

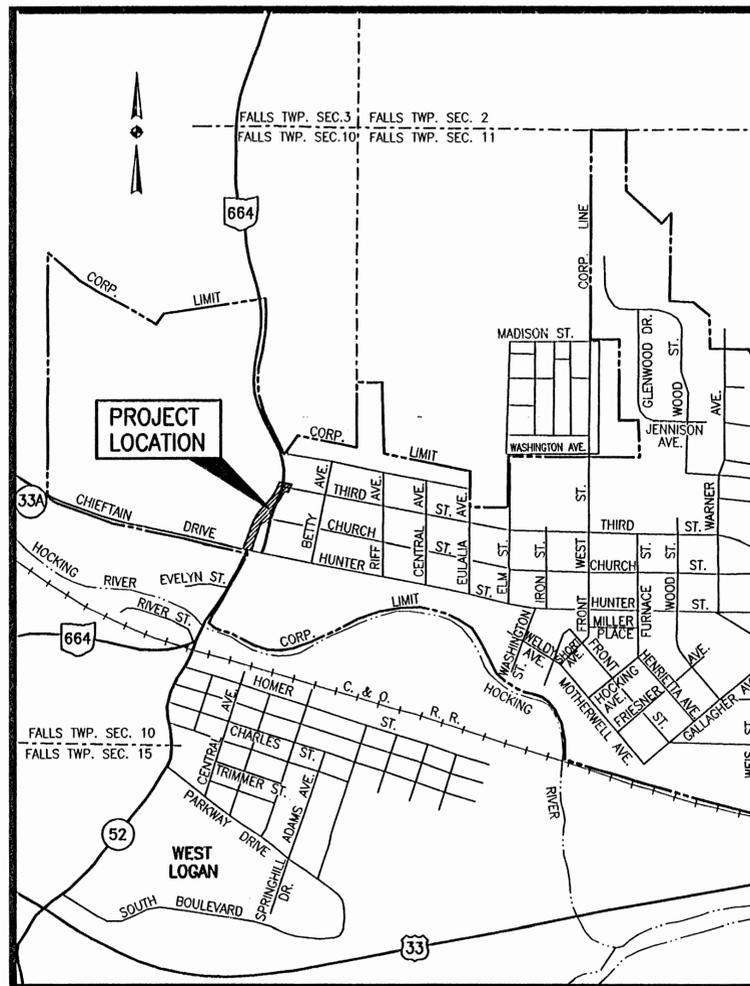
CITY OF LOGAN, OHIO

REALIGNMENT OF S.R. 664 AT HUNTER RD.

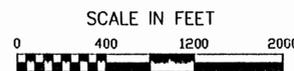
INDEX OF SHEETS

TITLE SHEET	1
GENERAL NOTES	1-3
STANDARD DRAWINGS	4
TYPICAL SECTIONS	5
CULVERT DETAILS	6
PLAN AND PROFILE SHEETS	7
INTERSECTION DETAIL	8
STRIPPING & SIGNING PLAN	9
CROSS SECTIONS	10-16
TRAFFIC SIGNAL GENERAL NOTES	17
TRAFFIC SIGNAL GENERAL SUMMARY	18
TRAFFIC SIGNAL PLAN	19
TRAFFIC SIGNAL DETAILS	20

SUPPLEMENTAL PRINTS OF STANDARD CONSTRUCTION DRAWINGS			
HL-20.11	5-1-87	TC-81.10	1-20-84
HL-30.11	5-1-87	TC-82.10	8-29-84
HL-30.21	5-1-87	TC-83.10	3-18-92
HL-30.22	5-1-87	TC-83.20	1-20-84
		TC-84.20	1-20-84
		TC-85.20	1-20-84
TC-21.20	9-1-82		
TC-35.10	8-29-84		
TC-41.20	3-26-79	MT-95.31	10-10-88
TC-41.41	8-2-79	MT-95.32	8-25-89
TC-42.20	3-26-79	MT-105.10	7-1-92
TC-52.20	4-3-79	MT-105.11	7-1-92
TC-71.10	9-10-91		



LOCATION MAP



1995 CITY OFFICIALS

EDGAR E. DENNIS
KIM MILLER
MERLE HARTMAN
LARRY BEAL
TERRY McGRATH
ALBERT ELICK

MAYOR
AUDITOR
TREASURER
LAW DIRECTOR
DIR. SERVICE & SAFETY
CLERK OF COUNCIL

1995 CITY COUNCIL

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GREG FRAUNFELTER
SUSAN GERKEN
JAMES ROBINSON

MARK SHAW
MIKE WALSH
DARRELL WYKLE

APPROVED BY:

HARRY E. WINFREY
PROFESSIONAL ENGINEER No. E-050282
RICHLAND ENGINEERING LIMITED

DATE

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JAN 4 1996

RICHLAND ENGINEERING LTD.

UNDERGROUND UTILITIES

TWO WORKING DAYS
BEFORE YOU DIG

CALL 1-800-362-2764 (TOLL FREE)
OHIO UTILITIES PROTECTION SERVICE
NON - MEMBERS
MUST BE CALLED DIRECTLY



PREPARED AND RECOMMENDED BY
RICHLAND ENGINEERING LIMITED
CONSULTING ENGINEERS

29 NORTH PARK STREET, MANSFIELD, OHIO 44902 (419) 524-0074

GENERAL NOTES

O.D.O.T. SPECIFICATIONS

Where specified, the current State of Ohio Department of Transportation Construction and Material Specifications (O.D.O.T. numbers) including supplemental specifications shall apply except as modified or expanded herein or in the technical specifications.

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 to the City of Logan for approval indicating dates and duration of each phase of construction.

The Contractor shall notify the City of Logan, the Police Department, the Fire Department, and the local board of education 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 construction which temporarily blocks access.

The Contractor shall give sufficient 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

The Contractor shall notify, at least 48 hours prior to construction, all public service corporations affected by the construction of this project, in accordance with the requirements of Amended Substitute House Bill No. 538, effective July 26, 1982. The following is a partial list of utility owners who must be notified:

- I. The City of Logan
- II. The City of Logan Water and Sewer Department
- III. The Ohio Utilities Protection Service
- IV. Columbia Gas of Ohio
- V. Ohio Power
- VI. GTE Telephone
- VII. Cox Communications

The Contractor shall have previously secured and shall comply with the regulations set forth by the respective public service corporations as listed above.

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 of Logan 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

Monuments, property corner markers and bench marks shall not be disturbed by the Contractor. In the event that it is necessary to remove monuments, property corner markers or bench marks for the construction of the work, the Contractor

shall have a registered land surveyor properly reference the points and shall have same reset after construction has passed the area.

Any monuments, property corner markers, or bench marks which the Contractor fails to reset after notification of the Engineer, shall be reset by the Engineer at the expense of the Contractor. The cost of replacement shall be deducted from any monies due or to become due the Contractor under this contract.

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.

STORM SEWER AND CATCH BASIN REMOVAL

The Contractor shall remove and dispose of all existing storm sewers and catch basins where noted on the plans or where encountered during construction. The cost of removing and disposing of existing storm sewers shall be included in the unit prices bid for the sewer pipe. No separate payment will be made.

Unless otherwise noted on the plans, all salvaged drainage grates and manhole castings shall remain the property of the City of Logan and shall be delivered by the Contractor to the City Maintenance Building.

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.

Existing pavement removal has been included in the quantities for excavation.

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.



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GENERAL NOTES

REALIGNMENT OF
S.R. 664 AT HUNTER RD.
CITY OF LOGAN, OHIO

GENERAL NOTES

RICHLAND
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 MANSFIELD, OHIO

DATE 9/95
 JOB NO. 95099
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GENERAL NOTES

REALIGNMENT OF
 S.R. 664 AT HUNTER RD.
 CITY OF LOGAN, OHIO

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 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 performed 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

The removal and disposal of all surplus excavated material shall be the responsibility of the Contractor. The disposal of excess excavated material may be made on lots and lands abutting upon this improvement, if so requested by the City or by the property owner. The Contractor shall furnish the Engineer a copy of written permission from the property owner prior to disposing of any waste materials.

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 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.

GRANULAR MATERIAL FOR BACKFILL

Granular backfill material as specified under Ohio Department of Transportation Specification Item 310 shall be compacted in place in 4" layers at all locations where the proposed water line, sewer line, sewer lateral pipe, storm sewer or culvert pipe crosses existing or proposed streets, roadways, drives and parking areas, as shaded on the drawings or locations as directed by the Engineer. Granular backfill shall extend three (3) feet beyond edges of paved areas.

All costs involved in furnishing and installing granular backfill material, mechanically compacted in place, in accordance with the Ohio Department of Transportation Specification Item 603, shall be included in the unit prices bid for the associated storm sewer, water line, culvert or other item which requires granular backfill. No separate payment will be made.

MISCELLANEOUS STORM SEWERS

The Contractor shall be responsible for repairing, replacing and reconnecting all miscellaneous storm sewers and drain pipes which are damaged, disturbed or otherwise encountered during construction.

All miscellaneous drainage pipes and tiles crossing new construction trenches, shall be restored in accordance with the Typical Tile Replacement Detail.

At locations directed by the Engineer, miscellaneous drainage pipe and tile shall be field connected to the proposed storm sewer. Field connections shall be made in accordance with the detail on the Standard Drawings.

Unless otherwise directed by the Engineer, the pipe size and material used for replacement, repairs or reconnections shall be the same as the existing.

All costs involved in repairing, replacing and reconnecting miscellaneous storm sewers and drain pipes including all excavation and backfill, as well as furnishing and installing all pipe, bends, fittings, couplers, support planks, mortar, etc., shall be included in the unit prices bid for the various storm sewer items. No separate payment will be made.

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 ditches, 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.

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.

DUST CONTROL

The following quantities of calcium chloride and water are to be provided for dust control, as directed by the Engineer:

Item 616	Calcium Chloride	5	Ton
Item 616	Water	10,000	Gal.

ABANDON EXISTING PIPES

Where existing pipes are call for on the plans to be plugged or abandoned, the Contractor shall install a concrete or vitrified plug or shall fill the pipe with concrete as directed by the Engineer. The cost of plugging existing pipes shall be included in the unit prices bid for the various storm sewer items. 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.

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.

CONFLICTS WITH EXISTING WATER SERVICES

The Contractor shall be responsible for making repairs to existing water service lines where it becomes necessary to raise or lower services to clear the proposed storm sewers or where existing water services are damaged during construction. Repairs shall be made using approved pipe, unions and couplers and shall be completed to the satisfaction of the Engineer and the City of Logan Water Department. The cost of repairing existing water service lines, including all labor, materials, tools and equipment necessary to complete the repairs shall be included in the unit prices bid for the storm sewer items. No separate payment will be made.

MISCELLANEOUS FIELD CONNECTIONS TO PROPOSED STORM SEWER

Existing drainage tile and pipe encountered during the progress of construction shall field connected to the proposed storm sewer at the locations shown on the plans or as directed by the Engineer, according to the Standard Drawings.

All connections to miscellaneous drains and tiles shall be made by using approved couplers or transition pieces with stainless steel bands, or by other methods as approved by the Engineer. The cost of making connections to miscellaneous drains and tiles shall be included in the unit prices bid for the various storm sewer items. No separate payment will be made.

GENERAL NOTES

ROAD CLOSING AND DETOUR

The Contractor shall furnish, install and maintain all warning lights, signs and barricades necessary to close SR 664 for the duration of the contract, or as otherwise approved by the City of Logan.

The Contractor shall install barricades with signs reading "ROAD CLOSED TO THRU TRAFFIC" at the intersections of SR 664 and Hunter Rd., Church St. and SR 664, and SR 664 and SR 44. The Contractor shall also install barricades with signs reading "ROAD CLOSED" and advance warning signs and lights at the north and south project limits at SR 664 and Hunter Rd. and SR 664 and SR 44.

All lights, signs and barricades shall be in accordance with the Ohio Department of Transportation Standards and Standard Construction Drawing MT-101.60 and C-28.

The Contractor shall formulate a Road Closing and Detour Plan and shall submit same to the City of Logan for approval prior to commencing construction. The plan shall be complete showing types and locations of proposed lights, signs and barricades.

All costs involved in the furnishing, installing, maintaining and subsequent removal of all lights signs and barricades necessary for road closings and detours shall be included in the lump sum price bid for Item 614-Maintaining Traffic. No separate payment shall be made.

EXISTING SANITARY SEWER

There is an existing sanitary sewer along the east edge of SR 664. The manhole at the intersection of SR 664 and Church St. could not be located. The contractor shall adjust the casting to grade under ODOT Item 604.

TOPSOIL FURNISHED AND PLACED

The estimated quantity for topsoil furnished and placed shall be used at the northeast corner of SR 664 and Hunter Rd. and other areas as directed by the Engineer. Said topsoil shall be placed to a depth of 2", spread and leveled prior to fertilizing, seeding and mulching.

TEMPORARY EROSION CONTROL

The Contractor shall provide erosion and sediment control during the construction process. Said control shall include straw bales, filter fabric, sediment pits, temporary seeding, etc., all as required to minimize and contain on site sediment.

All bare earth areas shall be seeded as quickly after construction as possible.

All stockpile areas shall have straw bales/filter fabric along the low side to capture sediment runoff.

The Contractor shall provide straw bales/filter fabric along all ditches and streams to contain any site runoff.

All costs involved in furnishing, installing and subsequent removal of erosion and sediment control, as specified, shall be considered incidental to the completion of work on this project. No separate payment will be made.

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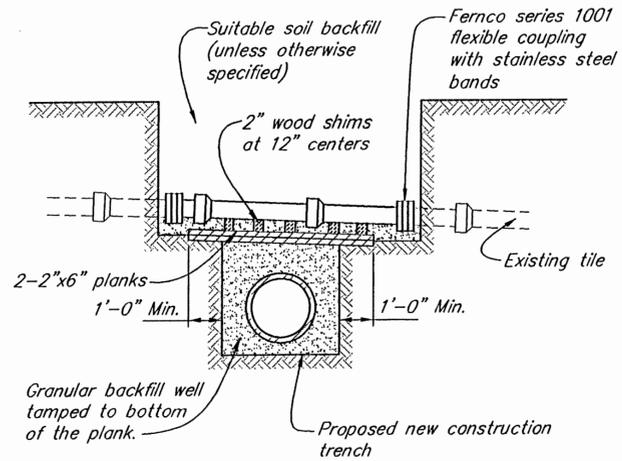


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GENERAL NOTES

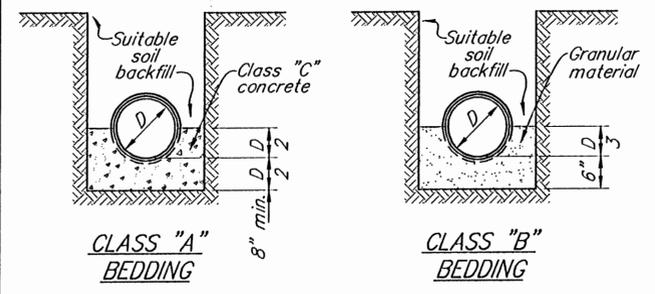
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S.R. 664 AT HUNTER RD.
CITY OF LOGAN, OHIO



TYPICAL TILE REPLACEMENT DETAIL

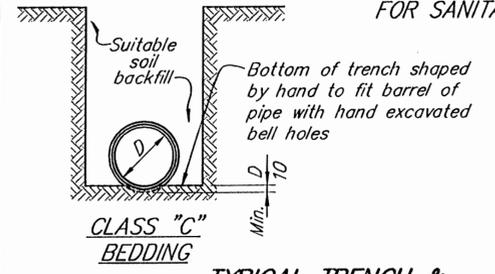
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STANDARD
DWG. NO.
13-A



NOTE:
Granular bedding shall be AASHTO M43 Number 67 crushed aggregate. See table 703-1 O.D.O.T. Construction & Material Specifications.

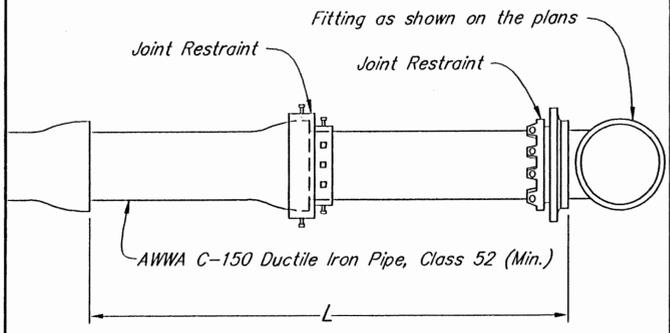
NOTE:
THIS DETAIL IS NOT FOR SANITARY SEWER



TYPICAL TRENCH & PIPE BEDDING DETAILS

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STANDARD
DWG. NO.
1-A



L = Restraint Limits as shown on the Plans

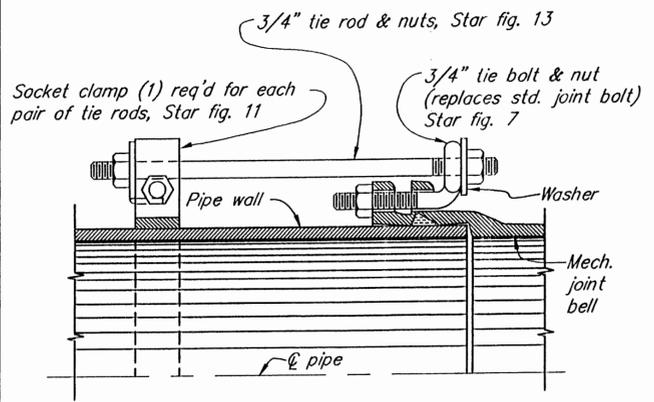
JOINT RESTRAINTS SHALL BE:

- 4" thru 12" Push-on-joint - EBAA Iron Series 800 or equal
- 14" thru 30" Push-on-joint - EBAA Iron Series 1100HD or equal
- 4" thru 30" MJ Fitting - EBAA Iron Series 1100 or equal

TYPICAL D.I.P. PIPE JOINT RESTRAINT DETAIL

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STANDARD
DWG. NO.
14-B



QUANTITY OF TIE RODS PER JOINT

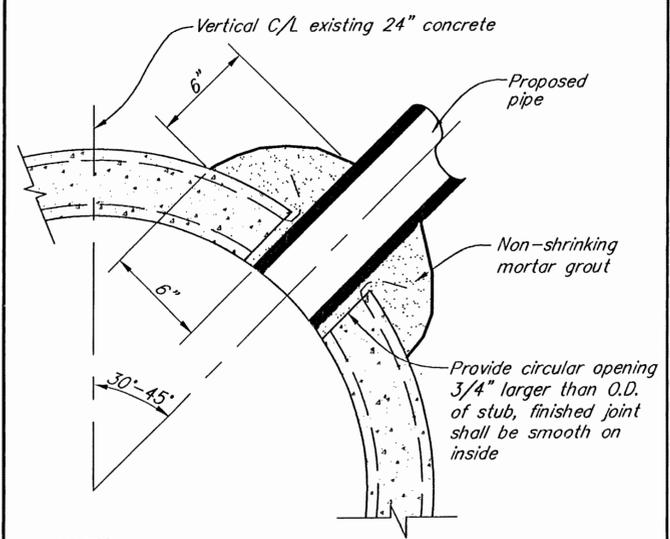
Pipe size	Angle of deflection				
	0°	11 1/4°	22 1/2°	45°	90°
6"	2	2	2	2	2
8"	2	2	2	2	2
10"	2	2	2	2	4
12"	2	2	2	2	4

NOTE:
Tie rods, tie bolts and socket clamps shall be as furnished by star supply corporation, Columbus, Ohio or approved equals. Set screw type mechanical joint retainer glands will not be permitted on cast iron pipe.

TYPICAL TIED JOINT DETAIL

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STANDARD
DWG. NO.
14



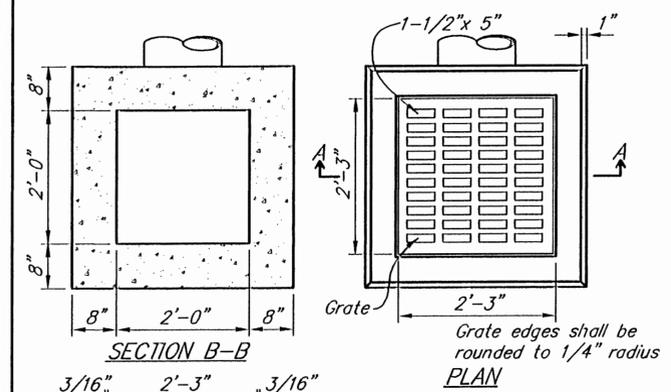
NOTES:

- The opening shall be neatly cut in the storm sewer pipe by using a core drill or by drilling a series of holes in a circle and removing the center, air hammers are not permitted. Alternate means of making the opening shall meet with the approval of the Engineer.

FIELD CONNECTION DETAIL TO PROPOSED STORM SEWER

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STANDARD
DWG. NO.
21-A

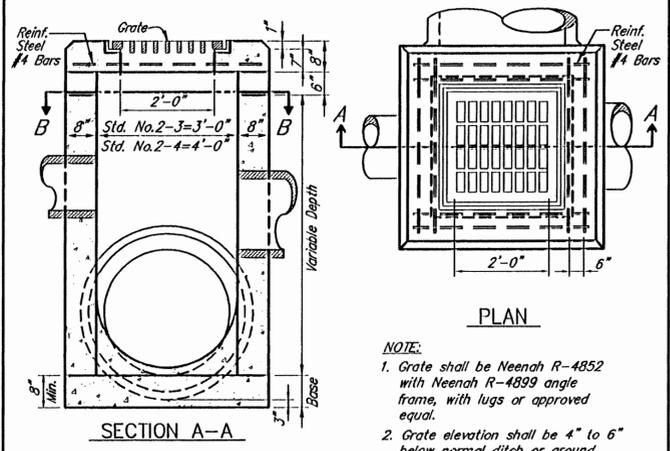


- NOTE:**
- Grate shall be Neenah R-4852 with Neenah R-4899 angle frame, with lugs or approved equal.
 - Grate elevation shall 4" to 6" below normal ditch or ground returning to normal 10 feet each side of basin
 - Brick or solid concrete block side walls, when used in place of concrete, shall be 8" nominal thickness in accordance with item 604.
 - Concrete shall be class "C".
 - 8" thick top slab shall be precast, height adjustment shall be made below slab.

STANDARD NO. 2-2-B CATCH BASIN MODIFIED

RICHLAND ENGINEERING LIMITED
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STANDARD
DWG. NO.
20

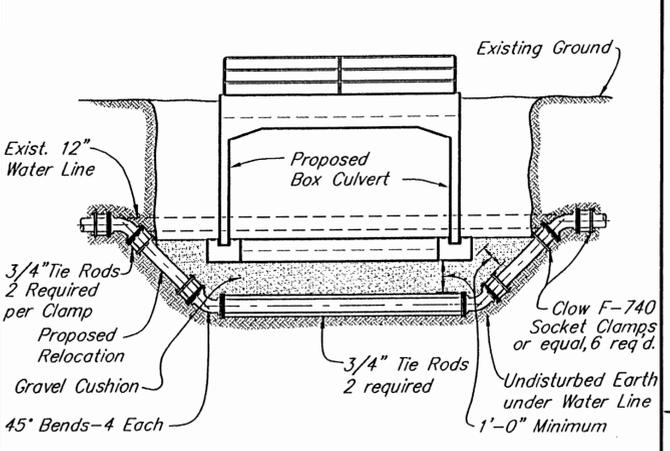


- NOTE:**
- Grate shall be Neenah R-4852 with Neenah R-4899 angle frame, with lugs or approved equal.
 - Grate elevation shall be 4" to 6" below normal ditch or ground returning to normal 10 feet each side of basin.
 - Brick or solid concrete block side walls, when used in place of concrete, shall be 8" nominal thickness in accordance with item 604.
 - Concrete shall be class "C".
 - 8" thick top slab shall be precast, height adjustment shall be made below slab.
 - Side inlets to be placed 4 to 6 inches below normal elevation of bottom of side ditch. Side inlets shall be used only when so stated on the plans or at the direction of the Engineer.

STANDARD NO. 2-3 & NO. 2-4 CATCH BASINS-MODIFIED

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CONSULTING ENGINEERS
29 NORTH PARK ST., MANSFIELD OHIO 44902

STANDARD
DWG. NO.
20-B



Notes:

- All Pipe and Fittings necessary for the water line relocation, as shown, shall be new Ductile Iron Pipe A.N.S.I. Class 52 and all Fittings shall have Mechanical Joint ends.
- The Contractor shall furnish all labor, tools, material and equipment necessary to complete this item in accordance with this detail, payment shall be lump sum.

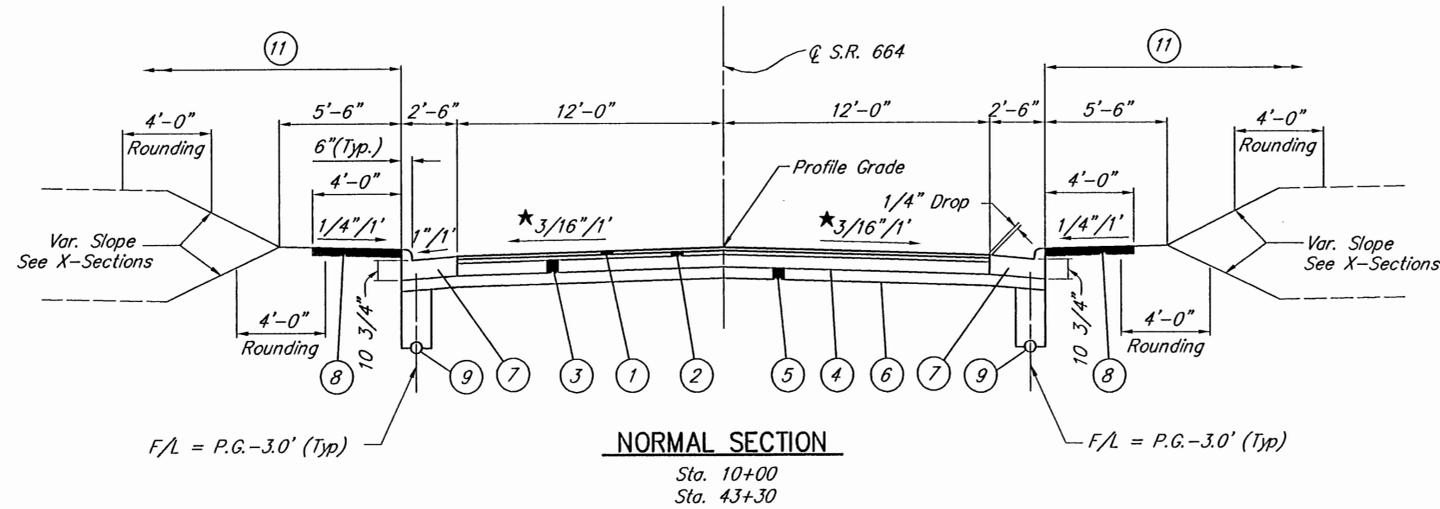
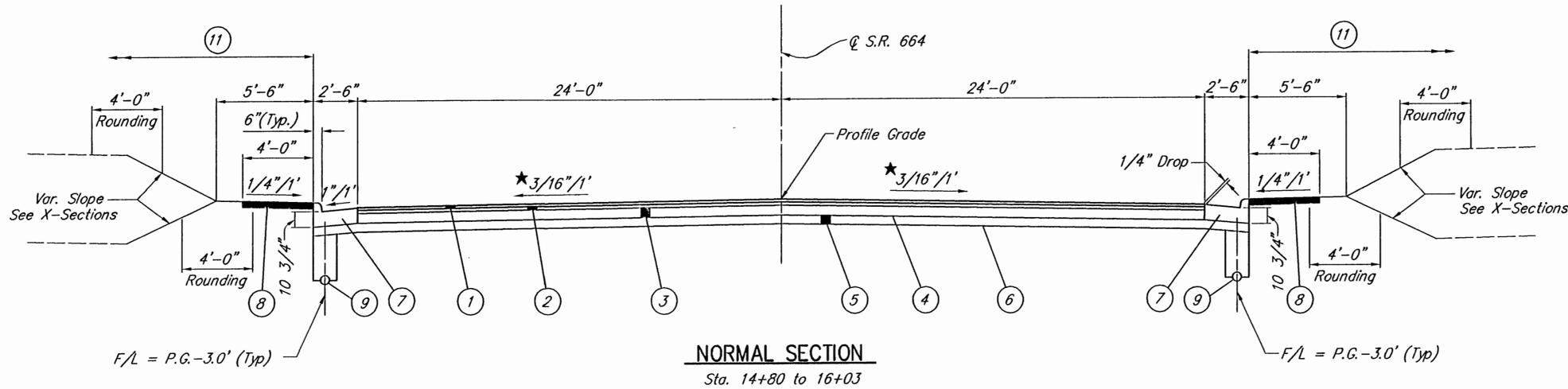
WATER LINE RELOCATION DETAIL

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

STANDARD
DWG. NO.
22-B

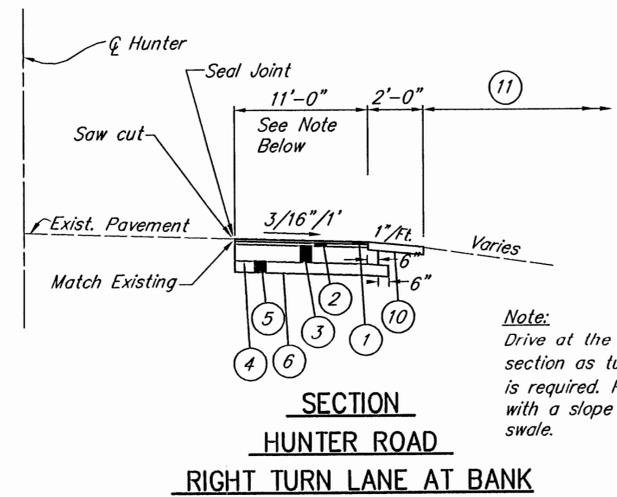
Job No. 95099sd Date 11/30/95 Drawn By GEM, RMS

TYPICAL SECTIONS

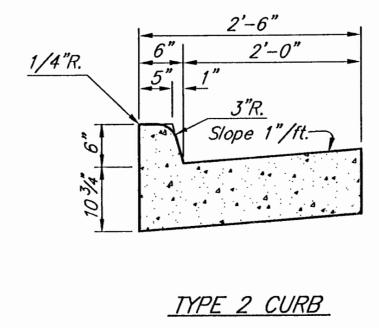
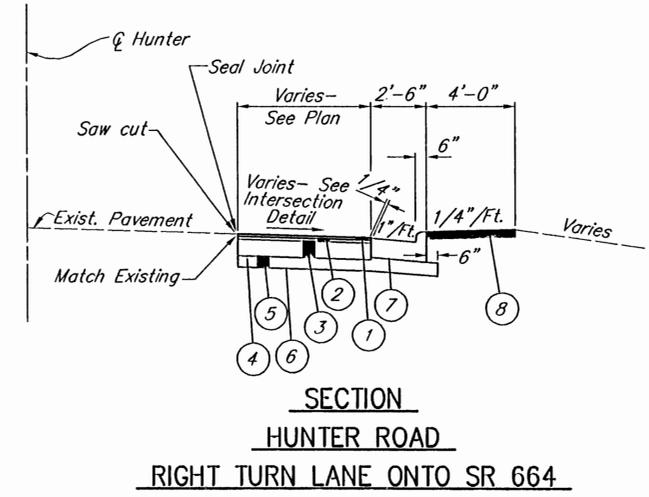


- ITEM LEGEND**
- ① 404 1 1/4" Asphalt Concrete, AC-20
 - ② 402 1 3/4" Asphalt Concrete, AC-20
 - ③ 301 8" Bituminous Aggregate Base, AC-20
 - ④ 408 Bituminous Prime Coat, (0.40 Gal./S.Y.)
 - ⑤ 304 6" Aggregate Base
 - ⑥ 203 Subgrade Compaction
 - ⑦ 609 Type 2 Curb and Gutter
 - ⑧ 608 4" Concrete Walk (Where Shown on Plans)
 - ⑨ 605 6" Underdrains (Where Shown on Plans)
 - ⑩ 411 4" Stabilized Crushed Aggregate Berm, Limestone
 - ⑪ 659 Fertilizer, seeding and mulching

Seal edges/joints in accordance with ODOT 401.15. All costs shall be included in the unit price bid for Asphalt Concrete, ODOT 404. No separate payment will be made.



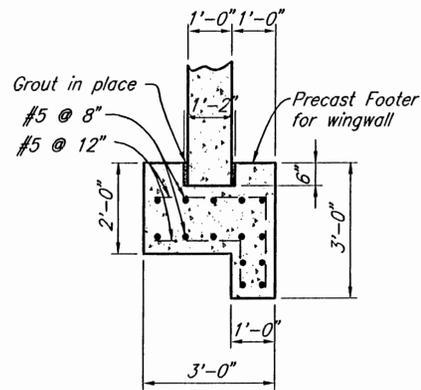
Note:
Drive at the bank shall have the same section as turn lane, except that no berm is required. Pavement width shall be 24 foot with a slope of 3/16" per foot to drainage swale.



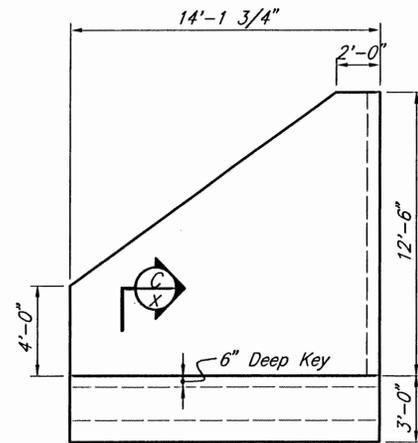
95099 TYP Job No. 95099 Date 11/30/95 Drawn By HM RMS

DATE	9/95
REVIEWED	
DRAWN	HM
DESIGNED	HEW
CHECKED	
JOB NO.	95099

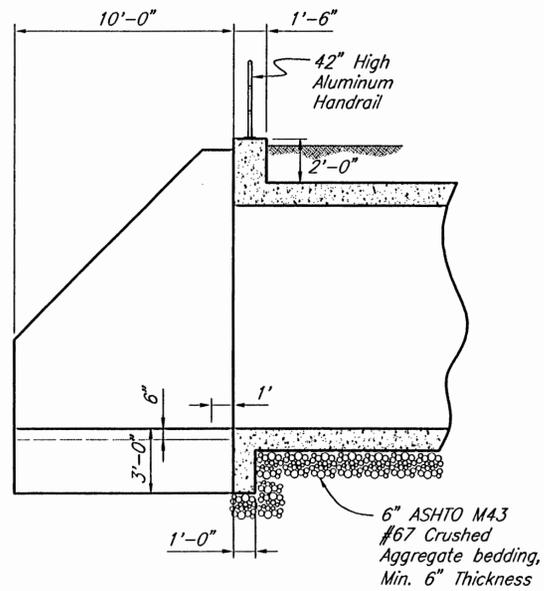
95099CUL
 Job No. 95099 Date 11/30/95 Drawn By GEW RMS



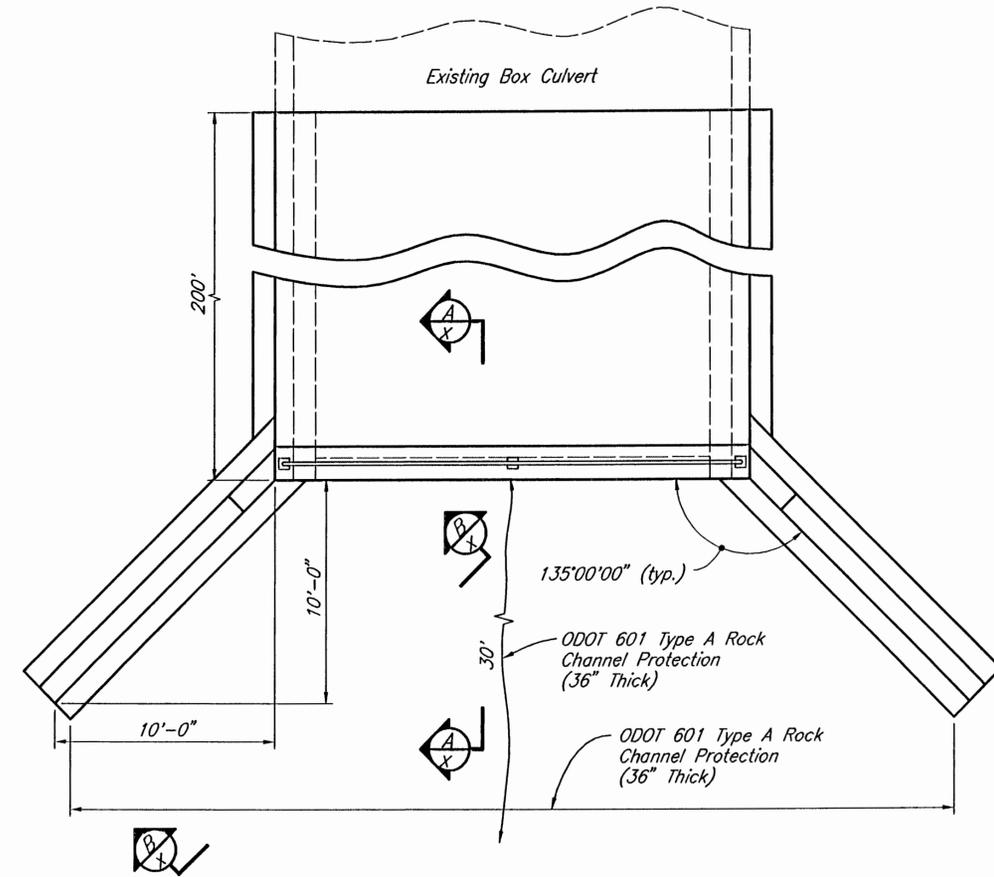
SECTION C-C
 Scale : 1/2" = 1'-0"



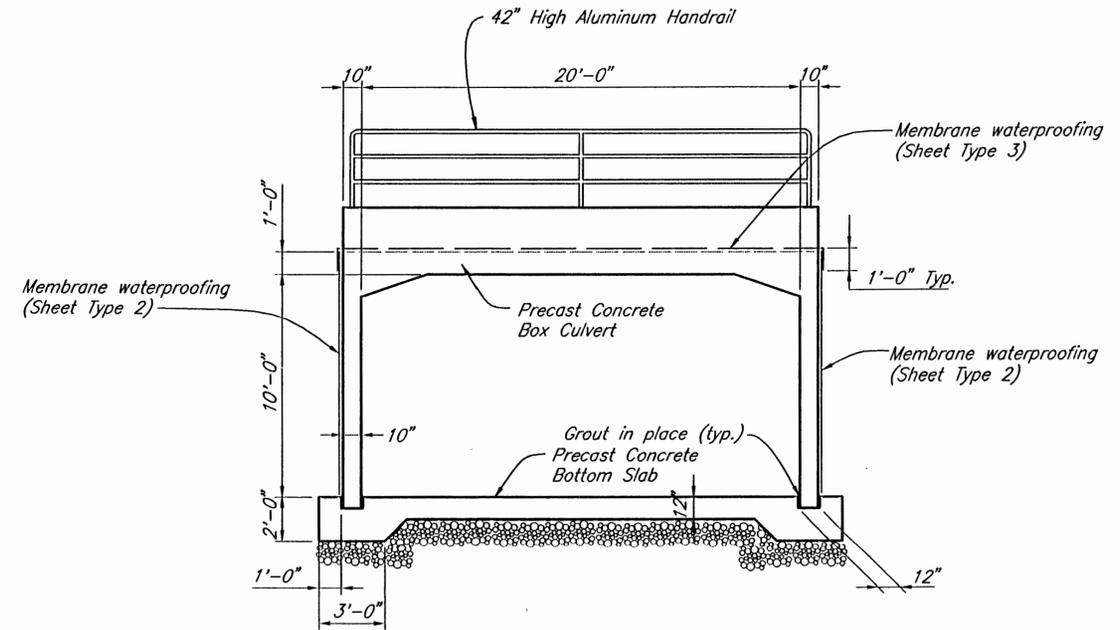
SECTION B-B
 Scale : 1/4" = 1'-0"



SECTION A-A
 Scale : 1/4" = 1'-0"



TYPICAL CULVERT DETAIL - PLAN
 Scale : 1/4" = 1'-0"

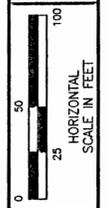


TYPICAL CULVERT DETAIL - ELEVATION
 Scale : 1/4" = 1'-0"

DATE	10/5/95
DESIGNED	HEW
CHECKED	
DRAWN	GEW
REVIEWED	
JOB NO.	95099

CULVERT EXTENSION DETAILS

REALIGNMENT OF
 S.R. 664 AT HUNTER RD.
 CITY OF LOGAN, OHIO



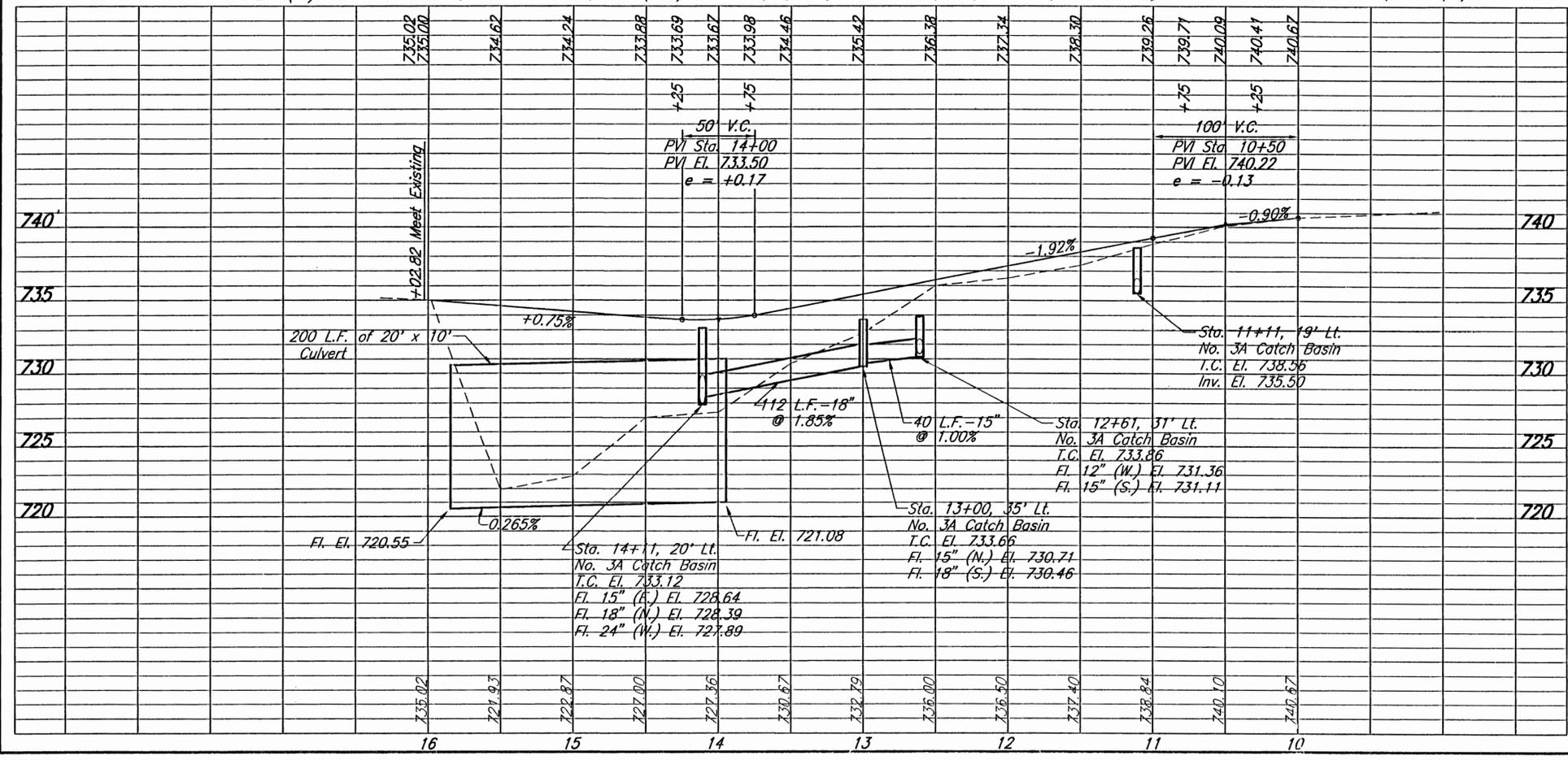
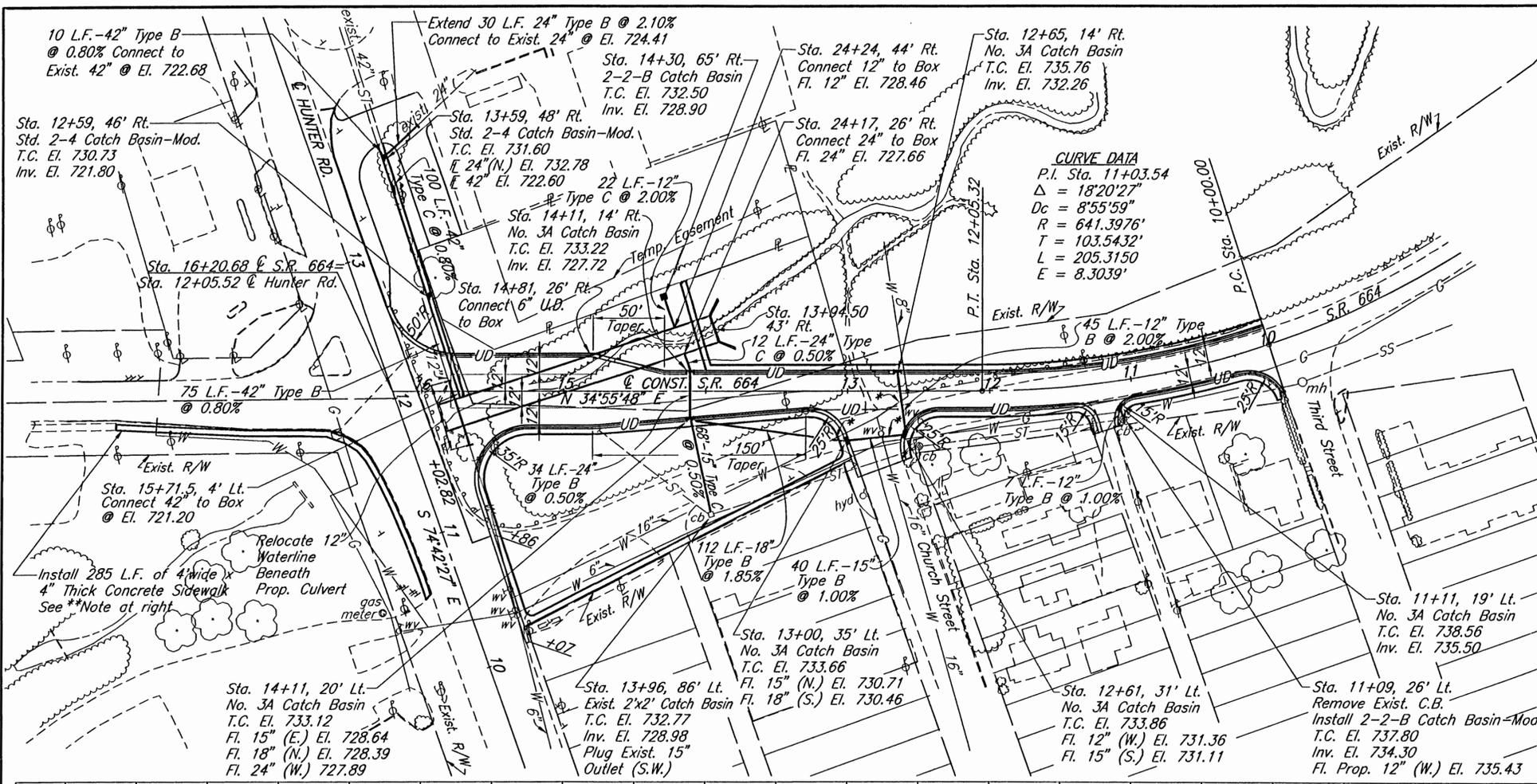
CALCULATED
CHECKED

PLAN AND PROFILE
STA. 10+00 TO STA. 16+00

REALIGNMENT OF
S.R. 664 AT HUNTER RD.
CITY OF LOGAN, OHIO

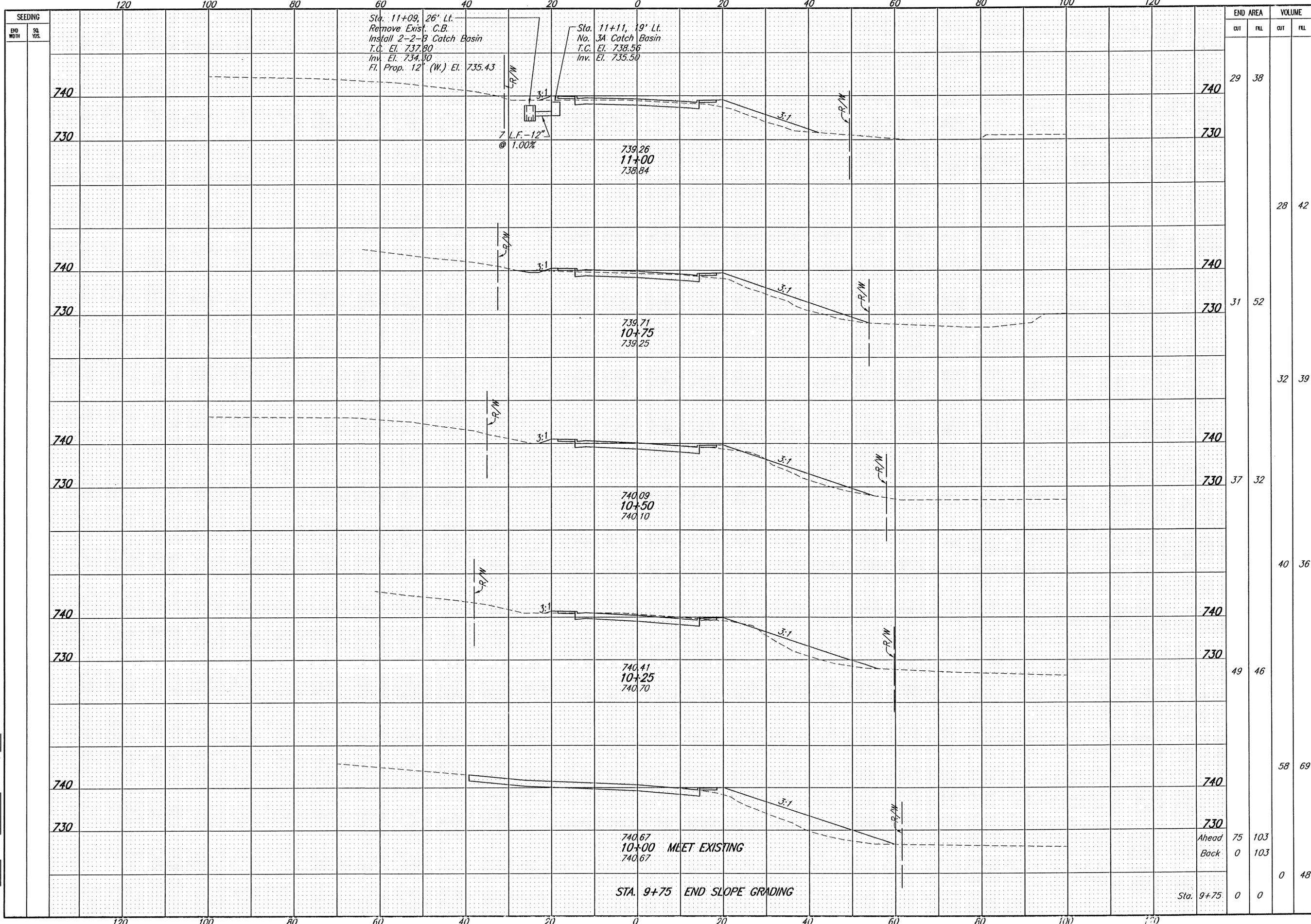
***NOTE:** Contractor Shall Uncover Existing Water Lines At Locations Indicated With An Asterisk Prior To Construction Of The Proposed Storm Sewer. Any Grade Conflicts Shall Immediately Be Brought To The Attention Of Owner/Engineer.

****NOTE:** Contractor shall install 285 lin. ft. of 4' wide x 4" thick concrete sidewalk, adjacent to the top of curb and edge of pavement at the location shown. All costs involved in the sidewalk installation, including additional embankment, excavation and grading shall be included in the unit prices bid for 4" Thick Concrete Walk.

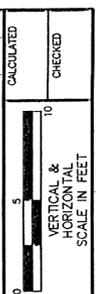


Job No. 95099PP Date 11/30/95 Drawn By BS,SB,HN

95099XS
 Job No. 95099 Date 12/01/95 Drawn By KH-SB-HN



STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
11+00	29	38		
10+75			28	42
10+50			31	52
10+25			32	39
10+00			37	32
9+75			40	36
9+50			49	46
9+25			58	69
9+00	75	103	0	103
8+75	0	0	0	48

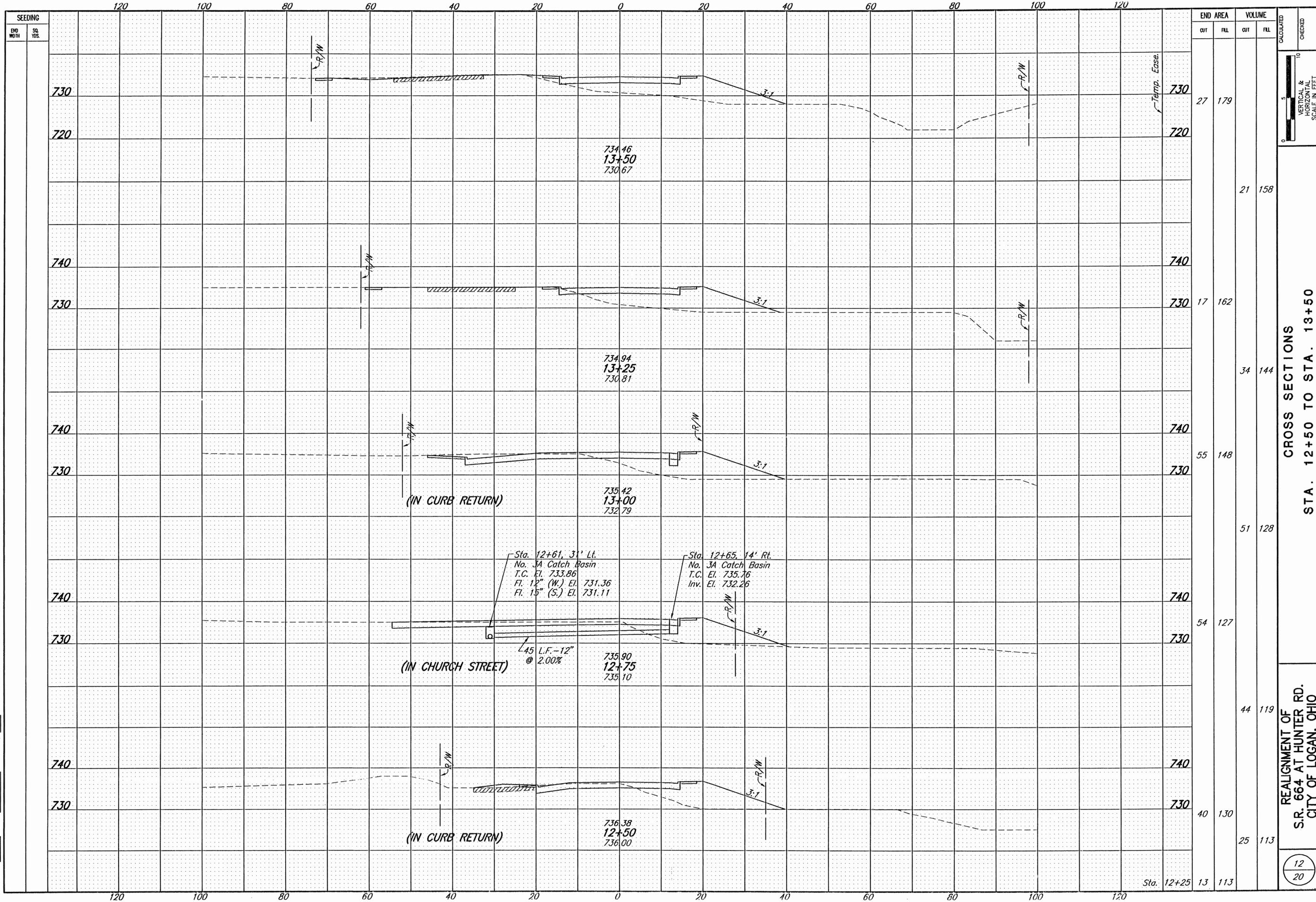


CROSS SECTIONS
STA. 10+00 TO STA. 11+00

REALIGNMENT OF
S.R. 664 AT HUNTER RD.
CITY OF LOGAN, OHIO



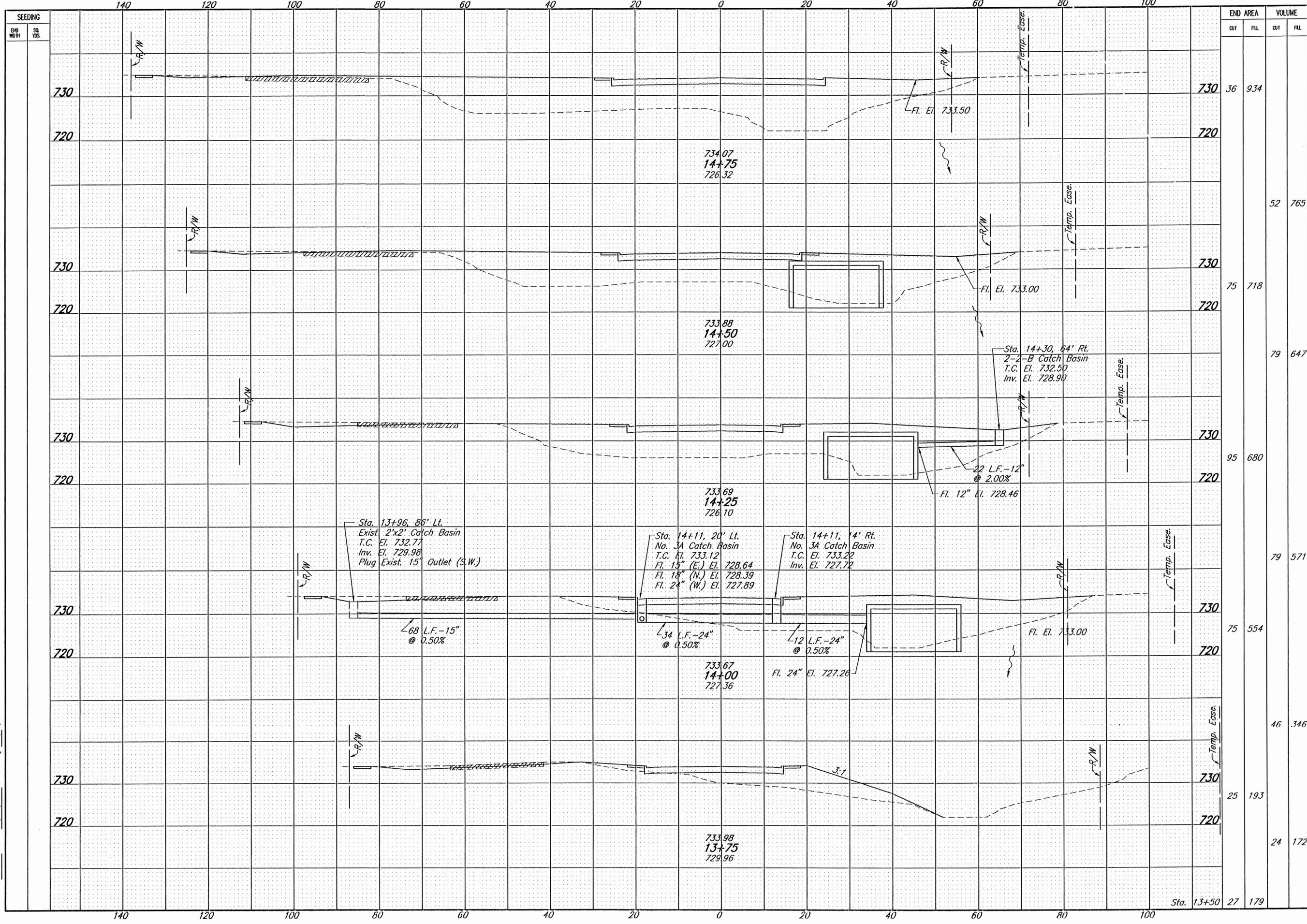
95099XS
 Job No. 95089 Date 12/03/95 Drawn By KHSB/HN



END STA.	END AREA		VOLUME		CALCULATED	CHECKED
	CUT	FILL	CUT	FILL		
730	27	179				
720			21	158		
740						
730	17	162				
740			34	144		
730						
740			55	148		
730						
740			51	128		
730						
740			54	127		
730						
740			44	119		
730						
740			40	130		
730			25	113		
Sta. 12+25	13	113				

CROSS SECTIONS
 STA. 12+50 TO STA. 13+50
 REALIGNMENT OF
 S.R. 664 AT HUNTER RD.
 CITY OF LOGAN, OHIO

950099XS
 Job No. 950099 Date 12/04/95 Drawn By KH,SB,HW



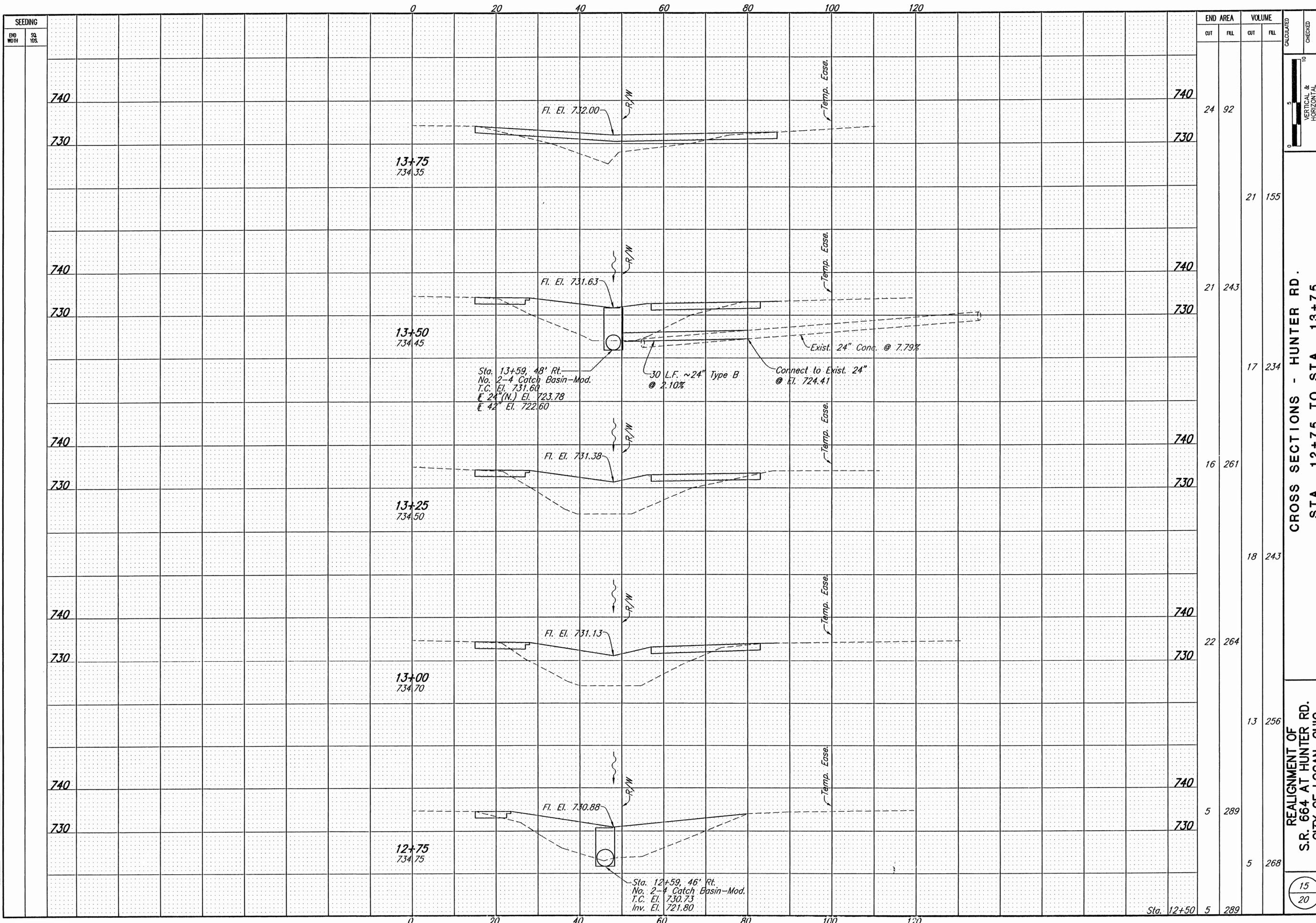
STATION	END AREA		VOLUME	
	CUT	FILL	CUT	FILL
13+50	27	179	24	172
720	25	193	46	346
730	75	554	79	571
720	95	680	79	647
730	75	718	52	765
720	36	934		
730				



CROSS SECTIONS
 STA. 13+75 TO STA. 14+75

REALIGNMENT OF
 000-000-000
 CITY OF LOGAN, OHIO

95098KS2
 Job No. 95099 Date 12/04/95 Drawn By B.S.H.N



STATION	END AREA		VOLUME		CALCULATED	CHECKED
	CUT	FILL	CUT	FILL		
12+50	5	289	5	268		
13+00	13	256				
13+25	18	243				
13+50	17	234				
13+75	21	243				
13+75	21	155				
13+75	24	92				

REALIGNMENT OF
 S.R. 664 AT HUNTER RD.
 CITY OF LOGAN, OHIO
 CROSS SECTIONS - HUNTER RD.
 STA. 12+75 TO STA. 13+75



15
20

GENERAL NOTES

TRAFFIC SIGNALIZATION

CALCULATED
/S
CHECKED

GENERAL NOTES
TRAFFIC SIGNALIZATION

REALIGNMENT OF
S.R. 664 AT HUNTER RD.
CITY OF LOGAN, OHIO

GENERAL

All traffic signal equipment, controllers and installation shall be in accordance with the State of Ohio Department of Transportation (ODOT) "Construction and Materials Specifications", latest edition and revisions, and as supplemented by the following additional specifications.

STANDARD DRAWINGS

Unless otherwise shown on the plans, all work shall be in conformance with the applicable Standard Construction Drawings as listed on the Title Sheet.

POWER SERVICE FOR TRAFFIC SIGNAL

Electric power for traffic signal shall be obtained from the Ohio Company at the approximate location shown on the Plan. The voltage supplied shall be 120 volts, single phase, 60 Hz (AEP). The Contractor will be responsible for obtaining all permits and coordinating power service requirements with the power supplying company.

SUBMITTALS

Contractor shall submit traffic signal equipment documents to the Logan City Engineer in accordance with Item 625.04, Working Drawings, except that only three (3) sets are required for this project.

REMOVAL OF TRAFFIC SIGNAL INSTALLATION

When no longer needed and after the new traffic signal system is in operation, the Contractor shall remove the existing signal installation in accordance with the requirements of 632.25. All removed equipment shall be stored within the work limits of the project, accessible to vehicles for loading and ready for pick-up by Logan City Maintenance Forces. It shall also be the Contractor's responsibility to protect the existing traffic signal installation during the entire construction period. In the event that a temporary support or power service is needed, the necessary material, labor and equipment shall be provided by the Contractor. Cost of Electric Power and signal maintenance components will be provided by the City of Logan. The cost for maintaining and removal of the existing traffic signal installation shall be paid for under Item No. 45 Signalization.

ITEM 633 - TRAFFIC SIGNAL CONTROLLER

CONTROLLER

The controller shall be actuated, eight-phase solid state digital microprocessor as per approved plan. The controller unit shall contain built-in equipment for both internal time based coordination and external hardware coordination. In addition, the controller unit shall provide for four overlap circuits.

The overlap programming shall be by use of an interchangeable plug-in printed circuit board assembly as described in PART 14 of TS-1, 1983. In addition to NEMA requirements, the conflict monitor shall have extended monitoring in accordance with 733.04 PART 3B.

All controller memories shall be involatile and shall not require batteries or other sources of energy to retain data while power is removed for the controller.

CABINET

The controller cabinet shall be keyed to the STATE MASTER. The cabinet shall be a ground mounted TYPE "P" cabinet of aluminum finish. Cabinet size shall comply to the requirements of NEMA TS-1 Section 14. Cabinet shall be oriented with respect to the intersection in a manner that will provide maintenance personnel with a view of the intersection while working on the controller. Printed circuit board type back panels of the control or cabinet will not be acceptable. Soldered connections will be permitted for wiring on the back side of the back panel. The cabinet shall be prewired to allow for expansion to Eight Phases.

ITEM 632 - TRAFFIC SIGNAL EQUIPMENT

LOOP DETECTOR UNIT

In addition to the requirements of 632 and 732.07 or 732.0, loop detector units shall have the following requirements or features:

1. The output device shall be a relay, and all contacts shall be included in the wiring harness.
2. The unit shall be self tuning.
3. The unit's electrical connection plugs or wiring harness shall allow ready replacement with single channel amplifiers as described in the final paragraph of 732.04.
4. Delay inhibit shall be connected on all detector harnesses for their respective phase greens.
5. Loop detector units shall be the delay and extension type, as per plan.

WIRING

A minimum of five conductor signal circuit shall be provided for each phase.

SIGNAL HEADS

Conventional cast aluminum, 732.01 glass lens.

STRAIN POLE

Strain poles shall be as per Standard Drawing TC-81.10, Design No. 8 and 10 of two-ply steel tapered tubes in accordance with the requirements of 732.12. Individual anchor bolt-on cover bases shall be furnished and installed.

UNDERDRAINS FOR PULL BOXES

Reference is made to Standard Drawing HL-30.11 for details of draining pull boxes. Underdrains for pull boxes shall be used as directed by the Engineer and shall be provided where the length required for other satisfactory outlet exceeds approximately 20 feet.

COORDINATOR UNIT

In the General Summary the following quantities have been provided to drain pull boxes when so directed by the Engineer:

Item 603 4" Conduit, Type D 100 L.F.

ITEM 633-A - GUARANTEE

The Contractor shall guarantee that the traffic control system installed as part of this contract shall operate satisfactorily for a period of 90 days following completion of the 10-day performance test. In the event of unsatisfactory operation, the Contractor shall correct faulty installations, make repairs, and replace defective parts with new parts of equal or better quality. Equipment, material and labor costs incurred in correcting an unsatisfactory operation shall be borne by the Contractor.

The guarantee shall cover the following items of the traffic control system: controllers and associated equipment, detector units, interconnection items, and master control equipment.

Customary manufacturers' guarantees for the foregoing items shall be hand carried or delivered by mail to the Logan City Engineer following acceptance of the equipment.

GENERAL SUMMARY TRAFFIC SIGNALIZATION

GENERAL SUMMARY					SHEET NO.
O. D. O. T. ITEM NO.	ITEM EXTENSION	TOTAL	UNIT	DESCRIPTION	
<i>TRAFFIC SIGNALS</i>					
603		100	LIN. FT.	4-INCH CONDUIT, TYPE D	19
625		130	LIN. FT.	CONDUIT 1", 713.04	19
625		495	LIN. FT.	CONDUIT 1 1/2", 713.04 OR 713.07	19
625		280	LIN. FT.	CONDUIT 2", 713.04 OR 713.07	19
625		60	LIN. FT.	CONDUIT, JACKED OR DRILLED UNDER PAVEMENT, 3"	19
625		110	LIN. FT.	CONDUIT 3", 713.04 OR 713.07	19
625		970	LIN. FT.	TRENCH	19
625		6	EACH	PULL BOX, 713.08, 18"	19
625		1	EACH	PULL BOX, 713.08, 24"	19
625		3	EACH	GROUND ROD	19
632		2	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 1 WAY	19
632		2	EACH	VEHICULAR SIGNAL HEAD, 3 SECTION, 12" LENS, 2 WAY	19
632		1	EACH	VEHICULAR SIGNAL HEAD, 5-12"/5-12" AND 3-12", 3 WAY	19
632		1	EACH	VEHICULAR SIGNAL HEAD, 5-12" AND 3-12", 2 WAY	19
632		12	EACH	COVERING OF VEHICULAR SIGNAL HEADS	19
632		10	EACH	LOOP DETECTOR UNIT, DELAY AND EXTENSION TYPE	19
632		752	LIN. FT.	LOOP DETECTOR PAVEMENT CUTTING	19
632		117	LIN. FT.	MESSANGER WIRE, 7 STRAND 7/16" DIAMETER WITH ACCESSORIES	19
632		263	LIN. FT.	SIGNAL CABLE, 5 CONDUCTOR, NO. 14 AWG	19
632		442	LIN. FT.	SIGNAL CABLE, 7 CONDUCTOR, NO. 14 AWG	19
632		2004	LIN. FT.	LOOP DETECTOR WIRE, TYPE E	19
632		1752	LIN. FT.	LOOP DETECTOR LEAD-IN CABLE	19
632		30	LIN. FT.	POWER CABLE, 3 CONDUCTOR NO. 6 AWG	19
632		1	EACH	POWER SERVICE	19
632		4	EACH	CABLE SUPPORT ASSEMBLY	19
632		1	EACH	CONDUIT RISER, 1 1/4" DIAMETER	19
632		3.70	CU. YD.	CONCRETE FOR ANCHOR BASE FOUNDATION	19
632		1	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 8, 30	20
632		1	EACH	STRAIN POLE, TYPE TC-81.10, DESIGN 10, 30, AS PER PLAN	20
632		1	EACH	REMOVAL OF EXISTING TRAFFIC SIGNAL INSTALLATION	19
633		1	EACH	CONTROLLER, ACTUATED, 8 PHASE, SOLID STATE DIGITAL, MICROPROCESSOR, AS PER PLAN	19
633		1.85	CU. YD.	CONDUIT RISER, 1 1/4" DIAMETER	19
633		10	SQ. FT.	CONTROLLER WORK PAD	19

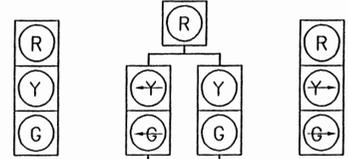
Job No. 950990S Date 12/1/95 Drawn By SAM, SB, RMS

GENERAL SUMMARY
TRAFFIC SIGNALIZATION

REALIGNMENT OF
S.R. 664 AT HUNTER RD.
CITY OF LOGAN, OHIO

CALCULATED
CHECKED

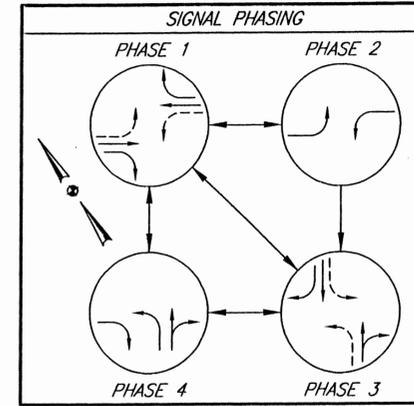
SIGNAL FACE DISPLAY



- Signals 3, 7
11, 12
13, 14
- Signals 1 & 2
5 & 6
9 & 10
- Signals 4, 8

Install Tunnel Visors
On Signals 3 & 7

Install Tunnel Visors
On Signals 4 & 8



LEGEND

- Span Wire Support
- Signal Head, Std. 3-Section
- Signal Head, Std. 5-Section 1-Way
- 2"~713.04 Conduit
- 3"~713.04 Conduit, Pushed
- Pull Box
- Controller Cabinet
- Service Pole
- Loop Detectors

LOOP DETECTOR REQUIREMENTS						
Detector No.	Size Width x Length	No. of Turns	No. of Amplifiers	Detector Function	Extension Delay (Sec.)	Associated Phase
D-1A	6' x 6'	3	1	Pulse		1
D-1B	6' x 6'	3	1	Pulse		1
D-1C	6' x 6'	3	1	Pulse		1
D-1D	8' x 10'	3	1	Pulse		1
D-2A	6' x 30'	2	1	Presence		2
D-2B	6' x 30'	2	1	Presence		2
D-3A	8' x 8'	3	1	Pulse		4
D-3B	6' x 20'	2	1	Presence		4
D-3C	8' x 12'	2	1	Presence		4
D-3D	6' x 30'	2	1	Presence		3
D-3E	6' x 25'	2	1	Presence		3
D-3F	10' x 18'	2	1	Presence		3
D-3G	8' x 8'	3	1	Pulse		3

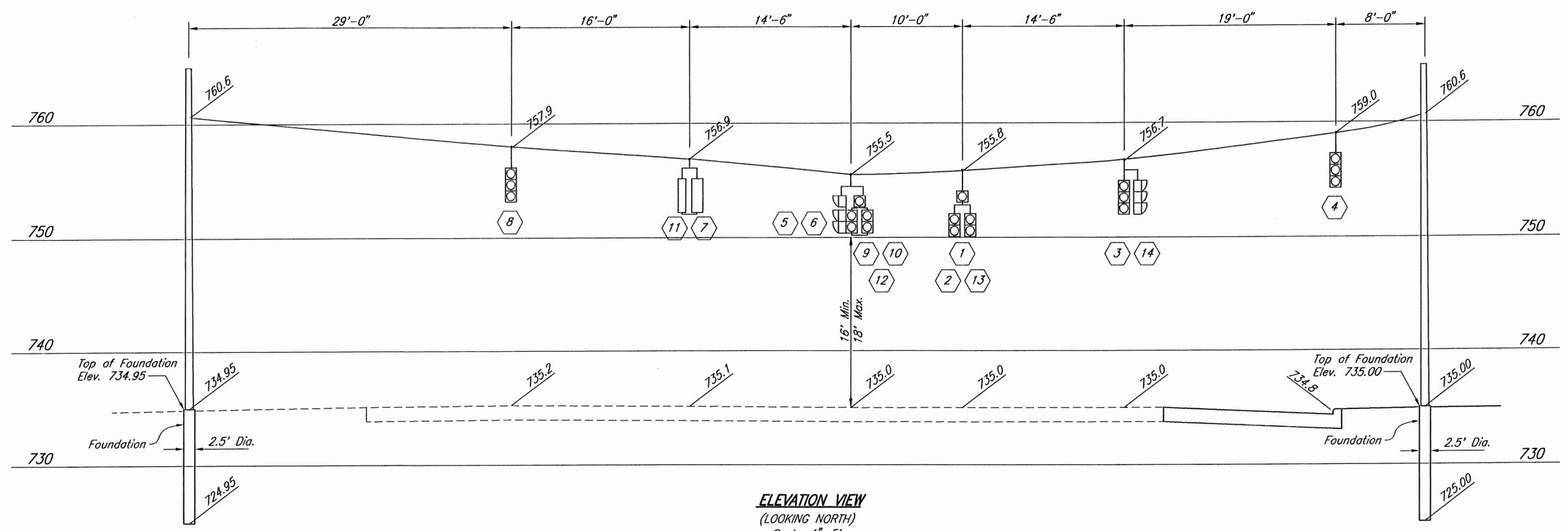
PHASE IN OPERATION	SIGNAL TIMING				NORTH APPROACH								SOUTH APPROACH				EAST APPROACH				WEST APPROACH				MEM	RECALL
	INITIAL	EXTEND	MAX. %		9	10	11	12	13	14	5	6	7	8	1	2	3	4	1	2	3	4				
1	20	4	32	.29	OUT	R	R	R	R	R	OUT	G	G	G->	OUT	G	G	G->	ON	ON						
1 Clear to 2	5	1 AR		.054	OUT	R	R	R	R	R	OUT	Y/R	Y/R	Y->	OUT	Y/R	Y/R	G->	OFF	OFF						
2	8	4	16	.144	OUT	R	R	R	R	R	<-G	R	R	R	<-G	R	R	G->	OFF	OFF						
2 Clear to 3	4.5	1 AR		.05	OUT	R	R	R	R	R	<-Y	R	R	R	<-Y	R	R	Y->	ON	OFF						
3	12	4	24	.216	OUT	G	G	G	G	G	OUT	R	R	R	OUT	R	R	OUT	ON	OFF						
3 Clear to 4	5	1 AR		.054	OUT	G	G	Y/R	Y/R	Y/R	OUT	R	R	R	OUT	R	R	OUT	ON	OFF						
4	8	4	16	.144	<-G	G	G	R	R	R	OUT	R	R	R	OUT	R	R	G->	OFF	OFF						
4 Clear to 1	4.5	1 AR		.05	<-Y	Y/R	Y/R	R	R	R	OUT	R	R	R	OUT	R	R	Y->								
Flashing					OUT	FR	FR	FR	FR	FR	OUT	FY	FY	OUT	OUT	FY	FY	OUT								

AR = All Red

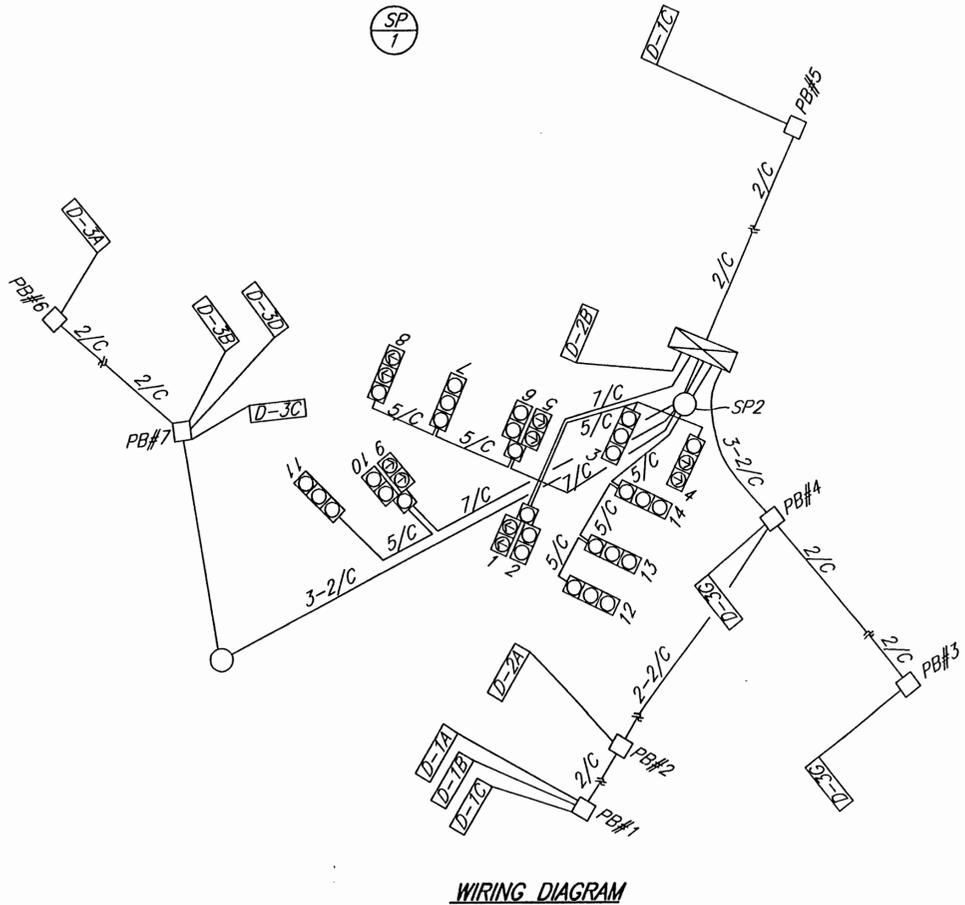
TRAFFIC SIGNAL PLAN

REALIGNMENT OF S.R. 664 AT HUNTER RD. CITY OF LOGAN, OHIO

Job No. 95099 TSP Date 11/30/95 Drawn By SE_RMS



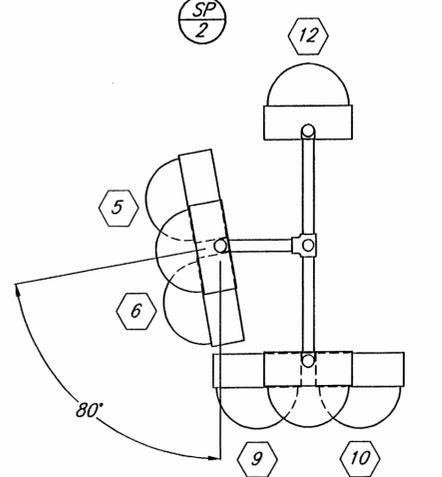
ELEVATION VIEW
(LOOKING NORTH)
Scale: 1"=5'



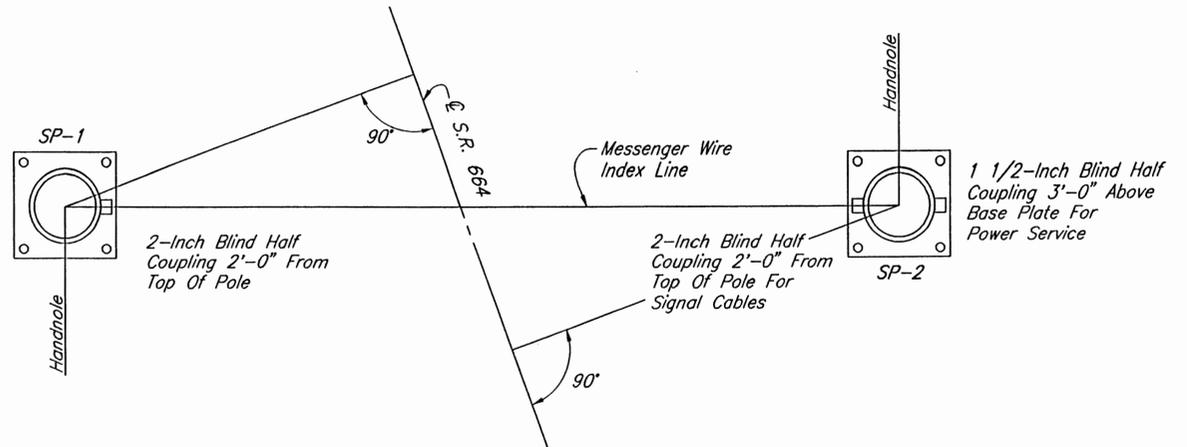
WIRING DIAGRAM

STRAIN POLE CHART
TYPE TC-81.10

POLE NO.	POLE LOCATION STATION AND OFFSET FROM ϕ	POLE DESIGN NO.	POLE HEIGHT FT.	INDEX LINE ANGLE DEG.	HANDHOLE DEG.	POWER SERVICE FROM INDEX LINE	SIGNAL CABLE IN.	POLE RAKE	TOP OF POLE FOUNDATION	POLE FOUNDATION MINIMUM DIMENSIONS	
										Ht.	Dia.
SP-1	16+44, 61' Lt.	10	28	340°	90°	N.A.	0'	1.97	734.95	10	2.5
SP-2	16+02, 43' Rt.	8	28	340°	90°	180°	0'	2.17	735.00	10	2.5



THREE WAY SIGNAL HEAD DETAIL



CADD6 DRAWING NO= 664CARD1

THIS IS #01951L ROTATED INTO
#41941L USING:

#01951L POINT NO.1089-OLD #89 SET TO
#41941L POINT NO.333 COORD.
AND WAS ROTATED IN S4 INTO
#41941L BY AN ANGLE OF + 151628"

REVISED: 01/25/96 @ 12:30
REVISED: 05/20/96 @ 11:36 - NEW CL ADDED



SCALE: 1" = 40'

