'-0"	1	2'-6"	1'-9"		
P402		6	6	8'-6"	1	2'-0"	2'-0"		
P501	21		21	10'-8"	Str.				
P502	8		8	5'-7"	2	2'-7"	0'-8"	2'-7"	
P503	8		8	11'-4"	2	4'-10"	1'-11"	4'-10"	
P505	2		2	14'-4"	2	6'-4"	1'-11"	6'-4"	
P506	2		2	5'-11"	Str.				
P507	2		2	4'-0"	Str.				
P508	4		4	10'-10"	5	9'-0"	1'-10"		
P509	6		6	8'-7"	2	3'-1"	2'-8"	3'-1"	
P510	2		2	9'-5"	2	3'-6"	2'-8"	3'-6"	
P511	2		2	10'-5"	2	4'-0"	2'-8"	4'-0"	
P512	2		2	11'-3"	2	4'-5"	2'-8"	4'-5"	
P513	2		2	12'-3"	2	4'-11"	2'-8"	4'-11"	
P514	4		4	12'-7"	2	5'-1"	2'-8"	5'-1"	
P515		2	2	6'-1"	2	2'-2"	2'-0"	2'-2"	
P516		20	20	6'-3"	2	2'-2"	2'-2"	2'-2"	
P517		12	12	5'-11"	2	2'-0"	2'-2"	2'-0"	
P518		4	4	12'-11"	Str.				
P701		8	8	12'-11"	Str.				
P702		3	3	6'-8"	6	3'-0"	0'-10"	3'-0"	
P703		14	14	5'-3"	8	1'-5"	3'-0"		

SUPERSTRUCTURE

CALCULATED KH DATE 01/01
CHECKED ____ DATE ____

MARK	NO.	LENGTH	TYPE	A	B	C	INC.
S401	42	9'-8"	Str.				
S402	2 Ser. of 14	21'-8" to 22'-7½"	Str.				⅞"
S403	71	3'-8"	1	0'-11"	0'-8"		
S404	1 Ser. of 14	11'-0" to 11'-11½"	Str.				⅞"
S405	3	13'-4"	7	13'-4"	10'-8"		
S406	2	4'-7"	Str.				
S407	4	5'-10"	Str.				
S408	2	6'-10"	Str.				
S409	4	7'-7"	Str.				
S410	2	8'-3"	Str.				
S411	4	8'-10"	Str.				
S412	2	9'-3"	Str.				
S413	4	9'-8"	Str.				
S414	2	9'-11"	Str.				
S415	4	10'-2"	Str.				
S416	4	5'-2"	Str.				
S417	3	14'-4"	7	14'-4"	11'-4"		
S418	24	5'-2"	1	1'-8"	0'-8"		
S419	4	2'-9"	Str.				
S420	2	9'-5"	Str.				
S501	2	4'-11"	6	2'-0"	1'-0"	2'-0"	

Job No. 100121RS Date 7/21/01 Drawn By HN

RICHLAND ENGINEERING LIMITED
29 NORTH PARK STREET
MANSFIELD, OHIO 44902

DESIGNED JDB | DRAWN KH | CHECKED DLR | REVISED
REVIEWED DLR | DATE 1/02
STRUCTURE FILE NO. 7600445

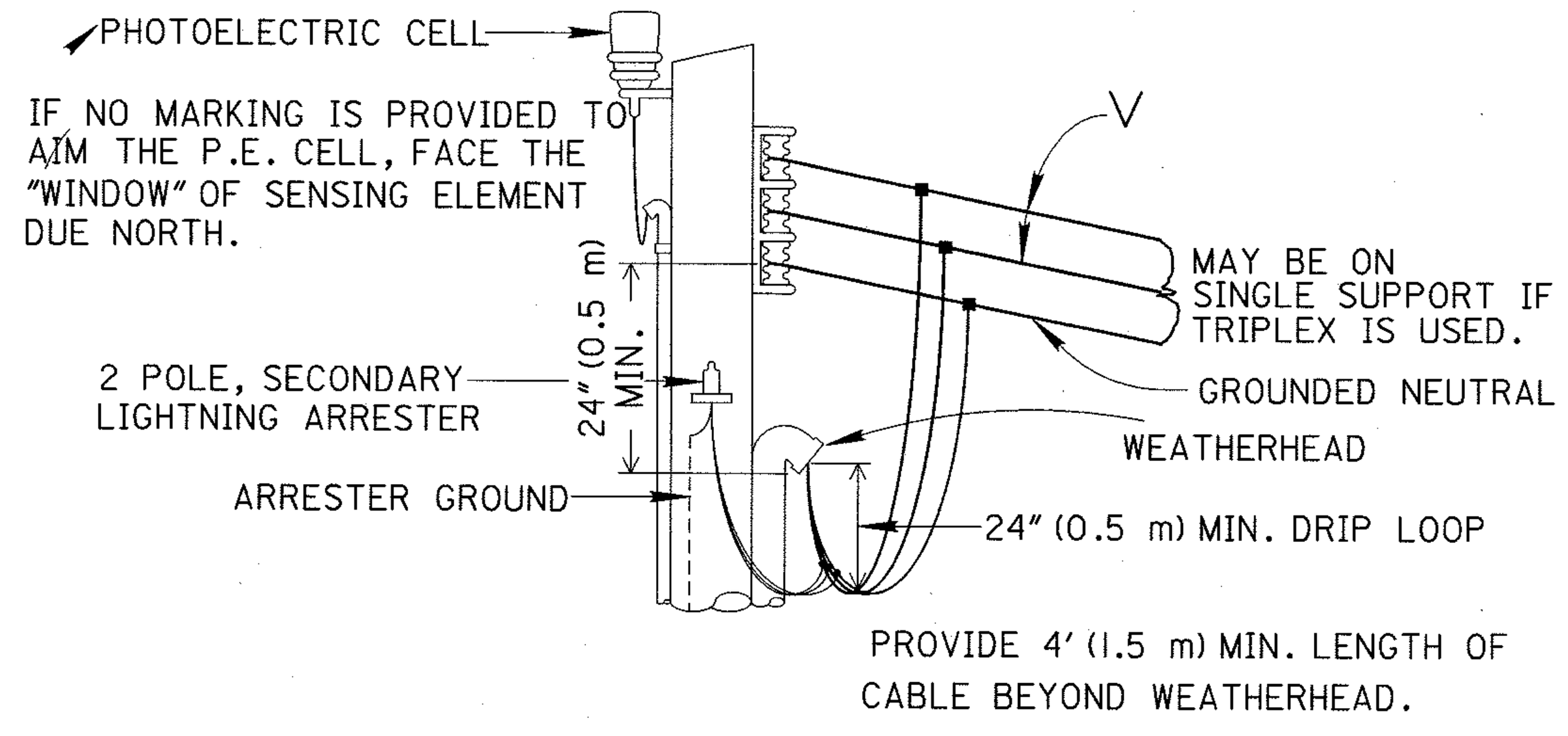
REINFORCING STEEL LISTS
MASSILLON PEDESTRIAN BRIDGE
OVER STATE ROUTE 21

LINCOLN WAY PEDESTRIAN
BRIDGE & STREET SCAPE
MASSILLON, OHIO

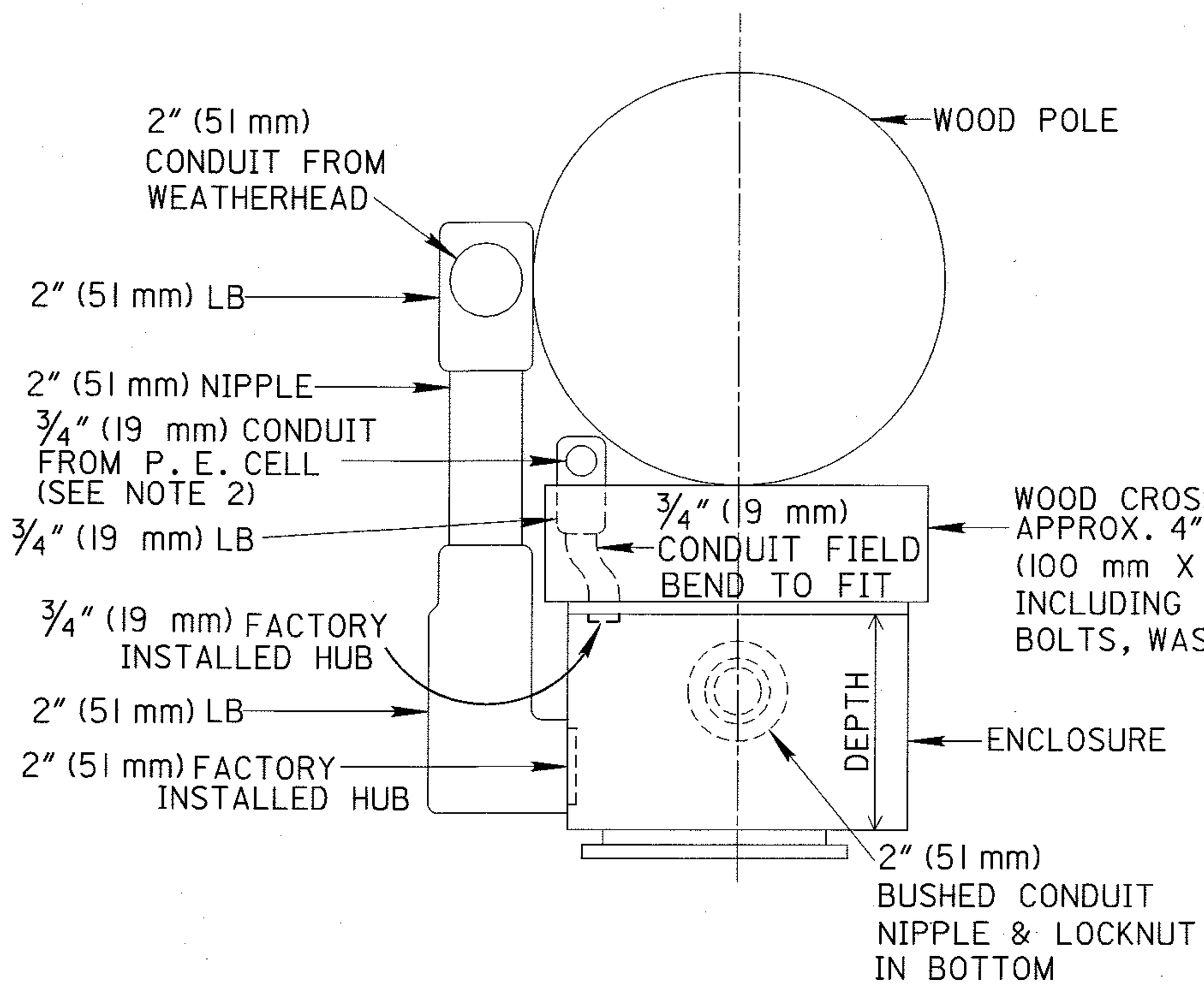
10 / 10

40
40

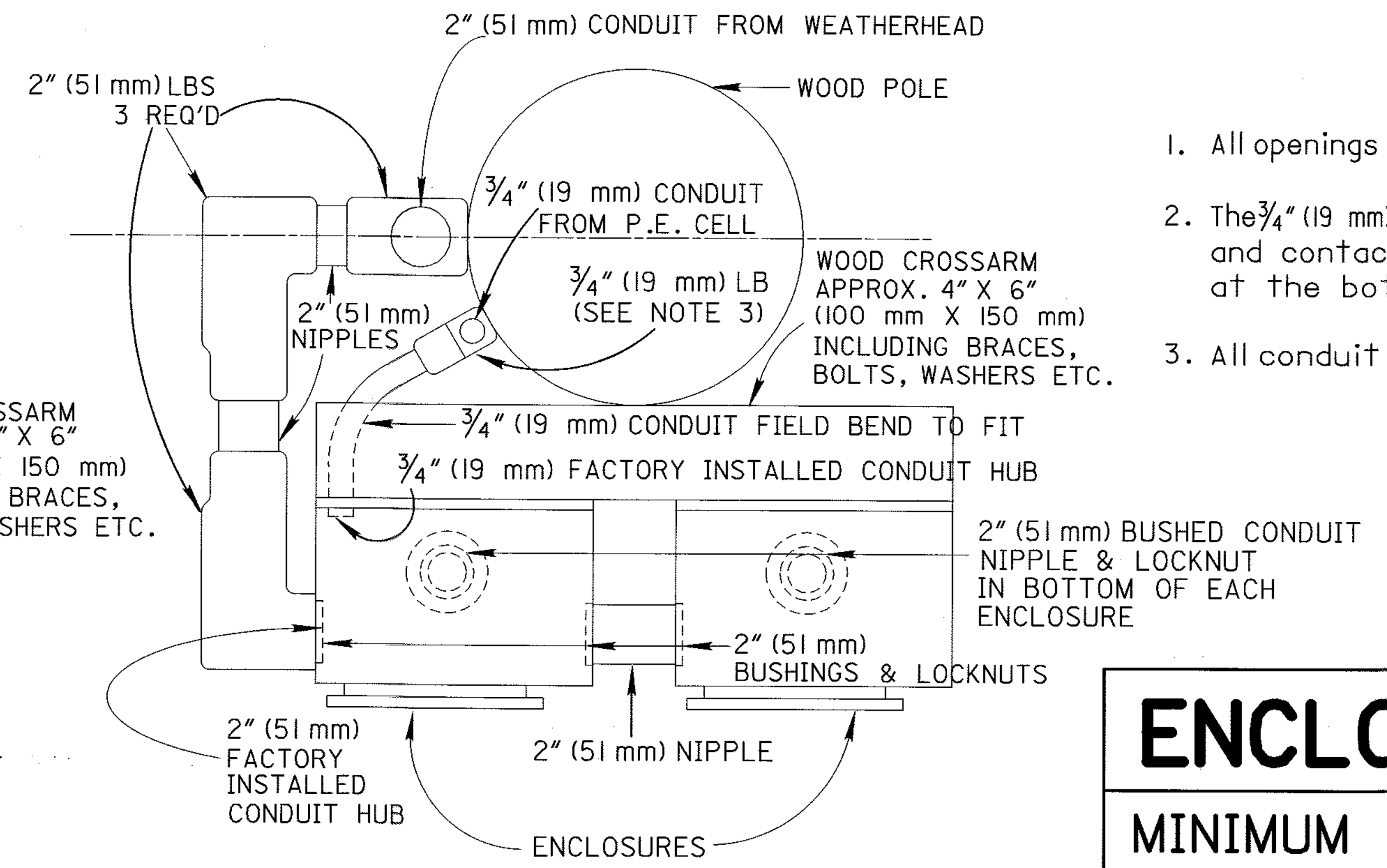
3 - WIRE SERVICE



TYPICAL SERVICE POLE HEADS



PLAN
SINGLE ENCLOSURE



PLAN
DOUBLE ENCLOSURES

NOTES

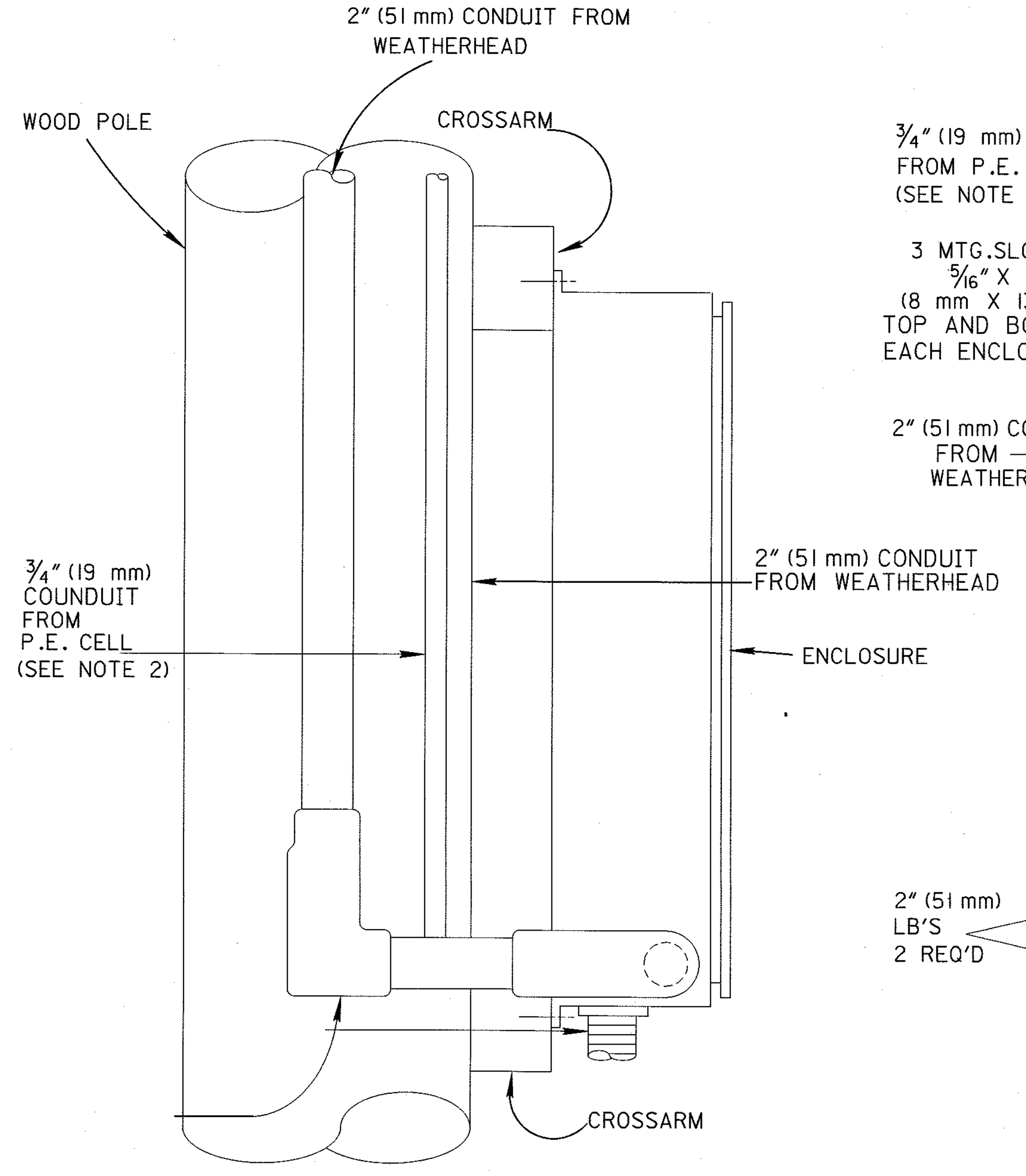
1. All openings in enclosures shall be made by fabricator.
2. The 3/4" (19 mm) conduit for control wiring between P.E. cell and contactor enters the back of the enclosure at the bottom.
3. All conduit shall conform to 713.04.

ENCLOSURE TYPES

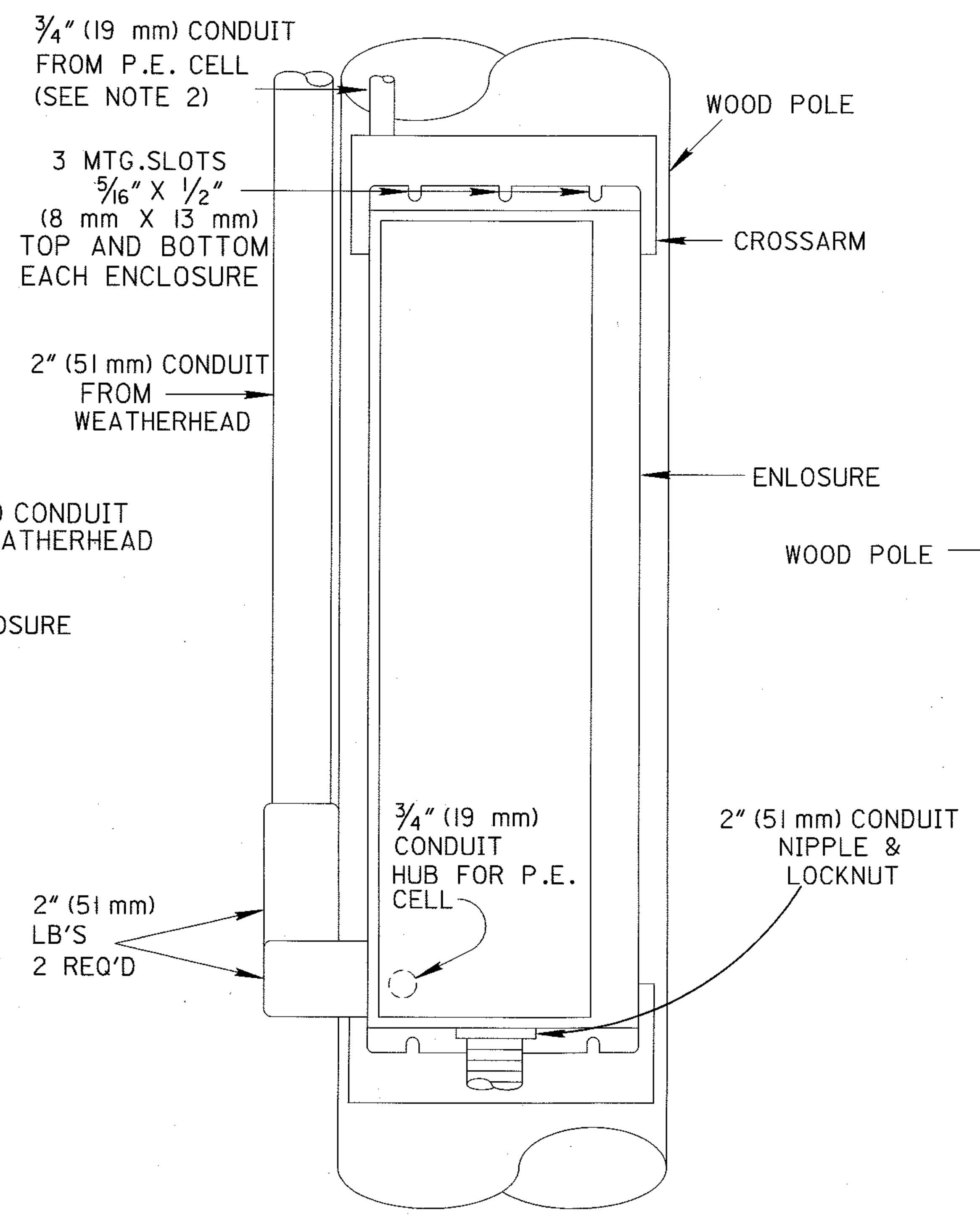
MINIMUM INTERIOR DIMENSIONS

TYPE	PRINCIPLE CONTENTS	WIDTH	HEIGHT	DEPTH*
S-60	60 AMPERE FUSED SWITCH	10" (250 mm)	18" (450 mm)	6" (150 mm)
S-100	100 AMPERE FUSED SWITCH	14" (350 mm)	24" (600 mm)	7" (175 mm)
SC-60	60 AMPERE FUSED SWITCH 60 AMPERE CONTACTOR	14" (350 mm)	34" (850 mm)	8" (200 mm)
SC-100	100 AMPERE FUSED SWITCH 100 AMPERE CONTACTOR	18" (450 mm)	38" (950 mm)	8" (200 mm)

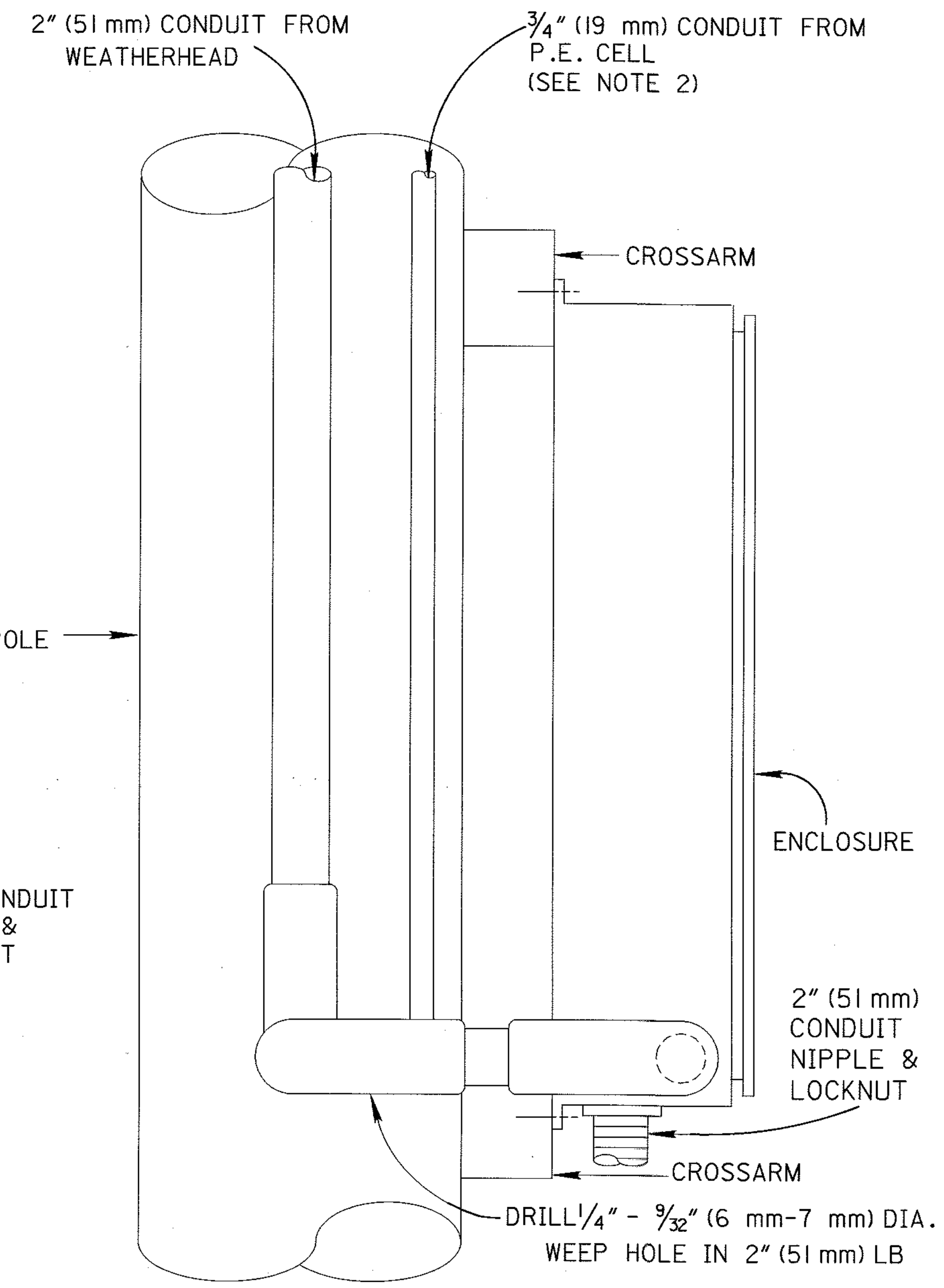
*SEE "PLAN" VIEW OF SINGLE ENCLOSURE. THE INTERIOR DEPTH DIMENSION SHALL NOT INCLUDE ANY PART OF THE ENCLOSURE DOOR WHICH MAY PROTRUDE INTO THE INTERIOR OF THE ENCLOSURE.



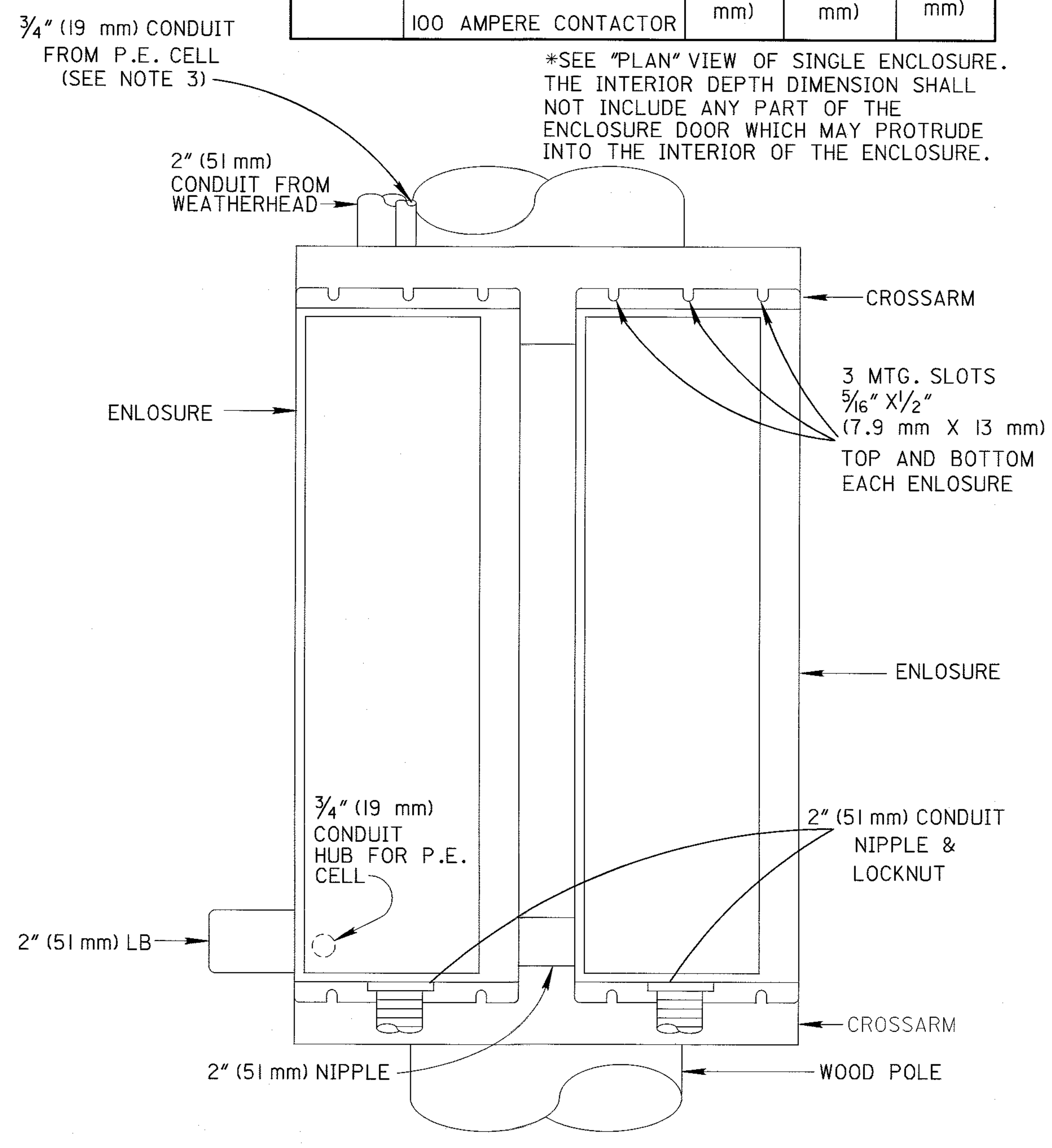
LEFT SIDE VIEW
SINGLE ENCLOSURES



FRONT ELEVATION
SINGLE ENCLOSURE



LEFT SIDE VIEW
DOUBLE ENCLOSURE



FRONT ELEVATION
DOUBLE ENCLOSURES

07-20-01

POWER SERVICE POLE MOUNTED

OFFICE OF TRAFFIC ENGINEERING

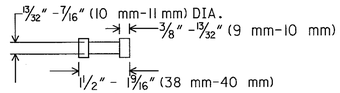
HL-40.10

1/1

JAM

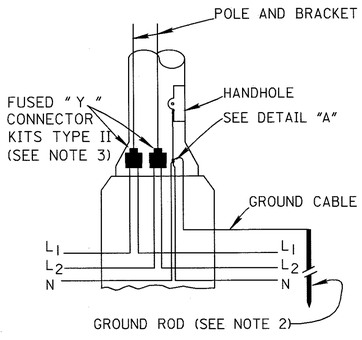
NOTES

1. Provide sufficient slack in all cables to permit bringing kits outside of pole base through handhole of anchor base poles or door in transformer base poles.
2. For structure-mounted poles substiture "structure grounding system" for "ground rod."
3. Fuses for connector kits shall be as follows:

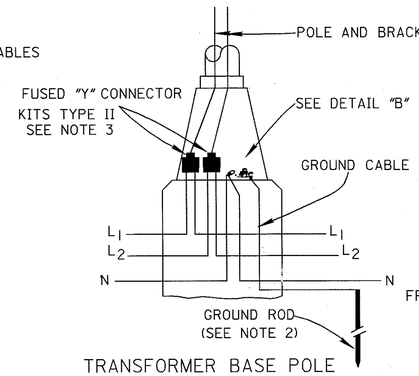


Any standard midget ferrule type fuse, (except glass tube) may be used in this connection.

Fuses rated 600 volts and 10 amperes, minimum shall be use unless otherwise specified.

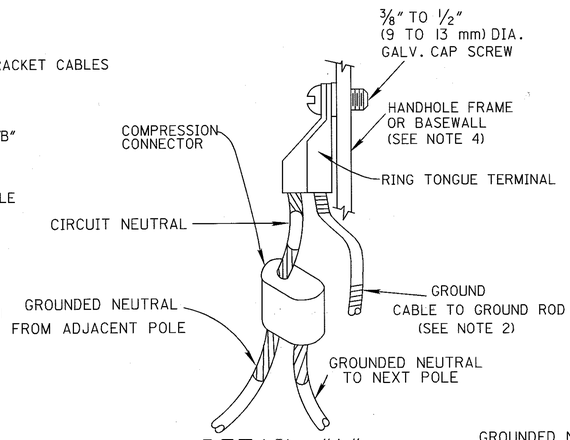


ANCHOR BASE POLE



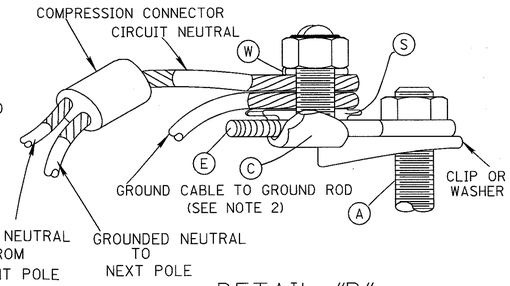
TRANSFORMER BASE POLE

120/240
240/480 VOLTS, THREE WIRE
277/480



DETAIL "A"

3-WIRE, GROUNDED NEUTRAL
ANCHOR BASE POLE

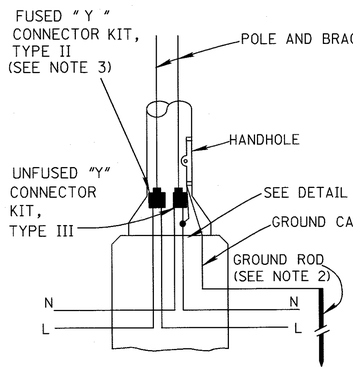


DETAIL "B"

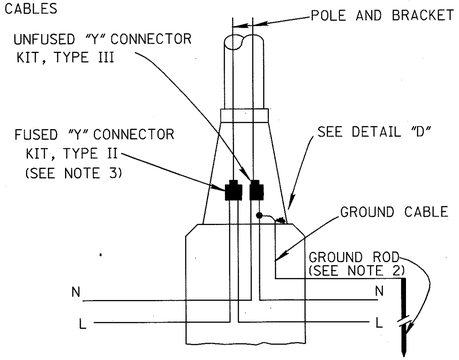
3-WIRE, GROUNDED NEUTRAL
TRANSFORM BASE POLE

LEGEND OF ITEMS COMMON TO DETAILS "B" & "D"

- (A) ANCHOR BOLT
- (C) TIN PLATED COPPER SPLIT BOLT CONNECTOR WITH THE FOLLOWING COMPONENTS:
  - (S) SPACER (TIN PLATED)
  - (W) WASHER
  - (E) DIA. 5/16" - 13/32" (8-10 mm); LENGTH 4" - 5" (100-125 mm) GALV. STEEL EYEBOLT

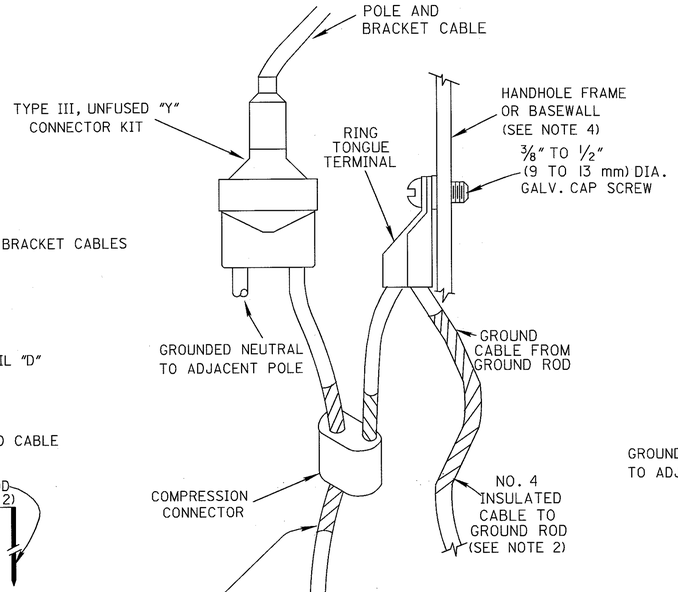


ANCHOR BASE POLE



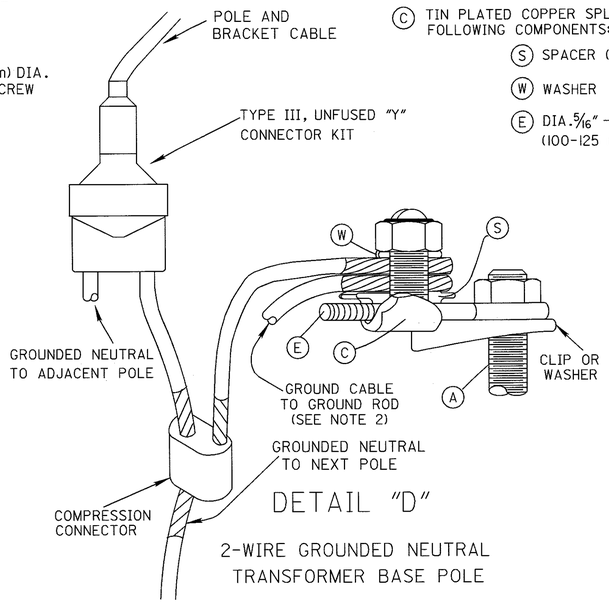
TRANSFORMER BASE POLE

120
277 VOLT, TWO-WIRE



DETAIL "C"

2-WIRE, GROUNDED NEUTRAL
ANCHOR BASE POLE



DETAIL "D"

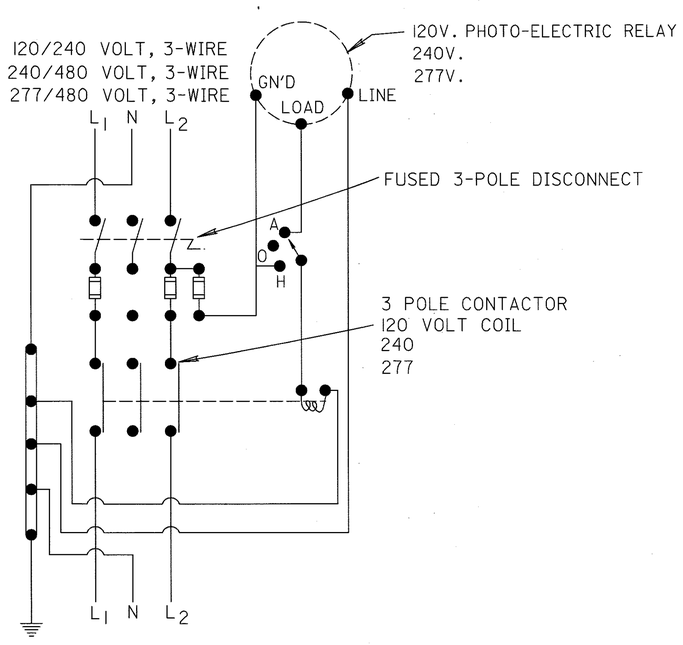
2-WIRE GROUNDED NEUTRAL
TRANSFORMER BASE POLE

07-20-01

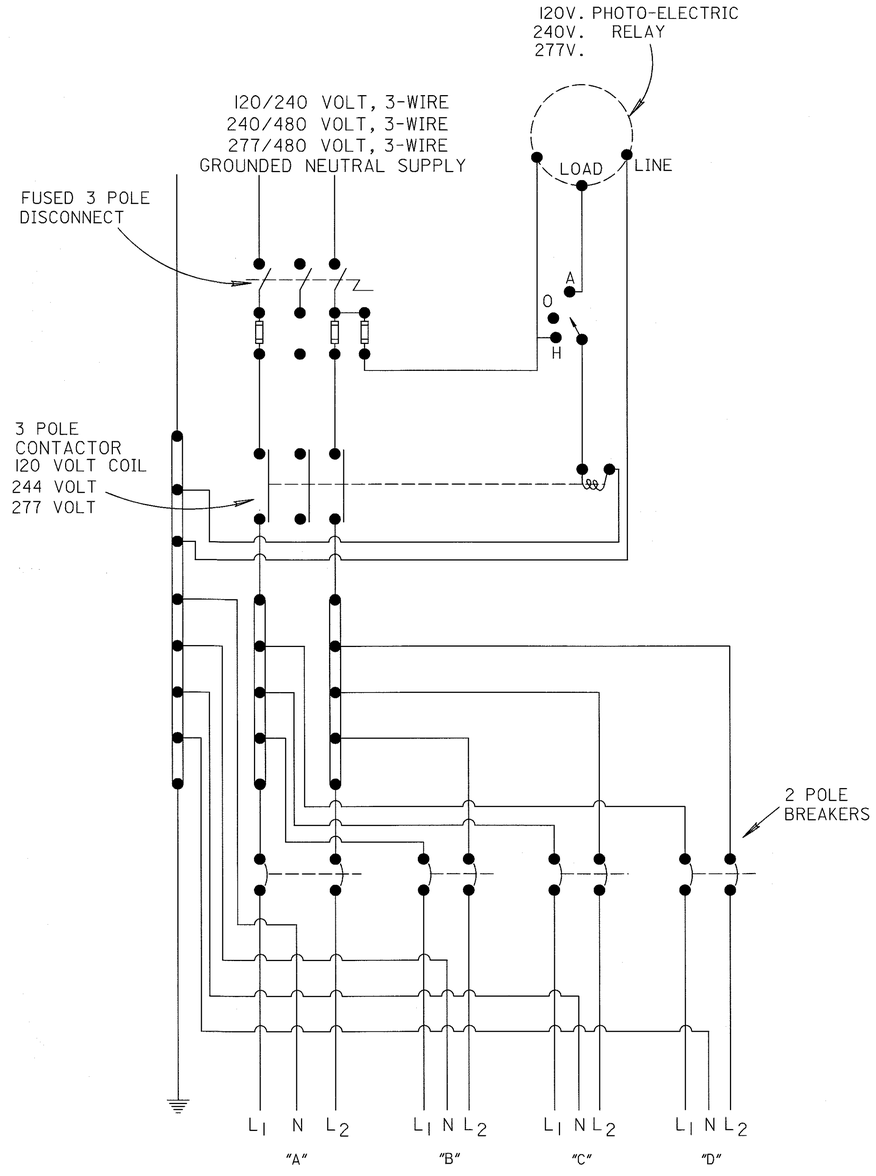
POLE WIRING 1

OFFICE OF TRAFFIC ENGINEERING

HL-60.11



120/240 VOLT, 3-WIRE
240/480 VOLT, 3-WIRE
277/480 VOLT, 3-WIRE
GROUNDED NEUTRAL
SINGLE CIRCUIT



120/240 VOLT, 3-WIRE
240/480 VOLT, 3-WIRE
277/480 VOLT, 3-WIRE
GROUNDED NEUTRAL
MULTIPLE CIRCUIT

07-20-01

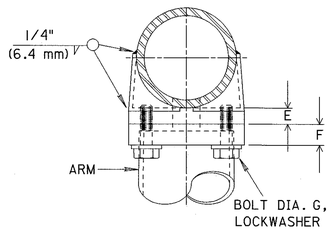
CONTROL CENTER WIRING

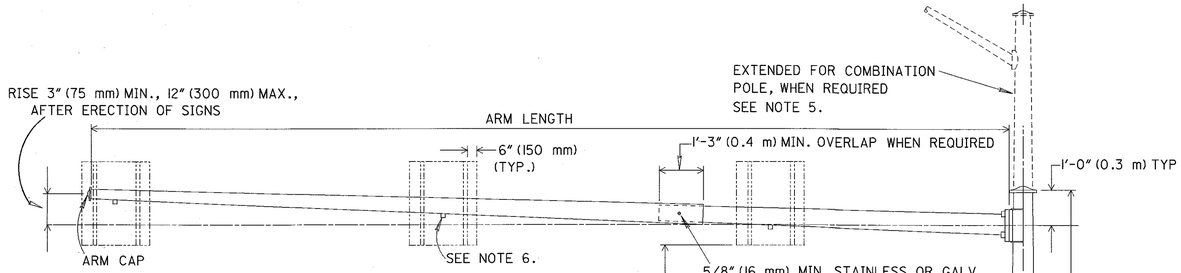
OFFICE OF TRAFFIC ENGINEERING

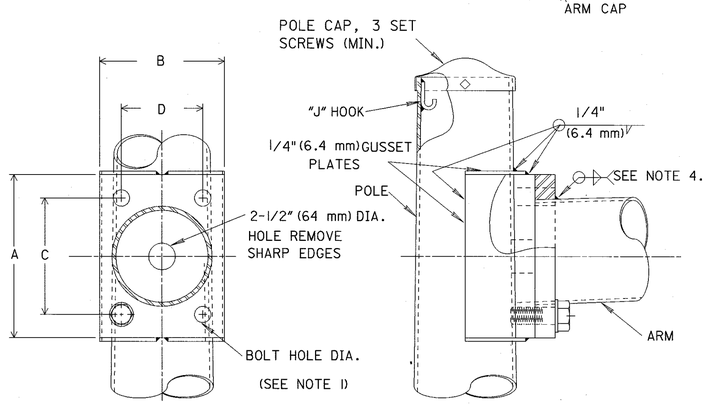
HL-60.31

1/1

JAM



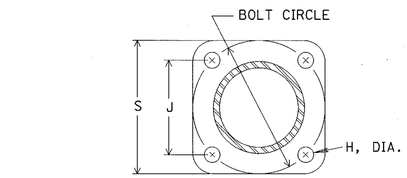


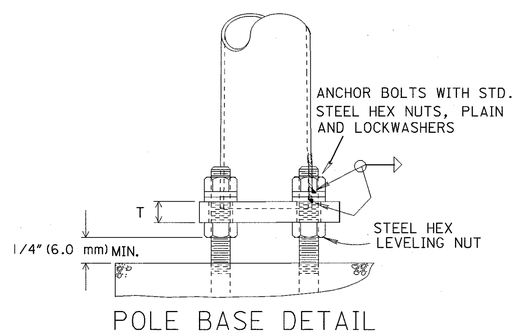


ARM ATTACHMENT

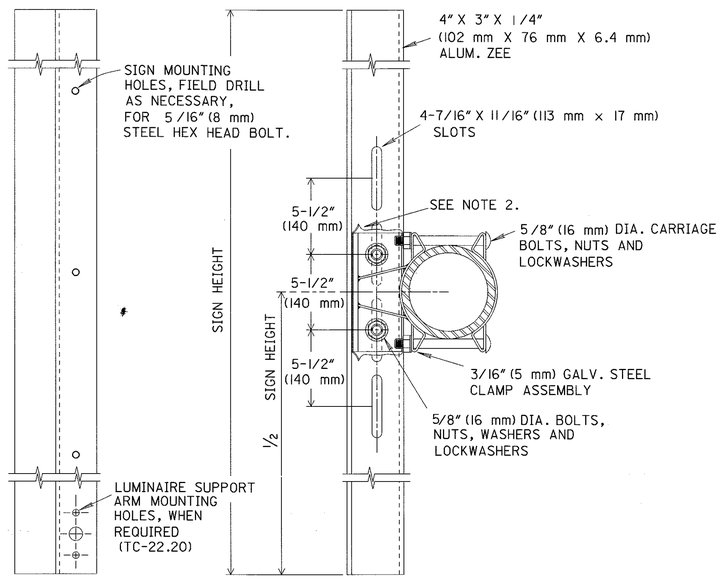
NOTES

1. Arm plate hole diameter to be bolt diameter plus 1/8" (3.2 mm). Pole plate tapped hole to have threads with 75% min. full profile height. Threads may be retapped after galvanizing.
2. Prevent contact between aluminum and galvanized parts with a minimum 1/16" (1.6 mm) thick chloroprene gasket or approved equal.
3. For foundation details, see drawing TC-21.20.
4. Weld the arm attachment plate inside and outside with fillet welds. Each weld shall be equal to the wall thickness of the respective tubing.
5. For modification of pole to support roadway lighting, see drawings TC-22.10 and HL-10.12.
6. Weld one threaded steel 1-1/4" (32 mm) pipe coupling or short nipple to the arm behind each sign. Remove all sharp edges inside the arm and pipe coupling
7. For location of handholes, see drawing TC-22.10.
8. Provide a removable galvanized cast iron plug for all unused couplings and wire outlets.





POLE BASE DETAIL



SIGN BRACKET

01-19-01

SINGLE ARM OVERHEAD SIGN SUPPORT

OFFICE OF TRAFFIC ENGINEERING

TC-16.20

LAM

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

DESIGN NO.	POLE		ARM		TWO PIECE ARM		ARM ATTACHMENT							ANCHOR BASE					ANCHOR BOLT	
	WALL THK.	SIZE	WALL THK.	SIZE	WALL THK.	SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	S	J	T	H	DIA.	L
UNLIGHTED																				
1	.179	10x7.06x21′	.179	7x3.78x23′			14-1/2	12	10-1/2	8	1-1/4	1-1/4	1-1/4	13-1/2	14-1/8	9-9/16	1-1/2	1-3/4	1-1/2	54
2	.179	11x8.06x21′	.179	8x3.66x31′			14-1/2	12	10-1/2	8	1-1/4	1-1/2	1-1/4	15	15-5/8	10-5/8	1-1/2	1-3/4	1-1/2	54
3	.179	12x9.06x21′	.179	9x4.10x35′			14-1/2	12	10-1/2	8	1-1/4	1-1/2	1-1/4	16	17	11-5/16	1-1/2	1-3/4	1-1/2	54
4	.239	13x10.06x21′	.239	10x3.98x43′	.239 .179	10x7.87x15′-3″+ 8.44x4.38x29′	16-1/2	14-1/2	12-1/2	9-1/2	1-1/4	2	1-1/4	18	18-1/2	12-3/4	2	2-1/8	1-3/4	84
LIGHTED																				
5	.239	11x8.06x21′	.239	8x4.64x24′			14-1/2	12	10-1/2	8	1-1/4	1-1/2	1-1/4	15	15-5/8	10-5/8	2	2-1/8	1-3/4	84
6	.239	11x8.06x21′	.239	8x4.22x27′			14-1/2	12	10-1/2	8	1-1/4	1-1/2	1-1/4	15	15-5/8	10-5/8	2	2-1/8	1-3/4	84
7	.239	11x8.06x21′	.239	8x3.80x30′			14-1/2	12	10-1/2	8	1-1/4	1-1/2	1-1/4	15	15-5/8	10-5/8	2	2-1/8	1-3/4	84
8	.239	12x9.06x21′	.239	9x4.38x33′			14-1/2	12	10-1/2	8	1-1/4	1-1/2	1-1/4	16	17	11-5/16	2	2-1/8	1-3/4	84
9	.239	13x10.06x21′	.239	10x4.96x36′			16-1/2	14-1/2	12-1/2	9-1/2	1-1/4	2	1-1/4	18	18-1/2	12-3/4	2	2-1/8	1-3/4	84
10	.239	14x11.06x21′	.239	11x5.54x39′			16-1/2	14-1/2	12-1/2	9-1/2	1-1/4	2	1-1/4	20	20-1/2	14-1/8	2	2-1/8	1-3/4	84
11	.239	14x11.06x21′	.239	11x5.12x42′	.239 .179	11x8.62x17′+ 9.19x5.52x26′-3″	16-1/2	14-1/2	12-1/2	9-1/2	1-1/4	2	1-1/4	20	20-1/2	14-1/8	2	2-1/8	1-3/4	84
12	.299	14x11.06x21′			.299 .179	11x8.62x17′+ 9.19x5.10x29′-3″	16-1/2	14-1/2	12-1/2	9-1/2	1-1/4	2	1-3/8	20	20-1/2	14-1/8	2	2-3/8	2	90

ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED

DESIGN NO.	POLE		ARM		TWO PIECE ARM		ARM ATTACHMENT							ANCHOR BASE					ANCHOR BOLT	
	WALL THK.	SIZE	WALL THK.	SIZE	WALL THK.	SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	S	J	T	H	DIA.	L
UNLIGHTED																				
1	4.55	254X179X6.4 m	4.55	178X96X7 m			368	305	267	203	32	32	32	343	359	243	38	45	38	1.4 m
2	4.55	279X205X6.4 m	4.55	203X93X9.4 m			368	305	267	203	32	38	32	381	397	270	38	45	38	1.4 m
3	4.55	305X230X6.4 m	4.55	229X104X10.7 m			368	305	267	203	32	38	32	406	432	287	38	45	38	1.4 m
4	6.07	330X256X6.4 m	6.07	254X101X13.1 m	6.07 4.55	254X200X4.6 m+ 214X111X8.8 m	419	368	318	241	32	51	32	457	470	324	51	54	45	2.1 m
LIGHTED																				
5	6.07	279X205X6.4 m	6.07	203X118X7.3 m			368	305	267	203	32	38	32	381	397	270	51	54	45	2.1 m
6	6.07	279X205X6.4 m	6.07	203X107X8.2 m			368	305	267	203	32	38	32	381	397	270	51	54	45	2.1 m
7	6.07	279X205X6.4 m	6.07	203X97X9.1 m			368	305	267	203	32	38	32	381	397	270	51	54	45	2.1 m
8	6.07	305X230X6.4 m	6.07	229X111X10 m			368	305	267	203	32	38	32	406	432	287	51	54	45	2.1 m
9	6.07	330X256X6.4 m	6.07	254X126X11 m			419	368	318	241	32	51	32	457	470	324	51	54	45	2.1 m
10	6.07	356X281X6.4 m	6.07	279X141X11.9 m			419	368	318	241	32	51	32	508	521	359	51	54	45	2.1 m
11	6.07	356X281X6.4 m	6.07	279X130X12.8 m	6.07 4.55	279X219X5.2 m+ 233X104X8.0 m	419	368	318	241	32	51	32	508	521	359	51	54	45	2.1 m
12	7.59	356X281X6.4 m			7.59 4.55	279X219X5.2 m+ 233X130X8.9 m	419	368	318	241	32	51	35	508	521	359	51	60	51	2.3 m

01-19-01

SINGLE ARM OVERHEAD SIGN SUPPORT

OFFICE OF TRAFFIC ENGINEERING

TC-16.20

LAM

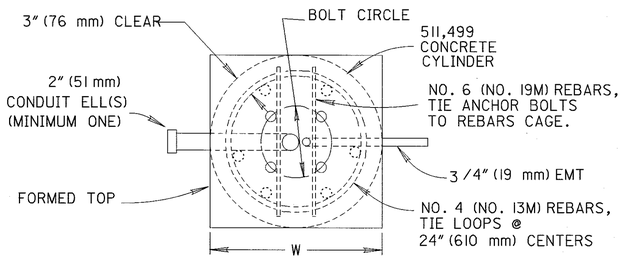
ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED					
DIA.	LENGTH	THREAD LENGTH	℄ THICK	℄ SIDE	THREADS PER INCH
1¼	42	8	1½	4	7
1½	54	9	1½	4	6
1¾	84	9	2	5	5
2	90	9	2	5	4½
2¼	90	10	2½	6	4½
2½	114	10	2½	6	4
3	138	12	3	7	4

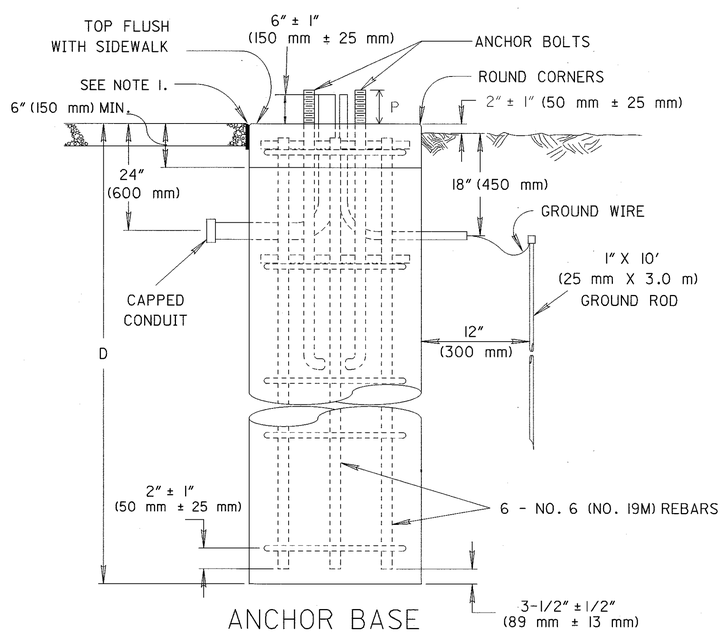
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED					
DIA.	LENGTH (meters)	THREAD LENGTH	℄ THICK	℄ SIDE	mm PER THREAD
32	1.1	203	38	102	3.6
38	1.4	229	38	102	4.2
45	2.1	229	51	127	5.1
51	2.3	229	51	127	5.6
57	2.3	254	64	152	5.6
64	2.9	254	64	152	6.4
76	3.5	305	76	178	6.4

NOTES

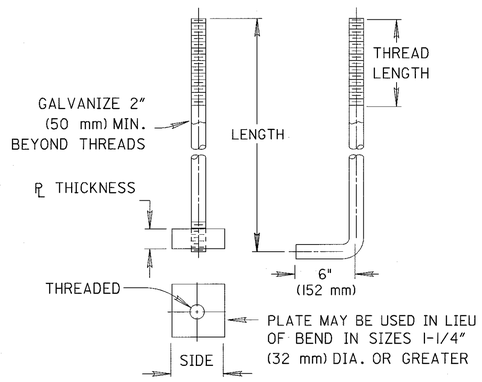
1. Use 1/2" (13 mm) preformed joint filler as per 705.03 between foundations and adjacent paved areas.
2. A special foundation design will be required when soil with load bearing capacity of less than 2000 LB/FT^2 (9700 KG/M^2) is encountered.
3. In lieu of providing reinforcing steel in the embedded pole foundation, the pole butt may be extended to within 3" (76 mm) of the foundation bottom. The pole base diameter as specified in the plans is the diameter of the pole at the groundline.
4. Provide all anchor bolts with standard steel hex nuts, leveling nuts, plain and lockwashers. The nuts shall be capable of developing the full strength of the anchor bolts.
5. At locations where the existing slope is 6:1 or greater, the buried depth of foundation shall apply to the low side of the slope. Set the top of the foundation 2" (50 mm) above the existing surface on the high side of the slope. The additional depth of foundation necessary to meet these requirements shall be added to the formed top.

ANCHOR BOLTS

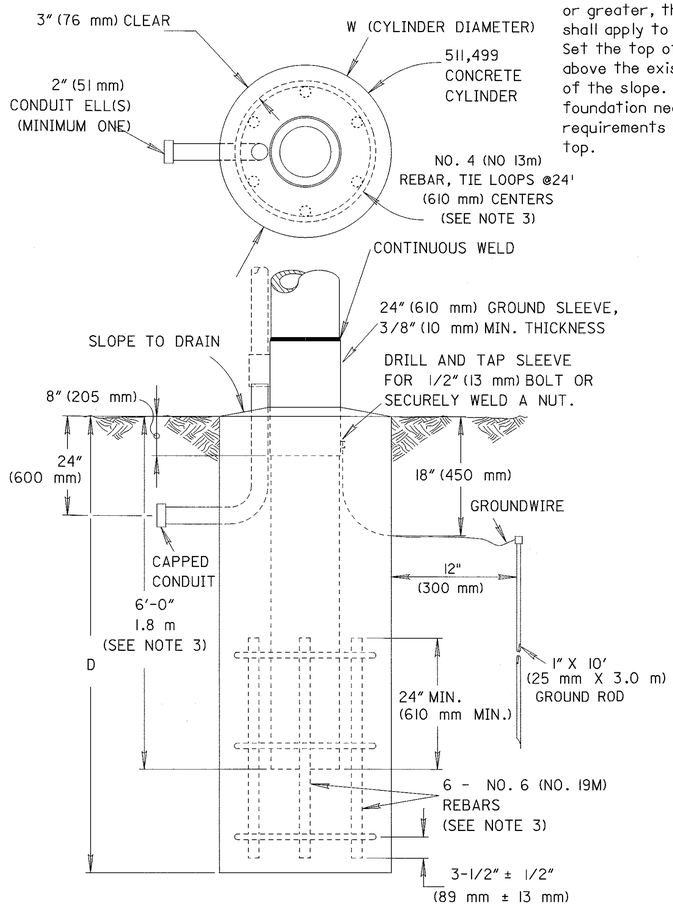




ANCHOR BASE



ANCHOR BOLTS



EMBEDDED POLE

(STRAIN POLE ONLY)

01-19-01

FOUNDATIONS

OFFICE OF TRAFFIC ENGINEERING

TC-21.20

LAM

ALL DIMENSIONS IN INCHES UNLESS OTHERWISE NOTED

TC-9.10 TYPE SUPPORTS					
DESIGN NO.	D (feet)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	8	30	1½ X 54	13½	6¾
2	8	30	1½ X 54	13½	6¾
3	9	36	1¾ X 84	16	7¾
TC-9.30 TYPE SUPPORTS					
1	8	30	1½ X 54	13½	6¾
2	9	36	1¾ X 84	15	7¾
3	10	36	2 X 90	20	8½
4	11	36	2¼ X 90	22	9
5	11	36	2¼ X 90	22	9

TC-16.20 & TC-81.20 TYPE SUPPORTS					
DESIGN NO.	D (feet)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	8	30	1½ X 54	13½	6¾
2	8	30	1½ X 54	15	6¾
3	9	30	1½ X 54	16	6¾
4	10	36	1¾ X 84	18	7¾
5	9	36	1¾ X 84	15	7¾
6	9	36	1¾ X 84	15	7¾
7	9	36	1¾ X 84	15	7¾
8	9	36	1¾ X 84	16	7¾
9	10	36	1¾ X 84	18	7¾
10	10	36	1¾ X 84	20	7¾
11	10	36	1¾ X 84	20	7¾
12	11	36	2 X 90	20	8½

TC-17.10 & 81.10 TYPE SUPPORTS					
DESIGN NO.	D (feet)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	7	30	1¼ X 42	10	5¾
2	7	30	1½ X 54	12½	6¾
3	8	30	1½ X 54	13½	6¾
4	8	36	1¾ X 84	15	7¾
5	9	36	1¾ X 84	16	7¾
6	9	36	1¾ X 84	16	7¾
7	10	36	2 X 90	18	8½
8	10	36	2 X 90	20	8½
9	10	36	2 X 90	22	8½
10	11	36	2¼ X 90	22	9
11	11	36	2¼ X 90	22	9
12	12	36	2½ X 114	23½	9¾

TC-12.30 TYPE SUPPORTS					
DESIGN NO.	D (feet)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	9	36	1¾ X 84	15	7¾
2	9	36	1¾ X 84	15	7¾
3	11	36	2 X 90	18	8½
4	11	36	2 X 90	18	8½
5	11	36	2 X 90	22	8½
6	11	36	2 X 90	22	8½
7	15	36	2½ X 114	23½	9¾
8	15	36	2½ X 114	23½	9¾
9	15	36	2½ X 114	23½	9¾
10	17	36	2½ X 114	25½	9¾
11	17	36	2½ X 114	25½	9¾
12	18	36	3 X 138	25½	11¼

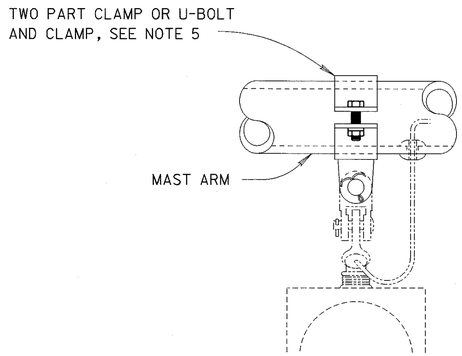
ALL DIMENSIONS IN MILLIMETERS UNLESS OTHERWISE NOTED

TC-9.10 TYPE SUPPORTS					
DESIGN NO.	D (meters)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	2.4	762	38 X 1.4 m	343	171
2	2.4	762	38 X 1.4 m	343	171
3	2.7	914	45 X 2.1 m	406	197
TC-9.30 TYPE SUPPORTS					
1	2.4	762	38 X 1.4 m	343	171
2	2.7	914	45 X 2.1 m	381	197
3	3.1	914	51 X 2.3 m	508	216
4	3.4	914	57 X 2.3 m	559	229
5	3.4	914	57 X 2.3 m	559	229

TC-16.20 & TC-81.20 TYPE SUPPORTS					
DESIGN NO.	D (meters)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	2.4	762	38 X 1.4 m	343	171
2	2.4	762	38 X 1.4 m	381	171
3	2.7	762	38 X 1.4 m	406	171
4	3.1	914	45 X 2.1 m	457	197
5	2.7	914	45 X 2.1 m	381	197
6	2.7	914	45 X 2.1 m	381	197
7	2.7	914	45 X 2.1 m	381	197
8	2.7	914	45 X 2.1 m	406	197
9	3.1	914	45 X 2.1 m	457	197
10	3.1	914	45 X 2.1 m	508	197
11	3.1	914	45 X 2.1 m	508	197
12	3.4	914	51 X 2.3m	508	216

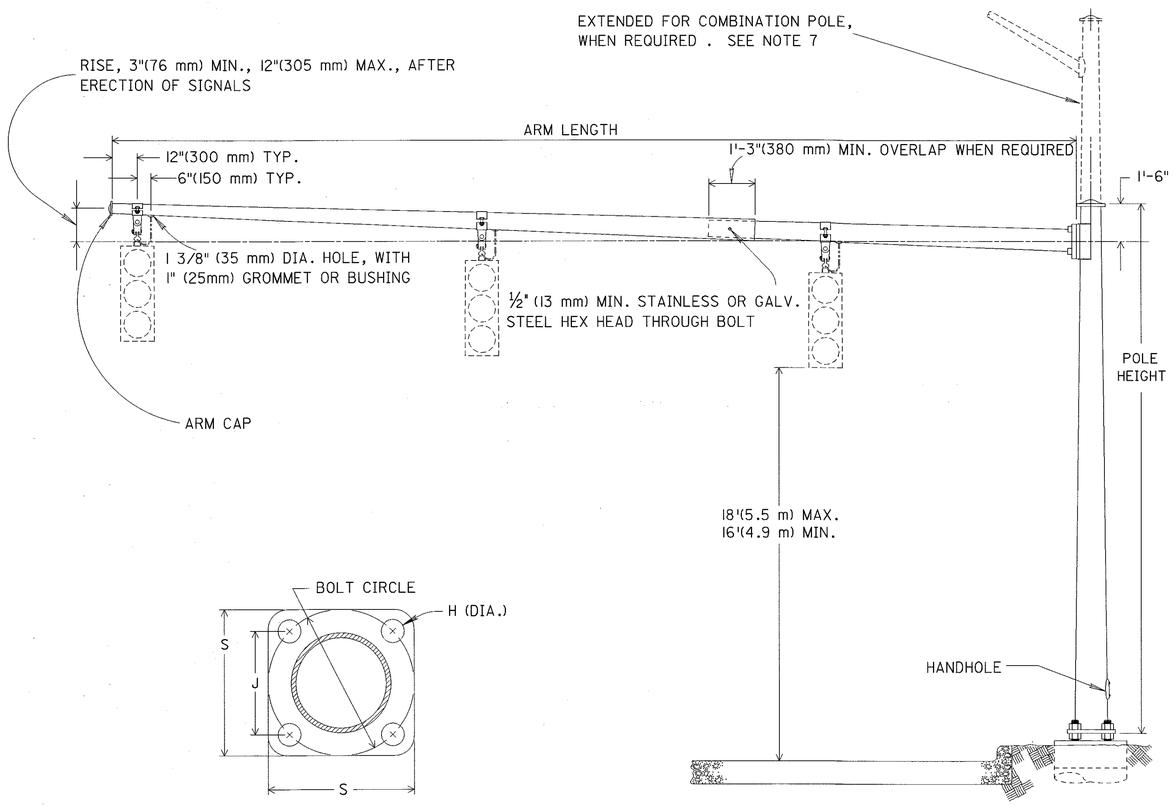
TC-17.10 & 81.10 TYPE SUPPORTS					
DESIGN NO.	D (meters)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	2.1	762	32 X 1.1 m	254	146
2	2.1	762	38 X 1.4 m	318	171
3	2.4	762	38 X 1.4 m	343	171
4	2.4	914	45 X 2.1 m	381	197
5	2.7	914	45 X 2.1 m	406	197
6	2.7	914	45 X 2.1 m	406	197
7	3.1	914	51 X 2.3 m	457	216
8	3.1	914	51 X 2.3 m	508	216
9	3.1	914	51 X 2.3 m	559	216
10	3.4	914	57 X 2.3 m	559	229
11	3.4	914	57 X 2.3 m	559	229
12	3.7	914	64 X 2.9 m	597	248

TC-12.30 TYPE SUPPORTS					
DESIGN NO.	D (meters)	W	ANCHOR BOLTS SIZE	CIRCLE	P
1	2.7	914	45 X 2.1 m	381	197
2	2.7	914	45 X 2.1 m	381	197
3	3.4	914	51 X 2.3 m	457	216
4	3.4	914	51 X 2.3 m	457	216
5	3.4	914	51 X 2.3 m	559	216
6	3.4	914	51 X 2.3 m	559	216
7	4.6	914	64 X 2.9 m	597	248
8	4.6	914	64 X 2.9 m	597	248
9	4.6	914	64 X 2.9 m	597	248
10	5.2	914	64 X 2.9 m	648	248
11	5.2	914	64 X 2.9 m	648	248
12	5.5	914	76 X 3.5 m	648	286

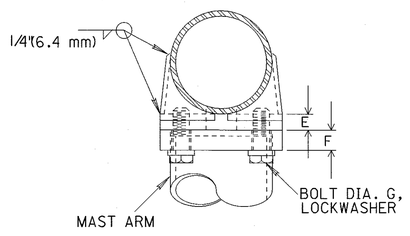


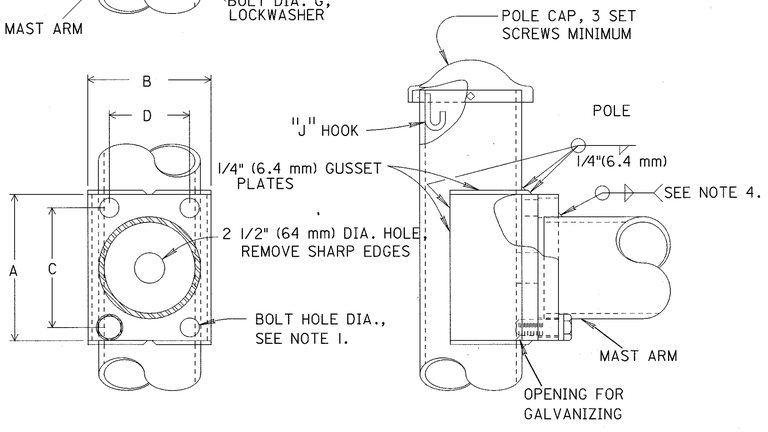
CLAMP

SEE NOTE 6.

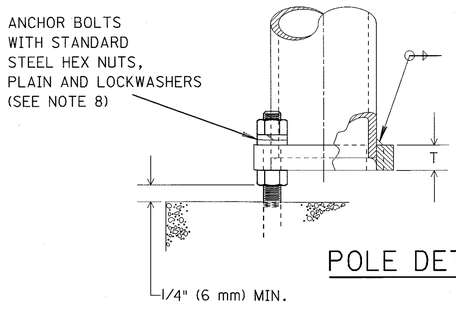


BASE PLATE





ARM ATTACHMENT



POLE DETAILS

NOTES

1. Arm plate hole diameter shall be bolt diameter plus 1/8" (3.2 mm). Pole plate tapped hole shall have threads with 75% (min.) full profile height. Threads may be retapped after galvanizing.
2. For sign mounting details, see drawings TC-16.20 and TC-41.41.
3. For foundation details, see drawing TC-21.20.
4. The arm attachment plate shall be welded inside and outside with fillet welds. Each fillet weld shall be equal to the wall thickness of the tubing.
5. The mast arm clamp shall have a minimum strength at yield to support a 2000 pound (900 Kilogram) load.
6. For signal attachment details, see drawing TC-85.20.
7. For modification of pole to suport roadway lighting, see drawings TC-22.10 and HL-10.12.
8. A minimum of one bolt thread shall remain above the anchor nut.
9. All unused couplings shall be provided with a removable galvanized cast iron plug.
10. For pole and base plate dimensions, see sheet 2.
11. The wire entrance part of the signal head may be oriented in any direction to keep the cable drip loop from rubbing on the signal head. The signal head shall hang level and plumb.
12. For constuction details and location of handholes, see drawing TC-22.10.

5-01-00

SINGLE ARM OVERHEAD SIGNAL SUPPORT

OFFICE OF TRAFFIC ENGINEERING

TC-81.20

ALL DIMENSIONS ARE IN INCHES, UNLESS OTHERWISE NOTED.

DESIGN NO.	POLE		ARM		TWO PIECE ARM		ARM ATTACHMENT							ANCHOR BASE					ANCHOR BOLT	
	WALL THICK	SIZE	WALL THICK	SIZE	WALL THICK	SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	S	J	T	H	DIA.	L
1	.179	10X6.78X23′	.179	7X3.50X25′			14½	12	10½	8	1¼	1¼	1¼	13½	14⅛	9⁹⁄₁₆	1½	1¾	1½	54
2	.179	11X7.78X23′	.179	8X3.52X32′			14½	12	10½	8	1¼	1½	1¼	15	15⅝	10⅝	1½	1¾	1½	54
3	.179	12X8.78X23′	.179	9X3.68X38′			14½	12	10½	8	1¼	1½	1¼	16	17	11⁵⁄₁₆	1½	1¾	1½	54
4	.239	13X9.78X23′	.239	10.32X5.00X38′			16½	14½	12½	9½	1¼	2	1¼	18	18½	12¾	2	2⅛	1¾	84
11	.239	14X10.78X23′	TOT. LENGTH = 45′		.239	11X8.62X17′ +	16½	14½	12½	9½	1¼	2	1¼	20	20½	14⅛	2	2⅛	1¾	84
					.179	9.19X5.10X29′-3″														
12	.299	14X10.78X23′	TOT. LENGTH = 48′		.299	11X8.62X17′ +	16½	14½	12½	9½	1¼	2	1⅜	20	20½	14⅛	2	2⅜	2	90
					.179	9.19X4.68X32′-3″														

ENGLISH UNITS

ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE NOTED.

DESIGN NO.	POLE		ARM		TWO PIECE ARM		ARM ATTACHMENT							ANCHOR BASE					ANCHOR BOLT	
	WALL THICK	SIZE	WALL THICK	SIZE	WALL THICK	SIZE	A	B	C	D	E	F	G	BOLT CIRCLE	S	J	T	H	DIA.	L
1	4.55	254x172x7.0 m	4.55	178x89x7.6 m			368	305	267	203	32	32	32	343	359	243	38	44	38	1.37 m
2	4.55	279x198x7.0 m	4.55	203x89x9.8 m			368	305	267	203	32	38	32	381	397	270	38	44	38	1.37 m
3	4.55	305x223x7.0 m	4.55	229x93x11.6 m			368	305	267	203	32	38	32	406	432	287	38	44	38	1.37 m
4	6.07	330x248x7.0 m	6.07	262x127x11.6 m			419	368	318	241	32	51	32	457	470	324	51	54	44	2.13 m
11	6.07	356x274x7.0 m	TOTAL LENGTH = 13.7 m		6.07	279x219x5.2 m +	419	368	318	241	32	51	32	508	521	359	51	54	44	2.13 m
					4.55	233x130x8.9 m														
12	7.59	356x274x7.0 m	TOTAL LENGTH = 14.6 m		7.59	279x219x5.2 m +	419	368	318	241	32	51	35	508	521	359	51	60	51	2.29 m
					4.55	233x119x9.8 m														

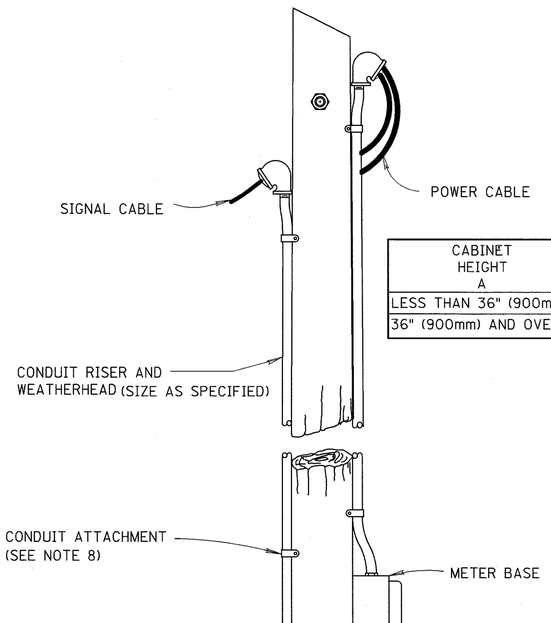
METRIC UNITS

5-01-00

SINGLE ARM OVERHEAD SIGNAL SUPPORT

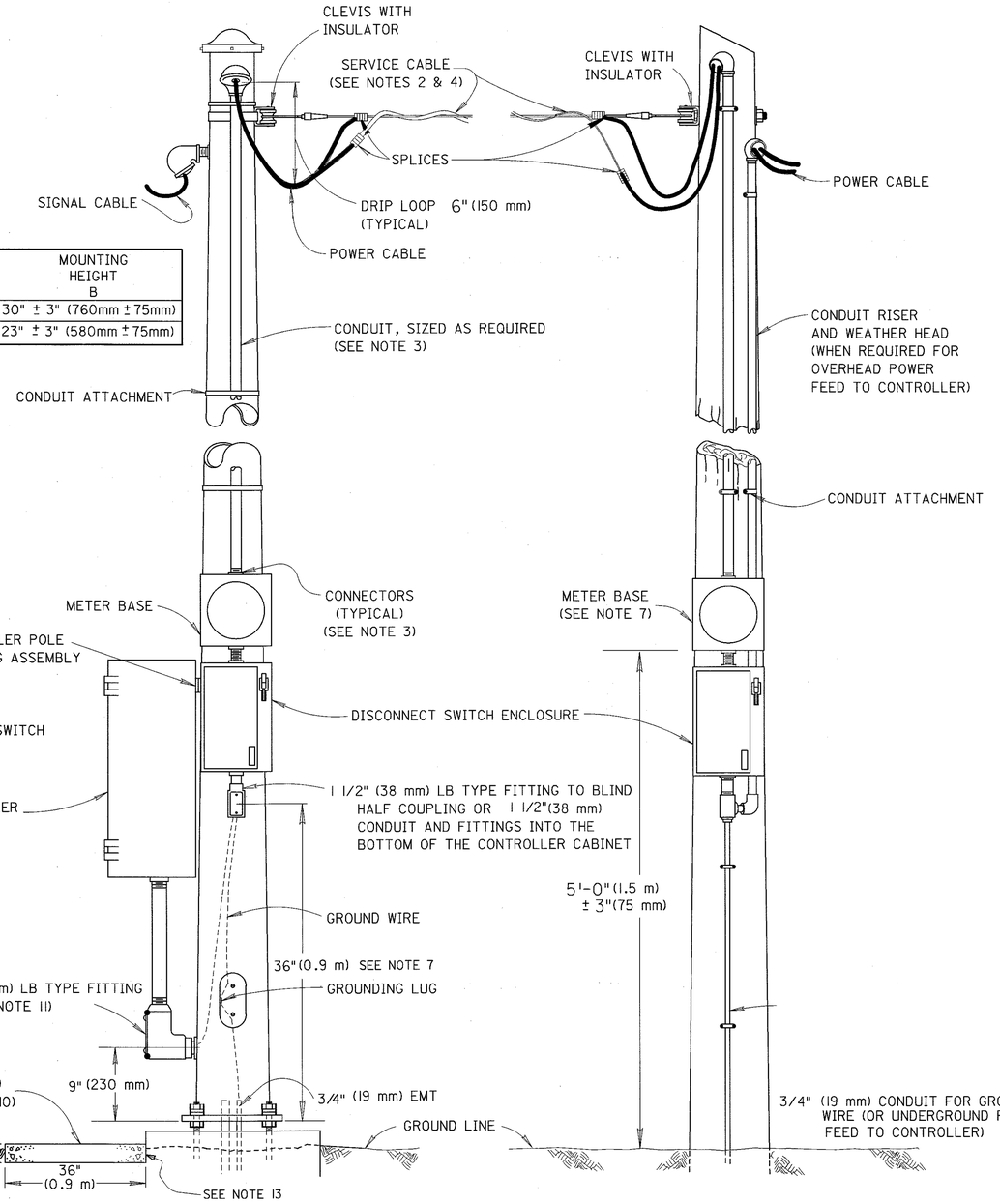
OFFICE OF TRAFFIC ENGINEERING

TC-81.20



CABINET HEIGHT A	MOUNTING HEIGHT B
LESS THAN 36" (900mm)	30" ± 3" (760mm ± 75mm)
36" (900mm) AND OVER	23" ± 3" (580mm ± 75mm)

POWER SERVICE AND CONTROLLER MOUNTING ON WOOD POLES



POWER SERVICE AND CONTROLLER MOUNTING ON NEW STEEL POLES

(SEE NOTE 6)

POWER SERVICE

NOTES

1. All conduit fitting entries for controllers and power service equipment in proposed steel poles shall be attached by a blind half coupling welded into the pole prior to galvanizing.

2. Service cable attachment on wood poles shall be by a 5/8" (16 mm) thru-bolt and clevis; on steel poles by a banded clevis.

3. If both the meter and disconnect switch are not required on a steel pole, the power cable shall enter the controller through a conduit riser, external to the pole.

4. The service cable and cable splices to the power cable for the incoming power supply shall be installed by the power supplying agency unless otherwise specified. The pole attachment hardware shall be furnished and installed by the Contractor.

5. Orientation of the cabinet, meter and disconnect switch enclosure shall be arranged to minimize exposure to the street side and also minimize encroachment on sidewalks, unless otherwise shown on the plans.

6. Power and controller service added to existing steel poles shall be similar to that shown for the wood pole with the exception of the attachment hardware.

7. The top of the meter base shall not exceed 6' (1.8 m) above the ground. The mounting height of the LB type fitting may be decreased in order to accomodate a larger meter base.

8. Conduit attachment shall be by means of two hole conduit straps with a maximum spacing of 5 feet (1.5 m) minimum fastener requirements are as follows: wood poles- 1/4"x 3" (6.4 mm x 76 mm) long lag screws, # 14 X 3"(76 mm) long round head screws, or 20d spikes: steel poles- 1/4" (6.4 mm) screws, self tapping or with drilled and tapped hole, in lieu of conduit clamps, 3/4" (19 mm) wide passivated stainless steel banding may be used on steel poles.

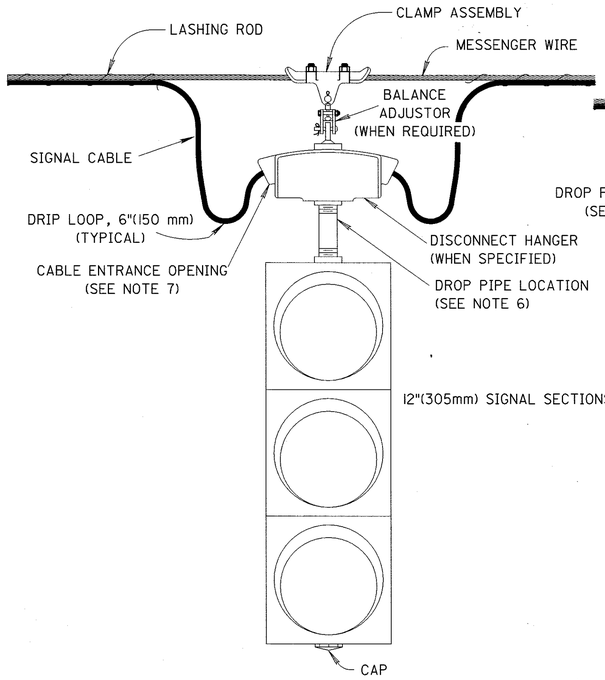
9. Conduit connections at the top and bottom of the disconnect switch enclosure and meter base shall be watertight and shall use the hubs listed on the enclosure and meter base U. L. labels. Conduit shall be bent to allow the conduit to enter straight into the enclosure or meter base, and to provide space for the weatherhead when the riser is pulled tight against the pole.

10. A 48"x 36"x 4" (1.2 m x 0.9 m x100 mm) work pad shall be located below each pole mounted controller cabinet unless located in an otherwise paved area. When required, this item shall be paid for under item 633, controller work pads. In level areas, the top of the pad shall be 1" (25 mm) above the ground line. In steeply sloped areas, the pad's location shall be adjusted to provide access and drainage while complying with the required controller cabinet mounting height.

11. The horizontal orientation of the handhole relative to the 2-1/2" (64 mm) blind half coupling for the controller shall be as required by the plans except they shall not be closer than 90°. Install LB fitting before erecting pole.

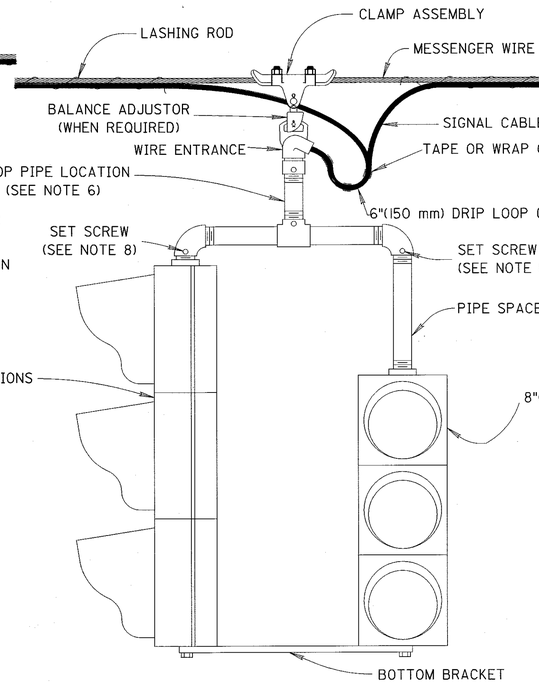
12. When conduit risers are required to be attached to utility company wood poles, and the utility company's policy requires non-metallic conduit. The conduit risers shall conform with Nema standards publication No. TC-2 for PVC conduit type EPC-40.

13. 1/2" (13 mm) preformed joint filler as per 705.03 shall be used between foundations and adjacent paved areas.

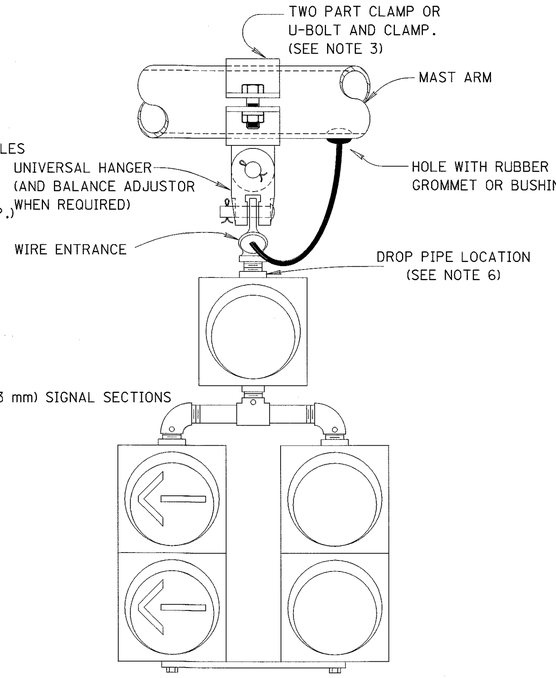


SIGNAL HEAD SUSPENSION

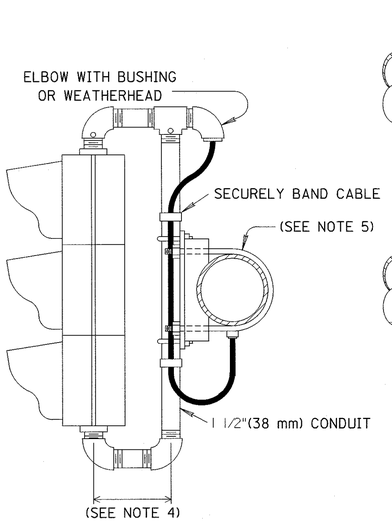
WITH DISCONNECT

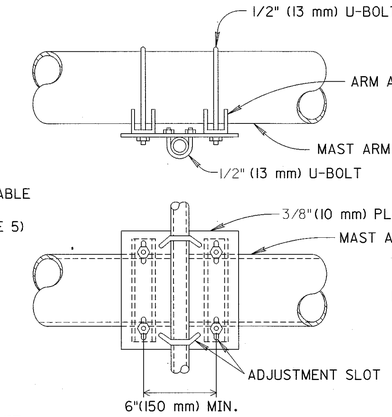


SIGNAL HEAD SUSPENSION

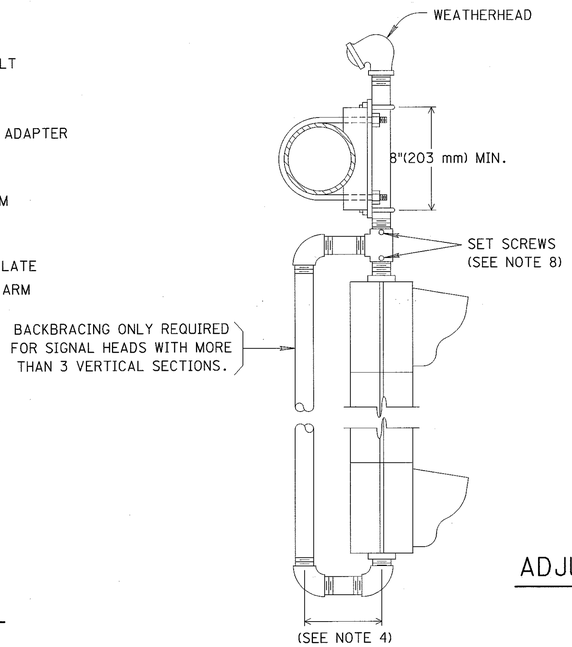


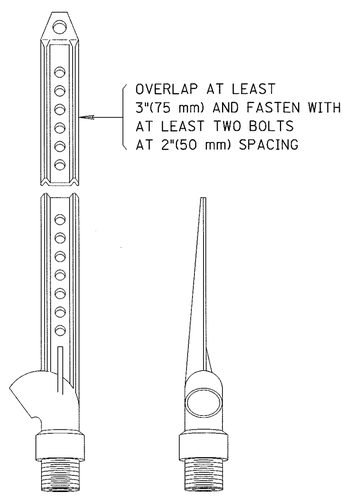
MAST ARM SIGNAL HEAD MOUNTING





RIGID SIGNAL HEAD MOUNTING FOR MAST ARMS





ADJUSTABLE SIGNAL HANGER

(SEE NOTE 6)

NOTES

1. Signal head conduit brackets and conduit fittings shall be galvanized and painted to match the body of the signal head.
2. All signal head assemblies shall be installed in a plumb position and perpendicular to the approach lane. Balance adjustors or other approved methods may be used if necessary.
3. The mast arm clamp shall have a minimum strenght at yield to support a 200 pound (900 Kg) load.
4. A minimum of 17 in. (430 mm) is required for optically programmed signal heads and a minimum of 6 in. (150 mm) for standard signal heads.
5. Alternate rigid signal head mounting devices for mast arms may be approved by the Engineer upon demonstration that they provide adequate rigidity, equal range of adjustment and can be tightened sufficiently to prevent movement and loosening under viberat
6. Signal heads shall be installed with a clearance above pavement elevation at the center of the roadway of 16 ft. (4.9 m) minimum, 18 ft. (5.5 m) maximum. It is intended that this clearance be obtained without the use of drop pipes, but rather by the careful selection of foundation heights, attachment heights, arm rise, span wire sag and other factors during the construction of the installation. If the installation cannot be adjusted to the proper clearance the Contractor shall advise the Engineer of all signals which exceed the maximum. The Engineer will, in consultation with the maintaining agency, direct the use of drop pipes or waive the maximum clearance requirement for each head. If drop pipes are necessary, adjustable signal hangers as detailed may be used.
7. Cable entrance openings on disconnect hangers shall rigidly clamp cable to prevent movement of the cable within the enclosure.
8. Signal head rotation shall be prevented by the use of serrated rigns, set screws or other positive devices incorporated in the signal housing and at critical locations in the supporting hardware.
9. All conductors shall have adequate clearance between hangers, thimbles, bullrings, etc. in order to avoid damage from rubbing.

OVERHEAD SIGNAL ATTACHMENTS

5-01-00

OFFICE OF TRAFFIC ENGINEERING

TC-85.20

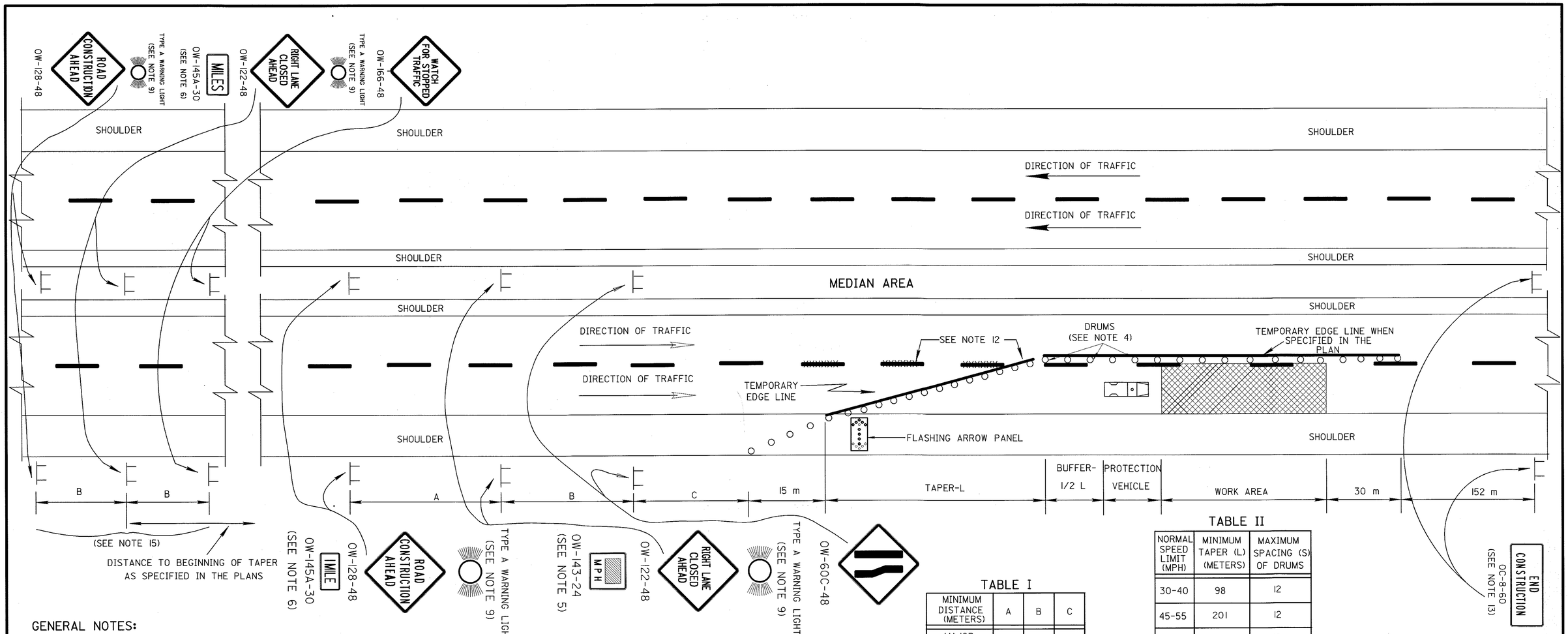


TABLE II

NORMAL SPEED LIMIT (MPH)	MINIMUM TAPER (L) (METERS)	MAXIMUM SPACING (S) OF DRUMS
30-40	98	12
45-55	201	12
60-65	238	18

TABLE I

MINIMUM DISTANCE (METERS)	A	B	C
MAJOR STANDARD	152	152	152
URBAN FREEWAY & EXPRESSWAY	152 TO 305	152 TO 305	152 TO 305
RURAL FREEWAY & EXPRESSWAY	792	488	305

GENERAL NOTES:

1. THE LOCATION OF THE MERGING TAPER AND THE ADVANCE WARNING SIGNS SHOULD BE ADJUSTED TO PROVIDE FOR ADEQUATE SIGHT DISTANCE FOR THE EXISTING VERTICAL AND HORIZONTAL ROADWAY ALIGNMENT.

2. THE SPACING BETWEEN PROPOSED SIGNS SHOULD BE ADJUSTED TO NOT CONFLICT WITH AND TO PROVIDE A MINIMUM OF 61 m CLEARANCE TO EXISTING SIGNS.

3. THE TAPER LENGTH (L) AND SPACING (S) OF DRUMS SHALL CONFORM TO TABLE II. DRUM SPACING (S) SHALL BE USED FOR THE MERGING TAPER, THE BUFFER AREA AND FOR THE FIRST 305 m OF THE WORK AREA AND AT OTHER HAZARDOUS LOCATIONS AS DIRECTED BY THE ENGINEER. THE MAXIMUM DRUM SPACING FOR THE BALANCE OF THE WORK AREA IS TO BE TWO TIMES THE SPACING (S) IN TABLE II. A MINIMUM OF 5 DRUMS SHALL BE USED TO CLOSE THE SHOULDER.

4. CONES HAVING A MINIMUM HEIGHT OF 0.7 m MAY BE SUBSTITUTED FOR DRUMS FOR DAYTIME LANE CLOSURES. PROVISIONS SHALL BE MADE TO SAFELY STABILIZE THE CONES TO PREVENT THEM FROM BLOWING OVER. IF THIS CANNOT BE ACHIEVED, DRUMS SHALL BE USED.

5. THE ADVISORY SPEED SIGN OW-143 SHALL BE USED WHEN SPECIFIED IN THE PLAN.

6. THE DISTANCE PLATE OW-145A SHALL INDICATE THE DISTANCE TO THE BEGINNING OF THE MERGING TAPER (L). DISTANCES LESS THAN ONE MILE MAY BE EXPRESSED IN FEET. THE PLAQUE MAY BE OMITTED IF EXTRA ADVANCE SIGN GROUPS ARE NOT USED.

7. THE PROTECTION VEHICLE, LOCATED CLOSE TO THE WORK, SHALL BE IN PLACE AND UNOCCUPIED WHENEVER WORKERS ARE IN THE WORK AREA. THIS VEHICLE SHALL BE REMOVED FROM THE PAVEMENT WHENEVER WORKERS ARE NOT IN THE WORK AREA. THE VEHICLE SHALL BE EQUIPPED WITH A 360 DEGREE ROTATING OR FLASHING AMBER BEACON CLEARLY VISIBLE A MINIMUM OF 402 m. OTHER PROTECTIVE DEVICES MAY BE USED IN LIEU OF THE PROTECTION VEHICLE SHOWN WHEN APPROVED BY THE ENGINEER.

8. THE FLASHING ARROW PANEL SHALL MEET REQUIREMENTS OF STANDARD CONSTRUCTION DRAWING TC-35.10M.

9. TYPE A FLASHING WARNING LIGHTS SHOWN ON THE OW-128 AND OW-122 - (123) SIGNS ARE REQUIRED WHENEVER A NIGHT LANE CLOSURE IS NECESSARY

10. WHEN WORK IS BEING PERFORMED IN THE LANE ADJACENT TO THE MEDIAN ON A DIVIDED HIGHWAY, OW-123 SIGNS SHALL BE SUBSTITUTED FOR THE OW-122 SIGNS AND OW-60D SIGNS SHALL BE SUBSTITUTED FOR THE OW-60C SIGNS.

11. 36 INCH WARNING SIGN SIZES MAY BE USED ON DIVIDED ROADWAYS THAT ARE NOT CLASSIFIED AS FREEWAYS OR EXPRESSWAYS.

12. IF THE CONSTRUCTION OPERATION REQUIRES THE LANE CLOSURE FOR MORE THAN ONE DAY THEN THE EXISTING CONFLICTING PAVEMENT MARKINGS AND REFLECTORS FROM THE RAISED PAVEMENT MARKERS (RPMS) SHALL BE REMOVED AND THE APPROPRIATE COLOR TEMPORARY EDGE LINES SHALL BE APPLIED ALONG THE TAPER. TEMPORARY EDGE LINES WHICH WOULD CONFLICT WITH FINAL TRAFFIC LANES SHALL BE REMOVABLE (740.05 TYPE C) TAPE UNLESS

12. CONT. THE AREA WILL BE RESURFACED IN THE NEXT WORK PHASE. AFTER COMPLETION OF THE WORK, PAVEMENT MARKINGS OTHER THAN 740.05 TYPE C SHALL BE REMOVED IN ACCORDANCE WITH 641.10. THE ORIGINAL MARKINGS AND PAVEMENT MARKER REFLECTORS SHALL BE RESTORED AT NO ADDITIONAL COST.

13. THE OC-8 SIGNS ARE ONLY REQUIRED FOR LANE CLOSURES OF MORE THAN ONE DAY AND MAY BE OMITTED IF THEY FALL WITHIN THE LIMITS OF A CONSTRUCTION PROJECT.

14. OW-128 SIGNS SHALL BE PROVIDED ON ENTRANCE RAMPS AND/OR SIDE ROADS LOCATED WITHIN THE WORK LIMITS OR THE ADVANCE WARNING SIGN GROUP. WITHIN THE LENGTH OF CLOSURE, PROVISION SHALL BE MADE TO CONTROL TRAFFIC ENTERING FROM INTERSECTING STREETS AND DRIVEWAYS. THREE DRUMS SHALL BE PLACED ON EACH SIDE ACROSS THE CLOSED LANE AT EACH INTERSECTION AND DRIVEWAY.

15. EXTRA ADVANCE WARNING SIGN GROUPS CONSISTING OF OW-128, OW-122 AND OW-166 SIGNS PLUS DISTANCE PLATES MAY BE SPECIFIED IN THE PLANS OR REQUIRED TO BE ERECTED AT THE DIRECTION OF THE ENGINEER.

16. ALL MATERIAL AND EQUIPMENT SHALL BE REMOVED FROM THE CLOSURE AND THE WORK AREA WHEN NO WORK IS BEING DONE.

METRIC

ALL WORK AND TRAFFIC CONTROL DEVICES SHALL BE IN ACCORDANCE WITH 614 AND OTHER APPLICABLE PORTIONS OF THE C & M SPECIFICATIONS AS WELL AS IN ACCORDANCE WITH PART 7 OF OMUTCD. PAYMENT FOR ALL LABOR, EQUIPMENT AND MATERIALS TO PROVIDE THIS METHOD OF TRAFFIC CONTROL SHALL BE INCLUDED IN THE LUMP SUM BID FOR 614 MAINTAINING TRAFFIC, UNLESS SEPARATELY ITEMIZED IN THE PLAN.

BUREAU OF DESIGN SERVICES
DIVISION OF HIGHWAYS
OHIO DEPARTMENT OF TRANSPORTATION

MAINTENANCE OF TRAFFIC

CLOSING RIGHT OR LEFT LANE OF A MULTI-LANE DIVIDED HIGHWAY WITH DRUMS

DATE 04/25/94

STANDARD CONSTRUCTION DRAWING MT-95.30M

APPROVED _____ ENGR. OF DESIGN SERVICES

WCC

GENERAL NOTES FOR VANDAL PROTECTION FENCE

VANDAL PROTECTION FENCE:
THIS ITEM SHALL CONSIST OF FURNISHING ALL MATERIALS, LABOR, EQUIPMENT, INCIDENTALS, INCLUDING CLOSURE PLATES AS REQUIRED, NECESSARY TO PROVIDE FOR FENCE RETROFITS AND NEW FENCE INSTALLATIONS.
FENCE SHALL BE PROVIDED IN REASONABLY CLOSE CONFORMANCE WITH LINES, GRADES AND LOCATIONS SPECIFIED ON THE PLANS OR ESTABLISHED BY THE PROJECT ENGINEER.
CONSTRUCTION SHALL BE ACCOMPLISHED IN A MANNER THAT PROVIDES A RIGID, TAUT FENCE WHICH CLOSELY CONFORMS TO THE TOP SURFACE OF THE CONCRETE PARAPET.

(1) FENCE POSTS *SHALL BE 73.0 mm OUTSIDE DIAMETER PIPE, 710.03, GRADE 2, Fy = 345 MPa, 6.90 kg/m. POSTS SHALL BE COATED AS PER AASHTO M181 AND SHALL BE PLUMB AFTER INSTALLATION.*

(2) FENCE TOP RAILS AND LINE RAILS *SHALL BE 42.2 mm OUTSIDE DIAMETER PIPE, 710.03, GRADE 2, Fy = 345 MPa, 2.74 kg/m. THE PROTECTIVE COATING SHALL BE THE SAME AS THAT FOR AASHTO M181, GRADE 2 FENCE POSTS.*

(3) BASE PLATES *SHALL BE ASTM A36M STEEL GALVANIZED AS PER 711.02.*

(4) 20 mm DIAMETER HIGH STRENGTH THREADED ANCHORS, *NUTS AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM A325M. ALL HARDWARE SHALL BE GALVANIZED AS PER 711.02. 20 mm DIAMETER THREADED ANCHORS SHALL BE DOWELED 170 mm MINIMUM INTO EXISTING OR NEW CONCRETE AND SHALL PROJECT A MINIMUM OF 70 mm ABOVE THE TOP OF PARAPET. THEY SHALL BE SECURED WITH VINYLESTER RESIN OR EPOXY MORTAR AS PER 705.20 AND SUPPLEMENTAL SPECIFICATIONS 952. ANCHOR HOLE DIAMETER SHALL BE 3 mm LARGER THAN THE ANCHOR UNLESS RECOMMENDED OTHERWISE BY THE MANUFACTURER.*

AS AN OPTION WITH NEW PARAPETS THE ANCHORS MAY BE CAST-IN-PLACE WITH 170 mm MINIMUM OF EMBEDMENT OR INSTALLED IN THREADED FERRULE CONCRETE INSERTS UNLESS OTHERWISE INDICATED. THE INSERTS SHALL BE APPROVED BY THE DIRECTOR.

(5) 20 mm DIAMETER HIGH STRENGTH BOLTS, *NUTS AND WASHERS SHALL MEET THE REQUIREMENTS OF ASTM A325M. ALL HARDWARE SHALL BE GALVANIZED AS PER 711.02.*

(6) TENSION BARS *SHALL BE 5 mm BY 13 mm STEEL GALVANIZED AS PER 711.02.*

(7) TENSION BANDS AND BRACE BANDS *SHALL BE 3 mm x 25 mm GALVANIZED STEEL ASSEMBLED WITH 10 mm DIAMETER BY 32 mm GALVANIZED BOLTS. ONE TENSION BAND SHALL BE SUPPLIED FOR EACH 300 mm OF FABRIC HEIGHT. BANDS SHALL BE GALVANIZED AS PER 711.02.*

(8) LINE RAIL CLAMPS OR BOULEVARDS *SHALL BE STEEL GALVANIZED AS PER 711.02. THESE CLAMPS SHALL BE USED TO CONNECT LINE RAILS OR TOP RAILS OF CURVED FENCES TO INTERIOR POSTS. INSTALLATION SHALL BE MADE USING 10 mm DIAMETER BY 65 mm BOLTS GALVANIZED AS PER 711.02.*

(9) MALLEABLE OR CAST IRON FITTINGS *SHALL BE USED FOR END POST DOME CAPS, HALF BALL AND LOOP LINE POST CAPS AND LINE OR TOP RAIL ENDS. ALL FITTINGS SHALL BE GALVANIZED AS PER 711.02.*

(10) TENSION WIRE *SHALL BE ALUMINIZED 4.5 mm DIAMETER STEEL COIL SPRING WIRE CONFORMING TO AASHTO M181. TENSION WIRE SHALL BE PLACED AS CLOSE TO THE CONCRETE PARAPET AS PRACTICAL BUT THE LOCATION DIMENSION SHALL NOT EXCEED 50 mm MAXIMUM. THE LOAD ON TENSION WIRE SHALL BE 3600 N MINIMUM.*

(11) FABRIC TIES AND HOG RINGS *SHALL BE 3.76 mm CORE DIAMETER GALVANIZED PVC-COATED STEEL WIRE AND 3.05 mm A478 ANNEALED STAINLESS STEEL WIRE RESPECTIVELY. ONE FABRIC TIE SHALL BE SUPPLIED FOR EACH 300 mm OF FABRIC HEIGHT TO CONNECT FABRIC TO THE LINE POSTS. TO CONNECT THE FABRIC TO THE TENSION WIRE USE HOG RINGS 50 mm TO 75 mm ON EACH SIDE OF POSTS, AND AT SPACINGS NOT EXCEEDING 300 mm CENTER TO CENTER BETWEEN POSTS. PVC COATING SHALL BE THE SAME AS THAT FOR THE STEEL FABRIC.*

(12) STAINLESS STEEL CLOSURE PLATES *AS SHOWN ON SHEET 7 ARE REQUIRED FOR ALL FENCING INSTALLATIONS NOT USING A BOTTOM RAIL AS SHOWN IN PS-4. MATERIALS AND INSTALLATION OF THE STAINLESS STEEL CLOSURE PLATES SHALL CONFORM TO REQUIREMENTS AS PER SHEET 7 OF 7.*

(13) ADJUSTABLE TRUSS RODS *SHALL BE 10 mm DIAMETER STEEL GALVANIZED AS PER 711.02 AND SHALL HAVE SUITABLE ADJUSTMENT.*

(14) DOUBLE WRAP FABRIC TIES *SHALL BE 2.31 mm CORE DIAMETER GALVANIZED PVC-COATED STEEL WIRE, 387 mm LONG. TO CONNECT FABRIC TO THE LINE AND TOP RAILS, USE DOUBLE WRAP TIES 50 mm to 75 mm ON EACH SIDE OF POSTS AND AT SPACINGS NOT TO EXCEED 300 mm CENTER TO CENTER BETWEEN POSTS. THE PVC COATING SHALL BE THE SAME AS THAT FOR THE STEEL FABRIC.*

(15) STEEL FABRIC: *THE 3.05 mm CORE WIRES SHALL BE UNIFORMLY GALVANIZED WITH ZINC METAL OF 92 g/m^2 MINIMUM WEIGHT IN ACCORDANCE WITH ASTM A641M. THE GALVANIZED WIRE SHALL THEN BE PVC COATED IN ACCORDANCE WITH ASTM F668, CLASS 2a OR 2b WITH THE FOLLOWING CHANGES:*

A) THE COATING SHALL BE VIRGIN PVC OF 560 MICROMETERS THICKNESS FOR CLASS 2a AND 180 MICROMETERS FOR CLASS 2b.

B) THE PVC COATING SHALL BE GRAY IN COLOR CLOSELY APPROACHING FEDERAL STANDARD NO. 595a - 16251 UNLESS OTHERWISE SPECIFIED IN THE PLANS.

C) THE FINISHED FABRIC SHALL BE COMPOSED OF A 25 mm DIAMOND PATTERN IN WHICH THE INDIVIDUAL PICKETS ARE HELICALLY WOVEN AND INTERWOVEN IN THE FORM OF A CONTINUOUS CHAIN-LINK MESH WITH KNUCKLED SELVAGES.

D) ALL PVC COATED FABRIC SHALL BE HANDLED WITH CARE. IF THE PVC COATING IS DAMAGED, THE CONTRACTOR SHALL REPLACE THE FABRIC OR REPAIR THE PVC COATING AS DIRECTED BY THE PROJECT ENGINEER AT NO COST TO THE DEPARTMENT.

(16) FILLET WELDS *SHALL CONFORM TO 513.17.*

(17) SLEEVES *SHALL BE 88.9 mm OUTSIDE DIAMETER PIPE IN ACCORDANCE WITH ASTM A53, GRADE 1, Fy = 170 MPa, 11.29 kg/m, AND SHALL BE GALVANIZED AS PER 711.02. SLEEVES SHALL BE PLUMB AFTER INSTALLATION.*

(18) SHIM PLATES *SHALL BE MADE FROM ANY MULTI-POLYMER PLASTIC WITH A MINIMUM COMPRESSIVE STRENGTH OF 35 MPa. FOR POST PLUMBNESS, ENDS OF POSTS AND SLEEVES MAY BE CUT ON A BIAS.*

(19) TRAFFIC MAINTENANCE: *TRAFFIC SHALL BE MAINTAINED AS PER PROJECT PLANS.*

(20) CAULKING COMPOUND *SHALL MEET FEDERAL SPECIFICATION TT-S-00233S TYPE II, CLASS A, ALUMINUM GRAY. PROVIDE 25 mm OPENING THROUGH CAULKING ON LOW SIDE OF BASE PLATE.*

(21) CONSTRUCTION PROCEDURE:

1. *FIELD VERIFY ALL BASE PLATE LOCATIONS PER PLAN AND MARK PARAPETS ACCORDINGLY.*
2. *MARK AND DRILL HOLES FOR 20 mm HIGH STRENGTH THREADED ANCHORS, 20 mm BOLTS, OR 20 mm INSERTS USING A BASE PLATE OR TEMPLATE.*
3. *INSTALL 20 mm DIAMETER HIGH STRENGTH THREADED ANCHORS, 20 mm BOLTS, OR 20 mm INSERTS.*
4. *INSTALL POSTS AND BASE PLATES, AND SHIM AS REQUIRED.*
5. *CAULK EDGES OF BASE PLATES, SHIMS, AND SLEEVES WITH CAULKING COMPOUND.*
6. *COMPLETE INSTALLATION OF FENCE.*

(22) METHOD OF MEASUREMENT: *FENCE SHALL BE MEASURED BY THE METER, COMPLETE IN PLACE. MEASUREMENT SHALL BE ALONG THE BOTTOM OF FENCE FROM CENTER TO CENTER OF END POSTS.*

(23) BASIS OF PAYMENT: *THE ACCEPTED QUANTITIES OF FENCE OR PARAPET AND FENCE MEASURED, WILL BE PAID FOR UNDER:*

ITEM	UNIT	DESCRIPTION
SPECIAL	METER	VANDAL PROTECTION FENCE, *

**: 1850 mm STRAIGHT, COATED FABRIC*
2450 mm STRAIGHT, COATED FABRIC
3050 mm CURVED, COATED FABRIC
3650 mm CURVED, COATED FABRIC

(24) WHEN FENCE VERTICAL HEIGHT LOCATION EXCEEDS 15 m *ABOVE THE NORMAL TERRAIN, THERE SHALL BE A SPECIAL DESIGN FOR THE FENCE. MAXIMUM WIND VELOCITY EQUALS 130 km/hr PLUS 30% GUST FACTOR.*

(25) PROJECT PLANS *SHALL SHOW A SCHEMATIC DECK PLAN FOR FENCE POST SPACING TOGETHER WITH A TABULATION OF FENCE POST SPACINGS AND REQUIRED BASE PLATE AND POST SECTION TYPES FOR EACH BRIDGE.*

DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

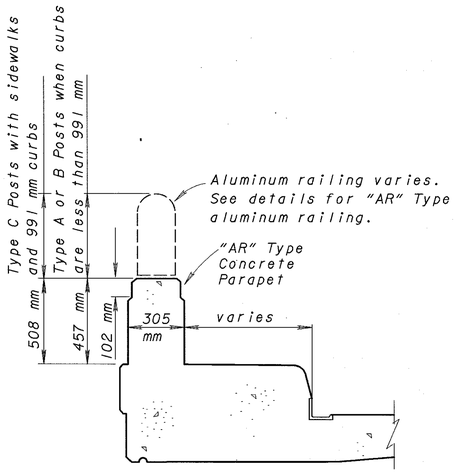
STATE OF OHIO DEPARTMENT OF TRANSPORTATION
3-20-95 DATE
Richard L. Engel
ENGINEER OF BRIDGES

REVISIONS

PREPARED JCR | CHECKED RLD | REVIEWED WTF/LMW
DRAWN GFJ/RJS | DRAWING NO. VPF-1-90M

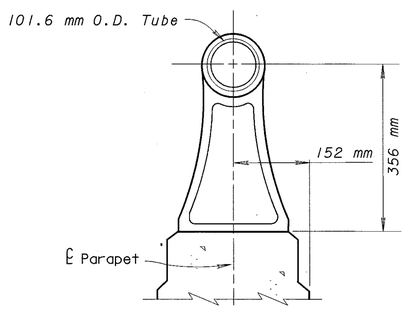
STANDARD DRAWING
VANDAL PROTECTION FENCE
GENERAL NOTES AND RAILING TYPES

RAILING TYPES

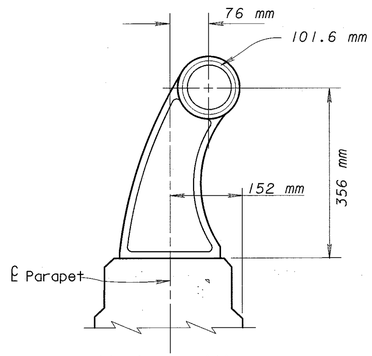


AR TYPE PARAPET

See Standard Drawing AR-1-57.
Use curved fence or straight 2450 mm high fence as determined by curb or sidewalk width and and Base Plates BP-1, BP-2, BP-3 or BP-4.

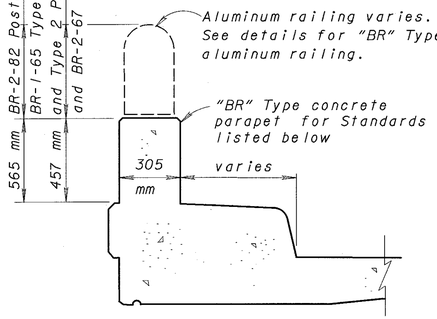


Aluminum railing for Standard Drawing AR-1-57 with Type A Posts



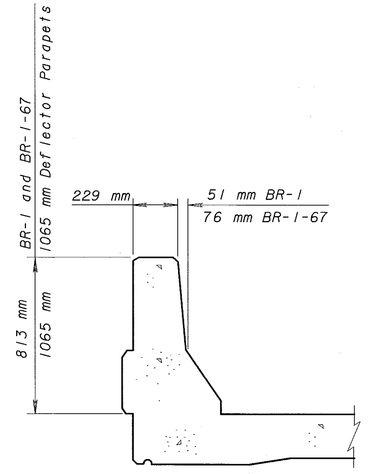
Aluminum railing for Standard Drawing AR-1-57 with Type B Posts

AR TYPE ALUMINUM RAILING



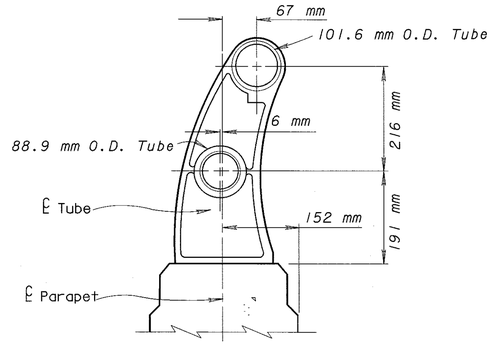
BR TYPE PARAPET

See Standard Drawings BR-2-82, BR-2-67 and BR-1-65. Use curved fence or straight 2450 mm high fence as determined by curb or sidewalk width and Base Plate BP-1.



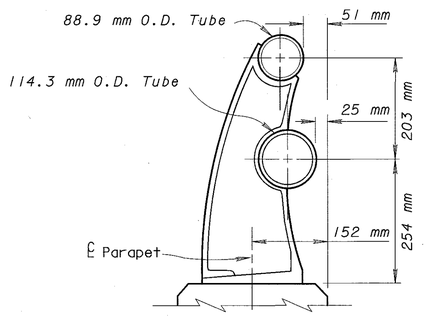
DEFLECTOR PARAPET

See Standard Drawings BR-1 & BR-1-67 and 1065 mm Deflector Parapet. Use straight 1850 mm high fence and Base Plate BP-5.

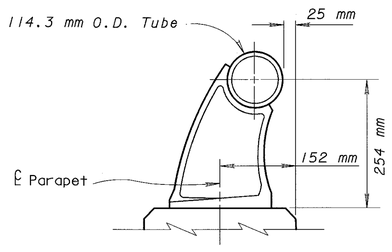


Aluminum railing for Standard Drawing AR-1-57 with Type C Posts

AR TYPE ALUMINUM RAILING



Aluminum railing for Standard Drawings BR-2-82, BR-2-67 and BR-1-65 with Type 2 Posts



Aluminum railing for Standard Drawing BR-1-65 with Type 1 Posts

Base plate threaded anchors are designed for a minimum concrete strength of fc' = 28 MPa. Special designs required for concrete strengths less than this.

BR TYPE ALUMINUM RAILING

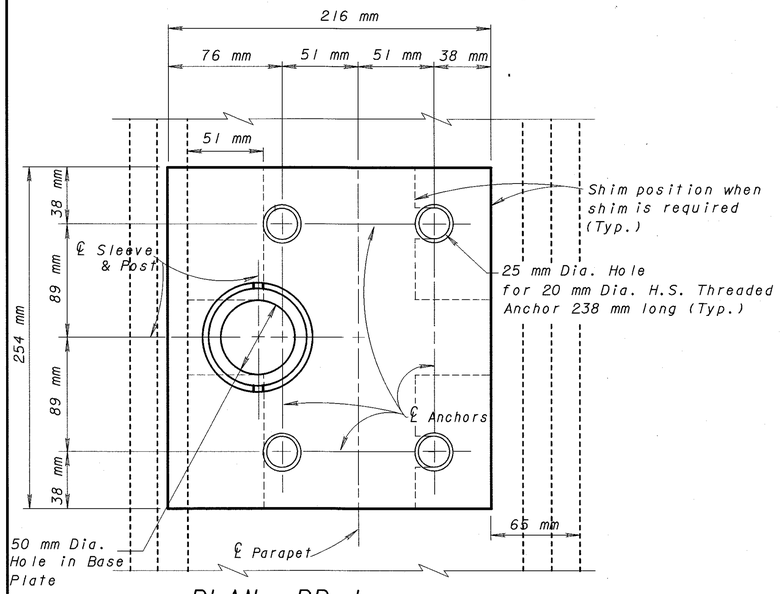
DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
ENGINEER OF BRIDGES — 3-20-95 DATE

REVISIONS	PREPARED	CHECKED	REVIEWED
	JCR	RLD	WTF/LMW
	DRAWN GFJ/RJS	DRAWING NO. VPF-1-90M	

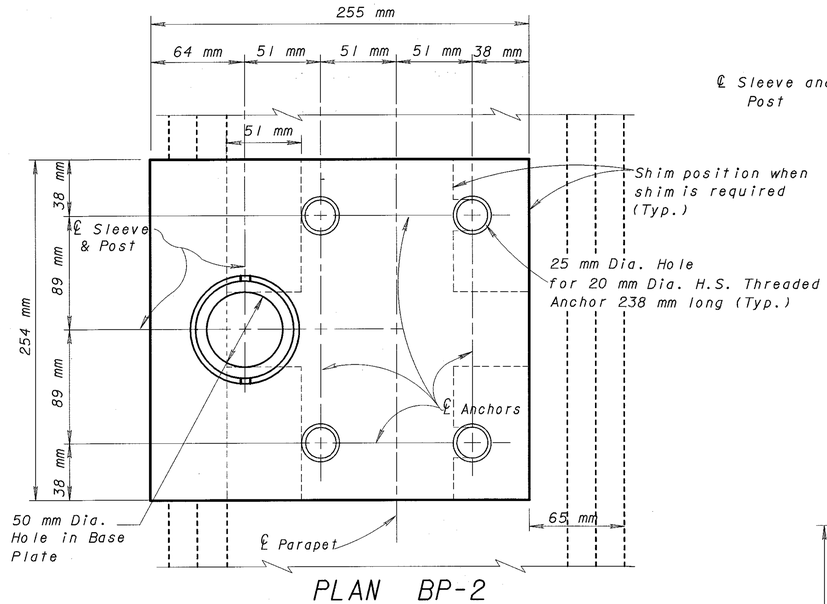
STANDARD DRAWING
VANDAL PROTECTION FENCE
GENERAL NOTES AND RAILING TYPES

RETROFIT BASE PLATES FOR FENCE POSTS



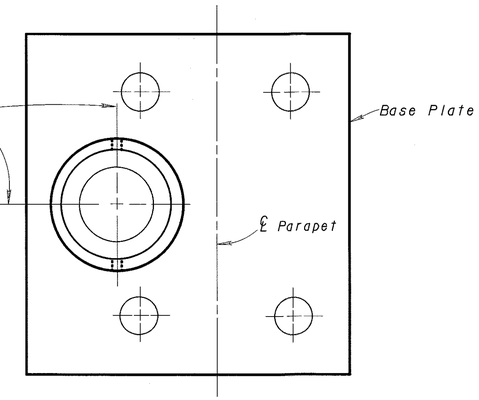
PLAN BP-1

SHIM POSITIONS ARE SHOWN, POST AND SET SCREWS NOT SHOWN



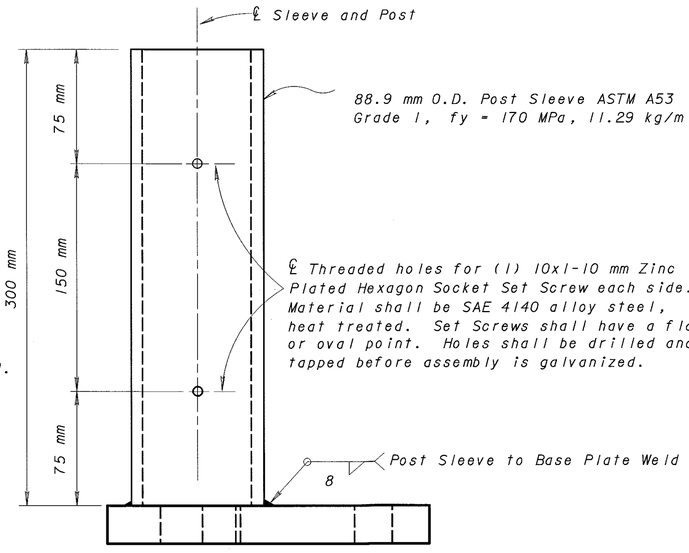
PLAN BP-2

SHIM POSITIONS ARE SHOWN, POST AND SET SCREWS NOT SHOWN



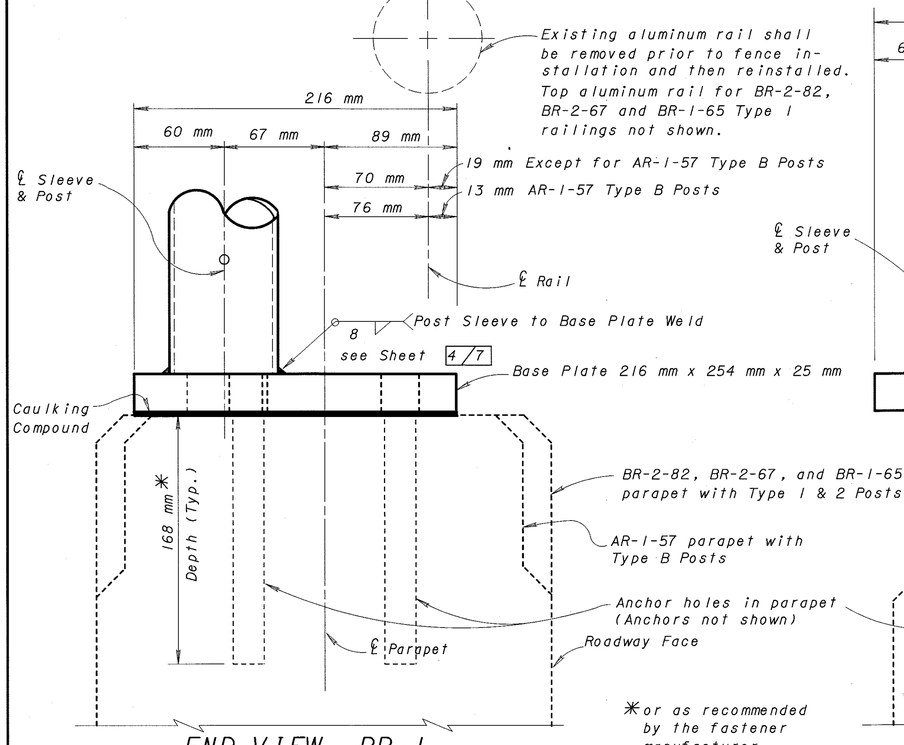
POST SLEEVE PLAN

POST AND SET SCREWS NOT SHOWN



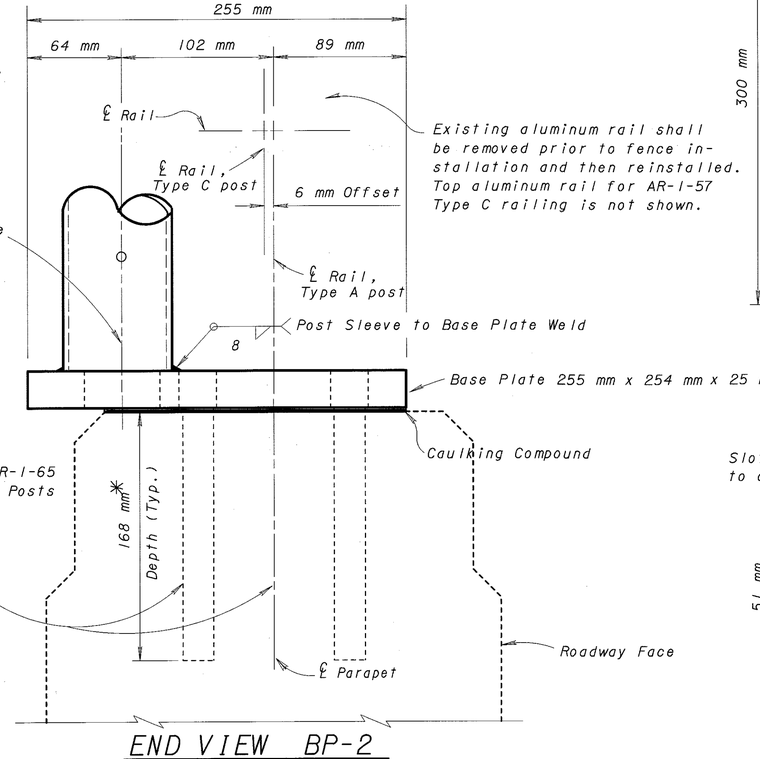
POST SLEEVE ELEVATION

POST AND SET SCREWS NOT SHOWN



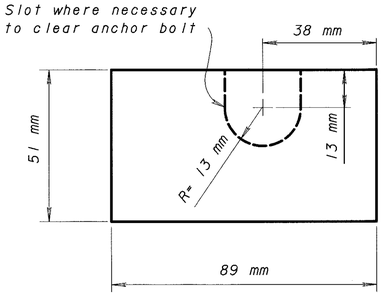
END VIEW BP-1

Fence shall be installed by removing and reinstalling the aluminum rail(s). Base Plate shall be used on parapets having aluminum railing as shown on Standard Drawings BR-2-82, BR-2-67, BR-1-65 with Types 1 & 2 Posts and AR-1-57 with Type B Posts. Base Plate requires a sleeve. See Post Sleeve Detail on this sheet.



END VIEW BP-2

Fence shall be installed by removing and reinstalling the aluminum rail(s). Base Plate shall be used on parapets having aluminum railing as shown on Standard Drawing AR-1-57 with Types A and C posts. Base Plate requires a sleeve. See Post Sleeve Details on this sheet.



BASE PLATE SHIMS

2 mm, 3 mm and 6 mm thick

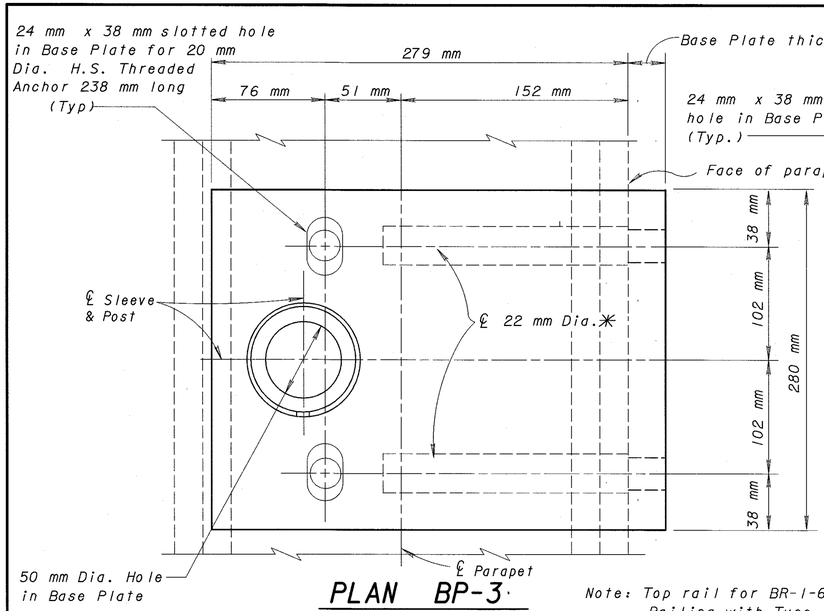
DESIGN AGENCY
OFFICE OF STRUCTURAL ENGINEERING

STATE OF OHIO DEPARTMENT OF TRANSPORTATION
3-20-95 DATE
Richard L. Engel
ENGINEER OF BRIDGES

REVISIONS	PREPARED	CHECKED	REVIEWED
	JCR	RLD	WTF/LMW
	DRAWN GFJ/RJS	DRAWING NO. VPF-1-90M	

STANDARD DRAWING
VANDAL PROTECTION FENCE RETROFIT
BASE PLATES WHEN RAILS ARE REMOVED AND REINSTALLED

RETROFIT BASE PLATES FOR FENCE POSTS

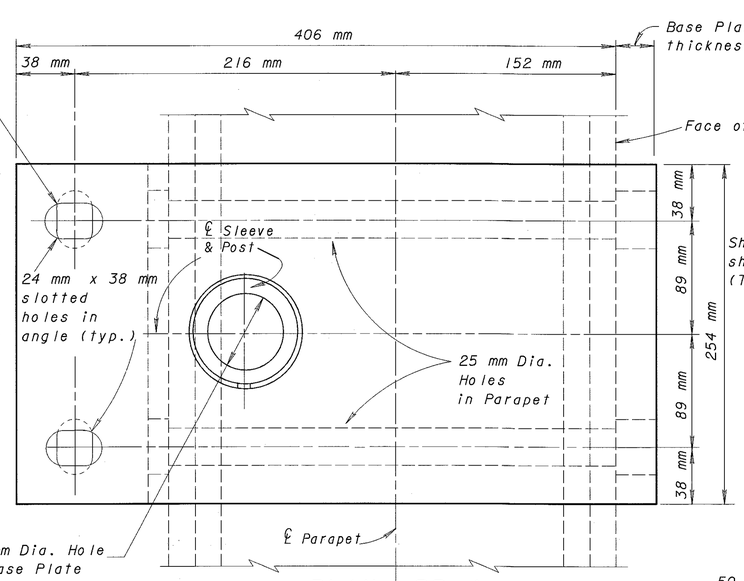


PLAN BP-3

SHIM POTIONS, POST AND SET SCREW NOT SHOWN

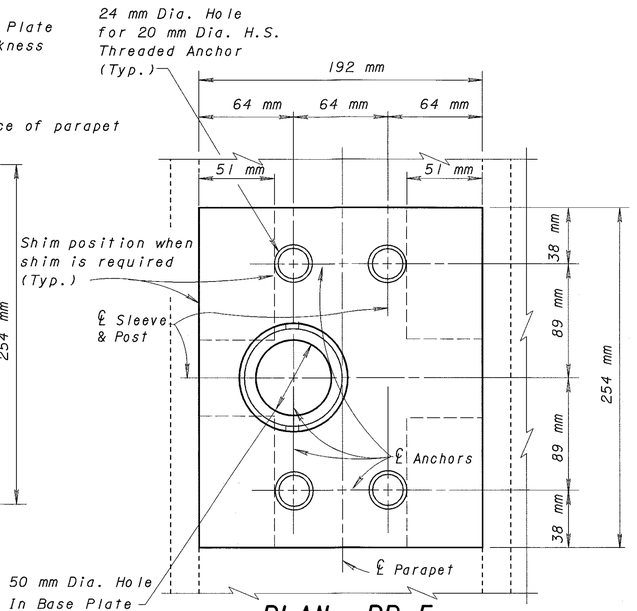
Note: Top rail for BR-1-65 Railing with Type 2 posts not shown.

* Holes for 20 mm Dia. Vinylester Flush Inserts (Inserts, Bolts and Washers not shown)



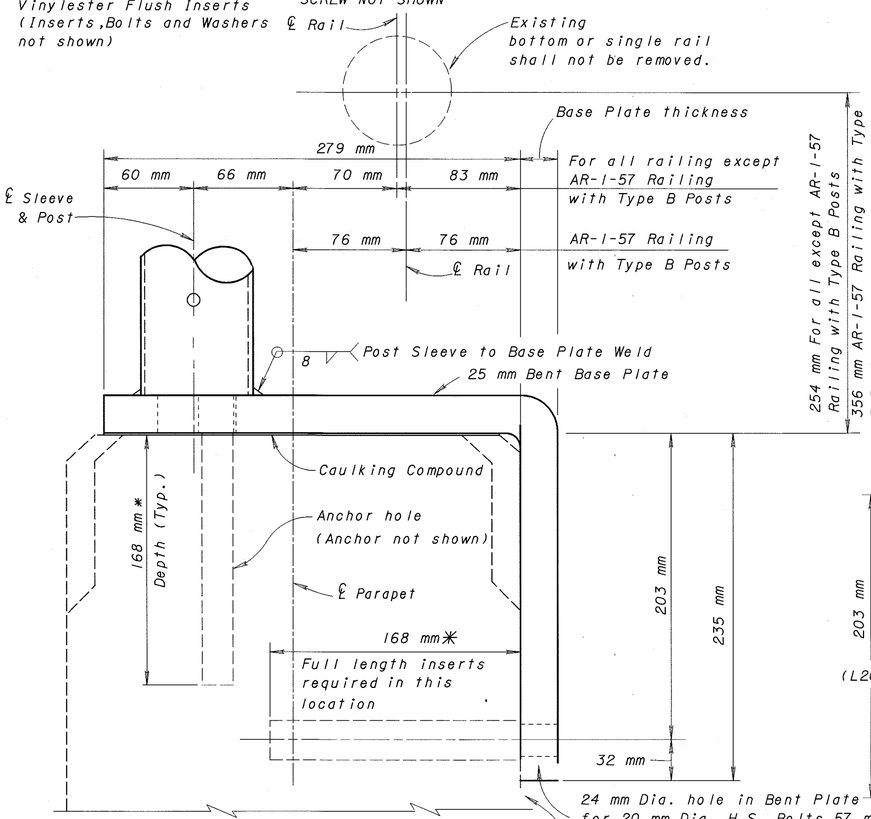
PLAN BP-4

SHIM POTIONS, POST AND SET SCREW NOT SHOWN



PLAN BP-5

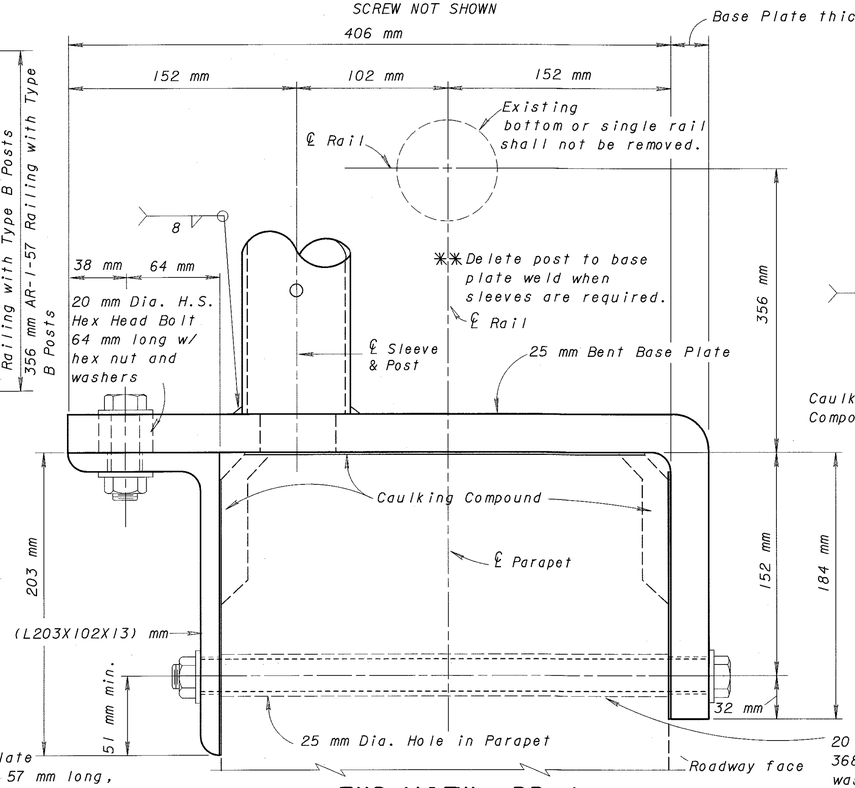
SHIM POSITIONS SHOWN



END VIEW BP-3

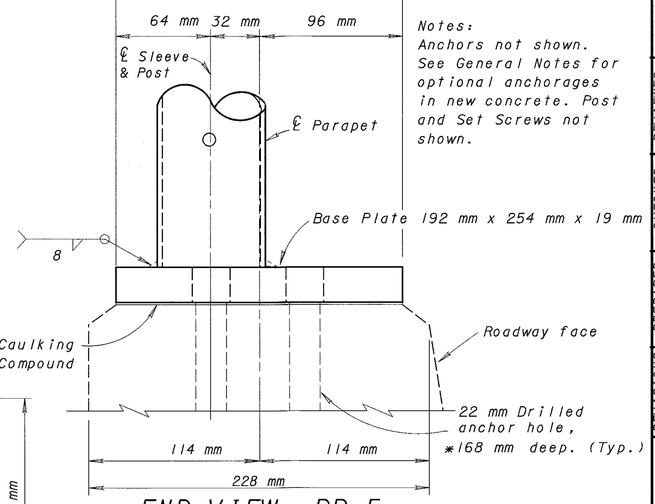
Base Plate shall be used on concrete parapet with aluminum railing as shown on Standard Drawings BR-2-82, BR-2-67, BR-1-65 with Types 1 & 2 posts, and AR-1-57 with Type B posts. Existing aluminum rail shall not be removed. Base Plate requires a sleeve. See Sleeve Details on Sheet 377.

* or as recommended by the fastener manufacturer. Inserts shall be approved by the Director.



END VIEW BP-4

Base Plate shall be used on concrete parapet with aluminum railing as shown on Standard Drawing AR-1-57 with Type A and C posts. Existing aluminum rail shall not be removed. Base Plate requires a sleeve. See Sleeve Details on Sheet 377.



Notes:
Anchors not shown.
See General Notes for optional anchorages in new concrete. Post and Set Screws not shown.

END VIEW BP-5

Base Plate shall be used to connect fence post to existing BR-1-67 parapet and existing or new BR-1 deflector parapet when 1850 mm fence is specified. Base Plate requires a sleeve. See Post Sleeve Details on Sheet 377.

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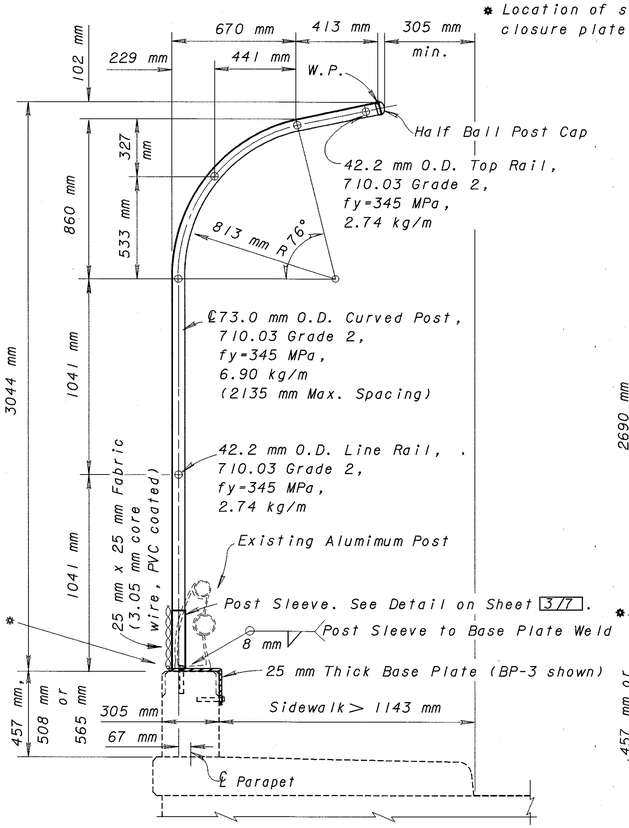
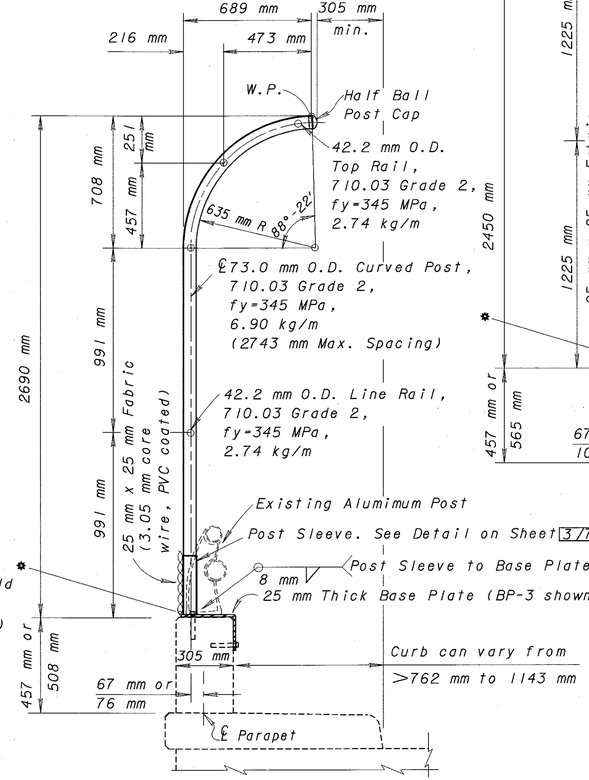
	JCR	RLD	WTF/LMW
	DRAWN GFJ/RJS	DRAWING NO. VPF-1-90M	

STANDARD DRAWING
VANDAL PROTECTION FENCE
BASE PLATES WHEN
RAILS ARE NOT REMOVED



POST SECTION PS-1

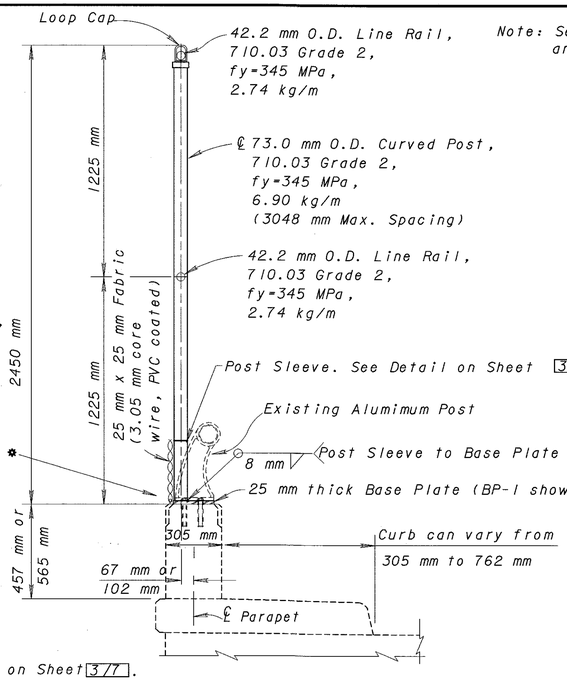
(3650 mm CURVED FENCE)



POST SECTION PS-2

(3050 mm CURVED FENCE)

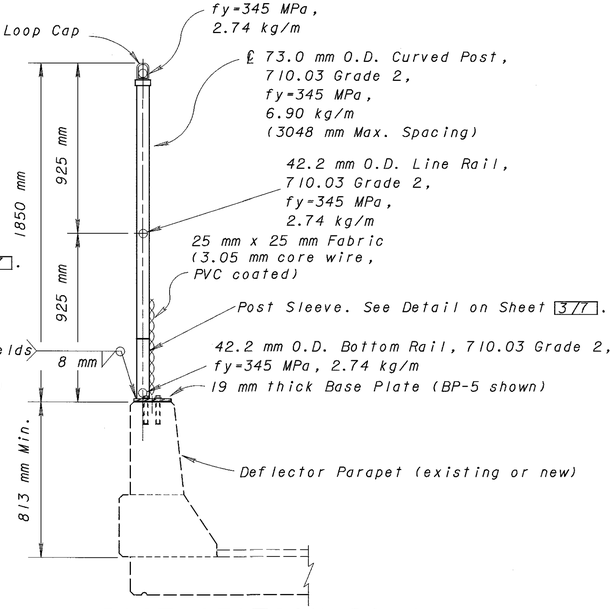
Notes : For Post Sections PS-1 and PS-2, see project plans for sidewalk, parapet and fence post dimensions. Begin fabric at Base Plate. (Maximum gap between fabric and concrete parapet = 25 mm)



POST SECTION PS-3

(2450 mm STRAIGHT FENCE)

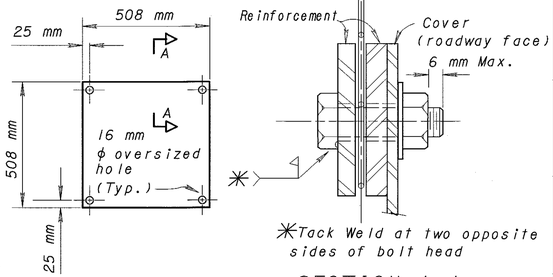
Note: See General Notes for optional anchorage in new concrete.



POST SECTION PS-4

(1850 mm STRAIGHT FENCE)

Note: For new parapet without aluminum railing, install bottom rail and locate fence fabric along inside faces of posts.

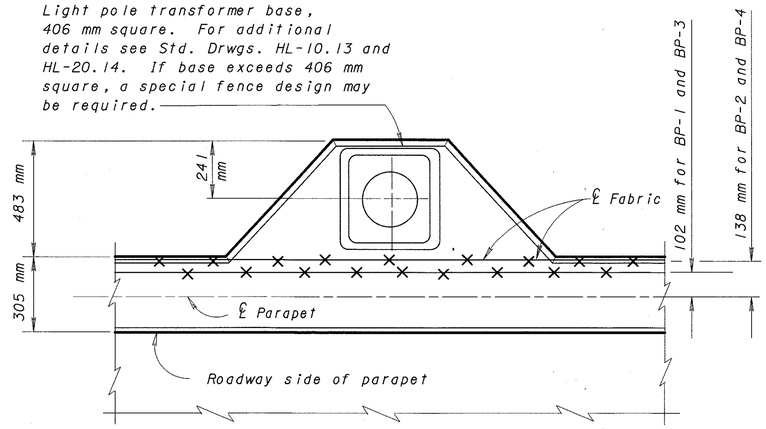


Galvanized Access Cover 5 mm thick and 508 mm square

SECTION A-A

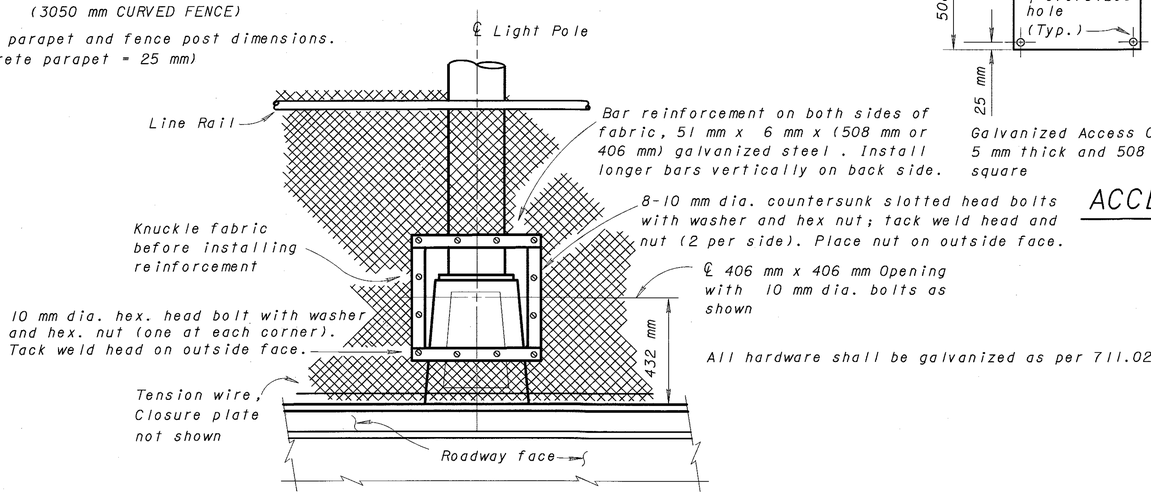
(Showing corner bolt)

ACCESS COVER



FENCE DETAILS AT TYPICAL LIGHT POLE PILASTER

(EXISTING ALUMINUM RAIL(S) NOT SHOWN)



All hardware shall be galvanized as per 711.02

ACCESS OPENING AT LIGHT POLE

(COVER NOT SHOWN)

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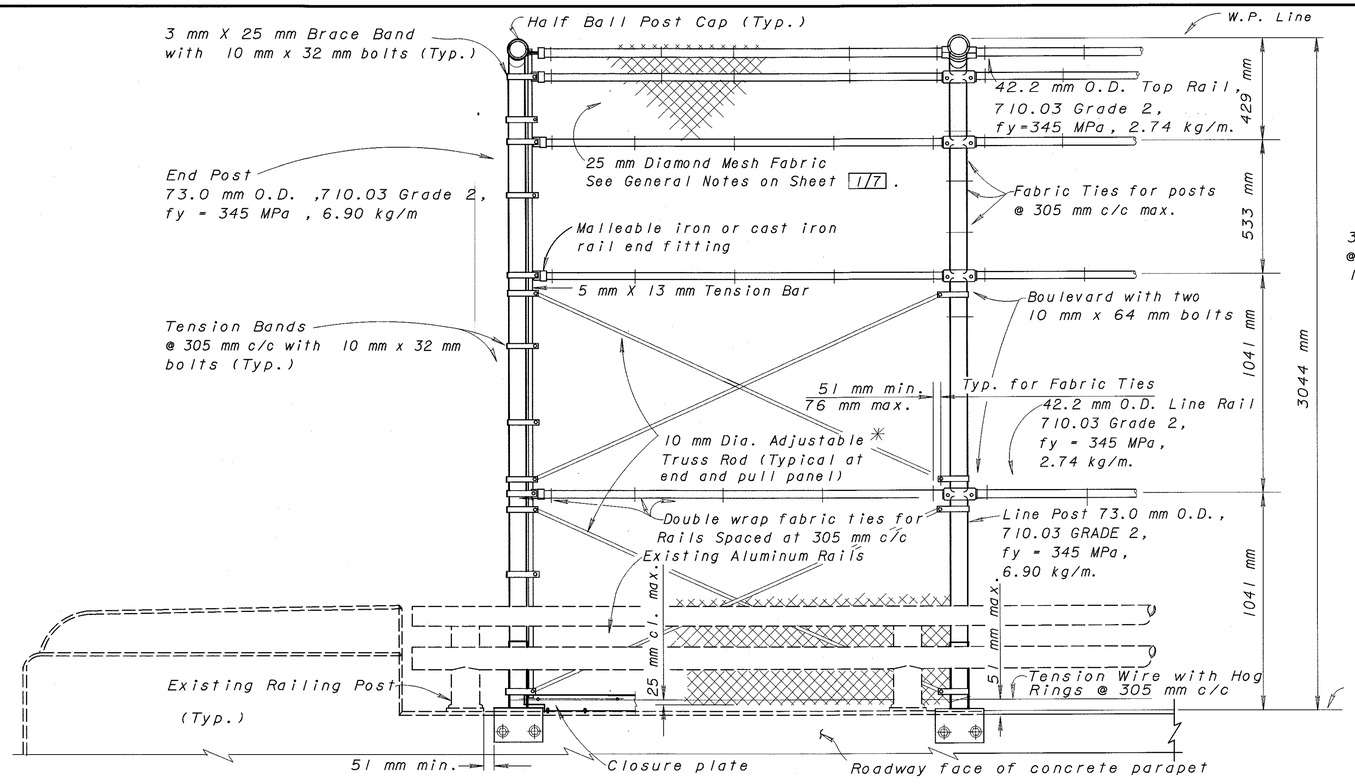
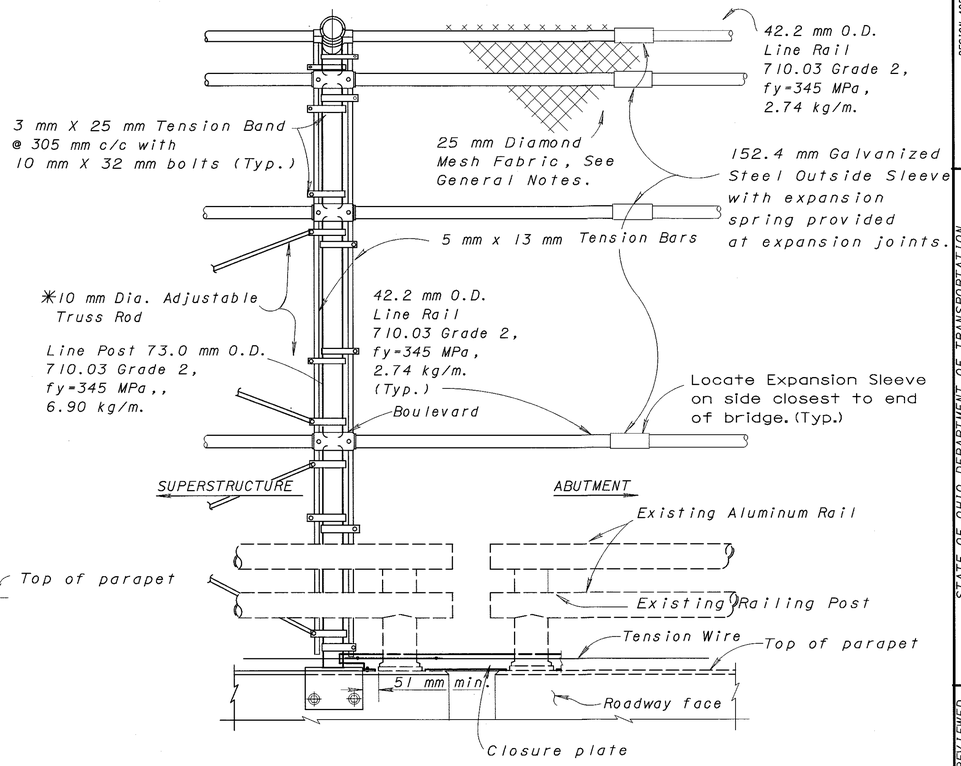
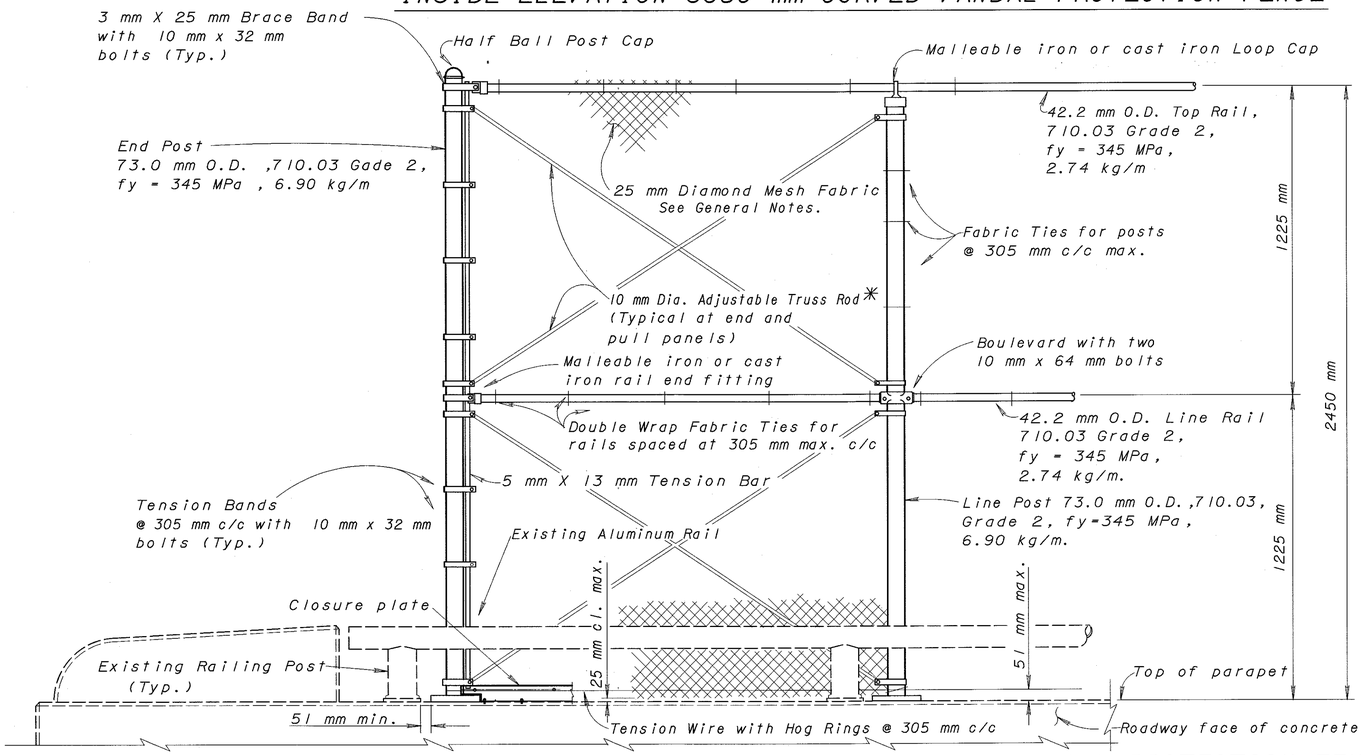
	JCR	RLD	WTF/LMW
	DRAWN GFJ/RJS	DRAWING NO. VPP-1-90M	

STANDARD DRAWING
VANDAL PROTECTION FENCE
POST SECTIONS AND DETAILS



INSIDE ELEVATION–3650 mm CURVED VANDAL PROTECTION FENCE





INSIDE ELEVATION–2450 mm STRAIGHT VANDAL PROTECTION FENCE

INSIDE ELEVATION
3050 mm–CURVED FENCE AT EXPANSION JOINT
3650 mm CURVED FENCE SIMILAR

NOTES

2450 mm straight fence & 3650 mm curved fence shown;

1850 mm straight fence & 3050 mm curved fence are similar.

Base plates shall clear parapet deflection joints by 51 mm minimum as shown.

*Truss rods in end and pull panels shall not be installed unless required by the plans.

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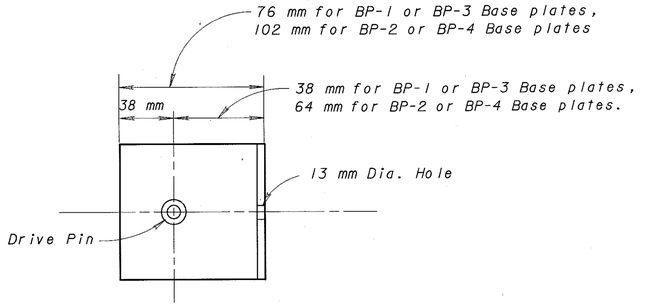
	DRAWN GFJ/RJS	DRAWING NO. VPF-1-90M	

STANDARD DRAWING
VANDAL PROTECTION FENCE
ELEVATIONS AND DETAILS



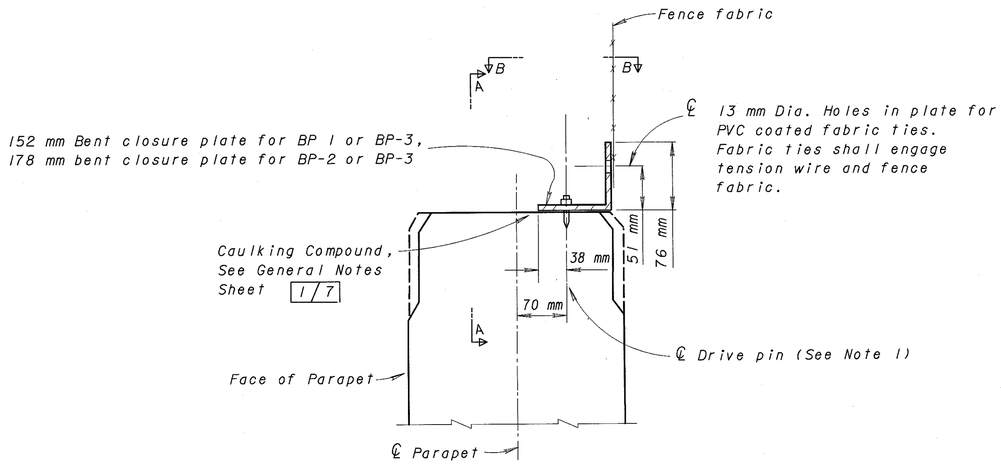
VIEW B-B
SHOWING FENCE CLOSURE PLATE PLAN

NOTES

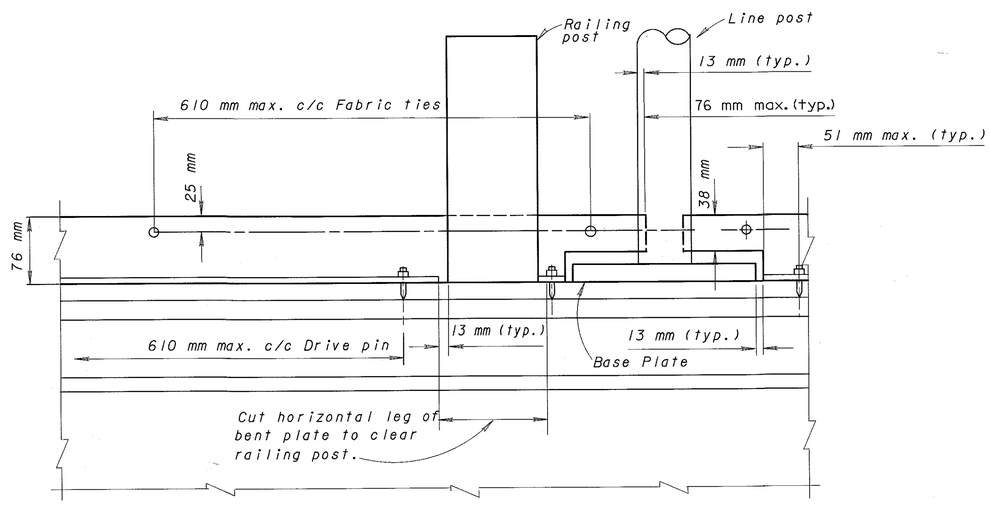
Fencing stainless steel closure plates shall be installed for all post sections PS-1, PS-2 and PS-3. Stainless steel closure plates not required for post section PS-4 due to the bottom rail shown in the PS-4 detail. Any railing details without a bottom rail shall require the installation of the stainless steel closure plate.

① DRIVE PINS shall be 32 mm x 4 mm x 6 mm (Length x Shank Dia. x Head Dia.) flat head drive pins and washers, driven through closure plates into concrete. Steel shall be modified AISI 106X custom tempered to a hardness of 52-56 HRC and zinc plated in accordance with ASTM B633, SC1, Type III or ASTM B695. Powder actuated Fasteners shall be Hilti Fastening systems, ITW Ramset/ Redhead or approved equal.

② STAINLESS STEEL BENT CLOSURE PLATES, 152 mm (with base plates BP-1 or BP-3) or 178 mm, (with base plates BP-2 or BP-4) shall be 3.40 mm ASTM A167, Type 304, mill finish.



SECTION THRU PARAPET SHOWING
FENCE CLOSURE PLATE ELEVATION



VIEW A-A

DESIGN AGENCY
OFFICE OF
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Richard L. Engel
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3-20-95
DATE

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	DRAWN	DRAWING NO.	
	GFJ/RJS	VPF-1-90M	

STANDARD DRAWING
VANDAL PROTECTION FENCE
FENCE CLOSURE PLATE DETAILS

7/7